

To the Four Children
of the Study

**The Aspects of Acquisition of Kannada
by 2+ Year Old Children**

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S.V. SREE DEVI

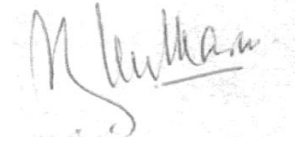
A DISSERTATION SUBMITTED IN PART FULFILMENT FOR
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1976

CERTIFICATE

This is to certify that the dissertation entitled "The Aspects of Acquisition of Kannada by 2+ Year Old Children" is the bona fide work in part fulfillment for the degree of the M.Sc. (Speech & Hearing), carrying 100 marks, of the student with Register No.66



Director
All India Institute
Of Speech & Hearing
Mysore.

CERTIFICATE

This is to certify that this dissertation has been prepared under my supervision and guidance.



Guide

DECLARATION

This dissertation is the result of my own study under taken under the guidance of Dr. M.S. Tirumalai, Deputy Director, Central Institute of Indian Languages, Mysore, and has not been submitted earlier at any university for any other diploma or degree.

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CHAPTER I

INTRODUCTION

The present study aims at identifying some characteristics of the processes of acquisition of Kannada by children in the age group of 2-3 years. This dissertation concentrates mainly on the expression side of language acquisition, on the emergence of the phonological and syntactic structures of the Kannada language through an observation of the utterances of children in the age group of 2-3 years.

Most of the acquisition studies done so far have been directed towards the following aspects of language:

1. Acquisition of Phonology,
2. Acquisition of Syntactics
3. Acquisition of Semantics, and
4. Acquisition studies of Comprehension.

The interest in the study of the acquisition of language is evidence in the works of scholars from different disciplines. Psychologists have approached the problem mainly in terms of language learning theories, such as conditioning and mediational. Linguists approach the problem mainly from the point of view of the emergence of linguistic structures. Epistemologists have approached the problem from the point of view of the acquisition

of knowledge. Speech pathologists have also developed interest in the field of acquisition of language for the simple reason that they, before treating a case with speech and language disorder, need to know how a normal child develops his language.

The present study on the acquisition of Kannada language is taken up to identify the aspects of acquisition of the Kannada language. It is hoped that this will lead to the creation of an interest among the Kannada linguists and speech pathologists. It is also hoped that the studies in this line will be found useful by speech pathologists in their work.

The present study makes a general observation of the recorded orally expressed spontaneous linguistics behavior, the elicited responses and the imitated utterances of four young children. Observation is not directed towards comprehension, or emergence of any particular grammatical system. The aspects of study in the present work are as follows:

1. General phonological studies of the children for the given Period.

2. General grammatical units used by the children for the given period and how these units are incorporated in the construction of sentences.
3. General observations on the transformations that have been acquired by the children.

It must be emphasized, however, that no exhaustive treatment is claimed in this work and also that this study does not present all the data collected during the observation. Only relevant illustrations are incorporated in the body of thesis.

Every child was followed over a particular period of time as given in Table 1.

Limitations of the Study

1. The speech sample does not contain purely the spontaneous expression of four children. The data collected might have been influenced by the stimuli provided by the experimenter and also by the speech of other persons conversing with the children.

TABLE 1

Ages of the Children at the Commencement and Completion of the Study

Sl. No.	Assumed Name	Age at the Commencement of study	Age at the completion of study	Sex	Frequency of observation
1.	Sharath	2; 3.5	2; 8	M	4
2.	Bharath	2; 7	2; 11	M	4
3.	Anitha	2; 4	2; 7.5	F	3
4.	Sunitha	2; 7.5	2;11.5	F	4

*Age is indicated by year and month, e.g., 2;3.5 indicates 2 year and 31/2 months old.

2. The present study has controlled only the following variables:

- a) Age,
- b) Sex,
- c) Socio-economic class, and
- d) Native language.

Several other variables which might have affected the results were not accounted for.

CHAPTER II

REVIEW OF LITERATURE

The topic Child's language acquisition covers a vast area in which many studies have been done over a long time.

Review here concentrates mainly on some of the major work done during the recent years, which are relevance to the present thesis.

The theoretical position regarding the Child's language has been changing slowly. The linguistic description of the structure of language which has had considerable influence on current research in language acquisition is the transformational or generative model of grammar and it is of Chomskyan origin, which has been elaborated by various authors (Katz, 1966; McNeill, 1966ab; Lenneberg, 1967; and others}. As Katz (1966) summarises the view of the generative grammarian, "Language acquisition is a process of implicit theory construction similar in character to theory construction in science without the explicit intellectual operations of the latter. The child formulates hypotheses about the rules of the linguistic description of the language whose sentence he is hearing, derives prediction from such hypotheses about the linguistic structure of sentences he will

hear in the future, checks those predictions against the new sentences he encounters, eliminates those hypotheses that are contrary to the evidence, and evaluates those that are not eliminated by a simplicity principle which selects the simplest as the best hypotheses concerning the rules underlying the sentences he has heard and will hear. This process of hypotheses construction, verification and evaluation repeats itself until the child matures past the point where the language acquisition device operates."

The generative grammarian's approach to language acquisition is subjected to criticisms. One of which is presented by Arthur States (1968,1971a,b) according to whom the theory of language must indicate the various repertoires which constitute a language, the learning principles which help the acquisition of particular repertoires and the manner by which language functions in the individual's adjustment with the world at large. The repertoires of speech response are learned by instrumental conditioning. Classical conditioning is the principle by which a large number of words come to elicit emotional responses. The determinants of language behavior cannot be found just by the observation of behavior; they can be found either in learning circumstances or in biological events. States also find that the linguistic observation of language is limited in scope.

He claims that the first step in research on language learning is to suggest tentatively the S.R mechanisms that appear to be involved. The S-R analysts suggest empirical hypotheses by which one may test and extend analyses. If this were not the case, we cannot contribute anything, as grammatical relations cannot be described until the child makes multiple word utterances. Staats posits the use of instrumental higher order conditioning to account for the manner in which a discriminative stimulus transfers its control to other potential discriminative stimuli with which it is paired in a process. This is responsible for assigning proper grammatical relations/categories to the novel items encountered by the child. He refutes the claim that language is innate and that universal aspects of human languages are due to a common innate idea. These are due to the fact that language is learned in response to the features and principles of different languages, in areas in which man lives.

Braine (1971a) as opposed to Chomsky's notion regarding language acquisition finds that a child learn language even without information as to whether a particular utterance to which is being exposed is grammatical or not. Braine's model has two principal components: (1) a scanner which receives the input sentences; and (2) an ordered series of intermediate memory stores, the last of which is the permanent memory store.

The intermediate stores all have a built-in decay characteristic.

The model of this kind after storing certain short strings, would begin to analyse the longer strings into shorter ones. The scanner is expected to mark the pattern properties as phonological, somantics, etc. The order of occurrences of pattern properties learned from the input strings are compared with the properties that are already learned and, are registered as alterations of already learned structures in cases where transformations play a role in the sentences encountered.

Schlesinger (1971) has proposed a model which may be called a performance model. When a speaker is programmed in a manner described by the Chomskyan model, he produces grammatical utterances of the language. But in reality a speaker not only produces grammatical utterances, but also the utterances appropriate to the occasions, his conditions, etc. Hence it should be assumed that the speaker's intentions guide the grammar mechanisms from the start. In Schlesinger's model the child is assumed to have an innate cognitive capacity which will be the same whether the child learns to speak or fails due to some organic or environmental handicap. There is nothing specifically linguistic about the capacity.

Input markers are only concepts falling within the capacity and are not specified for the grammatical category. It is the realization rules (which are linguistic universals) which determine the category in which the concept appears in the utterance. The input markers represent the universal somatic relations. This model demands that the child learns the correspondences between input markers and the utterances of persons in his environment.

The studies of child language of concern to the present study may be presented under three main headings.

- 1) Acquisition studies in phonology
- 2) Acquisition studies in syntax, transformations and inflections
- 3) Studies which compare the languages of Normal and Deviant children

1) Acquisition studies in phonology

Irwin (1952) in a longitudinal study of age factors sampled the speech sounds of 95 children upto 30 months of age. It was found that by 21/2 years the child has mastered 27 phonemes of the English language. Irwin (1948) has noted that by 21/2 years of age the vowel profiles of the children approximate the adult vowel profiles. The profiles

for consonantal development as presented by Irwin (1947a) indicated that by 29 and 30 months the profile approximates the adult profile reported by Voelker (1934) except that the phonemes /tʃ/ and /dʒ/ are not acquired by 2 1/2 years of age. In Irwin's data (1947b) consonants with features +'Grave', +'Nasal' and +'Voice' are used proportionately more than expected, from the 3-6 months period until 19-22 months period and then usage of +grave drops below the expected percentage. During the 27 to 30 months period the rank order of proportionate usage of consonants that are +'Strident' and particularly + 'Continuant' are disproportionately low.

According to Jakobson (1941) and Jakobson and Halle (1956) the development of the sound system is not a gradual approximation of the adult phonemes one by one, but is in terms of the acquisition of successive contrasts between distinctive features of maximum difference and generality, for example, Vowel and Consonant, Stop Vs Non Stop. Braine feels that the data on the phonological development confirms the general lines of Jakobson's thinking which has influenced the work on phonological development. But Jakobson's more specific proposals about the order of development have been only partially substantiated.

Leopold (1961) states that, it is safe to assume that in learning language a child will find distinguish in what

he hears, only the coarser contrasts and will need time to appreciate the finer sub-contrasts between the sounds which reach its ears. The same will apply to the efforts to reproduce the sounds in its own articulators. In the case studied, [b] was used in the first word at 0:9, [d] was used at 0:10, whereas [g] was not acquired until 1:7, and [k] at 1:8, after long experimentation. The separation of voiced and voiceless stops did not begin to be achieved until the very end of the second year. A clear distinction between three series of stops, labials, dentals and velars came after the end of the second year. Regarding the fricatives there were two series of fricatives initially and terminally but not the same ones for the two positions. The fricative [f] developed very slowly from the middle of the third year in either position. The so called liquids are among the latest sounds of children.

The relation of phonological development to the phenomenon of babbling has been a continuous source of controversy for a long time (Braine, 1971B). Some theorists have tended to assume that speech sounds are selected out of sounds used in babbling by a process of reinforcement either direct reinforcement like the rewarding parents (Staats and Staats, 1963, Howrer, 1952, 1960) or through the reward of hearing oneself speak. Critics of this kind

of theorizing have tended to be skeptical of the existence of any relation between babbling and phonological development in speech (Jackbson, 1941; Velten, 1943; Carroll, 1960). One known difference between the paralinguistic vocalization and the first speech sounds is that velars and glottals are relatively frequent in the early vocalizations, whereas labial and alveolar-dental consonants tend to predominate in the first words (Irwin, 1947a; Winitz and Irwin, 1958).

In addition to describing the internal structures of a child's system most studies have also described the correspondences between the phonemic shapes of words in the speech of adult and child. The most usual relation is a many to one correspondence, in which several adult phonemes or clusters are represented by a single child phoneme (Albright and Albright, 1953; Chao, 1951; Leopold, 1939-49; Ervin and Miller, 1963). Smith (1974) from the data collected from his son at the age of 2 years states that regular correspondence between adult and child forms are many to many rather than many to one or one to one.

Snow's data (Snow 1963) and Wellman's data 1931 (Power's 1957) indicate that the particular sound is not mastered in all three positions at the same age. For example, Medial /y/ is mastered by 3 years but sound in the final position is not mastered until after 6 years. Final

'r' occurs by 4 years and initial and medial /r/ not until 5 ½ years.

Monyuk (1971) says that in addition to omission and substitution of speech sounds, it has also been observed that at some stage of development a particular bundle of features comprising a speech sound may be used correctly in certain contexts, at the same time that it is being omitted or substituted in other contexts.

2) Acquisition studies in syntax, transformations and inflections.

Several investigators have noted that the early word combinations tend to follow a certain pattern (pivotal constructions) (Gvozdev, 1949; Braine, 1963; Brown and Fraser, 1963; Miller and Ervin, 1964). However later works (Bloom, 1970; Bowerman, 1970; Brown, 1970; Kelly 1967; and Slobin, 1970) have raised number of reservations about the adequacy of pivot construction as a description of the 2-word stage of grammatical development. Menyuk (1971) says that pivot-open dichotomization seems to characterize the experimenters classification rather than child's this period appears to be the short one (lasted for 4 months in 3 children described by Braine (1963) and the transition to a more complex grammar is not sharp.

In the first sentence and in the first two or three word utterances produced by the children, it has been observed that articles, copular and other so called function words are omitted. Brown and Bellugi (1964) give the reason for this, that function words are not stressed in the utterances the children hear. It is however difficult to observe any grammatical classes that are consistently omitted. Quantifiers prepositions and even articles are found in early 2-word sentence (Samples found in Braine, 1963; Brown and Fraser, 1963; Miller and Ervin, 1964; Menyuk, 1969). A possible linguistic description of the sentences that are generated at this stage may be s -> (Modifier) Topic. Some pivot morphemes happen to serve as topics in the utterances while others do not Menyuk (1969) suggests that the child in the production of the early sentences seems capable of the following operations. He can conjoin a topic and a modifier and create different sentence types by the application of rules for intonation and stress types by the application of rules for intonation and stress to the base structure string. He can expand an element into a morpheme and conjoin a morpheme to the base structure string.

The morpheme is embedded in the string and the syntactic restrictions are observed concerning the placement of the morpheme within a sentence. Then the child establishes the subject-predicate relationship in the

sentence and begins to define the classes in the language. Then the nature of his transformational rules changes.

Greuber (1967) has characterized some of the early utterance as performatives and somewhat later utterances as reportatives. The examples given seem to be predicate construction in the case of performatives and subject+ predicate construction in the case of reportatives. This agrees with Braine's (1965) conclusion that the earliest utterance are predicate phrases.

Transformations:

McNeill (1966) in an analysis of the language found that there were some sequences which were not use in the utterances of children, for example, VVN which frequently appear in adult language were not found. All sequences were described as being generated by rule.

- 1) S-> NP + NP or
- 2) S-> Pred. phrase, Pred. Phrase -> V + NP

Menyuk (1971) observes four sentence types: declarative, imperative, question and negative. All are being produced by the operation of conjunction of topics and modifiers at the earliest stage. Several changes occur while complete well formed sentence types appear.

One change is use of subject-predicate structures. Another development is expansion of the VP to include auxiliary verbs, copula and modals plus inflections. However until the classes auxiliary/modal and tense are established instances of completely well formed sentences (declarative, question or negative) are not observed.

It has been noted that certain structures appear in some sentence types before they appear in others (Ervin Tripp, 1963). The modal 'do' appears in negative "I don't play" and elliptic sentence "I do", long before it appears in questions, Therefore it has been hypothesized that do support transformation is learned separately and independently for each sentence type.

Klima and Bellugi (1966), Brown, Cazden and Bellugi (1968), Bellugi (1967) are confined to the acquisition of only two transformational systems negations and questions.

Bellugi (1964) presents extensive data on the development of negative structures for two children Adam and Eve. Miller (1964) reports very similar data on 5 children for negative and interrogative structures. A primitive negative first appeared when Adam and Eve were about 30 months and 21 months old.

Miller believes that his 5 subjects began to produce negative by transformation at an average age of 33 months. He found that the transformations of negation, inversion in Yes-No questions and verb ellipsis develop in close proximity to each other.

Blooms (1970) records show that structural form of the first negative sentences was a negative operators in preposition before nominal or predicate forms. Semantic interpretations of negative sentences were inferred from observation of the status of the referent in the context in which utterance occurred or the child's relation to the referent in terms of behavior. The sequential appearance of syntactic expression of rejection and denial after the appearance of non existence in phase I was the important aspect of phase 2.

Klima and Bellugi found the negative structure appearing only in their second stage. The rules set by them were:

$$\text{Aux Neg} \longrightarrow \left\{ \begin{array}{l} \text{Neg} \\ \text{V neg} \end{array} \right\}$$

$$\text{V neg} \longrightarrow \left\{ \begin{array}{l} \text{can't} \\ \text{don't} \end{array} \right\}$$

$$\text{Neg} \longrightarrow \left\{ \begin{array}{l} \text{no} \\ \text{Not} \end{array} \right\}$$

Inflections and Morphology

Bellugi (1964) in the data based on observation of two children presents the order of emergence of several noun and verb inflections in English.

Inflection	Age of appearance in months		Combined Rank order in Mother's
	<u>Adam</u>	<u>Eve</u>	
Speech			
Present progressive -ing	28	19½	2
Plural on nouns -s	33	24	1
Past on regular verbs - ed	39	24½	4
Possessive on nouns -s	39½	25½	5
Third person on verbs - s	41	26	3

Three inflections have the same phonemic realization '-S'. But since the last appears anywhere from 2 to 8 months after the first, it is phonemic development that regulates the appearance of inflections. Finally the order of emergency of speech of children is only weakly correlated with the frequency of the form in the speech of adults.

Jackobson (1969) concludes that morphology precedes syntax. According to him plural marking of noun precedes

possessive marking of nouns which precedes third person making of verbs, i.e., a morphological effect within a word precedes a grammatical relation between two words within a constituent, which precedes a relation between constituents.

In a cross sectional study by Villiers and Villiers (1973) speech samples were taken from 21 children aged 16 to 40 months covering a wide range of mean utterance length. Presence or absence of 14 grammatical morphemes in linguistic and non linguistic obligatory contexts were observed. The number of obligatory contexts for each morpheme was in general smaller in lower MLU samples. Two different procedures for ordering the morpheme were used. Some of the morphemes in particular the articles, contractible and uncontractible copula and the third person singular do show gradual growth curves. Cazden (1968) has evidenced that acquisition curves for the progressive, possessive and plural inflection and for the regular past and third person singular forms are also fairly similar and gradual.

Slobin (1966) has examined a number of reports in Russian literature. Morphological markers enter when sentences increase from 2 to 3 4 words in length. All words are unmarked in Zhenya's speech until about 1;10 and then in the one month between 1;11 and 2;0, there is a sudden

emergence of contrasting morphological elements in various grammatical categories. In this one month previously unmarked nouns are marked for (1) number, (2) nominative, accusative and genitive cases, (3) diminutive. Verbs are marked for (1) imperative, (2) infinitive, (3) past tense, (4) present tense. Apparently once the principles of inflection and derivation are acquired or any rate the principle of suffixing, the principle is immediately applied over a wide of type. Between the ages 2;10 and 3;0 gender agreement appeared. Shortly after this the child begins to use a variety of prepositions with them.

3) Studies which compare the language of Normal and Deviant children

Menyuk (1964) has compared the language of children with deviant and normal speech in attempt to obtain an adequate description of the deviant speech. At no age level did the grammatical production of a child with deviant speech match or closely match the grammatical production of a child with normal speech from the age of 2 years onwards.

Lee (1966) has described a linguistic paradigm for assessing syntactic development. She has reported that the language delayed group manifested more omission in their transformational structures than did the normal and that there is a qualitative difference between the two.

Morehead and Ingram (1973) compared the development of Base Syntax in normal and linguistically deviant children. Few significant differences were found for the more general aspects of syntax, such as phrase structure rules, frequently occurring transformations, inflectional morphology and the development of minor lexical categories. Significant differences were found for the less general aspects of syntax. In addition, deviant children also showed marked delay in the onset and acquisition time for learning Base Syntax. In summary Morehead and Ingram have reported that there are no qualitative differences between the two. Once the linguistic systems are developed deviant children do not use them as creatively as normal children for producing highly varied utterances.

Certain studies have used simple imitation test for obtaining performance data on the grammatical system of the children and also to ascertain the importance of certain categories in a sentence. Ervin (1964) indicated that the grammar of a child's spontaneous speech and that of his imitation of adult utterances were not different. Love and Robinson (1972) showed that with functor words present in the sentences imitated, the grammatical orders were significantly easier than ungrammatical orders, without functor words there was significant difference in the number of correct

imitations for grammatical and ungrammatical orders, thus supporting the notion that children have learned to rely upon contextual cues. The result of their study also suggested that context provided by functor words is more important than inflections.

Studies regarding child's language acquisition in Indian languages are scanty.

Thirumalai (1972) has described some aspects of acquisition of Tamil phonology of a boy who was 4;4. It was found that the phonetic realization of the stop consonants in the speech of the child followed that of his mother's. Interchangeability between alveolar and retroflex nasals and also between alveolar and retroflex laterals in the child's speech were noted. This was generally found with regard to those words which have retroflex counterpart sounds in the speech of subject's parents. This led to a hypothesis that, the subject was not encountering any difficulty in the production of sounds of the language, and that his difficulty was to produce them in appropriate environments.

Kumudavalli (1973) in her dissertation has identified the pattern in the development of speech sound discrimination and the relationship between articulation and discrimination

in the children who ranged from 3+ to 11+ years. Results showed that there was a definite pattern in the development of discrimination. Features of voicing and nasality were distinguished at any earlier age than features of place. It was also found that distinction between members of certain sets (liquids and stridents) were last to be acquired. By the age of 8 years all the distinction had been acquired. The distinction between alveolar and retroflex sounds was the last to be acquired both in perception and production. The production of a distinction always preceded its perception.

Rathna (1971) has put forward a proposal for a study on child language acquisition in Kannada. The plan was to test children of different ages between 0-8 years, twenty children for each group from a middle class family and to record the samples in various situations. Then the data was planned to be analyzed for frequency counts at various levels and for sequences in the acquisition of phonemic, morphological and syntactic development. However the study does not seem to have been completed.

The two studies mentioned earlier are restricted to only one aspect of language acquisition. But the present study has attempted to give a general process of the child's acquisition of Kannada language in 2+ age group, studying phonological and grammatical aspects of speech.

CHAPTER III

METHODOLOGY

Selection of Subjects

1. The main criterion for selecting the subjects for the present study was that the children should be "Normal" i.e., there should not be any observable gross deviations physically, mentally or in their communicative ability. Some information which helped in putting the subjects into a "Normal" category was collected from the subjects' parents. These were:

- a. The child should not have any history of earache, ear discharge or hearing loss.

Informal hearing screening was done using some of the sound producing materials such as pitch pipes, squeakers, whistles to make sure that children do not deviate grossly from the normal in their ability hear.

- b. Milestones of motor development such as the age of gaining head control, the age of sitting, the age crawling, standing with support, and walking without assistance were evaluated to substantiate the normality or otherwise of every child, as motor development in early childhood bears a significant relationship with the overall intellectual development.

2. The children should be in the 2+ age group

3. The children should be speaking at least two word utterances.

4. The fourth criterion was that of the socio-economic status. All children should be from a "middle class" family where the father earned a minimum of Rs.600/- per month (arbitrary) and was at least a graduate. Mother should have completed their high schooling.

5. The children should have been exposed to only one language at home. The language used and also their native language should be Kannada. Though the minor dialect variations of the language would be difficult to make out, major variations were ruled out by selecting children from the same caste (Brahmin) and also that their parents should be using the dialect which is being used in Mysore. This was taken into account because geographical areas also make differences in dialect.

6. The mother of the children should not be employed anywhere.

7. The children should not be going to school.

Many other variables have not been equated among the subjects being studied.

TABLE 2
Socio-Economic Status of the Children

Sl.	Name	Age	Sex	Caste	Income of the father per month	Education of	
						Father	Mother
1	Sharath	2;3.5	M	Gowda	650	B.Sc., B.Lib.Sc.	P.U.C.
2	Bharath	2;7	M	Brahmin	650	M.Sc.	P.U.C.
3	Anitha	2;4	F	Brahmin	625	M.P.E., Ph.D.	B.A.
4	Sunitha	2;7.5	F	Brahmin	600	B.Sc.	SSLC

The children were divide into two age group 1 and 2,3 and 4. No.1 is a Gowda and not a Brahmin. The child was accepted because available time did not permit further search for a Brahmin child. However it is felt that this "Gowda" did not use a dialect very dissimilar to that used by the Brahmins.

Procedure

Speech samples of the children were recorded using a portable Philips Cassette. Cassette Tape Recorder.

Situation: The recordings were done at the child's home in the presence of members of the family, sometimes

friends of the child were around. Recording were usually done when the child was active and was willing to converse with the experimenter.

Sampling Schedule: Speech samples were collected once in five weeks for every child, thus offering four stages of recording during the period of investigation. In every stage sampling schedule was for about 2 1/2 to 3 hours. The data was collected one hour per day successively for three days in every stage of recording.

The Techniques used for collecting Speech Samples

Elicitation: This was done by presenting the pictures which were likely to elicit speech from the children. Books were made use of. C.A.T. cards (indianized) were also presented to the children to elicit long utterances and discourses.

Imitation: A list containing words with minimal pairs of sounds were constructed (See Appendix I). Most of the words selected were meaningful to the children. All the phonemes in Kannada language were include in the list. For each phoneme two minimal pairs were constructed, taking into account the distributional pattern of phonemes in the adult language.

The children asked to imitate the words at least twice.

The purpose of including imitation technique in the present study was to overcome the possible deficiencies encountered in using only the spontaneous utterances and the data collected by this technique was used to supplement the analysis.

In addition to the speech samples collected using the above mentioned techniques, techniques, the investigator has include in the data, sentences uttered by children during conversation, story telling, narration and while replying to questions.

The utterances of children were recorded also in writing using Kannada script by one of the family who was able to give the closest form of the children's speech in the adult language.

Method of Analysis

The present study employed the methods used in the description of adult speech in linguistics. However, some suitable modifications were also made as children cannot be treated as adult informants. The data collected at each stage was treated as a single unit of corpus. The corpus was viewed from two angles, namely, phonological and

grammatical within the phonological section the phonetic aspects and phonological aspects were separated. The phonetically transcribed materials were used to collect the phonetic segments used by a child in the particular stage. These phonetic segments were further divided into vowel and consonant segments. The phonemes were established mainly on the basis of contrast between phonetic segments through identification of minimal and analogous pairs (Identification of analogous pair was resorted to only when minimal pair was not available.)

The major emphasis was on three points:

1. Identification of all the phonetic and phonemic segment used in the stage;
2. Free variations between the segments; and
3. Clusters of sounds in all the positions and in a word.

The free variations were approached from three angles.

1. Free variation among segment that have attained phonemic status;
2. Free variations among segments one of which is a phoneme, the other a more phonetic segment which has not yet attained phonemic status; and

3. Free variations among segments both of which have not yet attained phonemic status.

The clusters were classified into identical and non-identical. The identical clusters were geminates. The non-identical cluster were classified into two types, namely,

1. Homorganic clusters; and
2. Other non-identical clusters.

Grammatical analysis: The grammatical analysis had two section. In the first the analysis was aimed at identifying the types of sentences and their patterns used by the child, use of certain important morphological categories and devices, which included classification of nouns, and verbs, use of tense, gender, number and case. In the second section the analysis was aimed at finding out the types of transformations. The analysis was not exhaustive.

Comparison with the adult language was also resorted to. However, the main analysis was based on the utterances of the children themselves.

No statistical study was done because it was not warranted.

CHAPTER IV

RESULTS AND DISCUSSION

Aspects of acquisition of Kannada by Sharath

As reported earlier in Chapter III, Sharath's parents belong to the "Gowda" caste. Sharath was 2;3.5 old at the time of first recording. The following gives the details for other recordings.

		<u>Age</u>
2 nd recording	..	2;5
3 rd recording	..	2;6.5
4 th recording	..	2;8

Phonological acquisition in the first recording: The following 2 table (Tables 3 and 4) present the phonetic vowel and consonant segments. The vowel distinctions including long versus short of the adult language are found in Sharath's speech. As regards the consonants, the aspirated sounds are not at all found. Voiced distinction is already established. He clearly pronounces the retroflex sounds. However palatal nasal is not found.

Tables 5 and 6 present the distribution of phonetic segments. Among the vowels only [u:] does not occur in the initial position. All the vowel segments occur in the medial

TABLE 3

Phonetic Vowel Segments
in Sharath's speech

	Short	Long	Short	Long
Front unrounded	I	i:	e	e:
Central unrounded	^	a:		
Back rounded	u	u:	o	o:

(These segment are also identified as phonemes.)

TABLE 4
Phonetic Consonant Segments
in Sharath's Speech

	Labial	Labio-dental	Dental	Alveo-dental and Alveo-lar	Retr-oflex	Pala-tal	Velar	Glo-ttal
Stops: Voiceless	p		<u>t</u>		ʈ	č	k	
Voiced	b		<u>d</u>		ɖ	ǰ	g	
Continuants: Nasal	m			n	ɳ		ŋ	
Oral : Voice-Less		f		s		š		h
Voiced		v						
Laterals				l	ɭ			
Trill				r		ɻ		

TABLE 5

Distribution of Vowel Segments
In Sharath's Speech

Vowel Segments	Initial	Medial	Final
i	+	+	+
i:	+	+	-
e	+	+	+
e:	+	+	-
u	+	+	+
u:	-	+	-
o	+	+	+
o:	+	+	-
^	+	+	+
a:	+	+	+

TABLE 6
Distribution of Consonant Segments
in Sharath's Speech

Consonant Segment	Initial	Medial	Final
p	+	+	-
b	+	+	-
m	+	+	+
f	+	+	-
v	+	+	-
<u>t</u>	+	+	+
<u>d</u>	+	+	+
n	+	+	-
s	+	+	-
l	+	+	+
r	+	+	-
ʈ	-	+	+
ɖ	-	+	+
ɳ	-	+	-
ɭ	-	+	-
č	+	+	-

table contd.....

ĵ	+	+	-
ŝ	+	+	-
Ÿ	+	+	-
k	+	+	-
g	+	+	-
Ÿ	-	+	-
h	+	-	-

position. Only the short vowels occur in the final position which is more or less true of the adult speech also where neutralization takes place generally between the long and short vowels. The consonant sounds [ṭ], [ḍ], [ṇ], [y], [ḷ], and [s] [š] (except in one or two instances) do not occur in the initial position. [n], [y], and [l] do not occur in the initial position, in the adult speech also. All the consonant segments except [h] occur in the medial position. The segments [ṭ], [ḍ], [ṭ], [ḍ], [m], and [l] only occur in final position.

On the basis of the recorded data, the phonemes, as given in Table 3 and Table 7, may be set up. All the vowel distinctions found in the first recording in the phonetic level have phonemic status. However this does not hold good for the phonetic consonant segments. Out of 22 phonetic segments 18 have acquired phonemic status. Phonemes are identified on the basis of minimal pairs available.

Minimal pair for vowel phonemes

bidi, bi:di	eḷḷu, e:ḷu
^ḷu, a:ḷu	
puri, pu:ri	oḍi, o:ḍi
	koḷi, ko:ḷi

Hearings for the above words given in Appendix I

TABLE 7

Phonemic Consonants in Sharath's Speech

p	<u>t</u>	ṭ	č	k
b	<u>d</u>	ḍ	ǰ	e
m		n	ɳ	y
		l	ɭ	h
		r		

Minimal pairs for phonemic consonants

pennu	<u>t</u> a:r^		^ṭṭ^	či:pu	ku:ɖu
bennu	<u>d</u> a:r^		^ḍḍ^	ǰi:pu	gu:ɖu
k^ppu	h^ <u>ttu</u>		k^ṭṭi	^nč̣u	^kk^
k^bbu	^ <u>ddu</u>		k^ḍḍi	^nǰu	^gg^
	(h^ <u>ddu</u>)*				
^mm^			^mm^		
^nn^			^ɳɳ^		
m^y^					
l^y^					
		ka:ru	ka:lu		k^ <u>ttu</u>
		ka:lu	kd:ɭu		h: <u>ttu</u>
		r^y^	ili		
		l^y^	iḷi		
		a:ru			
d:lu					

*The word in the brackets gives the adult form of the imitated word.

The phonetic sounds which have not been established as phonemes are in free variation with one another or with an established phoneme. The free variations found in the data may be classified into 3 major types.

1. Free variations between sounds which have not yet attained phonemic status.
2. Free variations between segments one of which has phonemic status and the rest having no phonemic status.
3. Free variations between segments which have phonemic status.

The segments present under the first type are:

[f], [v],[s], and [š].

Illustrations: viš[^] ~ fiš[^] (initial)

ka:vi ~ ka:fi (medial)

k[^]s[^] ~ k[^]š[^] (medial)

The free variations present under second type are:

V ~ b (initial)

S ~ č (medial)

š ~ č (initial)

The free variations present under the third type are:

b ~ č (initial) l ~ r (medial) ṭ ~ ṭ (initial)
 p ~ b (initial) ḷ ~ ḷ (medial) d ~ ḍ (initial)
 k ~ ṭ (initial) n ~ ṇ (initial) ṭ ~ č̣ (initial)
 ~ g̣ (initial)
 ~ ḍ (initial) ṇ ~ ṇ (medial) j̣ ~ č̣ (medial)

b ~ m (initial) p ~ ṭ (medial) č̣ ~ b (initial)
 h ~ ḳ (initial)
 ~ φ (initial &
 medial)

As these free variations are established within the available data, no definite conclusion can be drawn, as to whether free variation of one segment is greater than the other.

The cluster found in Sharath's speech are presented below.

<u>Identical clusters</u>		<u>Non-identical cluster</u>
-pp-	-čč-	-nṭ-
-bb-	-kk-	-nḍ-
-vv-	-mm-	-nṭ-
-ṭṭ-	-nn-	-nḍ-
-ḍḍ-	-ṇṇ-	-nč-
-ṭṭ-	-ll-	-nk-
-ḍḍ-	-ll-	-ns-

Majority of the clusters found are identical. The non-identical clusters, as a rule, have a nasal dental sound [n] as the first segment of the cluster. There are seven types of such clusters in the data.

The adult speech is characterized by the use of several non-identical clusters, both homorganic and non-homorganic. Sharath's speech however changes the non-identical clusters into identical clusters in many cases. In some cases, a different set of identical clusters than the ones found in the adult speech are used. In several other cases, the clusters are made into single sounds. Some of the changes are as follows:

Adult cluster Sharath's cluster

-sn-	-č-
-ɖk-	-k-
-st̲-	-čč-
-t̲k-	-t̲-, -č-
-rt̲-	-č-
-rt̲̲	-tt̲-
-ɖt̲-	-tt̲-, -t̲-
-sv-	-s-
-lp-	-p-

Phonological acquisition in the second recording: In the second recording it is noticed that Sharath's pronunciation of speech sounds seemed to have acquired a little more clarity than in the previous recording. This clarity is noticed not only in the pronunciation of single sounds but also in the formation and pronunciation of clusters. No new phonetic segments are found at this stage. There is a progressive decrease in the free variations among the sounds.

Distributional characteristic of phonetic sounds of the first recording is maintained. However, a few additional distributions have been noticed. The phonetic sounds [g] and [s] occur in the final position, [t̪] and [d̪] occur in the initial position. However they are very infrequent and this appears to be true even in the adult speech. Regarding the vowel segment distribution, now [u:] makes appearance in the initial and final positions.

All the phonemes of the vowel segments identified earlier remain the same. No new consonant phonemes could be established for this recording. However the phonemic status has not undergone any change over the previous recording.

As in the first recording one can look at the free variations under 3 types. Under the first type, free variation between the sounds [s] & [š] is present. However

it does not mean that the free variation between the sounds [f] and [v] is eliminated, since no data is available to arrive at such a conclusion.

Under the second type, similar free variations as in the first recording are present.

Under the third type, free variations as given below are included.

<u>d</u> ~ g (medial)	ṭ ~ ḍ (medial)
<u>d</u> ~ ʃ (medial)	r ~ l (initial & medial)
ḷ ~ l (initial & medial)	n ~ ñ (medial)
č ~ ʃ (medial)	m ~ p (medial)

There is a considerable reduction in the free variations between segments which have phonemic status in Sharath's speech. In fact, it looks as though the difficulty Sharath faces in this stage is related mainly to the post-alveolar sounds including retroflex ones. The free variation between the sounds [m] and [p] has occurred while Sharath is attempting to utter a sentence which is complex both syntactically and phonologically.

Sharath's phonological achievement is fully reflected in his use of clusters. The new clusters of both the variety

are added in this recording.

Identical cluster: -gg-, -ss-

Non-identical clusters: -dt-, -rl-, -dd-, -lt-

The non-identical cluster found in this recording are not homorganic ones only. There is a tendency to have a fixed sequence for each of the adult clusters. Thus, -čč- is more or less fixed for any cluster beginning with -s-. The cluster -rt- in adult speech is invariably pronounced as -tt-. The cluster -rd- pronounced regularly as -d-, -nd- sometimes is pronounced as -nn-, -tr- as -tt- -sl- as -č-, -gt- as -tt- and -dt- as -tt-.

Phonological acquisition in the third recording: No new consonant and vowel segments are added in the third recording. Though the major characteristics of the distribution of sounds of the previous recordings remain the same, few additional distributional phonetic distribution of consonant segments, the sounds [n], [k], and [r] appear in the final position for the first time. Regarding vowel [i:] and [e:] appear in final position. However such occurrences are restricted to very few utterances.

Two new phonemes are established at this stage, namely, [f] [v]. Except [s] and [š], all the other phonetic

segments have acquired phonemic status. Minimal pair for the segments [f] and [v] is - fa:n

Va:n

Regarding the free variations of the sounds [s] and [š] no change is observed. Under the second type, the free variations between the sounds [s] & [č] and [č] [š] are noticed. Under the third type, some of the free variations noticed are: k ~ č, l ~ 1, n ~ ŋ, v ~ φ, j ~ d.

Regarding vowels, [u] free varies with [u:]

An important characteristic found in this stage is that the well established phoneme [h] in initial position now is frequently omitted. There is now a reversal of the trend, which is not in consonance with the dialect of Shatath's parents, which retains the word initial sound [h]. It is possible that the reversal trend is being set by the children of the neighborhood whose parents' dialect do not retain word initial [h].

Some new type of clusters are added again in this recording. They are: -tr- and dr-. The tendency to have a fixed cluster regularly for a cluster of adult speech is continued.

Phonological acquisition in the fourth recording: Sharath was 2;8 old at the time of this recording. A heavy increase in the use of different vocabulary items is noticed. Strangely enough, such an increase did not lead to backtrapping in the pronunciation of individual sounds and their combination;. However Sharath has not yet acquired total discrimination between the sounds [č] [s] and [š]. Free variations between the sounds [l] & [ɭ] and [n] & [ɳ] continue. The additional non-identical clusters appearing at this stage are -mn-, -ld-, -st- and -pl-.

Acquisition of grammar in the first recording: At this stage, Sharath's speech is characterized by deletions when compared with adult speech. Such deletions are found frequently in the case of pronominal terminations, sometimes, in the deletion of the verbs and other morphological suffixes.

Sharath has both the basic sentence types of Kannada language, namely, the nominal and verbal. However, very few nominal sentences are found in the data. This may be due to less frequent elicitations which would result in giving responses in the nominal type of sentences or it may be that verbal sentences are learned first. In the adult speech, the questions such as "idu e:nu?" "What is this?" and "v^nu ya:ru?" "Who is he?" elicit single word answers. Such single word utterances are however found.

The above two sentence types have several modifiers added to them. It is also found that Sharath is using certain forms and constructions for whose derivation one may posit a number of complex rules. But these forms are used by Sharath with ease, indicating perhaps that he acquires language not only through analysis of the data he is exposed to, but also through analysis of the data he is exposed to, but through simple straight away adoption of certain forms from the adult speech. There are sentences which look like nominal ones but Sharath uses them with deletions as verbal sentences.

Illustrations:

^mm^ na:nu

(^mm^ na:nu ku:tko:ti:ni) "Mummy I will sit."

Illi bekku

(illi bekku ide) "Here is a cat."

The sentences in the brackets give the nearest adults form for the children's utterances established taking into account the contextual clues and parents' information.

Nominal sentences: In a nominal sentence there is no surface verb. This type has several patterns in Sharath's speech, which include the following.

N + N - idu pa:p^ "This is a baby."
 N + Modal - idu be:d^ "Don't want this."
 /N/ + Adj. + N - dodđ^ ba:lu "Big Ball"

/ / indicates absence of the form in the surface structure of the sentence. The deletion of the subject pronouns like adu, idu, are common in the adult speech also.

[n + Intr.] + N - ka:relli ^nn^? "where is the car, Mummy?"

[Intr. Pronoun + N] - e:nidu? "What is this?"

The forms in [] indicate that they occur as single words. Sharath has not yet acquired all the possible modifications of the noun. Constructions such as Adj. + N + Adj. + N and N + N + Neg. are not found in the data at this stage.

The pronouns used are only first person singular, second person singular and demonstratives.

Verbal sentences: This is an area in the adult speech which has subtle distinctions to carry on the communication, expressing time, space, agent and other relations. The following types of pattern are found in Sharath's speech.

1. Single word utterances

ku:čo
 (ku:tko) "Sit" - Imperative marker

h[^]ri:tu "Got torn" - Neuter pronominal marker.

be:ku "I want." - Indeclinable form

togo:l

(togo:li) "Please take." - Honorific marker

It is a moot point as to whether Sharath has used these forms after a proper analysis of the material to which he is exposed or as simple adoptions from the adult speech.

2. N+V

Sentences in this pattern are numerous. The noun stands for the direct object in most of the utterances and in some it stands for the subject. The nouns standing for the direct object is mostly found when the verb is in the imperative mood. Illustration: bičči tinnu "Eat the biscuit." (bičči is used by children as a lexical item for the adult form "bisket.") The surface pattern N + V is uttered by the child for N + N + V sentence pattern where the subject noun is deleted.

At the stage deletion of the pronominal suffixes for all the three persons is found to be common. The verb is in the participial construction as in the following utterance:

O:ka:ru h[^]rido:tu

(o: ka:ru h[^]rido:ytu) "Oh, car is torn." (uttered while pointing to a picture of the car).

3. N + V + NEG.

na:nu muṭṭ[^]ll[^]

(na:nu muṭṭ[^]ll[^]) "I will not touch." Noun here stands for the subject.

In addition to the above three major types of construction, Sharath's speech also exhibits several other characteristics in the use of verbal sentences. In using these, a noun may be repeated for emphasis as in

illi tinni, illi.

(illi tinnu, illi)

Adverb proper is not used by Sharath at this stage. He uses compound verbs with the second segment as kodu and kondu. Generally speaking the shortest sentence is a single word construction. Longest sentence consists mainly of three words. Where there are more words in a stretch of utterance, marked at times with indistinct pauses, the stretch of the utterance can be easily analyzed into more than one sentence.

Sharath's speech exhibits the use of both transitive and intransitive verbs. Other forms of verbs such as causative and reflexive are not found. The reflexive form however occurs in only one instance.

Tense: Sharath does not exhibit distinction between various tenses. He employs sometimes present tense suffix,

but in many instances he employs the simple verb root with tense marker deleted. However, he uses in few utterances the past tense suffix to indicate that the action is complete. He exhibits confusion between present continuous and past perfect and uses very rarely the future tense suffix. He does not even use the forms, such as, *iv[^]ttu* "today", *i:g[^]* "now" and *na"le* "tomorrow", which give the time sense.

Number: The verb is not inflected for number. However, he uses the singular imperative and honorific plural but not consistently.

Case: No explicit case marker is generally used.

Putt[^] to:pi

(*putt[^]go to:pi*) "Cap for Putta". In one place attempt is made to use the dative case marker "ge".

ninu: be:ka:?

(*nin[^]gu be:ka:?*) "Do you also want?" As regards the locative expression, Sharath has acquired the following post positions. *[^]lli* "there", *illi* "here" and *me:le* "above".

Person: Only for the first person singular, the verb is marked. *biči koṭi:ni*

(*na:nu bisket koṭi:ni*) "I will give the biscuit." Even this kind of suffix is not common. In no other instance the pronominal terminations are seen.

Gender: Sharath does not use suffixes to distinguish masculine and feminine genders.

In general, Sharath has not acquired affixation processes for derivation and inflection. Some attempts on his part to use pronominal suffixes indicate that Sharath is currently in the process of acquiring this facility. Sharath does not use abstract nouns and numerals. But he has the sense of numerals, especially for counting.

Transformations:

Embedding transformation is not attested in the data. Sharath does not employ complex sentences of any kind.

The frequency of the Transpose transformation seems to be quite high. However, what one actually has here is perhaps the emergence of a pattern which looks more like the transposed variety of the adult speech. It is possible that the pattern (which looks like the transposed variety of the adult speech) has emerged on its own without applying any transformation. This may soon change into the regular pattern of the adult speech.

Illustrations:

n[^]ndu idu koḍu - "/It's/ mine, give it."

^mm^ idu n^ndu "Mummy, this is mine."

^mm^ ide:nu? "Mummy, what is this?"

Some sentences in the surface look like single sentence because of indistinct pause. In deeper analysis they prove to be consisting of two or more sentences. However, these types of sentences are found frequently. Pa:p^nnu togo ni:nu This sentence which is uttered at a stretch may be analysed as consisting of two sentences, namely, idu pa:p^ndu "It is baby's. and ni:nu id^nn^ togo "You take it." be:d^ kodu - again this utterance consists of two sentences, namely, ^du be:d^ "Don't want that." and id^nn^ kodu "Give this."

Some pronominalized forms are used. But it is difficult to judge as to whether they fall into a pattern or are used just as adoptions from the adult speech. n^ndu, pa:pp^ndu.

Sharath employs the words, the negation proper, namely, ill^ ^ll^ and be:d^. These are used to express the existential negation of a statement as well as to indicate the negation of an action.

Acquisition of grammar in the second recording: Sharath's impressive performance in phonology is matched very well with his performance in the grammatical level. There is more clarity of constructions.

The verbal and nominal sentences are stabilized. The pattern N + V continues to be more productive. Now qualifies to the noun and the verb are added. The plural first person pronoun is used at this stage in only one instance. Adverbial addition to the verb phrase is the chief characteristic of this stage. However, adverbs of time, place and manner are yet to be fully incorporated in the sentence as the following utterance shows.

a:n̄ti m[^]ne re:đio ide

(a:n̄ti m[^]ne:li re:điyo ide) "There is radio in aunty's house."

N + V + Neg. Pattern is well established.

The transitive and intransitive verbs continue to be distinguished. There is improvement in tense distinction. Present and present progressive tenses are clearly used. Certain forms show the use of past tense - Ma:đde "did". But future and past tense are not clearly used in all instances.

Explicit surface case markers, such as, "go" - detive "jote - sociative and post positions like koł[^]ge "below", me:le "above" and [^]lli "there" are now used.

Illustrations:

a:n̄tig ąa:č hođiti:ni

(a:n̄ti:go ąa:š hođiti:ni) "I will dash against aunty."

Person and number: The first person singular suffix introduced in the first stage appears very frequently now.

b[^]t_ti:ni
(b[^]r_ti:ni) "/I/will come."

Ma:t_ti:ni
(ma:ḍ_ti:ni) "/I/ will do."

Ku:t_ti:ni
(ku_tko:t_ti:ni) "/I/will sit."

Third person neuter suffix is also present.

t_in_ti_de "/It/ is eating."

Plural marker has not made appearance yet.

In general, Sharath has improved in using affixation processes for inflection and derivation. The compound verbs are used in more number. Some of the new second segments used are: "iru", "ba", "ho:gu" and "kodu". Reflexive verb has appeared but still causative is not shown.

no:kkonḍu
(no:ḍkonḍu) "After seeing"

Gender: In only two utterances explicit feminine gender marker is used. But it is not consistent in its occurrence.

Transformations: There is an increase in the use of pronominalized forms. Embedding transformations are found

in this stage. Sharath shows difficulty in combining sentences.

na:nu ill ku:te, na:n re:do:li me:le
 (na:nu re:diyo: me:le kutkoḍe) "I sat on the radio."

At this stage, he does not form discourses or utterances having more than two or three short sentences. No new transformations are added at this stage. Evidence to show whether the increase in the pronominalised forms is due to an analysis and knowledge of the rules involved is still lacking.

Acquisition of grammar in the third recording: The important characteristic to report at this stage is Sharath's ability to produce a proper discourse. From inexplicit single word/sentence, he has not come to produce sentences at a stretch on the subject of his few immediate experiences.

dodḍ^ e:d t^ttini, b^čč^lli e:di t^tti:ni
 (dodḍ^ re:diyo:n^ b^ss^lli ho:gi t^rti:ni) "/I/will go in the bus and get a big radio."

This sentence shows that Sharath has not yet acquired the use of embedding transformation completely. However, the following sentence shows his attempt to do so.

či: tinti:ni, tindu be:g^pa:t^ e:l̥ti:ni
 (swi:t̥ tindu be:g^ pa:t^ he:l̥ti:ni) "/I/wll eat the sweets and say the lessons fast."

Nominal and verbal sentence types are present with a preference for the latter in terms of frequency of occurrence. Compound verbs are more in number. The adverbial addition to Sharath's speech in the second recording is now in several utterances extended to sentence initial adverbial clauses.

tigg^ ketto:te

(tirugi ketto:g^tte)"/It/will be spoilt again."

He has developed a tendency to repeat either of the NP or VP, as though the phrase is repeated as an effort to develop the tag question expression.

Past tense is established although Sharath still has difficulty in the correct use of forms, such as, na:le "tomorrow", nine "yesterday". Most of the utterances. Sharath exhibits the use of participle construction as in the following utterance.

me:l^y^de:ind^ biddoyti:ni

(me:lind^ biddogti:ni) "/I/ will fall from top."

Acquisition of grammar in the fourth recording: The ability to construct a discourse is more evidenced at this stage. no:dti:ni na:nu, ge:t me: kuččon no :tti:n na:nu

(na:nu ge:t me:le ku:tkonđu no :dti:ni) "/I/ will watch sitting on the gate."

Past tense is well established as shown in the following utterance. na:nu čočaiṭi ho:gidde

(na:nu sosaitige hogidde) "I had been to the Society Hortative form is attested, ho:go:ŋ^ "Let us go." Honorific form is now used with the verbs, bidi "please leave", koḍi "please give". Gender distinction is not very clearly exhibited. The form for "yesterday" is used correctly as in none b^nda "/I/ came yesterday." Adverbs of time, manner and place are used correctly.

In general, the basic structure of the adult language is found in this recording. Embedding and other transformations noticed in the embryo stage are not fully utilized. Recourse to conjunction of sentences is less. As a result, the sentence length is limited.

Aspects of Acquisition of Kannada by Bharath

Bharath was 2;7 old at the time of the first recording. The following gives the details for the recording.

2nd recording .. 2;8.5
 3rd recording .. 2;9.5
 4th recording .. 2;11

Phonological acquisition in the first recording: Table 8 presents the phonetic vowel segments found in Bharath's speech. He maintains the distinction between long and short vowel segments.

TABLE 8
Phonetic Vowel Segments
in Bharath's Speech

	Short	Long	Short	Long
Front unrounded	i	i:	e	e:
Central unrounded	ʌ	d:		
Back rounded	u	u:	o	o:

(These segment are also identified as phonemes.)

Table 9 presents the phonetic consonant segments. The aspirated sounds are not at all found. Voiceless versus

TABLE 9
Phonetic Consonant Segments in Bharath's Speech

	Labial	Labio-dental	Dental	Alveo-dental and Alveo-lar	Retr-oflex	Pala-tal	Velar	Glo-ttal
Stops: Voiceless	p		<u>t</u>		ʈ	č	k	
Voiced	b		<u>d</u>		ɖ	ǰ	g	
Continuants: Nasal Oral : Voice- Less Voiced	m	f v		n	ɳ		ŋ	h
Laterals				l	ɭ			
Trill				r		ɻ		

Voice distinction is maintained clearly among the stop consonants. Bharath does not have sounds of the sibilant series. He has labial, alveolar and retroflex nasals but no palatal and velar nasals. He has three fricative sounds, namely, labio-dental (voiceless and voiced) and glottal fricative.

Table 10 and 11 present the distribution of phonetic vowel and consonant segments.

TABLE 10

Distribution of Vowel Segments in Bharath's Speech

Vowel Segments	Initial	Medial	Final
i	+	+	+
i:	+	+	-
e	+	+	+
e:	+	+	-
u	+	+	+
u:	+	+	-
o	+	+	+
o:	+	+	-
^	+	+	+
a:	+	+	+

TABLE 11

Distribution of Consonant Segments in Bharath's Speech

Consonant Segments	Initial	Medial	Final
P	+	+	+
b	+	+	-
n	+	+	-
f	+	+	-
v	+	+	+
<u>t</u>	+	+	-
<u>d</u>	+	+	+
n	+	+	+
l	-	+	+
r	-	+	+
ʈ	-	+	-
ɖ	-	+	-
ɳ	-	+	+

Table contd...

l	-	+	-
č	+	+	-
ř	+	+	-
y	+	+	-
k	+	+	-
g	+	+	+
h	+	+	-

The long vowels except [a:] do not occur in word final position. As already mentioned neutralization in word final position is common in adult's speech. All the retroflex sounds and the liquids do not occur in the word initial position. The consonant sounds occurring in the word final position are: [v] [p],[d],[n],[ṇ],[l],[r],and [g].

The phonemes as given in Tables 8 and 12 may be set up for Bharath's Speech.

Minimal pairs for vowel phonemes

biḍi, bi:ḍi eḷḷu, e:ḷu
(eḷḷu)(e:ḷu)

^ḷu, a:ḷu
b^l^, ba:l^

tuḍi tu:ḍu ole, o:le
(kuḍi),(ku:ḍi)
puḍi, pu:ḍi
(puri),(pu:ri)

TABLE 12

Phonemic Consonants in Bharath's Speech

p	<u>t</u>	t	č
b	<u>d</u>	ḍ	ǰ
m		n	ṇ
	f		h
	v		
		l	ḷ
		r	y

Minimal pairs for phonemic consonants

Pennu	<u>t</u> a:r^	^t ^t t^	^nč <u>u</u>
Bennu	<u>d</u> a:r^	^d ^d d^	^ny <u>u</u>

t^ppu	t^ttu	t^t ^t t ⁱ
(k^ppu)	(k^ttu)	(k^t ^t t ⁱ)
t^bbu	t^ddu	t^d ^d d ⁱ
(k^bbu)	k^ddu)	(k^d ^d d ⁱ)

m^nd^
(m^nj^)
n^nd^
(n^nj^)

^mm^	^nn^
^nn^	^n ⁿ n^

ta:fi
(ka:fi)
ta:vi
(ka:vi)

h^ttu
t^ttu
(k^ttu)

ha:lu	ha:lu
ha:ru	ha:ru

ya:ru
ha:ru

All the phonetic vowel segments have phonemic status. The phonetic consonants segments except [k] and [g] phonemic status.

The free variations are of two types in this child. In the first type, the phonetic segments which have not acquired the phonemic status are in free variation with the phonetic sounds which have the phonemic status. The second type is found among the segments which have phonemic status.

The free variations of the first type are: $g \sim \underline{d}$ (medial) and $k \sim \underline{t}$ (medial). These are very infrequent because of the fact that, the velar phonetic sounds are found in the data very rarely. Usually Bharath substitutes the phonetic sounds [k] and [g] by [\underline{t}] and [\underline{d}] respectively. Free variations of the second type are:

$l \sim \underline{d}$ (initial) $r \sim \underline{d}$ (medial)
 $\sim \underline{l}$ (medial)

$\eta \sim n$ (medial & final) $\check{c} \sim \underline{t}$ (initial)

$j \sim \underline{d}$ (initial & medial)
 \underline{d} (initial)

The cluster found in Bharath's speech are presented below. They are of both identical and non-identical variety.

Identical clusters

Non-identical clusters

-pp-	- \underline{l} \underline{l} -	-nb-	- \underline{d} \underline{b} -
-bb-	- $\check{c}\check{c}$ -	- $\underline{n}\underline{t}$ -	- $\underline{d}\underline{b}$ -
-mm-	-kk-	- $\underline{n}\underline{d}$ -	- $\underline{t}\underline{b}$ -
- $\underline{t}\underline{t}$ -	- $\underline{d}\underline{d}$ -	- $\underline{n}\underline{d}$ -	- $\underline{d}\underline{t}$ -
- $\underline{d}\underline{d}$ -	- $\underline{n}\underline{\eta}$ -	-mn-	- $\underline{l}\underline{t}$ -
-nn-	- $\underline{t}\underline{t}$ -	-kb-	- $\underline{k}\underline{d}$ -
-ll-			

Among non-identical clusters the ones which have the nasal dental as the first segment are in more number than the others.

Also, the homorganic clusters are more in number than the other non-identical clusters. Bharath changes the non-identical clusters found in the adult's speech into identical clusters. He substitutes a set of identical clusters for the ones found in the adult's speech and sometimes the adult speech clusters are made into single sounds.

<u>Adult cluster</u>	<u>Bharath's cluster</u>	<u>Adult cluster</u>	<u>Bharath's Cluster</u>
-st-	- <u>tt</u> -	-pl-	-p-
-ḍt-	- <u>tt</u> -	-rs-	- <u>t</u> -
-ṭk-	-ṭṭ-	-rḍ-	-ϕ-
-rč-	-čč-	-st-	- <u>t</u> -
- <u>dr</u> -	- <u>dd</u> -	-gl-	- <u>d</u> -
- <u>rd</u> -	- <u>dd</u> -	- <u>rt</u> -	- <u>t</u> -
- <u>lt</u> -	- <u>tt</u> -		

Acquisition of phonology in the second recording: In this stage all the vowel and consonant segments identified in the first recording continue to be attested. No new phonetic segment except the velar nasal is added. The phonetic segments [k] [g] are pronounced clearly in more number of utterances, which were infrequent in the first recording. Even then compared to other segments their occurrence is less frequent.

The distributional characteristic of phonetic vowel segments remain the same. Even though the distributional

characteristics of the phonetic consonant segments also remain the same, there are certain minor variations. The segments [l], [t], [k] and [y] have occurred in the final position which was not found in the earlier recording.

All the phonemes of the first recording continue to have phonemic status. The two types of free variations of the first recording hold good here also. It is seen that no bilabial sound is in free variation with a non-labial phoneme.

Bharath continues to use identical and non-identical clusters. Some of the new clusters identified are:

Identical clusters: -j̃j̃- and -vv-

Non-identical clusters: -vl-, -br-, -t̃k-, -nb-, -vn-,
-d̃y- -j̃y-, -pl-, -t̃r-, and -rd̃-

The increase in the use of non-identical clusters indicate the effort on the part of Bharath to acquires the non-identical clusters. A comparison of the adult clusters with those of Bharath's reveal a trend. Bharath's second component of the non-identical clusters on many occasions is the second component of the adult non-identical clusters.

Acquisition of phonology in the third recording: The chief characteristic of phonological acquisition is the

The occurrence of such free variations is on decrease as several of the utterances have acquired the appropriate sounds.

The new non-identical clusters identified are: -vr-, -lr-, -dl-, -qd- and -dl-.

Acquisition of phonology in the fourth recording.: The continuing clarity is evidenced by the fact that Bharath is able to produce short discourse of two or three sentences with word boundaries clearly marked. The improvement in using sibilant sounds which just made appearance in the third recording is not found. Bharath uses [č] for [s] in the adult form and in one or two instances the [š] in the adult form and in one or two instances the [č] in the form shows a more sibilant quality. In the first and second stages of imitation test Bharath used [č] for all the sibilants. In the present test, he free varies between [č] and [š] as in a:š^ and a:č^.

All the phonetic consonant and vowel segments identified earlier are retained. The distributional characteristics reveal that the long vowels in the final position do not occur frequently at this stage as found in the earlier two stages, thus showing no consistency or regular pattern of distribution of these segments. The distributional characteristics of consonant segments are very much similar to the first three recordings. Free

variations identified in the earlier recordings remain the same at this stage also.

The new non-identical clusters found at this stage are: -ld-, -rl-, -ld- -rb- and -ny-. The characteristics of cluster formation as detailed in the discussion of previous recordings hold good for this recording also.

Acquisition of grammar in the first recording: Bharath use both of the basics sentence types of Kannada language, namely, nominal and verbal. Nominal sentence type is less frequent. However, single word sentence/utterances are found. The two basic types of sentences have several modifiers added to them.

Nominal sentences:

N + N - idu mot[^]le
 (idu mos[^]le) "This is a crocodile."

N + Modal - [^]du ta:ču
 ([^]du sa:ku) " That is enough."

The nominal sentences are used with interrogation, negation and also with adverbs.

Interrogation - idu dodd[^] putta:na:?
(idu dodd[^] pust[^] ka:na:?) "Is this a big book?"

Adverb and Negation - n[^]mm[^]ne:li ha:lill[^] "There is no milk in our house".

Verbal sentences: This type of sentences are found more frequently. The following are some of the surface description of the pattern found.

N + V - idu a:ttu
 (idu a:ytu) " This is over."

N + Adv. + V - na:nu illi ha:tti:ni
 (na:nu illi ha:kti:ni)"I will put it here."

N + Adj. + N + Modal - n[^]nde dodd[^] peppi be:tu
 (n[^]ye dodd[^] peppi be:ku) "I want a
 big chocolate."

Modifier in the form of adjectives and adverbs are added in appropriate slots as in the adult's speech. However, such additions are rare and their number is restricted to two at a time.

Verbs: Bharath uses transitive and intransitive verbs as well as the infinity forms. The verb shows the distinction between the past and the non-past. The appropriate past tense markers are used as in tu:tondidi.

(ku:tkondidi)

"/I/was sitting." He uses also the continuous tense forms but in the present tense sense only. Past participle nouns are found with tense markers: nenne t[^]ndiddu elli? "Where is the thing that was brought yesterday?" There is, however, confusion in using the specific words for "today" and "tomorrow". The use of intransitive verb is found more frequently when manner and locative adverbial phrases occur as in the following illustrations.

tait[^]llu [^]du: d[^]tte:li ho:d[^]tte
 (saik[^]llu [^]du: r[^]ste:li ho:g[^]tte)"The cycle also moves on
 the road.

ta:du d[^]tte:li ho:d[^]tte
 (ka:ru r[^]ste:li ho:g[^]tte) "Car moves on the road."

Gender: Bharath distinguishes between feminine, masculine and neuter genders.

[^]v[^]lu he:li "Let her say."
 ([^]v[^]lu he:l^li)

elli nintida:ne "Where is he standing?"

o:ta:de "It is running."
 (e:d[^]ta:ide)

The gender distinction in the participle nouns is not attested.

Number: The singular number suffix is used. As regards the plural in nouns, Bharath does not use the plural suffix at all. He distinguishes between one, some and many. Specific numerals have not been attested. The pronominal terminations are marked in the first and second person singular. The situation is not clear in the third person.

Case: The use of explicit case markers are restricted mainly to dative, genitive, locative and ablative.

Transformations: The words for negation proper, namely, "ill[^]", "[^]ll[^]" and "be"^d are used. It is used to express the existential negation of statement as well as to indicate the negation of an action. Bharath shows the use

of embedding transformation. He combines sentences and forms short discourses.

In general, Bharath is still in the process of acquiring and establishing embedding transformations. However, there are some utterances of complex sentences used by Bharath, which resemble very closely to the adult form except for their phonological shape is in the following.

ell[^] to:tti:ni. To:tti:ni. ta:lu
 (ell[^] toristi:ni, ta:lu) "I will show you every thing,
 just wait."

b[^]ri:ta: he:l[^]ll[^]
 (b[^]ri:ta: he:l[^]ll[^]) "I will not say while writing."

The data does not clearly show the acquisition of coordinate sentences. Transpose transformation is found in many of the utterances. Even in this child, it is difficult to decide as to whether he has acquired the transpose transformation after a proper analysis. In some cases, Bharath uses the pronominalized forms, such as, ha:do:du "One which sings.", tinndiddu "One which was eaten" and m[^]ne:du "one which belongs to the house."

Bharath deletes the subject nouns as found in the adult speech -

du h[^]ndi dotta:?
 (du h[^]ndi, nin[^]nge gotta:?) "It is a pig, do you know?"

There are deletion of verbs found in adult speech. Such deletions have been resorted by Bharath also.

Ida:tu be:re

(ida:ytu, be:re koḍu) "This is over, give a different one."

Acquisition of grammar in the second recording: The nominal and verbal sentence types continue to be used. The nominal sentence patterns, namely, N + N, N + Modal, Adj. + N, are clearly used. These sentence types were used with interrogative, negation and adverb. Single word answers to questions are found. These answers may be a noun or a verb inflected for gender and number in several cases.

Verbal sentences continue to be used more frequently. The sentence patterns identified earlier also continue to be used. Adverbial modifiers are more easily found in the utterances.

Verbs: Transitive and intransitive distinction is maintained. The deletion of object noun phrase is on the decrease. n[^]y čit[^] t[^]te b[^]r[^]ttē

(n[^]ye si:ta: k[^]te b[^]r[^]rtte) "I know Seetha's story."

The above sentence also indicates the use of dative case marker. Causative verb is not attested in the data.

Gender: The verb is now inflected for gender in majority of the utterances.

Number: The number distinction in the first and second person is shown in the sense that the verb is now inflected for singular number. However, third person plural distinction appears in few utterances.

he:totta:re
(he:lkoḍta:re) "/They? will teach."

Case: In several instances explicit case markers are used.

n^nde iv^n^nn^ "This man."
(n^n^ge) "Fore me."

The data continues to show the understanding of casual relations even when there is no explicit case marker.

Bharath uses compound verbs one of which is in the participle form as in the following: tinta:ide "/It/is eating."

Transformations: Bharath uses longer utterances, several of them consist of more than a single sentence. He uses embedding, transpose, negation, interrogation, pronominalization and deletion of subject noun transformations as in the previous recording. The chief characteristic is that he is now able to narrate using short discourses. The discourses lack mainly in the shape of the adult forms and in logical sequence.

^lli hutt^ itt^nte, ha:vu itt^nte, dina: motte
tinbittint^nte, and n^ri h^tt^ ho:gi he:t^nte, ondupa:y^
he:tot^nte, ha:ton b^nt^nte, b^ndu idell^ b^nde me:litṭu,
hutt^li ha:t bittu, odvell^ ton ho:tu.

In the above discourse, Bharath assumes the identity of doer of the action in many cases.

Acquisition of grammar in the third recording: Bharath continues to use both the nominal and verbal sentences with appropriate modifiers whenever necessary. The complexity of the patterns has increase as a result of the growing facility to use adjectival and adverbial modifiers as well as the transformations. The transitive and intransitive distinction in the verb is maintained, whereas causative verb is not yet found. The verb is clearly inflected for past and non-past tense.

tudde me:l tu:tidde
 (kudre me:le ku:tidde) "/I/ was sitting on the horse."

id ha:t bitti:ni
 (idⁿ ha:kbiti:ni) "/I/will put this."

Within the non-past and past tense distinction the continuous tense is also used. The appearance of continuous tense is however not a special feature in the third recording. The verb is inflected for singular number in all three persons. However, inflection of now in the process of acquiring this is revealed in the following utterance.

^vrell[^] tudde me:le tu:tiddu "All those people were sitting on the horses."

Compare "tudde" and "tu:tiddu" which stands for the adult

forms of "kudre" and "ku:tidru." It is possible that as Bharath has not yet acquired the phonological ability to produce non-identical clusters of this nature. The distinction between the masculine and feminine genders makes appearance in several utterances. But, still the distinction is not maintained consistently. There is no improvement in the position of explicit case markers over the previous recordings.

Transformations: Bharath very clearly manipulates the interrogative transforms. He can make a correct sentence using the interrogative pronoun. Ya:t b[^]ndidde?

(ya:k b[^]ndidde?) "Why had /you/ come?"

In kannada, one can also make interrogative sentences by addition of [a:] to the verb phrase at the end. Bharath has acquired this facility also.

ill ččču:li ind tu:to:la:?
(illi, kurči:li hiye kutkoḷḷa:?) "Shall /I/ sit like this in the chair?"

Some times, Bharath confuses between "ya:ke and "a" in interrogative sentences as in the following utterance.

innon \$[^]nd[^]ma:m[^] ya:t bittodida:?
(innon \$[^]nd[^]ma:ma:n[^] ya:ke bittho:gidde?) "why had /you/ left another chandamama?"

There is no new transformation added at this stage. The transformations that appeared previously are however exploited in this recording.

The short discourses seem to acquire a sharper edge, showing Bharath's paraphrasing capacity.

Ya:v putt^,ya:r pennitton b^ri:tu be:tu?
(ya:r pens^l itkonḍu b^ri:be:ku?)

n^mm^mm^ ya:r pent^ll itttonḍ b^ri:tu be:tu
"with whose pencil my mother has to write?"

The second set was uttered by Bharath when his communicative intent was not fully understood by the investigator. He produced this on his own without the investigator's elicitation. Thus, the conscious tendency is Bharath's speech to make himself understood is shown.

The verbal reasoning is more clear in this stage as in the following utterance.

Illi idu, ille: ^du te:p tita:d^n ille: tučči me:li,
^lli itte ya:ra:ḍu to:n bitta:re

(te:p re:ka:rd^rn^ ille: kurčime:le itbiḍu. ^lle:
itte ya:ra:dru togonḍbiḍta:re.)

"Keep the tape recorder on the chair, here. If /you/ keep it there, somebody will take it away."

Acquisition of grammar in the fourth recording:
Bharath uses all the sentence types identified in the earlier stages. The chief characteristic of this stage is his ability to compose complex sentences. The discourse construction ability identified in a small measure in a

small measure in the second stage and which acquired more frequently in the third stage, is firmly found in the present stage. However, certain construction types usually found in the adult discourses, namely, tag questions confirmatory responses seeking questions, reflexive pronouns and anaphoric markers, are missing. At this stage, all the pronouns in the three persons both in singular and plural numbers are found. But, the use of plural first person and plural second person pronouns are infrequent. The sequence of development of different forms within the category cannot be established. His achievement in grammar which is stupendous at this stage is dimmed by his lack of capacity to match the adult phonology.

In his efforts to combine sentences, Bharath fails to observe certain deletions that are obligatory in the adult speech. For instance, while combining two sentences, one of the identical subject nouns must be deleted. This is not fully established in Bharath's speech as in the following utterance.

^dun a: e:na:du ma:du bitti:ni^{^nt^} ^du o:tu o:do:tu
 (^du a:nu ena:dru ma:dbidi:ni ^{^nt^} o:do:ytu)

"That ran away thinking I will do something."

Bharath repeats utterances, sometimes to emphasize a point and while doing so, he brings more clarity to his communicative intent.

The characteristics of grammar found in other stages are present at this stage also.

Aspects of acquisition of Kannada by Anitha

Anitha was 2;4 old at the time of the first recording. The following gives the details for other recordings.

2nd recording .. 2;5.5
3rd recording .. 2;7.5

Phonological acquisition in the first recording: Table 13 presents the phonetic vowel segments found in Anitha's speech. Like the other children, Anitha also maintains the distinction between short and long vowel segments.

TABLE 13

Phonetic Vowel Segments in Anitha's Speech

	Short	Long	Short	Long
Front unrounded	i	i:	e	e:
Central unrounded	^	a:		
Back rounded	u	u:	o	o:

(These segments are also identified as phonemes.)

Table 14 presents the phonetic consonant segments. The aspirated sounds are not found. Voiced and voiceless distinction is maintained in all the labial, dental, retroflex

TABLE 14
Phonetic Consonant Segments in Anitha's Speech

	Labial	Labio-dental	Dental	Alveo-dental and Alveo-lar	Retr-oflex	Pala-tal	Velar	Glo-ttal
Stops: Voiceless	p		<u>t</u>		ʈ	č	k	
Voiced	b		<u>d</u>		ɖ	ǰ	g	
Continuants:	m			n	ɳ		y	
Nasal								
Oral : Voiceless		f		s		s		h
Voiced		v						
Laterals				l	ɭ			
Trill				r		y		

Palatal and velar segments. This distinction is also maintained in labio-dental fricatives. No palatal nasal is identified.

Table 15 presents the distribution of phonetic vowel segments. All the vowel segments occur in the medial position. The distribution of vowels does not show any coherent pattern.

TABLE 15

Distribution of Vowel Segments in Anith's Speech.

Vowel Segments	Initial	Medial	Final
i	+	+	+
i:	-	+	-
e	+	+	+
e:	+	+	+
u	-	+	+
u:	-	+	-
o	-	+	+
o:	-	+	-
^	+	+	+
a:	+	+	-

Table 16 presents the distribution of phonetic consonant

TABLE 16
Distribution of Consonant Segments in Anitha's Speech

Consonant Segments	Initial	Medial	Final
p	+	+	-
b	+	+	-
m	+	+	-
f	+	+	-
v	+	+	-
<u>t</u>	+	+	-
<u>d</u>	+	+	+
n	+	+	+
s	+	+	-
l	+	+	+

Table cont...

r	-	r	+	-
ɾ	-	ɾ	+	-
ɖ	+	ɖ	+	+
ɳ	-	ɳ	+	+
l̥	-	l̥	+	-
č	+	č	+	+
ǰ	+	ǰ	+	-
š	-	š	+	-
ɣ	-	ɣ	+	-
k	+	k	+	+
g	+	g	+	-
ɣ	-	ɣ	+	-
h	+	h	-	-

segments. All the consonants except [t̥], [ɳ], [r],[y], [š], [l] and [y] occur in the initial position. Except the consonant h, all the other segments occur in the medial position. Only the sounds [d̲], [ɖ], [č], [k], [n] and [l] occur in the final position.

All the phonetic vowel segments identified earlier have phonemic status (See Table 13). Out of 23 consonant segments identified, only 19 have phonemic status. The phonemic consonants are presented in Table 17.

TABLE 17

Phonemic Consonants in Anitha's Speech

p	<u>t</u>	t̥	ʃ	k
b	<u>d</u>	ɖ	ʝ	g
m		n	ɳ	y
	f			h
	v			
		l	ɭ	

The following are the minimal pairs for vowel and consonant segments

Minimal pairs for vowel phonemes

biḍi, bi:ḍi	ellu, e:lu (eḷḷu)(e:ḷu)
ille:, illi	ide, idu
b [^] l [^] , ba:l [^] ^lle:, ille: ill [^] , illi	
pudi, pu:ḍi (puri)(pu:ri)	koli, ko:li (koḷi)(ko:ḷi)

Minimal pairs for phonemic consonants

pennu	h [^] <u>ttu</u>	^tt [^]	či:pu	^kk [^]
bennu	h [^] <u>ddu</u>	^dd [^]	ǰi:pu	^gg [^]
k [^] ppu	^ndu	k [^] tṭi		ku:du
k [^] bbu	(^nǰu) ^nčū	k [^] ḍḍi		gu:ḍdu
pa:n (fa:n)	^mm [^] ^nn [^]	^nṇ [^] ^mm [^]		*n [^] y [^] (n [^] Y [^])
ma:n (va:n)				b [^] nd [^] (m [^] nǰ [^])
ka:fi ka:vi				h [^] <u>ttu</u> k [^] <u>ttu</u>
	n [^] Y [^] (m [^] Y [^]) l [^] Y [^] d [^] Y [^] (r [^] y [^])			
	^kki	mulḷu		
	^lli	muṭṭu		

*Analogous pair

The free variations found in Anitha's speech may be classified into two types. In the first type, there are free variations which occur between segments having phonemic status and that having no phonemic status. The variations of this type are:

r	~	<u>d</u>	(initial)	š	~	<u>t</u>	(medial)
s	~	<u>č</u>	(initial)		~	<u>č</u>	(medial)

In the second type, there are free variations which occur between segments having phonemic status. The free variations of this type are:

<u>d</u>	~	<u>t</u>	(initial)	l	~	<u>t</u>	(initial)
ḷ	~	l	(medial)	m	~	b	(initial)
	~	<u>d</u>	(medial)		~	n	(initial)
ḍ	~	<u>ḍ</u>	(medial)	n	~	<u>ḍ</u>	(initial)
č	~	<u>t</u>	(medial and initial)	v	~	b	(initial)

Strangely, Anitha does not exhibit any free variations between segments that do not have phonemic status. In only one instance, free variation between vowel phonemes is identified: o ~ o: Illustration: koḷi ~ ko:ḷi

Anitha employs both the identical and non-identical clusters. Identical clusters occur more frequently than non-identical ones. Within the non-identical clusters, homorganic clusters occur more frequently than the non-homorganic ones. In fact, only two clusters of the latter type are identified.

The following are the clusters identified.

<u>Identical clusters</u>	<u>Non-identical clusters</u>
-pp- -ll-	-nd-
-bb- -t̥t̥-	-nt̥-
-nm- -d̥d̥-	-nd̥-
-nn- -čč-	-nk-
- <u>tt</u> - -j̥j̥-	-ng-
-dd- -kk-	-mb-
-ll- -gg-	-y <u>t</u> -

The cluster -yt- free varies with -t- sometimes. The other non-identical clusters of the adult's speech are changed into either identical cluster or a single segment. Some of them are:

<u>Adult cluster</u>	<u>Anitha's cluster</u>
-st̥-	-č-
-k <u>t</u> -	-kk-
- <u>t</u> k-	- <u>tt</u> -
- <u>t</u> k-	- <u>t</u> -
-rk-	-kk-
-dg-	-gg-
-sn-	-č-
-pl-	-pp-

Acquisition of phonology in the second recording: At this stage, recording was done only for two days. As the child did not cooperate with the investigator, the recording yielded less number of utterances than in the previous recording. All the vowel and consonant segments found in the first recording are attested here also. No new consonant or vowel segment is added. All the segments which had phonemic status continue to have phonemic status in this recording also. In some cases, confusion between segments was noticed, as in the following.

k [^] mbu, k [^] ppu	k [^] ndi, k [^] ddi
(k [^] bbu)	(k [^] ddi)

In the earlier recording, the above utterances were clearly distinguished.

There is no improvement in the free variation status of segments. There are more number of utterances with the segment s in this recording. The distributional patterns of vowel and consonant segments are retained. A new identical cluster is added at this stage, namely, -ss-. The following are the new non-identical clusters added at this stage.

-ds-, -ld-, -mp-, -nr- and -ns-

Comparison of adult clusters with the non-identical clusters of Anitha's speech still show that a number of non-identical clusters are changed into identical clusters and also into a single segment in some utterances.

Acquisition of phonology in the third recording: The chief characteristic of phonological acquisition at this stage is the phonetic clarity with which Anitha produce individual and combination of sounds. Syllables are clearly produced. However, this does not mean that Anitha's forms are identical to the adult forms. Phonetic and phonemic status of the segments remain the same. The glottal, alveo-dental and palatala fricatives as well as the alveolar trill do occur more frequently than in the earlier stages. No minimal pairs could be identified for the segments which have not attained phonemic status. However, certain analogous pairs were identified as given below.

ku:rsu	ču:ru	s^ri
ma:ɖsu	ku:tu	s^t̲i
	(kut̲ko:t̲i:ni)	(innons^rt̲i)

The free variation of segments can be grouped into two types as in the earlier recordings. The free variation of the first type is - r ~ d (medial). The free variations of the second type are:

t	~	<u>t</u>	(medial)	<u>t</u>	~	<u>d</u>	(medial)
n	~	b	(initial)	n	~	ɳ	(medial)
b	~	m	(initial)	v	~	m	(initial)
					~	b	(initial)

All the clusters identified in the earlier recordings are used in this recording also. Additional non-identical

clusters appearing at this stage are: -db-, -rs-, -dr- and -tr-.

Acquisition of grammar in the first recording: Like the other two children, Anitha also uses both the basic types of sentences, namely, verbal and nominal. But these sentences differ from the utterances of other children in several ways.

The main characteristics of sentences at this stage is that inflections, pronominal terminations and tense markers are deleted. Thus, many sentences have maintained only the root of the verb like "tinnu" (eat) and "mu\$\$u" (close).

Adjectives and adverbs are already appearing in the sentences. Some basic types of nominal sentences are:

N + N - idu ka:lu "This is a leg."

N + Modal - ^nu be:d^ "Anu, /I/ don't want"

Neg. + N - ill^ di:p^ "/There/is no lamp."

The pronouns found in the data are only the first person singular and demonstratives - na:nu "I" idu "This". Some of the verbal sentence types are:

N + v - k nnu muccu "Close the eyes."

N + N + V + Neg. - ^nu ča:n^ ma:d^ll^
(^nu sna:n^ ma:d^ll^) "Anu is not going to have bath."

/N/ + Adv. + V - me:le idu "Keep it on top."

Verbs: Many single word utterances are found in Anitha's speech. Some of them are:

Pa:či "Sleep" - imperative
 Ma:ḍ^{ll} " /I/ will not do." - Negation of action

b^{ru}
 (b^rtiⁿⁱ) " /I/will come." - Verb not inflected

muṭṭu
 (muṭṭut^{ti}:ni) " /I/will touch - do-

Here, since the child completely deletes inflection and verbal suffixes, sometimes it would be difficult to say correctly what the child intends to say, even with the contextual clues.

Anitha uses both transitive and intransitive verbs - ha:ku "Put", ku:tu "Sit". Compound verb is found in the data in only one instance - hikko ho"gu

(hiḍiḍukoṇḍu ho:gutta:ide).

Anitha does not make any tense distinction. No tense suffixes are added to any of the verbs. She does not even use the present tense suffix which is observed in other children. She does not make any gender distinction.

Anitha uses the dative case marker in some instances - n^{ye} "For me". She uses pronominalized form to indicate possession - pa:pa:du "Baby's". Such uses also are very infrequent. Accusative case marker is used in only instance - pa:pⁿ. This shows that Anitha has just started engaging (pa:pⁿⁿ)

herself using sentences with case markers. In general, she does not use explicit case markers in most of her utterances.

Anitha does not inflect verbs for person and number.

Transformations: Transpose transformations are observed in few utterances as in "ill^ dip^". Anitha also employs negation transformation. She has employed the words for negation proper, such as, "ill^, "^ll^" and "be:d^". pronominalized transformation is employed very infrequently. Embedding transformation is not resorted to.

Except in the case of negation transformation, it is difficult to establish that Anitha has acquired the other transformations mentioned above, for Anitha's data does not provide adequate sample of sentences.

Anitha is in a position to use only very short sentences. As she has not yet acquired embedding transformation complexity of sentences continues to be related to selection of appropriate lexical items only.

Acquisition of grammar in the second recording: As stated earlier, the second recording schedule was greatly disturbed. Hence, only a limited data was collected. Yet this data shows that all the characteristics of Anitha's speech identified in the first recording continue to be employed. Anitha uses both the sentence types, namely, nominal and verbal.

N + N - idu g[^]nte
 (idu g[^]nte) "This is a bell."

Adj. + N - hos[^] b[^]ču
 (hos[^] b[^]ssu) "/This/is a new bus."

All the other type of sentences found earlier are also observed at this stage. The second person singular and demonstrative pronoun have appeared at this stage - ni:nu, [^]du. The second person honorific also appears.

Verbs: Single word utterance are less in this recording when compared to the first recording. Anitha uses both transitive and intransitive verbs. In this stage, she has begun to use compound verb constructions as in the following.

<u>b</u> iddo:tu	ho <u>t</u> to:tu
(bi <u>dd</u> ho:yu) "Fell down"	(ho <u>t</u> to:yu) "Went away"

Anitha at present employs two clear markers for past and present continuous tenses: biddo:tu "Fell down", ma:dta: "Doing" and ti:nta: "Eating". She clearly uses the imperative in the singular person. The verb is not inflected for plural at all. Even the singular number inflection makes appearance only in a very few cases. Such instances include only imperatives in singular number. Anitha does not inflect the words for person, gender and number except in the instances mentioned above. The appearances of sentences, such as, ni:vu b[^]nni where both

pronoun and verb are inflected for honorific number do not form a regular pattern. These sentences may have been acquired through a process of imitation from the adult speech. No improvement is noticed regarding the use of case markers.

Transformations: Anitha seems to be acquiring adult order of words in sentences and in the process shows some conscious use of transpose transformation. She continues to use negation and pronominalized transformation. Embedding transformation is not yet acquired. Anitha uses interrogative forms, such as, e:nu "What" and elli "Where".

The sentence length as noticed in the earlier recording is retained. However, data shows more number of utterances in the range of three or four words in each sentence. Anitha is now showing signs of making conscious efforts to construct appropriate discourses. As part of this effort, she repeats the same sentence twice or more and links it with another in an utterance as shown below.

m^ne ho:gu, ^du m^ne ho:gu ^lli ide
 (^d^r^ m^ne ^llide, ^du ^d^r^ m^nege ho:guttide)

"It's house is there. It is going to its house."

Acquisition of grammar in the third recording: The sentence types found in the earlier recordings continue to be used. The chief characteristic at this stage is the growing clarity in the use of words and the order in which

those words are put in a sentence. The sentence patterns of earlier recordings are used with additional modifiers. These modifiers used are not more than two in a single phrase.

Verb: Both the transitive and intransitive verbs are used. Anitha has not yet acquired the causative form of verb: na:nu pa:p^ nill^tte. In this utterance she uses "nill^tte" instead of the causative form "nillisutti:ni". Reflexive form of verbs have appeared at this stage as in the following illustrations.

ill bu:s ha:kkonḍide
(illi, buḍsu ha:kkonḍide) "/He/ is wearing the shoes, here."

idu ku:tonḍide
(idu ku:tkonḍide) "It is sitting."

Compound verb constructions continue to be used.

Case: This is one of the important characteristics which has appeared clearly in this stage. Anitha uses the dative locative and possessive case markers now. However, they are also deleted in number of utterances.

n^n^ge "For me" - Dative
pa:tte:li "In the vessel" - Locative
(pa"tre:li)
^mm^ndu "Mother's" - Possessive

Anitha uses past tense and present tense suffixes very clearly. Future tense suffixes are yet to be acquired.

Anitha does not make any clearly distinction between masculine and feminine genders. The number distinction is also not specified except in the case of imperative sentences where the plural marker stands to indicate honorific status:

ni:v hikko:li
(ni:vu hiḁko:li) "You please hold."

The verb is not inflected for number in other instances as in the following utterance.

^mm^, ^nu, na:nu, ell^, ella:r ho:gu
(^mm^, ^nu, na:nu, ella:ru ho:gutti:vi)

"Mummy, Anu, myself, all will go."

Transformations: Anitha tries to embed sentences which usually employ quotative markers, namely, "^nt^". However, she has not yet mastered the incorporation of quotative marker as in the following utterance.

oḷḷe buddi koḁu
(oḷḷe buddi koḁu) "Bless me with good nature."

The above sentence was uttered when Anitha was asked as to what the doll was doing at the moment. Conjunction is not used. Negative transformation continues to be used. She uses pronominalized forms, such as, "n^ndu", "^mm^ndu" and "nimbu". (nimdu)

Anitha employs interrogative transformation using only the forms "elli" and "e:nu". The sentential interrogation adding [a:] to the verb phrase is not used and thus her intended interrogative sentences sometimes appear just as a statement. She was transposed transformation in few cases only.

Anitha is able to make discourses which consist of two or three sentences.

ni:vu gundi ikkoli, ha:ku, na:nu kai hikko:ti:ni
(ni:vu ginđi ha:di ha:ki, na:nu kai hiđko:ti:ni)

"You put the button, I will hold the hand."

In the above discourse, Anitha gives the evidence of self-editing.

ni:vu ka:l hikko:li, na:nu idu ka:l hikko:ti:ni
(ni:vu a: ka:lⁿⁿ hiđko:li na:nu i: ka:lⁿⁿ hiđko:ti:ni)

This type of sentence construction shows Anitha's continuing difficulty in construction of longer sentences and combining them.

Aspect of acquisition of Kannada by Sunitha

Sunitha was 2;7.5 old at the time of the first recording. The following gives the details for other recordings.

2nd recording .. 2;9
 3rd recording .. 2;10
 4th recording .. 2;11.5

Phonological acquisition in the first recording: Table 18 presents the phonetic vowel segments in Sunitha's speech. Like other children, she also maintains the distinction between long and short vowel segments.

TABLE 18

Phonetic Vowel Segments in Sunitha's Speech

	Short	Long	Short	Long
Front unrounded	i	i:	e	e:
Central unrounded	^	a:		
Back rounded	u	u:	o	o:

(These segments are also identified as phonemes.)

Table 19 presents the phonetic consonant segments in

TABLE 19

Phonetic Consonant Segmentin Sunitha's Speech

	Labial	Labio-dental	Dental	Alveo-dental and Alveo-lar	Retr- oflex	Pala- tal	Velar	Glo- ttal
Stops: Voiceless	p		<u>t</u>		ʈ	č	k	
Voiced	b		<u>d</u>		ɖ	ǰ	g	
Continuants:	m			n	ɳ			
Nasal								
Oral : Voice- Less		f		s		š		h
Voiced		v						
Laterals				l	ɭ			
Trill				r				

Sunitha's speech. As expected aspirated sounds are not at all found. Voiceless versus voiced distinction is maintained. This distinction is not only among stop consonants but also among the labio-dental and palatal fricatives. Sunitha has palatal fricative sibilants as well as the dental sibilant. No palatal nasal is identified.

Table 20 presents the distribution of phonetic vowel segments and Table 21 the distribution of phonetic consonant segments.

TABLE 20

Distribution of Vowel Segments in Sunitha's Speech

Vowel Segments	Initial	Medial	Final
i	+	+	+
i:	+	+	-
e	+	+	+
e:	+	+	+
u	+	+	+
u:	-	+	-
o	+	+	+
o:	+	+	+
^	+	+	+
a:	+	+	+

TABLE 21

Distribution of Consonant Segments in Sunitha's Speech

Consonant Segment	Initial	Medial	Final
p	+	+	-
b	+	+	-
m	+	+	+
f	+	+	-
v	-	+	+
<u>t</u>	+	+	-
<u>d</u>	+	+	+
n	+	+	+
s	+	+	-
l	+	+	+
r	+	+	+
ʈ	+	+	-

đ	+	+	-
ņ	-	+	-
ļ	-	+	-
č	+	+	-
ļ	+	+	-
š	+	+	-
k	+	+	-
g	+	+	+
h	+	+	-

All the long vowels except [u:] and [i] occur in the final position. Only the rounded high back vowel does not occur in the initial position. Among the consonant segments [d], [ʃ] [v], [g], [m], [n], [l] and [r] occur in the final position. The retroflex lateral, the labio-dental voiced fricative and palatal voiced sibilant do not occur in the initial position. All the consonant segments occur in the medial position.

All the phonetic vowel segments identified have phonemic status (See Table 18).

Minimal pairs for vowel phonemes

biḍi, bi:ḍi eḷḷu, e:ḷu

^lu, a:lu

b^l^, ba:l^

puḍi, pu:ḍi oḍi, oḍi

(puri, pu:ri)

Out of 21 consonant segments, only 14 are established as phonemes on the basis of the minimal pairs available. These phonemes are presented in Table 22.

TABLE 22

Phonemic Consonants in Sunitha's Speech

p	<u>t</u>	ṭ	č
b	<u>d</u>	ɖ	ǰ
m		n	ɳ
		l	ɭ
			h

Minimal pairs for phonemic consonants

pennu	<u>t</u> a:ḍ^	^ṭṭ^	i:pu
bennu	(<u>t</u> a:ri)	^ɖɖ^	ǰi:pu
	(<u>d</u> a:ḍ^)		
	(<u>d</u> a:r^)		

^mm^		^nn^	
^nn^		^ɳɳ^	

l^nd^	ili
(l^yn)	iɭi
<u>d</u> ^nd^	
r^y^	
a:lu	
ha:lu	
a:ɖu	
(ha:ru)	

t^ttu
(K^ttu)
h^ttu

There are 3 categories of free variations. In the first category, the segments [š] and [s], [f] and [v] free vary. Strangely enough, free variation of these segments is not frequent. In the second category, there are free variations between segments one of which has phonemic status and rest having no phonemic status. Some of the free variations are as follows: g ~ d (initial), s ~ č (medial), s ~ t (initial). Under the third category, there are free variations between segments which have phonemic status as in the following: ĵ ~ d(initial). đ ~ d (medial), l ~ ḷ (medial) and n ~ ŋ (medial).

Sunitha uses identical and non-identical clusters. These are:

<u>Identical clusters</u>		<u>Non-identical clusters</u>	
-pp-	-ŋŋ-	-mb-	-n <u>t</u> -
-bb-	-ṭṭ-	-db-	-n <u>ṭ</u> -
-mm-	-ḍḍ-	-ḷ <u>ṭ</u> -	-n <u>ḍ</u> -
- <u>tt</u> -	-čč-	-čḷ-	-n <u>č</u> -
- <u>dd</u> -	-ĵĵ-	-nm-	-n <u>ĵ</u> -
-ll-	-nn-		

Majority of the non-identical clusters found are of homorganic type and also in many of them the first segment is always a nasal dental. The other non-identical clusters found in adult speech are changed into either identical clusters or a single segment.

Adult clusters Sunitha's clusters

-ṭk-	-ṭt-
-ḳt-	-ṭt-
-ḍl-	-ḷ-
-sn-	-ṭ-
-st-	-ṭ-
-ṭv-	-č-

Acquisition of phonology in the second recording: In this stage all the vowel segments found in the first recording are attested. The distributional pattern of the vowel segments is not disturbed except in the case of [u:] as in "u:v^", which now occurs in the initial position.

No new consonant segment has occurred in this stage. The consonant segment [ʒ] does not occur in Sunitha's spontaneous speech, but she utters it correctly in the imitation test (only in the medial position). The consonant segments [f] and [v] have now acquired the phonemic status as shown in the minimal pair: ṭa:fi, ṭa:vi. (ka:fi)(ka:vi). The other segments identified earlier which did not have phonemic status continue to have no phonemic status. As a consequence, there are 3 categories of free variations in this recording also.

Some of the new non-identical clusters appearing at this stage are: -dl-, -čl-, -rs-, -dd- and -ltt-. The important characteristic in this stage is growing clarity in the utterances of non-identical clusters.

Acquisition of phonology in the third recording: In this stage also all the vowel segments found in the first recording are attested. The distributional patterns of these segments are also retained. The palatal semi-vowel segment occurs clearly in this recording. Still the segment [ʒ] occurs only in the imitation test. No new phonemes are identified. The segments [k] and [g] occur in appropriate positions when compared with adult forms. However, no minimal pair or analogous pair is attested. In the imitation test [k] and [g] continue to be substituted with [t] and [d] respectively.

The three categories of free variations of the earlier recordings are found. Thus, there is no improvement in the free variation status. The new non-identical clusters including the homorganic ones in this stage are -nl-, -dt-, -tl-, -vn- and -vl-. As in the previous recordings, several of the adult non-identical clusters are changed into either identical clusters or a single segment.

Acquisition of phonology in the fourth recording: The Vowel segments and their distributional patterns are all

retained. No new consonant segment is acquired except a velar nasal which occurs before a homorganic voiced stop. The phonetic segment [ʒ] continues to occur only in the imitation test. There is no improvement in the position of the segments [k] and [g] as well as [s] and [š]. Still there are 3 categories of free variations indicating no improvement in their status.

Both identical and non-identical clusters are used. Some of the new non-identical clusters occurring in this stage are: -ts-, -ɖs-, -vr-, -ld- and -ɖč-. The two now homorganic clusters occurring in this stage are: -ns- and -nt-. A new non-identical cluster of this stage is -šš-. In all other cases, as in the previous recordings, the non-identical clusters are changed into either identical clusters or a single segment.

Sunitha's speech shows acquisition of the new phonetic and phonemic segments. In general, major emphasis seems to be on the stabilization of the segments and their contrast thus far acquired. Along with this, she engages herself in the use of acquired segments in novel combinations and thus improves her own speech to match the distributional pattern of segments found in the adult speech. This is evidenced by the fact that more number of non-identical clusters are added at every stage.

Acquisition of grammar in the first recording: Like other children, Sunitha also uses both the basic sentence types, namely, nominal and verbal. Several modifiers are added to these sentence types.

Nominal sentences: The basic sentence patterns are:

N + N, N + Modal, /N/+Adj. +N, + Neg., and
N + Interrogative pronoun.

Verbal sentences: The basic sentence patterns are:

N + V, /N/ + Adv. + V, [Adv. + Adj.] + N + /V/

The pronouns made use of by Sunitha are of first person singular, second person plural possessive form "nimm^" and demonstratives.

Verbs: Sunitha uses the transitive, intransitive and compound verbs:

tinde "Ate", ba: "Come" and

bičč^t^{te} b^r^ll^

(bičč^k^{ke} b^r^ll^) "/I/don't know to open."

Sunitha's verbs exhibit past and non-past tense distinction. She also uses the continuous tense form. Most frequent use is of continuous present tense form. Some

Transformation: Sunitha employs the negation transformations. She employs negation proper "ill^", "^ll^" and "be:dq^" which are used to express the existential negation of a statement as well as to indicate the negation of an action. In addition, she also uses emphatic negation expressions as in, ille: ill^ "/It/ is not at all /here/."

Sunitha combines sentences. She uses "quotative" sentences also.

čenna:gid ^ndu
(čenna:gide ^ndru) "/He/ (honorific) said it is good."

Sunitha also uses transpose transformations as given below:

iṭṭbiḍu ^lli "Keep it there."

Less frequently, pronominalization transformation is resorted to. The pronominalized forms are n^ndu and "um^ndu".

Sunitha deletes subject noun as found in the adult speech.

iḍḍi tindi
(/na:nu/ iḍḍi tinde) "/I/ ate idli."

She makes use of interrogation transformations also. She uses quotative marker and reports statements attributed to others. This is an important facility for the formation of discourses. However, Sunitha does not indulge herself in producing sentences to form connected discourses.

Acquisition of grammar in the second recording: The nominal and verbal sentence types with or without modifiers continue to be used. Pronouns in all the three persons are used. The third person pronouns used are: $\hat{v}^{\wedge}r^{\wedge}$ (possessive pronoun) "Theis", $\hat{v}^{\wedge}nu$ "He" and $\hat{v}^{\wedge}ru$ "They". The transitive and intransitive distinction of verbs is maintained. The causative verbs forms do not appear. Sunitha uses more number of compound verbs at this stage.

Tense distinction found earlier is exhibited. The verb is inflected more uniformly for gender now. The verb is not yet inflected for plural number except in the case of quotative verbs as seen in the first recording.

In more number of instances explicit case markers are used. The case relations expressed with explicit case markers in the first recording continue to be used.

$n^{\wedge}n$ $\underline{da:di}$ $rum^{\wedge}ll$ $i\ddot{t}\ddot{t}i\underline{di:ni}$
 ($n^{\wedge}n$ $ga:di:n^{\wedge}$ $ru:mlli$ $i\ddot{t}\ddot{t}i\underline{di:ni}$) "/I/ have kept my cart
 (toy) in the room."

In the above sentence, " $n^{\wedge}n$ " stands for the possessive forms form of the pronoun "na:nu". The same form is used in the adult speech also. Thus, Sunitha has acquired, in some cases, the exact adult forms.

duruje tučci b^rtte

(guruge kusti b^rtte) "Guru knows wrestling."

In the place of using dative case marker "ge" the form "Ye" is used. In several other cases, the dative case marker "go" is correctly affixed. This variation may be attributed to Sunitha's fluctuating phonological habits. This can be easily identified not only in Sunitha's speech but also in the speech of other subjects of the present study.

Transformations: Sunitha uses negation transformations observed in the earlier recordings. The embedding transformation is noticed in a few cases.

ču:ru činđ ^{dd} ma:ttondu tinta:ide

(rd ču:r ma:đkonđu tinta:ide) "/It/ is making into half pieces and eating.

The other transformations listed in the analysis of the first recording, namely, deletion of the subject noun, transpose transformation and pronominalization, continue to be employed by Sunitha. The status of the transpose transformation is not clear. It is possible that this pattern emerged as an imitation of adult speech without applying any transformation.

In general, a comparison of first and second recording utterances reveal that Sunitha has now acquired capacity to

form very short discourses. The sentence length however is very short. The number of sentences in such discourses are also few. The following is an illustration of a discourse.

dudu:du, ^n̄n̄^ t̄^ndiddu, ha:la:tu, muddo:ytu, durudu,
n^nd ha:tto:ta:ne

(/^du/ guru:du, ^n̄n̄^ t̄^ndiddu, /^du/ ha:lo:ytu, murdu:ytu,
/^d^kke/ n^nd ha:kko:ta:ne)

"/It/is Guru's, which Datty had brought, /it/ was lost, broken, so/he/wears mine."

Acquisition of grammar in the third recording: Both the nominal and verbal sentence types continue to be used and are well established. In most cases, only one marker is used. Thus, subject noun may have only one adjectival modifier and the verb only one adverb.

Verb: The distinction between transitive and intransitive forms continues to be maintained. The causative forms of verbs are not used. The use of compound verbs is on the increase. Sunitha now uses "ho:gu", "bidu" and "kodu" as the second part of the compound verbs.

Gender and Number: Third person masculine and feminine singular are very clearly distinguished. The neuter singular is also clearly marked. In several cases, third person plural marker is used. In such cases, both honorific and plural sense are expressed. First person singular and

second personsingular are clearly marked. The plural forms are not yet acquired.

Case: Explicit case markers attested earlier continue to be used. The characteristic of fluctuation noticed in the second recording is found in this also. The ablative case marker is clearly used in this recording.

ta:le:ĵind[^]
(ka:le:ĵind[^]) "From the College."

tu:lind[^]
(sku:lind[^]) "From the School."

The emphatic marker is added after the case marker as in - b[^]ssi:le, and with other construction as in - iv[^]tte: Purposive construction using the form "d[^]tte" is also found in one instance. The sociative case "ĵote" is made use of.

Transformations: The transformations identified earlier continue to be used. Embedding of sentences is more frequently resorted to resulting in short discourses. Transposed variety of sentences continue to be used.

ello:tta:ide ba:dittondu

Sunitha's capacity to form short discourses identified in the second recording is resorted to more often and resultant sentences appear to be closer to the adult types.

b^ri: sa^n^ ma:tt^biṭṭu, sa:n^ ma:ttibittini,
ni:r a:ttbittu ^nṇ^

(^nṇ^ b^ri: sna:n^ ma:disti:ni ^nt^, ni:r ha:kbiṭṭ^ru)

"Daddy, telling that /he/ would just give me bath,
/he/ gave me oil bath."

That Sunitha is improving upon her earlier performance in making discourse is revealed by her self-editing of utterances found in the above discourse. She changes "ma:tt^biṭṭu" into "ma:ttbiṭṭi:ni" in the same discourse, although she has dropped "^nt^" which is obligatory in the adult speech. Tendency to repeat is also noticed in several utterances of this recording. Her discourse reveals that she has not yet acquired anaphoric devices. The discourse however exhibits correct use of tense and the verb for its constituent utterances.

^mm^ ^d^nn^ bi:ti t̄o:t̄^mm^, os^du, ^mm^ t̄o:t̄i:n a:n̄ti:ge
osa:d^nn^

(^mm^ ^d^nn^ to:rs^mm^, ^mm^ a:n̄ti:ge hosa:d^nn^/ na:nu/
torsti:ni)

"Mummy, show that, the new one, Mummy I will show that
new one to aunty."

In terms of its sentence length, the discourse almost remains the same as in the previous recordings.

Acquisition of grammar in the fourth recording: Both nominal and verbal sentence types are used. Sunith exhibits her growing ability to match her utterances with those of

adult speech. However, the phonological achievement lags behind her grammatical achievements. This is reflected in the fluctuations he exhibits in the use of affixes whose forms vary between the utterances

The nouns continue to be the concrete ones. Transitive and intransitive distinction is maintained. Causative forms is not yet acquired. Tense distinction of the earlier recordings is maintained. She also used the compound verbs. In addition, these verbs contain 3 segments as in the following illustrations.

to:no:tta:ne
 (togondu ho:gt a:ne) "/He/will /it/and go."

to:nnb^{ll}[^]
 (togondu b^r^{ll}[^]) "/He/will not bring /it/."

Thus, by the use of these forms the length of sentence is increased and the senses in which the expression may be uttered are also widened.

Gender and Number: There is no improvement in the position of distinction between genders and numbers. In a very few instances, the possessive form of first and second person plural are used. n^{nm}^{le}

(n^{mm}^m^{ne}:le) "In our house only."

Regards the third person neuter, the plural form is not yet attested.

Case: The explicit case markers for some case relations are not yet stabilized and there is no improvement in the use of case markers over the previous recordings.

Transformations: All those identified earlier are used in this stage. Strangely enough, more number of sentences involving transpose transformation are identified in this recording. The characteristic of self-editing as identified in the earlier stage is noticed here also.

The discourse construction has all the characteristics identified in the earlier recordings. However, there is more clarity in their construction. Different kinds of intonation and verbal forms are used appropriately as in the following discourse.

čo:s^mm^ri t^ndida:r č^no:, čo:s^mm^ri tilla:? to:mba:
(ko:s^mbri t^ndida:re k^no:, ko:s^s^mbri tinla:? togoᅇba:)

"/They/have brought 'kosambri', shall /I/ eat 'kosambri'?
Bring /it/.

In the following discourses, there is an attempt to make appropriate anaphoric references.

č^ppi bu:ᅇsu ^nta:, ^vre: b^ndu čo:dude
(č^pli bu:ᅇs ripe:ri^nt^ b^rta:r^ll^; ^vre: b^ndu holdru)

"The cobblers, who come repairs, they came and stitched."

The following discourse is using the anaphoric device with regard to time.

ni: o:mel, innon s[^]ti b[^]tti:a:l [^]va"j čod^{ti}:ni
 (ni: ho:dme:le kod^{ti}:ni, innon s[^]r^{ti} b[^]r^{ti}:y[^]ll[^], [^]va:g[^]
 ko:d^{ti}:ni)

"/I/ will give you after you leave, /I/ will give you when you come next time."

Thus, in this stage there is an improvement over the utterances of the previous recordings.

A comparison of the Analyses of the Speech utterances of the Four Children

At the commencement of the recording, all the four subjects had acquired most of the vowel distinction found in the adult speech in Kannada. Particularly by then, they had acquired the long and short vowel distinction of all the vowels. The acquisition of the consonants was not complete at the commencement as well as at the end of the present study. The stop consonants had been uniformly acquired, but in the case of two children of the older age group, the voiceless and voiced velar stops were not established as phonemes although these sounds were found at the phonetical level. During the course of the study, aspirated counterparts were not acquired. The laterals sibilants and trills were not fully established till the stage of the completion of study. However, laterals were established by all the four children as phonemes at the beginning of the study. None of the children acquired the phonemic status for the sibilants till the completion of

the study. Regarding trills, all the children had acquired status at the beginning of study except for Anitha who acquired the phonemic status only in the final stage of the recording. The distinction between the nasals was not fully made during the course of the study. The bilabial, alveolar and the retroflex nasals had been acquired, whereas the velar nasals had not been fully distinguished in the order children, where even velar stops had not yet acquired the phonemic status. The palatal nasal was not found in any of the children even at the stage of the completion of study.

As regards the clusters, the identical and homorganic clusters were used. All the children continued to substitute their own clusters for most of the non-identical clusters. Such a substitution was not necessarily based upon one of the elements that constitute the adult clusters. Each child was in the process of acquiring the non-identical clusters of its own during the course of study.

In the case of distribution of phonological units, usually three types of free variations were noticed, But only Anitha did not exhibit the free variation between segments which did not have phonemic status. The types of free variations were found to occur in varying measures in the present study. The recurrence of free variations may be due to the fact that some phonemes are yet to be distinguished.

In the grammatical level, all the four children had entered a predominantly multiple word stage. In the beginning stage, for the two younger children, the sentences used were usually very short consisting of 2-word utterances. However, in later stages, there was increase in the number of longer sentences used. For the children of the older age group, there was not much of a noticeable difference in the sentence length between the various stage of the study. However, there was definitely an increase in the usage of discourses.

The children of the younger age group clearly showed the deletion of syllables, inflections and case markers, perhaps because of their inability to produce sentences matching the length of sentences in adult speech. At the later stages, they showed clear signs of overcoming this difficulty.

All the children at the commencement of study had acquired the two basic sentence types, namely, nominal and verbal. However, the children of the older age group used more number of modifiers in a sentence. Throughout the study, the children acquired the ability to use more number of modifiers and incorporate them appropriately in the sentences. But at no stage they had acquired the coordinating device which helps in constructing longer sentences. They had acquired the ability to use compound verbs and participial constructions. However, number and

frequency of usage of these were not similar in all the children.

In the children who did not use the explicit case markers at the commencement of the study, most of the case relations were expressed by means of word orders. From the context in which the utterances were spoken many case relations were easily found in the children's speech. However, in the course of the study, improvement in the acquisition of explicit case markers was found in all the children. Even at the stage of the completion of study, all the explicit case markers were not used consistently.

All the children showed the distinction between transitive and intransitive verbs at the commencement of study. But the causative verbs were not at all found. The reflexive form of verbs were noticed more frequently at the later stages of the study, especially in the children of the younger age group.

Singular imperative sentences were found in all the four children at the time of commencement of study. At the early stages, in the children of the younger age group, singular first person suffixes appeared more frequently. The second person singular suffixes were found at the later stages for these children and in early stages of recording for the older age group children. The older age group children also had acquired the plural suffixes in the third

person. However, certain forms like honorific plural marker used did not fall into any regular pattern.

All the children at the commencement of study showed the use of present progressive tens marker except for Anitha who did not employ the affixation process. However, she started using this form in her later stages of recording. In general, even the children of the younger age group distinguished between past and non-past tenses by the time of the completion of study. No children of the study showed distinction of future tense clearly from other tenses even at the time of the completion of study.

Gender distinction between masculine and feminine was not found in the younger age group. However, Sharath showed infrequently the use of feminine gender suffix at the later stages of the recording. Both the children of the older age group showed the distinction between masculine and feminine genders by using appropriate suffixes right from the commencement of study. Even in these children, there was inconsistency noticed.

The negative transformation employing "^{ll}", "^{ill}" and "^{be:d}" had been established. The other types of negative transformations were not acquired.

In general, all the four children during the period of investigation had acquired the rudiments of Kannada Syntax. But, their difficulty was with regard to making diverse stylistic variations which involve elaborated structures.

The results of the present study closely agree with that of Gvozdev's work, an intensive longitudinal study in Russian language of speech of his son Zhenya. The present study also has shown that the words used by the children in the process of constructing sentences with two or three words are unmarked. Once the principle of inflection and derivation are acquired, there are emergences of morphological elements in various grammatical categories. Thus there may be simultaneous emergence of certain morphological elements. However, there is progressive improvement over the use of these elements within the category and also in the use of elements of different categories during the study.

CHAPTER V

SUMMARY AND CONCLUSION

Studies regarding child's language acquisition in Indian languages are scanty. The present study investigated the speech of four Kannada speaking children, two boys and two girls, in the age range of 2;3.5 to 2;11.5. Their socioeconomic status and native language were the same.

The utterances of the children were recorded in four stages for three children and three stages for one child with an interval of approximately five weeks between each stage. The elicitation and imitation techniques as well as spontaneous speech were resorted to.

The data collected was transcribed in the phonetic script. Equivalent adult forms were recorded in Kannada script. The transcribed data was analysed-

1. To set up phonemes and to establish phonetic and phonemic distribution;
2. To identify clusters;
3. To identify major sentence patterns and grammatical categories and

4. To identify types of transformation and major characteristics of discourse.

The analysis was aimed at identifying hierarchy and the order in which the above linguistic units were acquired by the children. The analysis compared the children's speech with adult's speech wherever necessary.

The following general hierarchies may be established for the speech of the four children

Phonological hierarchies

1. The distinction between voiced and voiceless feature is acquired earlier than the distinction between aspirated and unaspirated feature. (The voiced and voiceless feature was observed at the commencement of study and aspirated and unaspirated feature was not observed even at the time of the completion of study.)
2. The distinction between short and long vowels is acquired and stabilized in all the children at the time of the commencement of study.
3. Among the consonants, the stop consonants are acquired more fully than sibilants, trills and laterals.

4. Among the nasals, the bilabial and the alveolar nasals are acquired earlier than other nasals. (The alveolar nasal was not acquired till the completion of study.)
5. Among the sibilants, the alveolar and palatal sibilants are acquired earlier than the retroflex sibilants. (The retroflex sibilant was not acquired till the completion of study.)
6. In general, the retroflex sounds interchange very often with the alveolar counterparts.
7. The pronunciation of trill poses difficulty.
8. 8. Identical and homorganic clusters are acquired earlier than the non-identical clusters. (In the two children of the younger age group at the commencement of study only the identical clusters and the homorganic ones were present. In the later stages, there was increase in the number of non-identical clusters used. The older age group children presented few number of non-identical clusters at the commencement of study and there was progressive increase in the number of non-identical clusters used in the later stages.)
9. The Children substitute identical clusters for the non-identical clusters of the adult Speech.

Sometimes, a single sound is substituted for the non-identical clusters.

10. Even at the age of completion of the study the children were found to be in process of acquiring phonemic contrast, i.e., the phonology does not completely match the adult phonology.

Grammatical hierarchies

1. The root form of the word is acquired earlier than the acquisition of word with affixes.
2. The children acquire the basic types of sentence patterns namely, nominal and verbal very early. (These sentence types were present at the commencement of study.)
3. The children also acquire the distinction between noun and verb very early. (The distinction was present at the time of the commencement of study.)
4. Within the nouns, the children acquire the concrete nouns early. (Abstract nouns did not appear even at the time of the completion of study.)
5. Among the pronouns, first person singular, second person singular and third person neuter singular are acquired earlier than the other types of pronouns.

6. Among the verbs, the transitive and intransitive ones are acquired earlier than the reflexive and causative ones. (Transitive and intransitive verb distinction stages of recording in the children of the younger age group.)
7. Single verb roots are acquired earlier than the compound verb roots.
8. 8. Present and past tense forms are acquired earlier than the future tense forms. It appears that the present tense forms might be occurring earlier than the past tense forms.
9. Generally, the acquisition of past tense participles and the participle compound verbs proceed side by side.
10. Inflection of the verbs for number and gender are achieved a little later after the children have just started using the affixes. The verbs are inflected for singular first person and imperatives earlier than the verbs inflected for singular second person and plural person. Among the gender distinctions, the neuter gender is distinguished from masculine

and feminine first. Later, the children distinguish between masculine and feminine genders.

11. First the expression of case relations is done without using explicit case markers.
12. No hierarchy of emergence of the explicit case markers could be established.
13. Coordinate constructions are not acquired till the completion of study.
14. A maximum of two modifiers are used for a head noun at the stage of the completion of study.
15. The children face difficulty in the construction of discourses. The discourses consist of a maximum of three sentences in the younger age group.
16. Negative transformations employing more addition of "ll", "ill" and "be:d" are acquired earlier than the other types of negative transformation.
17. Generally speaking, negative transformations are acquired earlier than the other types of transformations.

18. Embedding transformation is acquired in the process of constructing discourses.
19. The status of the transpose transformation and pronominalization are of a doubtful nature.
20. The children seem to acquire many complex forms involving complex transformational steps through imitation at the first instance. The acquisition of the systematic processes comes later.
21. The above statement holds good also for the use of certain phonological elements.
22. The children's difficulty in composing and using longer utterances is related not only to their inadequate acquisition of grammar but also that of phonology.
23. No difference was found between the sexes either in the acquisition of phonology or in the acquisition of grammar.
24. In general, there is a regularity and order in the acquisition of phonological, grammatical and transformational characteristics among all the children. This regularity may be broadly the same

for all the children, although each may have its own variation within the overall regular framework.

Recommendation for further study.

1. A longitudinal study from the babbling stage onwards would contribute very useful data. More frequent observations in the collection of data and more detailed analysis than were used in this study may be useful in establishing the hierarchies of categories of different aspects of language.
2. Tests should be constructed to study the acquisition of comprehension of different aspects of language.
3. The acquisition studies should be carried out in other Indian languages.
4. Acquisition studies on children with deviant speech and language behaviors should be made and they may be compared with that of normals. These would be of clinical importance.
5. Similar studies on bilingual children may be fruitfully undertaken in India.

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APPENDIX

APPENDIX I

Word List used for the Imitation Test

Pennu	"Pen"	so:pu	"Soap"
bennu	"Back"	K^s^	"Dirt"
K^ppu	"Black"	š^nk^r^	"Shankara"
K^bbu	"Sugarcane"		(proper noun)
^ṭṭ^	"Attic"	a:š^	"Asha" (-do-)
^ḍḍ^	"Obstruction"	viš^	"Poison"
k^ṭṭi	"Tie"	š^ṛṭu	"Shirt"
k^ḍḍi	"Stick"	fi:ʒu	"Fees"
ṭa:r^	"Tara" (proper noun)	ʒu:	"Zoo"
ḍa:r^	"Thread"	r^Y^	"Ranga" (-do-)
h^ṭṭu	"Climb"	l^Y^	"Long Skirt"
h^ḍḍu	"Eagle"	ha:ru	"Jump"
či:pu	"Suck"	ha:lu	"Milk"
ji:pu	"Jeep"	a:ru	"Six"
^nču	"Border"	a:lu	"Servant"
^nju	"Fear"	ha:lu	"Lost"
ku:ɖu	"Get together"	ka:lu	"Pulse"
gu:ɖu	"Nest"	Ka:lu	"Leg"
^kk^	"Sister"		
^gg^	"Cheap"		
m^nj^	"Manja" (proper noun)		
n^nj^	"Nanja" (-do-)		

^mm^	"Mother"	ili	"Rat"
^nn^	"Rice"	iḷi	"Get Down"
^ṇṇ^	"Brother"	h^ttu	"Climb"
m^y^	"Monkey"	mo:h^n^	"Mohana" (proper noun)
fa:n	"Fan"	h^kki	"Bird"
va:n	"Van"		
ka:fi	"Coffee"	^ḷu	"Cry"
Ka:vi	"Saffron"	a:ḷu	"Servant"
b^l^	"Strength"	koli	"Rot"
ba:l^	"Tail"	ko:ḷi	"Hen"
oḍi	"Kick"	eḷḷu	"Gingili"
o:ḍi	"Read"	e:ḷu	"Get Up"
ole	"Stove"	puri	"Puri" (eatable)
o:le	"Earring"	pu:ri	"Poori" (eatable)
koḍu	"Give"	hiḍi	"Please Leave"
ko:ḍu	"Horn"	bi:ḍi	"Beedi"