CHAPTER 1

INTRODUCTION AND BACKGROUND

1.0 Area Of Investigation

Language acquisition is the process by which language develops in humans. First language acquisition concerns the development of language in children from birth[1]. This is a study of the acquisition of Shona morphology by three children. The development of morphology in children acquiring Shona as a first language is explored. The manner in which children acquire grammatical morphemes (GMs) and the strategies they adopt in learning a system of Shona morphology are the focus of this study.

Language acquisition is one of the major developments that every normal child goes through. Klein (1986:3) gives exceptions on either physiological (e.g deafness) or social grounds (e.g wild children[2]), but without these a child with a normal development can communicate freely by the time she goes to school. In this study three normal children are used as participants. The details of the three children are given later under methodology.

Morphology is described by Katamba (1993:3) as the study of the internal structure of words[3]. Haspelmath (2002:2) qualifies Katamba's definition of morphology because "words have internal structure in two very different senses." The word is made up of

[1] Slobin 1985/1992 proposes that all parts of all languages are acquired before the child turns four.
[2] The case of Genie, a girl who began to learn her first language after puberty reported by Curtiss (1977) cited in Elliot (1981:26) is one such case of a thorough study of a wild child.
[3] Word, according to Bauer (1988:257) is a superordinate form for grammatical word, lexeme and word-form.

sequences of sounds. According to Haspelmath (ibid) words have internal phonological and morphological structure. Morphology therefore is concerned with constituents of words, that is, morphemes. Haspelmath (2002:3) defines morphology as the study of the combination of morphemes to yield words.

This study focuses on the internal morphological structure of words that are produced by children who are acquiring Shona as a first language. Within the word, this study specifically focuses on grammatical morphemes. Grammatical morphemes according to Crystal (1991:223) are used to express grammatical relationships between a word and its context such as plurality or tense; that is; the inflections on words. The study focuses on grammatical morphemes (GMs) because in Shona, GMs are the basis of its rich morphology. This study describes and explains the development of the Shona GMs in CLA. For the purposes of this study GMs are inflections that are attached to the nouns, verbs and other substantives, otherwise known as prefixes[4]. A detailed description of the Shona GMs is offered in Chapter 3.

In order to achieve the goal of describing and explaining the development of Shona GMs, the following research questions are used:

(a). What can children in the age range of 2; 4[5]-3; 3 years produce in terms of Shona GMs (noun prefixes (plural/singular), subject, tense, aspect, negative and agreement markers?)

[4] See Fortune 1955,/1980/ 1984, and Mashiri and Warinda 1999.
[5] 2; 4 represents two years and four months.

(b). What strategies do children adopt when learning a system of Shona nouns that mark plurality using different inflecting affixes depending on the class of the noun and verbs that mark tense, negation, possession and aspect etc?

The acquisition of morphology is a topic that has received much attention from scholars of child language acquisition[6]. The studies of morphological acquisition have been carried out in various languages of the world such as English, Hebrew, Italian, Sotho, Quiche, Estonian to mention a few. Such studies are not restricted to first language acquisition but also to second language acquisition. There are scholars who have studied the acquisition of morphological markers by second language learners, such as Bailey, Madden and Krashen (1974) and Wode (1977).

Child language acquisition is an area, which attracts attention from disciplines such as psychology, education, linguistics and communication disorders. This results in different approaches to this subject matter because of the different backgrounds of the scholars involved. It is therefore important to mention that the concern of this study with child language acquisition as a subject matter is strictly linguistic, though matters raised in it may be of interest to the other disciplines mentioned.

Although this study is a morphological one, the interaction of morphology with phonology, syntax and semantics cannot be overlooked. In terms of the interaction with

[6] (See Berko (1958), Cazden (1968), Anisfeld and Tucker (1968), Brown (1973), de Villiers and de Villiers (1978), MacWhinney (1975, 1978), Bates (1979), Kunene (1979), Suzman (1980), Demuth (1983) and Connelly (1984).)

phonology, the selection of the form that manifests a given morpheme may be influenced by the phonological sounds that influence neighbouring morphemes. As regards the interaction with syntax, the form of a word may be affected by the syntactic construction in which the word occurs. Semantics also plays a role, since it determines the morpheme that is used in a particular context.

1.1 Significance of the Study

One of the aims of this research is to contribute to the literature on CLA of Shona in general and acquisition of morphology in particular. The period of six months data gathering and three participants, allowed the researcher to gather a representative amount of data, that can be used to gain insight about the acquisition of Shona grammatical morphemes.

Secondly the number of children (three) used as participants for this study afforded the researcher the opportunity to determine general features of acquisition of Shona grammatical morphemes and also provided adequate data for this study. Moreso, the use of the researcher's own daughter allowed the researcher to watch closely the development of the grammatical morphemes, because she interacted with her daughter on a daily basis. This means that the researcher had a participant to follow closely in terms of the development of grammatical markers. From the findings of this study one can gain insights about how children acquire Shona grammatical markers.

Thirdly, the work could be valuable to those interested in Shona morphology per ser. The study offers discussions of some aspects of Shona morphology, for instance the definition of GMs in general and the description of the Shona GMs attached to nouns, verbs and other substantives is offered (see Chapter 3). Since Shona belongs to the Bantu family of languages, this study contributes towards an understanding of acquisition of morphology of Bantu languages in general since the research has been done in that area. Fourthly, the corpus of data collected for this study can serve as a database on the acquisition of Shona in general and morphology in particular. Moreso, it can contribute to the designing of a theory of acquisition of Bantu languages, or may be used to infer whether patterns of morphological acquisition are similar in Bantu languages. So far studies done in SeSotho, SiSwati, SeTswana and IsiZulu indicate a similar developmental path in the acquisition of noun prefixes. The list of the three children's utterances produced during the period of observation is attached at the end of this thesis (see Appendix 1, 2 and 3). This data can also be compared to CLA studies of other languages for better understanding of universal strategies and processes of CLA. The data can also be reanalysed to suit other researcher's goals, infact, the data can be manipulated in various ways African Language Research Institute (ALRI) might also benefit from this corpus of data and any research in morphology.

Finally, this study is of importance in the field of child language handicap, for instance, speech correctionists might use it as a reference in assisting or facilitating language rehabilitation. This is because this study offers a discussion on the GMs that the child first acquires, a sign that they are less difficult for the child, and those that are acquired

later, an indication that they are more difficult for the child. This study like any other studies on child language acquisition serves as a way in which humans can learn more about themselves.

1.2 Methodology

The section on methodology offers a description of the three children who are participants of this study, how the data was collected, and the theoretical framework used for data analysis.

1.2.1 The Children

This is a cross-sectional study of three children over a six-month period. The three children are Tatenda Hazangwi 2;4, AnnaLois Sibanda 2;6 and Tafadzwa Kurotwi 2;9. AnnaLois is the daughter of the researcher. The three children are cousins. Three children have been chosen because that it is a number the researcher could handle, given the constraints of recording time and the resources available. Three is considered to be the absolute minimum necessary for one to make generalisations on language acquisition. Braine (1963), Bloom (1970) and Brown (1973) use three children in their longitudinal studies. Ingram (1989:21) states that;

> … if one child is chosen, we do not know if the child is typical or not; if two we do not know which of the two is typical and which is unusual; with three, we at least have a majority that can be used to make such a decision.

The choice of the above age range is influenced mostly by the suggested stages of acquisition by Stern (1924), Nice (1925) and Brown (1973). In their stages of acquisition these scholars are in agreement as to when morphological markers begin to occur, that is during the multiword stage, which begins around the age of two.

The three children were selected since they share common characteristics, for instance, they all come from urban families, stay in low-density areas, are females and have almost similar socio-economic status. They are the only children in their families, and live with both parents and a maid. Although these three children are acquiring Shona as a first language, they are not immune to contact with English. This is evident in the data in the appendix, which reveals that the children also use English words. The choice of female participants only was because they are the ones who where accessible to the researcher.

Tatenda is the daughter of the researcher's sister, she was first taped when she was two years and four months (2; 4). She is the youngest participant for this study. She was active and liked to talk (not as much as the other two), but her speech was a bit unclear during the familiarisation sessions. She was recorded for twelve sessions.

AnnaLois is the daughter of the researcher and she was two years and six months (2; 6) when she was first taped. She talked a lot. Since she is the researcher's daughter it was easy for the researcher to note any new morphological developments. She was recorded for twelve sessions.

Tafadzwa is the eldest of the three subjects in this study she was two years and nine months (2; 9) when she was first recorded. She is the daughter of the researcher's sister. She was recorded for a total of eleven weeks the researcher missed the twelfth session since Tafadzwa had gone for a holiday with her family.

Table 1: Summary of the background of the children in the study

Name of Child	Sex	Age	Family Members	Home Location
Tatenda	Female	2; 4 -2; 10	Both parents and a maid	Avonlea
AnnaLois	Female	2; 6 -3; 0	Both parents and a maid	Mabelreign
Tafadzwa	Female	2; 9 -3; 3	Both parents and a maid	Marlborough

1.2.2 Data Gathering

This study primarily uses the naturalistic approach. The data was gathered through observing and recording the spontaneous speech of the three children.

The period of data gathering, six months, was considered to be adequate to gather a representative corpus of data on the acquisition of GMs, since three children were observed. Each child was recorded for twelve weeks except for Tafadzwa who was recorded for eleven weeks.

1.2.3 Audio-Recording

The children's utterances were audio-recorded using a high quality audio tape recorder and low noise tapes in order to capture the children's utterances clearly. The recording

sessions were held at fortnightly intervals over a period of six months[7]. Each recording session lasted twenty to thirty minutes. The recordings took place at each of the three children's homes where the children typically engaged in verbal communication with members of their family. The recording of data in natural environments (in children's own homes) enables the children to communicate freely.

The three children were familiar with the researcher since she is an aunt to Tatenda and Tafadzwa and mother of AnnaLois. This made them comfortable with her presence. Of prime concern was getting the children accustomed to the presence of recording equipment, mainly during the first two sessions of recording. However, the children quickly adjusted to the presence of the equipment.

1.2.4 Method of Analysis

The analysis of the collected data was done by breaking down children's words in order to separate morphemes, because the morpheme is the focus of this study. A morpheme is the smallest meaning-bearing element of a linguistic expression. The meaning of morphemes can either be abstract or concrete. Morphemes with abstract meanings are difficult to define, for instance the morpheme /–al/ in words such as *mathematical* and *logical*. Morphemes with concrete meanings are, however, easy to define. Morphemes are the ultimate elements of morphological analysis making them morphological atoms. Hudson (1984:43) refers to the breaking down of words into morphemes as a morphological analysis. The different GMs identified from the children's speech are classified according to the lexemes they are attached to, that is, nouns or verbs. This

[7] There are twelve recording sessions for each child except for Tafadzwa who has eleven.

enabled the researcher to identify patterns emerging from the children's data. Slobin's (1984) framework of analysis is used for data analysis in this research. Slobin developed principles of CLA that came to be known as Slobin's Operating Principles (OPs). According to Slobin (ibid) these principles can be applied universally. The researcher did not use all of Slobin's OPs since not all of them are relevant to the acquisition of morphology. A detailed discussion of Slobin's OPs is offered in Chapter 2.

1.3 Organisation of the Thesis

There are four subsequent chapters to this thesis. The chapter that follows the current one is Chapter 2 which gives a review of the relevant literature on the acquisition of child language in general and of morphology in particular. The stages of acquisition and theoretical approaches that are used in the field of CLA are also discussed. A discussion of literature on studies that have been done in various languages concludes this chapter.

Chapter 3 provides an overview of Shona grammatical morphemes. This chapter serves as background to the data analysis offered in Chapter 4. The chapter discusses the adult grammatical morphemes that act as the norm in the analysis of the children's data.

Chapter 4 offers an analysis of the data gathered from the three children in this study. It mainly focuses on the morphological development of the Shona GMs in child language. The children's words are grouped according to their morphological characteristics and analysed according to these characterisations. The last chapter gives a summary of the thesis as a whole.

CHAPTER 2

REVIEW OF SELECTED WORKS

2.0 INTRODUCTION

This chapter provides a review of the relevant literature on the acquisition of child language in general and of morphology in particular. First, a brief historical overview of the various methodological approaches used in the field of child language acquisition (CLA) will be given. This is done in order to highlight the various approaches that can be used in this type of study and to justify the approach chosen in this study.

A brief review of the stages of acquisition that have been put forward in literature will be given. The review of the stages of acquisition is crucial since it will justify the stages of grammatical development and ages of children chosen for this study.

Some theoretical approaches used in this field other than the one chosen for this study are discussed. The discussion is offered as a way of justifying the theoretical approach chosen in this study.

Lastly, a critical review of the literature on the acquisition of morphology in English, SeTswana, IsiZulu, SiSwati, SeSotho, Italian, Hindi and other languages will be given. This review of the various literature on CLA of morphology from other languages will sensitise the researcher to the approaches that are relevant to the field of CLA of morphology, and to show how the studies cited contribute to the development and growth

of this work. Furthermore, a review of literature on the acquisition of morphology will show how this work fills a gap in the studies of CLA in Shona.

2.1 A Historical Review of the Methodological Approaches Used In CLA

2.1.1 Parental Diary Method

The parental diary method is the first methodological approach that is discussed in this section. This method of collecting data was used during the 1876-1926 period. This was one of the first methods used in child language acquisition (CLA). During this period a linguist or psychologist, who also happened to be a parent would keep a diary of the developments of his/her child's learning of a language. These diaries were usually kept for a long time. Several aspects of the child's development were often covered in diary studies and sometimes even non-linguistic activities were also recorded.

Since the parent was the observer this method of collecting data emerged to be very effective because the parent was able to note any changes that would occur in the child's development. However this method of collecting data had possibilities of bias, since the parent was the observer, the parent might be tempted to record only what seemed to be important. Another limitation of this method is the lack of recording equipment. Ingram (1989:16) points out that, most language samples were done by someone writing the child's sentences as quickly as possible. This meant that some important facts were missed.

Ingram (1989), in support of the use of diaries, states that the diaries are an indispensable way of gathering data since they can be used as a database in the field. Data from diaries can also be used to supplement newly collected data or used for comparison purposes. A notable number of researchers in the field of CLA used the diary method. Menn (1971) and Ingram (1974)[8] are some of the scholars who used the diary method and found it to be reliable.

2.1.2 Large Sample Studies

The large sample studies are the second method of collecting data. The approach used during the large sample studies period was different from that of parental diary. The period of large sample studies 1926-1957 was characterized by collecting data from a large number of subjects. Whilst the parental diaries tend to be longitudinal studies, (that is studies of single children and their changes over a long time), the large sample studies tend to be cross-sectional (that is studies of different children at distinct ages). In this approach data is gathered systematically. For instance, all subjects are observed for the same amount of time and for the same behaviour. Subjects for study are carefully selected. For example, children who shared certain characteristics, such as socio-economic background or age were chosen. The collected samples were of the same size for each child.

As in the diary studies, this approach of collecting data, was not complemented by the use of recording equipment probably there was no recording equipment during the period

[8] Stern (1907), Holmes (1927), Leopold (1939,1947), Lewis (1936), Velten (1943), Smith (1973) also used the diary method of collecting data.

in question (Ingram 1989:16). Researchers lacked linguistic sophistication. They focused on vocabulary, sentence length and speech sounds only, without taking into consideration rules that govern the language that the child is acquiring, since these rules are at the core of CLA studies. Another weakness that arises out of theoretical orientation of the researchers was the focus on grouped data, rather than on the patterns of individual children. The focus on grouped data usually made it difficult to identify units that interact with each other in language.

Though this approach of study had weaknesses it could not be disregarded totally since it also had strengths. One strength of the large sample studies is that it provided normative data, which in turn can be helpful to other researchers in identifying the typical child. Speech therapists and clinical phonologists can find this data useful in identifying children with speech disorders. Another strength of large sample studies is that researchers know where to begin from in the study of a particular topic. For example, if one wishes to study the acquisition of morphology, the large sample studies can tell us what ages will be most fruitful for that study. The other advantage of the large samples over the single child is that with large numbers of children one is able to establish the norm.

2.1.3 Longitudinal Language Sampling

The longitudinal language sampling dates back to 1957 to the present day. Unlike the diary method, the subjects for this method were not offsprings of the investigators. Subjects were visited at predetermined intervals for a “reasonable” length of time, with

the purpose of collecting a representative sample (Ingram 1989:21). In the longitudinal language sampling three children are considered to be the absolute minimum necessary to determine general features of acquisition.

The three major periods of child language studies discussed here differed in their methodological and theoretical orientation. The diary and large samples studies explained language acquisition from the behaviourist viewpoint. Researchers were interested in observable behaviours.[9] Skinner (1957) is the proponent of language as behaviour. According to Skinner all behaviour is learned or operant. Skinner cited in Owens (1988:28) described language as a set of use or functional units. Traditional linguistic units such as morphological and syntactic forms are irrelevant according to Skinners views. Skinners views language as something we do, the "how" of language use takes precedence over the "what" of language form. Language then as behaviour (verbal behaviour) is modified by the environment or "reinforced" through the mediation of other persons (Skinner 1957:14). According to Skinner's behavioural theory, parents provide positive or negative reinforcement. Negative reinforcement is administered in cases where a child produces *magumbo* and is encouraged to say *makumbo* 'legs'. In cases where the child produces *makumbo* positive reinforcement is given. However many scholars have criticized this since children are known to imitate structures that suit their level of development. Studies have also shown that parents rarely reinforce their children's language. As is apparent from this brief account, Skinner asserts very little innate behaviour in language acquisition. Thus linguists in the longitudinal language

[9] Smith (1933), McCarthy (1954), Templin (1957) and others observed regularities in language behaviour that they accepted as evidence of underlying language knowledge.

sampling who emphasized the hierarchical complexity of language attacked this point of view prevalent during the two periods under discussion heavily. Nonetheless the behavioural explanation of language development should not be dismissed entirely. According to Owens (1988:31) behaviours identified by Skinner and other operant psychologists have proven very useful in language training. Today structured behavioural techniques provide a basis for most remedial programs used with children with delayed or disordered speech.

Whilst the diary and large sample studies had the behaviourist approach the researchers during the longitudinal language-sampling period employed the nativist theoretical approach because they regarded language as innate, that is, as part of the genetic program a child is born with. Chomsky expressed a completely different position from the behaviourists, which is referred to as nativism. The nativists view language as an extremely rich and complex system, with two levels of representation, that is, the deep and the surface structure. The deep or underlying structure is mapped onto the surface structure through transformational rules. There are universal principles of language, which can not only apply to every human language but also determine the form of any human language. Nativists argue that these universal principles are innate. Chomsky has strongly argued for the hypothesis that children have innate, language-specific abilities that facilitate and constrain language learning. Chomsky refers to this innateness as a language acquisition device (LAD). The LAD allows the child to process the rules of any language that the child is exposed to. The collection of these universal principles, which determine the form of any humanly possible language, is referred to as Universal

Grammar (UG). Historically, theories and theorists may have emphasized either nature (what is inborn) or nurture (what is learned) as the most important explanatory factor for acquisition. However, most researchers acknowledge the importance of both biology and environment.

In this study the cross-sectional language sampling method is used. This method was chosen because of it's potential to bring out a representative set of data of the acquisition of Shona grammatical morphemes. Also, since three children are observed in this study the researcher can use the results to determine general features of acquisition of Shona morphology. This study explains language acquisition from the nativist point of view, using Slobin's theoretical framework of Operating Principles.

2.2 Review of Stages of Language Acquisition

A review of stages of acquisition is motivated by the fact that most scholars differ in terms of the age at which children begin to use grammatical morphemes in particular and other linguistic elements in general. Since this study's focus is on the acquisition of grammatical morphemes a review of stages of acquisition will help to justify the ages that are chosen in this study. Debate on the stage at which grammatical morphemes begin to emerge is prompted by the fact that, unlike phonological sounds that tend to occur very early in the development of language, grammatical morphemes occur later. Grammatical morphemes tend to occur later because they have abstract meaning. It is therefore important to clearly justify the age of the children at which this researcher began to observe the grammatical morphemes. Moreso, if the data is to be used for reference, the

stages are significant, as they will be used to determine universality of the occurrence of these grammatical morphemes.

The stages of language acquisition outline skills that should occur at a particular age level. These, however, do not occur at the same time for every child; there are variations that occur from one child to another. Language acquisition is not haphazard but it follows a pattern and this pattern is referred to as stages. Cantwell and Baker (1987) point out that, the stages of acquisition are not completely discontinuous steps in development marked by clear divisions but they overlap. These various stages of language acquisition give a time frame or a period in which a particular linguistic behaviour occurs. In other words, the stages are a chronology of the linguistic activities in children acquiring a first language. The knowledge of the stages of development is important for speech therapists and even parents.

Language acquisition begins very early in the human lifespan, and begins with the acquisition of a language's sound patterns. The main linguistic accomplishments during the first year of life are the control of the speech musculature and sensitivity to the phonetic distinctions used in the parent's language. In actual fact, some scholars postulate that perception of speech sounds develop even before birth. Stern and Stern (1907) cited in Ingram (1989:38) call this period the preliminary stage of language acquisition. As the name suggests this is a period that comes before the child can utter actual sounds. Finegan (1999:552) calls it the babbling stage in which the child is practicing the sounds, intonations and rhythms of language.

Shortly before their first birthday, children begin to understand and start to produce words (Ingram 1989; Clark 1993). At this stage words are usually produced in isolation, this one-word stage can last from two months to a year (Nice 1925; Brown 1973). The words at this stage are usually content words like “mama”, “doggie” or action words such as “eat” and “sit”. There is lack of function words. These one-word utterances are sometimes referred to as holophrases since the child expresses meaning of an entire phrase, clause, or sentence in one word. The holophrases are ambiguous from the perspective of the adult. The child who says *kaka* ‘milk’, for instance, may be requesting, announcing or reporting. However this ambiguity is lessened by the social and situational context.

Around eighteen months language changes in two ways. Vocabulary growth increases; the child begins to learn words faster, and will keep on learning new words through adolescence (Clark 1993; Pinker 1984). At this juncture primitive syntax begins, with two-word strings such as *all wet, I sit, papa away, mommy juice,* these two-word strings do not have inflections and functional words. de Villiers and de Villiers (1978:69) call it the telegraphic speech, while Nice (1925) calls it the early sentence stage though the differences in terminology does not have any theoretical implications. There are no theoretical implications in the two terms. At this stage, children design so-called pivot grammars. This means that the child has a preference for certain words as the pivotal words, implementing a variety of other words at different points in time to create phrases. This stage shows the accomplishments made by the child because it shows an

understanding of language semantics; not only words but also context, and the difference between action words and objects.

Sometime between ages two and three, multi-word sentences begin to emerge. The age range of the subjects in this study falls within this stage. This is because it is the appropriate stage where children begin to produce multi-word sentences. At first the children use content words, often strung together in ungrammatical order e.g. “mommy juice drink” probably meaning “mommy get me some juice to drink”. The multi-word sentences lack function words. At this point it is clear that the child understands word order and context. Brown(1973) states that the multi-word utterances have two properties, that is, they show the consistent use of word order and the sentences reveal a basic set of the ten semantic relations such as Agent + Action or Action + Object just to mention a few. Brown (1973:205), noted that although the three children he studied intensively never produced a sentence as complicated as *Mother gave John lunch in the kitchen*, they did produce strings containing all of it’s components, and in the correct order.

Gradually through practice, around three years, children begin to master morphology of language and start adding affixes such as “-ing” such that *Mommy walk* becomes *Mommy walking.* Function words also begin to emerge and are used to string together grammatically correct sentences such as *Mommy is walking.* Eventually, around three and a half to four years, children master syntax, so that *Daddy grandma phone talk* becomes

Daddy is talking to grandma. Brown describes this as the active development of sentence, noun phrase and verb phrase coordination with the use of conjunctions.

Around two and a half to three and a half years, children's language blooms into fluent grammatical conversation so rapidly that it overwhelms researchers, and no one has worked out the exact sequence. Sentence length increases steadily and because grammar is a combinatorial system, the number of syntactic types increases exponentially, doubling every month (Brown 1973; Limber 1973; Pinker 1984; Ingram 1989). It is therefore, safe to say that except for constructions that are rare, predominantly used in written language, or mentally taxing even to an adult, all parts of all languages are acquired before the child turns four (Slobin 1985/1992).

2.3 An Overview of the Theories of Morphological Acquisition

In this section, a review of two models of morphological acquisition will be given. This is done in order to sensitise the researcher to other theoretical frameworks used for the analysis of acquisition of morphology.

Two models to be discussed here are MacWhinney (1978) and Pinker (1984). MacWhinney and Pinker have made a major attempt to provide a model of how children identify and process grammatical morphemes. This is a major development in the area of child language acquisition (CLA) of morphology, taking into consideration the fact that much of the theoretical discussion on morphological acquisition has been done by identifying the factors at work. The two models have been chosen because they have

great influence in the way scholars carry out their investigations of the acquisition of morphology. Again they have been widely referred to in many studies of CLA of morphology, for example, Demuth (1983) and Connelly (1984). MacWhinney's ideas have been fully used in Slobin's work in framing the operating principles (OP). Since this study is using the OP from Slobin it is worth referring to MacWhinney's model since it is the basis of Slobin's OP's which are used as the framework in this study.

2.3.1 MacWhinney's Dialectic Model

MacWhinney's model deals with the major issues required for a model of morphological acquisition. He refers to this approach as the dialectic model. It is composed of three major aspects, which are application, correction and acquisition. This presents the child's acquisition process as being cyclical as shown in the figure below;

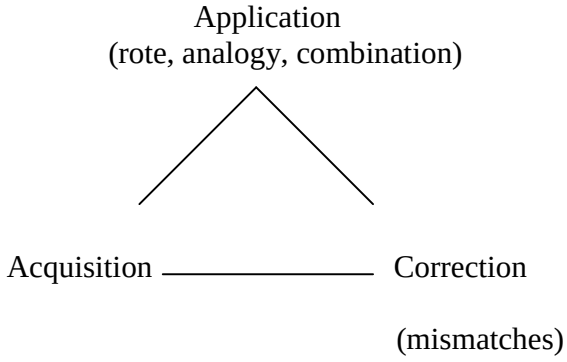

FIGURE 1: Cyclic order of application, correction and acquisition

These three principles will operate in the child's perception and production of language. The first principle of MacWhinney's dialectic model is the aspect of application.

Application here refers to the child's first step in the process of using and/or acquiring grammatical morphemes. It is either "expressive" or "receptive" depending on the child's activity. In reception, the aim is to understand the semantic and syntactic recurring of a morpheme. On the other hand, in expression and production the goal is to retrieve the morphemes and use them. For example, a word like *"dogs"* may initially be stored as a holistic unit. Then it will be separated into two parts, *"dog"* and *"-s'*, but the use of *"-s"* will be restricted by analogy to a few similar words such as *"cat" "mat*", and *"bat"*. Later, combination of the two morphemes will result through the use of a general rule.

An important phase of a child's application according to MacWhinney's model is how the child proceeds from one strategy to another. In acquiring morphemes the child should be able to apply the strategy for segmenting morphemes. After segmenting she should place them into one of the three categories: (i) words, (ii) affixes, and (iii) roots. A child might place the word "dogs" in the word category without segmenting it. Then later on "dog" will be put in the root category and "s" in the affix category. Ingram (ibid: 500) states that some possible errors may occur during acquisition, for example, the child may consider "dogs" as a word and this may result in taking "s" and add it to "dogs" creating "dogs" and "s'. To go around this potential error MacWhinney proposes that the child has a process of affix checking.

Since the application phase of MacWhinney's model only provides the child with the ability to segment words into classes, potential errors of words like "*foots*" are not catered for. This is where the correction and acquisition phases operate.

MacWhinney gives two phases that supplement the application phase. The application phase on its own cannot complete acquisition and correction, as discussed above one can note that the application phase only provides the child with the ability to segment words into classes. In linguistics this is not sufficient for the child to acquire rules or avoid potential errors. This brings in the other two phases of MacWhinney's model that is correction and acquisition.

MacWhinney's correction phase predicts that the correction occurs when mismatch takes place in the perception or production of a morphological combination. MacWhinney gives four types of mismatches or disequilibrated pairs. These disequilibrated pairs draw the child's attention to the fact that there is a potential error in his/her system. The four mismatches that can possibly occur in perceiving or producing a morphological combination are listed below as given by MacWhinney.

- Self-corrections: The child overgeneralizes a rule when the correct rule is available within the system, e.g. child says 'wifes' and then corrects to produce 'wives'.
- Semantic mismatches in production: The child express an incomplete meaning, e.g. saying 'dog' to mean 'dogs'.
- Semantic mismatches in reception: The child hears something said which does not communicate the complete meaning intended, e.g. hearing 'dogs' and only recognizing 'dog', yet seeing two 'dogs' in the context.

- Auto-instruction: A productive combination becomes a role item, and elicits adults' corrections, e.g. saying 'foots' and being corrected to say 'feet'.

A major criticism leveled against these four types of mismatches is that MacWhinney does not give an explanation of how these kinds of mismatches lead to correct acquisition, nor what mechanisms underlie each. The first mismatch implies self-monitoring of production in relation to the child's current competence. This mechanism might not work positively if the child's competence is incorrect, since the child would wrongly mark an incorrect production as correct. Here the competence and performance of the child does not match up to this mechanism, more so considering the fact that the child is in a learning process. The second mismatch is also difficult to follow since there is a problem of delimiting how the child knows what it wants to express exists within the language being acquired, for example, a child acquiring English might produce '*foots'* innocently without the knowledge of 'feet'. On semantic mismatches in reception MacWhinney does not give information on how the child segments and identify speeches and seek meaning for them. MacWhinney acknowledges that with the fourth mismatch the child will resist such corrections.

Acquisition is the last phase given by MacWhinney. According to Ingram (1989: 501) acquisition occurs when a child uses a form and no mismatch results. The three strategies of rote, analogy, and combination will compete for the way the form will be stored. Rote will constantly attempt to override analogy and combination. MacWhinney gives five potential cycles that form can follow in being applied, corrected and acquired as cited in

Ingram (ibid: 501). In Cycle I that MacWhinney calls amalgams, the child looks for forms to express the meanings of its semantic system. A child will acquire a form that she hears that appears to express a particular meaning, as an unanalyzed whole. This seems to occur in response to mismatch two and three discussed above. It actually attempts to fill the gap, in the two mismatches mentioned.

For example, a child may wish to say *'cats'*, but only have *'cat'* in her vocabulary. If the child hears '*cats*', she will identify it as a single form that expresses the plural of *'cat'* and is stored as such.

Cycle 2 involves the identification of allomorphs. Here the child identifies the meaning of an affix and then discovers that there is another affix with the same meaning. The more the child uses these allomorphs, correct usage will strengthen the rule being acquired, and mismatches weaken it.

Cycles 3 and 4 discuss the manner in which the child forms a rule to use allomorphs. Ingram (1989:50) distinguishes between general and minor rules. According to Ingram, a general rule is one, which will apply to most forms that have the required phonological shape. A minor rule is one, which only applies to a small class of words. Cycles 3 and 4 then help the child to determine through the examination of mismatches whether a rule is general or minor.

In the last cycle MacWhinney states that when general and minor rules in cycles 3 and 4 are not adequate to capture the morphological patterns in the language, the child resorts to lexical principles, that is, she memorizes that certain morphemes are used with certain classes.

Although MacWhinney's model has received criticisms for lack of specifics at several points, he managed to deal with the major issues required for a model of morphological acquisition. This is evidenced by the fact that Slobin adopted most of MacWhinney's ideas in drafting his OP's that are referred to by most researchers in the area of CLA of morphology.

2.3.2 Pinker's Model for the Acquisition of Morphology

Pinker (1984) provides another account of morphological acquisition from a slightly different perspective. This approach is almost similar to MacWhinney's dialectic model. The main notion of the theory is that the child constructs implicational tables of grammatical morphemes. The grammatical morphemes are also called 'paradigms'. The theory predicts that the child begins to establish word-specific paradigms. This is claimed to be universal, that is, the order in which all children acquire the morphology of a language. For example, Pinker states that the child begins acquiring grammatical morphemes by acquiring the stem and affix as a complete unit. An example of a paradigm is the verb 'walk'. In the progressive tense the child will acquire it as 'walking' whilst in the past tense it will be acquired as 'walked'. In this step there is no segmentation of the verb, it is acquired as one word, the child uses word-based rules.

The second step that Pinker's theory predicts is the formation of general paradigms and word structure templates. The theory here predicts that the child abstracts away from the individual paradigms and creates general paradigms in which individual grammatical morphemes are entered. According to this prediction it means that a child has to scan the words in the word-specific paradigms and separate out the stems and affixes. It then follows that a word structure template is a prerequisite and therefore a child has to set it up. The paradigm of the verb 'walk' given above will show as follows: the stem 'walk' and the affixes '-ing'; '-s' and '-ed'. The word structure template will consist of [stem + affix]. At this stage a child is able to segment words and will succeed with the use of a word - template.

MacWhinney and Pinker's models are the most extensive attempts to explain in more detail how morphological patterns develop in CLA. Together they have identified much of what has to be accounted for in the acquisition of morphology. However none of the two models has been used in this study since l have chosen to use Slobin's Operating Principles as my theoretical framework. Slobin made full use of MacWhinney's and Pinker's ideas in framing the Operating Principles.

2.3.3 Slobin's Operating Principles

The analysis of the data in this study is done in the cross-cultural and cross-linguistic framework derived from Slobin's work and that of scholars associated with him namely Peters, Pinker and MacWhinney. Slobin did a cross-cultural and cross-linguistic study of forty (40) different languages from fourteen (14) major language families (Slobin

1979:106). Slobin proposes a set of procedures for the construction of language that are based on these forty languages. The term "Operating Principles" (OPs) is used to refer to these "procedures" or "strategies". Peters and MacWhinney's ideas are not used more widely in this study because Slobin fully incorporated them in framing the OPs.

Slobin (1985:1158) believes that a child builds up language because of the 'mental equipment responsible for the child's linguistic achievements.' This is referred to as the LANGUAGE-MAKING CAPACITY (LMC) of the child. This LMC is similar to Chomsky's LAD ('Language Acquisition Device') and Ervin-Tripp's LAS ('Language Acquisition System'). The LMC is responsible for triggering the initial procedures for perceiving, storing, analysing and interpreting utterances. Chomsky's LAD, Ervin-Tripp's LAS, and Slobin's LMC all refer to the inborn capacity to acquire language. All these scholars are nativists or rationalists who differ from the behaviourists who assert very little innate behaviour in language acquisition.

The basic assumption which underlies Slobin's OPs is that 'certain linguistic forms are more "accessible" or more "salient" to the child than others. The OPs are the ones that guide a child in beginning to construct a grammar, that is, "a system of combinational principles according to which particular linear placements of meaningful words and grammatical morphemes results in utterances with regularly predictable propositional meanings and pragmatics force" (Slobin 1985:1160). This is referred to as "Basic Child Grammar."

Slobin (1985: 58) characterises OPs as;

> '…. necessary prerequisites for the perception, analysis, and use of language in ways that will lead to the mastery of any particular input language.'

According to Slobin OPs must exist prior to a child's experience of language and lead the child in constructing 'Basic Child Grammar'. For a child to acquire a language she must have the Operating Principles fundamental. After the child has acquired a basic grammar she moves on to acquire the actual language she is learning. This is because the child would have "gathered more information about the peculiarities of the input language, new OPs are brought into play, and the growing body of linguistic data influences the shape of grammar beyond the basic phase" Slobin (1985:1160). The child masters the rules of a particular language and these regulate acquisition.

Slobin postulates two types of OPs:

i. those, which convert speech input into stored data, which the child will be able to use in constructing language.

ii. those, which are used to organise stored data into linguistic systems.

The first type of OPs are called perceptual and storage filters whilst the second type are pattern makers. The perceptual and storage filters type of OPs are described by Peters (1983) whilst Slobin explores the pattern makers. According to Slobin pattern makers systematise stored data into morpheme classes and patterns of morpheme placement in

meaningful utterances. This study then will mostly refer to the second type of OPs (pattern makers) because of their relevance to the subject matter of this study.

The following section examines the OPs that are relevant to the acquisition of GMs and hypotheses that are derived from the OPs.

2.3.3.1 OPs and hypotheses in the acquisition of Shona GMs.

The OPs and hypotheses derived from them that are described here are those that the researcher judged to be the ones that are relevant to the children's acquisition of GMs in Shona. As already mentioned, Slobin grouped the OPs into two types namely (i) the perceptual and storage filters and (ii) the pattern makers.

2.3.3.1.1 Filters for primary perception and storage of input.

According to Slobin (1985) the OPs for primary perception and storage input are responsible for converting speech input into grammatical output, which is stored as data that the child will be able to use in constructing language. The OPs for primary perception and storage of input are further grouped into two; (i) attention to speech and (ii) entering and tagging information in storage. The researcher will discuss the latter since they are the ones that are relevant to this study. They are:

1. OP(ATTENTION): END OF UNIT. Pay attention to the last syllable of an extracted speech unit. Store it separately and also in relation to the unit with which it occurs.[10]

2. OP (ATTENTION):BEGINNING OF UNIT. Pay attention to the first

[10] All the OPs that are used in this study are extracted from Slobin (1985:1166-1244).

> syllable of an extracted speech unit. Store it separately and also in relation to the unit with which it occurs.

From these two OPs hypotheses are formulated in relation to Shona data that is in this study.

From the first OP it means that in Shona, in terms of nouns and some substantives, for instance, the child will acquire the lexical morphemes first since, they comprise the 'end of unit' of the Shona noun. On the other hand in terms of the verbs in Shona the child will acquire the lexical morpheme first in the case of unextended verbs or the suffixes in the case of extended verbs[11] (see chapter 3). The second OP implies that the first syllable or unit in Shona nouns (which are noun prefixes) and in verbs (which are verbal inflections such as tense, subject, person, negation markers etc) will be acquired before the lexical morphemes.

These two OPs and hypotheses derived from them are clearly in contradiction to each other. Whilst the first OP and its hypothesis suggest that the lexical morpheme or the suffix will be acquired first the second OP suggests the opposite that the prefix is acquired first. The contradiction is as a result of the salience of both the beginning and end of words. Peters (1983:36) argues that ends like beginnings have particular phonological salience because they are adjacent to silence. The Beginning and End are known to have perception salience in recall than items that are positioned in the middle, (see Kintsch 1977) on adult serial recall and Hagen and Stanovich (1977) on recall work by children. Pye (1980, 1981) cited in Peters (1983:36) in a study of Quiche Mayan

[11] A detailed discussion on the morphology of nouns, substantives and verbs is offered in chapter 3.

argues for the perceptual salience of word-final syllables particularly when they are stressed. Newport (1977) also states that children selectively pick information at the end of words and sentences. Shona is principally a tonal language consequently neither prefixes nor suffixes are consistently stressed but there is evidence from the data in this study that children pay special attention to the end of words. The hypothesis that is appropriate is the first one that I will phrase as;

HYPOTHESIS A: 'lexical morphemes (in nouns and unextended verbs) and suffixes (in extended verbs) are in place before prefixes.

2.3.3.1.2 Pattern Makers

Pattern makers are used to organise stored data into linguistic systems, that is, into morpheme classes and patterns of morpheme placement in meaningful utterances (Slobin 1985:1161). In this study the children used nouns and verbs without grammatical morphemes in the initial stages of data gathering. They used content or lexical morphemes without the grammatical morphemes. The OPs that are discussed here help to account for the manner children place stored data (content morphemes) into linguistic systems. These OPs are discussed as 'semantic space and grammatical morphemes'. The OP is;

3. OP (MAPPING): CONTENT WORDS AND ROUTINES. Try to map extracted speech units onto representations of objects and events- the core referential meanings and pragmatic functions associated with typical activities and interactions. Store units with their meanings.

This OP is functional during the whole period of language acquisition. It begins to be operational before the discovery of grammatical morphemes. This OP reflects the initial assumption by children that all words are content words or holophrases. Later in the development of language this OP is used to interpret newly extracted speech segments as content words.

From this OP we can derive;

HYPOTHESIS B: Substantives and verbs are assumed to be monomorphemes in the initial stages of language development.

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The use of content words leaves Language Making Capacity (LMC) with segments that have not been placed in anywhere. The discovery of unmapped segments paves way for the discovery of grammatical morphemes:

4. OP (MAPPING): FUNCTORS. If a speech segment remains uninterrupted after the establishment of content words and routines, try to map it onto an accessible grammaticisable notion that is relevant to the meaning of adjacent referential units in the situation in which the speech segments occur. If you succeed, store such a nonreferential unit ("functors") with its meaning and its placement in relation to associated linguistic units and their meanings.

Grammaticisable notions are those that can be marked grammatically through grammatical morphemes such as those that mark number, gender and tense to mention a few. Bowerman (1976:10) questioned how, "out of all the cognitive discriminations a

child is potentially capable of making at a given time, some begin to get connected to language and hence to take on semantic significance while others do not.' Slobin (1982:70) states, "No child has to learn to grammatically mark colour, or speed, or degree of physical effort - because these are not grammaticisable notions at all."

From OP 4, we can derive;

HYPOTHESIS C: Noun stems and verb roots as content or lexical morphemes emerge before prefixes (functors).

The fifth OP is in relation to overextension that children make;

5. OP (MAPPING): EXTENSION. If you have discovered the linguistic means to mark a Notion in relation to a word class or configuration, try to mark the Notion on every member of the word class or every instance of the configuration, and try to use the same linguistic means to mark the Notion.

This OP applies to a situation in which the child has already acquired some form of grammatical morphemes and the language being acquired has gaps in which the notion is sometimes not marked. From the fifth OP we can derive the hypothesis;

HYPOTHESIS D: An acquired grammatical morpheme will be overextended to words that are marked by zero prefix and nouns from other classes which are not marked by the plural morpheme /ma-/.

6. OP (MAPPING): AFFIX CHECKING. Do not add an affix to a word or word-stem that appears to contain that affix in the relevant position.

This OP is based on the procedure of affix-checking proposed by Menn and MacWhinney (1983). Affix-checking "looks to see if the marker in question was already present when the form was retrieved from the lexicon." In the case where the marker is already there the rule is blocked and the word is used without any modifications.

The last OP is based on the ability of children to maintain morpheme order in the word;

7. OP (POSITION): INTRAWORD MORPHEME ORDER. Keep the order of morphemes in a word constant across the various environments in which that word can occur.

   HYPOTHESIS E: The order of morphemes is maintained.

The above OPs are the ones that are mainly referred to in the analysis of data in this study however there are some that are not listed here but are mentioned. Children do not follow the sequence of the operating principles that is given here in the development of morphology. The full list of Slobin's OP are listed under APPENDIX 2.

2.4 Review of Literature on the Acquisition of Morphology

This section first reviews the literature on the issues of major concern in studying the acquisition of grammatical morphemes. Second, a critical discussion of selected studies on the acquisition of English morphology and other languages is provided. It is necessary to review these studies since they are related to the current study, and they may help in shading light on the major issues in studies of morphology and might point to potential targets for this research.

Literature reveals that a major issue in studying the acquisition of grammatical morphemes is defining their class. Many studies have discussed grammatical morphemes as a category of grammar. However there is yet to be an agreement to be reached on the issue. The problem of defining grammatical morphemes become apparent by looking at the status of prepositions, which are typically included in the class of grammatical morphemes. Chomsky (1981), however, has a different view and puts them within the category of nouns, verbs and adverbs. He argues that since they can function as heads of constructions, for example, in prepositional phrases it means they can fit into that feature system. No theory has come up with an adequate theory of the possible range of grammatical categories. As a result studies of the acquisition of grammatical morphemes are often theory independent and based upon traditional category labels. In this study the GMs are the morphemes that are prefixed to the Shona nouns, substantives and verbs. These are the units that are referred to as prefixes in traditional[12] Shona grammar.

Another important step in any study of the acquisition of grammatical morphemes is to establish ways in which these grammatical morphemes differ from one another and how the differences interact. Brown (1973) was one of the first to distinguish grammatical morphemes. The first difference that Brown gives as cited in Ingram (1989:437) concerns the effect of perceptual salience, which includes the position of a morpheme in a sentence, and whether it is free or bound (affixed), syllabic or non syllabic, and stressed or unstressed.

[12] See Fortune (1980, 1984) and Doke (1954).

A second possible influence is frequency of occurrence in the parental language. Newport, Gleitman and Gleitman (1977) present data that suggest that children who acquire auxiliary inversion early have parents who direct more questions to them with inverted auxiliaries than do other parents.

A third possible influencing factor of grammatical morphemes is that they differ in semantic complexity. It is argued that certain spatial terms can be semantically simpler than others.

Ingram gives a number of differences between morphemes that can be placed under the category of grammatical complexity. These are (i) redundancy, that is, the extent to which a morpheme is predictable, for example, personal verbs become redundant when a pronoun subject is used; (ii) allomorph[13], that is, the number of allomorphs that occur and (iii) paradigm regularity, for example, regular verb forms vs. irregular ones such as "to be". Though this is not a comparative study, knowledge of these areas of concern is of great advantage.

Berko's 1958 study marked the onset of the modern era of child language studies. Berko carried out an experimental study for a variety of grammatical morphemes which are plural {-s}; possessive {-s}; present {-s}; past {-ed}; progressive {-ing}; agentive {-er}; comparatives {-er}; superlative {-est} and compounds. Berko innovated a technique known as the "wug" procedure in order to study the above morphemes.

[13] Allomorphs are different realizations of the same morpheme under different circumstances e.g. the plural morpheme in English has three realizations i.e. [z], [s] and [iz].

In the procedure she creates nonsense words that are presented by nonsense drawings that ended in sounds that would elicit one of the possible allomorphs. Berko's subjects for this experiment were two groups of children, a preschool group of 19 children who were 4 and 5 years old and 61 children in first grade group of 5 to 7 years old. Berko observed that children acquired single consonant allomorphs, for example, (s), (z), (t) and (d) but not allomorphs with schwa such as (iz) and (əd). This shows that though a child might have acquired an inflection, accurate use of all its allomorphs can be quite late since allormorphy is a complex process.

On the other hand Berko's results show that the progressive with its single allomorph {-ing} is the easiest for the children. This brings in the issue of perceptual salience discussed earlier. From Berko's results it is notably difficult for children to use (iz) with the plural than for the possessive and third person singular. One weakness about Berko's experiment is that the number of items is small.

Cazden (1968) analyzed the language samples collected from three children, namely Adam, Eve and Sarah. The language samples used in this study were collected using a longitudinal language sampling. A remarkable strength of this study is its consideration of a number of important methodological decisions that are needed in any in-depth study of grammatical development.

The first methodological decision that Cazden discusses is how to measure whether the child has a particular morpheme or not. Cazden (1968; 227) gives four possible ways in which an inflection could be scored for a child. These are:

a. Sc*: 'supplied correctly', that is, the child used an inflection in a context for which it was appropriate, for example, 'two dogs' in reference to two dogs;*
b. Sx: *'supplied in inappropriate contexts', that is, the child used an inflection in a place where it was inappropriate, for example, 'one dogs' in reference to a single dog;*
c. O: *'required but omitted', that is, the child did not use an inflection in a context where it was required, based on the rules of English grammar, for example, 'two dog' to refer to two dogs;*
d. OG: *'overgeneralizations', that is, use of inflection in a context where an alternative form was correct, for example, 'two foots' used to mean 'two feet'.*

Ingram (1989:447) states that these four distinctions made by Cazden made it clear to analyse ways in which inflections were used in the data.

Another methodological decision given by Cazden (1968), concerns how one can determine when a context for appropriate use has occurred in the data. This methodology comes in handy when one intends to determine transliterations for children's utterances since claims about missing morphemes have to be made. The major question that Cazden is addressing here is " In what context do we require a morpheme?" Cazden suggest the

specific areas where morphemes are required which are after numbers except one as shown in the example below:

(1). **two minute(two minutes); on count nouns after such modifiers as 'more' or 'some'*
**more page(more pages); for discourse agreement*
**shoe(shoes) in response to parent's question, 'what are those?'; normally plural –*
**stair (upstairs) and either names of cartoon characteristic –*
**Mr Ear (Mr Ears).*

On the acquisition of the irregular forms of verbs and nouns, Cazden observed that they usually come before a child generalizes. Here Cazden gives an example of one of the children Eve, who used 'come' correctly before 'comed' at a later stage. Coexistence of the correct form and overgeneralization is also possible as Cazden (1968:238) states, 'Temporary coexistence of the correct irregular form and the overgeneralization is common in our records'.

Another important point that Cazden observed is the individual patterns of acquisition for the three children. This is an interesting speculation for this study since data is gathered from three children and a difference in the rate of acquisition is a possibility.

One of the most cited studies on the acquisition of English morphemes is the study by Brown (1973). In the early 1960s Brown with the help of his research group carried out a longitudinal study of three children with pseudonyms Adam, Eve and Sarah. Cazden studied five morphemes whilst Brown did a more comprehensive study of 14 English

grammatical morphemes. The 14 morphemes below are in the general order of acquisition presented by Brown:

(2) *present progressive [- ing]*
the prepositions 'in' and ;on'
plural [-s]
past irregular, for example, 'went'; 'came', etc
possessive [-s]
** Uncontractible copula [be], for example, 'there it is' (where the contracted form is incorrect, for example, 'there it's')*
articles 'the' , 'a'
past regular {-ed }
3rd person regular { -s}
3rd person irregular, for example, 'does', 'has'
*uncontractible auxiliary {be }, * for example, 'Are you going?'*[14]
*contractible copula { be} , * for example, 'I'm sick'*
*contractible auxiliary { be}, * for example, 'She's leaving'*

Brown gives three reasons for the order of acquisition of the English morphemes: (i) frequency of morphemes in parental speech; (ii) syntactic complexity and (iii) semantic complexity. Though Brown cited influence of parental speech he notes that it is not as effective as syntactic and semantic complexity. Notably these three reasons that Brown gives are the issues of major concern in studying grammatical morphemes.

From the results of Brown's study it is possible that no one factor can be considered to be of primary importance in determining the acquisition of the morphemes.

A review of literature on English alone is not adequate since, languages differ greatly from one another in their morphological structure. Another fact is that morphology of

[14]*The contractible allomorphs discussed by Brown are {-s; -z; -m; -r}; the uncontractible ones are {is; am; are}.

English is limited hence it is not the best language on which to base theories of morphological development.

On the acquisition of Bantu languages a review of the studies that have been carried out in the acquisition of Shona language will be the starting point in this study. The amount of literature on CLA of Shona is very meager. To date Chiswanda (1994) and Mudzingwa (2001) are the two scholars who have researched on the acquisition of Shona.

Chiswanda did a cross-sectional study of four children between twelve months and twenty - five months. She made brief discussions of various aspects in child language acquisition of Shona. First she discusses children's utterances with specific focus on their meanings. The number and size of syllables in children's early utterances was also an area of focus. Under semantics aspects of overgeneralizations, onomatopoeia and the use of action words for making demands were looked into. One major contribution from Chiswanda is her disqualification of Brown's general claim that demonstratives are acquired fairly late, for in Shona demonstratives actually appear earlier. Another major contribution by Chiswanda is that contrary to Clark and Clark (1977) and deVilliers and deVilliers (1973) claim that passives are acquired very late, in Shona the passives appear in the speech of an eighteen months old child, which is earlier than in English. Under phonology she looked at substitutions of phonemes, and syllable omission patterns. In syntax she analyses the development of phrases and sentences in a child acquiring Shona. Chiswanda's study focused on many aspects of CLA in Shona though her study was not over a long period. Though these results shed light on patterns of acquisition in Shona,

they cannot be used to formulate rules of acquisition since her study was over a very short period and hence lacks comprehensiveness.

Another study on the acquisition of Shona is by Mudzingwa (2001). The study explores the phonological structures of a child acquiring Shona as L1. Mudzingwa observed the development of phonological structures of his daughter over a period of two years. The parental diary method of collecting data was used with the complement of fortnightly recordings. The findings of this study showed that, in each of the phases that were established, the adult word was adjusted in flexible ways in order to achieve a preferred pattern (template). It was observed that the complexity of the structure of the participant's words developed gradually, with reference to syllable count, syllable structures, variety of syllables across the word, permitted consonant co-occurrence patterns, within phases as well as across phases. According to Mudzingwa (2001) the development in complexity was a result of successive relaxations of, or an overcoming of previous restrictions on the complexity of the word. This was accounted for through "assimilation" and "accommodation". According to Mudzingwa "assimilation" was where the participant adjusted the adult word so that it matched a particular template, whereas "accommodation" was where more complex words were accommodated as a result of overcoming or relaxing some previous constrains. The results of the analysis also showed that during the earliest period of observation (i.e. 1;3- 1;8), the word was the basic phonological unit around which the child organized her phonology. Around 1;9 this gradually shifted to the syllable segment.

Mudzingwa's study is valuable to the area of child language acquisition since it contributes some valuable insights into the acquisition of most aspects of Shona segmental phonology. It also contributes to the development of data on acquisition of Shona phonology. Lastly the corpus of data collected in Mudzingwa's longitudinal study can contribute towards the building of a database on the acquisition of not only phonology but the acquisition of Shona in general.

In a study on the acquisition of the Zulu noun class system, Suzman (1980) observed her 23 month-old respondent to use nouns in citation forms without noun prefixes, and with no segmentation errors. Suzman interpreted this as evidence that the child had knowledge of the internal morphological structure of the noun. Suzman further attributed this deletion of the noun prefix in citation forms to an overgeneralisation of the structure of Zulu vocative forms (the later omit the pre-prefix). In syntactic configurations, the child deleted the first or second vowel within contiguous word boundaries. The child's use of prefixes was tied to a search for the correct phonological and syntactic context in which to use a noun prefix and a stem.

Suzman observed an early emergence and mastery of classes 1a/2a, and 5/6. Classes 1a/2a contain primarily personal nouns and kinship terms; and class 5/6, though largely miscellaneous, contains nouns of common objects many of which are loanwords from Afrikaans and English. However, Suzman notes that semantic coherence is not the only factor governing the early acquisition of class 1a/2a. The singular prefix of this class (u-) gets generalised to a non-human class; for example, *ungubo* instead of *ingubo* 'blanket'.

Other factors that Suzman considers germane to the child's acquisition of noun classes include the things that the child encounters and interacts with in the environment, and the types of things the child begins to talk about.

Kunene (1979) studied the acquisition of noun classes and some agreement markers in Siswati by children ranging in age from 25-42 months and 4½ – 6years. The two age groups were used for the elicitation of spontaneous and experimental data, respectively. Kunene, like Brown (1973), was primarily concerned with the order of acquisition of morphemes; namely, noun prefixes, locative markers, subject/verb agreement, possessive agreement, and object/verb agreement.

Kunene observed noun stems to be acquired before their prefixes in the case of disyllabic and multisyllabic noun stems. Monosyllabic and vowel initial disyllabic stems, on the other hand, were acquired together with their prefixes. Kunene offered as a possible explanation for the emergence of noun stems before prefixes McNeill's (1970) distinction between function words (prefixes) and content words (stems). Kunene ruled out tone and stress as possible factors in the acquisition of noun stems before prefixes.

Prior to the emergence of noun prefixes, which among other things indicate number, the children used possessives to mark number of the nouns without prefixes. When prefixes finally emerged around 30 months of age, some nouns occurred with singular prefixes before their plural counterparts, and for other nouns the reverse was true.

Concerning the locative, which is marked on the noun by both a prefix and suffix, the suffix emerged before its prefixal counterpart. In verbs too the recent past tense suffix emerged earlier than morphemes that occur prepositionally to the verb radical. Kunene attributed this early emergence of suffixes to perceptual salience of postpositions expressed in Slobin's universal principles (Slobin 1973).

Following is a summary of the acquisition order of morphemes including agreement markers observed by Kunene:

a. -nominal stems and verb radicals
b. -some suffixal morphemes such as the locative and the past tense morphemes
c. -the possessive pronouns, especially 1st and 2nd person
d. -locative prefix (uncertain ordering)
e.-subject/verb agreement markers
f. -possessive agreement markers
g. -noun prefixes
h. -object/verb agreement markers

By the age of 4½ –6 years, noun classes were not yet fully acquired, though agreement markers were more appropriately used. In contrast to the spontaneous data, there was more evidence of ovegeneralisation from the experimental data. Most of the overgeneralisations involved prefixes, and there was little evidence for semantic overgeneralisation. Another notable discrepancy between experimental and spontaneous data concerns the singular and the plural prefixes. In spontaneous speech a child would use the prefixes of class 1/2 appropriately as in the example below:

(3)	Singular	Plural
	umu-ntfu "person"	aba-ntfu "people"

um-tfwana “child” aba-tfwana “children”

Yet when asked to render the plural forms of singular nouns in the experimental task the child used class 1a/2a plural prefix. For example,

(4) bo-muntfu “people”
bo-muntfwana “children”

Kunene’s explanation for this discrepancy was that the experimental task probably tapped a different kind of ability from that reflected in spontaneous data. Evidence from experimental data was interpreted to be task-specific.

Connelly (1984) reports on a study in which he examined the acquisition of noun morphology by Basotho children. The study focused on the acquisition of noun prefixes and the concordial system of the Sesotho language. Connelly’s subjects ranged in age from 18 to 37 months at the beginning of the project.

Connelly found the acquisition of noun class prefixes and the concordial system to be relatively error free. He delineated four stages of acquisition of noun stems and prefixes:

	Prefix	Stem
Stage 1.	absent	ill-formed
Stage 2.	absent	well-formed
Stage 3.	ill-formed	well-formed
Stage 4.	well-formed	well-formed

The author notes that there was some evidence, though not conclusive, that prior to stage 1 the children used some nouns as unanalysed monomorphemes; taking both the prefix and stem together as a 'content word' in speech; "What quickly follows then is a morphemic analysis on the child's part." Connelly(1984:144) attributes the lack of conclusive evidence concerning the status of nouns prior to stage 1 to the fact that at 18 months, Basotho children are already linguistically sophisticated. In fact, Connelly states that he missed the one-word stage.

According to Connelly(1984:144) in the first stage, noun stems are;

> "morphemically isolated and phonologically ill-formed… and stand in for the noun and its prefix. In the second stage, the noun stem perform the same role, confirming that morphological categories are motivating the child's development."

In the third stage, shadow prefixes (place-holder) emerge and increasingly converge phonologically and morphologically on to the adult forms leading to the fourth stage. Connelly interprets the occurrence of stems without prefixes to indicate that the child has made a segmentation, separating form (prefix) from content (stem).

Noun suffixes and concords are in place before the prefixes are acquired. Connelly concludes, therefore, that contrary to grammarians' assertions, noun prefixes do not trigger or govern the occurrence of the highly euphonic concords. Connelly found no evidence for semantic-based acquisition of class 1 nouns, which is often cited as the most semantically coherent class. Very little overgeneralisation of noun prefixes was observed. The children assigned borrowed words to class 9/10 plural on morphological grounds, i.e. using criteria based on prefix.

Connelly noted that Basotho children develop speech more rapidly than their Western counterparts. Comparing the mean length of utterance (MLU) of Basotho children to Brown's Adam, Eve, and Sarah as well as children in other studies, Connelly found that development that takes place between 12 and 17 months in Basotho children occurs between 19 and 27 months in Western children. As early as 25 months of age, Basotho children are already using motherese when talking to younger siblings; whereas, other studies show the use of motherese to occur around 4 years of age for American children. Evidence for linguistic precocity in Bantu children has been documented elsewhere (Demuth 1983, Chiswanda 1994, Mudzingwa 2001). Researchers attribute this developmental precocity to child rearing patterns of Bantu children, who are, from infancy exposed to adult social and verbal interaction and very often the children are the focus of attention.

Demuth cited in Tsonope (1988) investigated the acquisition of noun classes and agreement in Sesotho by children ranging in age from 2½-3 years over a period of 12

months. She noted that the consistent use of full noun prefixes does not emerge until 2½-3 years of age, and this takes place with no overgeneralisation. Around the age of 2, nouns of all classes frequently occur with no prefix. By 3 years of age children exhibit correct productive use of all singular and plural prefixes. As do adult SeSotho speakers, children occasionally omit noun class prefixes of classes 5, 7, 8 and 10. Contrary to Kunene, Demuth found some monosyllabic stems to occur without their prefixes when a possessive or demonstrative is used in conjunction with the noun.

Regarding agreement markers, Demuth notes that at 2 years of age all pre-verbal morphology (subject-verb agreement markers, the focus marker, tense and aspect markers, object clitics) is collapsed into an intonational envelope rendered as [a] or [e], or is entirely omitted. Gradually pre-verbal morphology becomes differentiated, and at 25 months of age there is evidence for the overgeneralisation of the class 9/10 agreement system. Some of the apparent overgeneralisation could be attributed to articulatory difficulty of certain sounds. Demuth also notes that at this time a large proportion of the child's vocabulary comprise class 9/10 nouns.

Overall, there was very little evidence for overgeneralisation of either prefixes or agreement markers, nor was there much evidence for the use of semantic criteria. Relating this observation to Kunene's experimental data, which showed overgeneralisation of noun prefixes, Demuth comments that Kunene's experimental subjects could have been performing a 'fit-the-paradigm task'. Demuth argues that children attribute to the noun and modifier a class feature and treat the entire phrase as

'some kind of prosodic or cognitive unit'. This is most likely due to the phonological transparency of the noun class prefixes and agreement markers.

The studies on the acquisition of Bantu language reviewed above all depict a three-stage developmental path in the acquisition of noun prefixes. This can be summarised as follows:

Stage 1. stems without prefixes

Stage II. place-holder vowel plus stem

Stage III. prefix plus stem.

In order to explain the emergence of stems before prefixes the researchers proffer the form/content distinction, which they claim, corresponds to prefix and stem, respectively. That is, that the stem, which has semantic content is acquired before the prefix, which, it is claimed, is a mere form, that is devoid of meaning.

Besides the form/content distinction, a question remains, and that is, is it possible that children's linguistic units are based on an entirely different set of principles from that which the linguist has determined for the adult language? Do children actually acquire a stem (having segmented off the prefix) in the sense in which linguists conceive of stem and prefix; or are children unaware of this conventional prefix/stem distinction and simply acquire linguistic units whose shape may or may not coincide with the prefix/stem constructs? Such questions are part of what constitutes the rationale for the approach adopted in this study.

Stem and root are controversial notions in linguistic theory, some scholars use the term 'stem' with a different meaning hence care should be taken when the term is met in literature. In this study the following meanings given by Bauer (1988) are used: a stem is a base to which inflectional affixes can be added, for example, in stupidities the stem is stupidity although the root is stupid. A root is that part of a word-form which remains when all inflectional and derivational[15] affixes have been removed. It is the basic part of a lexeme, which is always realized, and it cannot be further analysed into smaller morphs.

Bates (1979) carried out a study of the morphological development in Italian. She focused on aspects of connotation and denotation. Two methods of collecting data were employed in this study; that is; the longitudinal and experimental. She particularly examined the development of adjectives in contrast to the inflections for the expression of size and value concepts in Italian children. From the longitudinal speech records of the two Italian children it is evident that the concepts of size and value are understood and expressed linguistically by the age of two years. A subsequent experiment with eighty-four children ranging from two to six years, suggests that comprehension of size and value inflections is restricted to a narrow, denotative set of meanings based predominately on a strict interpretation in terms of size. The results of the study by Bates are useful in this study since they show that denotative and connotative factors influence morphological development in different ways.

[15]According to Bauer (1988) inflection is a morphological process of adding affixes, which typically i. create word-forms of an already known lexeme, not new lexemes, ii. do not change the part of speech of the base to which they are added iii. have a regular meaning and iv. are fully productive and extremely highly generalized. Derivation is a morphological process of adding affixes which i. create new lexemes, ii. may change the part of speech of the base to which they are added, iii. may not have a regular meaning and iv may not be fully productive and are not fully generalized. These two processes constitute part of the controversies within morphological theory.

Arlman-Rupp, vanNiekerk deHaan and van de Sandt- Koenderman (1976) (ANS) carried a study of Dutch morphological acquisition. They examined four children longitudinally. The children were between 2;0 and 2;3 years old. Dutch has a rich system of diminutive suffixes but it is not rich in bound morphology. Though Dutch is closely related to English the results from the study by ANS reveals that the pattern of its acquisition is different from that of English. These results are important since they suggest some basic cross - linguistic differences in language acquisition. The fact that there are cross - linguistic differences makes this study worthwhile since it seeks to contribute to the cross linguistic data.

A study by Lipp (1977) of three Estonian children of the ages ranging from 2;6 to 3;0 reveals that though Estonian has a complex system it is not difficult to acquire. This contrasts with the findings on morphological development in English. Estonian is an agglutinative language (i.e. a language in which words are typically composed of morphs with each morph representing one morpheme (Lyons 1968:188). Estonian has a rich system of case suffixes on nouns, several verb inflections, and postpositions instead of prepositions. According to Ingram (1989), given this scenario a child is expected to find it very complex to acquire such a language, though it is not the case.

Pye (1983) observed four Quiche children between 2;0 and 3;0. Quiche is polysynthetic in that the verb takes several prefixes and suffixes, this makes it have a complex morphological structure . From his observations the Quiche children consistently chose perceptual saliency over semantic complexity in their production of verbs. The verbal

suffixes were used correctly. Pye(ibid:593) makes an overall statement on the use of verbal suffixes,

> "There is no indication that the children had any trouble distinguishing transitive from intransitive endings. Finally, the vowel in the transitivizing suffix is lexically determined - it follows no regular pattern. The children, however, seldom got the vowel wrong in the utterances. All this indicates that the children had indeed learned to use the status markers freely and appropriately at an early stage in their linguistic development".

2.5 Summary

In this chapter, the methodological approaches used in the field of CLA were chronologically reviewed, in a bid to sensitize the researcher to the possible and acceptable ways of gathering data in this area. Without the knowledge of the methodological approaches, gathering data from young children becomes a very arduous task. The stages of acquisition proposed for use in the field of CLA have been discussed. A review of these stages has helped the researcher justify the age range chosen for this study. The models for the acquisition of morphology were also reviewed, mainly in an attempt to show how they contribute to theoretical framework used in this study. Lastly, a review of literature in the acquisition of Shona language in general and of morphology in particular was done. Through the review of literature, the researcher has shown how this work fills a gap in the field of CLA by focusing on the acquisition of Shona morphology, an area that has not been researched in great detail.

CHAPTER 3

AN OVERVIEW OF SHONA GRAMMATICAL MORPHEMES

3.0 INTRODUCTION

This chapter provides a background to the analysis and discussion of the acquisition of Shona grammatical morphemes. It is meant to give a description of the Shona grammatical morphemes. According to Crystal (1991:223) grammatical morphemes are units that express grammatical relationships between a word and its context. They modify a word to fit its role in the sentence. In Shona the prefixes are the grammatical morphemes (GMs) that encode number, gender, location, ownership, negation, tense, aspect and mood. This chapter aims to clarify the distinctions between the grammatical morpheme in Shona and other types of morphemes. A description of Shona grammatical morphemes provided in this chapter is of importance because it will act as a norm in the section on data analysis. Analysis and description of the words produced by the children will be based on these adult grammatical morphemes. The researcher acknowledges the fact that in the course of language development, children are not learning "adult parts of speech" but are going through a phase of child grammar. The description of adult GMs is offered as the child's target grammar and it is meant to guide the researcher in data analysis. The grammatical morphemes that are discussed in this chapter will be referred to in the section on data analysis, so that the morphological structures of words produced by the three children will be compared to them.

Another reason for the overview of the grammatical morphemes of Shona is that the set of grammatical morphemes and their meanings differ from language to language. In describing the grammatical morphemes, Ingram (1989:435) states that the meaning of grammatical morphemes is either partially or totally defined by the set of rules (or grammar) of a particular language. This means that the grammatical morphemes of Shona can only be defined by the grammar of Shona. The Shona grammatical morphemes are therefore unique to Shona, so is the acquisition of Shona morphology. Brown (1973) provides a list of the grammatical morphemes of English and their order of acquisition. However this study cannot rely on them because English grammar is different from that of Shona. The order of acquisition might also be different because grammatical morphemes of Shona have different structures from those found in English. Children acquire language on the basis of rules of grammar, that is, they are looking for regularities. Grammatical morphemes differ in their structure from one language to another, moreso their positions within the word differ. For instance, English nominal inflections are suffixal such as the plural morpheme /-s/ in 'cups'. In Shona they are prefixal as in ***va****-komana* 'boys'. This variability of the GM in English and Shona in terms of their position means that one cannot apply Slobin's OP which states that children pay attention to the end of unit to Shona or English and get the same result. This lead Ingram (1989:437) to call for a cross-linguistic study of grammatical morphemes because of the range and variability of grammatical morphemes cross-linguistically.

A general description of grammatical morphemes will be provided and then a description of the Shona grammatical morphemes in particular will follow. In my discussion

reference to literature on morphology in general and on Shona morphology in particular will be made. The relatively rich source of literature on Shona morphology such as Fortune (1955, 1984) and Mkanganwi (1995) will be referred to in this chapter.

3.1 The Grammatical Morpheme

Defining the class of grammatical morphemes is a major controversy since a number of scholars have different views of the grammatical morphemes. Grammatical morphemes belong to the closed class category, according to Gleitman cited in Ingram (1989:435). Closed classes are defined by Finegan (1999:48), as categories that do not allow additions of new words. Words such as prepositions, pronouns and determiners fall into this category. However some scholars such as Chomsky (1981) includes prepositions in the open class category that includes verbs, nouns and adverbs. The reason for such classification by Chomsky is that prepositions can function as heads of constructions, for example, in prepositional phrases and like verbs, assign grammatical case. On the contrary Aitchison (1972:63) points out that words do not neatly divide into one or the other of these two classes (open and closed) rather they are on a gradual slope leading from closed to open. Here the problem is whether one has to include prepositions in the grammatical class category or in the lexical class category.

Brown (1973:253) refers to grammatical morphemes as modulations of meaning in that they:

> …. seem to 'tune' or 'modulate' the meanings associated with the contentives in the sense that the modulation is inconceivable without the more basic meanings. Thus 'a' and 'the' make the thing referred to by a noun specific or nonspecific.

The grammatical morpheme is the unit of a word, which has a grammatical function. Katamba (1993:20) defines a morpheme as the smallest, indivisible unit of semantic content or grammatical function which words are made up of. According to this definition the morpheme has two properties, that is, the semantic and grammatical properties. An example below illustrates how these two properties can make up a morpheme.

(5) a. mu - sikana.
c1 - girl
'girl'

b. va - sikana
c2 - girl
'girls'

In example (5a) *mu-sikana* is made up of two meaningful morphemes *mu-*, which has the grammatical function, and the stem *-sikana* which signifies 'girl'. In (5b) the grammatical morpheme has changed and it is now signifying plurality but the lexical morpheme has not changed. The grammatical morpheme is therefore signaling the grammatical information of number in the given example. At an abstract level the grammatical morpheme signifies a semantic change as well.

In this study my concern is with the grammatical morpheme. The grammatical morphemes differ from lexical morphemes in that while lexical morphemes carry most of the semantic content, the grammatical morphemes mainly but not exclusively, signal grammatical information or logical relations in a sentence as in the example given in (5a-b) above. Katamba (1993) states that another way of distinguishing the two is that while lexical morphemes are usually free morphemes the grammatical morphemes are bound.

The distinction made by Katamba is relevant to English and other languages but it does not apply to Shona lexical morphemes since most of them are bound morphemes while a few are free. Ideophones are exceptions, for example, *mburetete* 'extremely white'. In the sentence below, the underlined are lexical morphemes and they are bound.

(6) mu-sikana a-ka-sek-a mu-komana a-i-tamb-a.
c1 –girl 1sm-pst-laugh-tv c1-boy lsm-asp-dance-tv
"The girl laughed at the boy who was dancing."

This therefore means that in Shona it is not easy to distinguish lexical and grammatical morphemes using Katamba's definition.

Crystal (1991:223) also makes a distinction between lexical and grammatical morphemes. According to Crystal lexical morphemes are used for the construction of new words in a language, such as in compound words e.g. '*chalkboard'*, and affixes such as *-ship, -ise* while grammatical morphemes are used to express grammatical relationships between a word and its context such as plurality or tense that is the inflections on words. In other words, lexical morphemes belong to the lexis whilst the grammatical morphemes belong to the different inflectional categories of the lexical categories.

3.2 Shona Grammatical Morphemes

The Shona morpheme falls into two classes of the affixes and the roots. The relationship of the two is that affixes are subsidiary to roots, while roots are the centers of constructions such as words (Gleason 1961:59). In Shona, the root morphemes carry the semantic content of the word hence they are the lexical morphemes. Shona affixes are bound morphemes; that is they occur attached to the root. They either occur before the root or after the root. Those affixes that occur before the root are prefixes as shown in example (5a), /*mu-/* and /*va-/* are prefixes. An affix that occurs after the root is called a suffix as in the word *famb- is- a* 'walk fast', the underlined forms the suffix of the verb root *famb-*, while *–a is* a terminal vowel. According to Fortune (1984:3) a terminal vowel is the vowel, which invariably follows and completes the verb radical syllabically. In Shona vowels are obligatory units of the syllables.

Affixes are limited in number and are exhaustively listed. They can be divided into two major functional categories namely derivational affixes and inflectional affixes. According to Mkanganwi (2002:38) in Shona all prefixes are inflectional and all suffixes are derivational. The distinction made by Mkanganwi (ibid) is a remarkable observation. This then follows that terminal vowels and verbal extensions are derivational while, prefixal affixes such as tense, aspect, mood, and negation affixes are inflectional. The observation by Mkanganwi makes the distinction between inflectional and derivational morphemes clearly distinguishable in Shona. The distinction between inflection and derivation is considered to be complex and constitutes the paradox within morphological theory. A number of scholars have worked on clarifying the distinction between the two

for instance Matthews (1974) Anderson (1982), Bauer (1988), Mchombo (1999)and Haspelmath (2002). After a lot of attempts to make this distinction discrete by various scholars, Katamba (1993:47) still regards the distinction between the two as one of the most controversial issues in morphological theory. Although there are controversies on the distinction between these two morphological processes, in Shona the distinction made by Mkanganwi makes the distinction clear and less controversial. The derivational morphemes are not to be discussed in this study since they have a semantic role in the morphology of Shona words.

The lexical morphemes in Shona can be divided into three major categories of the substantives, verbs and ideophones. Substantive in this study is used to refer to constructions such as nouns, adjectives, enumerators, pronouns, demonstratives, quantitative and selectors (Fortune 1984, Mkanganwi 1973/1995, Mashiri and Warinda 1999). In this study, the category of the ideophone is not discussed since they have no grammatical relations with any grammatical morphemes.

3.2.1 Grammatical Morphemes Attached to Nouns

Five grammatical morphemes can be attached to Shona nouns, these are number, locative, honorific, diminutive and infinitive morphemes.

3.2.1.1 Number

The number morpheme is a category used for the analysis of word classes displaying such contrasts as singular, plural and dual (Crystal 1980:245). For example in Shona one can contrast the following;

(7) a. mu-komana
c1 -boy
"boy"

b. va-komana
c2 - boy
"boys"

The number morpheme in Shona is marked on the nouns and it is an obligatory category in Shona nouns. The Shona nouns have to carry a grammatical morpheme that shows whether they are singular or plural.

The number morpheme in Shona is a bound morpheme that must be attached to other morphemes. This morpheme is one of the members associated with the system that is used to classify nouns into classes[16]. This means the number morpheme serves as one of the key factors to the classification of some of the Shona nouns. Therefore the Shona morpheme that mark number is best outlined using the noun classification system, because the classification of most of the nouns is based on these grammatical morphemes. This morpheme is portmanteau in nature, that is, it simultaneously marks

[16] According to traditional grammarians semantics is one of the considerations that helps to distinguish prefixes in Bantu languages (1/2 - human, 3/4 - nonhuman, 5/6- natural phenomena and paired body parts, 9/10 - animals, 14 mass and abstract nouns, 15 - infinitives, 16-18 – locatives).

number and gender. The table below illustrates how the number morpheme works in the classification of Shona nouns.

Table 2: The Singular/Plural Pairs of Shona Nouns.

Class	Singular Noun	Gloss	Class	Plural Noun	Gloss
1	mu-sikana	girl	2	va-sikana	girls
3	mu-goti	cooking stick	4	mi-goti	cooking sticks
5	Ø-gore	cloud	6	ma-kore	clouds
7	chi-garo	chair	8	zvi-garo	chairs
9	N-mbudzi	goat	10	N-mbudzi	goats
11	ru – oko rw-endo	hand journey	6 10	ma-oko N-nzendo	hands journeys
12	ka-mbwa	small dog	13	tu-mbwa	small dogs
19	svi-kadzi	small thin woman	14	u/vu-kadzi	small thin women
21	zi-gadzi	huge woman	6	ma-gadzi	huge women

Adapted from Mkamganwi 1995.

The morphemes that mark number on the nouns of various classes are listed in the table above. Only twelve of the above classes pair out directly into six singular/plural linkage sets, that is, the plural morpheme of a singular noun is found in the class immediately following it as shown in Table 2. The singular class 1 nouns have their plurals in class 2 those of class 3 have their plurals in class 4 and so on. There are three singular classes that do not have the singular /plural linkage; these are singular nouns of classes 11,19 and 21. Some of the plural morphemes of class 11 nouns are in class 6, while others are in class 10.[17] Class 19 nouns can be marked for plural using the class 14 morpheme. Class 21 nouns are marked for plural by the morpheme of class 6. In some cases class 3 and

[17] The singular noun *rwiyo* 'song' takes up its plural form in class 10 to have *ndwiyo 'songs'*.

class 11 prefixes do not function as number morphemes in mass and abstract nouns such as *mukaka, muto, rugare* and *rudo*[18].

The table below gives a summary of the number grammatical morphemes that are found in Shona.

Table 3: The Number GMs of Shona

singular	plural
mu - (1)	va-(2)
ø – (1a)	va-2a
a-(2b)	
mu – (3)	mi – (4)
ri-/ ø- (5)	ma- (6)
chi – (7)	zvi – (8)
N – (9)	dzi-/N- (10)
ru – (11)	ma-(6)/ dzi-(10)
ka – (12)	tu – (13)
svi – (19)	u/vu (14)
zi – (21)	ma-(6)

Adapted from Mkanganwi 1995.

The singular-plural morphemes listed in Table 3 above signal information about person and number.[19] These grammatical morphemes bring about grammaticality in a sentence. They also bring about concordance in sentences. The grammatical morphemes that mark number in Shona are important morphemes because they govern the form of a great many other morpho-syntactic elements that may occur in a sentence as is shown below in Table 4.

[18] In today's spoken Shona the noun *rudo* 'love' is pluralised to have the form *mazirudo* 'a lot of love'.
[19] The locatives and infinitives are not included in Table 2 above because they are not marked for number and will be discussed separately in the coming sections.

Table 4: Agreement Markers

Cl	GM	Number	Adjectival	Relative	Poss	Subj	Obj
1	mu-	sg	mu-	a-	w-	a-	mu-
1a	ø	sg	mu-	a-	w-	va-	mu-
2	va-	pl	va-	va-	v-	va-	va-
2a	va-	sg	va-	va-	v-	va-	va-
2b	a-	sg	va-	va-	v-	va-	va-
3	mu-	sg	mu-	-u	w-	u-	u-
4	mi-	pl	mi-	-i-	y-	i-	i
5	ri-	sg	ø	-ri-	r-	ri-	ri
6	ma-	pl	ma-	a-	a-	a-	a-
7	chi-	sg	chi-	-chi-	ch-	chi-	chi-
8	zvi-	pl	zvi-	zvi-	zv-	zvi-	zvi-
9	-N-	sg	ø	i-	y-	i-	i-
10	-N-	pl	ø	dzi-	dz-	dzi-	dzi-
11	ru-	sg	ru-	ru-	rw-	ru-	ru-
12	ka-	sg	ka-	ku-	k-	ka-	ka-
13	tu-	pl	tu-	tu-	tw-	tu-	tu-
14	u-	sg	u-	-u-	hw-	hu-	hu-
19	svi-	sg	svi-	-svi-	sv-	svi-	svi-
21	zi-	sg	zi-	-ri-	r-	ri-	ri-

Adapted from Mkanganwi 1995.

I will use the class 1 and 2 plural and singular grammatical morphemes to illustrate how these morphemes trigger agreement with other morpho-syntactic elements in a given sentence.

(8) a. Mu-sikana mu-refu a-tor-a shamwari ya-ke.
c1 –girl adj– tall sm – take-tv friend poss.affix-poss.stem.
" The tall girl took her friend."

b. *Musikana varefu vatora shamwari yake.

(9) a. Va-sikana va-refu va-tor-a shamwari ya-vo.
c2 - girl adj.p– tall sm-take-tv 1a.friend poss.affix-poss.stem.
"The tall girls took their friend."

b. *Vasikana murefu atora shamwari yavo.

In examples (8a) and (9a) the number grammatical morphemes /*mu-/* and /*va-/* govern the concordance of the sentences. When referring to a single entity or when the subject is singular as in *mu-sikana* one has to use the morphemes that agree with the singular grammatical morpheme in order to produce a grammatical sentence in Shona. It is ungrammatical to use the singular grammatical morpheme as the subject and then use a plural grammatical morpheme as the agreement morpheme as is illustrated in examples (8b) and (9b). These sentences are ungrammatical because of the use of contrasting grammatical morphemes, which do not show grammatical agreement.

3.2.1.1 The Locative

The locative grammatical morpheme expresses the idea of location and it is inflected on a noun or pronoun. The locative grammatical morpheme is also used in the classification of Shona morphemes. The nouns, which are inflected by the locative grammatical morphemes, are classified into classes 16, 17, 17a and 18[20]. The locative grammatical morphemes of Shona are */pa-/(16); /ku-/(17);* /Ø/(17a) and */mu-/(18).* These morphemes express the idea of location but each one is unique in its own way. */pa-/* as in *pamusha* indicates a location or place at or on which attention is directed (Fortune 1980:80). The second locative grammatical morpheme of Shona is */ku-/*, which is in class 17, it indicates a general area, neighbourhood or vicinity in place, rarely in time to which attention is directed. The place will be further from the speaker (Fortune 1980:80). The last locative grammatical morpheme that is used in Shona is the class 18 morpheme

[20] Some Bantu languages no longer use the locative noun class prefixes. For example Sesotho has lexicalised locative system, resulting in locative adverbs that take no separable locative prefixes (e.g. fates 'down', kante 'outside', kahara 'indoors' (Demuth 2003). Shona is one of the Bantu languages that have preserved the locative prefixes.

/mu-/ indicates a location of a thing, which is within a space. Most nouns in Shona can be locative by adding the locative morpheme to them.

3.2.1.2 The Honorific

Crystal (1980:176) describes honorific as a term that is used in the grammatical analysis of some languages such as Japanese and French to refer to syntactic or morphological distinctions used to express levels of politeness or respect, especially in relation to the compared social status of the participants. The pronoun system of several European languages expresses a contrast of this kind e.g. French *tu* vs. *vous*; Spanish *tu* vs. *usted*. In Shona the levels of politeness or respect are expressed through the use of the honorific morpheme. The honorific morpheme is marked on nouns. Class 2a noun prefix */vá-/* is a honorific morpheme, for example in;

(10)
a. vá- tezvara 'father in law'
b. vá -sekuru 'uncle'
c. vá-tete 'aunt'
d. vá-mwene 'mother in law'

In the example given above the underlined morpheme is the honorific morpheme. The plural honorific is the class 6 prefix */ma-/*[21]. The nouns in the example below signal the plural honorific phenomena.

(11)
a. ma-dzi-mai "wives/ women"
b. ma-dzi-tete "aunts"
c. ma-dzi-baba "fathers"
d. ma-dzi-she "chiefs"

[21] This morpheme has cumulative meaning (portmanteau) i.e. number (plural) and honorific.

The plural honorific prefix has two realisations of agreement morphemes, that is, /ma-/ and /mu-/. The use of either depends on the tense or aspect of the sentence. For example;

(12) a. Madzitete **ma**kadya here? 'Aunts did you eat?' (Past tense)

b. Madzitete **mu**chadya here? 'Aunts are you going to eat?'(Future tense)

c. Madzitete **mu**nodya sadza here? 'Aunts do you eat sadza?'(Present tense)

e. Madzitete **ma**kanga madya here pavakasvika? 'Aunts had you eaten when they arrived?'(Past perfective aspect)

f. Madzitete **mu**nenge maneta. 'Aunts you shall be tired.' (Future perfective aspect)

The honorific morpheme */ma-/* is also marked on verbs to indicate agreement within the elements of a sentence. The sentence below show how the /*ma-/* brings about agreement.

(13) Vá-sekuru ma-ka-famb-a zvakanaka here?
c2a-uncle agr-pst-travel-tv well question.
' Did you travel well, uncle?'

3.2.1.4 The Diminutive

Crystal (1980:112) describes the term diminutive as "a term used in morphology to refer to an affix with the general meaning of "little" used literally or metaphorically (as a term of endearment)". The diminutive morpheme is used in many of the world's languages such as *–ino* in Italian; *-zimbo* in Portuguese and *–let* in English, with the meaning of little. The diminutive morpheme in Shona is a prefix; which is attached to the nouns and controls agreement. If one uses the diminutive morpheme on the subject there should

also be the diminutive morpheme on the verb in order to bring about concordance and grammaticality in the sentence as in;

(14) a. Ka-sikana ka-dy-a sadza.
c12-girl agr-eat-tv sadza
'The little girl ate sadza.'

b. *Kasikana vadya sadza

Example (14.b) is given to show how the use of a diminutive morpheme alongside a non-diminutive morpheme brings about ungrammaticality.

The diminutive morpheme in Shona is also used in the classification of the Shona nouns. The diminutive morpheme is in classes 12 , 13 and 21. The diminutive morphemes that are used on Shona nouns are /*ka-/,* /*tu-/ and* /svi-/. /*ka-/* and /svi-/ are singular diminutive morphemes whilst /*tu-/* is a plural diminutive morpheme. The diminutive morpheme is sometimes used in an offensive manner and hence people avoid using it unless they intend to be offensive. The diminutive morpheme can also have ameliorative connotations as in;

(15) Ka-sikana ka-ngu ka-ka-nak-a.
c12-girl agr-poss.affix agr-asp-beautiful-tv.
'My beautiful little girl.'

The diminutive morpheme[22] can be added to nearly all nouns in Shona to bring about the following meanings:

(a) small version of noun e.g *murume - karume*

[22] We find the use of the diminutive morpheme in today's Shona slang among the young generation as in: kaoletto kangu kariportable. In this case the dimunitive has ameliorative connotations.

(b) the young of the noun e.g *imbwa - kambwa*

(c) a small quantity of the noun e.g *sadza – kasadza*

3.2.2 Grammatical Morphemes Attached to Verbs

3.2.2.1 Subject

In Shona, all verbs in verb phrases must be prefixed with a subject morpheme, which must agree in class and number with the subject of the predicate as in example 16 below.

(16) a. Mu-sikana a-sek-a.
c1-girl 1sm-laugh-tv
'The girl laughed.'

b. Va-sikana va-sek-a.
c2-girl 2sm-laugh-tv
'The girls laughed.'

In the above example, */a-/* prefixed to the verb *-seka* 'laugh' agrees with the subject *mu-sikana* 'girl' whilst /*va-/* agrees in class and number with *va-sikana* '*girls'*. /*a-/* and */va-/* are subject morphemes.

The subject morpheme is obligatory in Shona finite verbs. There are two forms of the subject morphemes of each class and person as shown in the Table below. The second form of the subject morpheme which is of the consonant shape is the allomorph which occurs with the near future morpheme */-o-/* and the recent past morpheme /*a-/* .

The subject morphemes by class are:-

Table 5: Subject Prefixes

Is ndi– ~ nd- Ip ti- ~ t-	
IIs u- ~ w-	
IIp mu- ~ m-	
III.1. a- ~ Ø-	
2. va- ~ v-	
3. u- ~ w-	
4. i- ~ y-	
5 ri- ~ r-	
6. a- ~ Ø-	
7. chi- ~ ch-	
8. zvi- ~ zv-	
9. i- ~ zv-	
10. dzi- ~ dz-	
11. ra- ~ rw-	
12. ka- ~ k-	
13 tu- ~ tw-	
14 hu- ~ hw-	
15 ka- ~ kw-	
16 pa- ~ p-	
17 ka- ~ kw-	
18 mu- ~ m-	

Adapted from Fortune 1984

The marking of the subject morpheme on the finite verb is obligatory in Shona, otherwise an ungrammatical construction would occur.

3.2.2.2 The Object

Crystal (1980:246) describes object as a term used in the analysis of grammatical functions to refer to a major constituent of sentence or clause structure.

(17) Mu-komana a-dy-a Ø- sadza.
c1 - boy 1sm eat tv cl5 sadza.
'The boy ate sadza.'

The object in the example given is *sadza* in that it is the one that receives the action. This object can be referred to by means of an object prefix. The object prefix is not the proper object itself; but it stands in for the object. The sentence below illustrates how the object prefix stands in for the proper object.

(18) Mu-komana a- ri- dy- a.
c1-boy 1sm-om - eat-tv
'The boy ate it.'

In example 18 */ri-/* is the object morpheme. In Shona it is also possible to refer to an unexpressed object by using an object prefixed to the verb stem as in the example above. A verb only allows one object prefix and its position is invariably immediately before the root. The full list of the object prefixes of Shona is in Table 4 on page 65.

3.2.2.3 Tense

Tense is a category that is used in the grammatical description of verbs. It primarily refers to the way the grammar marks the time at which the action denoted by the verb takes place (Crystal 1980:352). Bellusci (1991:31) states that "tense is a deictic category: situations are located in time with reference to the present moment. In other words tense is viewed from the perspective of the speaker as situations external." The verb is normally that which is marked for tense in a language. In Shona, tense morphemes are inflected on the verb. Three tenses that are used in Shona are discussed, these are the present; future and past. In Shona, the tense morpheme is a bound morpheme. The Table below shows the tense morphemes of Shona and give examples of the sentences in which these morphemes can be used.

Table 6: The tense morphemes of Shona.

Tense morpheme	Time	Example	Gloss
-no-	present	Mukomana a**no**dya	The boy is eating.
-ka-	past	Mukomana a**ka**dya	The boy ate.
-cha-	future	Mukomana a**cha**dya	The boy will eat.

Table 6 above reflects that Shona; as with most languages has three tenses, marked as follows: (i) /-no-/ for the present tense; (ii) /-ka-/ for the past tense; and (iii) /-cha-/ for the future tense. Each of these tenses is discussed in detail below.

Present: The present tense morpheme in Shona is */-no-/.* The present tense morpheme can also have an aspectual function. */-no-/* indicates an action of the indefinite present tense.

(19) Ndi-no-rar-a pano nhasi.
sm- pres-sleep-tv here today.
'I am sleeping here today.'

Past: The past tense indicates that an action took place at an earlier point in time. The grammatical morpheme marking the past tense in Shona is */-ka-/.* In Shona; however, the past tense constructions have their subject pronoun attached with the aspectual marker */-a-/.*

(20) Nd-a-ka-rar-a pano ne-zuro.
sm-asp-pst-sleep-tv here adv yesterday
'I slept here yesterday.'

The morphological difference between past tense and the present and future tenses is that the latter are marked with */-i-/* as in;

(21) a. Nd-**i**-no-rar-a pano nhasi.
sm pres sleep tv here today
'I am sleeping here today.'

b. Nd-**i**-cha-rar-a pano mangwana.
sm fut sleep tv here tomorrow
'I will sleep here tomorrow.'

Future: The future tense in Shona just like in any other language expresses an action that has yet to take place; or is about to take place. The future tense morpheme in Shona is */-cha-/* which is placed after the subject pronoun as shown in example (21b).

3.2.2.4 Aspect

Scholars have given various, but related definitions of aspect, Comrie (1976:5) states that aspect represents different ways of viewing the internal temporal constituency of a situation. Bright (1992:278) on the other hand describes aspect as a grammatical category which marks the duration or type of temporal activity denoted by the verb; as in the perfective/imperfective distinction found in Slavic languages or, more controversially the contrast between progressive and non-progressive in English. According to Katamba (1993:221) aspect is a verbal category that has the function to highlight the internal temporal unfolding of the predication. Finegan (1999:586) describes aspect as a category of verbs marking the way in which a situation described by the verb takes place in time, for example, as continuous; repetitive or instaneous. Haspelmath (2002:266) defines

aspect as an inflectional dimension on verbs that has to do with the internal temporal constituency of an event. Essentially, aspect indicates whether an event, state, process or action that is denoted by a verb is complete or in progress. The aspect used for incomplete actions is called imperfective (or progressive) aspect and that used to indicate completed actions is called perfective aspect. Cross-linguistic studies show that three oppositions of aspect exist: perfective vs. imperfective; habitual vs. continuous; non-progressive vs. progressive. I will briefly discuss the various aspects that are found in Shona.

Perfective: Binnick (1991:200) states that when the event is viewed in its entirety, from beginning to end, we essentially have the perfective aspect, whereas a partial view provides the imperfective. The perfective refers to an action, taking place at a particular point in time. When discussing the perfect aspect reference should be made to the entire situation and not just to its completion; therefore, perfective should be thought of as "complete" rather than "completed" (Comrie 1976:18). The perfect aspect can either be present or past.

Present: The perfect aspect in Shona expresses recent completion. In Shona recentness of an action is expressed by employing the grammatical morpheme */-a-/* which is attached to the subject pronoun and verb:

(22) Nd-a-dy-a
sm-asp-eat-tv
'I have eaten.'

The aspectualizer in Shona is also a bound morpheme, which is inflectional. It must occur before the verb root.

Past: In Shona to construct the past perfect, the participial form is employed, making use of the */-nga/* auxiliary. The auxiliary */-nga/* is combined with past tense morpheme */-ka-/* and the past aspect morpheme */-a-/* to give the past perfect aspect as in the following;

(23) Nd- a-ka-nga nd-a-dy-a
sm-asp-pst-aux sm-asp- eat-tv
'I had eaten.'

Another category of the past perfect aspect is the recent past perfect. This aspect is made up of the aspectualizers */-a-/* of the past perfect and the auxiliary */-nga/* as in;

(24) Nd- a-nga nd-a-dy-a
sm-asp-aux sm-asp eat-tv
'I have eaten.'

Future: The future perfect indicates that an action takes place within a bound or specified period. The future aspectual grammatical morpheme in Shona is */-ne-/* which is combined with the auxiliary */-nge-/* and the past aspect /*-a-/* to express the future perfect aspect. As in;

(25) Ndi-ne-nge nd-a-net-a.
sm-asp-aux sm-asp-tired-tv
'I shall be tired.'

Habitual: The habitual expresses the imperfective or non-punctual concept of an action and therefore differing from the perfective. According to Comrie (1976:28) habituality describes a situation, which is characteristic of an extended period of time, rather than an incidental property of the moment.

Past: The past habitual aspect expresses an action taking place over a period of time in the past. In Shona, the past habitual morpheme is */-i-/*. The past habitual morpheme conveys the equivalent to the English "used to" as in;

(26) Va-na va-diki va-i –remekedz-a va-kuru
c2 child sm-small agr-asp- respect-tv agr- elder
'Small children used to respect elders.'

The above example expresses the aspectual nature of the activity taking place in the past tense.

Progressive: Crystal (1986:286) describes progressive as a term used in the grammatical description of verb forms; referring to a contrast of a temporal or durative kind and thus sometimes handled under the heading of tense and sometimes under aspect. The progressive aspect is found in the present, past and future in Shona.

Present: In Shona the present progressive aspect in marked by the grammatical morpheme /-ri-/ as in the example below;

(27) a. Nasai a-ri- ku-tamb-a oga
c1a sm-asp-inf-play tv alone.
'Nasai is playing alone.'

b. *Nasai aritamba oga.

As seen in the example above the aspectual morpheme */-ri-/* works hand in hand with the infinitive morpheme /*-ku-/*. The absence of the infinitive morpheme will make the whole sentence ungrammatical (see example 27b).

Past: The past progressive aspect refers to an action of the past that is continuative or durative, but not stative. The past progressive aspect employs a participial construction as in:

(28) Nasai a-nga-a-chi-tamb-a oga
c1a sm-aux -agr-part- play -tv alone.
'Nasai was playing alone.'

Future progressive: Past: This aspect of future progressive of the past refers to a durative or progressive action having taken place in the past; but in reference to a future event as in;

(29) Nasai a- nga-a-cha-uy-a kwenyu.
c1a sm-aux-agr-asp-come-tv your place
'Nasai was to come to your place.'

Future Progressive: In order to express the futurity of an action that is also progressive or durative a future participial construction is used in Shona. In this future aspect the

/-nga-/, /-nge-/ auxiliaries serve as aspectual markers. To express the tense within the progressive aspect, the aspectual future marker is employed.

(30) Ndi-ne-nge -ndi-chi-shand-a
sm-asp-aux-sm-asp-work-tv.
'I shall be working.'

From the above description of aspect in Shona it is clear that the aspectual combinations present complex constructions in the Shona verbal morphology because in addition to aspect, these constructions employ tense; auxiliaries and participles, to convey varying degrees of internal temporal settings.

3.2.2.5 Negation

Negation is a term used to refer to the use of negative morphemes in language. According to Crystal (1980:239) negation is a process or construction in grammatical and semantic analysis, which typically expresses the contradiction of some or all of a sentence's meaning. Negation can be used to express nonpresence, rejection and denial. In Shona negation is marked on the verb. The negative morpheme of Shona is a bound morpheme, which is inflectional. The negative morphemes of Shona are /*-sa-/*, /*-si-/* and /*ha-/*. These three negative grammatical morphemes precede the verb root. Examples of how each of these morphemes form a negative construction are given below:

(31) a. Mambo a-i-sa-ziv-a mu-veng-i wa-ke.
c1a sm-asp-neg-know-tv c1-enemy-tv poss pref-poss stem
"The chief did not know his enemy."

b. Ha-ndi-end-e kana u-si-p-o.
neg-sm-go-tv if om-neg-there-tv
'I will not go if you are not there.'

c. Mu-komana a-si-na Ø-shangu a-uy-a.
c1-boy sm-neg-with c10.shoe sm-come-tv
'The boy with no shoes has arrived.'

3.2.3 Controllers and Agreement Markers

It is not adequate to discuss the morphology of any language especially when describing grammatical morphemes, without reference to agreement markers. Agreement markers is a term that is used in grammatical theory to refer to a formal relationship between elements; whereby a form of one word requires the corresponding form of another. Haspelmath (2002:65) describes agreement markers as a,

> "kind of syntactic relation in which the inflectional behaviour of a word or phrase (the target) is determined by the properties of a nominal constituent (the controller[23]) to which it is closely related."

In English for example, a singular subject co-occurs with a singular form of the verb in the present tense for example, *he walks vs. they walk.* The pronouns *he* and *they* are the controllers of agreement in this instance. Some languages show agreement among a number of elements, for instance in Latin, there is agreement between number, gender and case of adjectives and nouns (Crystal 1980:78). The formal correspondence is traditionally referred to as agreement in the sense that the adjective, for instance, 'agrees' with the noun. Crystal (1980) states that agreement markers strengthen the relationship

[23] Controller (of agreement) is the constituent whose properties determine the properties of the agreement constituent (Haspelmath 2002:268).

between words because of their nature to show how there is dependency between two or more words involving inflection for one or more of such characteristics as case, number, person and gender. Haspelmath (2002:65) states that in agreement relations, nouns or noun phrases are almost always the controllers. This means that nouns or noun phrases (NP) determine the choice of agreement markers to be used.

Only the controllers that are relevant to the acquisition of Shona morphology or are necessary to an understanding of how Shona morphology may be acquired[24], are discussed here since a full discussion of the whole system of concords would occupy a complete study in itself. Four possible controllers are available in Shona. These are the subject NP, object NP, possessor NP and the modified head noun. The modified head noun is not discussed since the children in this study do not use it. Agreement markers are bound morphemes, they have to be attached to other words.

Controllers that are used in Shona trigger different forms of agreement markers, I will give a brief discussion of each controller.

Subject NP: This controller agrees with the target verb in person and number, for example;

(32) a. Va-sikana va-cha-dy-a sadza.
c2- girl 2sm-fut-eat-tv sadza
'The girls will eat sadza.'

[24] The choice of controllers that are discussed here are based on the data gathered for this study.

b. Gudo ri-cha-dy-a sadza.
c5.baboon 5sm-fut-eat-tv sadza
'The baboon will eat sadza.'

Object NP: There is agreement of the object with the target verb in number and person as shown below;

(33) a. Uswa hwa-fur-w-a hwe-se
c14.grass 14om-graze-app-tv 14om-all
'All the grass has been grazed.'

b. Bhora ra-tamb-w-a.
c5.ball 5om.play.pass.tv
'Soccer has been played.'

Possessor NP: there is agreement of noun with possessor NP in person and number.

The possessive indicates the possession or ownership of an object by another. The possessive affix in Shona is non-syllabic. The possessive affix in Shona is bound, and it can be used on nouns, nominal constructions, adjectives, enumeratives, selectors and demonstratives. The possessive affixes listed in Table 4, on page 65, agree with the possessee or the thing possessed. There are also pronominal possessive stems that indicate the possessor as given in the example below.

(34)
1st person	*-ngu*
2nd person	*- ke*
3rd person	*- vo*

The three pronominal possessive stems in (34) combine with any of the possessive affixes listed in Table 4 on page 65. I will use an example of *motokari* 'car' as the possessee to show how the noun agrees with the possessor in person and number.

(35) a. Motokari ya-ngu.
c9.car poss affix-poss stem
'My car.'

b. Motokari ya-ke.
c9.car poss affix - poss stem
'His car.'

c. Motokari ya-vo.
c9.car poss affix - poss stem
'My cars.'

In the example above, the possessive affix is agreeing with the thing possessed whilst */-ngu/* and /*-ke/* indicate the possessor. From the possessive pronominal stems we can discern whether we are talking about 1st, 2nd or 3rd person as the possessor.

The possessive affix is a complex construction in Shona. The complex nature of the possessive is also mentioned in the literature on other Bantu languages such as IsiZulu and SiSotho. The possessive is a complex construction because it has many formal realisations depending on noun or pronominal possessor. The following illustrations show the complex nature of the possessive.

(36) a. Nominal possessor as in:

Mombe ya-baba
c9.cow poss affix - father

b. Pronominal possessor as in;

(i.) Mombe ya-ngu
c9.cow poss affix – poss stem

(ii.) Mombe ya-vo.
c9.cow poss affix – poss stem

(iii.) Mombe ya – ke.
c9.cow poss affix – poss stem

3.3 SUMMARY

This chapter has given an overview of the Shona grammatical morphemes. This is in order to set the ground for the discussion of the acquisition of grammatical morphemes in Shona. This therefore is a pivotal chapter in terms of this study because it lays the ground for the discussion of the data gathered from the children. Although the researcher has presented a discussion of the Shona grammatical morphemes; the discussion on grammatical morphemes is not exhausted; since the researcher concentrated on those grammatical morphemes that are relevant to the scope of this study.

CHAPTER 4

DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.0 INTRODUCTION

This chapter provides a description of nouns, a few other substantives and verbs produced by Tatenda (T), AnnaLois (A) and Tafadzwa (TK). This is in relation to the discussion of the Shona GMs given in Chapter 3. The nouns and verbs are described in terms of the morphological development of grammatical morphemes (GMs). The nouns and other substantives are described first followed by a description of the verbs. The description of nouns is based on the noun prefixes and nominal agreement markers as done in Chapter 3. The description of verbs is done using the various GMs that are attached to the Shona verb. These are the subject, object, tense, aspect, negation and infinitive /ku-/ morphemes, which are described in Chapter 3. The differences in the morphological structure of nouns and verbs have necessitated separate analysis of these two categories. The details of these differences in morphology were discussed in Chapter 3.

This study is based on the analysis of spontaneous speech samples and hence production and not the comprehension of the children is considered. In the previous chapter, the researcher discussed the GMs of Shona as background to the data analysis. The morphological structure of nouns and verbs analysed in this chapter is to be considered as children's forms as opposed to the adult forms discussed in the previous chapter. The

data analysis also takes into consideration those words that the children produced which are similar in structure to the adult forms.

In order to achieve the goal of analyzing the GMs, the children's utterances are isolated from the sentences in which they occur and divided into nouns, nominal agreement and verbs. The isolation of words from the sentences in which they occur is done to facilitate data analysis. Since the GM is the focus of this study, isolating words is the best way to analyse it. After analysing the isolated words the researcher established that the GMs attached to words have different structures. The difference in structure of these GMs is as a result of the way children produce words in relation to the GMs. The researcher categorized the words produced by the children on the basis of the differences in the structure of the GMs. The researcher established three categories namely Category 1: No GMs, Category 2: Partial GM and Category 3: Appropriate marking. These three categories are based on the different structures of the GMs attached to the words produced by the children. However, reference is made to the larger constructions in which a particular GM occurs. This is done in order to make clear how the children deviated from the adult forms. These categories are used for the analysis of both the substantives and verbs. A description of these categories is offered in the next section.

4.1 Categories in the data

The term category in this study refers to a set of words that have GMs, which are similar in structure. The GM might be attached to any of the substantives or verbs. The different categories that are established are described in this section. Category 1 words are

characterized by omission of a GM. The words in this category do not have GMs. This category has words without grammatical morphemes (GMs) in a context where they are required; based on the rules of Shona grammar. The GM is required but omitted. GMs that mark class, number, person, tense, aspect, subject, object, negation and nominal agreement markers are omitted resulting in words that are either bare stems or insufficiently marked. For instance, a child's word might have one GM instead of two or three. All such words are discussed as, 'Category 1 words: No GMs'.

The second category indicates the beginning of the emergence of the GM. This category signals a step up in the development of the GM. This is because the first category does not have GMs but in this category part of the targeted GM begins to emerge. The set of words that are in this category share the characteristic of having a part of the target GM in the form of a vowel. The children dropped the consonants and produced the vowel only. Morphologically these words are incomplete. In all the words that fall in this category the placeholder vowel is part of the targeted GM. Another way of classifying words in this category is to label them as dropping of the consonant of the GM. Though this classification is phonological it is an appropriate description of this category. This classification might be viewed as a consequence of the interface of phonology and morphology. The words that have GMs that have the characteristics described here are to be referred to as, 'Category 2: Partial GMs'.

The third category is one in which a word is produced without error and resembles the adult form in its morphological structure, that is it consists of the GM and the content

morpheme (prefix and stem). The GM is supplied correctly. This is when a child uses a GM in a context for which it is appropriate, for instance, *vana vaviri* 'two children' in reference to two children.

4.1.1 Category 1: No GMs (lexical morphemes)

The omission of GMs is the first of the three categories of words. The words that are produced by children that do not have GMs are analysed in this category. Category 1 words are the first or early step in the acquisition of the Shona GM. This is because the GM is not yet marked, which shows that the child has not yet acquired it. The characteristics of the words in this category match the early stage of morphological acquisition because the children at this stage produced words without GMs. The omission of GMs as the early step in acquiring morphology has been cited in other Bantu works on morphology such as Connelly (1984) who delineated the first stage of the acquisition of noun morphology by Basotho children as marked by the absence of a prefix with an ill-formed stem, Demuth (1983) and Kunene (1979) also depict stems without prefixes as the first step towards the acquisition of Bantu morphology.

The words in this category produced by the three children do not have the GMs. The nouns and substantives appear in a more general and primitive form of lexical or content words. In Chapter 3, the researcher discussed the morphological structure of Shona noun as bi-morphemic i.e. comprising a GM and LM. Verbs in addition to GMs and LMs have suffixal morphemes[25]. However as mentioned in Chapter 3 suffixal morphemes are not discussed in this study since they are not grammatical morphemes. Based on the

[25] Suffixal morphemes in Shona are attached to the verb and they are derivational.

classification by Mkanganwi (2002:38) of prefixes as inflectional and suffixes derivational. The omission of either the GM or LM results in ungrammatical words. The children in this study omitted the GM, resulting in forms that are different from the adult forms. In Shona all GMs are attached to the left side of the word. The examples of words produced without GMs are shown below:

(37)	Child	Adult	Gloss
	a. Ndipe -[26]**shonga**.	Ndipe **mushonga.**	**'**Give me medicine.'
	b. Ndida enda --**koro.**	Ndirikuda kuenda **kuchikoro.**	'I want to go to school.'
	c. Nhashi taenda -**tauni.**	Nhasi taenda **kutauni.**	'Today we went to town.'

In the above examples, the children's words with omitted GMs and the adult words with GMs are in bold. The researcher was able to establish the omitted GM because the omitted GMs are predictable in context since GMs comprise a small set. The children in this study produced a number of words that lacked the GM; in other words their words had the LM only, showing that lexical morphemes are acquired first. The data from the three children show the omission of the locative; number; copulative; adverb of association; negative; possessive; and the conjunctive morpheme. Structurally, the GM occurs before the LM. The GM occupies the left side while the LM occupies the right side of the word. The structure of the words produced by the children shows a gap in the left position of the word; this can be presented as follows:

[26] - Marks the position of the omitted GM. Where there are two dashes (-) as in 37b it indicates the omission of two GMs.

GM	LM
-	-shonga
-	-koro
-	-tauni

FIGURE 2: The position of the GM in a Shona word

Basing this discussion on the structural description of the children's words given in the figure above we notice that the gap is on the left position of the word. In Shona the left position of nouns is the position for the GMs. One question that comes to mind is why do children omit the GM and not the LM? Why is there a gap in the left side of the word? Slobin's OP (ATTENTION): END OF UNIT could be invoked to explain why children find it easier to acquire the LMs before the GMs. From this principle we can derive the hypothesis: *In Shona (nouns and nominal agreements) children will produce LMs without GMs.* This hypothesis is derived on the basis that the Shona nouns are made up of the GM and LM. The OP given above predicts that children pay attention to the end of words; in reference to the Shona nouns it means the LM is the end of the word. The children's utterances analysed in this category conform to this OP and the hypothesis derived from it since the LMs are acquired first.

A possible reason for such a form of acquisition is that the end of words is more salient than the beginning. The end of words is best retained in short memory. Newport (1977) agrees that children selectively pick up information at the end of words and sentences. Slobin uses this principle to account for the fact that the acquisition of suffixes is easier than the acquisition of prefixed morphemes (Slobin 1973 cited in Ingram1989: 68). The

children in this study found it easy to acquire the LMs first than the GMs. It is possible that although these LMs are relatively complex morphologically, they are more salient for the child, as they always appear in a fixed position at the end of the word. The salience of units that occur at the end of words have been noted in serial recall by adults (see Kintsch 1977) and Hagen and Stanovich (1977) for recall work with children. Another possible explanation for such form of acquisition is that the lexical morpheme has a concrete meaning whilst GMs have an abstract meaning making it difficult for the child to master them at an early age.

Scholars such as Brown (1973); deVilliers and deVilliers (1978) Kunene (1979); and Connelly (1984) have used the form/content distinction in explaining why children produce LMs first without GMs. The Shona word displays the form/content distinction; of which the GM is devoid of any specific meaning whilst the LM carries meaning. The fact that the LM carries meaning is what the above scholars use to explain the occurrence of LMs without GMs in the early stages of morphological acquisition. Although this is a plausible explanation it is important not to overlook the fact that it is based more on the adult understanding of the morphological structure of the words and does not adequately explain how the child understands the form/content distinction. One factor that is obviously not in favour of this explanation is that the child's cognitive skills will not be advanced and hence the child will not be in a position to identify meaningful segments of words. The children here might be guided by penultimate lengthening as noted by Allan and Hawkins (1980) who suggest that children have a universal tendency to omit pre-stressed syllabus and produce trochaic feet.

The other strategy that is adopted by the children is the one that disconfirms HYPOTHESIS B: *Nouns, substantives and verbs are assumed to be monomorphemes in the initial stages of language development.* This hypothesis is disconfirmed because the data shows that the children are treating the Shona nouns and nominal agreement as detachable. They are detaching the GM from the full word producing the LM only. They are treating them morphemically and not holistically. If the hypothesis were to be confirmed children would have produced nouns with their GMs. The children are treating the GM and LM as separatable or morphemically. The children produced the LM before the GM.

The data at this stage also indicates that after segmenting the word into GM and LM, the LM is stored in the word category. This is because the children are producing the LMs without the GMs an indication that it is stored as a word. When retrieving, the stored LM the children will not assign it a GM since they perceive the LM as a whole word. Let's consider the examples below in which the words produced by the children do not have a GM.

Table 7: Children's words with omitted GMs

Child word	Omitted GM	Adult word	Gloss
-chairo	mu-	mutsvairo	broom
-koro	chi-	chikoro	school
-shonga	mu-	mushonga	medicine
-koti	mu-	mukoti	in the coat-bed
-bage	chi-	chibage	green mealie

The words in Table 7 above indicate that the children have segmented the word into GM and LM then stored the LMs as whole words leaving out the GM. The LMs are not assigned grammatical information of number, class and location. Although the LMs in Table 7 are meaningful, they lack GM information.

The data also show that words from class 1a, 5 and 9 were produced without the GM. The words from class 1a, 5 and 9 share a common characteristic, that is, they do not have a marked class morpheme. The GMs that are assigned to words of class 1a, 5 and 9 are based on the context in which the words occur. It is interesting to note that the children perceived the structural make up of the words from these classes and did not segment them since they are bound morphemes. This is an indicator that the children do not haphazardly segment the words they hear. Let's consider the words given in the Table below.

Table 8: Children's production of class 1a, 5 and 9 words

Child word	**Class**	**Omitted GM**	**Adult word**	**Gloss**
-Mutare	1a	kwa-	kwaMutare	to Mutare
-basa	5	ku-	kubasa	to work
-mota	9	i-	imota	it is a car
-gogo	1a	na-	nagogo	with grandmother
-zai	5	ma-	mazai	eggs

The words in Table 8 under the Child word column above are free morphemes and it seems the children are aware of this morphological structure and they store them as free words. They also did not segment these words. However, since the children at this stage

have not mastered the GM they will retrieve the LM without any GM. Adam and Bat-El (2000) also noted the access to the distinction between GMs and LMs at the stage where the GMs are not yet produced. They did a study of the acquisition of Hebrew. Again the question of how these children identify the LM from the GM comes in. Are they aware of the form/content distinction that adults know as cited in a lot of works on Bantu morphology? Kunene (1979), Connelly (1984) and Demuth (1983) have proposed that children understand the morphological structure of words and segment them into form/content distinction.

The data in Table 8 reveals that indeed children can make a morphological distinction between GM and LM. However the question the researcher needs to pause here is how is it possible for children to distinguish between GM and LM considering the age of the children and taking into consideration the fact that morpheme analysis can be complex even to adults? Slobin (1979) answers this question by proposing the OP (ATTENTION): END OF UNIT. *Children pay attention to the last syllable of an extracted speech unit; stores it separately and also in relation to the unit with which it occurs.* Although this OP can be used to give an explanation, in Shona frequency can also play a role. The researcher then proposes that the concept of environment and frequency can be used to explain the occurrence of the LM first without the GM. The concept of environment and frequency plays a role if one considers the importance of exposure[27] to linguistic input in acquiring a language. It means children to some extent rely on the interaction with speakers of the language being acquired (Finegan 1999:549). Therefore the frequency of

[27] The case of Genie, a girl who was never exposed to language until puberty, is one example that illustrates the role of exposure in the language acquisition process.

use of the LMs in adult speech is an important factor to consider when explaining the emergence of bare LMs. Demuth (2000) also supports the role of frequency in highlighting certain grammatical categories in languages. Although there is no empirical data to support this claim, it is the impression of this researcher as a native speaker that adult speakers produce LMs more frequently.

To explain how frequency plays a role, the researcher will use the noun *musikana*. The noun *musikana* in adult speech takes various GMs depending on the environment in which it occurs. In terms of frequency the LM *-sikana* occurs more frequently than any other GMs that it can take. The child acquiring Shona therefore will hear *–sikana* more than any of its GMs. Figure 3 below illustrates this.

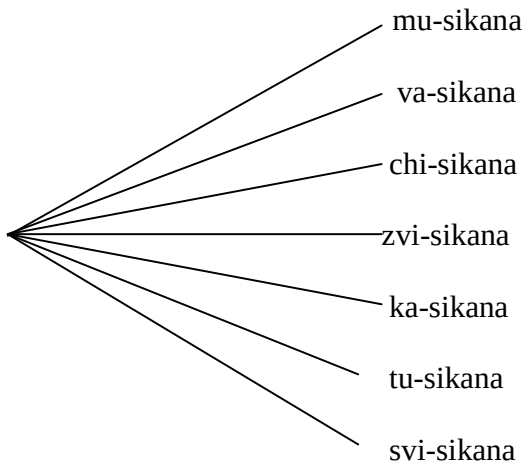


FIGURE 3: Frequency of the LM in Shona words

In the figure above the LM -*sikana* occurs in a number of environments without changing its form. The LM –*sikana* takes different GMs like *mu-; va-, chi-; zvi-; ka-, tu- and svi-* as shown above. The changing of the GM depending on the environment as shown in Fig 3 above seems to be an influencing factor. To a child who is acquiring Shona this has an effect on the child's perception. The child hears more of the LM than the GM and the child will find it easy to store the LM as a unit since it occurs in a lot of environments. It seems the GM brings the child face-to-face with a difficult task of choosing the appropriate GM hence the child will resort to omission of the GM. The child however will gradually map out the function of these GM and the LM will slowly be assigned grammatical information as will be shown in the later sections.

deVilliers and deVilliers (1978:69) have described LMs produced without GMs as telegraphic speech. This is because words that the children produce at this stage are LMs only, primarily the nouns and verbs that are necessary in the situation. They go on to explain that children leave out the GM (ibid). The word "telegraphic" is an apt adjective because adults produce similar sentences under conditions where words cost money that is in a telegram or classified advertisement.

The fact that the children omit the GMs is evidence that they have no access to them or cannot produce them because of the developmental stage she is at. The child will opt for those parts of words that make clear reference and are less predictable from the context. deVilliers and deVilliers (1978:70) in explaining the reason why children produce LM rather than GM, states that "it is the very properties that make content words more

necessary in speech that also make them more salient for the child to learn and that is they have clear meaning."

Within Category 1; there is a set of borrowed lexical items that the children produced without the GMs. When analysed out of context these borrowed words are morphologically well formed and resemble adult words since they are free morphemes. However according to the contexts in which they are produced they lack GMs as shown in example (39a-b). The reason they appear to be grammatical is that all words borrowed into Shona are not marked by a class morpheme. In other words they tend to have a zero morph (unmarked) noun prefix. Out of context, there is no way one will predict the omitted morpheme. It is only from the speech contexts that one is able to establish the missing GM. Sentences below illustrate how these words have a missing GM. There are other morphemes missing which will be taken care of in other categories.

	Child	Adult
(39) a.	A-nde tise -**firiji**.	Ha-nd-e ti-no-is-a **mu-firiji**. hort-go-tv sm-pres-put-tv c18-fridge 'Lets go and put it in the fridge.'
b.	Sisi -**kikeni**.	Sisi va-ri-**ku-kicheni**. c1a sm-asp-c17.kitchen 'Sister is in the kitchen.'

The omitted GM is underlined in the above example. The omitted GM can be predicted in context as shown in the above examples. The OP (MAPPING): AFFIX CHECKING. *Do not add an affix to a word or word-stem that appears to contain that affix in the relevant position*, can be referred to in order to explain the words in (39).

The data reveals that there are two lexical items, *chipisi* and *pegishi,* that are borrowed from English that appear in the data and fits into Category 1. These nouns are borrowed with their plural markers. The translations of these words are *chipisi* ‘ chips’ and *pegishi* ‘ pegs’. The researcher included the two nouns as lacking GMs in that they are not marked for number, though the plural is already marked from the English language they have been borrowed from. The reason for discussing them under the ‘No GM’ category is that at later sessions they were produced with the plural morpheme /*ma-/*. In the nouns *chipisi* and *pegishi* the children will be using non-proportional analogy in that they will be marking plural were it is already marked. Analogy is defined as, a process which creates new forms not through the combination of pieces but by extending patterns that are implicit in already existing rote lexical items (MacWhinney 1985:1097). These words are considered to be ungrammatical on the basis that the plural morpheme later appears in the children’s speech and not because of non-proportional analogy. The use of non-proportional analogy is not only found in the speech of children acquiring language but also in adult speech. The example below is a common utterance among adult Shona speakers, where the noun *masokisi* has literally double plural marking.

(40) Ma- soki- si a- ngu a- ri- ku- pi?
c6 - sock-pl sm-poss-sm-asp-c17-where
‘Where are my socks ?’

Another important observation about the data in this category is on the question of the order of the development of the GM. The characteristics of the nouns and nominal agreements in this category indicate that this is the first stage in the development of the

GM. The reason for classifying the data at this stage, as the first stage is that the children are producing LMs only. That is they are producing mono-morphemic words; instead of bi-morphemic words. At this stage the GMs are absent. Nouns are produced as bare stems. Other studies done in other Bantu languages also point to the emergence of stems without the prefixes as the first stage of the acquisition of noun prefixes. Such studies are those carried out by Kunene (1979) in SiSwati, Suzman (1980) in IsiZulu, Tsonope (1980) in SeTswana, Connelly (1984) in SeSotho and Demuth (1988) in Sesotho.

The data in this category reveals that the children produced a number of nouns that lacked the GM that mark either singular or plural class. These GMs are vital in any Shona nominal phrase since they give more information about number and agreement in larger constructions. From the discussion offered in Chapter 2 of this study on the stages of acquisition this category characteristically suites stage 4 of language acquisition in general but stage 1 in morphological acquisition. The children at this stage show that they understand word order as evident from the sentences in appendix 1, 2 and 3. An example is a sentence produced by Tatenda at 2,4yrs.

(41) a. Fafi da ingwa.[28]

Subject verb object.

'Fafi l want bread.'

b. *ingwa Fafi da.

[28] This sentence belongs to Category 2, I have used it here to illustrate a point on word order.

The sentence with the asterisk serves, as a counter example of the structure of the sentence that the children would produce if they do not understand word order. The data therefore also reveals that syntax is acquired first before morphology. Pinker(1984) also points out that children rarely scramble word orders. This however is a possible area of research in Shona since no study has been done in that area.

It is also evident from the data that the production of the substantives without GMs is more prevalent with the nouns than any other substantives; this might be because the children are noun lovers as opposed to noun leavers. It is important to reiterate the fact that though the children managed to produce LMs they were phonologically ill formed in some cases. Such LMs makes it difficult to tell whether the GM has been dropped on the basis of phonological complexity or that the child has not yet acquired it. Connelly (1984) also laments the problem of such LMs. However it still remains interesting because the child is opting to drop the grammatical morpheme and not the lexical morpheme even if it is on phonological grounds.

4.1.2 Category 2: Partial GM

The acquisition of the Shona GM takes place in stages. The first stage that discussed in the previous section had no GM. The words that the children produced at the first stage have bare LMs. At the second stage of GM acquisition the children are beginning to inflect the LM with a GM. The children have not yet mastered the full GM but are producing a 'partial GM'. 'Partial GM' in the sense that the GM is made up of a vowel only and does not resemble the adult GM. Consider the example in (42) produced by T at

2; 6 yrs. The noun *-ingwa* does not have the 'full' GM /chi-/ but has a part of the 'full' GM.

In Shona the GM is of the CV (consonant + vowel) structure in the adult language. The children at this stage are dropping the consonant and producing the vowel only. The example below is an illustration of how the children's morpheme structure words differ from that of adults.

(42)

Child noun	Adult noun
i-ngwa	ch- i- ngwa
|	| |
V	C V

The children are dropping the consonant and producing the vowel only as shown in (42). The vowel seems to be a 'place holder'. Dolitzky (1983) cited in (Connelly:1984) describes them as amorphous and generalized entities that show that the child has marked the obligatory presence of a GM without yet being able to produce the correct form. Although this is a morphological study it seems the development of the GM at this stage can be best described phonologically. The phonological process that seems to be in operation at this stage is consonant omission. It seems the children are dropping the consonants in order to facilitate production. In other words the children are being strategic in a bid to communicate. Owens (1988:393) acknowledges the difference in complexity between consonants and vowels. According to Owen (ibid) "consonants are somewhat more complex than vowels". The reason of such complexity arises from the

fact that consonants are described by their manner of articulation, place of articulation and voicing. In contrast the vowels are described by the height and location of the tongue in the mouth. This phonological complexity of the consonants vis-à-vis vowels in general, seem to be one of the reasons why children dropped the consonants in the data shown in Table 11. The omission of the consonant in the data has an effect on the word as a whole and the GM in particular. In fact the data reveals that there is interface between phonology and morphology. Here we can talk in terms of the effects of phonology on the acquisition of GMs. The dropping of consonants for phonological reasons has an impact on the morphological structure of the GM. The GM is now partial and hence incomplete or ungrammatical. The set of omitted consonants and their descriptions are shown below.

Table 9: Omitted consonants

Shona consonant	Description	Example
[ch] /ʧ/	palato-alveolar affricate	-ingwa
[m] /ᵐ/	bilabial nasal	-ainini
[s] /s/	alveolar fricative	-ipunu
[b] /b/	bilabial stop (plosive)	-epa

The above consonants were omitted in cases where they occurred in word initial positions, which is the position of the singular/plural morphemes. It is not quite clear from the data why the children omitted these specific consonants since the cases of consonant deletion are few in the data. It is either for the simplification of production in the case of the sibilant /s/, affricate, and prenasalised stop /ʧ/. These are complex

consonants because they are produced with two articulatory gestures (see Mudzingwa 2001:72). The other possible explanation for consonant omission is to reduce the size of the word. Reduction is one of the modifications of adult words given by Ingram (1989). The children might be dropping the consonants for phonological reasons, but my concern is in the effects that it has on the morphological structure of the GM. The data does not merely represent a phonological process because there are other words that are in use at the same time as those in this category, which have similar forms with the reduced GM and in some cases they are even more complex. This tends to prove that this is morphological and not phonological learning that is in place at this stage.

The omission of the consonant occurred with singular/plural, honorific and free morphemes. The Tables below lists the three GMs in which the consonants were omitted.

Table 10.1: Consonant omission in number morphemes

Child word	Omitted Consonant	Adult Word	Gloss
-[29]ingwa	ch–	chingwa	bread
-afuta	m-	mafuta	vaseline

[29] - marks the place where a consonant has been deleted.

Table 10.2: Consonant omission in honorific morphemes

-uriraiti	m-	muriraiti	Are you all right?
-uri	m-	muri	Are you all right?

Table 10.3: Consonant omission in free morphemes

-ota	m-	mota	car
-akai	N-	Nakai	Nakai

Table 10.1 lists the words in which consonants are omitted. The omitted consonants are those that occur with the GMs. The vowel that is produced as a 'place holder' by the children in all words in Table10.1-10.3 is part of the target GM that is found in adult words. There is no modification on the vowel of the targeted GM in the children's word but there is omission of the consonants only. This is in contrast to results of other Bantu languages in which the partial vowel is modified. In the words in Table 10.1 the omission of the consonants have an effect on number since it is not marked.

In words shown in Table 10.2 the omission of consonants has an effect on the structure of the honorific morpheme. This omission of the consonant has changed the semantic information of the GM. Instead of producing a GM indicating respect the reduced GM produced by the children do not show the element of respect. The example below shows the context in which the omission of the consonant occurs and how it affects the semantics of the sentences in which it occurs.

(43) a.

Child	Adult	Gloss
Dhedhi -une zhamu?	Dhedhi mune zhamu?	'Do you have a car?'

b.

-Uri kuita chii?	Muri kuita chii?	'What are you doing?'

The omission of the consonants in example (43) results in 'ungrammatical' sentences[30]. The omission of consonants in honorific morphemes is not only idiosyncratic to child language acquisition but also in second language acquisition. For instance, it is very common to hear people who use Shona as a second language, referring to elderly people using forms that do not show respect.[31] In other words, there will be violation of rules of address. However there might be different reasons why second language acquirers of Shona perform in similar ways as children, these can be verified through research.

The data in Table 10.3 reveals that children are not restricting the process of consonant omission to GMs of morphologically complex words only but the process is extended to free morphemes or words without any morphology. The phrase morphologically complex is used here to refer to words that are made up of more than one morpheme. The omission of the consonant in free morphemes is evidence that the children are not limiting this to GMs only since in the word *mota* 'car' the omitted consonant is part of a free morpheme and not part of a GM as in the examples listed in Table 10.1 and 10.2. This is an interesting development because in 'Category 1: No GM' discussed under section 4.2 children did not violate the structure of free morphemes but here the children are dropping consonants of free morphemes. This can be evidence of overgeneralisation on

[30] The researcher acknowledges that children's grammar is different from that of adults and that they are creative in their own way, however the adult form is used as a checklist.
[31] The Manyika dialect makes use of such forms of address but there will be no violation of rules of address.

the part of the children. The children at this stage might be overgeneralising the concept of consonant omission. The children seem to be omitting the consonants in order to make word production easier.

The fact that the omission of the consonant is occurring with different GMs, and not limited to a particular GM is evidence that the children are using a phonological strategy. It appears that the children are applying the strategy: *Phonological forms of words can be systematically modified.* This OP applies to the data in that the children are modifying the structure of the GMs by deleting the consonants. However, this strategy has an effect on the morphological structure of the GM. The phonological strategy being applied by children at this stage does not have an effect on the morphology of the GM only but also on the semantics of the constructions in which the word occur. For example in;

		Child	Adult	Gloss
(44)	a.	Gogo -uriraiti here?	Gogo muri raiti here?	Are you alright grandmother?
	b.	Sekuru -uri kuita chii?	Sekuru murikuita chii?	What are you doing grandfather?

In the example above, the child has omitted the consonant [m-], which is part of the honorific morpheme and this results in a construction, which does not indicate respect. The sentences in (44) do not have the accepted semantics, in that there is no agreement between the subject *gogo* 'grandmother' and the GM / *u*-/ in *uriraiti* 'are you all right?' The omission of the consonant [m-] in the children's words in example (44) shows that

the children at this stage do not recognize the proper semantic interpretation of the sentences. This also indicates that the full honorific morpheme is acquired later.

In section (4.2) I referred to MacWhinney's strategy of segmenting morphemes. MacWhinney suggests three categories in which children put segmented morphemes these are the word, affixes and roots. In this category this strategy does not apply because the children are producing LMs plus a partial morpheme. The partial morpheme does not fit into any of the three categories which segmented morphemes can be put into.

As indicated in Tables 10.1 to 10.3 the children omitted the beginning of word units rather than the ends. This might be because the children pay attention to the end of words according to the OP '*pay attention to the end of words*'. The children appear to be acquiring the morphemes of words starting from the right moving to the left. Here the children have moved from the LM only to partial GM plus LM. There is a leftward movement in the acquisition of the GM.

4.2 Locative-copulative before class morpheme

One of the goals of this research is to describe the order of acquisition of Shona GMs. This section discusses data that relates to the order of acquisition of three GMs. These are the locative and copulative in relation to the class morpheme. The data at the appendix reveals that there is a relation in terms of the order of acquisition of these morphemes. There are words that the children produced which have either the locative or copulative morphemes but without the class morpheme. This category points to the early acquisition

of the locative and copulative morpheme. From another perspective one can view this category as evidence that the class morpheme is acquired later after the children have already mastered the locative and the copulative morpheme. The wide range of class morphemes[32] that are at the child's disposal versus the small number of locatives and copulatives might be the reason of the late acquisition of class morphemes. The locative and copulative morphemes are secondary morphemes whilst the class morpheme is primary. One or more GMs as shown in the example below can inflect lexical morphemes;

(45) pa- -mu- -sha
c6 c18 homestead
'At a homestead.'

Two GMs, a locative morpheme /pa-/ and class morpheme /mu-/ has inflected the lexical morpheme /-sha/ in the above example. /mu-/ is the primary morpheme in that it is an obligatory part of the lexical morpheme and /pa-/ is secondary in that it is an optional morpheme. The secondary morpheme can be dropped but the class morpheme is compulsory. The children's words are produced without the class morpheme but with the locative and the copulative. The researcher classified the words in this category as the locative and copulative before class morpheme. This category reveals the order of acquisition of the locative, copulative and the class GMs.

[32] There are a total of twenty-two (22) class morphemes in Shona four (4) of which are locatives. There are four (4) copulatives morphemes.

The words produced by the children at this stage have locative and copulative morphemes but the class morpheme is omitted. The examples below show the phrases and sentences that the children produced.

(46) **Locative without class morpheme.**

Child	**Adult**
a. Da enda ku-koro.	Ndi-ri-ku-d-a ku-end-a ku-chi-koro. sm-asp-inf-want-tv inf-go-tv c15-c7-school 'l want to go to school.'
b. Andikwara apa pa-oko.	A-ndi-kuv-a-dz-a apa pa-ru-oko. sm-om-hurt-tv-caus-tv c16-c11-hand 'She hurt my hand.'

(47) **Copulative without class morpheme**

Child	**Adult**
a. i-afuta yaani?	Ma-futa aani? c6-lotion whose 'Whose lotion is it?'
b. i-punu yako here mhamha?	Isipunu[33] ya-ko here mhamha? C9.spoon poss.affix-poss.stem mum 'Is this your spoon mum?'

The sentences in example (46), shows the emergence of the locative morpheme before the class morpheme. The nouns that are inflected with the locative morpheme do not have a class morpheme. This can be evidence that the locative morpheme appears early. The locative morpheme occurs at the stage when the child is still producing bare LMs but before she produces GMs in the form of shadow vowels. This is illustrated by nouns *ku-*

[33] *Sipunu* 'spoon' is a borrowed lexeme from English.

koro and *pa-oko* given in (46), which lack the GM that mark class or number but has locative morphemes.

Example (47), which has the copulative morpheme, gives evidence that before the children have fully mastered the class morpheme they already use the copulative morpheme. The copulative in the given example is used with a partial GM representing the class morpheme, however, it is used to illustrate the fact that before a child masters the adult use of the class morpheme the copulative will be in use already. In (47a) *i-afuta* 'vaseline' is morphologically made up of a copulative morpheme, shadow vowel for the class morpheme and a full LM. This is an indication that after the children have acquired the partial GM they go on to use copulatives before they make use of the full GM. Therefore the class morpheme is preceded by the copulative morpheme.

None of the OPs seem to explain the occurrence of locatives and copulatives before the class morpheme. As mentioned before, the set of class morphemes that are available in Shona are more in number than the locative or copulative. Therefore the child will be faced with a small set of locatives and copulatives. The child will find it easier to master the locatives or the copulatives before the class morphemes. Since there is no OP that explains this form of acquisition a interim OP can be formulated: If a morpheme category has a large membership, members of that care acquired later than members that belong to a category with a small membership. From this OP a hypothesis can be derived: In Shona class, morphemes are acquired later than locatives and copulatives. This could be because locatives and copulatives occupy the beginning of the word and hence are more salient

than the class morpheme. The data are not extensive in deciding this point; a detailed research on the acquisition of locatives and copulatives is required in order to confirm this point.

4.3 Zero morph substantives

In the classification of Shona nouns there are noun classes that do not have noun prefixes. Nouns of these classes are marked by a zero prefix. Class 1a, 5, 9,10 and 17a are such classes which mark nouns by zero prefix. In analyzing the children's utterances the researcher established that there are a set of words that belong to these classes that the children produced without any deviation from those of adults. Words such as those that denote relations, borrowed lexical items and names of animals fall into these classes.

The words that are in this category are free morphemes. At the surface level the nouns of class 1a, 5, 9, 10 and 17a are represented by one morpheme only, but the underlying structure is made up of two morphemes. The notable thing about these words is that the children never segmented them. That is into GMs and LMs. For example AnnaLois produced the sentence below.

(48) Nd-a-on-a **tireni** ne-zuro.
sm-asp-see-tv c9.train adv-yesterday
'I saw a train yesterday.'

The noun *tireni* in the example above is a borrowed term from English. It falls into class 9 and cannot be segmented because it is a free morpheme. The children's utterances in this study show that the children did not segment such words, which are free morphemes. Children therefore acquired mono-morphemic words without segmenting them. This

might suggest that the children have knowledge of the morphological structure of these words. The children might be aware that these words are free morphemes. This suggests that the children have knowledge of the morphological structure of these words. The data discussed so far reveals that the children did not segment free morphemes. The children only segmented bound morphemes that are made up of at least two morphemes. The OP (MAPPING): AFFIX CHECKING. *Do not add an affix to a word or word-stem that appears to contain that affix in the relevant position,* can be applied to such instances.

4.4 The Overgeneralised GM.

According to one of Slobin's OPs there is a tendency among children to overgeneralise linguistic rules. According to this OP children learn rules that are most regular before they learn the rules that are irregular. In relation to the acquisition of GMs it will mean that children will first acquire the GMs that are regular before they acquire the irregular ones. deVilliers and deVilliers (1978:85) describe overgeneralisation as when a rule is learned; then overgeneralised to new instances where it is inappropriate. In other words, it means a form is made regular or rule-governed when it should not be.

The children in this study overgeneralised one morpheme /ma-/. An example of the use of /ma-/ in an overgeneralised manner is given below.

(49) a. d - a gez-a **ma**-romo na-mhamha
want-tv wash-tv c6-lip conj-mother
'I want mum to wash my lips.'

The morpheme /ma-/ is a class 6 plural morpheme. The morpheme /ma- marks plurality in more than one class. This means that /ma-/ can be used to pluralise more than one class. Among the GMs that mark plurality in Shona /ma-/ is the one that is frequently used. To the children who will be acquiring Shona, /ma-/ will be the regular morpheme and they will acquire it early before the irregular ones. See the examples below in which all the three children overgeneralised the morpheme /ma-/.

(50) a.(T:2;8) **Ma**-sekuru aenda. 'Uncles have gone.'

b. (A: 2;10) Unobiwa ne-**ma**-bavha. 'You will be stolen by thieves.'

c. (T:2;8) Ndine makore **ma**-tu. 'I am two years old.'

/ma-/ in the examples above has been used with nouns that do not fall into any of the classes that are pluralized by /ma-/. For instance *mbavha* 'thief' in its plural form is inflected by a zero prefix of class 10. The use of /ma-/ as a plural marker to a class 9 noun *mbavha* produces an unacceptable form. The child at this stage does not have any other plural morpheme and therefore uses /ma-/ which is available. This is because the child is regularizing the morpheme /ma-/ and uses it with any Shona noun to make plurals. According to the child's grammar /ma-/ is the 'only' morpheme that is used in Shona to mark plurality. This is because the child has acquired /ma-/ as the plural morpheme and the child will make use of this morpheme whenever the need to pluralise a noun arises.

The reason /ma-/ is overgeneralised by the children is because it is a regular plural morpheme. The use of the plural morpheme is even extended to non-countable nouns such as in;

(51) Mhamha ndi-ras-e **ma-**vhudzi aya here?
c1a sm-throw-tv c6-hair dem int
'Mum should l throw away the hair?'

The above example shows that the use of the GM /ma-/ is overgeneralised. The noun *vhudzi* 'hair' is a non-countable noun. Katamba (1993) refers to nouns which are not marked for number as 'non-count nouns'. *Vhudzi* is a non-count noun, which means it does not have singular and plural forms. The children nonetheless inflected this noun with /ma-/. This appears to be an indication that the children have mastered /ma-/ but have not yet acquired the other morphemes that marks plurality. This leaves the child without any alternative but to use the available /ma-/. This confirms HYPOTHESIS D, which predicts that, *an acquired grammatical morpheme will be overextended to words that are marked by zero prefix and nouns from other classes which are not marked by the plural morpheme /ma-/.* Mabugu (1995) noted the widespread use of /ma-/ in Shona. She noted that /ma-/ was the most frequently used morpheme not in child language acquisition only but also in adult speech. This might be the reason the children overgeneralised it.

There are instances in which /ma-/ is used, but the child will be referring to a single entity. These instances strengthen the fact that the morpheme is indeed being overgeneralised. An example of such is the sentence produced by AnnaLois;

(52) D-a gez-a **ma**-romo.
want-tv wash c6-lip
'I want to wash my lips.'

In the example above AnnaLois was referring to one set of lips but used the plural morpheme /ma-/ instead of the singular morpheme /mu-/. The morpheme /ma-/ is also not the correct plural morpheme for *muromo* 'mouth', which is a class 3 noun. Nouns of class 3 have /mi-/ as their plural morpheme. /ma-/ is supplied in an inappropriate context; this is because the child used it in a place where it is inappropriate.

/ma-/ is also used alongside singular morpheme as in;

(53) d-a gez-a ma-ruoko na- mhamha
want-tv wash-tv c6.hand conj mum
'I want mum to wash my hands.'

The noun *ruoko* falls in class 11 according to the noun classification system of Shona. The plural morpheme of this noun is /ma-/. In order to make it plural the singular morpheme /ru-/ is dropped to accommodate the plural morpheme /ma-/. The children are not aware of this, which is the reason they produced the plural alongside the singular. What seems to be of importance to the child is the fact that they are plural nouns.

The data presented and analysed in this section confirm OP 5 (MAPPING): EXTENSION. *If you have discovered the linguistic means to mark a Notion in relation to a word class or configuration, try to mark the Notion on every member of the word class or every instance of the configuration, and try to use the same linguistic means to mark the Notion*. In this case the children have discovered /ma-/ and are marking it on all nouns.

It is apparent from such overgeneralisations that the children are actively seeking rules. In this case the children formed a rule on basis of /ma-/ which is used more regularly in Shona and ignored the irregular morpheme that indicate plurality. This is because the regular plural morpheme exhibits a pattern to the child whilst the irregular morphemes do not. Although there is a clear singular-plural pattern in Shona that links nouns of one class to another (i.e. 1 / 2, 3 / 4, 5 / 6, 9 / 10, 12 / 13) children look for very general patterns. The use of /ma-/ as a plural morpheme is widely generalised. It is used to inflect more classes than any other plural morpheme in Shona (see footnote 18 on page 63).

4.5 The development of the GMs attached to the Verb

The acquisition of Shona verbal morphology involves rich systems of verbal inflectional morphology. In Chapter 3, it is stated that the verb root in Shona takes up a number of GMs, namely subject, object, tense, aspect and negation. Unlike the noun and other substantives the verb takes up a large number of GMs. After analysis of the verbs the researcher established that the various GMs that are inflected on the verb show

developmental phases. The verbs just like the nouns, produced by children in this study fall into three categories the first category has unmarked GMs in the early stages, then a partial GM appears and finally the "adult" GM appears. The GMs associated with the verb do not occur simultaneously. In other words it is not obligatory to have the subject, tense, mood, negation and object morphemes inflected all at once on a verb. The use of any of the above mentioned morphemes depends on the "context" in which the verb root is used. The analysis of the GMs attached to verbs in this study is based on individual GMs. Slobin's OP is used as the analytical framework; this is the same framework that is used on nouns. The categories established in the previous analysis of nouns are used again with verbs.

4.5.1 The Subject

The data shows that the children omitted the subject morpheme and used verbs without the subject morpheme. The sentences below show the sentence structures that the children produced.

(54) a.i. (T: 2; 4) C[34]: -takurewo.
A[35]: **Ndi**- takur- e- wo.
sm- carry- tv encl
'Carry me.'

ii. (2;5) C: ---da mvura.
A: **Ndi**- ri- ku- d- a mvura.
sm- asp- inf- want tv water
'I want water.'

[34] C represents a child's utterance.
[35] A represents adult's utterance and the child's target morpheme are in bold.

b.i.(A:2;6) C: --da -geza maromo.
A: **Ndi**- no- d- a ku- gez- a muromo.
sm- pres- want- tv inf- wash tv lip.
'I want to wash my lips.'

ii. (2;8) C: Gogo -enda kupi?
A: Gogo **va**- end-a kupi?
cl1a sm- go- tv where
'Where did grandmother go'.

c. i .(T:2;9) C: Mhamha -uya.
A: Mhamha **va**- uy- a.
cl1a sm- come- tv
'Mother came.'

ii.(2;9) C: -kamu mu-shoyo.
A: **Ndi** - kam- e- i musoro.
sm- comb- tv hon hair
'Comb my hair'.

The above sentences are examples in which the children omitted the subject morpheme. The omission of the subject morpheme is similar to the omission of the GMs on the noun that is discussed in (4.2). Again here we can apply Slobin's OP that states that children tend to pay attention to the end of words. In relation to the subject morpheme in Shona we can derive the hypothesis; In Shona, children will produce the verb root before the subject morpheme. This is because the children produced verb roots that do not have subject morphemes.

The children moved from the stage of the omission of the subject morpheme and produced 'partial GM'. All the three children passed through this stage. The structure of the subject morpheme produced by all the three children is similar. The examples below illustrate the production of subject morphemes in the form of shadow vowels.

(55) a. (T:2;7) C: -u-sa-dzim-a laiti.
A: mu- sa- dzim- e laiti.
sm neg switch off-tv light
'Do not switch off the light.'

b. (A:2;8) C: Mhamha -aruka nani?
A: mhamha ma- ruk- w- a nani?
cl1a sm plait pass tv who
'Mum who plaited you?'

c.(T:2;10) C: Mhamha -apeja.
A: mhamha nd- a- pedz- a.
cl1a sm asp finish tv
'Mum I have finished.'

The vowel produced, as a 'place holder' subject morpheme is clearly part of the adult subject morpheme. This might be viewed as a signal that the children are aware of the subject morpheme but its production constraints are hindering the use of the adult subject morpheme. It appears that the children are applying the strategy of modifying phonological forms of words. The subject morpheme is modified in the sense that the children are omitting the consonants and producing the vowel only.

The production of the adult subject morpheme follows the stage of the partial GM. No cases of overgeneralisations were noted with the use of the subject morpheme.

Although the development of the subject morpheme in Shona takes places in three distinct phases it is worthy to mention that these stages overlap. In the data there is evidence that this overlap occurs even in utterances that follow each other. For instance during the second session of recording data Tatenda first produced an utterance that had

the subject marker and it was followed by an utterance in which it was omitted. See the example below:

(56) (T: 2;5) i. Nd-i-ru-d-a vhur-w-a chipisi.
sm-asp-want-tv open-pass-tv chips
'I want you to open the chips for me.'

ii. –d-a vhur-ir-w-a apa.
want-tv open-app-pass-tv here
'I want you to open (here) for me.'

In the example above Tatenda produced a full subject morpheme /ndi-/ followed by 'total' omission of the same subject morpheme. Such kind of development is also reported in studies done in other Bantu languages, for instance, SeSotho and SiSwati. The data also reveals that the first person singular subject morpheme /ndi-/ is widely used by the children.

4.5.2 The Object

The object morpheme is not an obligatory part of a verb. The object morpheme occurs when the lexical object is omitted or extraposed. The object morpheme occurs between the subject, tense or aspect morpheme if present and the verb. As mentioned in Chapter 3 the object morpheme only occurs in the verb phrase (VP) initial position in imperatives. As in,

(57) Mu- rov-e.
obj- hit- tv
'Hit her.'

The only instance in which the object morpheme is expressed is in the sentence produced by Tatenda. See the example below;

(58) Ndi-yi ku-yi fuyidz-a kuti i-sha-pis-e
sm-asp-inf-om-blow-tv so that om-neg-hot-tv
'I am blowing it so that it will not be hot.'

4.5.3 Tense

The tense morpheme in Shona occurs in between the subject morpheme (if present) and the verb root. The tense/aspect system of Shona like in other Bantu languages is highly complex. The children in this study produced utterances in which the tense morpheme is used. In some cases this morpheme is omitted as in;

(59) (T: 2;4) C: Ande ti-se firiji.
A: Ha- nd- e ti- **no**[36]- is- e mu-firiji.
hort- go-tv sm- pres- put - tv c18- fridge
'Let's go and put it in the fridge!

In the sentence above the present tense morpheme /-no-/ is omitted. In another utterance;

(60) (A:2;7) C: Nda-ona tireni nezuro.
A: Nd-a- **ka**- on-a tireni ne-zuro.
sm asp- pst- see- tv c9.train conj yesterday
'I saw a train yesterday'.

In the utterance above the child omitted the past tense morpheme /-ka-/. The child was saying a statement of things that had happened the previous day and so she was supposed to use the past tense morpheme. Another example of tense morpheme omission is from Tafadzwa.

[36] The target tense morpheme is in bold in the adult target speech.

(61) (TK:2;11) Gogo a-uy-a na-shekulu zhuro
c1a sm-come-tv conj- c1a yesterday
'Grandmother came with grandfather yesterday'.

In (60) and (61) the children omitted the past tense morpheme /-ka-/ but she used the subject morpheme. These are the only instances in which the children used the subject morpheme without the tense morpheme. The researcher cannot make a conclusive statement on the order of acquisition of tense morphemes versus subject morphemes because of the limited instances in which such utterances occur. However one possible explanation for the use of subject without the tense morpheme is that since the SM occurs in verb initial position it is most likely that it is more salient as compared to the tense morpheme.

Unlike the development of the subject morpheme the tense morpheme never occurred in the form of partial GMs. This is also the case with the object morpheme discussed in section 4.5.2. Although the children omitted some morphemes that mark tense by about 2,5 years the children could produce verbs marked for tense. Tatenda at 2,5 years produced;

(62) Ndi- cha- uy- a mangwana.
sm fut come tv c6.tomorrow
'I will come tomorrow.'

The sentence in (62) produced by Tatenda resembles sentences that are produced by adults.

4.5.4 Aspect

Tense and aspect are two 'intertwined' aspects of Shona and Bantu morphology at large, which are very complex. However, for the sake of analysis of development of the aspect morpheme, the researcher identified the instances in which the children used or were suppose to use the aspect morpheme and analysed them. Most of the utterances that the children produced were not marked for aspect. The aspect morpheme that is omitted in most of the children's utterances is the present progressive. The present progressive aspect morpheme in Shona is marked by the /-ri-/ which must be used alongside the infinitival morpheme /ku-/. The examples below indicate the instances in which the children omitted the present progressive.

(63) a. (T:2;5) Ndi-ku-d-a -vhur-w-a chipisi.
sm- inf-want- tv open- pass-tv chips
'I want you to open the chips for me.'

b. (A: 2;6) -d-a -gez-a ma-ru-oko na-mhamha.
want-tv wash-tv c6-c11-hand conj mum
'I want mum to wash my hands.'

c. (T:2;10)Tii i-pish-a.
c5.tea om-hot-tv
'The tea is hot'.

The utterances in (63a-c) are produced without the present progressive aspect morpheme (ri-). These sentences have other morphemes that are missing such as subject morpheme in (63b), but these are discussed elsewhere. The development of the aspect morpheme does not follow similar patterns as the noun prefix for instance. There are two developmental stages that the researcher established from the children's utterances these are the omission of the aspect morpheme and the appropriate marking. The aspect

morpheme is not omitted in isolation, but with other morphemes, as shown in (63b and c), in which the infinitive morpheme is also missing. The child produced the sentence with the subject morpheme but omitted the present progressive aspect morpheme and the infinitive /ku-/. This shows that the children have not yet mastered all the GMs that are attached to the verb. The children are using content/lexical morphemes without the GMs. However in some utterances the children marked the GMs such as subject morphemes in (63a) and the object morpheme /i-/ in (63c) but omitted the aspect morphemes. The use of the subject and copulative morpheme without the aspect morpheme indicates that the children acquired the subject and object morpheme before the aspect morpheme. The reason for early acquisition of the subject and the object might be because they appear in word initial positions making them perceptually salient for the children and hence acquired earlier than the aspect.

All the three children moved from the no marking category to the appropriate marking category. There are a couple of interesting aspects to note in terms of how the aspect morpheme develops. The first is that it is similar to the development of other morphemes; for instance a child produced an utterance with the aspect morpheme at an earlier session and then omitted it in later sessions. For instance Tatenda at 2,4 produced;

(64) a. Nd-a-teng-w-a[37] na-mhamha.
sm-asp-buy-pass-tv conj mum
'Mum bought it for me.'

[37] Passives occur early in Shona this is in contrary to English, where they occur very late (see Clark and Clark (1977) ,de Villiers and de Villiers (1973) and Chiswanda (1994).

b. _bai-w-a.
prick pass tv
'I have been pricked'.

In (64a) Tatenda used the aspect morpheme but in a later session she omitted it. The second feature of interest in relation to the development of the aspect morpheme is that AnnaLois produced an utterance which has the aspect morpheme marked inappropriately. The utterance below shows how this occurred.

(65) Ndi-yi -ku-rar-a.
sm-asp-inf-sleep-tv
'I am sleeping.'

In this case AnnaLois intended to produce a sentence, which, has the present perfect aspect morpheme but instead used the present progressive aspect. This is the first instance in which she used this morpheme although it is phonologically ill formed. The present progressive morpheme is the frequently targeted morpheme. Most of the children's utterances show omission of this morpheme (this can be seen in the adult utterances at the appendix). The last thing to note on the acquisition of the aspect morpheme is that AnnaLois and Tafadzwa never produced utterances with the correct adult aspect morphemes, whilst Tatenda used the aspect morpheme appropriately.

4.5.5 Negation

The morphology of children's negatives has been studied extensively over the years (Bellugi 1967; Bloom 1970; de Villiers and de Villiers 1979; Klein 1986 and de Villiers 1984). In these studies the first expression of the English negative morpheme is via 'no' or 'not'. Later children produce the contracted negatives such as 'can't'. In Shona the

negative morpheme is attached to the verb and does not have the contracted form. The negation morphemes in Shona are /ha-/, /-sa-/ and /-si-/. /ha-/ is put in the initial position of the VP whilst /-sa-/ and /-si-/ are inserted within the VP. The negation morpheme is discussed in detail in Chapter 3 section 3.2.10.

From the beginning of this study the children were already using the negation morpheme. At the beginning of this study the children were using the negation morpheme in the form of a partial GM. This might be an indication that the researcher missed the stage at which the children omitted this morpheme. From the discussion of the other morphemes so far it is a trend that a child will start by omitting the morpheme then move to partial GM and then the adult system. This also indicates that the negation morpheme is one of the earliest morphemes to be acquired since this study first captured the use of it at the Category 2 level. The utterances below show the partial negation morphemes produced by the children.

(66) a. (T:2;6) -**a**-ndi-gon-i ku-vhur-a.
neg-sm-can-tv inf-open- tv
'I can not open'.

b. (A: 3;0) -**a**-si-ku-nw-a no-ti i-tonhor-a.
neg-neg-inf drink tv because om-cold-tv
'I am no drinking because it is cold.'

/ha-/ is the only negation morpheme that was produced in the form of a partial morpheme. /-sa-/ and /-si-/ were not uttered in the form of the partial GM. The use of the negation morpheme matched two categories, that is, partial GM and appropriate marking.

4.5.6 The Infinitive (ku-)

The infinitive morpheme /ku-/ is attached to verbs in Shona. /ku-/ is attached to verb radicals to produce infinitival nouns. The development of the infinitive morpheme is in two stages (i) no marking and (ii) appropriate marking. Instances in which the children omitted the infinitive morpheme are exemplified below:

(67) a. (T:2;4) -d-a _takur-w-a.
want-tv carry-pass-tv
'I want to be carried.'

b. (A:2;6) _end-a ku-na-mhamha.
go tv to conj mum
'I want to got where mum is.'

c. (A) _d-a –kwir-a mota.
want tv get tv c9.car
'I want to get into the car.'

The examples above show that the children omitted the infinitive morpheme /ku-/ but other morphemes are also omitted such as the subject, tense and aspect, these are not discussed here since they are discussed elsewhere. This indicates that the omission of /ku-/ is not taking place in isolation but with other morphemes as well. The infinitive morpheme did not occur in the form of a partial GM. There are only two developmental categories of the infinitive morpheme, that is, the omission and the appropriate use.

4.6 Synopsis of findings on the development of the GM

This section gives a summary of the findings on the developments of the Shona grammatical morpheme.

4.6.1 The Development of the GM Attached to the Noun and other Substantives

In this chapter the researcher has shown that the GMs that are attached to the noun and other substantives[38] develop in three stages. The first stage being the one where the GM is absent or is not marked. The second stage is where the partial GM emerges. The partial GM appears in the form of a vowel of the target GM. The emergence of the GM in the form of a vowel is explained phonologically since there is deletion of a consonant. This is one instance that reveals the interface of morphology and phonology. The last developmental stage is the production of the GM that is similar to the adult GM. The development of these GMs does not occur in discrete stages but they rather overlap even in consecutive utterances (see example 56). The children in this study were able to produce various GMs attached to the noun and substantives by the age of 2; 6 years (see appendix 1- 4). However, because of the problem of overlap mentioned earlier one is bound to come across words without GMs even beyond 2; 6 years or to find words with marked GMs at an age below 2; 6.

4.6.2 The Development of the GM Attached to the Verb

In this chapter the GMs that the children produced are described. They produced the subject, object, tense, aspect, negation and the infinitive GMs. The development of the subject morpheme followed three stages similar to those of GMs attached to the noun.

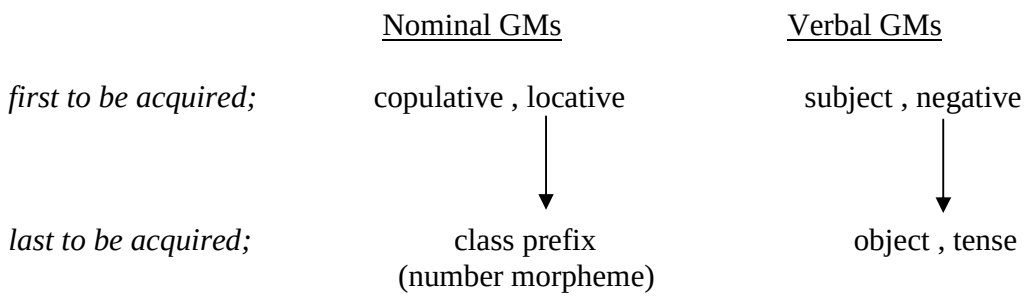
[38] See appendix 4 for the other substantives.

The researcher however assume that the negation morpheme also went through these three stages but the researcher missed the first stage, since the data only have the partial GM. Negation morphemes are the first ones to be used by children in this study. Early development of negation is also recorded in Bloom's (1973:90) study of a child called Allison. The object, tense, aspect and the infinitive did not follow the three stages of development that the other morphemes reveal. These morphemes were omitted and then the children produced the appropriate GMs, there were no cases where the children produced the GMs in the form of a vowel. The object morpheme is the only one that was used appropriately. It was never omitted, however in some cases it was phonologically ill formed. The children did not use all the GMs that can be attached to the Shona verb. For instance the GMs such as those that mark mood are neither used nor targeted, but omitted.

4.6.3 Order of acquisition

One of the objectives of this thesis has been to give the order of acquisition of the GMs. The data in this thesis reveals that the copulative and locative morpheme, are acquired earlier than the class prefix that marks number (see section 4.2). On the GMs that are attached to the verb the subject and negative morphemes are acquired before the object and tense morpheme. The negative morpheme is the first one to be acquired by the children. The copulative, locative, subject and negative morphemes all occur in word initial position and this accounts for the early mastery of these morphemes. The morphemes that occur in word initial positions are more salient than those that occur within the word. Peters (1983:36) states that segments at the beginnings and ends have

certain phonological salience since they are adjacent to silence. The subject morpheme that marks the first person is the one that is targeted and used by the children in this study. The subject morphemes that refer to the second and third person are not widely used or targeted. The order of these morphemes can be summarised as follows;



4.6.4 Overgeneralisations

One of the hypotheses derived from Slobin's OPs predicts that children will overgeneralise acquired GMs to words that are marked by zero prefix. This study has shown the overgeneralisation of the morpheme /ma-/ discussed in the previous chapter. /ma-/ is the only morpheme that was overgeneralised by the children. In the data there is clear evidence that the children supplied the morpheme /ma-/ where another plural morpheme could have been used or where none exists in adult speech. The overgeneralisation of /ma-/ occurs at around 2; 6 to 3; 3. Although no data was gathered beyond the age of 3; 3 the researcher noted the use of /ma-/ by her daughter AnnaLois, even at the age of five years. MacWhinney's (1975) theoretical framework of 'rote, rules and analogy' postulates that overgeneralisation is a clear evidence of the application of rules or analogy to the prefixal system. This is because the children first acquire the GM

and then by analogy they apply the GM to all nouns regardless of their class. Analogy therefore is one of the strategies that children use in order to inflect words.

4.6.5 The OPs and hypotheses in the study

Slobin's OPs have been used as a guide to the data analysis. These OPs helped me to construct hypotheses that are used to approach the data. The researcher did not use all of the OPs because not all of them are relevant to the acquisition of GMs. The OPs are designed to explain various linguistic aspects of child language acquisition and hence it is possible that the researcher did not refer to some of the relevant OPs to the acquisition of morphology or even misinterpreted the ones used. However this does not have serious implications to the conclusions made in this study.

This study referred to seven OPs from which five hypothesis were derived. Most of the OPs are the 'pattern makers' that is OP 3, 4, 5 and 6 from which hypothesis B, C and D were derived. OP 1 and 2 specified attention to the beginning and end of words. These are the filters for primary perception and storage. Hypothesis A is derived from OP 1. OP 7 specifies the position of morphemes within a word and hypothesis E is derived from it. The five hypotheses that are derived from the given OPs are used as a guide to the discussion of the development of the GMs. Since the theory is explanatory only a small set from the large number of OPs fits the data in this study. The hypotheses derived from Slobin's OPs are used in this study as a theoretical framework that is used as a means to the discussion of the data in this study.

4.7 Summary

This chapter presented the data gathered from the three children. The data is analysed using a morphological analysis. Slobin's OPs are used as the framework of analysis. The children's words are characterized by omission of the GM at the early stage of data gathering and then the use of the partial GM. After the use of the partial GM the children then produce words that have both the GM and LM. The words that are presented in this chapter all show correct morpheme order but some of them are phonologically ill formed. Slobin's OPs have been referred to in order to explain the development of the GM in this study. Although no conclusive explanation is given to explain the production of LM without the GM, this study gave salience and frequency as possible explanations to such development. Also in most Bantu languages the mot frequent stem structure is a disyllabic form (CVCV) which corresponds to the child's two-syllable language acquisition stage.

The development of the words discussed in this chapter is not unique to Shona but also similar to other Bantu languages such as SeSotho, SeTswana, SiSwati and IsiZulu. This indicates that the children are born with the capacity to acquire language in a particular pattern.

The development of some of the GMs attached to the verbs is similar to that of nouns for instance the subject and negative morpheme. However the other GMs were omitted and then used appropriately, no use of the partial GM is noted.

It is noted that children employ certain strategies in order to cope with the system of marking GM in Shona. Deleting consonants phonologically modifies words. The other

strategy used is the overgeneralisation of /ma-/. This morpheme was used in cases where words take different GMs to indicate a plural form but the children went on and used it. This is a strategy to mark plurality in the absence of the appropriate morpheme.

CHAPTER 5

CONCLUSION

The main objective of this thesis has been to describe and explain the development of the Shona GM using data gathered from three children (T, A and TK). The thesis set out to explore the GMs that children in the age range of 2; 4 – 3; 3 years can produce. Methodological approaches used in studies of child language acquisition (CLA) were reviewed and chronicled in Chapter 2. It was shown how each period is linked to a particular theoretical orientation. The periods of diary and large sample studies used the behaviourist approach whilst the longitudinal language sampling had the nativist approach. The strengths and weaknesses of each of the three periods are also outlined. Literature on the acquisition of morphology in various languages was also reviewed. It was noted that studies of the acquisition of Bantu noun class prefixes report similar findings. They all report three partially overlapping stages of the development during the ages of two to three years. These are (i) no prefixes, (ii) shadow vowel, (iii) full and phonologically appropriate noun class prefixes. This reveals that the order of acquisition across languages is more constant than the age of acquisition. This is because the age at which any child gains a particular linguistic skill varies greatly. Scholars believe that the fact that there are similar developmental stages, which are also predictable in languages, further, suggests and supports that there is a strong biological precondition for learning languages. The notions of stem vs. root, inflection vs. derivation that are part of the controversies that surround morphological theory are raised in Chapter 2.

Chapter 3 presents the description of the Shona morphology particularly the notion of the grammatical morpheme GM. It reveals that the units that are traditionally referred to as prefixes are discussed in this study as GMs. It was shown that according to Mkanganwi's 2002 distinction between inflectional and derivational morphology, GMs belong to inflectional morphology in Shona. It was shown that the suffixes are derivational hence are not discussed in this study, since the focus was on inflectional categories. The research into the status of prefixes versus suffixes in relation to the inflectional and derivational dichotomy in other Bantu languages can be useful in settling the debate on the distinction of the two categories, at least among the Bantu languages.

The major goal of this thesis is presented in Chapter 4; in which l analysed the development of GMs produced by children acquiring Shona. The researcher noted that from the beginning of the recording sessions the three children were already capable of inflecting words with GMs. For instance, in the first recording session Tatenda produced the subject morpheme /nd-/. Tafadzwa used the locative /ku-/ and AnnaLois the plural morpheme /ma-/ though it was overgeneralised. The researcher noted that the children's development of the GM occurs in an overlapping manner, that is, at a stage where the child will be still producing LM without GM in some instances the child produces a word with both morphemes (see more instances in appendix 1, 2 and 3). It is important therefore to note that there is overlap in the development of the GMs in Shona. However the overlap is not overwhelming to the extent of overshadowing the stage of morpheme development that the child will be going through. The children within the age range of 2;4-3;3 who were observed in this study produced a number of GMs. They mainly used

or targeted GMs that mark number. They also used more nouns than any other substantives.

From the data gathered from the children the researcher established strategies that children use in acquiring the morphology of Shona. Using Slobin's OPs and hypothesis derived from them, the researcher was able to establish the strategies that children adopt when learning a system of GMs of Shona. The children adopted a number of strategies in the learning of Shona grammatical morphemes. The children omitted the grammatical morpheme as a strategy to shorten the words. This strategy is also a signal that children pay attention to the end of words, which have salience. In relation to this strategy the researcher noted that the reason for production of words with lexical morphemes only might be because the Shona grammatical morphemes occur less frequently whilst the lexical morphemes occur more frequently. The child therefore uses the unit that she hears more frequently. The children also used the strategy of omitting consonants in word initial positions. This strategy though phonological has morphological implications on the structure of the grammatical morpheme.

The nature of the GM and the LM also has an effect on how they are acquired. The children used the form/content distinction as a strategy. The children used the units that have concrete meaning, that is, the LM and avoided the unit that has abstract meaning, that is, the GM.

The use of analogy is another strategy used by the children in the acquisition of GMs. The children used analogy in making plural forms of Shona nouns. The children used /ma-/ to inflect nouns appropriately whilst in some cases it was used inappropriately because children will be applying the analogy strategy. For instance through analogy, Tatenda produced *masekuru* instead of *sekuru* 'grandfather'. The use of /ma-/ is analogous. The child is using it to inflect a noncount noun; it is also a case of overgeneralisation.

This study makes contributions to the areas of morphology and child language acquisition of Bantu languages in general and of Shona in particular. The data that is gathered for this study could be used in studies of other aspects of the acquisition of Shona such as that of syntax. In the process of working on this project the researcher observed that more work needs to be done especially in the areas of child language acquisition of phonology, morphology, syntax and semantics in Shona, Ndebele, Kalanga, Nambya and the rest of the varieties spoken in Zimbabwe.

REFERENCES

Adam, G and Bat-El, O.2000. "Morphological knowledge without morphological structure: The emergence of inflectional suffixes in the acquisition of Hebrew verbs." A paper presented at a satellite meeting of the annual conference of IATL, Tel-Aviv University.

Aitchson, J. 1987. *Words in the Mind*. Cambridge. Massachusetts: Basil Blackwell.

Allen, G and Hawkins, S. 1980. "Phonological rhythm: Definition and development." In G. A Yeni-Komshion, J. F Kavanagh and C. A Ferguson (eds), *Child Phonology*,1: 227-256. New York.

Anderson, S.R. 1982. "Where is Morphology?" *Linguistic Inquiry*,13: 571-612.

Anisfeld, M. and Tucker, G.R.1968. "English pluralisation rules of six year children." In C.A Ferguson and D. I Slobin(eds) *Studies of Child Language Development*. New York: Holt, Rinehart and Winston.

Arlman-Rupp, A.(et al). 1976. "Brown's early stages: some evidence from Dutch." *Journal of Child Language*, 3, 267-74.

Bauer, L. 1988. *Introducing Linguistic Morphology*. Edinburgh University Press.

Bailey, N. Madden, C and Krashen,S. 1974. "Is there a 'natural sequence' in adult second language learning?" *Language Learning*, 24:233-43.

Bates, E. 1979. "Morphological Development in Italian: Commotion and Demotion." *Journal of Child Language*, 6: 29-52.

Bellugi, U. 1967. "The acquisition of the system of negation in children's speech." *Doctoral dissertation*, Harvard University.

Berko, J. 1958. "The child's learning of English morphology." *Word*,14: 150-177.

-------- and Brown, R. 1960. "Psycholinguistic research methods." In Mussen, P. (ed) *Hand Book of Research Methods in Child Development*, New York: Wiley.

Bloom , L.1970. *Language Development: Form and Function in Emerging Grammars*. Cambridge Mass: MIT Press.

-------- 1973. *One word at a time*. The Hague: Mouton.

Bowerman, M. 1976. "Semantic factors in the acquisition of rules for word use and sentence construction." In *Morehead and Morehead* (1976:99-179)

Braine, M..1963. "On learning the grammatical order of words." *Psychological Review*, 70:323- 48.

Bright, W.(ed) 1992. *International Encyclopedia*. New York: Oxford University Press.

Brown , R. 1973. *A First Language: The Early Stages*. Cambridge Mass: Harvard University Press.

Cantwell, D. and Baker, L.1987. *Developmental Speech and Language Disorders*. London: The Guildford Press.

Cazden, C. 1968. "The acquisition of noun and verb inflections." *A Journal of Child Development*, 39:433-448.

Chimombo, M. 1987. "First Language Research Methodology for SADC Universities." In Chilipane, F.A and Mapanje, J.A (eds), *LASU Papers from the Organising Conference.*

Chiswanda, R. 1984. "First Language Acquisition of Shona." *Unpublished Honours Dissertation*. Harare. University of Zimbabwe.

Chomsky, N. 1981. *Lectures on government and binding: the Pisa lectures*. Dordrecht: Foris Publications.

Clark, E.V. 1993. *The Lexicon in Acquisition*. New York: Cambridge University Press.

Clark, H.H. and Clark, E.V. 1977. *Psychology and Language*. New York: Harcourt Brace. Jovonavich.

Comrie, B. 1976. *Aspect*. Cambridge: Cambridge University Press.

--------- 1985. *Aspect: An introduction to the study of verbal aspect and related problems*. Cambridge and New York. CUP.

---------- 1985. *Tense*. Cambridge and New York: CUP.

Connelly, M.J. 1984. "Basotho children's acquisition of noun morphology." *Unpublished Doctorial Thesis*. University of Essex.

Crystal, D. 1980. *A first dictionary of linguistics and phonetics*. London: Deutsch.

----------1991. *A Dictionary of Linguistics and Phonetics*. Blackwell Publishers.

Curtiss, S.(et al).1977. "An update on the linguistic development of Genie." In *Georgetown University Round Table on Languages and Linguistics*, (ed) D.P Dato. Washington, DC: Georgetown University Press.

Demuth, K.A. 1993. "Aspects of Sesotho language acquisition." *D.Phil Thesis*. Indiana.

---------- 2000. "Bantu noun class system: Loan word and acquisition evidence of semantic productivity." In G. Senft (ed) *Classification Systems*. Cambridge University Press.

---------- 2003. "The acquisition of Bantu Languages." In D. Nurse and G. Phillipson(eds). *The Bantu Languages*, p 209-222. Surrey, England: Curzon Press.

deVilliers, J.G and deVilliers, P.A. 1973. "A cross-sectional study of the acquisition of grammatical morphemes." *Journal of Psycholinguistics*, 2:267-78.

----------1978. *Language Acquisition*. Massachusetts: Harvard University Press.

deVilliers, J. 1984. "Form and force interactions: The development of negatives and questions." In R. Schiefelbusch and J. Pickar (eds). *The acquisition of communicative competence*. Baltimore: University Park Press.

Dolitzky, M. 1983. "The language of the parent: a pilot study." *Working Paper No. 14*. Berkeley: University of California.

Finegan, E. 1999. *Language: Its Structure and Use*. New York. Harcourt Brace College Publishers.

Fromkin,V. and Rodman, R. 1998. *An Introduction to Language*. Fort Worth: Harcourt Brace College Publishers.

Fortune, G. 1955. *An Analytical Grammar of Sho*na. Cape Town: Longmans, Green and Co.Ltd.

---------- 1980 *Grammatical Constructions 1*. Harare. Mercury Press.

---------- 1984 *Grammatical Constructions 2*. Harare. Mercury Press.

Gleason, H.A. 1961. *Introduction to Descriptive Linguistics*. New York: Holt, Rinehart and Wineston.

Givon,T. 1970. "Some historical changes in the noun class system of Bantu." In Chin-Wu Kim and Stahlke (eds), *Papers in African Linguistics*. Edmonton, Alberta: Linguistic Research Inc.

Hagen, J and Stanovitch, K. 1977."Memory: Strategies of acquisition." In *Perspective on the Development of Memory and Cognition*, R.Kail and J.Hayes, eds. New York: John Wiley and Sons.

Haspelmath, M. 2002. *Understanding Morphology*. USA: Oxford University Press.

Hudson, R. 1984. *Word Grammar*. USA: Blackwell Publishers.

Ingram, D. 1974. "Phonological rules in young children." *Journal of Child Language*, 1:49-64.

---------- 1989. *First Language Acquisition Method, Description and Explanation*. Cambridge: Cambridge University Press.

Katamba, F. 1993. *Morphology*. London: Macmillan Press.

Kintsch, W. 1977. *Memory and Cognition*. New York: John Wiley and Sons.

Klein, W.1986. *Second Language Acquisition*. Cambridge: Cambridge University Press.

Kunene, E. 1979. "The acquisition of Siswati as a first language: A morphological study with special reference to noun prefixes, noun classes and some agreement markers." *Unpublished Ph.D Thesis*. Los Angels: University of California.

Limber, J. 1973. The genesis of complex sentences. *In Moore* (1973:169-85.)

Lipp, E. 1977. "The acquisition of Estonian inflections." *Journal of Child Language*, 4:313-19.

Mabugu, P.R. 1995. "(MA-)." *Unpublished Honours Dissertation*. Harare. University of Zimbabwe.

MacWhinney, B. 1975. " Rules, rote and analogy in morphological formations by Hungarian children." *Journal of Child Language, 2: 65-77.*

---------- 1978. "Processing a first language: the acquisition of morphophonology." *Monographs of the Society for Research in Child Development* 43 no 174.

---------- 1985 Acquisition of Hungarian. *In Slobin* (1985:443).

Mashiri, P. and Warinda, C.1999. *Dudziramutauro*. Gweru : Mambo Press.

Matthews, P.H. 1974. *Morphology*. London: Cambridge University Press.

Mchombo, S.1999. "Argument structure and verbal morphology in Chichewa." *Malawian Journal of Linguistics*, 1:57-75. Malime.

McNeill, D. 1970. *The Acquisition of Language*. New York: Harper and Raw.

Menn, L. 1971. "Phonotactic rules in beginning speech." *Lingua*, 26:225-51.

Mkanganwi, K.G. 1973. "An Outline of the Morphology of Substantives in Ndau, with a Preliminary Note on Ndau Phonology." *M.Phil. Thesis* London: University of London.

---------- 1995. *"Shona: A Grammatical Sketch."* Department of Linguistics: University of Zimbabwe.

---------- 2002. "Shona (derivational) Morphology: An Observation in Search of a Theory" *The Journal of Humanities of the University of Zimbabwe*, 20:ii

Morehead, D and Morehead, A.E.(eds). 1976. *Normal and deficient child language*. Baltimore: University Park Press.

Mudzingwa, C. 2001. "Phonological Structures in Early Shona Words." *Unpublished MPhil dissertation*. Harare. University of Zimbabwe.

Newport, E. (et al). 1977. "Mother l'd rather do it myself: Some effects and non-effects of maternal speech style." *In C. Snow and C. Ferguson*, (1977:101-49.)

Nice, M. 1925. "Length of sentences as a criterion of child's progress in speech." *Journal of Educational Psychology*, 16:370-9.

Owens, R.E. JR. 1988. *Language Development. An Introduction*. New York: Macmillan.

O'Grandy, W. and Dobrovolsk, M.(ed). 1992. *Contemporary Linguistic Analysis*. Canada: Longman.

Peters, A. M. 1983. *The Units of Language Acquisition*.(Cambridge monographs and texts in applied psycholinguistics). Cambridge: Cambridge University Press.

Pinker, S. 1984. *Language Learnability and Language Development*. Cambridge: Harvard University Press.

Pye, C. 1980. "The acquisition of grammatical morphemes in Quiché Mayan." *Doctoral dissertation*: University of Pittsburgh.

Skinner, B.F.1957. *Verbal Behaviour*. New York: Appleton-Century-Crofts.

Slobin, D.I. 1979. *Psycholinguistics*. London: Scott, Foresman and Co.

---------- 1982. "Universal and particular in the acquisition of language." *In Wanner and Gleitman*, (1982:128-70.)

---------- 1984. *The Crosslinguistic Study of Language Acquisition Vols 1*. Hillsdale,NJ: Lawrence Erlbaum.

---------- 1985. *The Crosslinguistic Study of Language Acquisition Vols 2*. Hillsdale,NJ: Lawrence Erlbaum.

----------1992. *The Crosslinguistic Study of Language Acquisition Vol 3*. Hillsdale,NJ: Lawrence Erlbaum.

Stern, C. and Stern, W. 1907. D*ie Kindersprache* . Leipzig: Barth.

Stern, W. 1924. *Psychology of early childhood up to sixth year of age*. New York: Holt.

Suzman, S. 1980. "Acquisition of noun class system in Zulu." *Papers and Reports on Child Language Developmen*t, Stanford University, p45-52.

-------- 1991. "Language acquisition in Zulu." *Unpublished doctoral dissertation.* University of the Witwatersrand, Johannesburg.

Templin, M. 1957. *Certain Language Skills in Children*. Minneapolis: University of Minnesota Press.

Tsonope, J. 1988. "The acquisition of Setswana noun class and agreement morphology, with special reference to demonstratives and possessives." *Unpublished doctoral dissertation*. Buffalo: State University of New York.

Wode, H. 1977. "Free vs. bound forms in three types of language acquisition." *Kiel Arbeitspapiere 19*.

APPENDIX 1: TATENDA 2;4-2;10

CHILD UTTERANCE	ADULT UTTERANCE	GLOSS	AGE
Ande tise fiyiji	Hande tinoisa mufiriji.	Let's go and put it in the fridge.	2;4
Kame?	Ndikukame here?	Should I come your hair?	2;4
Yakupfeka bhebhi yangu.	Awakupfeka, bhebhi wangu.	My baby is wearing a dress.	2;4
Yebhurugwa, yehembe,	Nebhurugwa nehembe.	Pant and a dress.	2;4
Ndipe iyo.	Ndipe icho.	Give me that one.	2;4
Sisi kikeni	Sisi vari kukicheni.	Sister is in the kitchen.	2;4
Ndipe iyo.	Ndipe iyo.	Give that one. (referring to a cup of water)	2;4
Fafi da ingwa.	Fafi ndirikuda chingwa.	Fafi l want bread.	2;4
Ndatengwa namhamha.	Ndatengerwa namhamha.	Mum bought it for me.	2;4
Dhedhi uyi toya ingwa?	Dhedhi muri kutora chingwa here?	Dad are you taking bread?	2;4
Muna	Hamuna.	There is nothing.	2;4
Takurewo.	Nditakurewo.	Carry me please.	2;4
Da takurwa.	Ndinoda kutakurwa.	I want to be lifted.	2;5
Dhedhi une zhamu?	Dhedhi mune mota here?	Dad do you have a car?	2;5
Bhebhi yangu.	Bhebhi wangu.	My baby (referring to a dolI)	2;5
Waona chipisi iri oko?	Waona machipisi ari muruoko here?	Did you see the chips in my hand?	2;5
Bvisha.	Ndibvisirewo.	Remove it for me.	2;5

CHILD UTTERANCE	ADULT UTTERANCE	GLOSS	AGE
Chipisi yaani?	Machipisi aani.	Whose chips are they?	2;5
Ndipewo chipisi iri muoko iyi.	Ndipewo machipisi ari muruoko aya.	Give me the chips that you are holding.	2;5
Mirirewo.	Ndimirirewo.	Wait for me.	2;5
Ndiruda vhurwa chipisi.	Ndirikuda kuvhurirwa machipisi.	I want you to open the chips for me for me.	2;5
Ndezhabhebhi.	Ndezvabhebhi.	It's for the baby.	2;5
Ndeya Tatenda.	NdeaTatenda.	They are Tatenda's.	2;5
Da vhurirwa apa.	Ndinoda kuvhurirwa.	I want you to open for me.	2;5
Uri kuita chii?	Muri kuita chii?	What are you doing?	2;5
Ndifonere gogo?	Ndifonere gogo here?	Can I phone grandmother?	2;5
Ndichauya mangwana.	Ndichauya mangwana.	I will come tomorrow.	2;5
Vhura so.	Vhurai so.	Open it this way.	2;5
Baiwa.	Ndabiwa.	I have been pricked.	2;5
Chimwe chiri chipi?	Chimwe chiri kupi?	Where is the other one?	2;5
Da mvuwa.	Ndirikuda mvura.	I want water.	2;5
Da fonera gogo.	Ndiri kuda kufonera gogo.	I want to phone grandmother.	2;5
Ndisekuru?	Ndisekuru?	Is it grandfather?	2;5
Da buda panje.	Ndirikuda kubuda panze.	I want to go outside.	2;5
Andigoni kuvhurira.	Handigoni kuvhura.	I cannot open the door.	2;6
Atigoni.	Handigoni.	I cannot.	2;6

CHILD UTTERANCE	ADULT UTTERANCE	GLOSS	AGE
Achivhuriki.	Harivhuriki(dhoo).	It cannot open.	2;6
Ndipewo.	Ndipewo.	Give me.	2;6
Ndokumbirawo ndivhurire.	Ndinokumbirawo kuti mundivhurire.	Can you please open it for me.	2;6
Da kona.	Ndiri kuda kuona.	I want to see.	2;6
Ndisiye ndivhure inini.	Ndisiye ndivhure inini.	Leave me, I will open.	2;6
Sisi ndipe punu.	Sisi ndipeiwo sipunu.	Can I have a spoon.	2;6
Ndipe shonga.	Ndipewo mushonga.	Give me medicine.	2;6
Handidi.	Handidi.	I do not want.	2;6
Hasikuda.	Handisikuda.	I do not want.	2;6
Mombe.	Imombe.	That is a cow.	2;6
Bhutsu.	Ibhutsu.	That is a shoe.	2;6
Banana.	Ibanana.	That is a banana.	2;6
Bhasikoro	Ibhasikoro.	That is a bicycle.	2;6
Mota.	Imota.	That is a car.	2;6
Ko ndiani?	Ko ichi chii?	What is this? (referring to a cow)	2;6
Ndaruka	Ndarukwa.	I have been plaited.	2,6
Hembe yafanana naani?	Hembe iyi yakafanana neyani?	Whose dress does it resemble?	2;6
Ndaruka ndaruka.	Ndarukwa.	I have been plaited.	2;6
NaAnna.	NeyaAnna.	With Anna’s.	2;6
Chinorwadziwa.	Chinoruma zvinorwadza.	It gives a painful bite.	2;7

CHILD UTTERANCE	ADULT UTTERANCE	GLOSS	AGE
Ndirirowa Buster.	Ndirikurowa Buster.	I am hitting Buster.	2;7
Sisi pewo shuwiti	Sisi ndipeiwo suwiti.	Can I have a sweet.	2;7
Bhaibhai ndiunze shuwiti nemachipisi.	Bhai bhai mundiunzirewo masuwiti nemachipisi.	Bye. Bring me sweets and chips.	2;7
Ndipe ichi.	Ndipe ichi.	Give me this.	2;7
Wadya bhabhogamu.	Madya bhabhogamu.	Did you chew the bubblegum?	2;7
Mhamha da chingwa.	Mhamha ndirikuda chingwa.	Mum I want bread.	2;7
Usadzime laiti.	Musadzime laiti.	Do not switch off the light.	2;7
Usandidzimire laiti ndiyikutya.	Musadzime laiti ndirikutya.	Do not switch off the light l am afraid.	2;7
Ndidzime laiti inini.	Regai ndidzime laiti inini.	Let me switch off the light.	2;7
Ndipfekedze bhebhi?	Ndipfekedze bhebhi here?	Should I dress the baby?	2;7
Ndinoenda kudhedhirumu.	Ndiri kuenda kubhedhurumu.	I am going to the bedroom.	2;7
Ndikuya, ndikuya mhani.	Ndirikuya, ndirikuya mhani.	I am coming.	2;7
Vayikumba.	Varikumba.	She is at home.	2;7
Da kwira koti bhedhi.	Ndinoda kukwira mukoti bhedhi.	I want to get into the cot bed.	2;7
Handichagoni kukwira.	Handichagoni kukwira.	I cannot get in.	2;7
Handikumbotaura ini.	Handisi kumbotaura ini.	I am not talking.	2;7

CHILD UTTERANCE	ADULT UTTERANCE	GLOSS	AGE
Vanonditengera maikimu nemadhiringi nemachipisi.	Vanonditengera maaisikirimu nemadhiringi nemachipisi	He buys ice cream, drinks and chips for me.	2;7
Handigoni kudzikisa.	Handigoni kudzikisa	I cannot bring it down.	2;7
Ndipe mabage.	Ndipe chibage.	Can I have green mealies	2;7
Ndipe bhutsu.	Ndipe bhutsu.	Give me the shoes.	2;7
Noteyayi kutauni.	Ndinokuteverai kutauni.	I will follow you to town	2;7
Kapu pihwa nagogo weMutare.	Ndakapihwa kapu iyi nagogo wekwaMutare.	This is a cup which I was given by my grandmother who stays in Mutare.	2;8
Mira ndipfeke bhutsu.	Mirai ndipfeke bhutsu.	Wait I want to put on my shoes.	2;8
Dhedhi vane mota, asi hapana peturo.	Dhedhi vane mota asi haina peturo.	Dad has a car but it does not have petrol.	2;8
Imwe iri kupi?	Imwe yacho iri kupi?	Where is the other one?	2;8
Ndine makore matu,	Ndine makore tu.	I have two years.	2;8
Akuramba ndipa bhutsu.	Ari kuramba kundipa bhutsu.	She is refusing to give me the shoes.	2;8
Ipisa mhamha.	Iri kupisa mhamha.	It is hot.	2;8
Itonhora mhamha.	Yakutonhora mhamha.	The water is now cold.	2;8
Ipo iyo.	Sipo iyo.	There is the soap.	2;8
Taimbira sekuru vayavaya.	Taimbira sekuru vayavaya.	We sang for that uncle.	2;8
Vayayaya vazihombe.	Vayavaya vahombe.	That big one.	2;8
Masekuru aenda.	Vanasekuru vaenda.	My two uncles have gone.	2;8

CHILD UTTERANCE	ADULT UTTERANCE	GLOSS	AGE
Ndiri kuyi fuyidza kuti ishapishe.	Ndiri kuifuridza kuti isapise.	I want it to be cold.	2;8
Handidi zai sitereki.	Handidi mazai sitereki.	I do not like eggs a lot.	2;8
Usadayo Yeti usadayo.	Usadaro Letti.	Do not do that Letty.	2;8
Handichi.	Handitsvi.	I will not get burnt.	2;8
Hauna kumoisha tii yaTate wangu.	Hamuna kumboisa tii yaTate wangu.	You did not put Tate's tea.	2;9
Iyi pisha.	Iri kupisa.	It is hot.	2;9
Ndiyi kuisha padhuze.	Ndirikuisa padhuze.	I am putting it near.	2;9
Mainini Vaida ndida akiyimu handidi tii.	Mainini Vaida ndirikuda aisikirimu, handisikuda tii.	Aunt Vaida I want ice-cream, I do not want tea.	2;9
Ndaguta zhai yenyu iyi yashata futi.	Ndaguta zai renyu iri riri kushata futi.	I am full; the egg does not taste good.	2;9
Ndite hesi gogo.	Ndiite hesi kuna gogo here?	Should l greet grandmother?	2;9
Memo powo mvura.	Memo ndipewo mvura.	Memo give me water.	2;9
Nomanya shipidhi.	Ndinomhanya sipidhi.	I will run fast.	2;9
Ini nobva namhanyira nokiya.	Ini ndobva ndaimhanyira ndokwira.	I will run to the car and get inside.	2;9
Tafi uya titambe panje.	Tafi huya titambire panze.	Tafi come and lets play outside.	2;9
Ona sisi nagayiya gonyeti ino mhanyisa.	Honai sisi ndakagarira gonyeti rinomhanyisa.	I am sitting on a lorry that goes fast.	2;9
Uyi yendepi imimi?	Muri kuenda kupi imimi?	Where are you going?	2;9
Muye nekokoyeti yangu.	Muuye nechokoleti yangu.	Bring me a chocolate.	2;9

CHILD UTTERANCE	ADULT UTTERANCE	GLOSS	AGE
Handidi enda kumba kenyu.	Handidi kuenda kumba kwenyu.	I do not want to go to your house.	2;9
Haa kuye bhini.	Haa kure kubhini.	The bin is far.	2;9
Nokwatuya benji yemunhu.	Ndinokukwatura benzi remunhu.	I will clap you fool.	2;9
Hachazhiti futi nakugaya.	Handichazviiti futi ndavakugara.	I will not do it again. I am sitting.	2;9
Imimi panjimbo penyu apa gayai.	Imimi panzvimbo penyu apa garai.	Here is your seat, sit.	2;10
Anonji ani uyo amainini?	Anonzi ani uyo amainini?	What is her name?	2;10
A-a haazhi Yetwin. Nianizhe?	A-a haazi Letwin. Ndianizve?	No it is not Letwin. Who is that?	2;10
Sekuru auya nagogo nemota.	Sekuru vauya nagogo nemota.	Grandfather came with grandmother in a car.	2;10
Tiyikuenda kumusha nebhazi.	Tirikuenda kumusha nebhazi.	We are going to the village by bus.	2;10
Musikana atoya bhoya.	Musikana anditorera bhora.	The girl took my ball.	2;10
Ndikuda kuona gogo.	Ndiri kuda kuona gogo.	I want to see grandmother.	2;10

APPENDIX 2: ANNALOIS 2;6 - 3;1

CHILD UTTERANCE	ADULT UTTERANCE	GLOSS	AGE
Da kugeza maromo.	Ndinoda kugeza muromo.	I want to clean my mouth.	2; 6
Machingwa aenda kupi?	Chingwa chaenda kupi?	Where is the bread?	2;6
Da geza maruoko namhamha.	Ndirikuda kugezeswa maoko namhamha.	I want mum to wash my hands.	2;6
Imachipisi yaani Iyi mhamha?	Machipisi aani aya mhamha?	Whose chips are they?	2;6
Foni irurira.	Foni iri kurira.	The phone is ringing.	2,6
Da enda kunamhamha.	Ndinoda kuenda kunamhamha.	I want to go where mum is.	2;6
Ndipe ingwa.	Ndipei chingwa.	Give me bread.	2;6
Ini da kwira ota.	Ini ndirikuda kukwira mota.	I want to get into the car.	2;6
Uenda kupi?	Uri kuenda kupi?	Where are you going?	2;6
Da tora ingwa.	Ndirikuda kutora chingwa.	I want to take bread.	2,7
Ndiende kunamhamha.	Ndizoende kunamhamha.	So that I will go where mum is.	2;7
Ndaona tireni nezuro.	Ndakaona tireni nezuro.	I saw a train yesterday.	2;7
Bhegi yadhedhi.	Bhegi radhedhi.	Dad’s bag.	2;7
Da enda nadhedhi.	Ndinoda kuenda nadhedhi.	I want to go with dad.	2;7
Uriraiti gogo?	Muriraiti here gogo?	Are you alright grandmother?	2;7

CHILD UTTERANCE	ADULT UTTERANCE	GLOSS	AGE
Afuta yamhamha.	Mafuta amhamha.	Mum's lotion.	2;7
Mvura yatonhowa mhamha.	Mvura yatonhora mhamha.	The water is now cold mum.	2;7
Goni dhoo.	Handigoni kuvhura dhoo.	I cannot open the door.	2;7
Kunze kukunaiwa.	Kunze kuri kunaya.	It is raining outside.	2;7
Da kuenda kukoro.	Ndirikuda kuenda kuchikoro.	I want to go to school.	2;7
Asi kunwa noti itonhorwa.	Handisikunwa mvura iyi nokuti iri kutonhora	l am not drinking this water because it is cold.	2;7
Hanhisi kuda kuja.	Handisi kuda kudya.	I do not want to eat.	2;7
Aita sei mhamha?	Maitwa sei mhamha?	What happened to you mother?	2;7
Auma nahuhu?	Marumwa nahuhu?	Where you bitten by a dog?	2;7
Gogo enda kupi?	Gogo vaenda kupi?	Where has grandmother gone to.	2,8
Aenda Mutare?	Vaenda kwaMutare here?	Has she gone to Mutare.	2,8
Da mvuya.	Ndirikuda mvura.	I want water.	2,8
Ndorova sekuru.	Ndokurovai sekuru.	I will hit you uncle.	2,8
Ibhandi yaani?	Ibhande raani?	Whose belt is this?	2,8
Ndiyani bhandi?	Nderaani bhande?	Who is the owner of this belt.	2,8
Ndeyadhedhi.	Nderadhedhi.	It is for dad.	2,8
Bhuchu yaani?	Idzi ibhutsu dzaani?	Whose shoes are these?	2,8

CHILD UTTERANCE	ADULT UTTERANCE	GLOSS	AGE
Ndeyamhamha?	Ndedzamhamha?	Are they for mums?	2,8
Ipisapisa yaani?	Iaini yaani?	Whose iron is it?	2,8
Iafuta yaani?	Mafuta aani?	Whose lotion is it?	2,8
Hembe yaani?	Ihembe yaani?	Whose dress is it?	2,8
Ndiyikurara.	Ndarara.	I am asleep.	2,8
Ndadya naYeukai.	Ndapiwa chikafu naYeukai.	I was fed by Yeukai.	2,8
Ovha aenda naye inini.	Inini ndokubva ndaenda naye.	I then went with her.	2,8
Mhamha aruka nani?	Mhamha marukwa naani?	Mum who plaited you?	2,8
Dhedhi vaenda Nyamapanda.	Dhedhi vaenda KuNyamapanda.	Dad went to Nyamapanda.	2,8
Ipiswa.	Iri kupisa.	The milk is hot.	2,8
Itonorwa	Yavakutonhora.	The milk is now cold.	2,8
Aruka naauntie saluni?	Marukwa naauntie kusaluni here?	Where you plaited by aunt at the saloon?	2,8
Mhamha maenda kupi?	Mhamha manga maenda kupi?	Where had you gone mum?	2,8
Mhamha ndirase mavhudzi here?	Mhamha ndirase vhudzi iri here?	Should I dispose this hair?	2;9
Maenda basa?	Manga maenda kubasa?	Had you gone to work?	2;9

CHILD UTTERANCE	ADULT UTTERANCE	GLOSS	AGE
Ndirase papi?	Ndirase mupi (kupi)?	Where should I dispose it?	2;9
Ndirase pabhini here?	Ndirase mubhini here?	Should I dispose it in the bin?	2;9
Tete Tendai usandivharire dhoo rangu.	TeteTendai musandivharire dhoo rangu.	Auntie Tendai do not close my door.	2;9
Dhedhi aenda basa papi?	Dhedhi vaenda kubasa kupi?	Where is dad working?	2;9
Mhamha Yeukai anditorera bhabhogamu yangu.	Mhamha Yeukai anditorera bhabhogamu rangu.	Mum Yeukai took my bubblegum.	2;9
Tiyikuenda Benin here	Tirikuenda kuBenin here?	Are we going to Benin?	2;9
Undisekei?	Uri kundisekerei?	Why are you laughing at me?	2;9
Unditarisei?	Uri kunditarisirei?	Why are you looking at me?	2;9
Mhamha Tanaka andisekera.	Mhamha Tanaka andiseka.	Mum Tanaka laughed at me.	2;9
Munawo here mapepa?	Arimo here mapepa mubhegi umu?	Are they papers inside the bag.	2;9
Ainini Akai da mvura.	Mainini Nakai ndirikuda mvura.	Aunt Nakai I want water.	2;9
Unobiwa nemabavha.	Unobiwa nembavha.	You will be stolen by the thieves.	2;9
Sekuru uya pano.	Sekuru huyai pano.	Uncle come here.	2;9
Mhamha ndipewo chairo da chairowo.	Mhamha ndipeiwo mutsvairo ndirikuda kutsvairawo.	Mum give me the broom, I also want to sweep.	2;9
Dhedhi auya.	Dhedhi vauya.	Dad has come.	2;9

CHILD UTTERANCE	ADULT UTTERANCE	GLOSS	AGE
Ndirohwe naTatenda.	Ndarohwa naTatenda.	Tatenda hit me.	2;9
Handioni.	Handisikuvaona.	I cannot see her.	2;9
Ndafona gogo nezuro.	Ndafonerwa nagogo masikati.	Grandmother called in the afternoon.	2;9
Ndarohwa naticha kukoro nezuro.	Ndakarohwa naticha svondo rapera.	I was hit by the teacher last week.	2;9
Da kudya nadhedhi.	Ndirikuda kudyiswa poriji nadhedhi.	I want dad to feed me.	2;9
Mhamha ndirikuda chingwa iro.	Mhamha ndirikuda chingwa icho.	Mum I want bread.	2;10
Ndirikuda mapunu iyi.	Ndirikuda sipunu iyi.	I want this spoon.	2;10
Ipunu yako here mhamha?	Isipunu yenyu here mhamha?	Is this your spoon?	2;10
Geza maruoko aya.	Geza maoko aya.	Wash these hands.	2;10
Mhamha Yeukai andirumira.	Mhamha Yeukai andiruma.	Mum Yeukai has bitten me.	2;10
Ndida enda koro.	Ndirikuda kuenda kuchikoro.	I want to go school.	2;10
Andida enda kukoro.	Handisikuda kuenda kuchikoro.	I do not want to go to school.	2;10
Ndakadza apa.	Ndakuvadzwa apa	I am hurt.	2;10
Ndida poyiji	Ndiri kuda poriji.	I want porridge.	2;10
Ndavava apa.	Ndirikuvaviwa apa.	It’s itching here.	2;10
Dhedhi aenda Benin.	Dhedhi vaenda kuBenin.	Dad has gone to Benin.	2;10

CHILD UTTERANCE	ADULT ATTERANCE	GLOSS	AGE
Ndadzidza naaunt Margaret.	Ndadzidziswa naaunt Margaret.	Aunt Margaret taught me.	2;10
Mambavha ovha amhanya.	Mbavha ndokubva dzamhanya.	And the thieves ran away.	2;10
Mhamha murume andidonhedza.	Mhamha mukomana andidonhedza.	The boy made me fell.	2;10
Ndiri kuchikoro.	Ndiri kuchikoro.	When I was at school.	2;10
Tine bhora matu nhasi.	Tine mabhora tu nhasi.	We have two balls today.	2;10
Ndadzidza naaunt Margret.	Ndakadzidziswa naaunt Margret.	I was taught by aunt Margret.	2;10
Ndadzidza kuchikoro.	Ndazvidzidza kuchikoro.	I learnt that at school.	2;10
Sekuru enda kupi?	Sekuru vaenda kupi?	Where did uncle go?	2;11
Tete aenda Mashingo.	Tete vaenda kuMasvingo.	Aunt has gone to Masvingo.	2;11
Mhamha ona!	Mhamha honai!	Mum look!	2;11
Bhuchu yangu iyipi?	Bhutsu dzangu dziri (ku)pi?	Where are my shoes.	2;,11
Ndida kugeza namhamha.	Ndirikuda kugezwa (kugezeswa) namhamha.	I want mum to bath me.	2;11
Da kudya naYeukai.	Ndirikuda kudyiswa naYeukai.	I want to be fed by Yeukai.	2;11
Mota yaani?	Imota yaani?	Whose car is it?	2;11
Ndaruka naaunt.	Ndakarukwa naaunt.	Aunt plaited me.	2;11
Dhedhi uya.	Dhedhi vauya.	Dad has come.	2;11

CHILD UTTERANCE	ADULT ATTERANCE	GLOSS	AGE
Dhedhi auya.	Dhedhi vauya.	Dad has come.	2;11
Hakuda kugara.	Handisikuda kugara.	I do not want to sit.	2;11
Dhedhi andigarira heti.	Dhedhi vagarira heti yangu.	Dad sat on my hat.	2;11
Arifambira.	Varikufamba.	They are walking.	2;11
Mabhutsu ayo.	Bhutsu idzo.	Those shoes.	2;11
Mahembe ayo.	Hembe idzo.	Those dresses.	2;11
Ndipiswa.	Ndirikupiswa.	I am feeling hot.	2;11
Ndiitonhowa.	Ndirikutonhorwa.	I am feeling cold.	2;11
Ndirida geza maruoko.	Ndirikuda kugeza maoko.	I want to wash my hand.	2;11
Tirienda kuchechi.	Tirikuenda kuchechi.	We are going to church.	2;11
Yeukai ugeza tirauzi yadhedhi here?	Yeukai urikugeza tirauzi radhedhi here?	Yeukai are you washing dad's trouser's?	2;11
Wapedza kugeza tiyauzi yadhedhi here?	Wapedza kugeza tirauzi radhedhi here?	Have you finished washing dad's trousers?	2;11
Ko wageza tiyauzi yamai Anna here?	Ko wageza tirauzi ramai here?	Have you washed mai Anna's trousers?	2;11

APPENDIX 3: TAFADZWA 2;9-3;3

CHILD UTTERANCE	ADULT UTTERANCE	GLOSS	AGE
Ota yangu.	Imota yangu.	It is my car.	2;9
Shoyi mhamha.	Sori mhamha.	I am sorry mum.	2;9
Ona Teekai akenga.	Honai ndakengwa naTendekai	Look Tendekai scratched me	2;9
Akengwa mangwana.	Andikenga masikati.	He scratched me in the afternoon.	2;9
Mhamha uya.	Mhamha vavakuuya.	Mother is coming.	2;9
Nhasi takaenda tauni	Nhasi taenda kutauni.	Today we went to town.	2;9
Kuchechi.	Kuchechi.	To church.	2;9
Teshe nezhuro.	Tese nezuro	We all went yesterday.	2;9
Ndejaani?	Ndedzaani.	Whose shoes are they.	2;9
Kunyepa yangu ndejetauni.	Kunyepa ndedzangu dzakatengwa kutauni.	You are lying they are mine they were bought in town.	2;9
Ndigaye?	Ndigare here.	Can I sit in the tub?	2;9
No no shishi mazhisho avava.	Aiwa sisi ndinozovaviwa maziso nesipo.	No my eyes will be itchy because of the soap.	2;10
Kamu mushoyo.	Ndikamei musoro wangu.	Comb my hair.	2;10
Iota yangu.	Imota yangu.	It is my car.	2;10
Da ota yangu.	Ndirikuda mota yangu.	I want my car.	2;10
Heshi mhamha.	Hesi mhamha.	Hallo mum.	2;10
Heshi dhedhi.	Hesi dhedhi.	Hallo dad.	2;10

CHILD UTTERANCE	ADULT UTTERANCE	GLOSS	AGE
Da enda toiyeti mhamha	Mhamha ndinoda kuenda. kutoireti.	Mum I want to go the toilet.	2;10
Da shupu.	Ndinoda supu.	I want soup.	2;10
Mhamha apeja.	Mhamha ndapedza.	Mother I have finished eating.	2;10
Masokisi angu aya.	Masokisi angu aya.	These are my socks.	2;10
Da vhuya.	Ndinoda mvura.	I need water.	2;10
Mana yangu.	Mwana wangu.	My baby.	2;10
Hoyaiti bhai-bhai.	Horaiti bhai-bhai.	Alright bye-bye.	2;11
Ndinonji Fafi.	Ndinonzi Fafi.	I am called Fafi.	2;11
Ndinoenda kuchikoro naKuji	Ndinoenda kuchikoro naKudzi.	I go to school with Kudzi.	2;11
Gogo auya nashekulu zhuro.	Gogo vakauya nasekuru nezuro.	Grandmother came with grandfather yesterday.	2;11
Andikwara apa paoko.	Andikwadza apa paruoko.	She hurt my hand.	2;11
Ingwa inoruma inini.	Imbwa inondiruma.	The dog will bite me.	2;11
Tirati iyo.	Tirakita iyo.	There is a tractor.	2;11
Kungurura muhomwe.	Kurungira muhomwe.	Stir in the pocket.	2;11
Uya nikurakidze dhedhurumu rangu.	Huya ndikurakidze mubhedhurumu mangu	Come I will show you my bedroom.	2;11
Atamba parodhi apo.	Arikutamba parodhi apo.	She is playing by the roadside.	2;11
Handidi kuenda newe kuchechi.	Handisikuda kuenda newe kuchechi.	I do not want to go with you to church.	2;11

CHILD UTTERANCE	ADULT UTTERANCE	GLOSS	AGE
Ipo huya namhamha vake.	Chipo auya namhamha vake.	Chipo came with her mother.	2;11
Mana achema.	Mwana anochema.	The baby is crying.	2;11
Bhuchu.	Nhonga bhustu yangu yadonha.	Can you pick my shoe for me?	2;11
Mhamha hona huma auma.	Mhamha honai imbwa iyo inoruma.	Mum look at that dog, it bites.	2;11
Mhamha aumwa hona auma dawo.	Mhamha honai uyo arikumwa firiziti ini ndinoridawo.	Mum look she is drinking a freezit I want it also.	2;11
Mhamha hona shekulu akira hamu.	Mhamha honai sekuru vakwira mumota.	Mum look uncle is in the car.	2;11
Mhamha powo epa yangu.	Mhamha ndipowo bepa rangu.	Mum can you give me my paper.	3;0
Mira ndifambe.	Mirai ndifambe.	Wait, let me walk.	3;0
Mhamha ndipewo azhoya	Mhamha ndipewo ndirikuda kuzorawo mafuta.	Mum I also want to rub vaseline on my body.	3;0
Powo bhuchu yangu.	Ndipewo bhutsu yangu.	Pass me my shoes.	3;0
Powo dhezi yangu.	Ndipewo dhirezi rangu.	Give me my dress.	3;0
Nipe pegishi yangu.	Ndipeiwo pegisi rangu.	Give me my peg.	3;0
Mhamha akiya mota.	Mhamha vakwira mota.	Mum got into the car.	3;0
Shekulu.	Vaenda nasekuru.	She went with uncle.	3;0

CHILD UTTERANCE	ADULT UTTERANCE	GLOSS	AGE
Gogo da rara.	Gogo ndirikuda kuberekwa kuti ndirare.	Grandmother carry me at your back so that I can sleep.	3;0
Nhanha ada machingwa	Mwana ari kuda chingwa.	The baby wants bread.	3;0
Dhedhi ndapisa hona	Dhedhi tarisai ndakapiswa netii poti iyo.	Look that teapot burned me.	3;0
Mhamha bhuchu.	Mhamha ndatora bhutsu Dzangu.	Mum I have taken my shoes.	3;0
Mhamha bhuchu ona.	Mhamha ndatora bhutsu dzenyu.	Mum l have taken your shoes.	3;0
Mhamha aenda dhedhi.	Mhamha vaenda nadhedhi.	Mum has gone with dad.	3;0
Mombe.	Imombe.	That is a cow.	3;0
Nhanha Papiya.	Ndimhamha vanhanha naTapiwa.	She is the mother of the baby and Tapiwa.	3;1
Mhamha ahadza apa ehe akinya.	Mhamha ndirikurwadziwa apa ehe parikuswinya.	Mum it is painful here and it is also itching.	3;1
Bva tseya yangu.	Ibva icheya yangu.	Get off it is my chair.	3;1
Anna hana tseya.	Anna haana cheya.	Anna does not have a a chair.	3;1
Nidye chingwa.	Ndidye chingwa ichi here?	Should l eat this bread?	3;1
Tii ipisha.	Tii iri kupisa.	The tea is hot.	3;1
Anna hona futi ashudha.	Anna hona pfuti inoshudha.	Anna look the gun can shoot.	3;1

CHILD UTTERANCE	ADULT UTTERANCE	GLOSS	AGE
Otto ndida switi.	Otto ndirikuda switi.	Otto l want a sweet.	3;1
Mandiuya nei mhamha?	Mandiurira nei mhamha?	What did you bring for me mum?	3;1
Nuda aisikiyimu yangu.	Ndirikuda aisikirimu yangu.	I want my ice cream.	3;1
Muchato yaani uyu mhamha?	Muchato waani uyu mhamha?	Whose wedding is this mum?	3;1
Yamainini Nyenge wapi?	Wamainini Nyenge vapi?	Which aunt Nyenge?	3;1
Toga udawo kokoyeti?	Toga urikudawo chokoreti here?	Toga do you also want chocolate?	3;1
Guka apa.	Gura apa.	Break here.	3;1
Mhamha muizonditengeya futi madhobhi topu nesipageti.	Mhamha muzonditengera futi mabhodhi topu nesipageti topu.	Mum buy me a body top and a spaghetti top.	3;2
Sekuru Buyaini chii ichocho?	Sekuru Brian chii ichocho?	Uncle Brian what is that?	3;2
Nochidambuya nochidaiso.	Ndinochidambura ndochidaiso.	I will break it and do this.	3;2
Tambai bhora makomana.	Tambai bhora vakomana.	Play football boys.	3;2
Mhamha nachena natogeza.	Mhamha ndachena ndatogeza.	Mum l am smart l have bathed.	3;2
Izhi zhakashata ehe zhakanaka.	Izvi zvakashata ehe zvazonaka.	This dress is not looking good.Yes it is okay now.	3;2
Napfekejwa matetutu angu.	Ndapfekedzwa tirekisutu yangu.	l have been dressed with my tracksuit.	3;2

CHILD UTTERANCE	ADULT UTTERANCE	GLOSS	AGE
Toga haashati ageza.	Toga haasati ageza.	Toga has not bathed as yet.	3;2
Mainini ndiyani aguka chinhu changu.	Mainini ndiyani agura chinhu changu.	Aunt who broke my thing?	3;2
Ndinoda kuuya.	Ndinoda kuuya.	I want to come.	3;3
Ndaakuenda kuna maiKuda.	Ndakuenda kuna maiKuda.	I am going to maiKuda's place.	3;3
Mhamha ndoda chingwa.	Mhamha ndoda chingwa.	I want bread.	3;3
Dhedhi hana foni.	Dhedhi havana foni.	Dad does not have a phone.	3;3
Tate adya mafuta.	Tate adya mafuta.	Tate ate vaseline.	3;3
Handisibi.	Handisvibi.	I will not be dirty.	3;3
Imba ihombe.	Imba hombe.	A big house.	3;3
Zakandiomera izozo zekufamba.	Zvakandiomera izvozvo zvekufamba.	The idea of walking is difficult for me.	3;3
Ndikuchaga mwana wangu.	Ndirikutsvaga mwana wangu.	I am looking for my baby.	3;3

APPENDIX : 4

The following are the nouns, verbs and other substantives that were taken from the children's utterances. These are the words that are used for morpheme analysis. The words that are to the left of each column are the children's words and those that are at the right are the adult words.

1st Session (13.07.2002) TATENDA

NOUNS		VERBS		OTHER SUBSTANCES	
firiji	mufiriji	ande	hande	yangu	wangu
bhebhi	bhebhi	tise	tinoisa	iyo	icho
yebhurugwa	bhurugwa	yakupfeka	awakupfeka	iyo	iyo
yehembe	nehembe	ndipe	ndipe		vari (omitted)
sisi	sisi	powo	ndipewo	muna	hamuna
kikeni	kukicheni	ndipe	ndipe		
ingwa	chingwa	da	ndirikuda		
namhamha	namhamha	ndatengwa	ndatengerwa		
dhedhi	dhedhi	iyitoya	murikutora		
ingwa	chingwa	takurewo	nditakureiwo		
2nd session (27 07. 2002)					
dhedhi	dhedhi	datakurwa	ndirikuda	une	mune
zhamu	mota		kutakurwa	yangu	wangu
bhebhi	bhebhi	waona	waona	iri	ari
chipisi	machipisi	bvisha	ndibvisirewo	yaani	aani
oko	muruoko	ndipewo	ndipewo	iri	ari
chipisi	machipisi	mirirewo	ndimirirewo	iyi	aya
chipisi	machipisi	ndiruda	ndirikuda	ndezhabhebhi	ndezva-bhebhi
chipisi	machipisi	vhurwa	kuvhurirwa		
		da	ndinoda	ndeya	ndea
		vhurirwa	kuvhurirwa		
3rd Session (10.08.02)					
gogo	gogo	kuita	kuita	uri	muri
mangwana	mangwana	ndifonere	ndifonere	chii	chii
mvuwa	mvura	ndichauya	ndichauya		here (omitted)
gogo	gogo	vhura	vhura	so	so
ndisekulu	ndisekuru	baiwa	ndabaiwa	chimwe	chimwe
panje	panze	da	ndirikuda	chiri	chiri
		da	ndirikuda	chipi	kupi
		fonera	kufonera		
		da	ndirikuda		
		kuda	kubuda		
4th Session (25.08.02)					
sisi	sisi	handigoni	handigoni		kuti (omitted)
punu	sipunu	kuvhurira	kuvhura	inini	inini

shonga mushonga	atigoni handigoni achivhuriki harivhuriki (dhoo) ndipewo ndipewo ndokumbirawo ndino-kumbirawo ndivhurire mundivhirire da ndirikuda kona kuona ndisiye ndisiye ndivhure ndivhure ndipe ndipei ndipe ndipewo	
5th Session (7.09.02)		
mombe imombe bhutsu ibhutsu bhanana ibhanana bhasikoro ibhasikoro mota imota hembe hembe naAnna neyaAnna	andidi handidi asikuda handisikuda ndayuka ndaruka yafanana yakafanana	ndiani chii (referring to a cow) naani neyaani iyi (omitted) naAnna neyaAnna
6th Session (21.09.02)		
shuwiti switi shuwiti maswiti nechipisi nemachipisi chingwa chingwa laiti laiti	chinorwadziwa chinoruma zvinorwadza ndirirova ndirikurova pewo ndipeiwo ndiunze ndiunzire(wo) madya madya da ndirikuda usadzime musadzime ndiyi kutya ndirikutya ndidzime rega ndidzime	inini inini
7th Session (6.10.02)		
bhebhi bhebhi kudhedhurumu kubhedhurumu koti mukoti bhedhi bhedhi	ndipfekedze ndipfekedze ndinoenda ndirikuenda ndikuuya ndirikuuya vayi kumba varikumba dakwira ndinoda-	ini ini

maaikimu maasikirimu madhingi madhiringi nemachipisi nemachipisi chibage chibage bhutsu bhutsu kutauni kutauni	kukwira handichagoni handichagoni kukwira kukwira handikumbotaura handisi kumbotaura vanonditengera vanonditengera handigoni handigoni kudzikisa kudzikisa ndipe ndipe noteyayi ndinoketeverai	
8th session (20.10.02)		
kapu kapu nagogo nagogo wekuMutare wekwaMutare bhutsu bhutsu dhedhi dhedhi mota mota peturo peturo makore makore	pihwa ndakapihwa mira mirai ndipfeke ndipfeke akuramba arikuramba ndipa kundipa ipisa iri kupisa itonhora yakutonhora	iyi (omitted) imwe imwe yacho (omitted) iri iri kupi kupi vane vane hapana haina matu tu ndine ndine
9th session (9.11.02)		
sekuru sekuru masekuru vanasekuru zai mazai	taimbira taimbira aenda vaenda ndiyikufuyidza ndiri-kuifuridza ishapishe isapise usadayo usadaro handichi handitsvi	vayavaya vayavaya vazihombe vahombe kuti kuti

10th session (23.11.02)					
tii	tii	kumoisa	kumboisa	hauna	hamuna
yaTate	yaTate	pisha	kupisa	wangu	wangu
mainini	mainini	kuisha	kuisa	iyi	iri
akiyimu	aisikirimu	ndiuda	ndirikuda	ndiyi	ndiri
tii	tii	handidi	handisikuda	padhuze	padhuze
		ndaguta	ndaguta	iyi	iri
		yashata	kushata		kuna (omitted)
		ndite	ndiite	shipidhi	shipidhi
		nomhanya	ndinomhanya	ini	ini
		namhanyira	ndamhanyira	nobva	ndobva
		nokiya	ndokwira		
		uya	uya		
		titambe	titambe		
		ona	honai		
		nagayiya	ndakagarira		
		inomhanyisa	rinomhanyisa		
11th session (8.12.02)					
nekokoyeti	nechokoreti	yendepi	kuendepi	uyi	uri
kumba	kumba	muye	muuye	imimi	imimi
bhini	kubhini	handidi	handidi	yangu	yangu
benji	benzi	enda	kuenda	kenyu	kwenyu
yemunhu	remunhu	nokwatuya	ndinokukwatura	kuye	kure
		hachazhiiti	handichazviiti	penyu	penyu
		nakugaya	ndavakugara		
12th session (22.12.02)					
panjimbo	panzvimbo	gayai	garai	anonji	anonzi
mainini	mainini	auya	vauya	ani	ani
sekuru	sekuru	tiyikuenda	tirikuenda	uyo	uyo
nagogo	nagogo	atora	atora	haazhi	haazi
nemota	nemota	ndirikuda	ndirikuda	nianizhe	ndianizve
kumusha	kumusha	kuona	kunoona		
nebhazhi	nebhazi				
musikana	musikana				
bhoya	bhora				
gogo	gogo				

1st session(13.07.02)ANNALOIS		
maromo muromo machingwa chingwa mamoko maoko namhamha namhamha imachipisi machipisi mhamha mhamha foni foni kunamhamha kunamhamha ingwa chingwa ota mota	da ndirikuda geza kugeza aenda chaenda da ndirikuda geza kugeza irurira irikurira da ndinoda enda kuenda ndipe ndipei(wo) dakwira ndirikuda kukwira uenda uri kuenda	yekubasa yekubasa kupi? kupi? yaani aani iyi aya ini ini kupi? kupi?
2nd session (28.07.02)		
ingwa chingwa kunamhamha kunamhamha tireni tireni bhegi bhegi yadhedhi radhedhi gogo gogo afuta mafuta dhoo dhoo	datora ndirikuda kutora ndiende ndizoende ndaona ndakaona goni handigoni kuvhura (omitted)	nezuro nezuro yadhedhi radhedhi uriraiti muriraiti here(omitted) yamhamha amhamha
3rd session (11.08.02)		
kunze kunze kukoro kuchikoro	kunaiwa kurikunaya da ndirikuda kuenda kuenda asikumwa handisikumwa itonhorwa iri kutonhora kuda kuda kuja kudya aita maitwa auma marumwa	noti nokuti iri hanhisi handisi
4th session (25.08.02)		
gogo gogo Mutare kwaMutare mvuya mvura sekuru sekuru bhandi bhande bhuchu bhutsu iafuta mafuta	enda vaenda aenda vaenda da ndirikuda ndorova ndinokurovai ipiswa iri kupisa itonhorwa yavakutonhora	kupi kupi ibhandi bhandi yaani raani ndiyani nderaani ndeyadhedhi nderadhedhi yaani dzaani ndeyamhamha ndedzamhamha

		ipisapisa iaini yaani aani hembe ihembe yaani yaani
5th session (2.09.02)		
mhamha mhamha dhedhi dhedhi mhamha mhamha basa kubasa saluni kusaluni	ndiyikurara ndarara ndadya ndadyiswa aenda ndaenda aruka marukwa vaenda vakaenda aruka marukwa maenda mangamaenda maenda mangamaenda	naYeukai naYeukai ovha ndokubva inini inini nani naani Nyamapanda kuNyama- panda naaunt naaunt kupi? kupi?
6th session (22.09.02)		
mhamha mhamha mavhudzi vhudzi pabhini mubhini tete tete dhoo dhoo dhedhi dhedhi basa kubasa bhabhogamu bhabhogamu Benin kuBenin	ndirase ndirase ndirase ndirase usandivharire musandi vharive aenda vaenda anditora anditorera tiyikuenda tirikuenda	iri (omitted) papi mupi/kupi rangu rangu papi kupi? yangu rangu here here?
7th session (5.10.02)		
mapepa mapepa mubhegi (omitted) ainini mainini Akai Nakai mvura mvura nemabavha nembavha sekuru sekuru	undisekei uri kundisekerei unditarisei uri kunditarisei andisekera andiseka da ndirikuda unobiwa unobiwa uya uyai	munawo arimo umu (omitted) pano pano
8th session (20.10.02)		
mhamha mhamha chairo mutsvairo	ndipewo ndipeiwo da ndirikuda chairowo kutsvairawo auya vauya ndirohwe ndarohwa handioni handisikuvaona ndafona ndafonerwa ndarohwa ndakarohwa	naTatenda naTate gogo nagogo nezuro masikati naticha naticha nezuro svondo rakapera

	da ndirikuda kudya kudyiswa	
9th session (9.11.02)		
mhamha mhamha chingwa chingwa mapunu sipunu ipunu isipuni mhamha mhamha maruoko maoko koro kuchikoro kukoro kuchikoro poyiji poriji	ndida ndirikuda geza geza andirumira andiruma ndida ndirikuda enda kuenda andida handisikuda enda kuenda ndakadza ndakuvadzwa ndida ndirikuda ndavava ndirikuvaviwa	apa apa
10th session (24.11.02)		
dhedhi dhedhi Benin kuBenin mambavha mbavha murume mukomana kuchikoro kuchikoro kuchikoro kuchikoro	aenda vaenda aenda vakaenda ndadzidza ndadzidziswa ovha ndokubva amhanya dzamhanya andidonhesa andidonhedza ndadzidza ndadzidziswa ndadzidza ndakazvidzidza	naaunt naaunt ndiri ndiri naaunt naaunt
11 session (8.12.02)		
sekuru sekuru tete tete Mashingo kuMasvingo mhamha mhamha bhuchu bhutsu mota imota dhedhi dhedhi firiji firiji	enda vaenda aenda vaenda hona honai ndirida ndirikuda geza kugezwa kudya kudyiswa ndaruka ndarukwa uya vauya auya vauya hanida handisikuda gara kugara	kupi kupi? yangu dzangu iyipi dziripi namama namama naYeukai naYeukai yaani yaani naaunt naaunt ndeyadhedhi ndeyadhedhi iri iyi
12th Session (22.12.02)		
dhedhi dhedhi heti heti mabhutsu bhutsu mahembe hembe	andigarira vagarira arifambira varikufamba ndipiswa ndirikupiswa nditonhora ndirikutonhorwa ndirida ndirikuda	yangu yangu ayo idzo ayo idzo

maruoko maoko kuchechi kuchechi Yeukai Yeukai tirauzi tirauzi	geza kugeza ashiba asviba tirienda tirikuenda ugeza urikugeza wapedza wapedza kugeza kugeza wageza wageza	futi futi here here yadhedhi radhedhi yamaiAnna ramaiAnna
1st session(13.07.02)TAFADZWA		
ota mota mhamha mhamha Teekai naTendekai magwana masikati mhamha mhamha tauni kutauni kuchechi kuchechi	kunepa kunyepa dzakatengwa (omitted) ona honai akenga ndakengwa akenga andikenga uya vavakuuya takaenda taenda	yangu ndedzangu ndeyetauni kutauni yangu yangu shoyi sori mangwana masikati nhashi nhasi teshe tese nezhulo nezuro ndejaani ndedzaani ndigaye ndigare
2nd session (28.07.02)		
shishi sisi mazhisho maziso mushoyo musoro iota imota mhamha mhamha dhedhi dhedhi toiyeti kutoiyeti shupu supu masokisi masokisi mavhuya mvura mana mwana	avava ndinozovaviva kamu ndikamei ndinoda (omitted) kuenda (omitted) da ndinoda apeja ndapedza da ndinoda	no no yangu yangu heshi hesi angu angu aya aya yangu wangu
3rd session (11.08.02)		
Fafi Fafi naKuji naKudzi kuchikoro kuchikoro gogo gogo	ndinoenda ndinoenda auya wakauya andikwara andikuwadza inoruma inondiruma	hoyaiti horaiti bhai-bhai bhai bhai ndinonji ndinonzi

nashekuru nasekuru paoko paruoko ingwa imbwa tirata tirakita dhedhurumu mubhedherumu	kurungura kurungira uya uya nikurakidze ndikuratidze	zhuro nezuro iyo iyo rangu mangu
4th session (25.08.02)		
parodhi parodhi kuchechi kuchechi Ipo Chipo namhamha namhamha mana mwana bhuchu ibhutsu mhamha mhamha huma imbwa mhamha mhamha fiziti firiziti sekuru sekuru hamu mota	atamba ari kutamba handidi handidi kuenda kuenda aya auya achema arikuchema nhonga ndinongerewo hona honai auma inoruma aumwa arikunwa hona honai akira vakwira	apo apo newe newe ake vake uyo(omitted)
5th session (02.09.02)		
mhamha mhamha epa bepa mhamha mhamha bhuchu bhutsu dhezhi dhirezi pegishi mapegisi mhamha mhamha mota mota	powo ndipewo mira mira ndifambe ndifambe powo ndipewo dazhoya ndiri kuda kuzora powo ndipewo powo ndipewo nipe ndipe akira vakwira	yangu rangu yangu dzangu yangu vangu yangu angu

6th session (21.09.02)		
nasekuru nasekuru gogo gogo nhanha mwana machingwa chingwa dhedhi dhedhi netiipoti (omitted) mhamha mhamha bhuchu bhutsu mhamha mhamha nebhuchu nebhutsu mhamha mhamha dhedhi madhedhi mombe imombe	vaenda (omitted) darara ndinoda kurara kuberekwa (omitted) ada arikuda ndapisa pandakapiswa ndatora(omitted) ndatorawo (omitted) aenda vaenda	kuti (omitted) iyo (omitted) dzangu (omitted) dzenyu (omitted)
7th session(5.10.02)		
mhamha mhamha cheya cheya Anna Anna tseya cheya chingwa chingwa tii tii Anna Anna futi pfuti Otto Otto switi suwiti	ahadza ndirikurwadziwa pakinya parikuswinya bva ibva ndidye ndidye pisha kupisa hona hona ashudha inoshudha ndida ndirikuda	apa apa ehe ehe yangu yangu hana haana ichi(omitted) here(omitted) iri (omitted)
8th session (20.1.02)		
mhamha mhamha asikiyimu aisikirimu muchato muchato mhamha mhamha kokoyeti chokoreti	mandiuya mandiurira nuda ndirikuda uyidawo urikudawo guka gura	nei nei yangu yangu yaani waani uyu uyu yamainini vamainini wapi vapi apa neapa
9th session session (9.11.02)		
madhobhi topu bhodhi topu sipageti topu nesipageti topu sekuyu sekuru bhoya bhora makomana vakomana	muizonitengeyawo munazonditengerawo nochidambuya ndinochidambura nochidaiso ndochidaiso	futi futi chii chii ichocho ichocho

	tambai tambai	
10th session(24.11.02)		
matetutu tirekisutu mainini mainini	ndachena ndachena ndatogezha ndatogeza ndapfekejwa ndapfekedzwa ageza ageza agukira agura	izhi izvi zhakashata zvakashata angu yangu haashati haasati niyani ndiyani chinhu chinhu changu changu
11th session(07.12.02)		
chingwa chingwa dhedhi dhedhi foni foni Tate Tate mafuta mafuta imba imba mwana mwana	ndinoda ndinoda kuuya kuuya ndakuenda ndakuenda ndoda ndakuenda adya adya handisibi handisvibi zakandiomera zvakandiomera zekufamba zvekufamba ndikuchaga ndirikutsvaga	hana havana kuna kuna ihombe hombe izozo izvozvo wangu wangu

APPENDIX 5

The full set of Slobin's Operating Principle (Ops).

OPERATING PRINCIPLES FOR THE CONSTRUCTION OF LANGUAGE
ATTENTION TO SPEECH

OP (ATTENTION): SOUNDS. Store any perceptually salient stretches of speech.

*[39]OP (ATTENTION): END OF UNIT. Pay attention to the last syllable of an extracted speech unit. Store it separately and also in relation to the unit with which it occurs.

*OP (ATTENTION): BEGINNING OF UNIT. Pay attention to the first syllable of an extracted speech unit. Store it separately and also in relation to the unit with which it occurs.

OP (ATTENTION): STRESS. Pay attention to stressed syllables in extracted speech unit. Store such syllables separately and also in relation to the unit with which it occurs.

ENTERING AND TAGGING INFORMATION IN STORAGE

*OP (STORAGE): FREQUENCY. Keep track of the frequency occurring of every unit and pattern that you store.

OP (STORAGE): UNITS. Determine whether a newly extracted stretch of speech seems to be the same as or different from anything you have already stored. If it is different, store it separately; if it is the same, take note of this sameness by increasing its frequency count by one.

OP (STORAGE): CO-OCCURRENCE. For every segmented unit within an extracted speech string, note its co-occurrence with any preceding or following unit and store sequences of co-occurring units, maintaining their serial order in the speech string.

OP (STORAGE): UNIT FORMATION. If you discover that two extracted units share a phonologically similar portion, segment and store both the shared portion and the residue as separate units. Try to find meanings for both units.

[39] *means the OP is discussed in this study.

GROUPING INFORMATION IN STORAGE

OP (STORAGE): WORD CLASSES. Store together as a class all words (phonological speech unit and meaning) that co-occur with a given functor. Store together as a class words that co-occur with the same groups at functor across utterances. Try to systematize word classes on semantic groups, forming prototypes and looking for common features.

OP (STORAGE): FUNCTOR CLASSES. Store together all functors that co-occur with members of an established word class, and try to map each functor onto a distinct Notion.

OP (STORAGE): PHRASES. Store together sequences of word classes and functor classes that co-occur in the expression of a particular Notion or that co-occur with content words belonging to the same class.

OP (STORAGE): CLAUSES. Store together ordered sequences of word classes and functor classes that co-occur in the expression of a particular proposition type, along with a designation of the proposition type.

STRATEGIES FOR GRAMMATICAL ORGANIZATION OF STORED INFORMATION

Organizing Information in Storage: linguistic Units

OP (UNITS): WORD FORMS. If you discover more than one form of a word or word-stem in storage, or if monitoring reveals a mismatch between your word form and that in the input, try to find a phonological or semantic basis for distinguishing the forms:

a. Phonologically attempt to change your word form in the given environment, following a hierarchy of possible adjustments of word forms. At first try to maintain the consonant frame and syllable structure (number of syllables, stress placement).

b. Try to find distinct meanings for words or word-stems that occur in varying forms, checking for relevant Notions.

c. If you cannot find a principled basis for differentiating the forms of a word-stem, pick one form as basic and use it in all environments.

OP (UNITS): PHONOLOGICAL CONDITIONING OF ALLOMORPHY. If you discover diverse forms of a functor expressing a given notion with regard to words of a particular class, compare these forms of the other functors and/or the word-stem with which they occur.

(a) If you find phonological similarities between co-occurring forms, regularly adjust the form of the functor to fit its environment (following your hierarchy of predispositions for phonological conditioning of allomorphy).

(b) If you fail, use a single form of the functor where possible and/or omit the functor.

OP (UNITS) MORPHOLOGICAL PARADIGMS. If you find more than one functor expressing a given Notion relative to a particular word class, and choice of functor cannot be determined by phonological conditioning:

(a) Try to find semantic grounds for subdividing the Notion expressed by the functors, and map each new Notion onto one of the functors.

(b) If you cannot find semantic grounds for choice of functor, check the citation forms of the associated words or stems and try to differentiate them on systematic phonological grounds. If you succeed, set up a paradigm in which choice of functor is conditioned by the phonological shape of the citation form.

(c) If you do not succeed in setting up a paradigm based on the phonology of the citation form, and if your procedural capacities allow you to the functors on the basis of elements that systematically co-occur with the citation forms set up a paradigm in which choice of functor is conditioned by factors that regularly co-occur with the citation form.

(d) If you fail, use only the most salient and applicable functor to express the given Notion in the given position.

OP (UNITS): CANONICAL CLAUSE FORM. If a clause has been reduced, rearranged, or otherwise deformed when not functioning as a canonical main clause, attempt to use or approximately the full or canonical form of the clause.

Organizing Information in Storage:

Form-Function Mapping

OP (MAPPING): DICTIONARY. Pay attention to sound sequences that have a readily identifiable meaning and store them in a Dictionary, along with a representation of the context in terms of available semantic and pragmatic Notions in Semantic Space.

*OP (MAPPING): CONTENT WORDS AND ROUTINES. Try to map extracted speech units onto representations of objects and events – the core referential meanings and

pragmatic functions associated with typical activities and interactions. Store units with their meanings.

OP (MAPPING): FUNCTORS. If a speech segment remains uninterrupted after the establishment of content words and routines, try to map it onto an accessible grammaticizable Notion that is relevant to the meaning of adjacent referential units in the situation in which the speech segment occur. If you succeed, store such a nonreferential relational unit ("functor") with its meaning and its placement in relation to associated linguistic units and their meanings.

OP (MAPPING): CONNECTIVES. Once you have established means of linguistic expression for whole propositions (clauses), if an uninterpreted functor cannot be mapped onto accessible Notion, and it occurs in an utterance with two clauses, try to assign it a function that relates the two clauses. If you succeed, store the functor and a definition of its interclausal function and placement.

OP (MAPPING): VARIABLE WORD ORDER. If you find that a clause type occurs in more than one word order, attempt to find a distinct function for each order.

*OP (MAPPING): EXTENSION. If you have discovered the linguistic means to mark the Notion in a relation to a word class or configuration, try to mark the Notion on every member of the word class or every instance of configuration, and try to use the same linguistic means to mark the Notion.

*OP (MAPPING): AFFIX-CHECKING. Do not add an affix to a word or word-stem that appears to contain that affix in the relevant position.

OP (MAPPING): UNIFUCTIONALITY. If you discover that a linguistic form expresses two closely related but distinguishable Notions, use available means in your language to distinctly mark the two Notions.

OP (MAPPING): ANALYTIC FORM. If you discover that a complex Notion can be expressed by a single, unitary form (synthetic expression), prefer the analytic expression.

Organizing Information in Storage:
Position of Elements

*OP (POSITION): INTRAWORD MORPHEME ORDER. Keep the order of morphemes in a word constant across the various environments in which that word can occur.

OP (POSITION): PHRASAL MORPHENE ORDER. Keep the order of morphemes in a phrase constant across the various environments in which that phrase can occur.

OP (POSITION): FIXED WORD ORDER. If you have determined that word order expresses basic semantic relations in your language keep the order of morphemes in a clause constant.

OP (POSITION): MORPHEME PLACEMENT. Mark a Notion in the same place in the various constructions in which it can occur. If you discover that a particular class of words or functors occurs in different position in different constructions, try to find a principled basis to differentiate the constructions. If you fail to define distinct construction types, use the same position across constructions.

OP (POSITION): RELEVANCE. If two or more functors apply to a content word, try to place them so that the more relevant the meaning of a functor is to the meaning of the content word, the closer it is placed to the content word. If you find that a Notion is marked in several places, at first mark it only in the position closest to the relevant content word.

OP (POSITION): OPERATORS. If a functor operates on a whole structure (phrase or clause), try to place it external to that structure, leaving the structure, leaving the structure itself unchanged.

GENERAL PROBLEM-SOLVING STRATEGIES

Review Strategies

OP (REVIEW): STRENGTHENING. Whenever an attempted solution succeeds, apply the same strategies to similar problems.

OP (REVIEW): MONITORING. Compare utterances you hear with forms that you would produce in the same situation. Store mismatches and attempt to accommodate your grammar to unassimilated input forms by applying relevant Ops to the area of mismatch. If you find that a given OP is responsible for the mismatch, replace or revise that OP.

OP (REVIEW): PERSISTANCE. Whenever an OP fails to achieve a solution, and whenever a previous solution is found to be inadequate, return to the task from the time to time until a solution is achieved.

OP (REVIEW): SEMATIC REORGANIZATION. Continually re-examine Semantic Space as your cognitive structures develop and as you discover the semantic categories used in your parental language. Analyze Notions into related subordinate Notions and group Notions into new superordinate patterns; make semantic extensions of Notions and assimilate Notions to one another. Apply new analyses to existing semantic paradigms and definitions of functors and grammatical operations.

OP (REVIEW): DICTIONARY REORGANIZATION. Review stored linguistic forms and their meanings, systematizing your Dictionary according to available Ops and the principles of linguistic organization that have proven useful in dealing with your language.

OP (REVIEW): LIMITED FUNCTIONS. At first apply a solution to the smallest motivated category and do not extend it without evidence.

Interim Production Strategies

OP (PRODUCTION): UNINTERPRETED FORMS. If a speech element is frequent and perceptually salient, but has no obvious semantic or pragmatic function, use it in its salient form and position until you discover its function; otherwise do not use it.

OP (PRODUCTION): ROTE. If a form appears frequently enough for you to have memorized it and made it use automatic, continue to use in that manner while you are systematizing the use of similar but less automatized forms.

OP (PRODUCTION): MAXIMAL SUBSTANCE. While you are mastering the Linguistic expression of a Notion, mark that Notion with as much acoustic substance as possible, with maximal phonological separation of the form in question from adjacent speech units.