THE LITERACY FACTOR IN SYNTACTIC JUDGEMENT AND COMPREHENSION IN CHILDREN

REG. No.M8910

A DISSERTATION SUBMITTED TO UNIVERSITY OF MYSORE IN PART FULFILMENT FOR THE DEGREE OF MASTER OF SCIENCE IN SPEECH AND HEARING.

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/TO/

A cancerian dad for his caring, gentle, sympathetic and understanding nature

A Taurean mom for her solid support

A virgo sis for her affection and constructive criticism

A Libran brother for his practical nature and sense of humor

&

A "special" piscean for being a source of Inspiration

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CERTIFICATE

This is to certify that the Dissertation entitled: "The Literacy Factor in Syntactic Judgement and Comprehension in Children" is the bonafide work done in part fulfilment for the degree of Master of Science (Speech and Hearing) of the student with Register No.M8910.

Mysore

1991

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C E R T I F I C A T E

This is to certify that this Dissertation entitled : The Literacy Factor in Syntactic Judgement and Comprehension in Children has been prepared under my supervision and guidance.

Mysore
1991

Dr.Prathibha Karanth
GUIDE

DECLARATION

This Dissertation entitled: The Literacy Factor in Syntactic Judgement and Comprehension in Children is the result of my own study undertaken under the guidance and supervision of Dr.Prathibha Karanth, Professor and Head of the Department of Speech Pathology, All India Institute of Speech and Hearing, Mysore, and has not been submitted earlier at any University or Institution for any other Diploma or Degree.

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contd.....

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INTRODUCTION

Since the 1960s research and theorizing about linguistic development in children has been accruing at a rapidly increasing rate and the 1960s could well be regarded as the decade of child syntax, for the primary focus of research and theorizing was the development of childrens' syntax, and the bulk of the work during this period was focused on the utterances of children. The age range of the children studied, was bound at the lower end by an age; soon after which children began producing utterances with overt structures (18-24 months) and at the upper end by an age of 4-5 years.

The initial field of interest was the study of development of comprehension and expression of language in children. However as research progressed it was seen that mature speakers of a language not only possess the ability to produce and understand utterances; but in addition they can judge whether or not sentences are grammatically well formed and semantically coherent (Gleitman and Gleitman, 1970). This sort of reflections and evaluations have been generally referred to as linguistic intuitions (Gleitman and Gleitman, 1970). Initially, the interest in the use of judgements and intuitions in children stemmed mainly to gain insight into the development of the childs knowledge of the rules of his language. Since

the past 15 years there has been a growing interest in the development of childs awareness of language as an object in itself, that is, the ability of a child to reflect upon and manipulate the structural features of a spoken language, treating language as an object of thought as opposed to simply using the language system to comprehend and produce sentences-A phenomenon known as "Metalinguistic Awareness" (Tunmer, Pratt and Herriman, 1984).

The Transformational-generative theory of grammar has given these judgements of grammatical acceptability a central position and the set of sentences that the adult, judges upon reflection, to be well formed serve as an important source of data for linguists engaged in formulating linguistic theories. The recent upsurge of interest in grammatical acceptability judgements of children has basically been due to the fact that data on grammatical acceptability from children would be useful to developmental psycholinguistes, attempting to describe the young childs competence and it would afford a means of describing whether or not a particular syntactic rule is included in a childs grammar.

Research on the development of metalinguistic awareness in children has then found three major areas of interest

early language development; learning to reed and schooling and cognitive development.

Tunmer, Pratt and Herriman (1984) state that although it is generally agreed that Metalinguistic Awareness refers to the ability to reflect upon and manipulate the structural features of spoken language, there is considerable debate concerning how and when metalinguistic wareness actually develops. The controversy persists between three main theoretical conceptualizations. The first concept claims that metalinguistic awareness is an integral part of the process of language acquisition and hence is acquired early in life. Spontaneous speech repairs and language play are cited as evidence in support of this theoretical claim. In contrast the second view claims that metalinguistic awareness occurs during middle childhood, the period from 4-8 years of age. It is said to reflect a new kind of linguistic functioning which is influenced greatly by cognitive control processes which emerge during this period (Hakes, 1980). The third position is that metalinguistic awareness is largely a result of exposure to formal schooling especially an learning to read.

Depending on the various conceptualizations, methods have been devised to collect data on judgement of grammaticality acceptability and considering the "newness" of the

field a considerable amount of information has been collected. The available literature (Tunmer, Pratt and Herriman, 1984; Gleitman and Gleitman, 1970; Carr, 1979; etc) suggests that the ability to reflect upon the internal grammatical structure of sentences as measured by tasks, Involving judgement of acceptability, synonymy, ambiguity, sentence discrimination, sentence correction and riddle comprehension emerges later than the ability to comprehend sentences. Data from these studies reveal rather striking developmental changes between 4-8 years of age lending some support to the notion that a developmentally distinct kind of functioning emerges during middle childhood. Generally the research provides accumulating evidence that the ability to consciously reflect upon the structure of sentences occurs from age 5 onwards. However Pratt, Tunmer and Bowey (1984) lending support to the view of researchers like Van Kleek (1984) claim that before school age children appear to be making judgements on the basis of content. The tendency to accept or reject sentences on the basis of their content rather than on the linguistic manner in which they are conveyed decreases to nearly zero by 7 years and is rarely seen at later ages except when presented with meaningfully false sentences (Hakes, 1980).

With regard to cognitive development it has been suggested that metalinguistic awareness plays an important role in the

development of childrens thought processes (Donaldson, 1978; Tunmer and Grieve, 1980). The development of metalinguistic awareness is an essential part of the development of meta-cognitive skills involved in reflecting upon and monitoring ones thought process. Further these'skills are viewed as crucial for the successful completion of many of the abstract tasks that children encounter when they enter formal schooling. Research into reading and metalinguistic awareness has looked more directly at the role of different language awareness skills in reading acquisition (Tunmer and Bowey, 1980; Ehri, 1979). Tunmer and Bowey for example argue that different components (phonological word, and grammatical aware-ness etd,) all play different roles in the processes involved in learning to read. With respect to grammatical awareness they point out that once the child has mastered the grapheme phoneme correspondence rules of the language he must con-sciously begin to organize the text into higher order syntactic groupings. Since the structures of sentences are crucial to understanding he must therefore bring his syntactic knowledge of spoken language to bear upon the written language, which requires the metalinguistic ability to reflect upon the structural features of the spoken language. So the connection between metalinguistic awareness and education is largely established by extending the conceptual identification of meta-linguistic skills with the activities of the class room and

also by some research which indicates that metalinguistic skills may be necessary for certain educational attainments especially language related ones. Potentially informative areas of research have been suggested by Karmiloff-Smith, 1979; Nesdale and Tunmer, 1983; Herrlman and Myhill, 1983 and the area is open for more detailed study.

Thus whether the interest lies generally in cognitive development or specifically with processes in learning to read; or whether it is early language development or schooling that one is concerned with in relation to meta-linguistic awareness - it is now evident that metalinguistic awareness is an important element in child development and detailed study of the subject has high potential for giving anindepth view on child grammar. Research into the subject to date has propped up two major questions -

a) Is metalinguistic awareness purely a function of normal cognitive and language development of the child,
b) Is it a result of schooling and is seen only after the child begins schooling.

This debate could only be resolved by carrying out a cross sectional study where matched groups at different age grade levels could be compared on the two factors - literacy and age (Herriman and Myhill, 1983).

This formed the basis of the present study which was undertaken with the aim of finding out:

a) Whether there existed a developmental trend in the development of syntactic judgement abilities.
b) Whether literacy was a factor that influenced the development of syntactic judgement abilities in children.
c) Whether there was a development trend in the comprehension and expression of morpho-syntactic markers presented in the form of picture pointing/picture discription tasks.
d) Whether literacy affected the comprehension and expression of morpho-syntactic markers presented in the form of picture pointing task/picture description task.
e) Whether comprehension and expression preceded syntactic judgement at the various age levels or proceeded in parallel with it in both literates and illiterates.

REVIEW OF LITERATURE

Concurrent research on child language acquisition has reflected the centrality of grammatical judgements in the linguistic theories of the seventies . Gleitman and Gleitman, (1970)maintained that these judgements should constitute the primary data for the study of linguistic knowledge and organization in the child as well as in the adult.

Acceptability judgements are often difficult to obtain from young children and it is difficult to get stable answers from children. However, Gleitman and Gleitman(1970) used role playing to convey different instructions in their study of grammaticality judgements of 3 children between 26 and 30 months. Their data suggested that these children are able to significantly judge the acceptability of word order at a very early age and this procedure could tap very early grammatical knowledge.

de Villiers and de Villiers (1972) pointed out that Gleitman and Gleitman subjects seemed to rely more on semantic than syntactic factors in making judgements of sentence acceptability. This led them to question the conclusions drawn by Gleitman et al. (1970) that it is possible to obtain adult like judgements of grammatical well formedness from 2 year old children. Theymodified the Gleitman procedure

to examine the development of childrens ability to make judgements of both semantic and syntactic acceptability. Eight children were tested in the age range of 28 to 45 months. Their findings confirmed that the judgement of semantic anomaly appealed earlier and further they could get these judgements from children who could not make proper judgement of syntacticacceptability of grammatical structures that they in fact could comprehend. They concluded that semantic factors predominated in the judgement of young children and they could not make correct syntactic acceptability judgements. The patterns they obtained suggest that young children make judgements on a different basis than adults and hence the judgement method is of limited value in the study of early grammatical organization.

Several studies of comprehension are in support of the interpretation by de Villiers and de Villiers (1972) and this study is consistent with Bever's (1970) findings that young children understand sentences through the use of perceptual or cognitive strategies. According to this view it is not until later that a child develops the capabilities underlying linguistic intuitions it is probable that the child is not able to separate the sentence from the intent of the speaker and therefore has difficulty when asked to reflect upon the linguistic rule system.

So,early data on judgement of syntax acceptability confirms the view that although children may comprehend or produce a given utterance before 4 years they may not be able to make linguistic judgements about the grammaticality of these sentences until some what later.

More recent studies which have examined syntactic acceptability judgements have therefore typically tended to focus on children 5 years of age or older.

Scholl and Ryan (1975) who were critical of the method used by de Villiers and Be Villiers (1972) and Gleitman and Gleitman (1970) in their studies used a forced choice procedure to discriminate between well formed and deviant sentences. Though they found an overall poor performance in both the 5 and 7 year age groups they found that there was some improvement with age on negative sentences and the children did show some ability to discriminate the well formed sentences (Eg. we cannot go home) from the more primitive ones (Eg. Not we go home). In a later study Scholl and Ryan (1980) revised their task instructions and practice sentences to decrease the chances of misleading the children on the nature of the task. With the revised procedure they found that both age groups of children performed at much higher levels and the discrimination of 7 year olds was better than that of 5 year olds.

Bohanon (1976) used a some what similar procedure to investigate childrens ability to discriminate between normal and scrambled sentences in children from 5 to 7 years of age. Similar to Scholl and Ryan (1980) he found that the performance on the task increased significantly with age. However children at all age levels Aid not perform as well as on the Scholl and Ryan (1980) study.

The results of these two studies (Scholl and Ryan, 1980) and Bohanon (1976) suggest that children come gradually to make judgements more and more like those of adults by focusing attention on and evaluating the properties of the sentences per se. Beginning at about 6 years of age they appear to be able toseparate the form of sentences from its content and make judgements based on form alone.

So over the ages there has been accumulating evidence that there is a qualitative difference underlying childrens performance on grammaticality acceptability tasks across different ages. While in the very early ages children base their acceptance of sentences on comprehension (Tunmer aod Greive, 1984) and the grammaticality judgements made by 4 year olds are largely semantically based. Studies on children aged 6 and below have shown that oddities in phonology and syntax are noticed only after oddities in thought are recog-nized (Gleitman and Gleitman, 1979).

Carr (1979) conducted a longitudinal study of children between the ages 2 and 5 years to explore the developmental changes in their judgements of acceptability of anomalous and non-anomalous sentences. She concluded that the pattern of results she obtained could only be explained in terms of experience based verification strategy in which the child relates the meaning of a sentence to his experience and decides whether its content is verified. These findings are consistent with the work of Donaldson and McGarrigle (1974) who argue that when the very young children assign truth values to the statements they are constrained by non-linguistic factors rather than lexical or syntactic rules. That is young children seem to be more experientially oriented rather than concerned with aspects of linguistic or logical structure of the material in the study.

Van Kleek (1982, 1984) also noted that children under 6 years are unable to judge acceptability on the basis of syntax alone and tend to depend more on the truth value for making decisions on acceptability. This finding received support from Pratt, Tunmer and Bowey (1984) who observed that before school age children appeared to be making judgement on the basis of content. The tendency to accept or reject sentences on the basis of their content rather than on the

basis of the linguistic manner in which they are conveyed decreases to nearly zero by seven years and is rarely seen at later apes except when presented with meaningfully false sentences (Hakes, 1980). In his experimental study of 4 to 8 years olds (Hakes, 1980) found a strong effect for age and sentence structure type in grammatical judgement. He concluded that the overall developmental picture seen in childrens performance on both deviant and non-deviant sentences is an increasing ability to judge the sentences themselves apart from what they assert and also an increasing knowledge of grammatical constraints of adult language (Hakes, 1980). This Hakes states that children aged 7 to 8 judge acceptability on essentially the same basis as adults and their errors if any, are attributed to their still being unfamiliar wit& some of the more subtle grammatical constraints of language. Commenting on the wide variety of metalinguistic skills that are acquired in mid childhood Hakes (1980) suggests that they involve a type of controling process different from the more automatic processing involved incomprehension and pro-duction.

Seemingly in agreement with Hakes, Karmiloff-Smith (1979) commenting on Cromers (1976) documentation of childrens in-consistent behaviour with same structure in identical experimental settings between the ages of 7 and 8 years pleads for an emphasis

on the need to understand why these inconsistencies occur and then stabilize into a more consistent pattern around 8 years of age. Karmiloff-Smith argues that the 8 year old child showing more consistent behaviour in experimental setting is due to having attained a more abstract level of competence - a metaprocedural level that is closely linked to metalinguistic awareness. The 8 years olds'linguistic competence includes a more abstract level of linguistic analysis while the young child copes with normal language usages with the help of functional semantic and pragmatic procedures. By 8 years if necessary children can rely solely on linguistic clues and this may be indicative of internal reorganization of linguistic categories and a new phase in linguistic development. Karoiloff-Smith concludes that 5 years seems to be a frontier age representing the beginning of a new phase in language development with a gradual passage from extra linguistic to intra linguistic reference both in speech utterances and later in metalinguistic awareness. A new phase thus appears at around the age of 8 parallel to the development of metalinguistic skills. The over 8 year old seems to attain the capacity for a more abstract level of comprehension and can cope if need be without the interplay of functional, syntactic, semantic and pragmatic clues used in normal discourse.

The literature from India also seems to mirror the conclusion of the Western studies and is in line with the observation that it is only by 8 years that the child attains an abstract level of linguistic competence. In a study by Karanth (1984) on a small group of 16 children ranging in age from 2 to 14 years of age to test the effect of socio-economic status on the acquisition of language and its inter relationship with cognitive development it was seen that children below the age of 5-6 years seem unable to carry out judgement tasks on grammatical acceptability and were seen to accept or reject all given items without discrimination. It was only around 76 months of age that children began to attempt the tasks and perform at a chance level of 50 percent achieving 80 percent proficiency by 150 months recording a sharp rise in grammaticality judgement ability between the ages of 6 to 9 years. These findings are in agreement with the findings of Bohanon (1976); Karmiloff-Smith (1980); Hakes (1980) and Van Kleek (1982).

In a recent study to confirm the findings of the earlier study, on a larger group of children and to obtain large scale norms for children in their early years of schooling on the Linguistic Profile Test (LPT, Karanth, 1980, 1984) Karanth and Suchitra (in press) studied 150 children ranging in age from

6-11 years ranging from grade I to grade V. The results clearly showed a differential rate of acquisition of grammatical sensitivity across these categories. As in the Hakes (1980) study a strong effect was found for age as well as for grammatical structure in grammaticality judgement. There was an overall increase in sensitivity to all the structures across the age range studied. However, differential sensitivity to different syntactic structures at various ages was seen. The results were consistent with the findings on the smaller group of children (Karanth, 1984) that children under the age of 6 years were unable to carry out the meta-linguistic task of grammatical judgement. Beginning at 6-7 years and with a rapid spurt at about 7-8 years children become increasingly proficient in the grammaticality judgement task. The childrens' sensitivity to grammaticality of a given sentence was however found to be only 80% at 11 years which was the upper age limit of the study. However, correlating the findings of the earlier study (Karanth, 1984) where a 15 year upper age limit was taken one could conclude that adult like sensitivity to grammaticality is achieved by adolescence (at about 13 years) children tend to perform at 90% level.

In a recent study of grammaticality judgement tasks including sentence acceptability carried out by Vasantha, Sastry and Murthy (1989) similar findings were reported for

24 Telugu speaking children. They observed aa increase in grammaticality judgement ability from 4.5 to 8.5 years with a dramatic improvement around 6.5 to ? years. Judgement of grammatical acceptability was found to be more difficult than sentence correction.

In a study on acquired language disorders in adults (Karanth et al+ 1991) 100 normal adults were administered the syntax section of the Kannada LPT. The literate adults performed well on the test with no chance level performance. The illiterates however performed poorly, not completing the test, performing indiscriminately or performing at chance level. Their performance was uniformly poor across all sub-categories. Similar findings were got on the Hindi version of the LPT among 100 illiterate and literate adults who were native Hindi speakers. The fact that the testing done in two geographically distant cities (Kannada in Mysore and Hindi in Delhi) in a similar fashion gave identical results has led the authors to claim that literacy in itself could be a variable factor affecting grammaticality judgements.

Hence given that pre literate children and illiterate adults perform poorly on a series of grammaticality judge-ment tasks it is possible to conclude that acquisition of literacy has a major role to play in ones ability to master

grammaticality judgement. Moreover literature on the subject in children is equivocal in observing that it is only around the age of 6-7 years that the child separate form and content in making judgements about grammatical acceptances of sentences. It is then perhaps not a coincidence that children begin to separate the form and content of a given sentence at the age at which they are introduced to formal schooling and increasingly master this ability in the early years of literacy acquisition (Karanth, 1991). What is now needed is as stated by Olson (1985) a step by step analysis of the nature of literacy - the relationship between language structure and literacy,the relationship between oral and linguistic competence and the processes involved in comprehending written texts.

The present study was therefore undertaken to study the role of literacy in the acquisition of syntactic comprehension and to study the development of grammaticality judgement in children who had undergone schooling as against those who had not and hence to establish the role of literacy as a variable effecting grammaticality judgement. Moreover since early research (Bgver, 1970) de Villiers andde Villiers, 1972) pointed out that children depend more on the content of the sentence and have difficulty in making syntactic judgements; that is children below 5 years of age have difficulty in separating the content of the sentence from the intent of the

speaker the current study aimed at finding out the relationship between syntactic comprehension and expression with the syntactic judgement ability of the children. The study aimed at studying whether syntactic comprehension and expression "bettered" the grammaticality judgement of the children at the different age levels studied or whether grammaticality judgement was at par with the syntactic comprehension and expression in children.

METHODOLOGY

Although a surprising amount of research has been accomplished in the area of development of childrens metalinguistic awareness considering that the field is still in its infancy (Tunmer and Grieve, 1984)? nevertheless as might be anticipated, given the newness of the field and the complex and multifaceted nature of the construct referred, generally accepted methods of assessing metalinguistic awareness are still in the process of being developed (Pratt and Nesdale, 1983).

The importance of metalinguistic awareness in the formulation of child language acquisition theories has made it necessary to provide precise estimates of the course of development of metalinguistic awareness. However the debate on the theoretical conceptualizations as to how and when metalinguistic awareness actually arises, has made such precise estimates difficult. The three theoretical conceptualizations - whether metalinguistic awareness is an integral aspect of child language development and occurs early in life; whether it reflects a new kind of linguistic functioning influenced by cognitive control and occurs in mid childhood (4-8 years of age) or whether it is a function of schooling especially learning to ready have their own methodological implications.

The implications that follow the various theories on development of metalinguistic awareness is that the researchers

need to develop techniques which are appropriate to the age of children being tested. Moreover the techniques to be developed in order to assess the different conceptual view points have to be appropriate for children in the age range from 18 months to 8 years or more of age. In addition the three approaches have different implications concerning the range of tasks upon which the child would be required to demonstrate some level of competence in order to be credited with some amount of metalinguistic awareness .

The methods used to date by various researchers have tended to vary quite markedly between studies and little attention has been given to the stability and validity of the childs ability (Tunmer and Grieve, 1984) clearly in the Interests of obtaining stable and valid estimates of a childs ability the researcher would prefer to test the child in a controlled setting, using standard procedures (that is fixed instructions, stimuli and response measures) rather than rely an analyzing and interpreting data obtained via uncontrolled observation techniques (eg. spontaneous speech production recordings or an unsystematic sample of anecdotes).Gleitman et al (1970) have pointed out that the spontaneous speech of children provides limited source of data of their linguistic knowledge, in practice as well as in theory. Though by and large the trend has been for researchers to use non standardized

test materials (based on their various theoretical conceptualizations) to assess the ability of children to make accurate grammatical conceptualizations the tasks used by these researchers have also been incorporated into non-reference language tests such as the Fullerton language assessment test for adolescents (Thorum, 1979) and the test of language development (Newcomer and Hammill, 1982) for the assessment of syntactic abilities in children and adults. In India the Linguistic Profile Test (Karanth, 1980, 1984) has been used to give an estimate of the syntactic judgement abilities of children and adults (Karanth, 1984).

Method used in current study:

For the present study two groups of children in 5 age groups one being non-school going and the other school going were evaluated on linguistic tasks assessing their syntactic judgement comprehension and expressive abilities. The responses were subjected to a quantitative statistical analysis in case of comprehension abilities and syntactic judgement. The expressive abilities were also scored and subjected to analysis.

Subjects:

50 school going and 50 non-school going children were selected for the study in the age range of 6-11 years. Both

the school going and non-school going groups were sub-grouped into 5 sub groups according to age. The age ranges considered were 6-7 year; 7-8 years? 8-9 years? 9-10 years? 10-11 years. 10 children were selected in each of the age groups and the groups were squally distributed for sex.

The criteria for selection of the subjects included:

1. The subjects were neurologically healthy.
2. Were not known to be intellectually below average.
3. Had no sensory impairements including problems in hearing or vision? or speech defects.
4. The subjects were native speakers of Kannada
5. In the case of the literate sub-group it was considered necessary for their medium of instruction in school to be Kannada.
6. In the case of the non-school going children, illiteracy was defined as less than one continuous year of formal schooling, whereas the literate children had to have continuous non-interrupted schooling upto their current Educational level.

The literate subjects for the study were all selected from the Kukkarahalli Government School located in Kukkarahalli Saraswathipuram, Mysore. The school is a State Government school which caters mostly to children from the villages nearby Mysore? especially Bogadi which is on the outskirts of Mysore.

All the children selected came from a lower socio-economic group and had illiterate/semi-illiterate parents (less than four years of formal schooling). The illiterates for the study were selected from rural set-ups around Mysore. The subjects selected were all from the lower socio-economic group and never had any type of formal schooling. The parents of these children were all illiterates.

Tools used: Two tests were used in the testing of the subjects, namely the Regional Rehabilitation Training Centre, (RRTC) Test Battery. (Test of Kannada Language - Developed by RRTC, Madras, and All Yavar Jung National Institute for the Hearing Handicapped (AYJNIHH), Bombay as a part of the UNICEF funded project for Development of Standardized tests of Language and Articulation in Indian Languages - In Press). The second test used was LPT (Karanth, 1980, 1984). The LPT is based on a linguistic frame work and contains three sections - Phonology, Syntax and Semantics which through sub-sections probe into deeper sections of ones language. While the sections on phonology and semantics evaluate the discrimination and expressive abilities of the individuals in aspects of language, the syntax section assesses syntactic competence of the individual under test by using a grammaticality judgement task. The test is available in two Indian languages - Kannada and Hindi. The former belongs to the

Dravidian group of language and is widely spoken in South India whereas the latter is a member of the Indo-Aryan group of languages spoken in North India. Both the languages are synthetic and are highly inflected.

The syntactic sectionof the linguistic test profile was employed as a part of the current study to check the syntactic judgement abilities of the subject. The section consists of * 130 test items with a wide variety of grammatical structures, covering the basic syntactic forms of the language tested. It systematically samples a broad range of phrase and semantic structures covering the core syntactic features of the language tested raning from phrasal morphophonemic constructions to complex syntactic structures. These items for evaluating syntax were selected in order to cover the 30 major types of grammatical forms; structural modes and types of utterances listed by Brooks (1964). The syntactic section has 11 sub-sections (Appendix-'A') for evaluating morphophonemic structures; plurals; tenses; person-noun-gender markers? case markers; transitives; intransitives and causatives? quotatives? conditional clauses participal constructive and different sentence types. The 130 items were such that 65 items were syntactically well formed whereas the other 65 violated a predetermined syntactic marker. The test-was so designed such that in each sub-section 50% of the sentences were well

formed whereas 50% violated a particular syntactic manner. The two types of sentences were randomly distributed within each sub-section. Some examples of incorrect syntactic constructions are as given below:

1. Plural marker - Section B.

* pustakaru	for	pustakagalu
Book + plural marker for humans incorrect neuter plural.		Book + plural marker for non-humans,

2. Tense marker - Section C

Seete monne barutale (Seete will come day before yesterday)	for	Seeté monné bandidalu (Seeté had come day before yesterday)

Incorrect tense marker-future for past.

3. Person noun gender marker - Section C

Seeté no:duvanu	for	seeté no:duvalu
Seeté will see (he)		Seeté will see (she)

* Third person singular masculine for third person feminine singular.

The 130 items which were distributed across 11 sub-sections included 10 items in 9 sub-sections and 20 items in 2 sub-secti< (sub-sections A and B), were presented auditorily to the subjects and they had to judge the sentences for grammaticality acceptances.

Regional Rehabilitation Training Centre Test Battery:

RRTC test was based on the LPT but uses pictures along with the sentence stimuli as it is intended for young children.(Appendix The test has 2 sections- Section-A deals with semantics and Section-B covers syntax. All the test items are pictorial. The syntactic section of the RRTC was used for testing the comprehension of the subjects. This section of the RRTC has 11 sub-sections which correspond to the 11 sub-sections of the LPT syntax section. Each section has 10 items; 5 items of which are for testing the comprehension of subjects and the other 5 items are for testing the expression abilities of the subject. For checking comprehension the subject is expected to point to the correct picture out of a set of 3-4 pictures in response to an auditorily presented sentence describing the target picture. The items evaluating expre-ssion required the subject to describe the pictures which specifically test the usage of specific syntactic structures. The syntactic section of the RRTC has 110 items? 55 of which check comprehension and 55 of which assess expression.

Administration and scoring:

The test was administered to both the literate and illi-terate subjects in a quiet room with all distractions reduced to minimal limits.

The administration of the 130 items of the LPT entailed instructing the subject that he/she would hear a list of sentences/words; some of which were structurally well formed while some were not. Each subject was given examples of both correct and incorrect sentences and along with the incorrect sentences the subject was also given its correct version so as to emphasize its correct form. The subject was asked to listen carefully to the items that would be auditorily presented and indicate whether each item wqs correct or incorrect. The sentences were read out, one by one by a native Kannada speaker and the responses of the subject; whether they indicated a sentence as correct or incorrect was recorded on a scoring sheet. The subjects had been told that there was no necessity for justifying their responses.

In the comprehension section of the RRTC Battery the subjects were instructed to point to the appropriate picture from the set of four pictures on hearing the target stimulus sentence. A few examples were provided for each syntactic structure tested prior to the presentation of the actual test items. The subjects responses were recorded on the scoring sheet.

In evaluating the expressive abilities of the subjects the subjects were asked to describe the pictures presented.

When required questions were asked about the descriptions. The subjects responses were transcribed verbatim. The entire testing lasted for a duration of about 45 minutes per subject and the testing was done in one sitting.

Scoring and analysis:

Syntactic judgement task:

The subjects responses to the 130 items of the syntactic section of the LPT were scored for accuracy of responses. Based on the obtained data, the number of Hit Responses (the well formed utterances to which the subject responds good) and the number of false alarms (the ill formed sentences to which the subject responds good) were calculated for each subject for each sub section of the syntactic section of the LPT.

The number of Hit Rates and False Alarms were used to calculate the grammaticality sensitivity index.as given by Linebarger et al. (1983a). This was calculated bearing in mind that the chance factor in the obtained results is 0.5. The grammaticality sensitivity index A' is a non-parametric statistical index of sensitivity. It is based upon the estimated receiver operating characteristic curve (ROC) which is the map of data points for all possible criteria at a fixed level of sensitivity). The area under the ROC curve is theoretically equal to the proportion of correct responses

available in two alternative forced choice procedure. Because of its nation to the expected correct score in a two alternative forced choice procedure the A' can be interpreted quite naturally. An A' value of 0.50 translates into an expected score of 50% correct on a good-bad forced choice procedure. The formula used for calculation of grammaticality sensitivity index A' was:

$$A^1 = 0.5 + \frac{(y-x)\ (1+y-x)}{4y(1-x)}$$

Where x = the proportion of the number of good responses to that of the number of ill formed sentences,

y = proportion of the number of good responses to the number of well formed sentences.

Further details of the grammaticality sensitivity index can be had from Linebarger; Schwartz and Saffran (1983a).

RRTC Test Battery :

Comprehension_Task:

The subjects responses were scored for the accuracy of their responses and the means of each sub-section was calculated for each age group. A correct response got scored 1 whereas a wrong response was scored 0. Maximum score available for the entire section was 55.

Expression_Task:

A quantitative analysis of the responses obtained on the expression section of the RRTC was done. A response consistent

with the particular response on the section which was expected with the particular morphosyntactic marker present was scored 1. A ½ score was given to an emergent morpho-syntactic marker. In ease of no reply or absence of the morphosyntactic marker no score was given. Maximum obtain-able score on the section was 55- Mean scores for each age group were calculated.

The analysis of data and results have been discussed in the following chapter.

RESULTS AND DISCUSSION

Scores obtained on the LPT syntax section and on the syntqx section of the RRTC Test Battery were tabulated and then subjected to statistical analysis.

The scores on the LPT are indicative of the degree of judgement of grammaticality acceptance of sentences by children and the scores on the syntax section of the RRTC Test Battery gave the syntactic comprehension and expression abilities of the children.

Linguistic Profile Test: The mean scores along with their standard deviations obtained by the children in the two sub-groups (literates and illiterates) in the five age groupings on the LPTc are shown in the table.

Age group in years.	Literates		Illiterates	
	Mean scores	Standard deviation	Mean scores	Standard deviation
6 - 7	57	5.2	48.35	3.09
7 - 8	55.3	6.9	50.1	2.33
8 - 9	64.9	2.7	53.9	1.56
9 - 10	65.85	3.65	53.95	1.61
10 - 11	67.95	5.75	55.9	3.56

Table-1: Mean scores and standard deviations on the linguistic Profile Test - syntax section for both literqte and illiterate sub-groups.

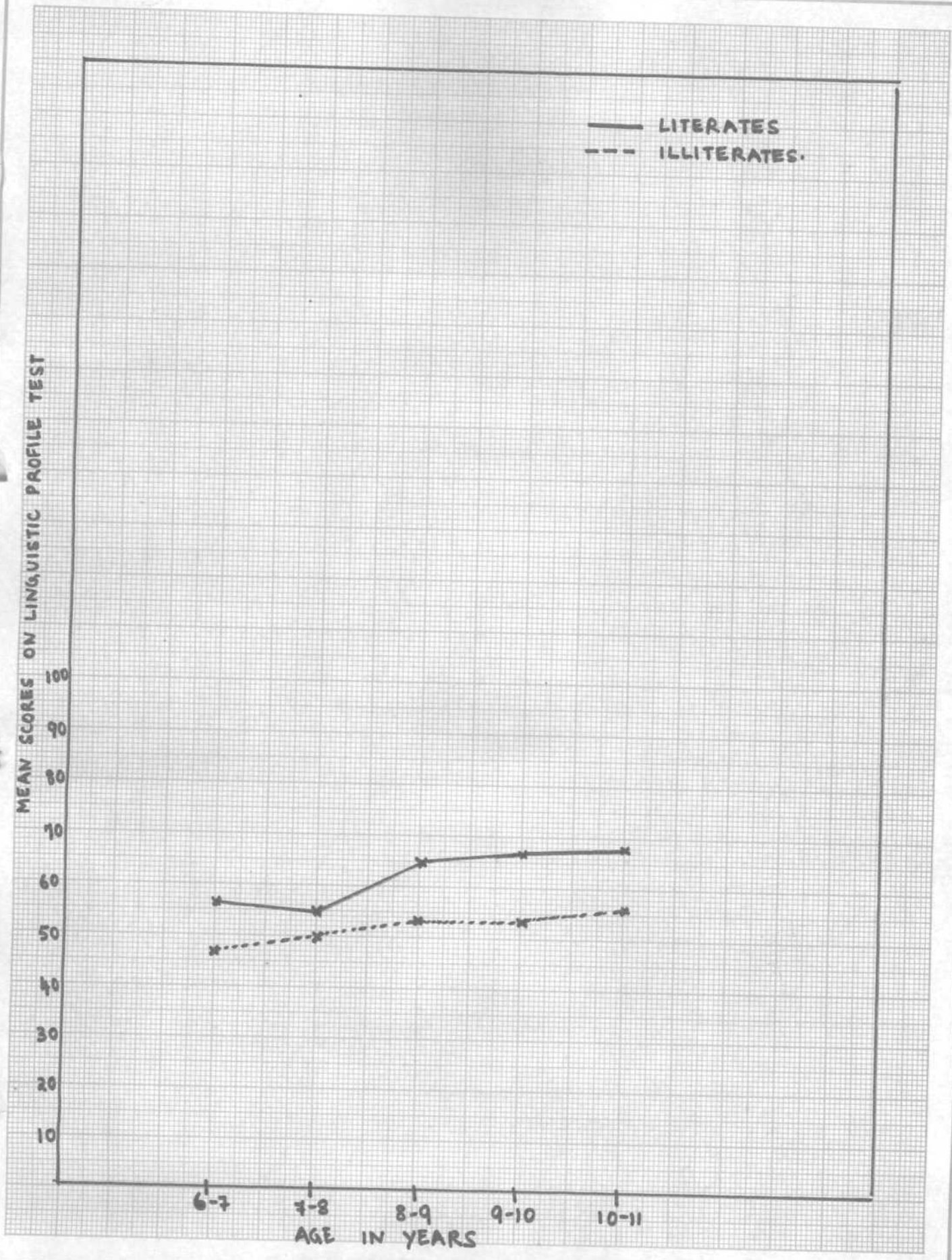
The mean scores on the LPT for the literate and illiterate sub-groups has also been presented in Graph-1.

In the literate sub-group beginning with a score of around 52 there is a gradual but consistent increase in scores with a sharp increase around 8 years of age. Similarly in the illiterate age group the average scores on the LPT were at around 45 for the lowest age group tested (6-7 years). A gradual rise in the scores is seen but the rise is less pronounced and the overall scores of the Illiterates are much below those for the literates in the same age group. A two factor ANOVA was done to find the significance of literacy and age on grammaticality judgement. Findings are given in table-2.

Source	df	Sum of squares	Mean square	F-test	P-value
Literacy (A)	1	2381.44	2381.44	507.049	0.0001
Age (B)	4	1502.185	375.546	79.96	0.0001
(A) (B)	4	166.935	41.734	8.886	0.0001
Error	90	422.7	4.697		

Table-2:Significance of literacy and age on grammaticality judgement - Table for 2 - factol analysis of variance.

As shown by the results obtained both literacy and age were found to be highly significant variables that effected grammaticality judgement ($p=0.0001$). They were found to be highly significant both in isolation as well as on interaction).



GRAPH NO. 1 :- MEAN SCORES ON LINGUISTIC PROFILE TEST FOR LITERATES AND ILLITERATES

A Scheffe-F test was done to find out the significance of difference in mean scores within the age groups. Results have been presented in tabular form in Table-3. (The scores marked with an asterix(*) indicate a significant difference at the 95% significance level).

Age in years	Scheffe-F results	
	Literates	Illiterates
6-7 vs 7-8	1.198	.6
6-7 vs 8-9	25.86*	6.038*
6-7 vs 9-10	32.454*	6.147*
6-7 vs 10-11	49.683*	11.171*
7-8 vs 8-9	38.188*	2.831*
7-8 vs 9-10	46.12*	2.906*
7-8 vs 10-11	66.308*	6.594*
8-9 vs 9-10	.374	4.901
8-9 vs 10-11	3.855*	.784
9-10 vs 10-11	1.827*	.745

* - Significant at 95% level

Table-3: Results of Scheffe-F test indicating the difference between age groups on the linguistic test scores for literates and illiterates.

Significant differences were hence found between 6-7 years and the 8-9 years; 9-10 years and the 10-11 years age groups; between 7-8 years and the 8-9 years; 9-10 years and the

10-11 years age group and between the 8-9 years and the 10-11 years age group. This shows that a developmental trend existed among the literate age groups with a rise at about 8 years of age and then tending to slow down at about 10 years of age. The Scheffe-F test for illiterates shows a significant difference between the 6-7 and 8-9 years; 9-10 years and 10-11 years age groups and between 7-8 years and 8-9 years? and the 9-10 years and 10-11 years age groups. The significant difference was found to be higher for literate age groups but a developmental trend existed for both the sub-groups studied.

The grammaticality sensitivity index A' as given by Linebarger, Schwartz and soffran, 1983a was computed for each child. The mean scores of the index of grammatical sensitivity A' obtained by the different age groups in the two sub-populations (literate and illiterate) have been shown in Table-4.

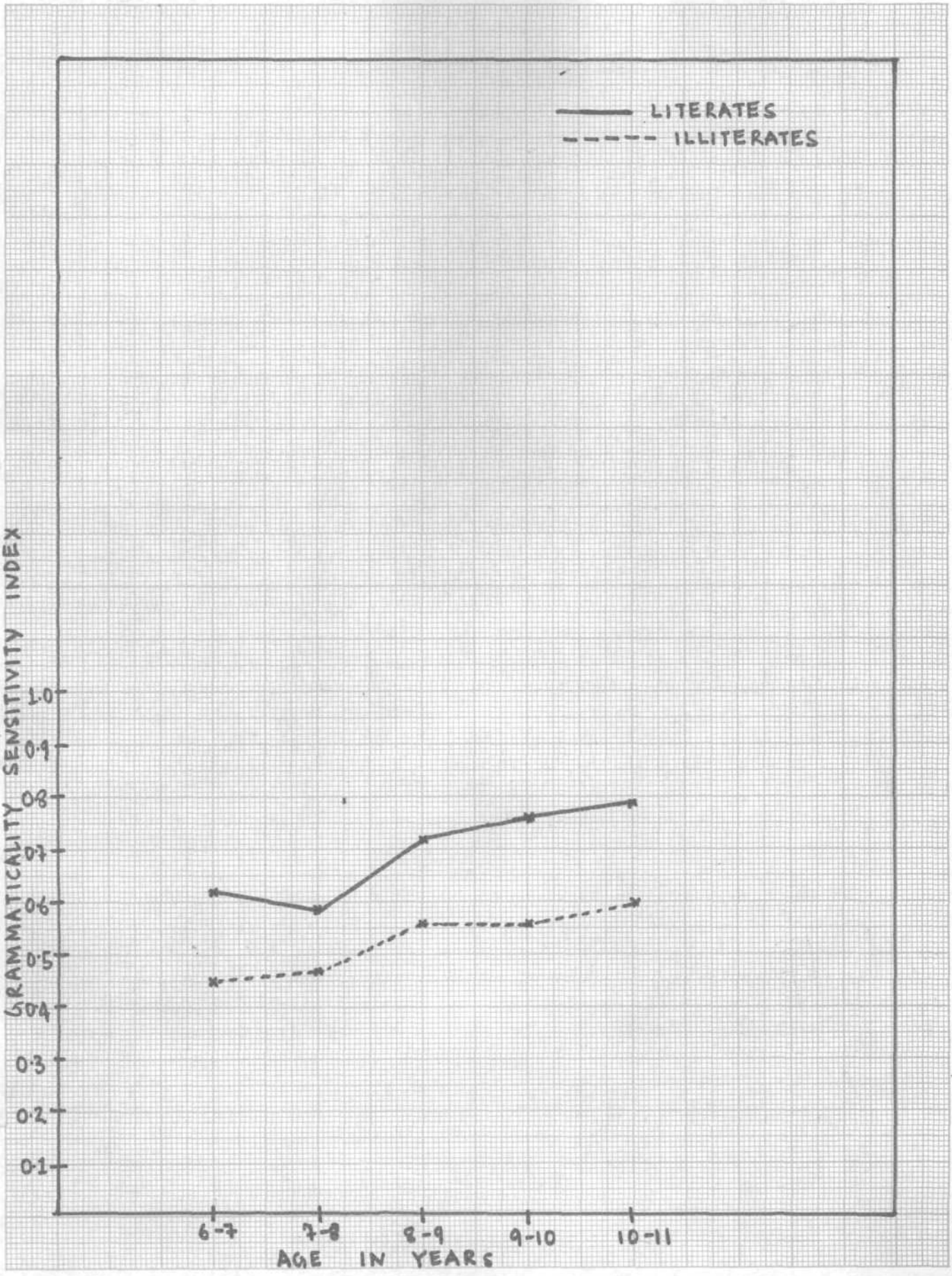
Age group in years	Mean Grammaticality Sensitivity Indices A'	
	Literates	Illiterates
6 - 7	0.62	0.45
7 - 8	0.59	0.47
8 - 9	0.72	0.56
9 - 10	0.76	0.56
10 - 11	0.79	0.60

Table-4: Mean grammaticaity sensitivity indices (A') for the literate and illiterate subgroups.

The results have also been presented graphically in Graph No.2. The average grammaticality sensitivity indices values across the 5 literate age groups is seen to increase from 0.62 to 0.79 indicating an increase in grammatical sensitivity with an increase in age. However,maximum sensitivity (A'=1.00) is not achieved even by 11 years which was the upper age limit of the current study.
In illiterates too the average values of A' across the five age groups increases from 0.45 to 0.6 again indicating an increase in grammaticality sensitivity index with an increase in age. However, the mean A' values for the illiterate age groups are far below the values for comparable literate age groups. The data shows that the average A' values (A'=0.6) for the oldest illiterate age group (10-11 years) in the current study was below that of the youngest literate age group (6-7 years) (A'=0.62) which was the lower age limit for the current study.

In order to ascertain whether in addition to age,the complexity of particular syntactic structures affected the grammatical sensitivity the mean sensitivity indices for each of the grammatical structures was calculated. The results have been shown in Table-5.(Page No.39).

The results clearly show that in the literates there is a differential rate of acquisition across the categories. As may be seen the sensitivity for plurals is high even in the

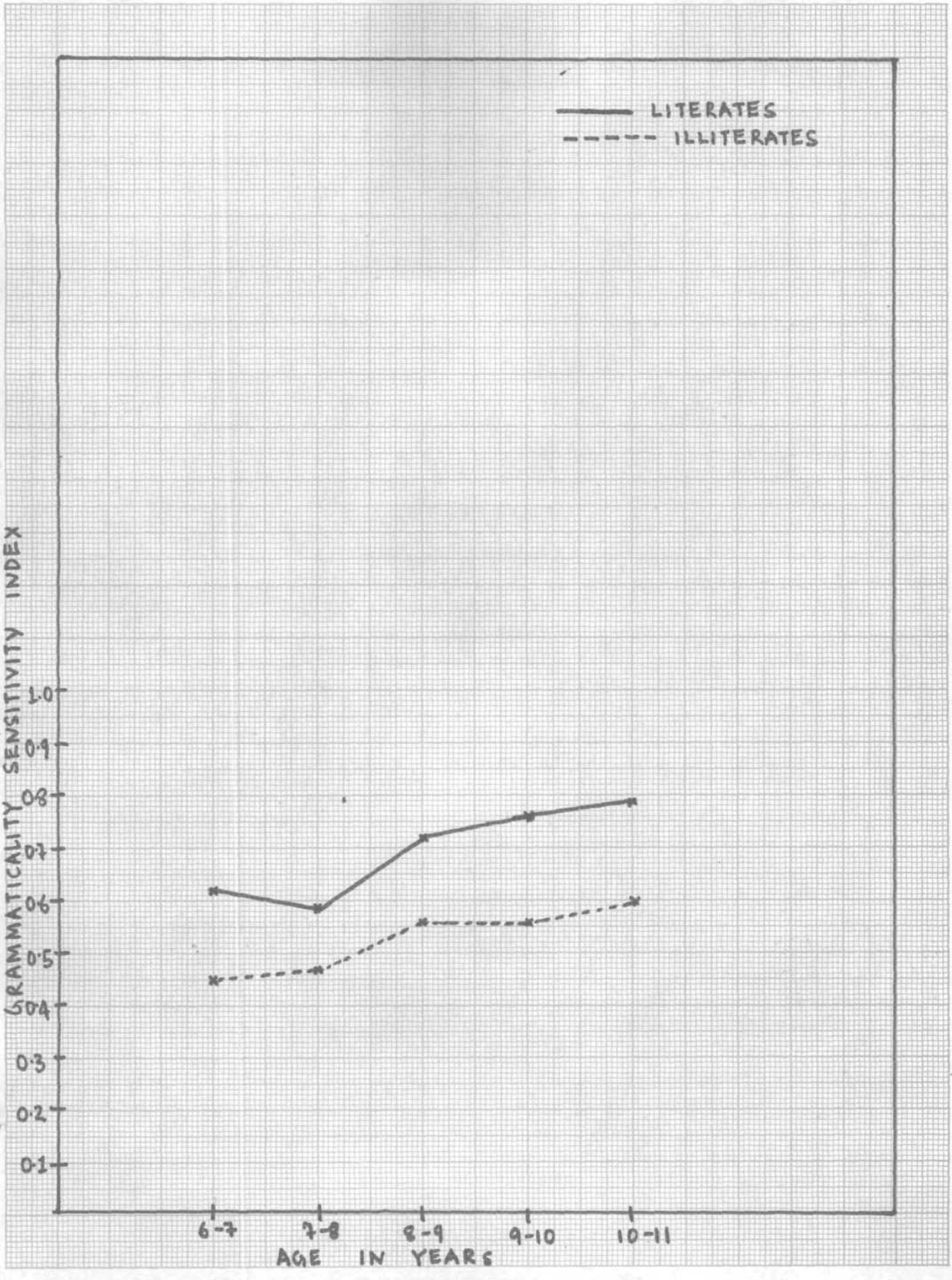


Graph no 2. MEAN GRAMMATICALITY SENSITIVITY INDICES FOR LITERATES AND ILLITERATES

Grammatical structure		Age groups in years 6-7	7-8	8-9	9-10	10-11
A) Morphophonemic structure	Literates	0.60	0.55	0.77	0.81	0.87
	Illiterates	0.51	0.45	0.58	0.58	0.66
B) Plurals	Litetates	0.83	0.84	0.87	0.90	0.93
	Illiterates	0.67	0.69	0.61	0.77	0.77
C) Tenses	Literates	0.60	0.58	0.66	0.63	0.74
	Illiterates	0.56	0.57	0.50	0.33	0.42
D) Person, Noun, Gender Markers	Literates	0.70	0.67	0.83	0.85	0.86
	Illiterates	0.55	0.58	0.62	0.59	0.66
E) Case markers	Literates	0.58	0.58	0.74	0.81	0.84
	Illiterates	0.48	0.51	0.56	0.48	0.56
F) Transitives Intransitives Causatives	Literates	0.65	0.60	0.80	0.74	0.77
	Illiterates	0.37	0.46	0.65	0.53	0.66
G) Sentence types	Literates	0.74	0.60	0.81	0.78	0.79
	Illiterates	0.50	0.57	0.68	0.69	0.69
H) Predicates	Literates	0.52	0.48	0.80	0.76	0.80
	Illiterates	0.24	0.40	0.58	0.54	0.54
I) Conjunctions Quotatives Comparitives	Literates	0.57	0.55	0.55	0.68	0.70
	Illiterates	0.35	0.36	0.51	0.47	0.5*
J) Conditional Clauses	Literates	0.57	0.57	0.59	0.72	0.72
	Illiterates	0.30	0.30	0.50	0.55	0.61
K) Partlcipal Construction	Literates	0.46	0.52	0.53	0.70	0.62
	Illiterates	0.40	0.30	0.43	0.61	0.55

Table-5: Mean grammaticality sensitivity indices for literates and illiterates across different sub-categories.

youngest age group (6-7 years) tested here and remains high throughout. On the other hand sensitivity to participal constructions is lowest at 6-7 years and increases gradually reaching only 0.7 at the maximum age tested sensitivity to predicates is found to be low till around 7 years of age; after which there is a dramatic increase around 8 years and the increase is maintained over the age groups. The other sub-categories fall between these two extremes indicating differential sensitivity to different syntactic structures at various ages but an overall increase in sensitivity to all structures tested across the ages noted. In the illiterate group also a differential rate of acquisition of grammatical sensitivity across the categories is noted. Predicates which have a very low grammatical sensitivity index (0.24=A') in the 6-7 years age group increases to about 0.54 by 11 years. Plurals as in the literates have a high sensitivity from the youngest age group tested (0.67) and remains high throughout. As is evident from table-5 there is an overall increase in the sensitivity scores even in illiterates. Differential sensitivity to certain structures eg. predictes and plurals is also noticed but the sensitivity is not as pronounced as in literates. Table-5 shows that the illiterates have lower mean scores in all sections and the illiterates perform uniformly poorly across all sub-sections. As is evident though the illiterate



Graph no.2. MEAN GRAMMATICALITY SENSITIVITY INDICES FOR LITERATES AND ILLITERATES

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B) Plurals	Litetates Illiterates	0.83 0.67	0.84 0.69	0.87 0.61	0.90 0.77	0.93 0.77
C) Tenses	Literates Illiterates	0.60 0.56	0.58 0.57	0.66 0.50	0.63 0.33	0.74 0.42
D) Person, Noun, Gender Markers	Literates Illiterates	0.70 0.55	0.67 0.58	0.83 0.62	0.85 0.59	0.86 0.66
E) Case markers	Literates Illiterates	0.58 0.48	0.58 0.51	0.74 0.56	0.81 0.48	0.84 0.56
F) Transitives Intransitives Causatives	Literates Illiterates	0.65 0.37	0.60 0.46	0.80 0.65	0.74 0.53	0.77 0.66
G) Sentence types	Literates Illiterates	0.74 0.50	0.60 0.57	0.81 0.68	0.78 0.69	0.79 0.69
H) Predicates	Literates Illiterates	0.52 0.24	0.48 0.40	0.80 0.58	0.76 0.54	0.80 0.54
I) Conjunctions Quotatives Comparitives	Literates Illiterates	0.57 0.35	0.55 0.36	0.55 0.51	0.68 0.47	0.70 0.54
J) Conditional Clauses	Literates Illiterates	0.57 0.30	0.57 0.30	0.59 0.50	0.72 0.55	0.72 0.61
K) Participal Construction	Literates Illiterates	0.46 0.40	0.52 0.30	0.53 0.43	0.70 0.61	0.62 0.55

Table-5: Mean grammaticsity sensitivity indices for literates and illiterates across different sub-categories.

youngest age group (6-7 years) tested here and remains high throughout. On the other hand sensitivity to participal constructions is lowest at 6-7 years and increases gradually reaching only 0.7 at the maximum age tested sensitivity to predicates is found to be low till around 7 years of age; after which there is a dramatic increase around 8 years and the increase is maintained over the age groups. The other sub-categories fall between these two extremes indicating differential sensitivity to different syntactic structures at various ages but an overall increase in sensitivity to all structures tested across the ages noted. In the illiterate group also a differential rate of acquisition of grammatical sensitivity across the categories is noted. Predicates which have a very low grammatical sensitivity index (0.24=A') in the 6-7 years age group increases to about 0.54 by 11 years. Plurals as in the literates have a high sensitivity from the youngest age group tested (0.67) and remains high throughout. As is evident from table-5 there is an overall increase in the sensitivity scores even in illiterates. Differential sensitivity to certain structures eg. predictes and plurals is also noticed but the sensitivity is not as pronounced as in literates. Table-5 shows that the illiterates have lower mean scores in all sections and the illiterates perform uniformly poorly across all sub-sections. As is evident though the illiterate

childrens' scores on the sub-sections seem to improve with age, the scores of the upper most illiterate age group tested in the study were seen to be comparable with those of the lowest literate age group tested. The findings appear to be compatible with those of Karanth et al 1991, in press where illiterate adults were found to perform poorly across all sub-categories.

Rank correlation of the average sensitivity indices on the various sub-categories for the literate and illiterate sub-groups is showsn in table-6.

Rank	Literates	Illiterates	Rank
1	Plurals (A'=0.87)	Plurals (A'=0.70)	1
2	person, noun, gender markers(A'=0.78)	Sentence types(A'=0.62)	2
3	Sentence types (A'=0.74)	person, noun, gender markers (A'=0.60)	3
4	Morphophonemic structures (A'=0.72)	Morphophonemic structures (A'=0.56)	4
5.5	Case markers (A'=0.71) Causatives? intrasitives? transitives (A'= 0.71)	Transitives; intransitives? causatives (A'=0.53)	5
		Case markers(A'=0.51)	6
7	Predicates(A'=0.67)	Tenses (A'=0.48)	7
8.5	Tenses (A'=0.63) Conditional clauses (A'=0.63)	Predicates (A'=0.46) Participal construction(A'=0.46)	8.5
10	Conjunctions, comparatives, quotatives (A'=0.61)		
		Conjunctions, comparatives and quotatives (A'=0.45)	10.5
		Conditional clauses (A'=0.45	
11	Participal constructions (A'=0.57)		

Table-6:Rank correlation of A' of'literates & Illiterates on

The various sub-categories are ranked in order of decreasing scores, with the category withthe highest score being ranked 1 and the category with the lowest score being ranked 11. As is seen in table-6 the rankings for both the sub-groups is almost similar with plurals being the most sensitive in both groups and participal constructions; conjunctions; comparitives and quotatives as well as conditional clauses being sub-categories in which the subjects in both groups fared

. -. Person . . , , PhontmiLC

badly.pronoun, noun, and gender markers? morpho syntaatie structures and sentence types were the categories on which both the sub-groups performed well. The rank correlation table therefore shows that the better performance of the literates on the judgement task is not due to literacy bringing about an improvement in any particular syntactic marker. Rather, it appears that literacy brings about an overall increase in sensitivity as is evident by the higher average grammaticality sensitivity scores across all the sub-categories for the literates as compared to the illiterates.

The grammaticality judgement scores hence seem to suggest that grammaticality judgement is a function of both literacy and age. Evidence points to an increase in the ability to make accurate judgements with age, which have been prooved by the fact that there is a steady increase in scores over the age range tested whether for literates or illiterates.

The table has been represented graphically in Graph no.3 (page 452. The mean scores on the comprehension task showed that for the literates there was a steady increase in scores from about 6 years of age (49.9) till 9 years of age (54.9). Maximum scores (55) was attained by 9 years of age. In the illiterate sub-group the increase in the mean comprehension scores was very slow and the increase was found to be from 36.3 in the lowest age group (6-7 years) to 39.9 in the highest (10-11 years) age group tested. The illiterates as a group thus functioned below the literate age group on comprehension tasks.

A two factor AMOVA was done on the scores obtained by both the literate and illiterate sub-populations to study the role of literacy and age on syntactic comprehension. The results are given in Table-8.

Source	Degree of freedom	Sum of squares	Mean squares	F-test	P-value
Literacy(A)	1	6241	6241	6131.9	0.0001
Age (B)	4	246.06	61.5	60.4	0.0001
(A) (B)	4	771	19.3	18.9	0.0001
Error	90	91.6	1.01		

Table-8:Significance of literacy and age on syntactic comprehension - Table for 2 factor ANOVA.

The results show that literacy and age are both factors that influence syntactic comprehension Whether they act in isolation or in interaction. Both the factors are highly significant in

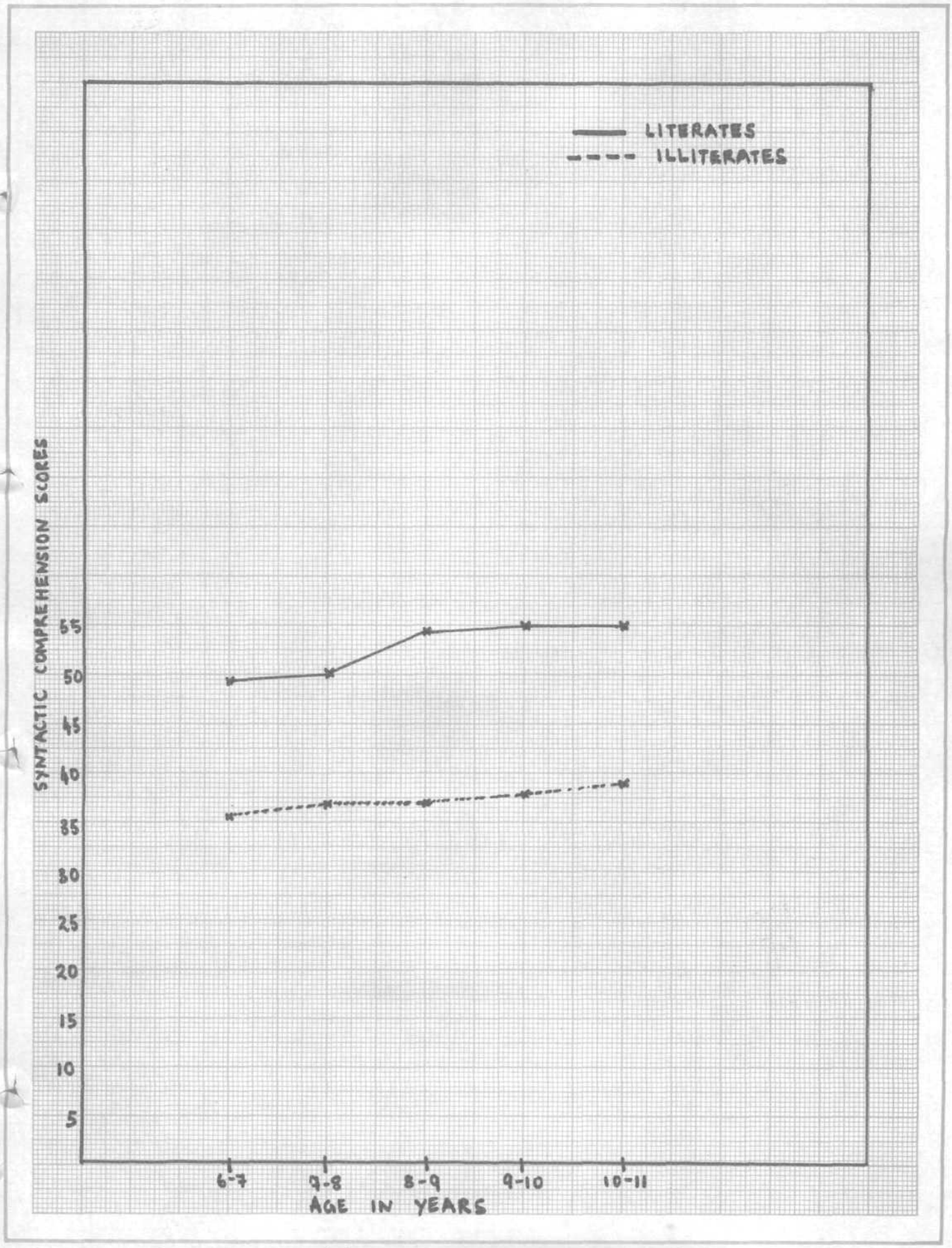
However, the results indicate that literacy plays a major role in bringing about more accurate judgements, which has been shown by the fact that literate children have had higher mean scores on the LPT and grammaticility sensitivity indices over the age range tested. Also, the acores of the highest age group tested in the illiterate sub-population is seen to be comparable to the scores of the lowest tested age group in the literate sub-population. Rank correlation shows that literacy brings about an overall increase in sensitivity for all the grammatical structures tested. Hence the results indicate that literacy is a variable that effects grammaticality judgement whether in isolation or in interaction with age.

Syntactic comprehension:

The mean syntactic comprehension scores obtained on the RRTC Test Battery are given in Table-7.

Age in years	Syntactic comprehension scores	
	Literates	Illiterates
6 - 7	49.9	36.3
7 - 8	51.3	36.7
8 - 9	54.9	36.7
9 - 10	55	37.5
10 - 11	55	39.9

Table-7: Mean scores on syntactic comprehension task for literates and illiterates.



GRAPH NO·3 :- MEAN SYNTACTIC COMPREHENSION SCORES OF LITERATES AND ILLITERATES.

influencing syntactic comprehension as evidence by the P-values (P=0.0001).

The age factor was examined in more detail as a function of literacy using anone factor ANOVA. A Scheffe-F test was done to find out the significance of difference in mean scores within the literate and illiterate age groups. Results have been presented in Table-9.

Age in years	Scheffe-F results	
	Literates	Illiterates
6-7 vs 7-8	5.034*	.129
6-7 vs 8-9	64.212*	.129
6-7 vs 9-10	66.807*	1.162
6-7 vs 10-11	66.807*	10.459*
7-8 vs 8-9	33.268*	0
7-8 vs 9-10	35.163*	.516
7-8 vs 10-11	35.163*	8.264*
8-9 vs 9-10	.026	.516
8-9 vs 10-11	.026	8.264*
9-10 vs 10-11	0	4.648*

* Significant at 95% level.

Table-9: Results of Scheffe-F test indicating the difference between age groups on syntactic comprehension test in literates and illiterates.

For literates the results show a significant difference in comprehension task scores between literate age groups 6-7 years and 7-8 years; 8-9 years 9-10 years and 10-11 years and between the 7-8 year age group and the 8-9 years 9-10 years and 10-11 years groups. The difference was mainly between the lower age groups tested (6-7 years; and 7-8 years) and the higher age groups in the study. This was mainly because after the age of 9 years the literate age group attained maximum comprehension scores. In the illiterate sub-group; a significant difference occurs only between the highest age group tested (10-11 years) and the other four age groups. This shows that the development of comprehension is much slower in illiterates and maximum comprehension scores are not attained by 11 years as in the literates.

So in conclusion the results show that both literacy and age are factors that effect comprehension. A developmental trend exists among the literate age group, beginning at a sufficiently high score level and then showing a rapid increase in scores. They achieve maximum scores by 9 years age. The illiterate group also showed a developmental trend but the increase in scores was much slower and it was only with the oldest age group that the increase in score was significant.

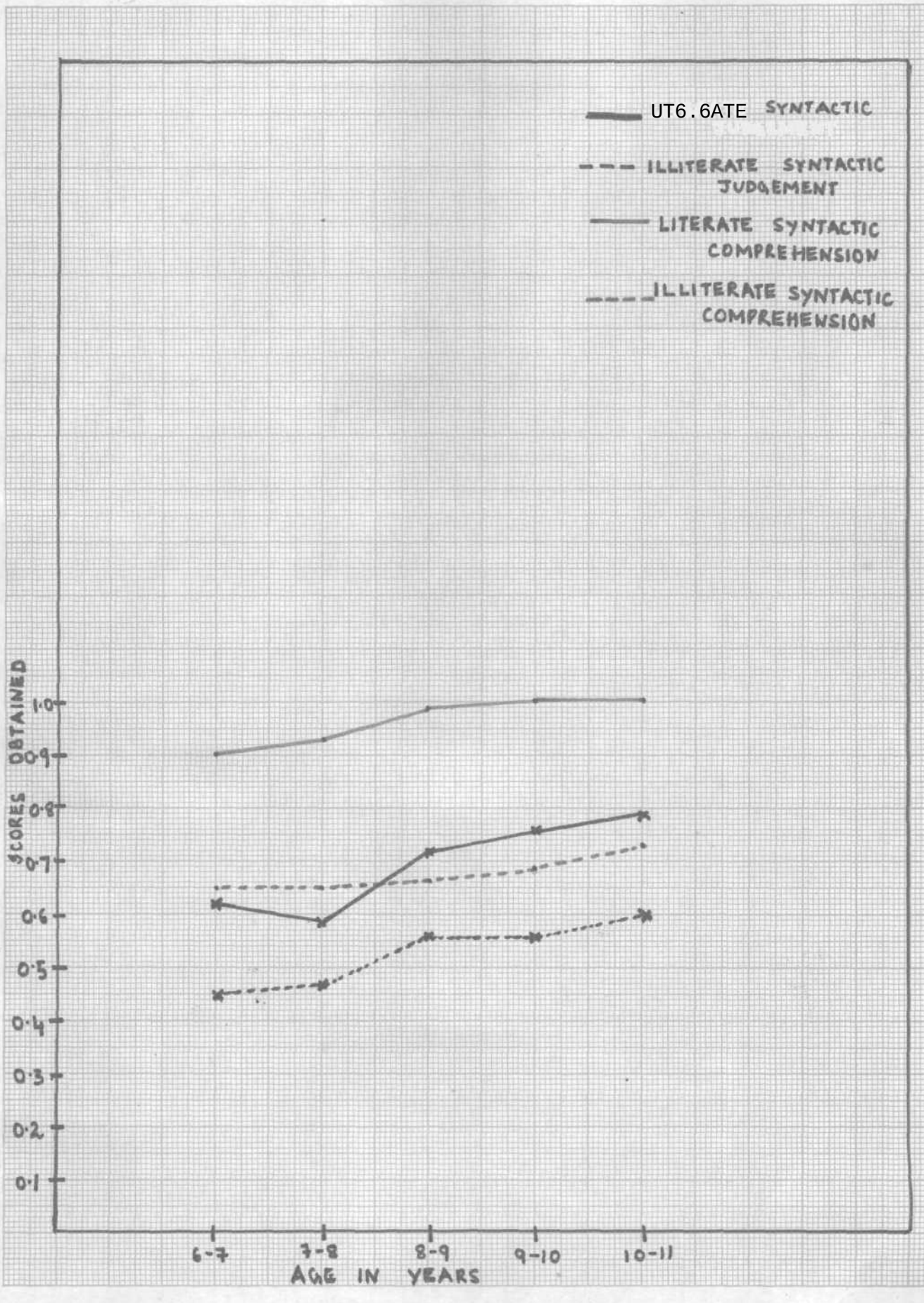
Comparing the syntactic comprehension and the grammaticality judgement scores across the various age groups for both the illiterate and the literate sub-populations it can be seen that comprehension is better than grammaticality judgement at all levels. This has been presented graphically in Graph No.4 (page No.48). The finding is consistent with earlier studies (Bever, 1970; and de Villiers and de Villiers, 1972) that comprehension precedes syntactic judgement ability.

Syntactic expression:

The expressive utterances of the literate and illiterate subjects were scored and subject to analysis. The mean scores on syntactic expression procured by the literate and illiterate subjects are given in Table-10.

Age groups in years	Mean syntactic expression scores	
	Literates	illiterates
6 - 7	39.5	No adequate respon
7 - 8	46.0	10.0
8 - 9	50.5	16.5
9 - 10	51.5	20
10 - 11	55	24.5

Table-10: Mean syntactic expression scores for literates and illiterates.



GRAPH 4: MEAN GRAMMATICALITY SENSITIVITY INDICES SENTENCE COMPREHENSION SCORES FOR LITERATES AMP 1LUTERATES

Adequate responses could not be got from both the 6-7 years and 7-8 years illiterates age groups. Hence the data was not subject to statistical treatment. It was seen that both the non-school going 6-7 years and 7-8 year children tended to respond in single words? and the responses were influenced by the concrete objects in the picture. Foe eg. If card had a picture of a book on the table the question was: pustaka yellide? (Where is the book?). The expected answer was - pustaka mejina melide (The book is on the table). A 6-7 year old literates answer was - pustaka mejina melide (The book is on the table). A 6-7 year old illiterates answer was meju (Table). Use of appropriate syntactic markers was seen to be restricted in all illiterate age groups.

For the syntactic expression task the literates were seen to show a developmental trend. They begin with a fairly high mean expression score of 39.5 in the 6-7 year old age group and achieve maximum scores at ll years age after a fairly steep rise in scores at around 9 years age. The utterances in this sub population ware found to be of a more complex nature. The subjects were more explicit intheir description of the pictures and used full sentences in their explanations.Use of conjunctions and comparitives was well established. Plurals, PNG markers, case markers and sentence

types were early established syntactic features. Participal constructions and conditional clauses were well established only by 11 yaqrs. The literates used more adjectives and adverbs in their description of pictures. The illiterates also showed a developmental trend beginning at a 0 score level in the youngest age group tested (6-7 years) they reach a score of '24' in the highest age group tested (10-11 years). The utterances in the sub-population were found to be very immature. Most of the children gave single word replies and in most of the subjects in the earlier age groups the appropriate syntactic marker was totally missing. Plurals, case markers and PNG markers were the best developed of the various syntactic markers tested conjunctions; comparitives, participal constructions were the poorest.

Examples for the literate and illiterate expressions are given below;

A) Morphophonemic structures

Question:

Bombé yéllidé? (Where is the doll?)

Expected answer:

Bombé méjina mélè idél

(The doll is on the table)

Literate subjects answer:

Bombé méjina melè idé

(The doll is on the table)

Illiterate subjects answer: Méju (Table)

méju mélè (on table)

B) Plurals

Picture of 2 girls

Expected answer: (hudugiyaru) girls.

Illiterate subjects answer:

(yeradu hudugi) two girl

Literate subjects answer:

(huddgiyaru) (girls)

As with syntactic comprehension and grammaticality judgement it was seen that the literates fared better than the illiterates in all the grammmatical categories tested, and across all age groups. Also the scores of the lowest literates age group (6-7 years) tested was found to be better than the scores obtained by the highest illiterate age group tested (10-11 years).

So in conclusion the results show that literacy does appear to be an important factor that influencies grammaticality judgement? syntactic comprehension as well as expression. However, literacy is not the only factor that effects judgement, comprehension and expression? rather it is found to interact with age which is demonstrated by the fact that a developmental trend exists in the age groups studied.

Without lnterraction with literacy it is seen that age works in isolation too, effecting grammaticality judgement and syntactic comprehension and expression, which is shown by the developmental trend existing even in the illiterate age group.

The current study this provides evidence that both literacy and age interact and influences the development of syntactic comprehension expression and grammaticality judgement in children.

SUMMARY AND CONCLUSIONS

Metalinguistic awareness has been defined as the ability of the child to reflect upon and manipulate the structural features of spoken language, treating language as an object of thought as opposed to simply using the language system to produce and comprehend sentences (Tunmer, Pratt and Herriman, 1984). Though there is agreement amongst researchers as to the meaning of metalinguistics there is a considerable amount of debate as to how and when metalinguistic awareness actually arises. Three basic theoretical conceptualizations exist

(a) Metalinguistic awareness is a part of language development and occurs early in life.
(b) Metalinguistic awareness occurs due to a different kind of cognitive control and hence different linguistic processing in mid childhood.
(c) Metalinguistic awareness occurs as a result of formal schooling.

Research and literature has now well documented the fact that metalinguistic awareness does not appear until after 5 years of age. Pratt, Tunmer and Bowey (1984) wrote of accumulating evidence that children develop the ability to deal with language in a disembedded manner only by mid childhood.

The present study was undertaken with the goal of finding whether literacy affected the development of grammaticality judgement and syntactic comprehension in children and whether syntactic comprehension and grammaticality judgement show a developmental trend in both literates and illiterates.

50 subjects in each of the 2 sub categories literate and illiterate were selected in 5 age groups 6-7 years* 7-8 years, 8-9 years, 9-10 years and 10-11 years, with 10 subjects in each age group. The subjects were all from low socio-economic groups and were native Kannada speakers. The literate subjects had continuous schooling in Kannada for more than 1 year and the illiterate subjects had no formal schooling what-so-ever.

Two tests were used? the syntax section of LPT (Karanth, 1980, 1984) was used to assess the grammaticality judgement and the syntax section of the RRTC Test Battery (in press) was used to assess syntax comprehension and expression. The results were tabulated and subjected to statistical analysis.

The results showed that the literate children were better on the comprehension and expression tasks as well as the grammaticality judgement task. This showed that literacy does have a major role to play in the development of both syntactic comprehension and expression and grammaticality judgement.

A developmental trend is also evident with both the comprehension abilities and grammaticality judgement sharply rising at about 8 years age after which the increase is more gradual. The sharp increase in scores is evident more in the literate than in the illiterates. The literates performed better than the lititerates in all sub-categories at all age levels.

Hence one can conclude that the emergence of grammaticality judgement in children at around the age at which the child begins schooling is not just coincidental but that literacy has a definite role to play in the development of accurate judgement abilities and working in interaction with the developmental age trends it leads to a more abstract level of linguistic functioning in the child.

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APPENDIX 'A'

LINGUISTIC PROFILE TEST -SYNTAX SECTION

SECTION II : Syntax

Instructions: Fnstruct the subject that the following list of words and sentences contains both correct and incorrect forms. Ask the subject to listen carefully and indicate whether each item is correct or not. Illutrate with one or two examples if need be. Read the items in the list one by one. Repeat once if necessary. If ihe subject fails to respond; give him the test items in the written form.. Accept correction once. Score Tor each accurate response in subsections A, B, C and D and 1 for each accurate response in subsections E, F, G, H, I, J and K. Make a note of the stimulus modality used, and also the modality in which the subject responds.

A. Morphophonemic Structures :

Sl. No.	Test Item	Stimulus Modality		Subject's Response			Accuracy of Response
		Veibal	Graphic	Verbal	Graphic	Gestural	
1.	ಎಡಗೈ						
2.	ಪೈಸೆನಲ್ಲಿ						
3.	ಹುಡುಗನಲ್ಲಿ						
4.	ದಾರೀಲಿ						
5.	ನಿಜಯಾ						
6.	ಕಲ್ಲುವನ್ನು						
7.	ಮನೆಯಲ್ಲಿ						
8.	ಕಾಡುಗೆ						
9.	ಬೀದಲ್ಲಿ						
10.	ನೀರಲ್ಲಿ						
11.	ಮಗುವನ್ನು						
12.	ಊರುವಲ್ಲಿ						
13.	ಕೆಳಗುಟಿ						
14.	ಬಲದಿವಿ						
15.	ಮರಲ್ಲಿ						
16.	ನಿಜವಾ						
17.	ಅಜ್ಜಲ್ಲಿ						
18.	ಊರಲ್ಲಿ						
19.	ಕೆಳದುಟಿ						
20.	ಪುಸ್ತಕದಲ್ಲಿ						

Maximum Score 10
Patient's Score_____

B. Plural Forms

SI. No.	Test Item	Stimulus Modality Verbal	Graphic	Subject's Response Verbal	Graphic	Gestural	Accuracy of Response
1.	ಹುಡುಗಿಯರು.						
2.	ಅಜ್ಜಗಳು						
3.	ಅನ್ನ.						
4.	ದನರು.						
5.	ಮರಗಳು.						
6.	ನೀರುಗಳು.						
7.	ಗಂಡಸರು.						
8.	ಪುಸ್ತಕರು.						
9.	ಹೆಂಗಸಂದಿರು.						
10.	ಅಕ್ಕಂದಿರು.						

Maximum Score 5
Patient's Score———

C. Tenses

SI. No.	Test Item	Stimulus Modality Verbal	Graphic	Subject's Response Verbal	Graphic	Gestural	Accuracy of Response
1.	ನೀವು ಬರುತ್ತಾ ಇರಿ.						
2.	ಅವರು ನಿನ್ನೆ ಬಂದರು.						
3.	ಶಂಕರ ನಿನ್ನೆ ಹೋದ.						
4.	ನೀನು ಈಗ ತಾನೇ ಬರುವೆ.						
5.	ಅಮ್ಮ ನಾಳೆ ಇಷ್ಟು ಹೊತ್ತಿಗೆ ಬಂದಿದ್ದರು.						
6.	ನಾನು ಸ್ಕೂಲಲ್ಲಿ ಇದ್ದೇನೆ.						
7.	ಅವನು ಕಳೆದ ವಾರ ಬಂದಿದ್ದ						
8.	ಸೀತೆ ಮೊನ್ನೆ ಬರುತ್ತಾಳೆ.						
9.	ನಾನು ಸ್ಕೂಲಲ್ಲಿ ಇರುತ್ತಾ ಇರುತ್ತೇನೆ.						
10.	ನಾನು ನಾಳೆ ಮನೆಯಲ್ಲಿ ಇರುತ್ತೇನೆ.						

Maximum Score 5
Patient's Score———

D. PNG Markers

SI. No.	Test **Item**	Stimulus Modality Verbal	Graphic	Subject's Response Verbal	Graphic	Gestural	Accuracy **nf** Response
1.	ನೀನು ಮಲಗುವೆ.						
2.	ಕಮಲ ಬರುತ್ತಾಳೆ.						
3.	ಅವರು ಓಡಿದ.						
4.	ಹಸು ಬರುತ್ತಾನೆ.						
5.	ಅವು ಮಲಗಿದವು.						
6.	ನಾವು ನೋಡುವಳು.						
7.	ಅವರು ಹೋಗುತ್ತಾರೆ.						
8.	ನೀನು ಬರುತ್ತಾನೆ.						
9.	ಅದು ಮಲಗಿತು.						
10.	ಗಣೇಶ ಓಡಿದಳು.						
11.	ಅವು ಹೋಗುತ್ತೀರಿ.						
12.	ನೀವು ನೋಡುವರು.						
13.	ನೀನು ಓಡಿದೆ.						
14.	ನಾವು ಮಲಗಿದಿರಿ.						
15.	ನೀವು ಹೋಗುತ್ತೀಯೆ ?						
16.	ಸೀತೆ ಓಡಿದಳು.						
17.	ಅದು ನೋಡುವುದು.						
18.	ನಾನು ಬರುತ್ತೇನೆ.						
19.	ನಾವು ಹೋಗುತ್ತೇವೆ.						
20.	ಸೀತೆ ನೋಡುವನು.						

Maximum Score 10
Patient's Score———

Case Markers

SI. No.	Test Item	Stimulus Modality Verbal	Graphic	Subject's Response Verbal	Graphic	Gestural	Accuracy of Response
1.	ಹುಡುಗನಿಗೆ ಹೇಳಿದೆ.						
2.	ಮೇಳಕ್ಕೆ ಗೊಂಬೆ.						
3.	ಪೆನ್ನಿನ ಕಾಗದ ಬರಿ.						
4.	ಅಂಗಡಿಯಿಂದ ತಂದದ್ದು.						
5.	ಕೆಲಸದ ಹುಡುಗ.						
6.	ಇಟ್ಟಿಗೆಯಿಂದ ಮನೆಯನ್ನು ಕಟ್ಟಿ						
7.	ಪುಸ್ತಕ ಅಣ್ಣನನ್ನು ಕೊಟ್ಟೆ.						
8.	ಮರವನ್ನು ಉರುಳಿಸು.						
9.	ಊರಿನಲ್ಲಿ ಇದ್ದೆ.						
10.	ಬಸ್ಸಿನಿಂದ ಹೋದೆ.						

Maximum Score 10

Patient's Score———

F. Trnnsitives, Intrnusitives and Causntives

Sl. No.	Test Item	Stimulus Modality Verbal	Graphic	Subject's Response Verbal	Graphic	Gestural	Accuracy of Response
1.	ಹಾಲಿಗೆ ನೀರು ಬೆರಸಬೇಡ						
2.	ಅಕ್ಕಸಾಲಿ ಮಾಡುತ್ತಾನೆ						
3.	ಹುಡುಗಿ ಓದುತ್ತಾಳೆ						
4.	ನಾನು ಹಣ್ಣನ್ನು ತಿನ್ನುತ್ತೇನೆ						
5.	ಅಜ್ಜಿ ಕಡೆಯುತ್ತಾಳೆ						
6.	ಮಗು ನಿದ್ದೆ ಮಲಗುತ್ತದೆ						
7.	ಅವರು ನಮ್ಮಿಂದ ಕೆಲಸ ಮಾಡುತ್ತಾರೆ						
8.	ಮಗುವನ್ನು ಮಲಗಿಸು						
9.	ನಾವು ನಿಮ್ಮಿಂದ ಪಾಠ ಓದಿಸುತ್ತೇವೆ						
10.	ಅವನು ಮಗುವಿಗೆ ತಿನ್ನುತ್ತಾನೆ						

Maximum Score 10
Patient's Score———

G. Sentence Types -

Sl. No.	Test Item	Stimulus Modality Verbal	Graphic	Subject's Response Verbal	Graphic	Gestural	Accuracy of Res ponse
1.	ಇದು ಬೆಂಗಳೂರು ಅಲ್ಲಾ						
2.	ಅವರ ಜವಾಬ್ದಾರಿ ನಾವೇ ನೋಡಿಕೊಳ್ಳುತ್ತಾರೆ						
3.	ಅವನು ಸಿನಿಮಾಗೆ ಹೋಗೋಣ						
4.	ಇದು ನನ್ನ ಶಾಲೆ						
5.	ನೀನು ಆ ಕೆಲಸ ಮಾಡಬಾರದು						
6.	ನಾವು ಹಾಡು ಹೇಳಲಿ						
7.	ಆವಳು ಕೋತಿಯನ್ನು ನೋಡಿ ನಕ್ಕಳು						
8.	ಬಾವಿಯಲ್ಲಿ ನೀರು ಅಲ್ಲವಾ ?						
9.	ನಿಮಗೆ ಕನ್ನಡ ಗೊತ್ತಾ ?						
10.	ಅವನು ಕಾಫಿ ಕುಡಿ						

Maximum Score 10
Patient's Score—- —

H. Predicates

Sl. No.	Test Item	Stimulus Modality Verbal	Graphic	Subject's Response Verbal	Graphic	Gestural	Accuracy of Response
1.	ಈ ಪುಸ್ತಕ ನನ್ನದು						
2.	ಈ ಲಂಗ ಕಮಲ						
3.	ನಿನ್ನ ಕೋಣೆ ಯಾವ ?						
4.	ಅವರ ನಾಯಿ ದೊಡ್ಡದು						
5.	ಆ ಪೆನ್ನು ಅವನ						
6.	ಜೋರಾಗಿ ಓಡಿ ಅವರ ಕುದುರೆ						
7.	ನಿನ್ನೆ ಹಾಡಿದ್ದು ನನ್ನ ತಂಗಿ						
8.	ಅವರ ಮನೆ ಯಾವುದು ?						
9.	ಆ ಬೆಕ್ಕು ಚಿಕ್ಕ						
10.	ಆ ಸೀರೆ ಅಮ್ಮನದು						

Maximum Score 10
Patient's Score———

I. Conjunctions, Comparatives and Quotatives

Sl. No	Test Item	Stimulus Modality Verbal	Graphic	Subject's Response Verbal	Graphic	Gestural	Accuracy or Response
1.	ರಾಮನೂ ಶಂಕರನೂ ಸ್ಕೂಲಿಗೆ ಹೋದರು						
2.	ನನ್ನ ಅಣ್ಣ ಮಕ್ಕಳು ಬಂದರು						
3.	ಗಣೇಶ ಮತ್ತು ರಮೇಶ ಹೋದಾಗ ಸೀತೆಯ ಕರಕೊಂಡು ಹೋದರು						
4.	ಪೆನ್ಸಿಲ್ ಅಥವಾ ಪೆನ್ನು ಕೊಡು						
5.	ಗಿರೀಶ ಸುರೇಶನಿಗಿಂತ ಚಿಕ್ಕವನು						
6.	ಸುಧಾಗೆ ಲಲಿತ ಉದ್ದವಾಗಿದ್ದಾಳೆ						
7.	ಮೇಷ್ಟ್ರು ಪಾಠ ಮಾಡುತ್ತೇನೆ ಅಂತ ಹೇಳಿದರು						
8.	ಈ ರಾಜ್ಯಕ್ಕೆ ಮೈಸೂರು ಹೆಸರಿತ್ತು						
9.	ಭಾರತಿ ಸಂಜೆ ಮಳೆ ಬರುತ್ತದೆ ಹೇಳಿದಳು						
10.	ಲಕ್ಷ್ಮೀ ಎಂಬುವಳು ಬಂದಿದ್ದಳು						

Maximum Score 10
Patient's Score———

J. Conditional Clauses

Sl. No.	Test Item	Stimulus Modality Verbal	Graphic	Subject's Response Verbal	Graphic	Gestural	Accuracy of Response
1.	ನೀನು ಬೇಗ ಹೋದರೂ ಬಸ್ಸು ಸಿಗುತ್ತಿರಲಿಲ್ಲ						
2.	ನೀನು ತಿನ್ನ ಇದ್ದರೆ ದೊಡ್ಡವನಾಗುವುದಿಲ್ಲ						
3.	ಅವನು ಮನೆಗೆ ಬಂದರೆ ದುಡ್ಡು ಕೊಡುತ್ತೇನೆ						
4.	ಅಂಗಡಿಯವನಿಗೆ ಹಣ ಕೊಟ್ಟು ಅವನು ಪುಸ್ತಕ ಕೊಡುತ್ತಾನೆ						
5.	ನೀವು ಹೇಳಿದರೆ ಅವರು ಮಾಡಿದರು						
6.	ಇವತ್ತು ದುಡ್ಡು ಸಿಕ್ಕಿದರೆ ನಾವು ಮಾರ್ಕೆಟ್ಟಿಗೆ ಹೋಗುತ್ತೇವೆ						
7.	ಅವರು ಮೊದಲೇ ಹೇಳಿದ್ದರೆ ಮಾಡಬಹುದಿತ್ತು						
8.	ನೀನು ಮನೆಗೆ ಬಂದ ಪಣ್ಣು ಕೊಡುತ್ತಿದೆ						
9.	ನಾನು ಬೇಲೂರಿಗೆ ಹೋದ ಶಿಲಾಬಾಲಿಕೆಯನ್ನು ನೋಡಲಿಲ್ಲ						
10.	ಭಾರತಿ ಬರದೆ ಇದ್ದರೆ ನಾನು ಬೆಂಗಳೂರಿಗೆ ಹೋಗುವುದಿಲ್ಲ						

Maximum Score 10
Patient's Score———

K Participial Constructions

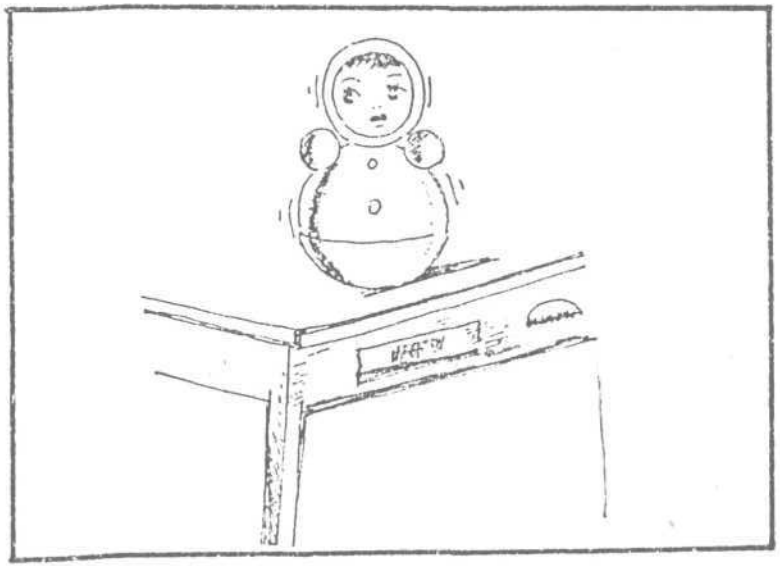
SI. No.	Test Item	Stimulus Modality Verbal	Graphic	Subject's Response Verbal	Graphic	Gestural	Accuracy of Response
1.	ನಿನ್ನನ್ನು ನೋಡದೆ ಬಹಳ ದಿನವಾಯಿತು						
2.	ನೀನು ಫೇಲಾಗದ ಹುಡುಗನಾ ?						
3.	ಬಟ್ಟೆ ಒಗೆಯು ಆಗಸ						
4.	ನಾನು ಇವತ್ತು ಕಾಫಿ ಕುಡಿ ತಿಂಡಿ ತಿಂದೆ						
5.	ಇದು ನಾನು ಓದೂ ಸ್ಕೂಲು						
6.	ಬೇಸಾಯ ಮಾಡುವವರು ರೈತರು						
7.	ಆವಳು ಮೈಸೂರಿಗೆ ಬಂದು ಕನ್ನಡ ಕಲಿಯುತ್ತಾಳೆ						
8.	ಔಷಧಿ ಕುಡಿದೆ ಜ್ವರ ಹೋಗುವುದಿಲ್ಲ						
9.	ನಾನು ಇಷ್ಟಪಟ್ಟ ಸಿನೇಮ ಶಂಕರಾಭರಣ						
10.	ರಾಮಣ್ಣ ಯಾವತ್ತಾ ಬಂದವನು ಇವತ್ತು ಯಾಕೆ ಬಂದ ?						

Maximum Score 10
Patient's Score———

APPENDIX 'B'

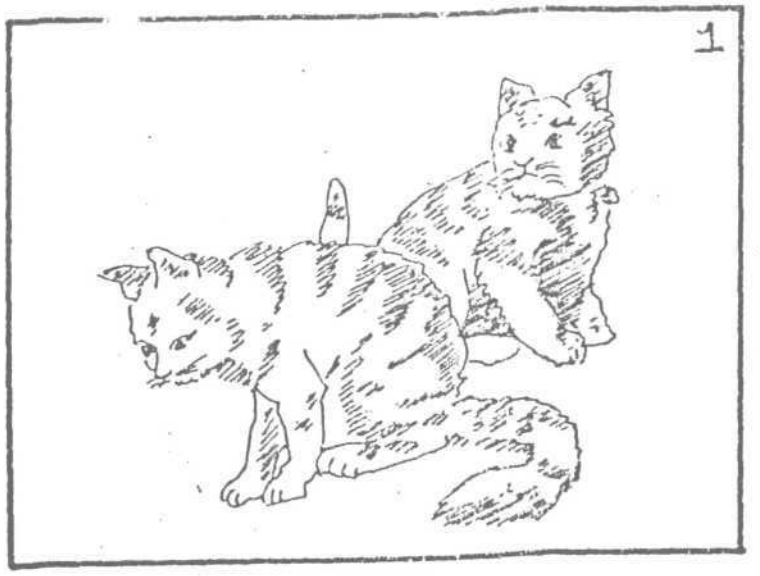
FEW EXAMPLES OF PICTURES AND QUESTIONS FROM

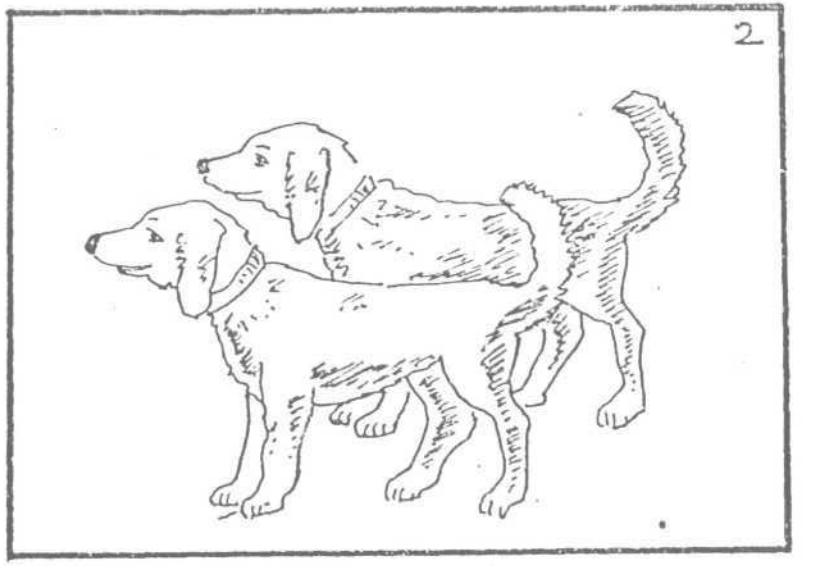
THE R.R.T.C. TEST BATTERY. - SYNTAX SECTION

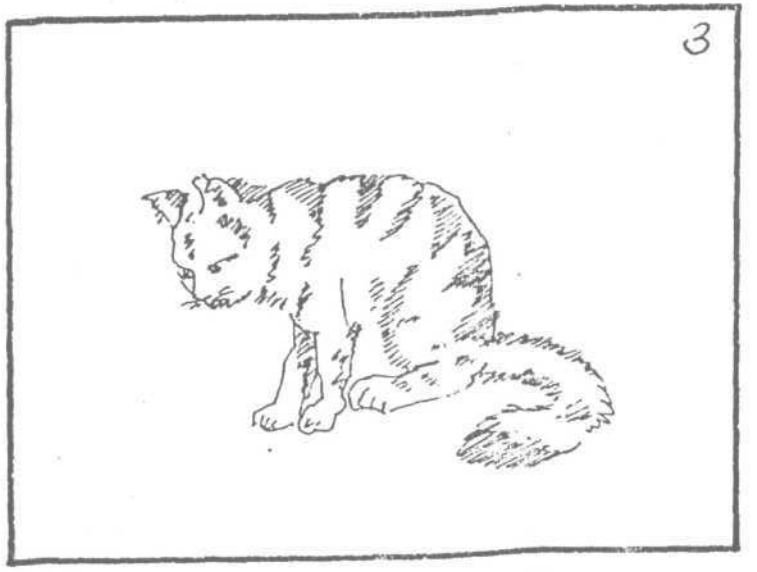


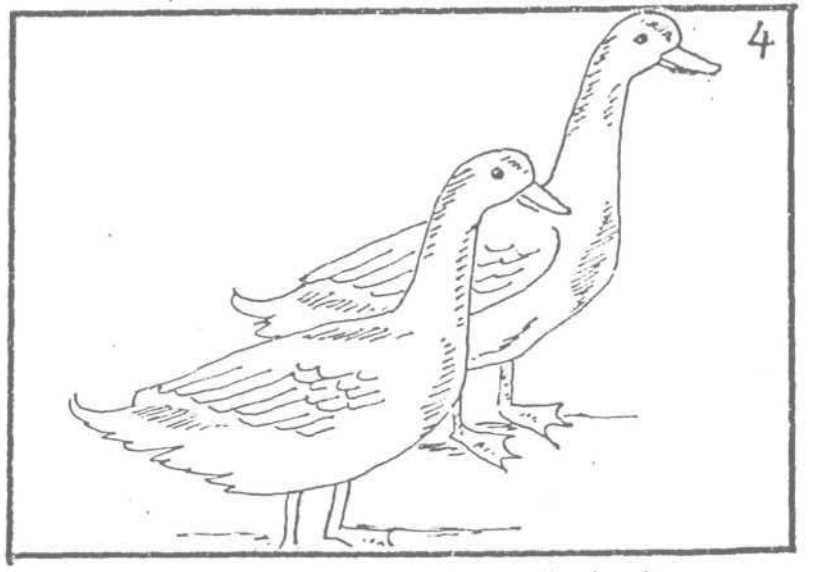
Question:- Bombè yellide?
(where is the doll?)

Expected Answer:- Bombè mejina méllè Ide
(The doll is on the table)









Question:- Show me the:-

(a) BÉKKU

(b) BÉKKUOALU

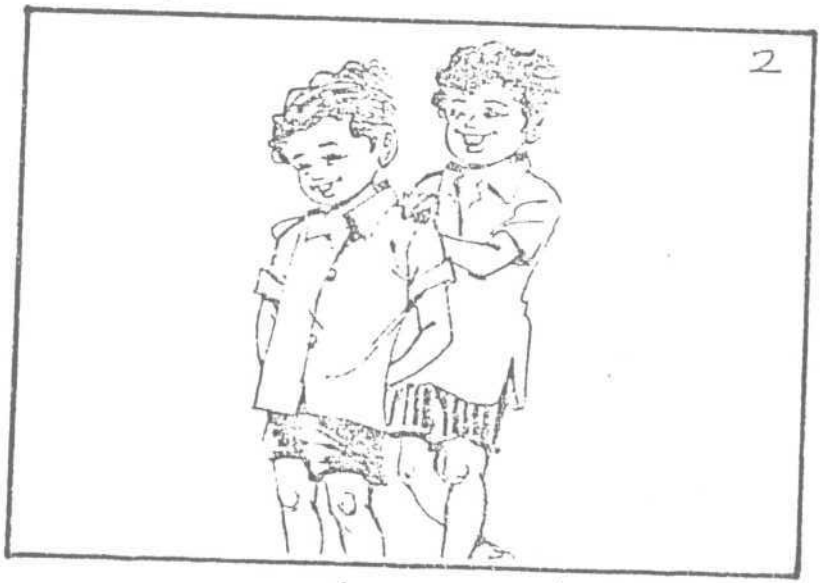
Expected Answer Points to:-

(a) picture 3

(b) picture 1

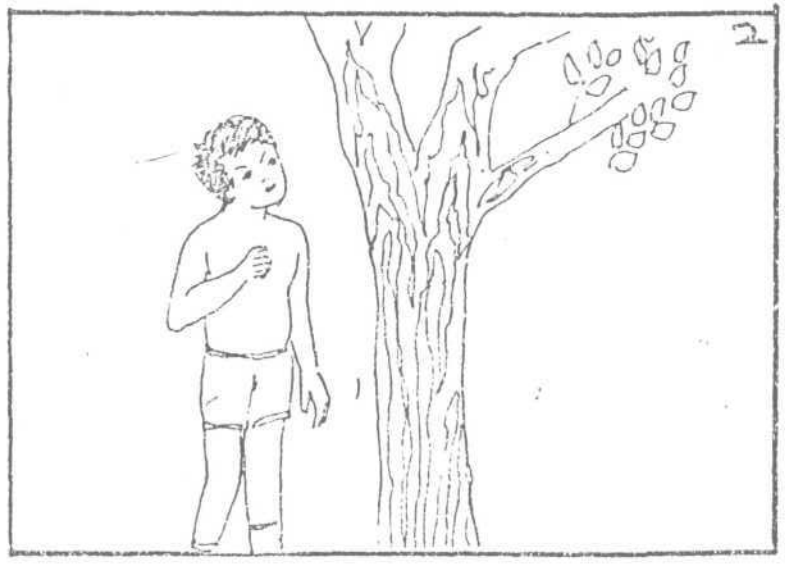
Point to picture 1

Expected Answer: Huduga
(boy)



Point to picture 2

Expected Answer:- Hudugaru
(Boys)

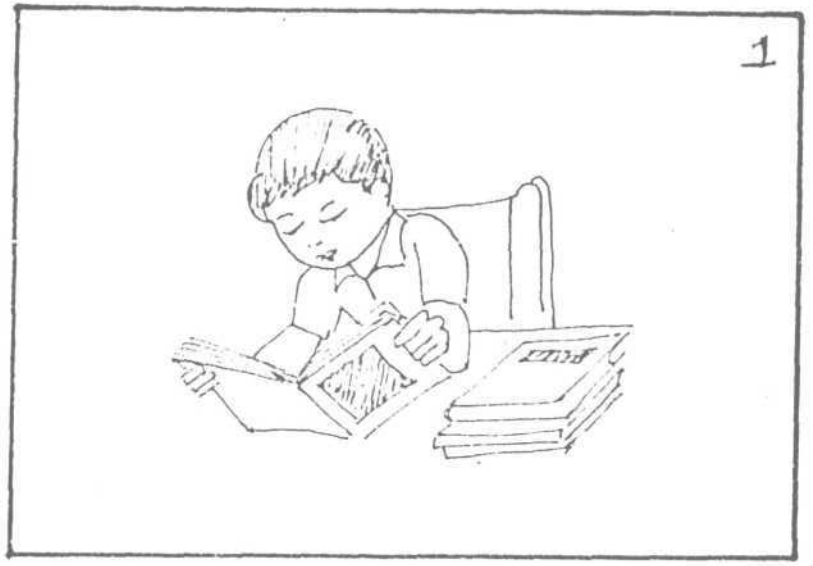


Question:- Huduga mara haltuthidhane
(The boy is climbing the tree)

Expected Answer:- points to picture 3

Question :- Huduga mara hattida
(The boy has climbed the tree)

Expected Answer :- points to picture 1

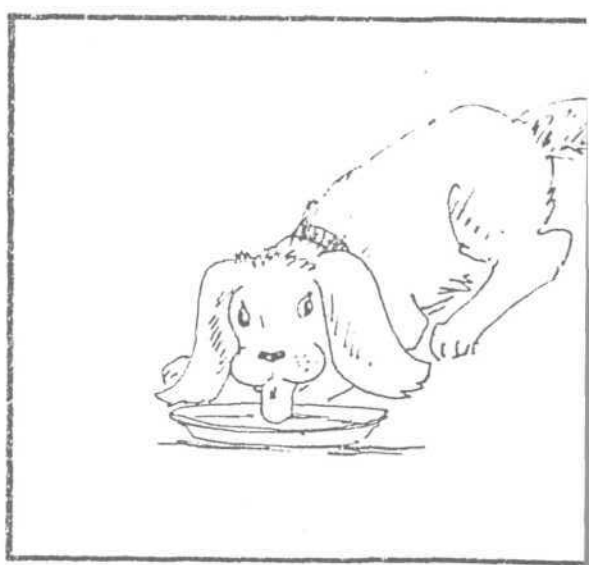


Point to picture 1

Expected Answer: Huduga vodhuthidhane
(The boy is reading)

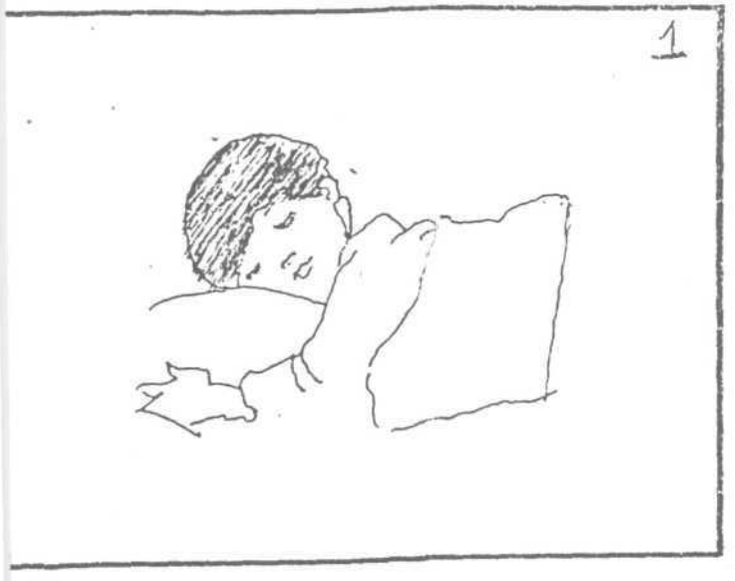
Point to picture 2

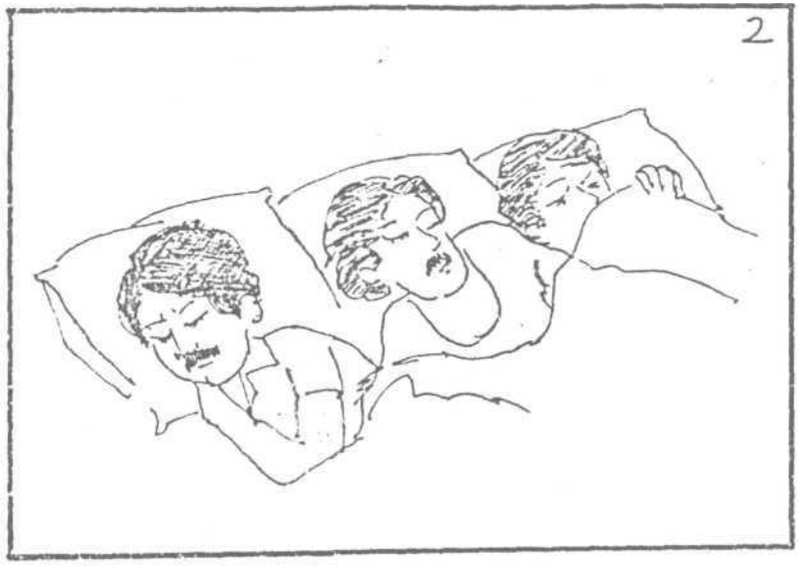
Expected answer:- Huduga vodhidha
(The boy has read)

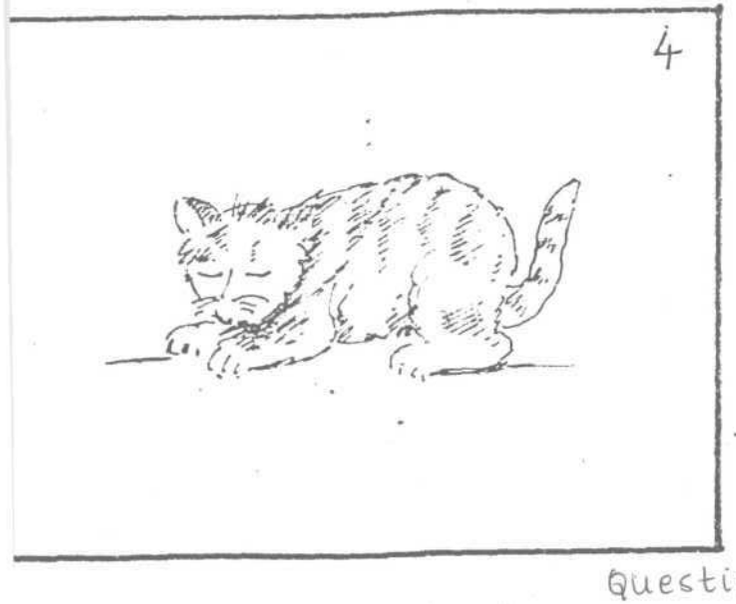


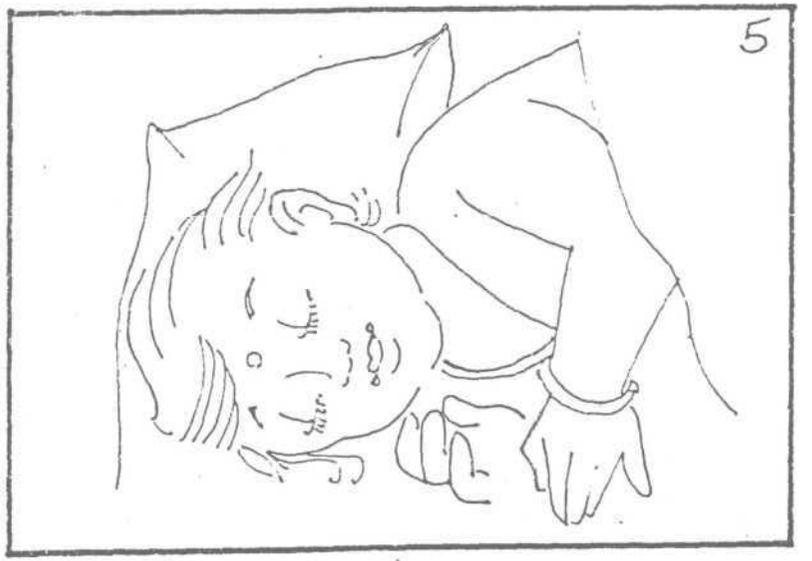
Question :- Point to picture 7

Expected Answer - Basava kudiyuthidhane
(Basava is drinking)









Question:- Bekku malagide
(The cat is sleeping)

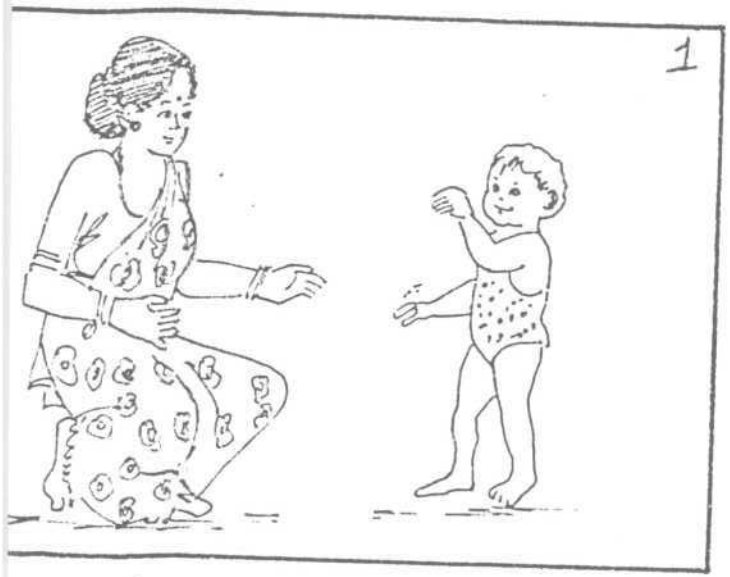
Question:- Huduga penninda bareyuthidhane
(The boy is writing with the pen)

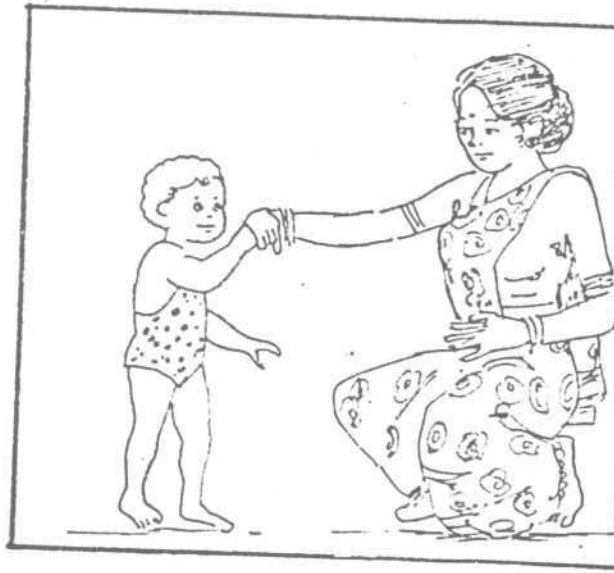
Expected Answer:- points to picture 2

Point to picture

expected answer:- Police kallanannu voyyuthidhane

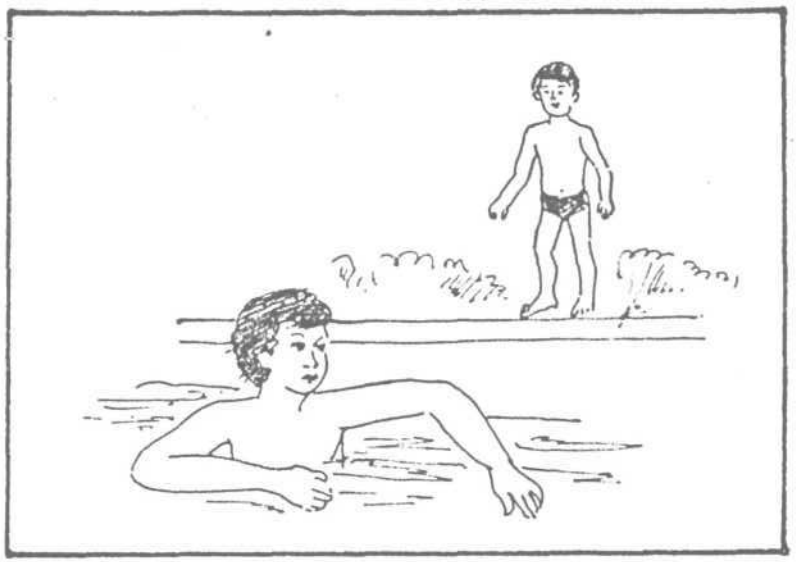
(The police man is taking away the thief)





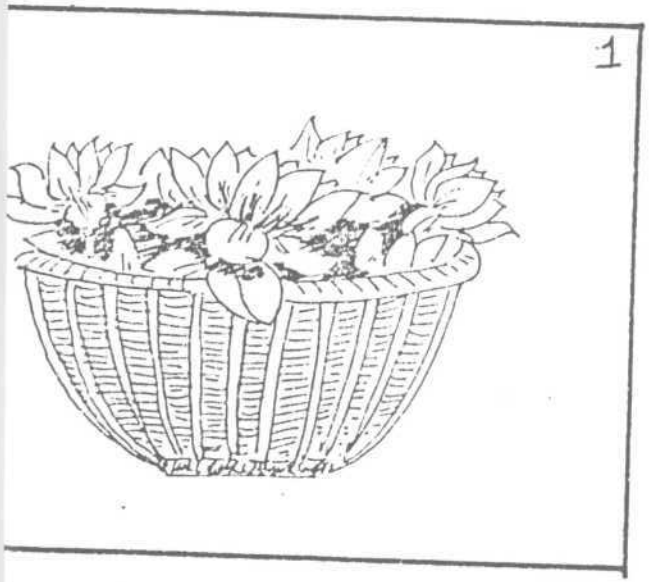
Question:- Amma nadeyuttidhare
(Mother is walking)

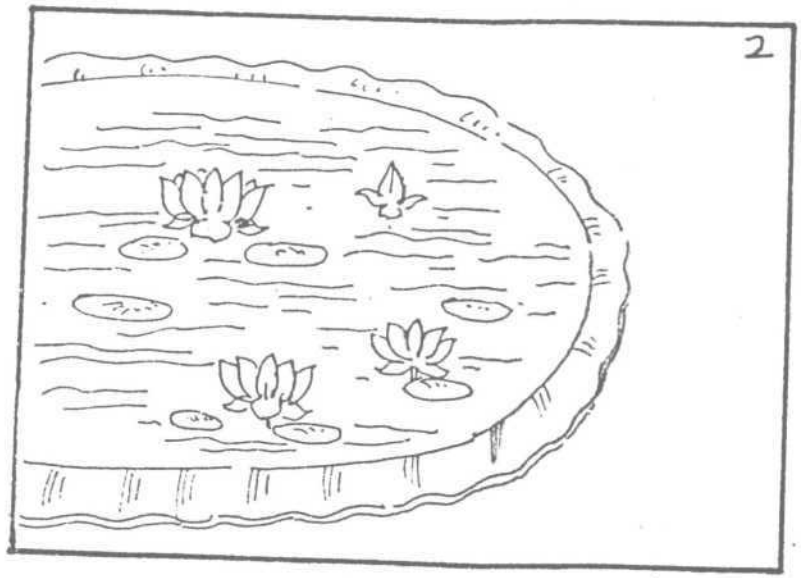
Expected Answer: Points to picture 2

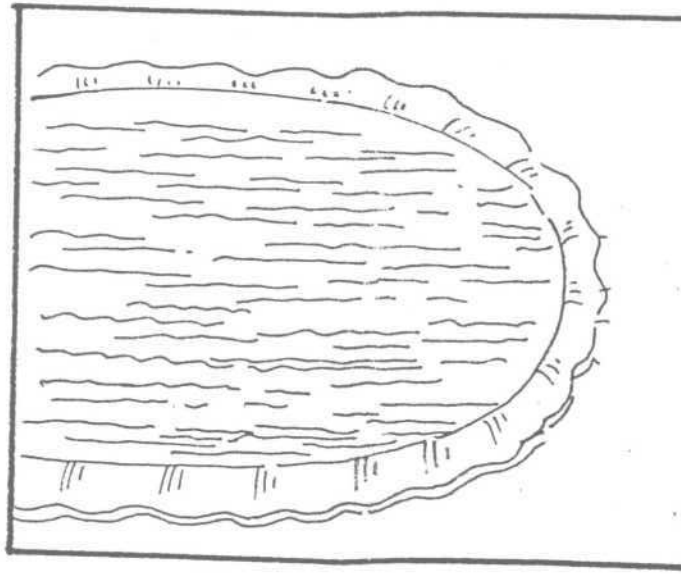


Point to picture

Expected Answer:- Huduga Ijuttidhane
(The boy is swimming)

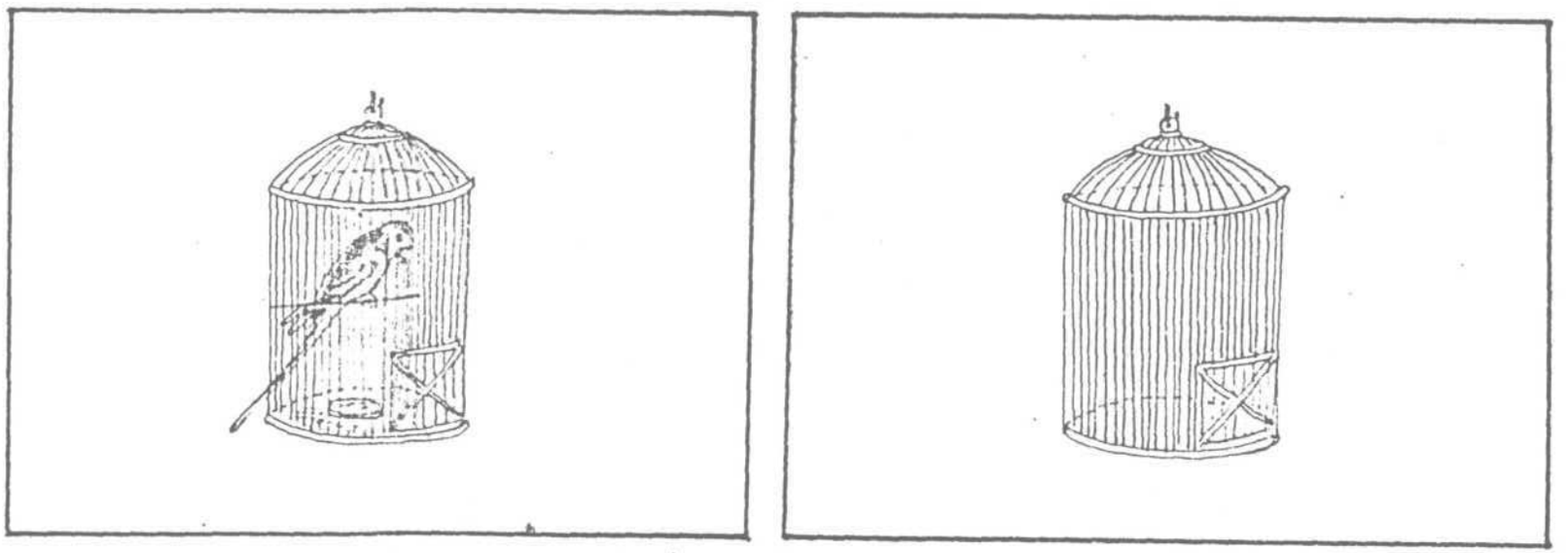






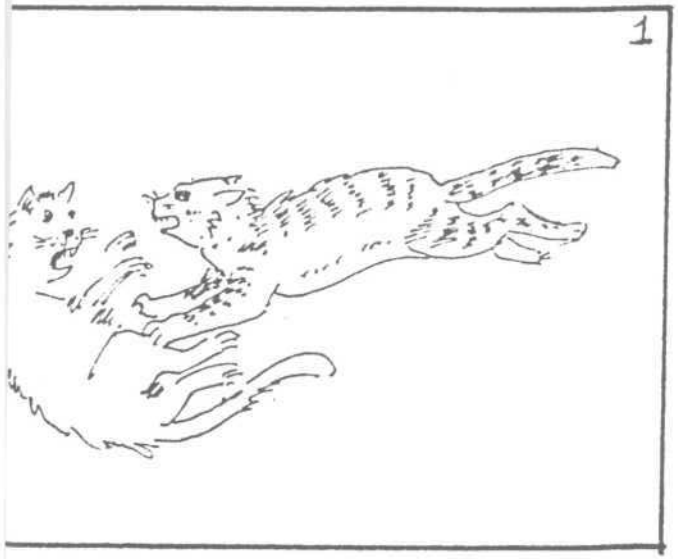
Question:- Huvu koladallide
(The flowers are in the lake)

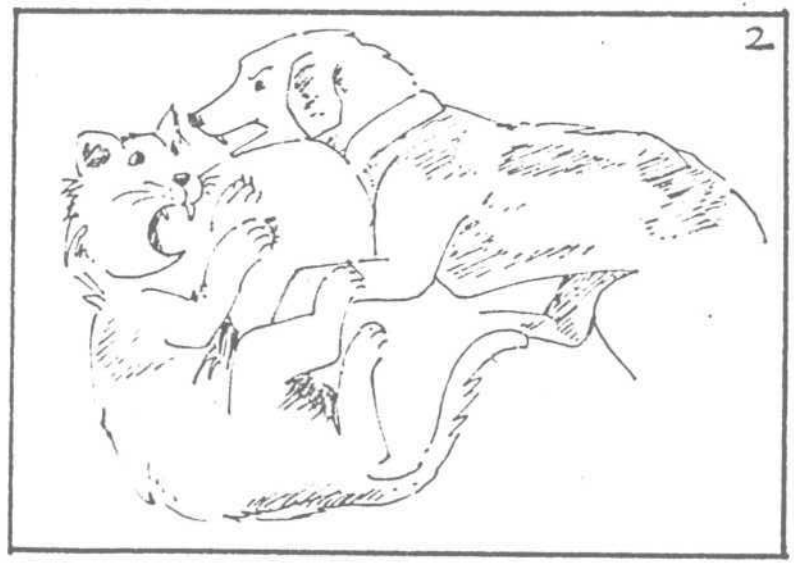
Expected Answer:- points to picture 2

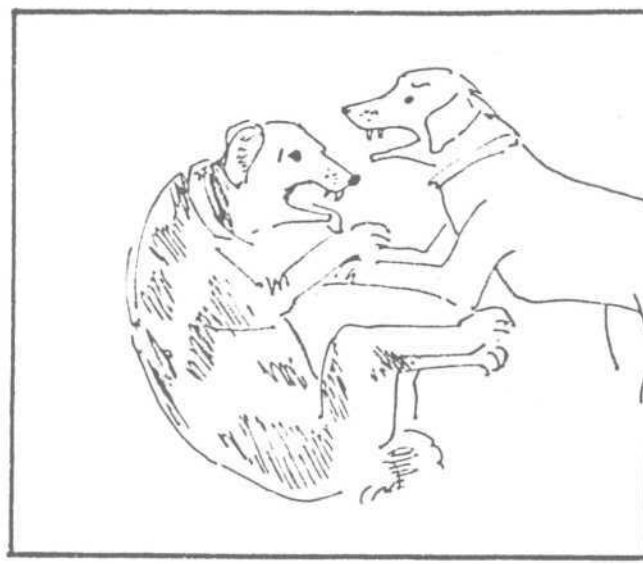


Question:- point to picture 1

Expected Answer:- Hakki gudinallidé
(The bird is in the cage)

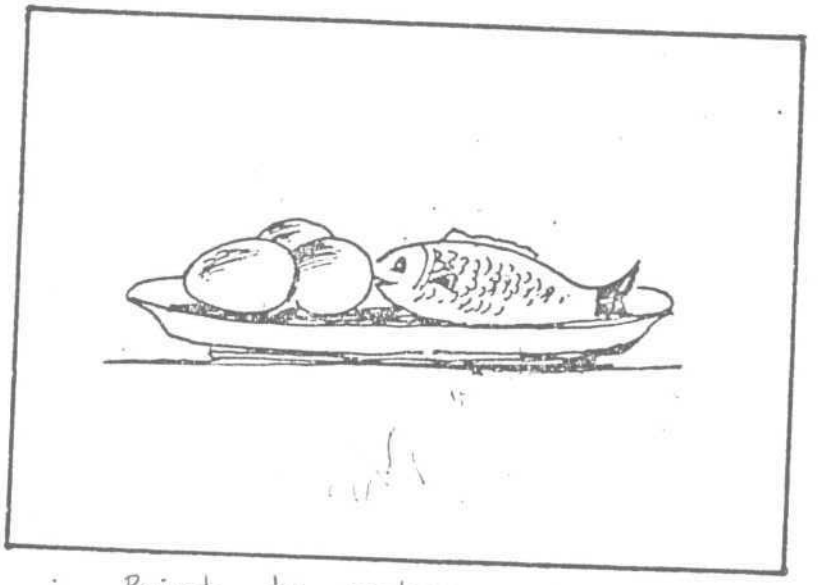






Question:- Nayi Hagu bekku jagala Adutta Ive
(The dog and the cat are fighting)

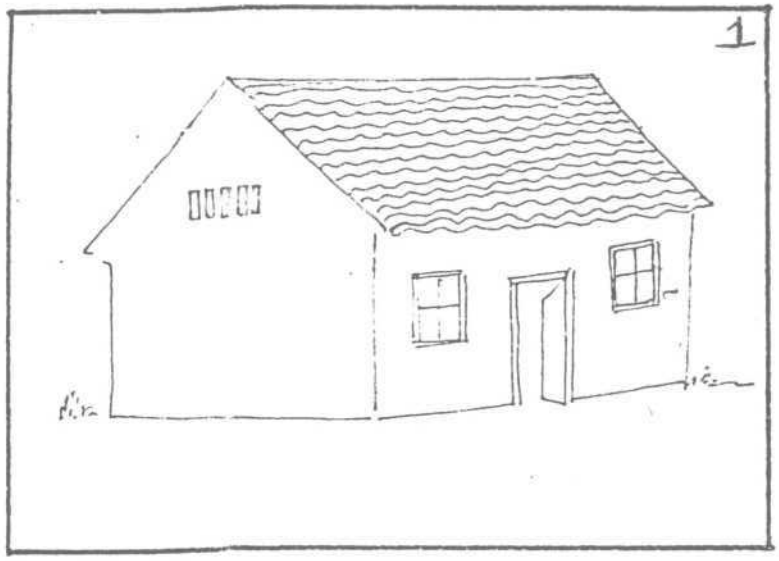
Expected Answer:- points to picture 2)

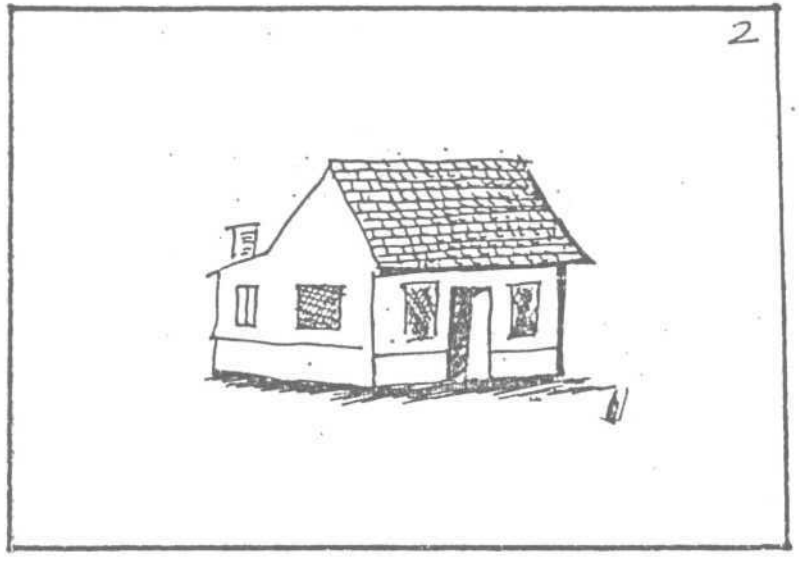


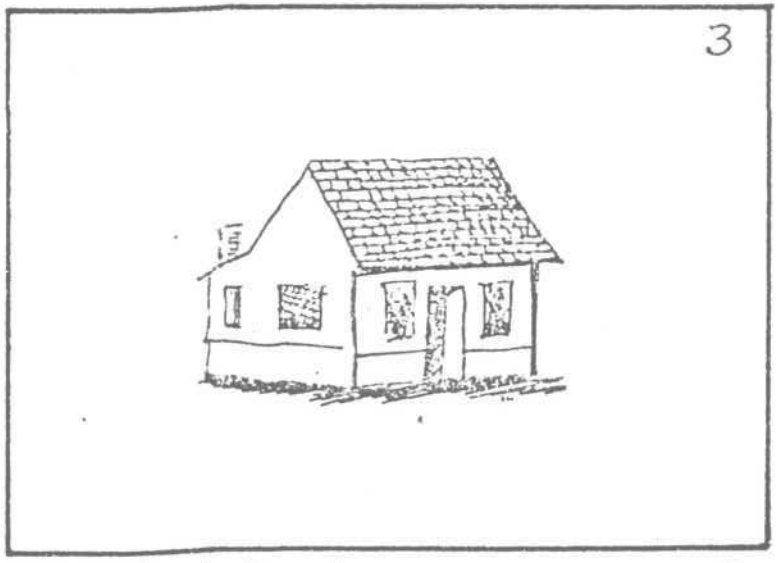
Point to picture

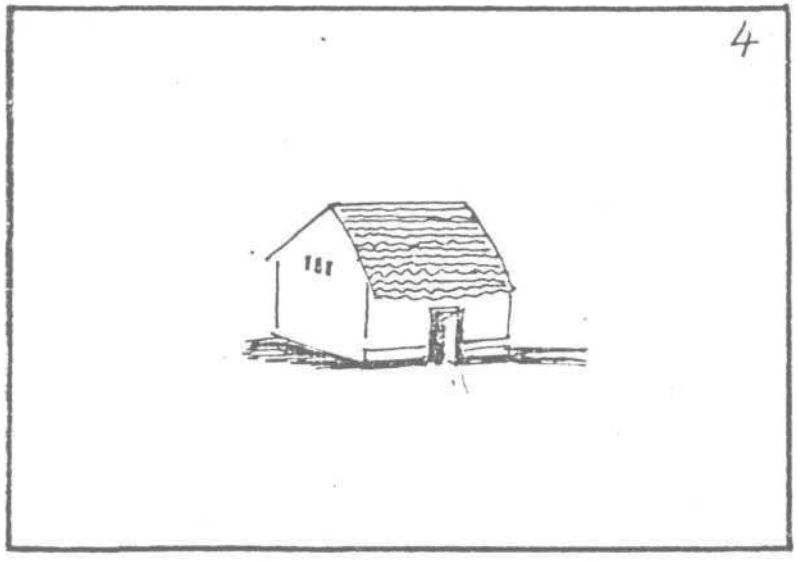
. Expected Answer:- Meenu hagu mottegalu thatte yallive
(The fish and the eggs are on the plate)

#



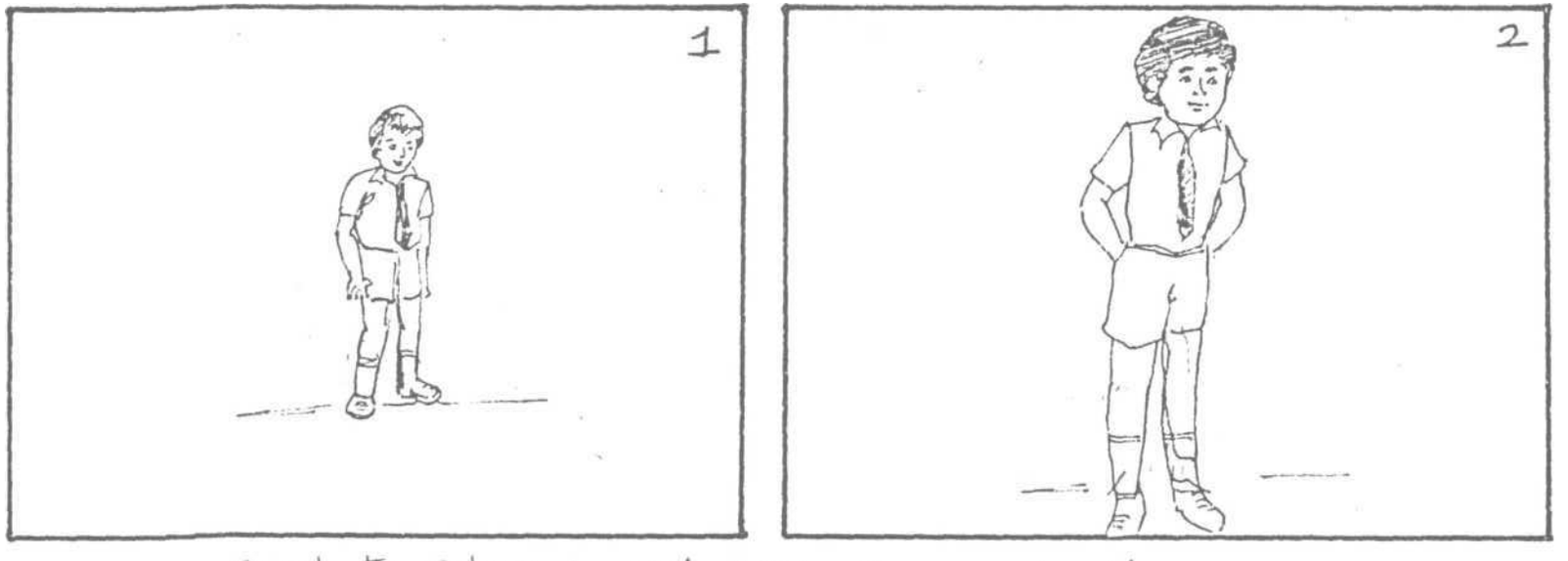






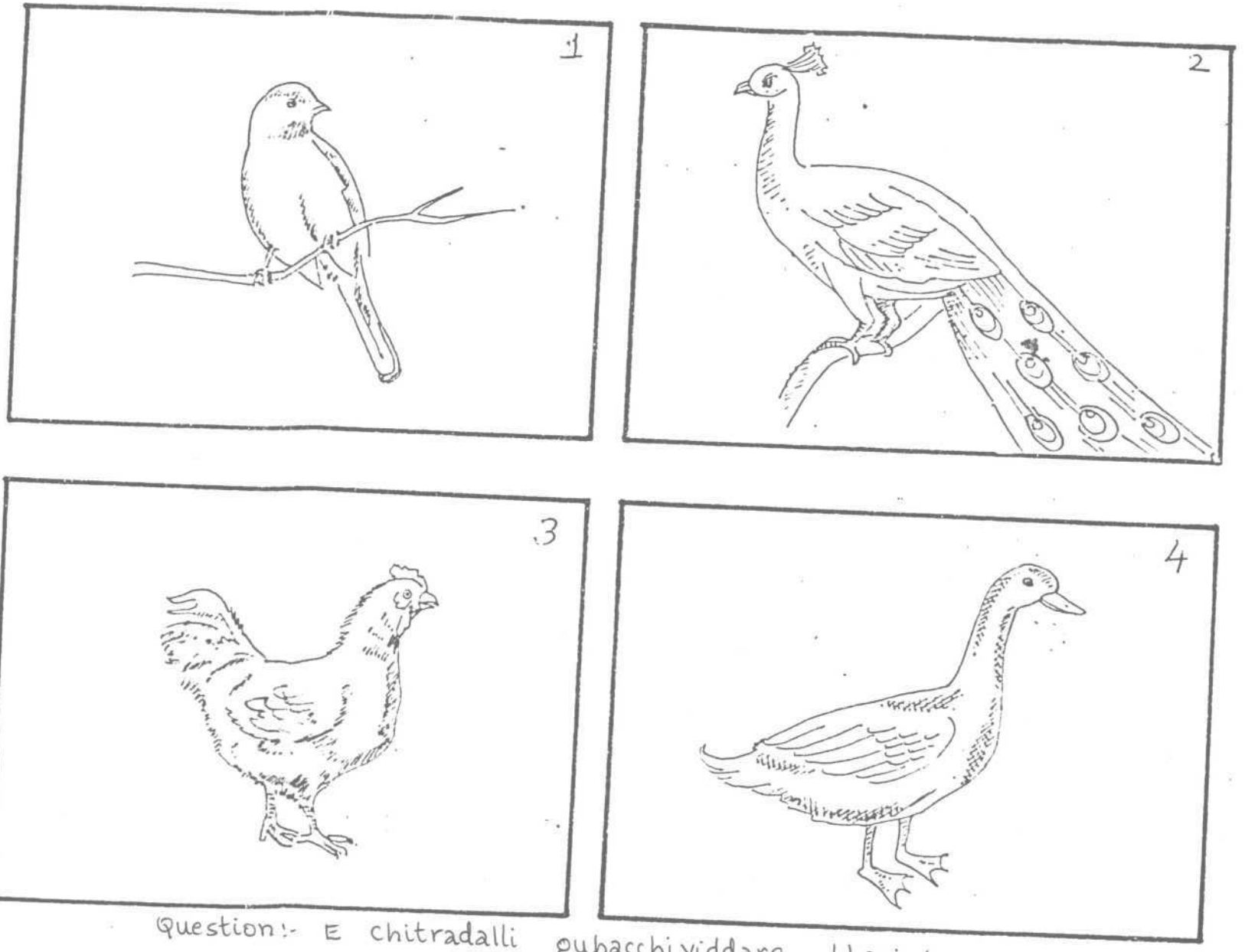
Point to picture 2 and ask:- E maneginta chikka mane yarudu?
(which house is smaller than this one?)

Expected Answer:- points to picture 4

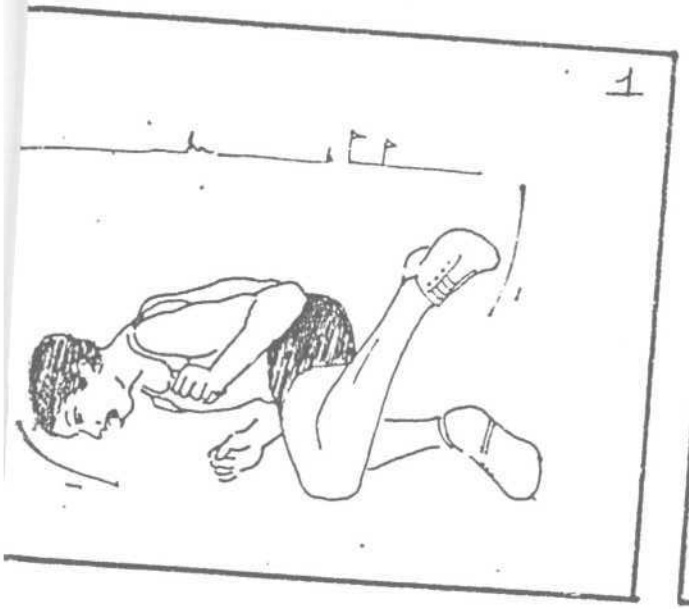


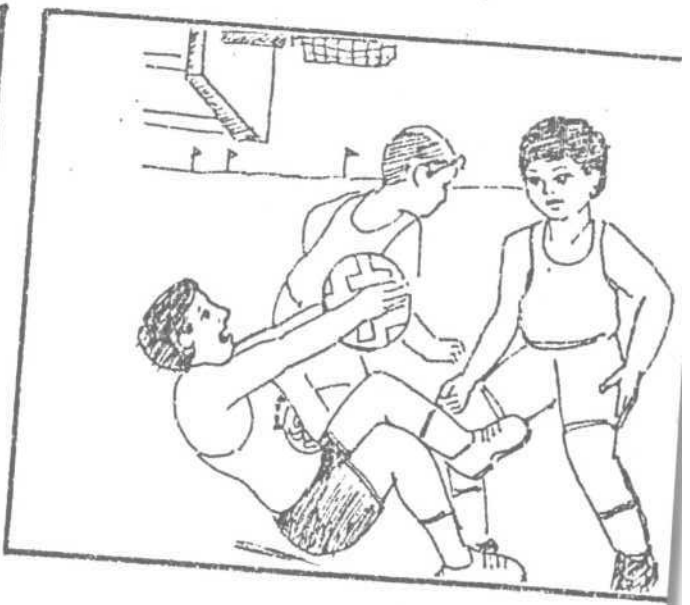
Point to picture 2 and ask: Ivanu Heggidhane
(HOW is he?)

Expected Answer : Ivanu Avaniginta uddavagiddane
(He is taller than him



Question:- E chitradalli gubacchi yiddare thorisi
(If there is a sparrow in this picture - show me)
Expected Answer: Points to picture 1





Question: Huduga Atavaduttidaga bidda
(The boy fell down as he was playing)

Expected Answer: Points to picture 3

Point to the picture

Expected Answer :- Avalu Nadeyutta Ice cream thinuthidhale
(She is eating ice cream as she walks)