

THE LITERACY FACTOR IN SYNTACTIC JUDGEMENT AND COMPREHENSION  
IN ADULTS

Reg.No.M8902

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MASTER OF SCIENCE (SPEECH AND HEARING) OF MYSORE UNIVERSITY.

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To

MY GUIDE...

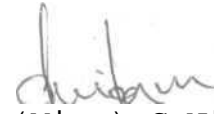
... who taught me language

... who kindled my inquisitiveness

... who made falling in love with  
language inevitable.

**CERTIFICATE**

This is to certify that this Dissertation  
entitled "The Literacy Factor in Syntactic  
Judgement and Comprehension in Adults" is  
the bonafide work in part fulfilment for M.Sc.,  
(Speech and Hearing) of the student with  
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1991

**CERTIFICATE**

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

Mysore  
1991

Dr. Prathibha



Karanth

GUIDE

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## DECLARATION

This dissertation is the result of my own study undertaken under the guidance of Dr.Prathibha Karanth, Prof, and Head of the Department of Speech Pathology, All India Institute of Speech and Hearing, Mysore, and has not been submitted at any University for any other diploma or degree.

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1991.

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## INTRODUCTION

Starting from the time of the Greeks, the invention of writing has had profound effects not only on the individual but also on society, as a whole. Over the course of human evolution, literacy has commended so much importance that it can be said to be instrumental for bringing to surface two new forms of human intellectual endeavour - the demarcation of history as against myth, and for forming the basis of formal logic.

There are definitely differences between oral and written speech. While the former is a context-dependent language, written speech may be thought of as decontextualized language. While oral language emphasizes on the emotional aspects of communication, written language lays more importance on grammar and form, and stresses on giving a clear meaning independent of the immediate and concrete reference. In this way, it promotes decontextualized, abstract thinking by objectifying spoken or oral language, thereby creating a new symbol system for man to manipulate. Written language interacts with oral language. The two language systems are like two independent circles which overlap but have independent areas as well (Dash, 1990).

Literacy permits man to involve himself in higher levels of conceptual thought. The conceptual transformations occurring at the level of the individual accumulate to effect changes at the level of the society. The important role of literacy in effecting both personal and social changes is evident from the attention it derives from a number of scholars and professionals coming from a wide range of disciplines including linguistics, anthropology, cognitive psychology, sociology, education, history, philosophy of language, and speech-language pathology.

Addressing the question of "What is literacy?", UNESCO defined it as, "a person is literate who can, with understanding, both read and write a short simple statement on his everyday life". According to this, from the operational view point, literacy would refer to the ability to orally read a short, simple paragraph with an understanding of the content and to involve in simple communication with the help of written language.

Research in the area of literacy is dominated by two important schools of thought - the 'developmental' and the 'practice' view points. The former is of the opinion that literacy facilitates the development of mental

capacities which have far-ranging intellectual consequences (Goody and Watt, 1968; Luria, 1971), while the latter suggests that literacy only enables the development of certain specific cognitive skills which may or may not serve any functional purposes for the individual in general (Scribner and Cole, 1978b; 81). Whatever the view point, it is generally agreed upon that one of the consequences of learning to read and write is the objectification and externalization of one's thought so that one can look upon one's writing and review one's thought, thereby creating an awareness of the act of thought per se. The awareness of one's thoughts about one's language is termed as the metalinguistic ability of an individual - the ability to reflect on language and to be aware and appreciative of its usage and idiosyncracies.

For more than a quarter of a century, linguists in the tradition of generative grammar have focussed on the "intuitions" of native speakers about their language as sources of data for understanding language organization. The term "intuition" refers to the basis for judgemental performances which usually revolves around a few topics including grammaticality, ambiguity, relatedness of sentences in form and meaning, and so on. The premise on which such linguistic methodologies are based is that

adult native speakers of a language possess not only the ability to produce and understand innumerable utterances, but also to judge whether or not sentences are grammatically well-structured and semantically coherent (Gleitman and Gleitman, 1970).

The dominant role of grammatical judgements in the validation of linguistic assumption in the seventies is evident from the concurrent work that was done in the area of language acquisition in children. Results of various studies indicate that children follow a developmental schedule in that their judgement performance gradually come to approximate those of adults with increasing age (Bohannon, 1976; Scholl and Ryan, 1980; Hakes, 1980? Hakes et al. 1980; Karanth and Suchithra, in press). Besides having been widely used in child language acquisition studies, the grammaticality judgement task has also been applied in clinical studies attempting to explain the phenomenon of agrammatism (Linebarger et al. 1983a; Crain et al. 1984; Wulfeck, 1988).

Recent evidence points to the presence of differences between the literates and illiterates in their performance on simple language tasks (Lecours et al. 1987a) as well as literacy influencing the grammatically judgement ability of an individual (Karanth, 1991; inpress).

Considering the fact that for clinical purposes no differentiation has been made between literates and illiterates (except in the recent past as in the Lecours et al. (1987a) and Karanth et al (1991;) study) in the light of the above mentioned recent evidence, the question that comes to one's mind is whether an external factor such as literacy will influence the comprehension, production and judgemental abilities (of various syntactic structures) in an individual. This is what has been addressed in this present study. The existing evidence would lead one to predict literacy to cause a difference in the performance of literate and illiterate on various language tasks.

In this current study, an attempt has been made to determine the influence of literacy on the comprehension, expression and metalinguistic, more specifically, judgemental abilities in the normal neurologically healthy population in an Indian context, by evaluating the performance of these individuals on specific language tasks involving syntactic processes.

## REVIEW OF LITERATURE

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## REVIEW OF LITERATURE

### 2.1: GRAMMATICALITY JUDGEMENTS - An Introduction:

The foundationstone of various linguistic investigations is the assumption that all native speakers of a language have the intuitive knowledge of their language. Adult speakers of a language are believed to possess not only the ability to produce and understand innumerable utterances, but also to judge whether or not sentences are grammatically well-structured and semantically coherent (Gleitman and Gleitman, 1970). The judgements or "intuitions" of the speakers serve as sources of data for a better understanding of language organization as well as for formulating theories pertaining to the same.

Passing grammaticality judgements on well- and ill-formed sentences is a metalinguistic ability. Basically, metalinguistic ability refers to one's ability to reflect upon one's language, appreciate it and even, talk about it. In making acceptability judgements, adult native speakers not only check for proper grammatical formation of sentences but also for semantic coherence of the same. Hence, it turns out that making language judgements - retrieving and making use of one's intuitions - is relatively hard, when compared to talking and understanding.

This is because, in giving a language judgement, "one must take a prior cognitive process (linguistic performance) as the object of a yet higher-order cognitive process (reflection about language performance, or 'metalinguistic performance;') which may have properties of its own" (Gleitman and Gleitman, 1979).

While the processes underlying metalinguistic abilities are dependent upon comprehension processing, they are, at the same time, different from comprehension and production processes. Those processes involved in the activity of comprehension may be termed as "automatic" since such processes are speedily executed and also seem to be relatively invariant in their execution in a variety of occasions. Furthermore, such processes appear to be inaccessible to awareness.

In contrast, we have the "controlled" operations which may be thought to involve some sort of "control" or "executive" process, suggesting the existence of choice in the implementation of the process. Such processes are carried out relatively slowly and intentionally. It is these "controlled" processes which may be thought of as underlying linguistic intuitions, or metalinguistic abilities.

### **2.1.1: Grammaticality judgement ability in children:**

The central role played by the metalinguistic task of grammaticality judgement in the linguistic work conducted



in the seventies is deducible from the concomitant investigations carried out in the area of child language acquisition. Gleitman and Gleitman (1970) suggested that a grammaticality judgement task such as acceptability of word order could tap the early grammatical knowledge in children as young as 26 to 30 months, as was revealed by their study. Another aspect of the above study was brought to the forefront by de Villiers and de Villiers (1972) who pointed out that the subjects in the Gleitman and Gleitman (1970) study relied more on semantic factors rather than strictly syntactic factors in making judgements of sentence acceptability.

de Villiers and de Villiers (1972) utilized a modified version of the Gleitman and Gleitman (1970) procedure to study the development of the child's ability to make judgements of both syntactic and semantic acceptability. The findings of this study were in accordance with the observation made by these authors of the Gleitman's study. It was found that correct judgements and corrections of semantic anomaly could be elicited from children who are unable to make correct judgements of syntactic acceptability of the same grammatical structures, which they could, in fact, comprehend. The authors concluded that the utility of the judgement method was limited to the study of early

semantic development in the child rather than to the study of the early grammatical knowledge and organization in the child.

The results of these studies suggest that even children under 3 years of age are not wholly incapable of distinguishing well-formed sentences from deviant ones. But the children's criteria appear to be far laxer than those of adults: they accept many sentences that adults would not. The pattern of the results obtained by the de Villiers' study suggests a reason for this: young children judge on a basis different from adults. Their results suggest that 2½ year-olds consider mainly the meanings of a sentence's content words, fitting them together in any way that makes sense. Hakes et al (1980) suggest that only later does the strategy of using word order as a clue to a sentence's meaning become a part of children's repertoire of comprehension strategies.

de Villiers' conclusion is in accordance with Bever's (1970) suggestion that young children utilize cognitive strategies to understand sentences. Bever (1970) suggests that young children may have difficulty to isolate the sentence per se from the intent of the speaker and therefore may have problems/difficulty when asked to reflect upon their linguistic rule system. Data on grammatical judgement abilities of children indicate that before the age

of 4 years, children may not be able to make linguistic judgements about the grammaticality of sentences which they may comprehend or produce in other occasions.

Existing evidence points to the presence of a qualitative difference underlying children's performance on grammaticality acceptability tasks across different ages. Starting from the very early stages wherein 2-3 year old children base their judgements on comprehension (Fujiki et al. 1987), they pass through various phases wherein the 4-6 year old children make semantic based judgements and later on the 7 year old and older children make syntactic based judgements (Tunmer and Grieve, 1984). Hakes (1980) reported that during middle childhood (between the ages of 4 and 8) there is a striking development of a wide variety of performances involving metalinguistic abilities such as detection of ambiguities, appreciating linguistic jokes and others. He found that the tendency to accept or reject sentences on the basis of their content rather than the syntactic structure decreases to nearly zero by 7 years. He concluded that the developmental trend seen in the children's performance on the judgement of both deviant and non-deviant sentences is a reflection of the child's increasing ability to view the sentences from an angle different from what is conveyed as

well as an increasing knowledge of the grammatical constraints of the adult language. Therefore, it may be said that 7 and 8 year old children possess more or less the same bases as adults in judging the acceptability of sentences. The exceptional errors made by the children may be attributed to their unfamiliarity with some of the more subtle and rarely occurring grammatical constraints of the language. The wide variety of metalinguistic abilities that are acquired during mid-childhood involve controlled processing of a sort different from the more automatic processing characteristic of comprehension and production (Hakes, et al. 1980).

Karanth (1984), in a study on children from the low and mid-socio-economic strata, found that below 6 years of age, the children refused to perform or performed indiscriminately on the syntactic section of the Linguistic Profile Test (LPT) without really "looking" at the sentences. However, between the ages of 6-9 years the performance improved reaching 80% proficiency on the task by around 9 years of age. These findings are in conformity with those reported by Karmiloff-Smith (1976) and Hakes (1980).

### **2.1.2: Grammaticality judgement ability in adults:**

It may be said in short that with increasing age, children gain an increasing familiarity with the rules of

the adult grammar. However, recent evidence indicates that illiterates do not perform as the literates do on grammaticality judgement tasks (Karanth, et al. 1991). This leads to the hypothesis that literacy plays a major role in the development of one's grammaticality judgement abilities. We know that young children have difficulty in grammaticality judgement tasks due to their dependence on external cues for language processing (Karmiloff-Smith, 1979; Tunmer et al. 1984). Given that literacy acquisition objectifies language, reduces the external cues and promotes context-independent forms of thinking, it is logical to suppose that the acquisition of literacy enhances children's ability to rely solely on linguistic clues. This would be reflected in their increasingly better performances on grammaticality judgement tasks owing to their ability to involve in a more abstract level of linguistic analysis.

Recent evidence illustrates that even adult illiterates do not perform like literates on grammaticality judgement tasks (Karanth et al. 1991 ). The subjects included both neurologically healthy as well as brain damaged patients. In studying the brain-damaged aphasic subjects in relation to handedness, age, bilingualism, sex and literacy in a largely multilingual illiterate population, the obtained result

were in agreement with the tenets of classical aphasiology, especially on the first four variables. With respect to the literacy factor, the study found qualitative differences between the language behaviour of the literate and illiterate brain-damaged as well as the neurologically healthy groups. Of particular interest was the performance of the two sub-populations on the Kannada version of the syntactic judgement task (syntactic section of the Linguistic Profile Test) (Karanth, 1980; 84), wherein the subjects had to judge a given sentence, presented auditorily, on its syntactic acceptability. Here it was found that the literates performed significantly better than the illiterates. Furthermore, it was also observed that some of the illiterates (neurologically healthy group) were unable to follow the instructions (and their inability to carry out the task was voiced), did not complete all the items in the section, or gave indiscriminate responses (performing at the chance level). In all the subsections of the Linguistic Profile Test the illiterates scored poorly when compared to the literate subjects.

Another significant finding of this study was that similar results were obtained on the Hindi version of the LPT which was administered to literate and illiterate adults who were native speakers of Hindi. In the light of the observation that the difference between the performance

of the literates and illiterates was present/exhibited in/ by both the subject groups (the Kannada version of the LPT was administered in Mysore, and the Hindi version of the LPT was administered at New Delhi) who were situated more than 2000 miles apart geographically, Karanth et al (1991; , ess) suggested that literacy, per se, may be a variable affecting grammaticality judgements.

## **2.2: LANGUAGE IN LITERATES AND ILLITERATES:**

It has been known that language as a skill may be handled differently by the literate and illiterate sub-populations. Literacy brings about a lot of changes not only in the communicative style of an individual but also in a culture. The effects of literacy are reflected in both one's linguistic skills as well as one's rational and analytical thinking. However, these effects have not been clearly understood, nor examined in an empirical fashion. It may be possible that language, as a skill, may be handled differently by the literate and illiterate sub-populations.

### **2.2.1: Sociological work:**

Bernstein (1965) studied the influence of socio-economic status on language use. In his study of the language used by the elite class children and labour class

children, he found that there was a difference in the language of the two classes. He referred to the existence of a "standard" and a "sub-standard" language, the former being used by the upper classes and the latter by the lower classes. Differences were found at various levels of language including vocabulary (semantics), structure of sentences (syntax) as well as pragmatic competence (pragmatics), the differences favoring the upper class. Even though Bernstein's theory was more related to social class and not to literacy, it is possible for the two to co-exist in that there may be greater chances of encountering illiterates in the lower social classes than in higher social classes.

In recent years, the realization that literacy not only affects the basic nature of thought processes of an individual, but also that it has a cumulative effect on the ultimate characteristics of human culture, has prompted communities to implement adult literacy programs on a large scale. Unlike oral language, written language, by its very nature of being a thought-externalizing and thought-objectifying agent, promotes unique kinds of conceptual transformations and logical competence.

### **2.2.2: Consequences of literacy - cognitive work:**

Theoreticians who have concerned themselves with the continuing contribution of literacy to the individual, to



the culture, to human history, as well as its utility in various cultures have gone on to take up two broad view points, namely the developmental perspective and the 'practice' perspective. While the developmental perspective suggests that literacy develops mental capacities which have widespread intellectual consequences including the emergence of abstract thinking and logical operations, the practice perspective proposes that literacy only helps develop certain cognitive skills which may or may not be important for functioning within society in general.

Supporting the practice perspective, Scribner and Cole (1978b) studied non-schooled Vai literates and illiterates of Liberia. On comparing the performance of the two groups on classification and verbal reasoning tasks, no significant differences were observed between the two groups. However, the results of their study suggested that the Vai literacy was associated with certain specific skills such as analysing oral speech and giving clearer instructions. The investigators concluded: that reading and writing may influence the performance of the individual on a limited set of tasks rather than controlling intellectual performance in all domains. Similar findings have been reported by Dash (1990).

The developmental perspective derives support from the works of Luria (1971), Cole et al. (1971), Olson (1985) and others. The research conducted by Luria (1971) and Cole et al. (1971) on literate and illiterate adults in Central Asia and Liberia, respectively, suggest that the mental operations of the illiterates were confined to the immediate, the concrete and the practical, and had little reference to abstract and categorical associations. Olson (1985) is of the opinion that literacy and education enhance cognitive growth.

### **2.2.3: Aphasiological evidence in relation to literacy:**

Besides the above investigations probing into the consequences of literacy, interest in the differences in language processing between literates and illiterates may be said to have started as early as beginning of the twentieth century following clinical observation of patients presenting with a complaint of aphasia due to brain damage. The initial interest was kindled by the appearance of several case reports (Weber, 1904; Moutier, 1908; Von Mundy, 1957; Eisenson, 1964; Wechsler, 1976) and has now developed into an important consideration which has been probed into seriously (Lecours, 1987a, b; 1988; Karanth, 1991).

Alongside the above, animal studies and anatomical investigations have also contributed to kindling the

inquisitiveness of the investigators. Various experimental studies have also been conducted utilizing tests such as electrical stimulation, sodium amytal test, average evoked response, cortical blood flow, tests of perceptual asymmetry, as well as studying human split-brain patients. The unidirectional conclusion of the various studies is that the left hemisphere is leading and specialized in most of the right-handed individuals for language functions, that is for reading, writing, speaking and listening.

Anatomical studies showing morphologic asymmetry placing the left hemisphere at an advantage have led to the speculation that these asymmetries help determine the specialization of language in one hemisphere, in particular the left hemisphere. At the same time, however, it is possible to leave out the possible influence of environmental factors on the structures in the nervous system of an individual, studies conducted on animals, as the one conducted by Malkasian and Diamond (1971) revealed that neonatal rat. brought up in an enriched environment have greater cortical depths than those rats raised in an impoverished environment. This, and other studies (Jones and Thomas, 1962, Globus and Scheibel, 1967) tell us that environmental factors can result in micro-structural changes in the neuronal connections of the brain after the initial formation.

When it has been proven that the environment influences the nervous system in animals, the obvious deduction is that the same is likely to occur even in human beings. Therefore, a difference in the performance of a literate and illiterate can be expected - the former having acquired all the four modalities of language use, namely, reading, writing, speaking and listening, as compared to the latter, who has acquired only two of the four skills, that is, speaking and listening.

As early as the start of the twentieth century, Weber (1904) (p.577), following obsecration of several brain-damaged illiterate subjects, suggested that acquisition of written language may have a greater influence than spoken language over the process of left-brain specialization for language. Moutier (1908) (p.577) observed that a common characteristic of several non-aphasic brain-damaged subjects (with the lesion in the posterior left third frontal convolution) was illiteracy.

The evidence for changes in cerebral organisation for language resulting from schooling and education is scanty and inconclusive owing to the fact that theorization of the connection between the two aspects has been a recent development, only a couple of decades old. However, a few isolated reports have appeared earlier (Critchley, 1956; Von Mundy, 1957).

Von Mundy (1957) (p.577), during his military medical practice in India, observed that left brain-damaged, right-handed illiterates either presented with mild or transitory aphasias, or no aphasia at all. His clinical experience in India led him to conclude that:

- a) the process of left brain specialization for language is affected by literacy, and that
- b) cortical language representation is ambilateral in illiterates as a result of which illiterates do not become severely aphasic or do not show any evidence of aphasia following left brain injury.

Of his clinical encounters in military practice, Eisenson (1964) reported that aphasia was 'relatively unknown amongst his low-level military population' and that patients falling in this category made "very remarkable recoveries" if they became aphasic from left cerebral hemispheric damage (due to gun shot wounds). Tikofsky (1970) (p.578) suggested that a lesion in the left cerebral hemisphere in an illiterate may produce a not very evident change in the language behaviour of the illiterates as compared to the literate individual owing to the fact that the former normally has a "much smaller vocabulary".

Earlier, Critchley (1956) had speculated along the same lines as Tikosky when he suggested that a literate

individual, having a superior premorbid linguistic ability, may react more sensitively to the effects of acquired cerebral disease, in that "aphasia, when it occurs in an operator, wit, poet or scholarly writer, may prove to be far more severe and more protracted than in a person of mediocre attainments in the realm of language".

Wechsler (1976) reported of a case of crossed aphasia in an illiterate right-handed woman based on which he suggested that the neural circuits involved in the acquisition of reading and writing may be a critical requisite for the establishment of language dominance in the left hemisphere. Wechsler (1976) concluded that right hemisphere representation may have been related to illiteracy.

Taking a step ahead of clinical case reports, systematic research on the literacy-lateralization issue has been going on only since the past two decades. Cameron et al. (1971), noting the lack of aphasia in illiterate patients presenting with left hemisphere infarcts, conducted a study to determine the presence or absence of aphasia in stroke patients in relation to degree of literacy among other factors. Their results showed that transitory or persistent aphasia was observed in 78% of the literates, 74% of the semi-literates

and 36% of the illiterates. The authors concluded that the dominance exerted by the left hemisphere for language functions is relatively less in illiterates than literates as language is not "as well 'planted' in the dominant hemisphere" in the former as it is in the latter group. Verbal communication was speculated to be possible amongst illiterates following brain damage as language patterns may be more bilaterally represented in this sub-population.

These studies have their drawbacks. Cameron et al. (1971) failed to consider the occurrence of language disturbances in illiterates having right hemisphere damage. Furthermore, generalizations cannot be drawn from an exceptional case report as was done by Wechsler (1976).

#### **2.2.4: Dichotic listening tests in relation to literacy:**

In spite of the above limitations the clinical observation that illiterates are not affected to the same extent by aphasia when compared to the literates led to the formulation of hypotheses that:

- (a) language representation in the illiterate brain is different, and
- (b) literacy skills may contribute significantly to 'rooting' language in the left hemisphere.

This led to a spurt of experimental studies using dichotic listening tasks on normal literate and illiterate sub-population

Damasio et al. (1979) studied three groups - literates, semi-literates and illiterates - using three dichotic listening tasks, including -

- (i) use of digits
- (ii) use of phonologically different meaningful words  
(eg.colher/arvore)
- (iii) use of phonologically similar meaningful words  
(differing in initial consonant only) (eg. carro/  
barro).

The subjects had to repeat the two words presented on each trial. Results indicated that the performance of the illiterates and semi-literates were similar. The two groups were, therefore clubbed together to get a 'dysliterate group'. A right-ear advantage (REA) was observed for both groups in all the tasks except one, namely, the phonologically similar pairs' task in which the dysliterate group should a left-ear advantage (LEA). This finding is puzzling in that a REA was exhibited by the dysliterate group for the other two tasks. However, it was observed that literates performed better than the dysliterates in every task, and so also in the phonologically-similar-words task. On an average, the literate subjects identified 1.8 digits, 1.6 dissimilar words and 1.6 similar words per trial correctly, while the dysliterate subjects gave 1.6, 1.2, and 1.0 correct answers



respectively. With respect to the third task involving phonologically similar words, these findings were interpreted on the basis that since the words in this task differed only in the initial consonant, it was presumably easy to identify one, and attempt to guess the other. Furthermore, the dysliterate's score of an average of one correct word per trial on this task may mean that a majority of them considered this part of the test as one of one-item identification.

Tzavaras et al. (1981) conducted a study using a dichotic listening test involving presentation of digits to literate and illiterate groups. In the first part of the experiment, where the free-recall paradigm was used, both groups showed a REA, which was much stronger for the illiterate group. To rule out contamination by attentional bias, the authors conducted a second experiment using the same stimuli, wherein the subjects had to report the digits presented to one ear only. Here again, the REA was stronger in the illiterate group. In both experiments not only were the right ear scores better than the left ear scores for the illiterate group but also the left ear performance of the illiterate group was poorer when compared to that of the literate group even when the former were instructed to listen exclusively to stimuli presented to the left ear (as per the requirement of the second experiment).

The finding of stronger REA in relation to LEA in the illiterate group was considered in the light of evidence from studies on aphasics, split-brain patients and normal adults (Hecaen, 1976; Zaidel, 1978) revealing that even though the right hemisphere cannot produce speech, it does possess linguistic abilities which can be tapped through cognitive strategies utilized by the right hemisphere. The investigators suggested that learning to read and write may instigate spatial and cognitive strategies for language controlled by the right hemisphere which in turn enable bihemispheric participation in linguistic functions. The results of a strong REA in the illiterate group reflect the non-availability of such cognitive strategies to the right hemisphere. The authors concluded that the proposed bi-hemispheric control of language resulting from education may be absent in illiterates, who operate under the strong inhibitory influence of their left hemisphere.

The above two studies reveal an asymmetric performance of literate and illiterate healthy subjects in dichotic listening tests. In contrast to the above findings, Castro and Morales (1987) found a right-ear preference for both phonologically similar and dissimilar words in dichotic listening tasks in case of literates as well as semi-literates

and illiterates. The magnitude of preference was found to be more or less the same in all the three groups. The authors accounted for the unusual findings of the earlier studies by pointing out that in the first study (Damasio et al. 1979) there was lack of control of orientation of attention of the subjects, while in the latter study the literate controls were much younger than the illiterates, thereby making age a possible contributory factor to the difference observed in the Tzavaras et al. (1981) study.

The above dichotic research has been going on since a little more than decade, and as can be seen from the above studies we have obtained contradictory and inconclusive results. Similarly, clinical studies following the words of Cameron et al. (1971) and Wechsler (1976) contradicted these earlier findings. Damasio et al. (1976) did not find any appreciable difference between the aphasias of literates and illiterates. Of the subjects afflicted with damage to the left hemisphere, 63% of literates, and 67% of the illiterates presented with aphasia, indicating no statistically significant difference. They concluded that learning to read and write does not influence the development and final arrangement of the neurological structures whose lesions determine aphasia, and hence, these neurological structures are the same both for the literate and illiterate sub-populations.

**2.2.5: Recent clinical evidence in relation to literacy:**

After almost a decade of silence following Damasio's (1976) study, there has been a surge in interest on the contribution of literacy to one's linguistic ability. This has a lot of implication in the clinical set-up as was demonstrated by Lecours et al. (1987a, by 1988), who in their exhaustive and comprehensive study, tested neurologically healthy illiterate and literate sub-populations as well as left-and right-stroke patients. The results were published in a series of three articles which will be discussed one by one.

Lecours et al. (1987a) study on neurologically healthy controls, including both literate and illiterate groups, revealed the necessity of having different testing materials for the two sub-populations. In testing their subjects on relatively simple tasks such as simple pointing, repetition and naming, illiterates were found to make more errors than the literate subjects. The differences were statistically significant. Hence, in using the presently available testing materials to evaluate the severity and frequency of aphasia, it is possible that one may overestimate the same in illiterates and/or underestimate it in the literate brain-damaged patients. This necessitates the need for differential testing materials or norms for the two sub-populations.

Lecours et al. (1987b) studied brain-damaged literate and illiterate subjects exhibiting unilateral neglect using a set of six-sentence-picture matching stimuli. The subjects had to match an auditorily presented sentence with one of four drawings presented in a single display divided into four quadrants. Three sentences were syntactically "simple" and the other three were relatively more "complex". The results indicated that unilateral neglect was existent in both left and right-brain damaged illiterates and literates. Furthermore, left brain-damaged subjects exhibited right neglect mostly when the presented sentence stimuli were relatively "complex", whereas the right brain-damaged subjects manifested left neglect irrespective of whether the sentence was syntactically "simple" or relatively "complex".

Based on the above, Lecours et al. (1987b) postulated that:

- (a) the human brain acquires mastery over two basic approaches for decoding information, one based on sequential (Type S) and the other on cotemporal (Type C) activities?
- (b) sequential management of information is dealt with by the left and co-temporal/holistic management by the right cerebral hemispheres, and that
- (c) certain types of information are, by nature of education, more economically and better decoded through sequential/co-temporal strategies.

The left hemisphere orienting device may be more sensitive to the complexity of the Type S information and the right hemisphere orienting device may be more sensitive to the complexity of Type C information, when compared to Type C and Type S information respectively. Considering this and the fact that the tasks administered contained more type s information, the obtained results may be interpreted as indicative of an interaction between two cognitive disorders resulting from dysfunctions of asymmetrically represented cognitive mechanisms.

In a later study, the same group of investigators (Lecours et al. 1988) studied literate and illiterate sub-populations, each consisting of a left-stroke, a right stroke and a neurologically healthy control group. Their study revealed that depending on how the case is evaluated, the clinical findings may vary. Clinical bedside evaluation without any formal testing may give findings supporting the Cameron et al. (1971) study, while the results of formal, exhaustive testing may support Damasio et al's.(1976) study. The authors conclude that "the acquisition of reading and writing skills is not a pre-requisite to the actualization of the generic program leading to the left hemisphere dominance for language in the human species".

In spite of the various sociological, cognitive, and dichotic and linguistic evidence pointing towards a difference between the performance of literates and illiterates on various tasks, in clinical work, however, these two sub-populations have generally been treated as a homogenous group. And the differences observed between the performance of these two groups has been attributed to the literacy factor. This has been so except in the recent past, as was noted in the Lecours et al. (1987a) study which discovered the presence of qualitative differences between literate and illiterate sub-populations on aphasia test batteries. This finding carries with it the implication of the need for normative studies to be conducted on the illiterate sub-population.

### **2.3: APPLICATION OF THE GRAMMATICALITY JUDGEMENT TASK IN CLINICAL WORK:**

While the observed differences between the literates and illiterates have been documented, the new evidence on literacy and grammaticality judgement ability (Karanth et al. 1991, inpress; Karanth and Suchithra, Inpress) is particularly important because of its centrality in linguistic theory. Linguistic word is based on the assumption that all native speakers of a language have the intuitive knowledge of their language as reflected in their sensitivity to it.

- (d) The subjects should be within the age range of 21 to 40 years.
- (e) The subjects should be native speakers of Kannada.
- (f) If literate, the subjects should be literate in Kannada.
- (g) The illiterates should have had no introduction to formal education.

Majority of the subjects in this study were selected from Mysore city. Five illiterate subjects were selected from the town of Ramasamudra which is a coupler of hour journey from Mysore city. Each group had an equal representation of the males and females.

The average age of the literate group was 29.4 years and that of the illiterate group was 30.6 years. The average years of school/education for the literate group was 14.67 years.

### **3.4 TOOLS:**

Two tests were utilized in the testing of the subjects, namely the syntactic section of the LPT developed by Dr.Prathibha Karanth (1980, 84) at Mysore in India, and the Regional Rehabilitation Training Centre Battery (RRTC Battery - part of the project on "Development and Standardization of Language and Articulation Tests in Indian Languages"



This assumption is reflected in clinical research (Linebarger, et al. 1983ay Crain et al. 1984; Wulfeck, 1988), Amongst the adult population, most of the investigations utilizing the grammaticality judgement task have been on agrammatic Broca's aphasics who present an impairment in speech production manifested in the form of telegraphic utterances. This feature is frequently accompanied by similar impairment in comprehension in that Broca's or agrammatic aphasics tend to experience considerable difficulty with comprehension tasks when syntax alone furnishes critical aspects of meaning. Various explanations have been put forth to explain the phenomenon of agrammatism. While Caramazza and his colleagues (1976), 1981) hypothesize the existence of a central deficit involving the realization of syntactic structure, Linebarger et al. (1983a), noting the well-above-chance performance of their agrammatic subjects in making accurate grammaticality judgements, suggest that the parsing mechanism may be impaired in such a way that it is capable of grammaticality judgements, but not of comprehension. However, Wulfeck (1988) is of the opinion that grammaticality judgement and comprehension utilize different processing strategies.

#### **2.4: THE 'WHY' OF THE PRESENT STUDY:**

While addressing the question as to whether there is a linguistic difference between the literates and illiterates,

the existing has to be looked at from two angles. Firstly, from the clinic view point we have

- (a) incidence studies which have given us equivocal results with respect to the incidence of aphasia in literates and illiterates. However,
- (b) we also have findings which point to the presence of a qualitative difference between the literates and illiterates (Lecours et al. 1987a, b; 1988).

Secondly, from the point of view of various experimental studies, we have

- (a) dichotic listening studies which have provided equivocal results with respect to right/left-ear advantage in the two groups. At the same time
- (b) studies which have looked into the metalinguistic abilities of the two sub-populations have indicated the existence of a difference between the literates and illiterates with the latter performing poorly (Laranth et al 1991)

This present study was taken up to confirm the presence of qualitative differences between literates and illiterates on various language tasks, and to determine whether these qualitative differences are true of even metalinguistic tasks such as grammaticality judgement task.

The latter issue is important because even though it is generally agreed upon that literacy enhances cognitive

growth, the knowledge and use of native language is presumed to be on par between literates and illiterates. In other words, the literates and illiterates are treated as a homogenous group with respect to their knowledge of language and use of the same - this, in spite of evidence from linguistic and cognitive investigations pointing to the contrary. Also, because of the same presumption normative studies are generally not undertaken for adult language tests. Hence it becomes important to have an overall measure of the performance differences between normal literate and illiterate adults at least as far as some of the basic components of language processing that are routinely examined in adult aphasiological work.

Therefore, the metalinguistic and qualitative aspects of language (knowledge and use) are systematically explored between literates and illiterates in this study.

## METHODOLOGY

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## METHODOLOGY

In our attempts to understand the consequences of literacy, the initial interest was focussed upon neuro-anatomical and cerebral dominance considerations. This was investigated through various anatomical and experimental dichotic listening tests. More recently, the Interest has shifted over to qualitative differences in the linguistic ability of the two groups especially their metalinguistic ability.

The metalinguistic task of grammaticality judgement occupies a central position in various linguistic methodologies and in the validation of linguistic hypotheses. Evidence from child language acquisition studies indicate that the ability to judge grammatical acceptability is developmental, and that children acquire this ability around 6 to 9 years (Hakes, 1980; Scholl and Ryan, 1980; Karanth, 1984; Vasantha et al. 1989; Karanth and Suchithra, in press). However, recent evidence that illiterates do not perform like literates on the grammaticality judgement task (Karanth, 1991 in press,) leads one to hypothesise that literacy may contribute to the development of grammaticality judgement abilities.

Various investigations conducted in the past have indicated that literates and illiterates do differ in language abilities. Cognitive investigations (Luria, 1971; Cole et al. 1971; OlsOh. 1985), dichotic listening experiments (Damasio, 1979; Tzavaras et al. 1981) and linguistic research (Cameron et al. 1971; Lecours et al. 1987a, b; Karanth, 1991 inpress) have pointed to a difference between the two sub-populations. However, dichotic listening tests have not indicated a definite difference between the two groups. Rather, their findings are equivocal (Damasio et al. 1979; Castro and Morales, 1987).

The finding of the Lecours et al. (1987) study that there are qualitative differences between literates and illiterates on simple language tasks and that of the Karanth et al. 1991 in press) study that the two sub-groups do not perform the same on grammaticality judgement tasks is important. This is especially so when we consider that fact that clinical work has treated the two sub-populations as one homogenous group except in the recent past (Lecours et al. 1987a; Karanth et al. 1991 inpress).

This new evidence of a relationship between literacy and grammaticality judgement ability is particularly important because of the centrality of the latter in linguistic theories, which has been reflected in a number of clinical researches (Linebarger et al. 1983a; Wulfeck, 1988)

Given the possibility that literacy and metalinguistic abilities may be related, it becomes important to have data on how the normal literate differs from the normal illiterate on some of the linguistic and metalinguistic tasks which are routinely used in the evaluation of brain-damaged patients. This is especially important in the Indian setting where the proportion of literates to illiterates is almost 1, and where the use of standardized test batteries may give us an over-estimated or an under-estimated picture in the case of brain-damaged illiterates and literates, respectively.

The question that was addressed in this study was: "In an Indian context, given a difference in terms of literacy, would the literate individual perform differently or the same as a literate individual on certain linguistic and metalinguistic tasks?".

### **3.1: AIM:**

- (1) To study the influence of literacy on the syntactic judgement abilities of literate and illiterate individuals.
- (2) To study the influence of literacy on the comprehension of morpho-syntactic markers presented in the form of a picture-pointing task.

- (3) TO qualitatively assess the expressive abilities of literate and illiterate individuals.

### **3.2: METHOD:**

Two groups of literate and illiterate individuals were evaluated on linguistic tasks tapping the syntactic judgmental, comprehension and production abilities of the subjects. The subjects were first tested on the syntactic section of the linguistic profile test followed by the comprehension section of the RRTC Battery, and then the expression section of the RRTC Battery. The subjects were omitted from the study if they did not complete the syntactic section of the LPT. The responses were subjected to a quantitative statistical, and a qualitative analysis.

### **3.3: SUBJECTS:**

Thirty literate and thirty illiterate individuals in the age range of 22 to 40 years were selected as subjects for this study. The criteria of selection of these subjects included:

- (a) The subjects should be neurologically healthy.
- (b) The subjects should have no speech or hearing problems.
- (c) The subjects should be intellectually normal.



- (d) The subjects should be within the age range of 21 to 40 years.
- (e) The subjects should be native speakers of Kannada.
- (f) If literate, the subjects should be literate in Kannada.
- (g) The illiterates should have had no introduction to formal education.

Majority of the subjects in this study were selected from Mysore city. Five illiterate subjects were selected from the town of Ramasamudra which is a coupler of hour journey from Mysore city. Each group had an equal representation of the males and females.

The average age of the literate group was 29.4 years and that of the illiterate group was 30.6 years. The average years of school/education for the literate group was 14.67 years.

### **3.4 TOOLS:**

Two tests were utilized in the testing of the subjects, namely the syntactic section of the LPT developed by Dr.Prathibha Karanth (1980, 84) at Mysore in India, and the Regional Rehabilitation Training Centre Battery (RRTC Battery - part of the project on "Development and Standardization of Language and Articulation Tests in Indian Languages"

carried out by the Regional Rehabilitation Training Centre, Madras and Ali Yavar Jung National Institute for the Hearing Handicapped, Bombay with funding from UNICES).

**3.4.1: The Linguistic Profile Test:** (Karanth, 1980, 1984)

The LPT is based on a linguistic framework and contains 3 major sections - Phonology, Syntax and Semantics which, through sub-sections, probe into deeper aspects of one's language. While the sections on Phonology and Semantics evaluate the discriminating and expressive abilities of the individual in these aspects of language, the Syntactic section assesses the syntactic competence of the individual under test by utilizing a grammaticality judgement task.

It was the Syntactic Section of the LPT that was employed to check the syntactic judgement abilities of the subjects selected. This section consists of 130 tests items sampling a wide range of grammatical structures covering the basic syntactic forms of the language tested in 11 sub-sections including:

1. morphophonemic structures,
2. plural forms,
3. tenses,
4. PNG markers,
5. case markers,
6. transitives, intransitives and causatives,
7. sentence types.

8. Predictates,
9. conjunctions, comparatives and quotatives,
10. conditional clauses, and
11. participial constructions.

Of the 130 test items, 65 are ill-formed, violating a particular rule for usage of a syntactic marker, while the remaining 65 are syntactically correct. The randomly arranged correct and incorrect test items as presented auditorily and the subjects are required to judge the utterances for grammatical acceptability.

**3.4.2: The RRTC Battery** (Regional Rehabilitation Training Centre, Madras and Ali Yavar Jung National Institute for the Hearing Handicapped, Bombay In Press).

The RRTC Battery has two sections dealing with Semantics and Syntax. All the test items are pictorial. The Syntactic section only was utilized in this study.

The syntactic section has 11 sub-sections corresponding to the 11 sub-sections in the syntactic section of the LPT, namely,

1. Morphophonemic structures,
2. Plural forms,
3. Tenses,
4. PNG markers.

5. Case Markers,
6. Transitives, intrasitives and causatives,
7. sentence types,
8. Conjunctives andquotatives,
9. Comparatives,
10. Conditional clauses
11. Participial constructions.

Each section has 10 items, 5 each for testing the comprehension and expression of specific syntactic focns as in the LPT. In response to the items testing comprehension the subject is expected to point to the correct picture out of a set of 3 or 4 pictures in response to an auditorily presented sentence describing the target picture. The items evaluating expression require the subject to describe pictures which specifically test the usage of specific syntactic structures. Totally the syntactic section contains 110 items, 55 testing comprehension and 55 testing expression of various grammatical forms.

### **3.5: TEST ADMINISTRATION AND RECORDING OF RESPONSES:**

The 130 test items of the syntactic section of the LPT and 55 items of the syntactic section of the RRTC Battery (evaluating comprehension) were tape recorded using the voice of a native Kannada speaker. The same was played to the subjects and the entire testing was done in a single setting lasting 40 to 50 minutes.

For the syntactic judgement task, the subjects were instructed that they would hear a number of sentences some of which would be correct and others incorrect. A couple of examples of correct and incorrect sentences as well as the correct forms for the latter category were given. The subject was then instructed to listen to the sentences and indicate whether each sentence was grammatically correct or incorrect. The tape recorded sentences were then presented one by one.

In the comprehension section of the RRTC Battery, the subjects were instructed to point to the appropriate picture on hearing the stimulus sentence. A couple of examples were provided for each syntactic structure tested prior to presentation of the tape recorded test items.

The subjects' responses were recorded on the scoring sheet for both the above tasks.

In evaluating the expressive abilities of the subjects, the subjects were instructed to describe the pictures presented in simple sentences. Questions were asked about the sentences when required. The subjects' responses were either tape recorded and later transcribed or transcribed directly verbatim depending on the convenience of the experimenter.

Test administration was done in a quiet environment with minimal distractions.

### **3.6: ANALYSIS:**

#### **3.6.1: Syntactic judgement task (LPT):**

The subjects' responses to the 130 items of the syntactic section of the LPT were scored for accuracy of the response and the following were calculated:

- (a) the mean scores and standard deviations obtained by the literate and illiterate groups in each sub-section of the syntactic section of the LPT, and
- (b) mean score obtained by the literate and illiterate groups on the syntactic section of the LPT as a whole.

Also, based on the obtained data, the number of hit responses (the well-formed utterances to which the subject responds 'good') and false alarms (the ill-formed sentences to which the subject responds 'good') were calculated for each subject in each sub-section of the syntactic section of the LPT, and the respective means were also calculated.

The number of hit responses and false alarms were used to calculate the grammatical sensitivity index as given by Linebarger et al. (1983). This was calculated keeping in mind that the chance factor in the obtained results is 0.5.

The grammatical sensitivity index 'A' is a non-parametric statistical index of sensitivity. It is based upon the estimated area under the receiver-operating characteristic (ROC) curve (i.e., 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 attainable in a two-alternative forced choice procedure. Because of its relation to the expected correct score in a two-alternative forced choice experiment, the A' can be interpreted quite naturally: an A' value of 0.90 translates into an expected score of 90% correct on a good/bad forced choice procedure.

The formula used for calculation of the grammatical sensitivity index A' is as follows:

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

Where x = the proportion of number of 'good' responses to that of number of ill-formed sentences, and  
 y = the proportion of number of 'good' responses to the number of well-formed sentences.

For details please refer to Libebarger, Schwartz and Saffran (1983).

**3.6.2: Comprehension task (RRTC Battery):**

The subjects' responses were scored for the accuracy of the responses, and the following statistics were calculated:

- (a) the mean scores obtained by the literate and illiterate groups in each sub-section of the syntactic section of the RRTC Battery, and
- (b) the standard deviation of the scores obtained by the two groups in each sub-section of the syntactic section of the RRTC Battery.

**3.6.3: Expression task (RRTC Battery):**

As the majority of the illiterate subjects were unwilling to have their verbal descriptions of the pictures recorded, adequate number of samples of the expression section of the RRTC Battery for this group was not available for a quantitative analysis to be done. Hence the subjects' responses were subjected to a qualitative analysis wherein the responses were evaluated for the usage of the particular grammatical form being tested, for complexity of the utterances and for syntactic construction (in terms of completeness of the utterances).

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



## RESULTS AND DISCUSSION

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## RESULTS AND DISCUSSION

The findings of this study confirm the previous findings that have been obtained on the performance of the literates and illiterates on the metalinguistic task (Karanth, et al. 1991). The data obtained on the 3 tasks, namely the Syntactic Judgement, the Comprehension and the Expression Tasks, were analyzed in the order of the steps given in section 3.6 of Chapter 3.

The raw scores obtained by the two groups on the Metalinguistic task and the Comprehension task are presented in Table-I and Table-II respectively. As a whole, the literate group obtained a mean of 92.90, while the illiterate group obtained a mean score of 72.70 on the syntactic judgement task. As may be seen, the performance of the literates is definitely much better than that of the illiterates in the Syntactic section of the LPT, while the performance difference is not as large in the Comprehension task.

Besides calculating the raw scores for the two tasks, the scores obtained by the two groups as a whole in each sub-section of the Comprehension part of the Syntactic section of the LPT was also calculated, as was also the Grammaticality Sensitivity Indices for each sub-section of the Syntactic section of the LPT. Table-II presents the mean sensitivity

Table-1: Scores obtained by the 30 literates and 30 illiterates in the Syntactic Section of the LPT

Subject	Literates	Illiterates
1	81	67.5
2	94	69.5
3	86.5	61
4	98.5	64
5	97.5	69.5
6	95	63.5
7	91.5	67
e	97	57.5
9	93.5	72
10	80	70.5
11	92	69
12	91	70.5
13	93.5	72
14	95.5	66
15	95	67
16	91	62.5
17	81.5	59.5
18	92.5	62.5
19	95.5	65.5
20	94.5	87.5
21	97.5	76
22	100	68.5
23	98	61.5
24	91	72
25	94	77
26	92	74.5
27	93	75.5
28	94.5	75
29	97	64.5
30	93.5	73.5
	2787.0	2182.0
Mean	92.9	72.7

Table-II: Scores obtained by the 30 literates 30 illiterate's in the Comprehension section of the RRTC Battery.

Subject	Literates	Illiterates
1	55	53
2	55	53
3	55	55
4	55	53
5	55	49.5
6	55	53
7	55	54
8	55	55
9	55	54
10	55	53
11	55	54
12	55	53
13	55	52
14	55	53
15	55	55
16	55	52
17	55	55
18	55	51
19	55	55
20	55	55
21	55	52
22	55	54
23	55	55
24	55	55
25	55	54
26	55	55
27	55	54
28	55	52
29	55	55
30	55	54
	1650	1607.5
Mean	55	53.5

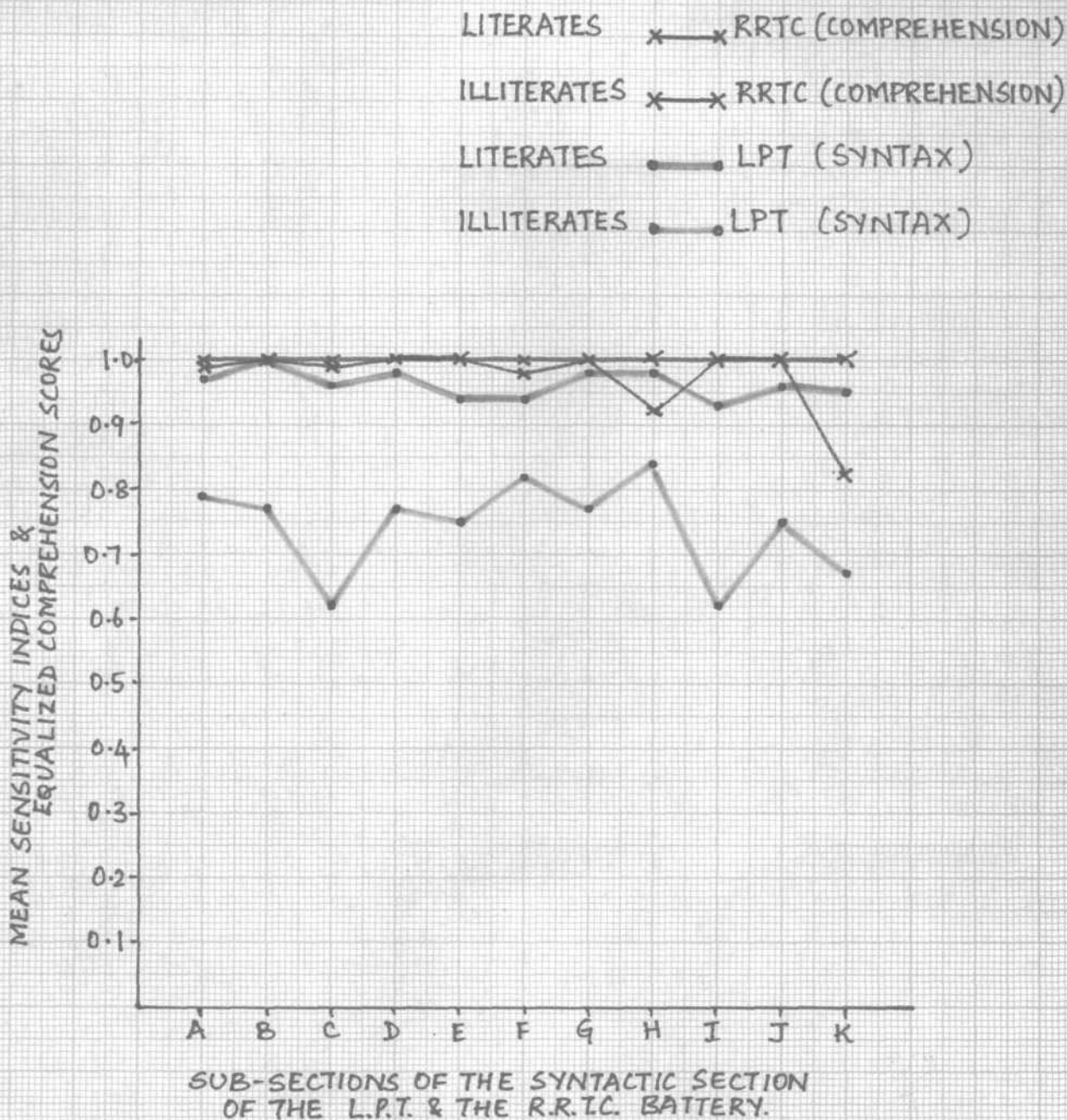
indices and the comprehension scores obtained by the literate and illiterate groups on the Syntactic section of the LPT and the RRTC Battery respectively. The same data has been presented graphically in Graph-I. In order to accommodate the Comprehension scores of the two groups into the graph, the same has been brought down by a factor of 5. The obtained values have been marked in Table-III in parentheses.

As may be seen from Graph-1, on the Metalinguistic Syntactic Judgement task, there is a clear-cut difference between the performance of the literates and illiterates, the latter performing at a lower level, and the difference being significant. On the comprehension task, the illiterates and literates perform equally well in most of the sub-sections of the RRTC Battery except in sub-sections F, H and K, the difference being more pronounced in the last two sections. The implication of Graph-1 is the indication that the illiterates not only have difficulty on the Syntactic Judgement Task, but also, in the comprehension of specific syntactic forms. The significance of these performance differences will be discussed in later sections.

In the following sections the results obtained in each task will be presented.

Table-III: Mean sensitivity scores and comprehension scores of the literate and illiterate groups.

Section	Mean sensitivity indices obtained by the literate & illiterate groups on the 11 sub-sections of the Syntactic Section of the L.P.T.		Mean scores obtained by the literate and illiterate groups on the 11 sub-sections of the Syntactic Section of the R.R.T.C. Battery (Comprehension)			
	Syntax (L.P.T)		Syntax (R.R.T.C)			
	Literates	[Illiterates	Literates		Illiterates	
A	0.97	0.79	5	(1)	4.97	(0.99)
B	1.00	0.77	5	(1)	5	(1)
C	0.96	0.62	5	(1)	4.98	(0.99)
B	0.98	0.77	5	(1)	5	(1)
E	0.94	0.75	5	(1)	5	(1)
F	0.94	0.82	5	(1)	4.9	(0.98)
G	0.98	0.77	5	(1)	5	(1)
H	0.98	0.84	5	(1)	4.6	(0.92)
I	0.93	0.62	5	(1)	5	(1)
J	0.96	0.75	5	(1)	5	(1)
K	0.95	0.67	5	(1)	4.1	(0.82)



GRAPH I: COMPARISON OF THE MEAN SENSITIVITY INDICES & MEAN COMPREHENSION SCORES (EQUALIZED BY PROPORTION TO THE VALUE OF THE INDICES) OBTAINED BY THE LITERATE & ILLITERATE SUBJECTS ON THE 11 SUB-SECTIONS OF THE SYNTACTIC SECTION OF THE L.P.T. & THE R.R.T.C. BATTERY RESPECTIVELY.

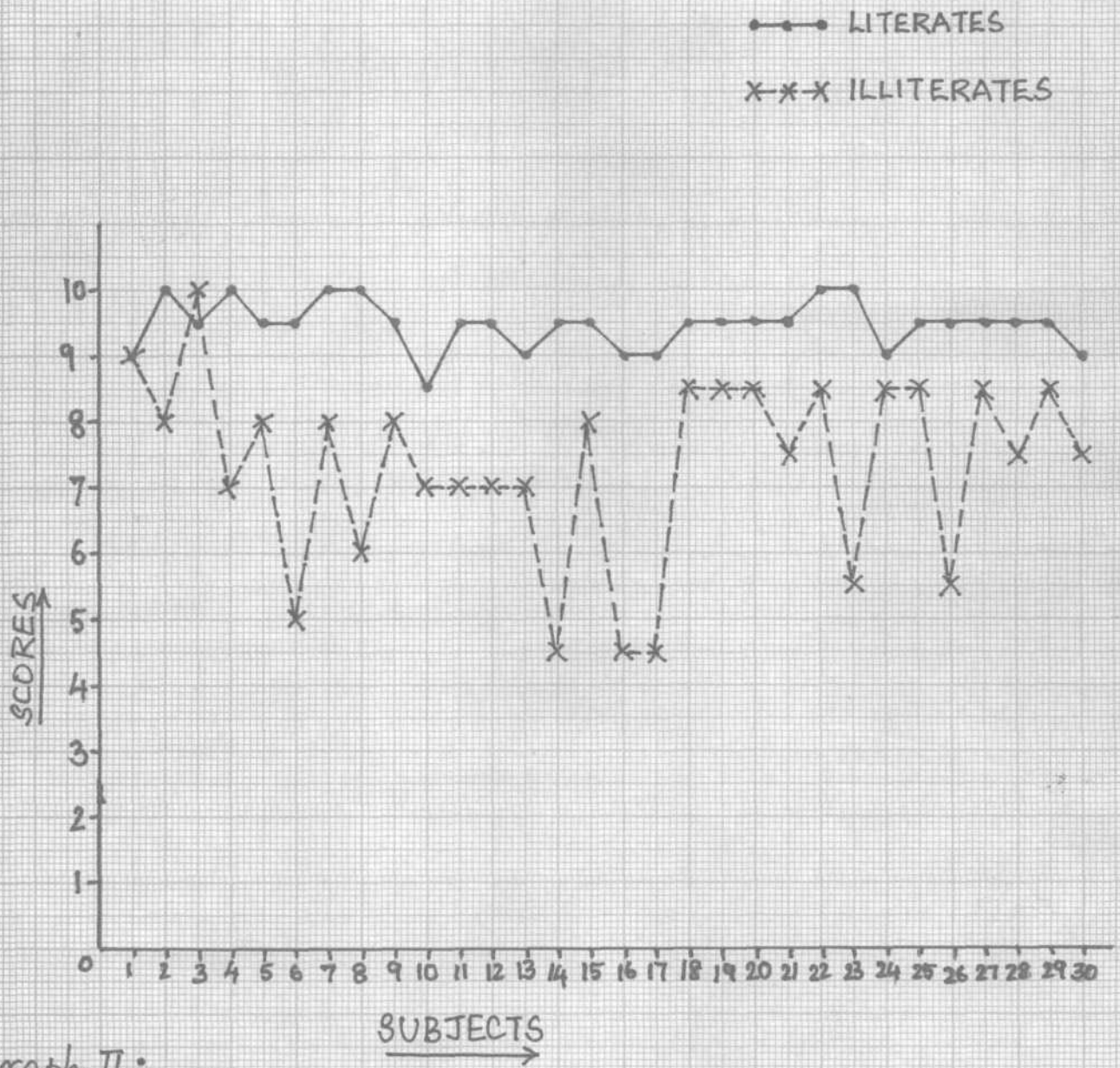
**4.1: METALINGUISTIC (SYNTACTIC JUDGEMENT) TASK:**

Graphs II, III, IV, V, VI and VII present the Individual scores obtained by all the subjects in some of the sub-section: of the syntactic section of the LPT. It should be noted that even though there are instances wherein a few individual subjects have performed contrary to the group performance, in the overall consideration, the literates have performed consistently better than the illiterates. This is true of all the 11 sub-sections of the Syntactic Section of the LPT.

Even though, as a group, the illiterates performed poorly, there were instances wherein certain individuals performed exceptionally well in certain sub-sections, but the same performance was not maintained in other sub-sections. This is evident from the Graphs II to VII.

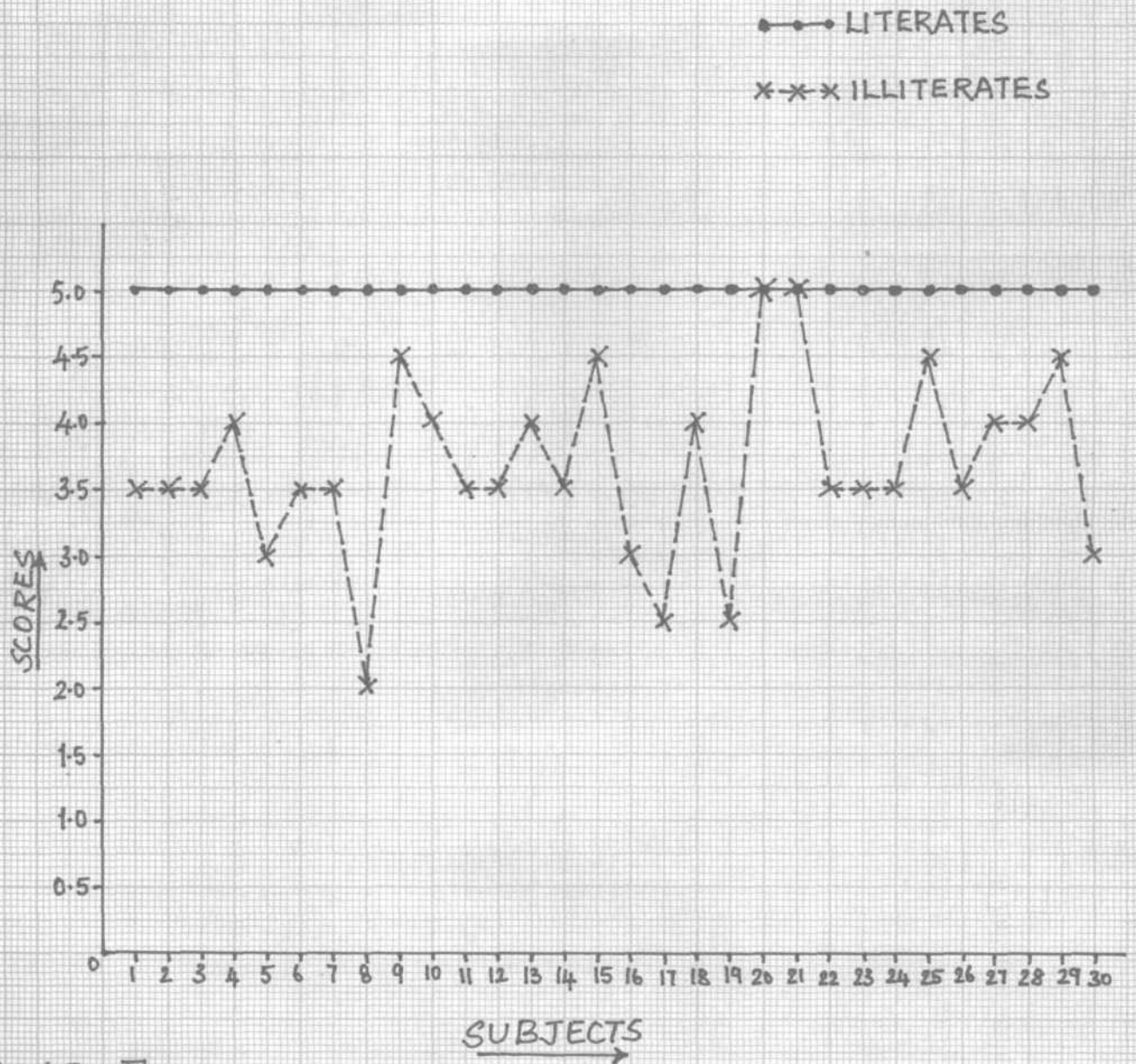
Based on the obtained responses, the number of hit responses (the well-formed utterances to which the subject responds 'good') and the number of false alarms (the ill-formed utterances to which the subject responds 'good') were calculated for each subject in each sub-section of the Syntactic Section of the LPT. This was used to calculate the grammaticality sensitivity index which gives an idea as to the validity of the subjects responses.





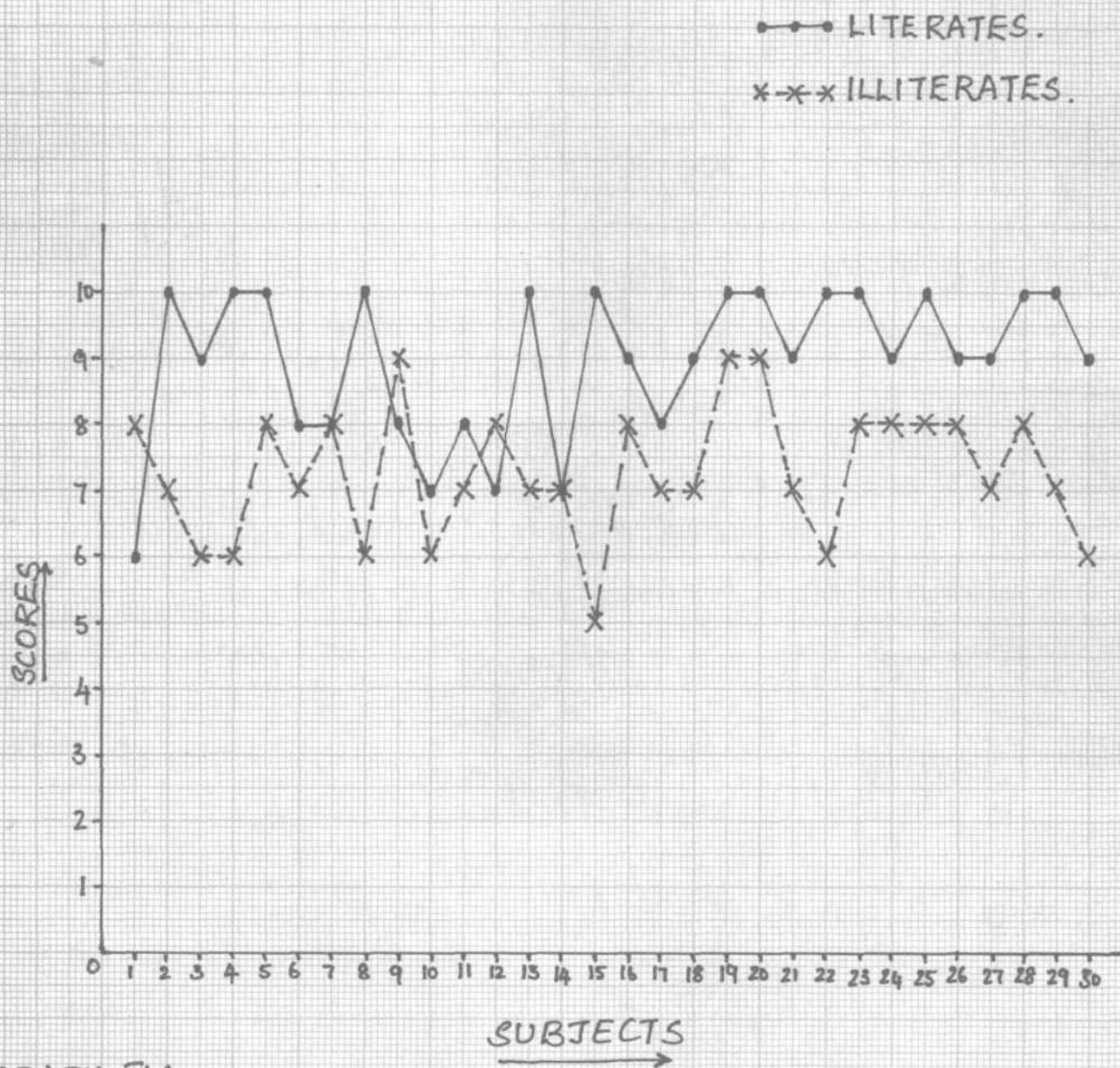
Graph II:

Scores obtained by the literate and illiterate subjects in Sub-section A (Morphophonemic structures) of the Syntax Section of the LPT.



GRAPH III:

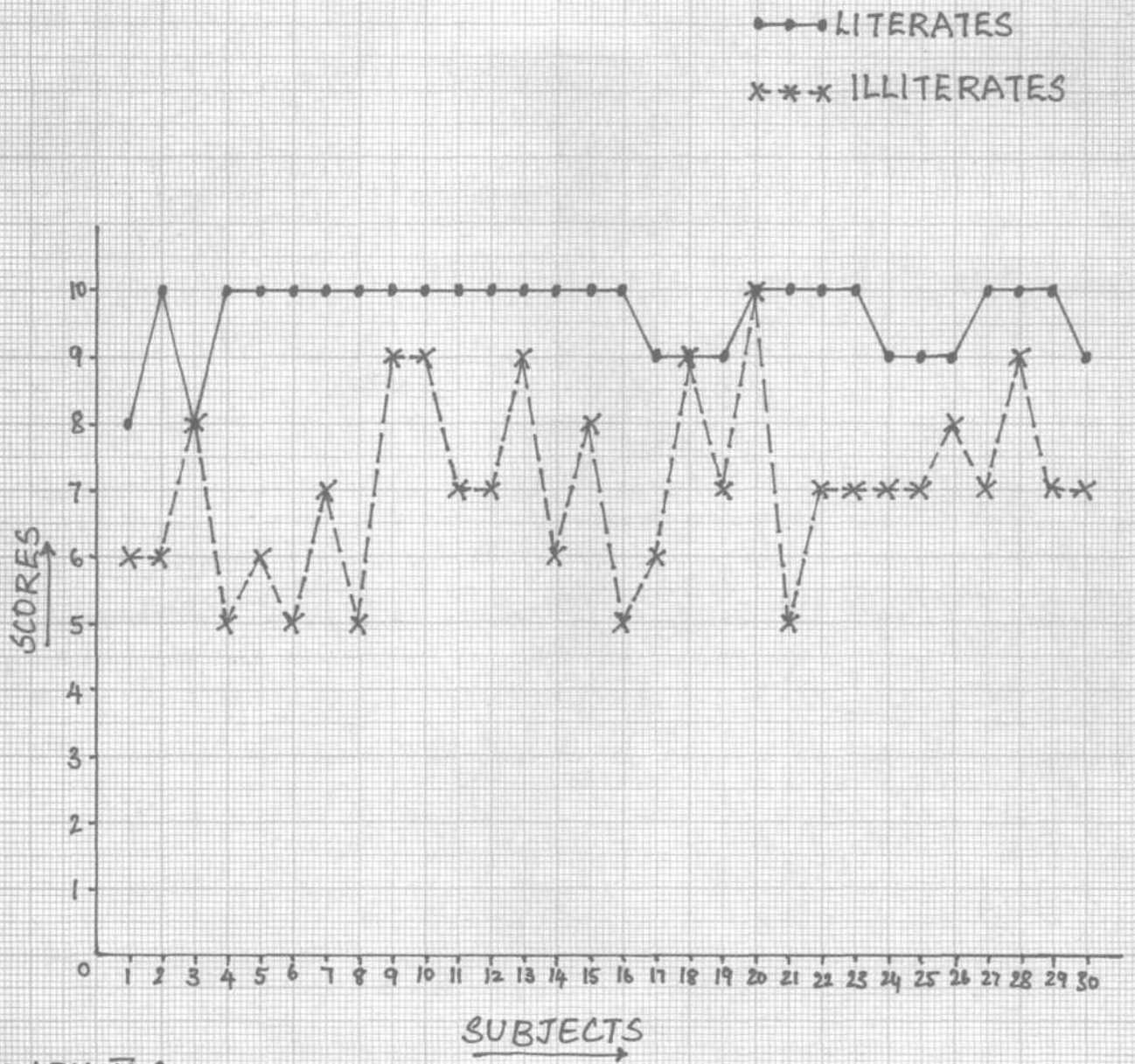
Scores obtained by the literate and illiterate subjects in sub-section B (Plural Forms) of the Syntax Section of the LPT.



GRAPH IV:

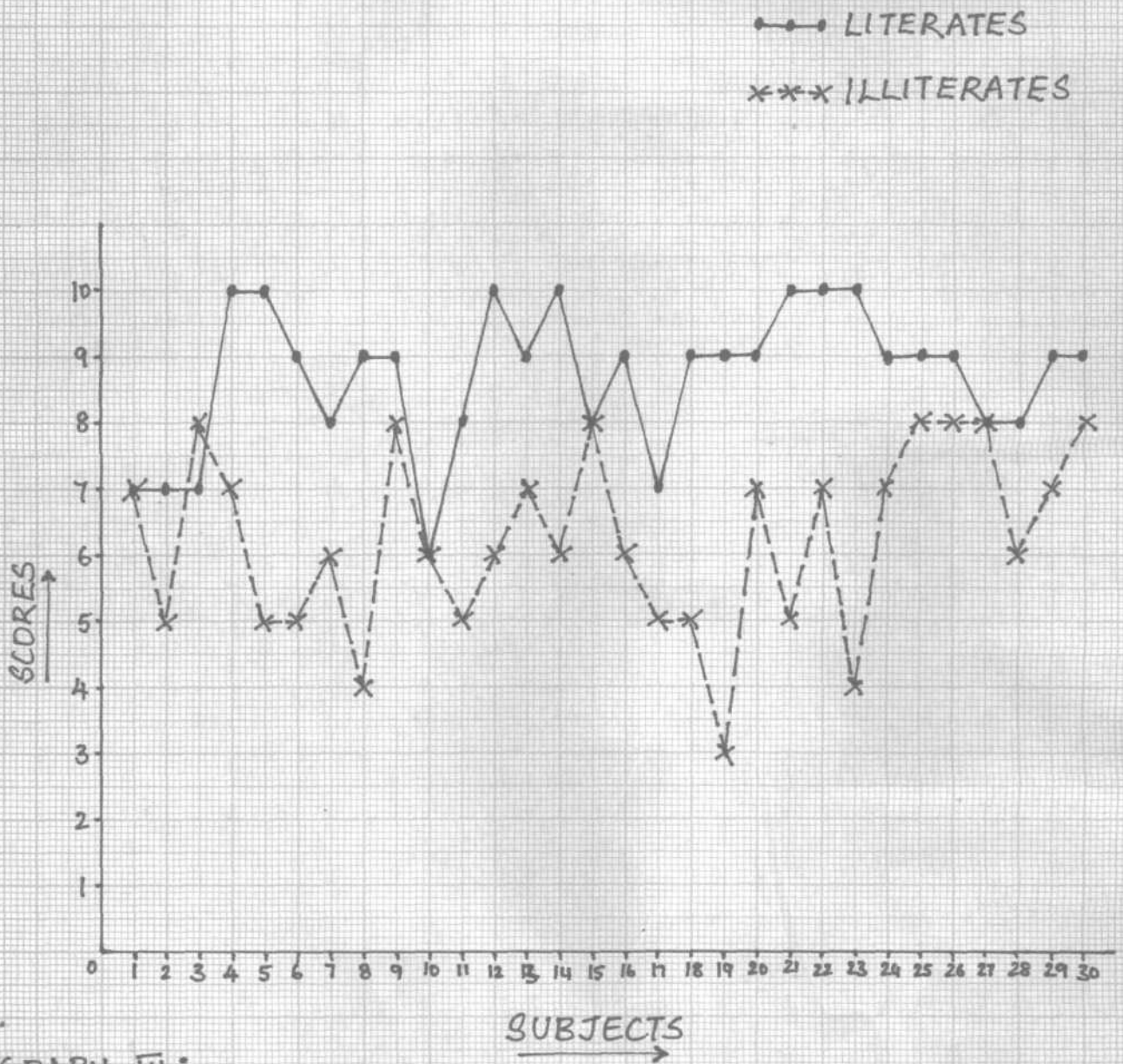
Scores obtained by literate & illiterate subjects in sub-section F (Transitives, Intransitives and Causatives) of the Syntax Section of the LPT.





GRAPH V:

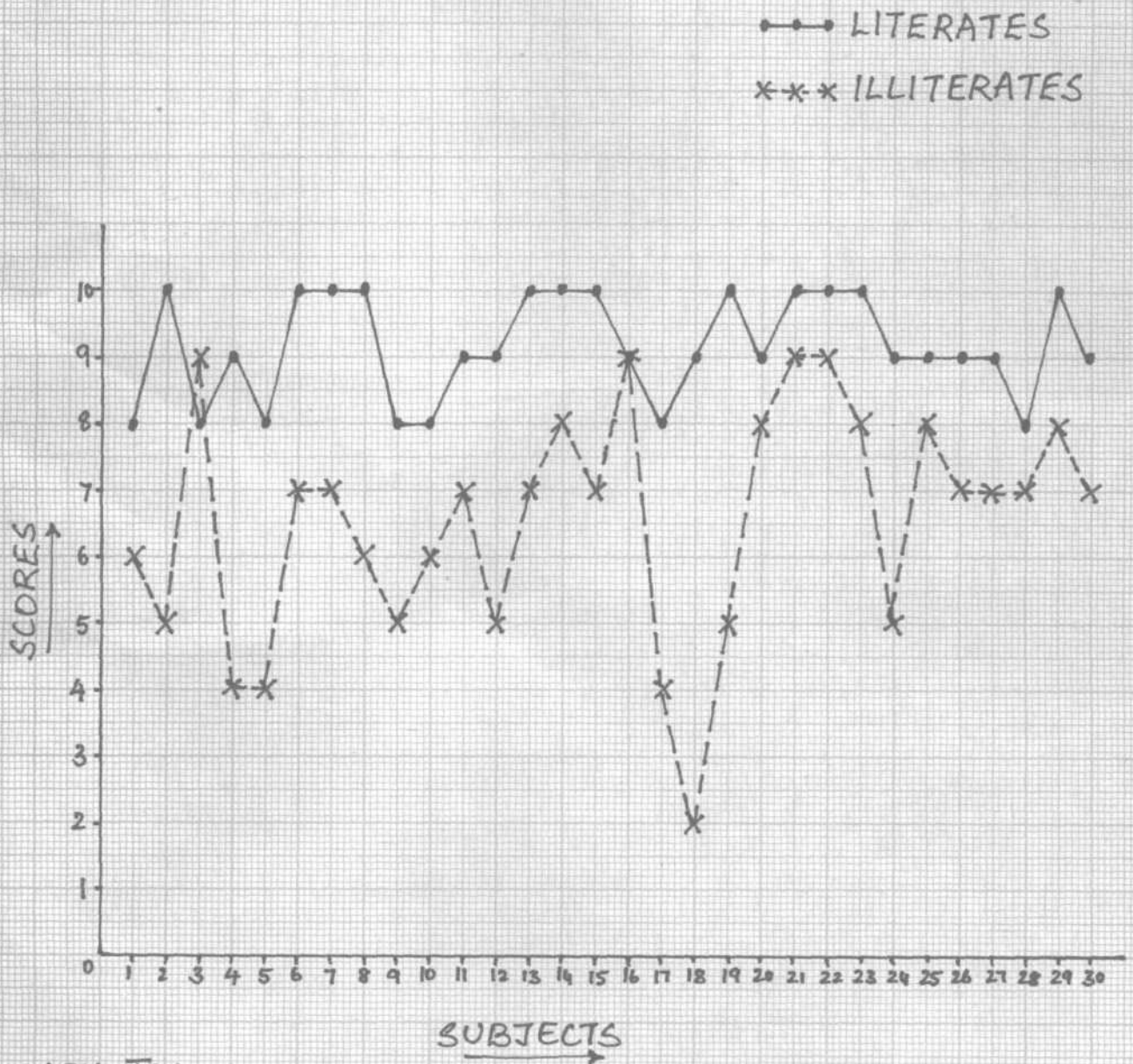
Scores obtained by literate & illiterate subjects in sub-section G (Sentence Types) of the Syntax Section of the LPT.



GRAPH VI:

Scores obtained by literate & illiterate subjects in sub-section I (Conjunctions, Comparatives & Quotatives) of the Syntax Section of the LPT.





GRAPH VII:

Scores obtained by literate and illiterate subjects in sub-section K (Participial Constructions) of the Syntax Section of the LPT.

Table-IV provides the average number of hits, false alarms and sensitivity indices for different syntactic structures of the LPT in the literate and illiterate groups. Table-V on the other hand, presents the mean sensitivity indices for the two groups on the various sub-sections of the Syntactic Section of the LPT. The same has been depicted in the form of a bar diagram in Graph-VIII.

It is evident from the above data that the illiterates have difficulty in judging the syntactic acceptability of utterances. In order to find out whether the difference between the literates and illiterates was significant or not, the t-test was applied. It was found that the differences between the grammaticality/indices of the two groups was significant at the 0.01 level for all the 11 sub-sections. Table-VI depicts not only the group means and standard deviations, but also the t-ratios and the significance levels for each sub-section as well as the significant difference of the mean scores obtained by the two groups in the syntactic section of the LPT.

It is evident from the above that on a metalinguistic task such as the Grammaticality Judgement Task, the illiterates are performing poorly when compared to the literate subjects.

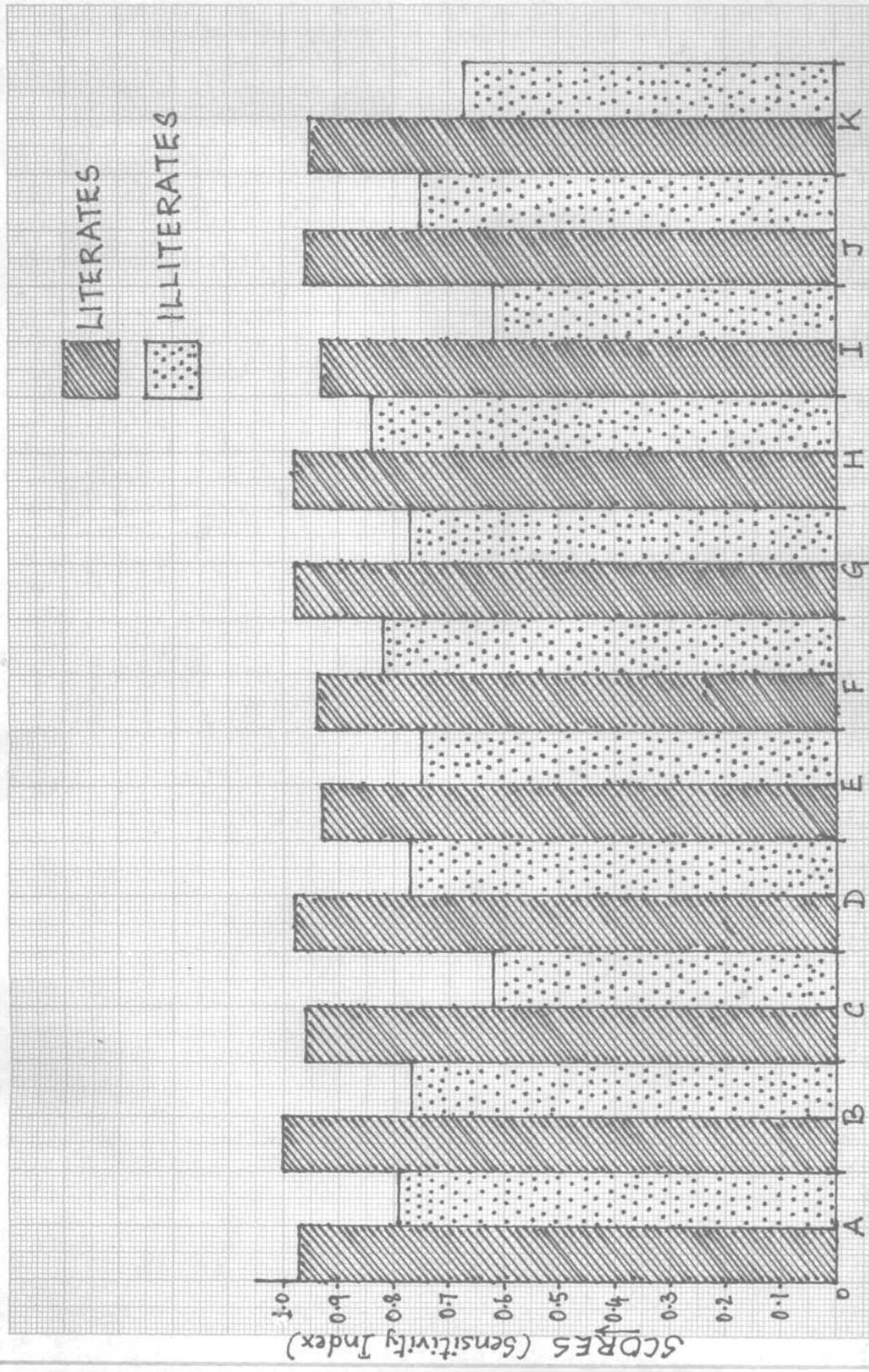
Table-IV: Average number of hits, false alarms and sensitivity indices for different syntactic structures of the LPT in the literate and illiterate groups.

NO.	Syntactic structure	Literate			Illiterate		
		Y	x	A'	y	x	A'
A	Morphophonemic structure	0.96	0.06	0.97	0.76	0.32	0.79
B	Plural forms	1.00	0	1.00	0.88	0.45	3.77
C	Tenses	0.98	0.12	0.96	0.84	0.57	0.62
D	PNG Markers	0.98	0.06	0.98	0.76	0.34	0.77
E	Case markers	0.98	0.20	0.93	0.91	0.45	0.75
F	Transitives, intransitives & causatives	0.94	0.15	0.94	0.91	0.46	0.82
G	Sentence types	1.00	0.07	0.98	0.84	0.43	0.77
H	Predicates	1.00	0.07	0.98	0.88	0.34	0.84
I	Conjunctions, comparatives & quotatives	0.98	0.24	0.93	0.91	0.64	0.62
J	Conditional clauses	0.99	0.14	0.96	0.88	0.45	0.15
K	Participial constructions	0.98	0.14	0.95	0.82	0.52	0.67



Table-V: Mean sensitivity Indices obtained by the literate and illiterate groups on the 11 sub-section of the syntactic section of the LPT

Sub-section	Literates	Illiterates
A) Morphophonemic structures	0.97	0.79
B) Plural forms	1.00	0.77
C) Tenses	0.96	0.62
D) PNG Markers	0.98	0.77
E) Case Markers	0.94	0.75
F) Transitives, intransitives and Causatives	0.94	0.82
G) Sentence types	0.98	0.77
H) Predicates	0.98	0.84
I) Conjunctions, Comparatives and Quotatives	0.93	0.62
J) Conditional clauses	0.96	0.75
K) Participial constructions	0.95	0.67
	10.59	8.17
Mean	0.96	0.74



GRAPH VIII:

← Sub-sections of the LPT →  
 MEAN SENSITIVITY INDICES OBTAINED BY THE LITERATE & ILLITERATE SUBJECTS ON THE 11 SUB-SECTIONS OF THE SYNTAX SECTION OF THE LINGUISTIC PROFILE TEST.

Table-VI: Group means, standard deviations, t-ratios & significance levels of the Grammaticality Sensitivity Indices for the various syntactic structures of the Syntactic Section of the LPT and the raw scores of the literate and illiterate groups.

Syntactic structures	Group	Mean	Standard Deviation	t-ratio	Significant significance:
A-Morphophonemic structures	Literate	0.97	0.222	5.5	Significant 0.01 level
	Illiterate	0.79	0.178		
B-Plural forms	Literate	1.00	0	7.2	Significant 0.01 level
	Illiterate	0.77	0.175		
C-Tenses	Literate	0.96	0.064	7.2	Significant 0.01 level
	Illiterate	0.62	0.252		
D-PNG Markers	Literate	0.98	0.022	5.9	Significant 0.01 level
	Illiterate	0.77	0.193		
E-Case Markers	Literate	0.93	0.070	4.09	Significant at 0.01 lev
	Illiterate	0.75	0.231		
F-Transitives, Intransitives & Causatives	Literate	0.94	0.080	5.2	Significant 0.01 level
	Illiterate	0.82	0.10		
G-Sentence types	Literate	0.98	0.030	7.7	Significant 0.01 level
	Mliterate	0.77	0.153		
H-Predicates	Literate	0.98	0.02*	7.0	Significant 0.01 level
	Illiterate	0.84	0.108		
I-Conjunctions, Comparatives & Quotatives	Literate	0.93	0.069	5.9	Significant 0.01 level
	Illiterate	0.62	0.250		
J-Conditional clauses	Literate	0.96	0.036	7.2	Significant 0.01 level
	Illiterate	0.75	0.155		
K-Participial constructions	Literate	0.95	0.039	6.09	Significant 0.01 level
	Illiterate	0.67	0.252		
RAW SCORES (SYNTAX SECTION OF LPT)	Literate	92.9	4.85	12.6	Significant 0.01 level
	Illiterate	72.7	7.32		

#### 4.2: COMPREHENSION TASK:

Table-VII provides the mean scores obtained by the two groups in each sub-section of the syntactic section of the RRTC Battery evaluating comprehension. Graph IX provides a visual representation of this data in the form of a bar diagram.

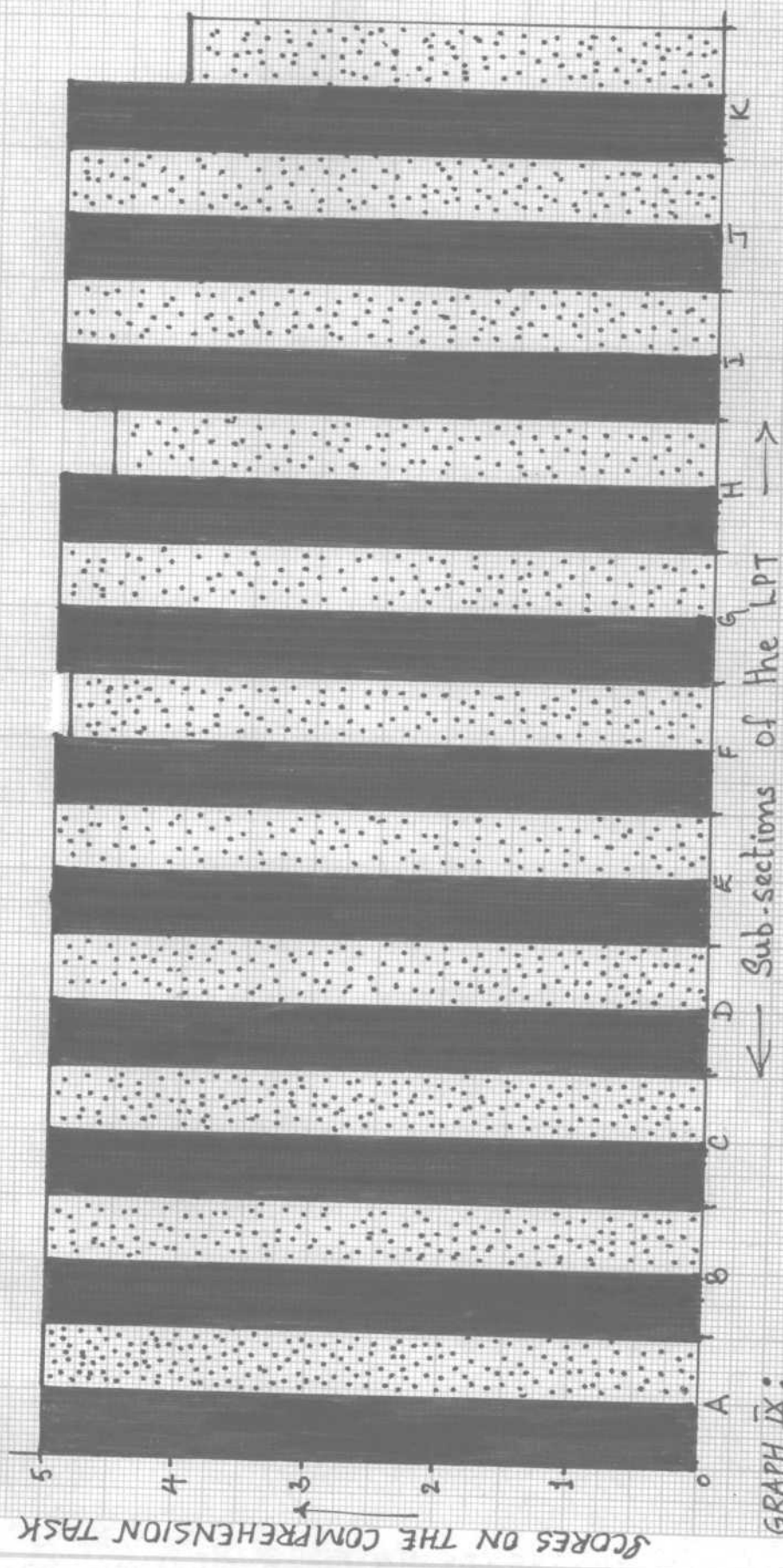
As may be seen from Table-VC there is no difference between the performance of the literate and illiterate subjects on 6 sub-sections, namely plural forms, PNG markers, case markers, sentence types, comparatives and conditional clauses. In the remaining 5 sub-sections, the mean scores of the illiterate group was slightly lower as some of the subjects made errors in their responses. In order to check whether this performance difference between the two groups in these 5 sub-sections was significant or not, the t-test was applied and the significance levels were obtained.

Table-VIII presents the group means, standard deviations, t-ratios and the significance levels for the two groups on the comprehension task. It is evident that the differences between the two groups was not significant in the sub-sections testing for morphophonemic structures (sub-section A) and tenses (sub-section C). In sub-section ?

Table-VII: Scores obtained by the literates and illiterates groups in each sub-section of the Syntactic Section of the RRTC Battery evaluating comprehension.

Section	Literates	Illiterates
A (Morphophonemic structures)	5	4.97
B (Plural forms)	5	5
C (Tenses)	5	4.98
D (PNG Markers)	5	5
E (Case Markers)	5	5
F (Transitives, Intransitives and Causatives)	5	4.9
G (Sentence types)	5	5
H (Conjunctives and Quotatives)	5	4.6
I (Comparatives)	5	5
J (Conditional Clauses)	5	5
K (Participial Constructions)	5	4.1

LITERATES  
ILLITERATES



GRAPH IX.

MEAN SCORES OBTAINED BY THE LITERATE & ILLITERATE SUBJECTS ON THE 11 SUB-SECTIONS OF THE SYNTAX SECTIONS OF THE RRTC BATTERY.

Table-VIII: Group means, standard deviations, t-ratios & significance level of the Comprehension scores for the various syntactic structures of the Syntactic section of the RRTC Battery.

Syntactic structures	Group	Mean	Standard Deviation	t-ratio	Significant/not signifies
A-Morphophonemic structures	Literate	5	0	0.91	Not signifies at 0.01 level
	Illiterate	4.97	0.179		
B-Plural forms	Literate	5	0		Not signifies
	Illiterate	5	0		
C-Tenses	Literate	5	0	0.12	Not signifies at 0.01 level
	Illiterate	4.98	0.89		
D-PNG Markers	Literate	5	0		Not signifies
	Illiterate	5			
E-Case Markers	Literate	5	0		Not signifies
	Illiterate	5	0		
F-Transitives, Intransitives & Causatives	Literate	5	0	1.82	Significant of at 0.1 level*
	Illiterate	4.9	0.3		
G-Sentence types	Literate	6	0		Not significant
	Illiterate	5	0		
H-Conjunctives & Quotatives	Literate	5	0	4.5	Significant at 0.1 level *
	Illiterate	4.6	0.48		
I-Comparatives	Literate	5	0		Not significant
	Illiterate	5	0		
J-Conditional clauses	Literate	5	0		Not significant
	Illiterate	5	0		
K-Participial constructions	Literate	5	0	5.7	Significant at 0.01 level *
	Illiterate	4.1	0.86		

(transitives, intransitives and causatives), the difference was found to be significant only at the 0.1 level. While for sub-sections H (conjunctions and quotatives) and K (participial constructions) the difference was significant at the 0.01 level.

The obtained data suggest that even though the knowledge of various syntactic structures is present in the illiterate, such an individual does have difficulty in the comprehension of certain specific syntactic forms such as conjunctions, quotatives and participial constructions.

#### **4.3: EXPRESSION TASK:**

As an adequate number of samples of the expressive output of the subjects was not available, a quantitative analysis could not be carried out. Instead, a qualitative analysis was done.

It was noted that in describing the pictures presented the literates tended to use the complete form of the sentence, they were more elaborate in describing the pictures (as in the use of adjectives and other modifiers), and the grammatical structures tested for were present in all the cases.

Compared to the performance of the literate group, the illiterates were found to perform poorly in that their



utterances tended to be incomplete even if the syntactic structure tested for was present. Furthermore, their utterances were syntactically and semantically less complex.

As may be seen from Table-IX, the utterances of the literate group were syntactically correct and more complex than that of the illiterates. Overall, it may be said that there do exist qualitative differences between the production abilities or language use of the literates and illiterates.

#### **4.4. OVERALL RESULTS.**

The obtained data, as presented above, reveal the following:

- (a) There is a significant difference between the literates and illiterates on the syntactic judgement task with the illiterates performing poorly.
- (b) There is a significant difference between the performance of the literate and illiterate groups in comprehending certain syntactic structures such as conjunctions, quotatives and participial constructions.
- (c) There are qualitative differences between the literates and illiterates in their use of language.

#### **4.5: DISCUSSION:**

The findings of this study substantiate the findings of the Karanth et al. (1991, in press) study which reported a

Table-IX: Examples of utterances used by literate and illiterate subjects to describe pictures on the Expression Task.

Description of the picture	Expected response	Observed response	
		Literates	Illiterates
1. The picture depicts a girl drinking water from a glass.	avelu kudiyu-tiddale ("She is drinking")	avelue kudlyu-tiddale	kudiyutiddale ("Drinking she") -Gender implied -INCOMPLETE
2. The picture depicts a boy inside the house.	huduga mane olage idane ("The boy is inside the house")	huduga maneya bagilu hatira idane ("The boy is near the house") ELABORATE	bagilu pakka nintiddane ("Standing near the door, he is") - GENDER BMLIEE - INCOMPLETE
3. The picture depicts a doll on top of * table.	bombe mejina mele ide ("The doll is on the table")	bombe mejina mele ide	bombe mejumele ide. ("The doll-top of the table") -MORPHOPHONEMIC LOCATIVE MARKER ABSENT.
4. The picture depicts a book on top of a table.	pustaka mejina mele ide ("The book is on the table")	pustaka mejina mele ide	booku stoolalli ide. ("The book is on the stool"). -INCORRECT LOCATIVE MARKER, INCOMPLETE UTTERANCE, NAMING ERROR
5. The picture depicts a basket of mangoes	buttiyalli mavinahannugalu ive ("There are mangoes in the basket")	butti olage thumba hannugalu ive. ("There are many fruits inside the basket") -ELABORATE CONSTRUCTION	buttiyalli hannugalu ide. ("There are fruits in the basket"). -NOT SPECIFIC (IN TERMS OF NAMING FRUIT)

difference between literates and illiterates in their syntactic judgement ability, and suggested literacy as a factor contributing to the development of grammatical judgement ability. The present study points to a definite difference existing between the literate and illiterate sub-populations on the three tasks utilized, namely a syntactic judgement task, a comprehension task, and an expression task.

Within the illiterate group, comparing their performance on the Comprehension and syntactic Judgement Task, it can be seen that the illiterates perform relatively better in the former task. However, even in this task, they have difficulty comprehending some syntactic structures such as conjunctions and quotatives (sub-section H) and participial constructions (sub-section K). Even in their expressive output, it was found that this group had more difficulty in constructing syntactically adequate sentences\*

The descriptive terms used by Luria (1971) to describe the performance of his illiterate subjects, such as "immediate" "concrete", and "practical" seem to apply to the performance of the illiterate subjects in the present study also. The cognitive consequences of literacy and education on language use and metalinguistic skills need to be investigated further.

This study also supports the findings of the Lecours et al. (1987a) study, and does carry the implication of the necessity of norms to be established for these two sub-populations who have been considered as a homogenous group with respect to knowledge and use of language. Because of this presumption, normative studies are generally not conducted for adult language tests. However, the evidence from the Lecours et al. (1987a), Karanth et al. (1991 inpress) and the findings of the present study suggest that the establishment of norms for the language tests with reference to the literacy factor would help us to correctly estimate the severity of the language deficit presented by a literate/illiterate braindamaged patient. This is especially important because the tasks utilized in this study as well as the Lecours et al. (1987a) and Karanth et 1991 inpress) study form part of the basic testing materials used in routine examination of brain damaged patients.

#### **4.6: CONCLUSION:**

In short, given the highly significant differences in the results of the healthy illiterate as opposed to the healthy literate subjects on the syntactic judgement task and simple comprehension and expression tasks, it would be logical to conclude that literacy does play an important

role in the development of grammaticality judgement/  
metalinguistic abilities, and even influence the com-  
prehension and expressive abilities of the individual.

## SUMMARY AND CONCLUSION

The present study was undertaken to investigate the qualitative differences among normal literate and illiterate individuals on linguistic and metalinguistic tasks by evaluating their performance on simple comprehension and expression tasks as well as on a grammaticality judgement task. A group of sixty healthy subjects - thirty literates and thirty illiterates - in the age range of 22 to 40 years were selected for the study. The subjects were required to be native - Kannada speakers with no speech or hearing problems. The two groups were studied for their performance on three tasks utilizing two tests, namely the Syntactic Section of the LPT and that of the RRTC Battery aiming to evaluate the subjects' syntactic judgement ability, their comprehension and expression. A quantitative, statistical and qualitative analysis of the results was carried out.

The results have indicated that the illiterates perform poorly when compared to the literates in all the three tasks, the difference being most pronounced in the syntactic judgement task. Although the illiterates perform as well as the literates in some of the subsections of the comprehension task, they do experience difficulties with some specific syntactic structures.

such as conjunctives, quotatives and participial constructions. Furthermore, a qualitative analysis of the expressive output of the subjects revealed that the verbal output was better in literates in terms of sentence completeness, structural complexity and elaborateness.

A statistical analysis using the t-test showed the differences on the syntactic judgement task and specific sub-sections of the comprehension task to be highly significant at the 0.01 level.

Given the above findings, it is concluded that literacy not only contributes to the development of metalinguistic abilities, such as the syntactic judgement ability, in an individual, but also affects the comprehension and quality of expression of the individual under consideration.

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## APPENDICES

SYNTACTIC SECTION OF THE LINGUISTIC PROFILE TEST

## SECTION II : Syntax

*Instructions:* Instruct 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. Illustrate with one or two examples if need be. Read the items in the list one by one. Repeat once if necessary. If the subject fails to respond; give him the test items in the written form. Accept correction once. Score for 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
		Verbal	Graphic	Verbal	Graphic	Gestural	
1.	ಎಡಗೈ						
2.	ಪೈಸೆನಲ್ಲಿ						
3.	ಹುಡುಗನಲ್ಲಿ						
4.	ದಾರಿಲಿ						
5.	ನಿಜಯಾ						
6.	ಕಲ್ಲುವನ್ನು						
7.	ಮನೆಯಲ್ಲಿ						
8.	ಕಾಡುಗೆ						
9.	ಬೀದಲ್ಲಿ						
10.	ನೀರಲ್ಲಿ						
11.	ಮಗುವನ್ನು						
12.	ಊರುವಲ್ಲಿ						
13.	ಕೆಳಗುಟೆ						
14.	ಬಲದಿವಿ						
15.	ಮರಲ್ಲಿ						
16.	ನಿಜವಾ						
17.	ಅಜ್ಜಲ್ಲಿ						
18.	ಊರಲ್ಲಿ						
19.	ಕೆಳದಾಟಿ						
20.	ಪುಸ್ತಕದಲ್ಲಿ						

Maximum Score 10

Patient's Score \_\_\_\_\_



B. Plural Forms

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

Maximum Score 5

Patient's Score \_\_\_\_\_

. Tenses

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

Maximum Score 5

Patient's Score -- --

## D. PNG Markers

Sl. No.	Test Item	Stimulus Modality		Subject's Response			Accuracy of Response
		Verbal	Graphic	Verbal	Graphic	Gestural	
1.	ನೀನು ಮಲಗುವೆ.						
2.	ಕಮಲ ಬರುತ್ತಾಳೆ.						
3.	ಅವರು ಓಡಿದ.						
4.	ಹಸು ಬರುತ್ತಾನೆ.						
5.	ಅವು ಮಲಗಿವು.						
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\_\_\_\_\_

## E. Case Markers

Sl. No.	Test Item	Stimulus Modality		Subject's Response			Accuracy of Response
		Verbal	Graphic	Verbal	Graphic	Gestural	
1.	ಹುಡುಗನಿಗೆ ಹೇಳಿದೆ.						
2.	ಮೇಳಕ್ಕೆ ಗೊಂಬೆ.						
3.	ಪೆನ್ನಿನ ಕಾಗದ ಬರಿ.						
4.	ಅಗಡಿಯಿಂದ ತಂದದ್ದು.						
5.	ಕೆಲಸದ ಹುಡುಗ.						
6.	ಇಟ್ಟಿಗೆಯಿಂದ ಮನೆಯಲ್ಲಿ ಕಟ್ಟಿಸಿದರು.						
7.	ಪ್ರಸ್ತುತ ಅಣ್ಣನನ್ನು ಕೊಟ್ಟೆ.						
8.	ಮರವನ್ನು ಉರುಳಿಸು.						
9.	ಊರಿನಲ್ಲಿ ಇದೆ.						
10.	ಬಸ್ಸಿನಿಂದ ಹೋದೆ.						

Maximum Score 10

Patient's Score\_\_\_\_\_

## F. Transitives, Intrusitives and Causitives

Sl. No.	Test Item	Stimulus Verbal	Modality Graphic	Subject's Response			Accuracy of Response
				Verbal	Graphic	Gestural	
1.	ಹಾಲಿಗೆ ನೀರು ಬೆರಸಬೇಡ						
2.	ಅಕ್ಕಸಾಲಿ ಮಾಡುತ್ತಾನೆ						
3.	ಹುಡುಗಿ ಓದುತ್ತಾಳೆ						
4.	ನಾನು ಹಣ್ಣು ತಿನ್ನುತ್ತೇನೆ						
5.	ಅಜ್ಜಿ ಕಡೆಯುತ್ತಾಳೆ						
6.	ಮಗು ನಿದ್ರೆ 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 Verbal	Modality Graphic	Subject's Response			Accuracy of Response
				Verbal	Graphic	Gestural	
1.	ಇದು ಬೆಂಗಳೂರು ಅಲ್ಲ						
2.	ಅವರ ಜವಾಬ್ದಾರಿ ನಾವೇ ನೋಡಿಕೊಳ್ಳುತ್ತಾರೆ						
3.	ಅವನು ಸಿನಿಮಾಗೆ ಹೋಗೋಣ						
4.	ಇದು ನನ್ನ ಶಾಲೆ						
5.	ನೀನು ಆ ಕೆಲಸ ಮಾಡಬಾರದು						
6.	ನಾವು ಹಾಡು ಹೇಳಲಿ						
7.	ಅವಳು 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		Subject's Response			Accuracy of Response
		Verbal	Graphic	Verbal	Graphic	Gestural	
1.	ಈ ಪುಸ್ತಕ ನನ್ನದು						
2.	ಈ ಲಂಗ ಕವಲ						
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 ಅಮ್ಮನವು						

Maximum Score 10

Patient's Score—

**I. Conjunctions, Comparatives and Quotatives**

Sl. No.	Test Item	Stimulus Modality		Subject's Response			Accuracy of Response
		Verbal	Graphic	Verbal	Graphic	Gestural	
1.	ರಾಮನೂ ಶಂಕರನೂ ಸ್ಕೂಲಿಗೆ ಹೋದರು						
2.	ನನ್ನ ಅಣ್ಣ ಮಕ್ಕಳು ಬಂದರು						
3.	ಗಣೇಶ ಮತ್ತು ರವೇಶ ಹೋದಾಗ ಸೀತೆಯ ಕರಕೊಂಡು ಹೋದರು						
4.	ಪೆನ್ನಿಲ್ 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.	Stimulus	Modality		Subject's Response			Accuracy or Response
		Verbal	Graphic	Verbal	Graphic	Gestural	
1.	ನೀನು ಬೇಗ ಹೋದರೂ ಬಸ್ಸು ಸಿಗುತ್ತಿರಲಿಲ್ಲ						
2.	ನೀನು ತಿನ್ನ ಇದ್ದರೆ ದೊಡ್ಡ ವನಗುವುದಿಲ್ಲ						
3.	ಅವನು ಮನೆಗೆ ಬಂದರೆ ದುಡ್ಡು ಕೊಡುತ್ತಾನೆ						
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 ಹಣ್ಣು ಕೊಡುತ್ತಿದೆ						
9.	ನಾನು ಬೇಲೂರಿಗೆ ಹೋದ ಶಿಲಾಬಾಲಿಕೆಯನ್ನು ನೋಡಲಿಲ್ಲ						
10.	ಭಾರತಿ ಬಂದರೆ ಇದ್ದರೆ ನಾನು ಬೆಂಗಳೂರಿಗೆ ಹೋಗುವುದಿಲ್ಲ						

Maximum Score 10

Patient's Score———

### K Participial Constructions

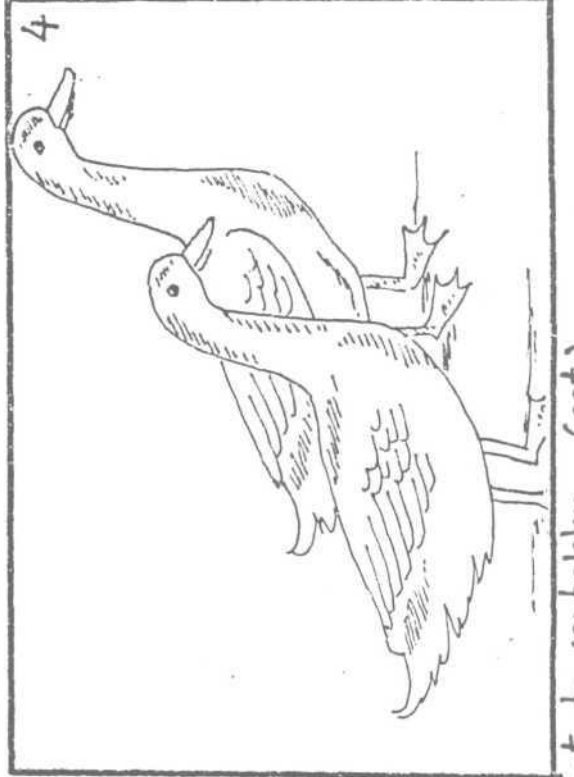
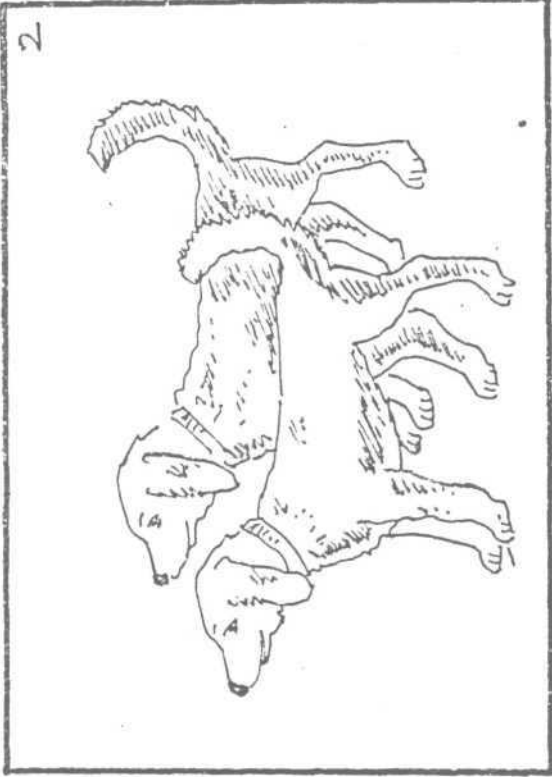
Sl. No.	Test Item	Stimulus Modality		Subject's Response			Accuracy of Response
		Verbal	Graphic	Verbal	Graphic	Gestural	
1.	ನಿನ್ನನ್ನು ನೋಡದೆ ಬಹಳ ದಿನವಾಯಿತು						
2.	ನೀನು ಫೇಲಾಗದ ಹುಡುಗನಾ ?						
3.	ಬಟ್ಟೆ ಒಗೆಯ ಅಗಸ						
4.	ನಾನು ಇವತ್ತು ಕಾಫಿ ಕುಡಿ ತಿಂಡಿ ತಿಂದೆ						
5.	ಇದು ನಾನು ಓದೂ ಸ್ಯೂಲು						
6.	ಬೇಸಾಯ ಮಾಡುವವರು ರೈತರು						
7.	ಅವಳು ಮೈಸೂರಿಗೆ ಬಂದು ಕನ್ನಡ ಕಲಿಯುತ್ತಾಳೆ						
8.	ಔಷಧಿ ಕುಡಿದ ಜ್ವರ ಹೋಗುವುದಿಲ್ಲ						
9.	ನಾನು ಇಷ್ಟಪಟ್ಟ ಸಿನೇಮಾ ಶಂಕರಾಭರಣ						
10.	ರಾಮಣ್ಣ ಯಾವತ್ತೂ ಬಂದವನು ಇವತ್ತು ಯಾಕೆ ಬಂದ ?						

Maximum Score 10

Patient's Score———

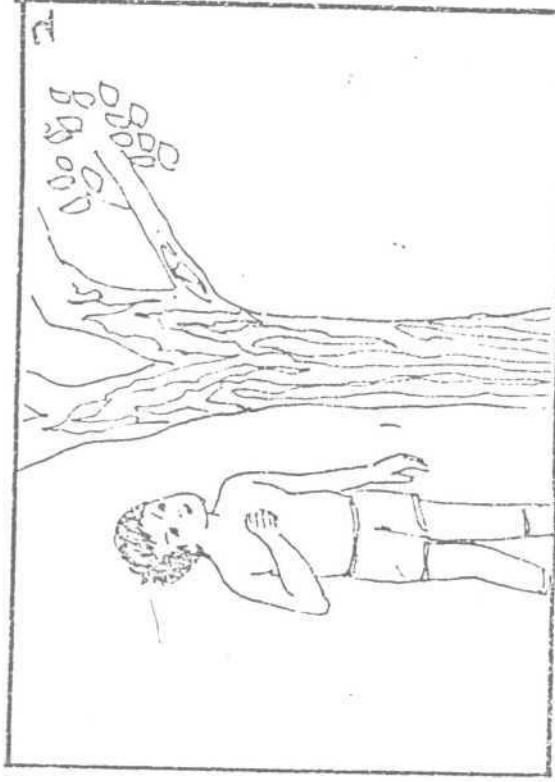
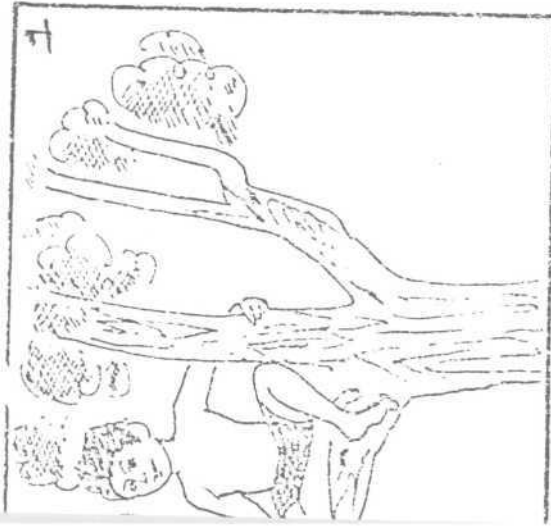
SAMPLE PICTURE PLATES TESTING DIFFERENT  
SYNTACTIC STRUCTURES FROM THE SYNTACTIC  
SECTION OF THE REGIONAL REHABILITATION  
TRAINING CENTRE BATTERY.

SAMPLE ITEMS FROM THE COMPREHENSION SECTION



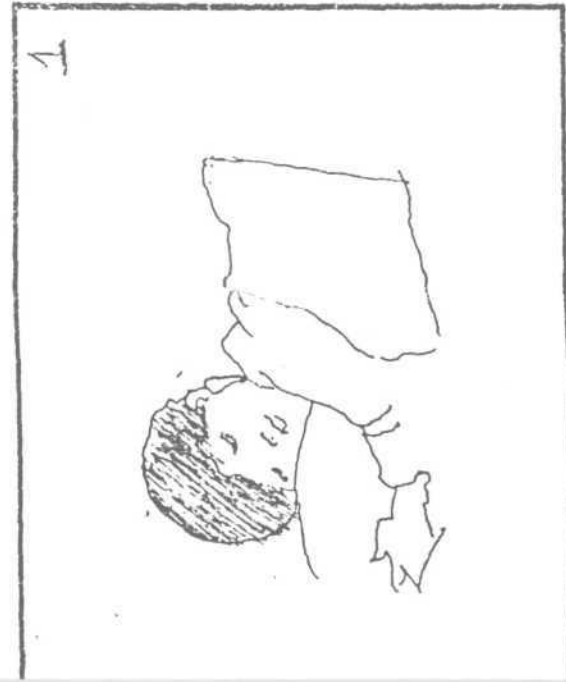
Question : Ask the subject to point to (aw bekku - (cat))  
Expected Answer : Points to picture 3.



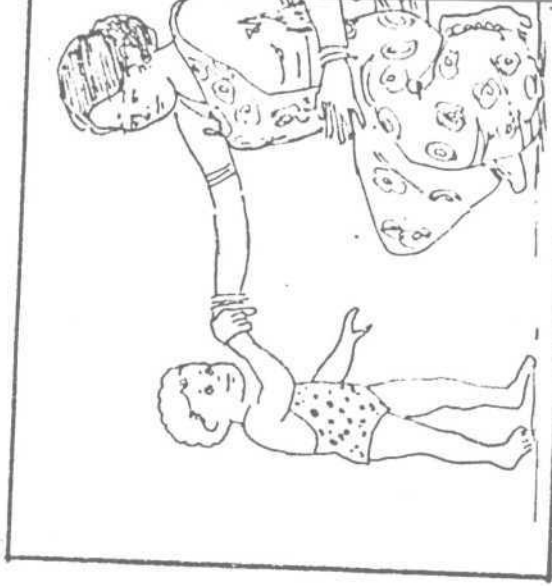
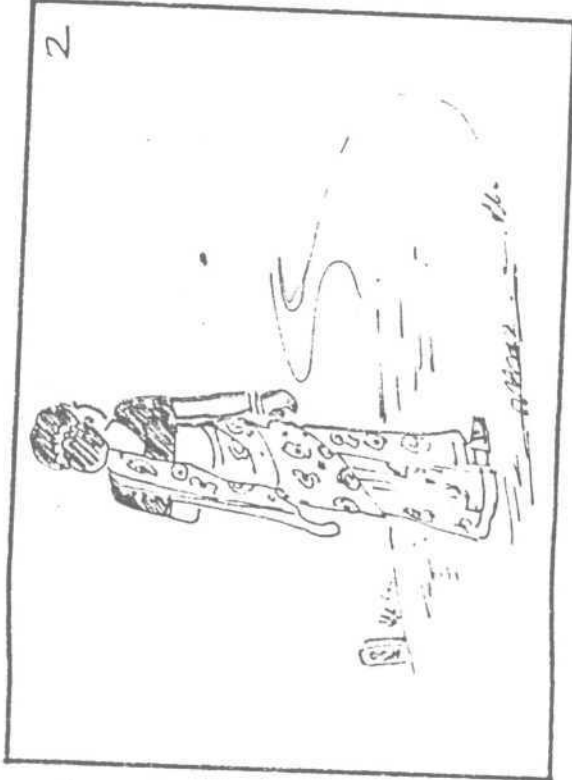
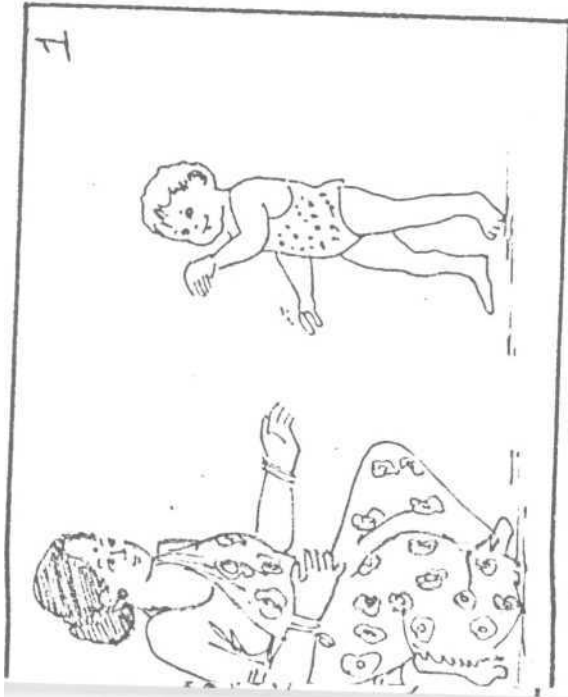


Question : Huduga mara hattuthiddāne.  
(The boy is climbing the tree)

Expected Answer : Point to picture 3.



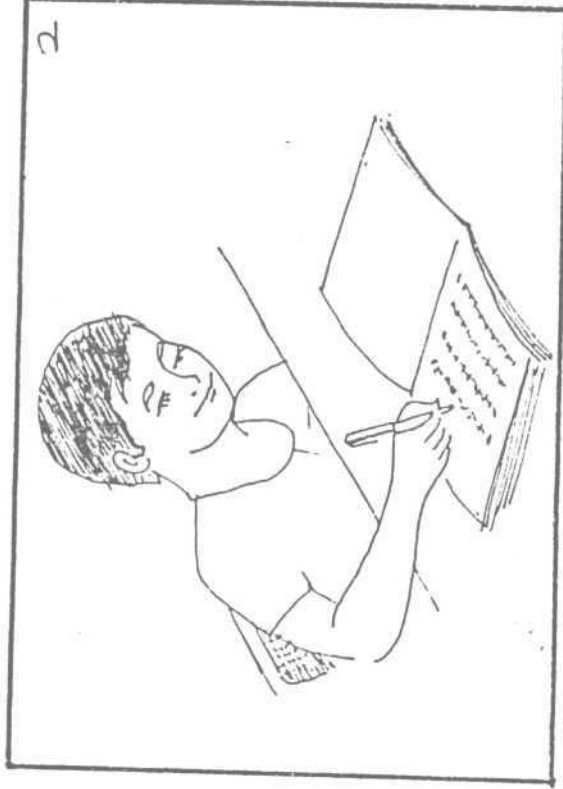
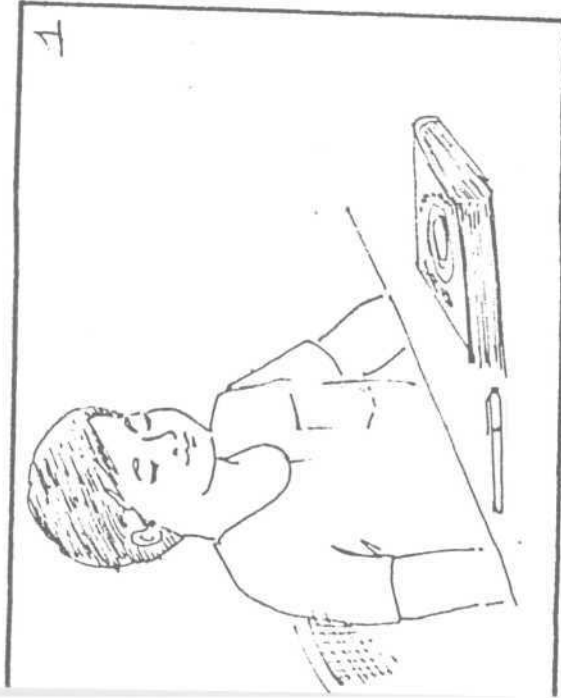
Question: Bekku malagide (The cat is sleeping)



Question : Amma nadeyutiddare  
(Mother is walking)

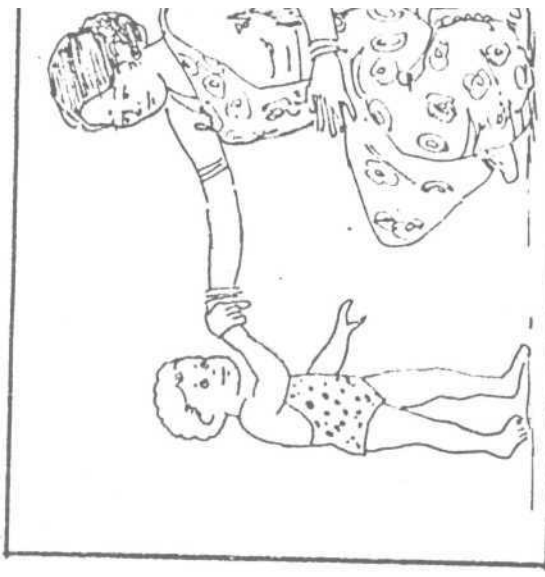
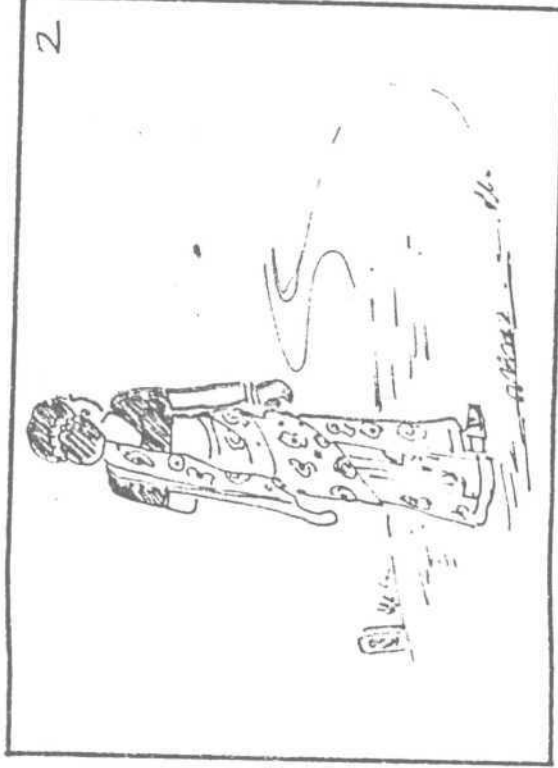
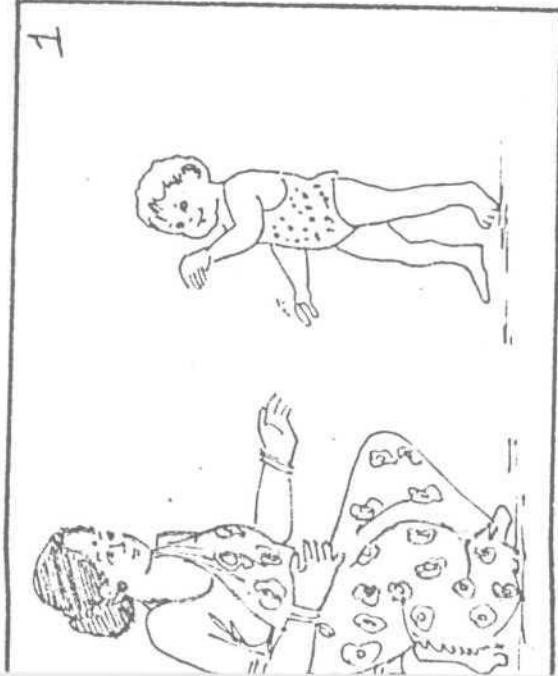
Expected Answer : Point to picture 2.





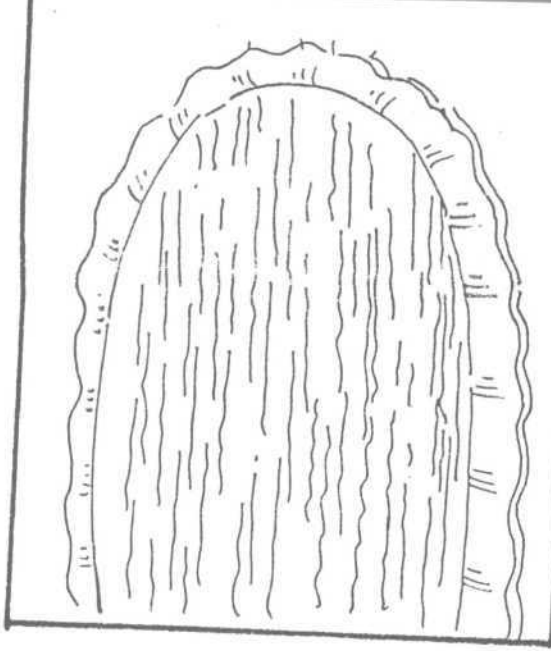
Question: Huduga pennininda bareyutiddane  
(The boy is writing with the pen)

Expected Answer: Points to picture 2.

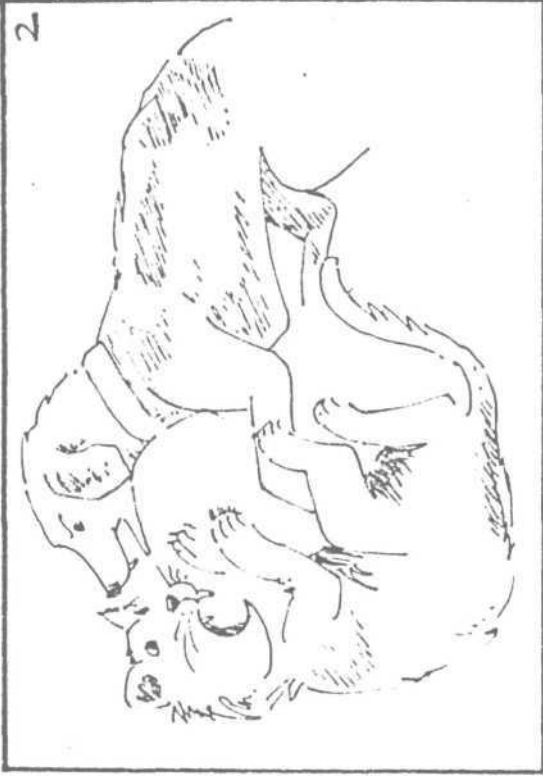


Question : Amma nadeyutiddare  
(Mother is walking)

Expected Answer : Point to picture 2.



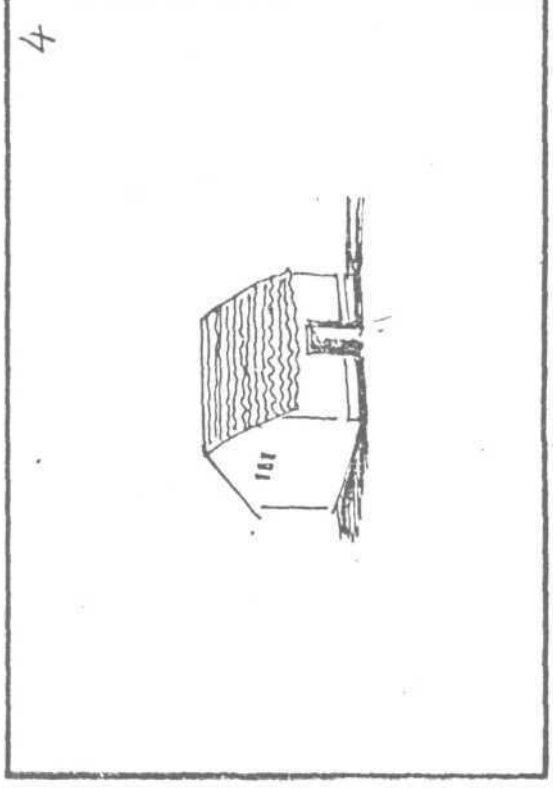
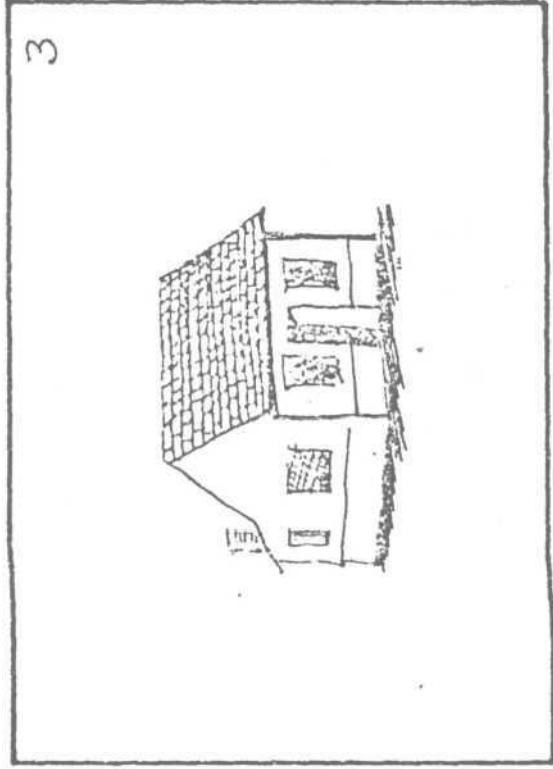
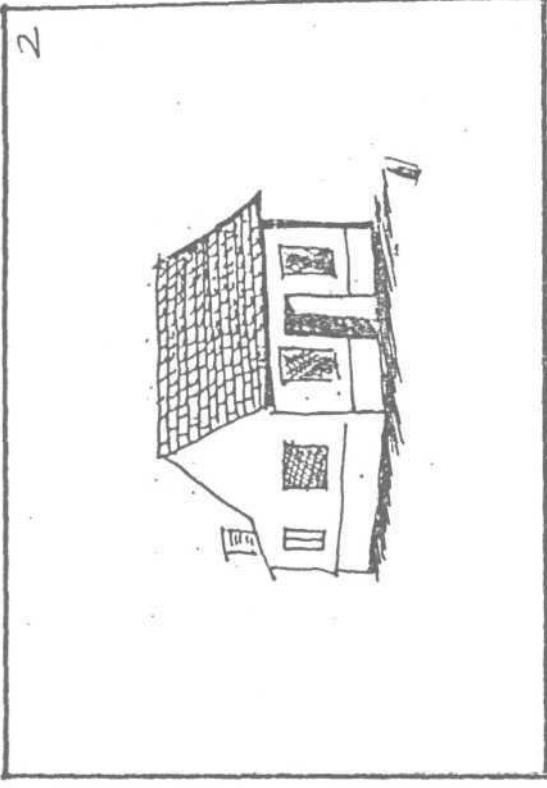
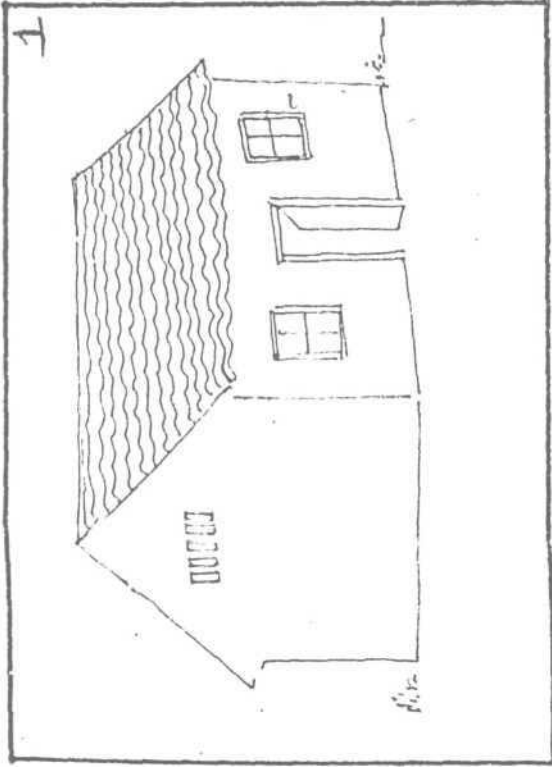
Question : Huvu kofadalli ive  
(The flowers are in the lake)  
Expected Answer : Point to picture 2.



Question: Nāji haagu bekku jagalavaduthive  
(The dog and the cat are fighting)

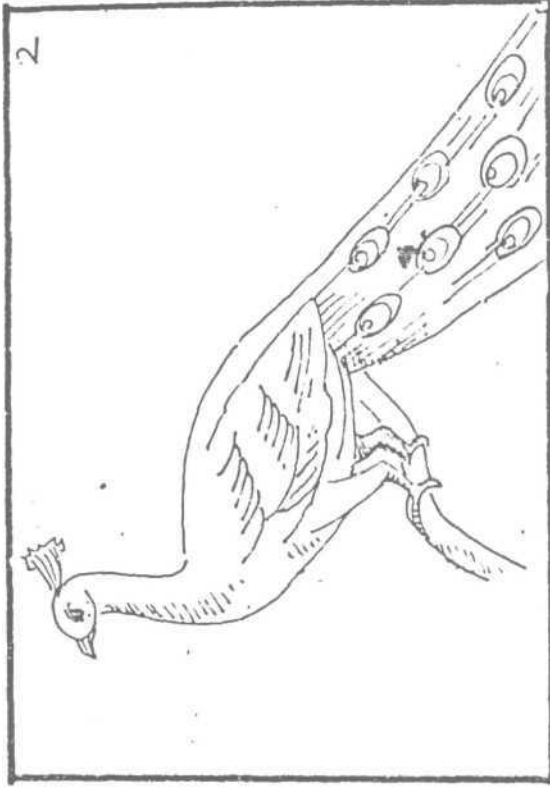
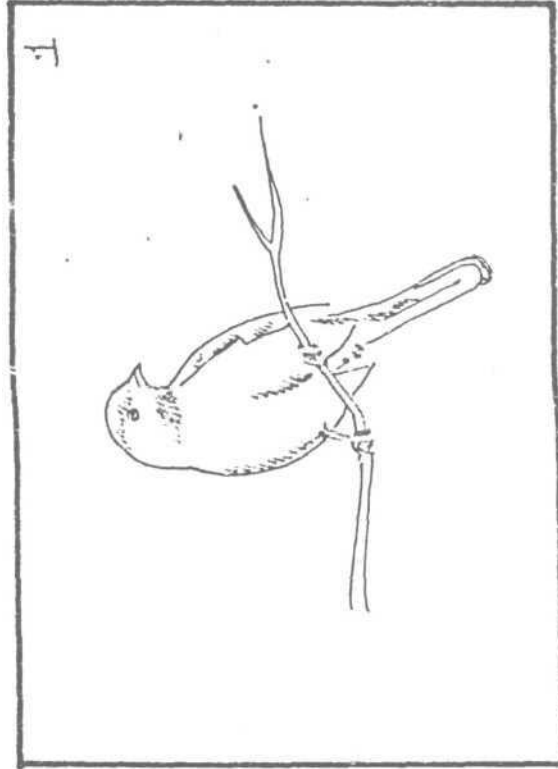
Expected Answer : Points to picture 2.



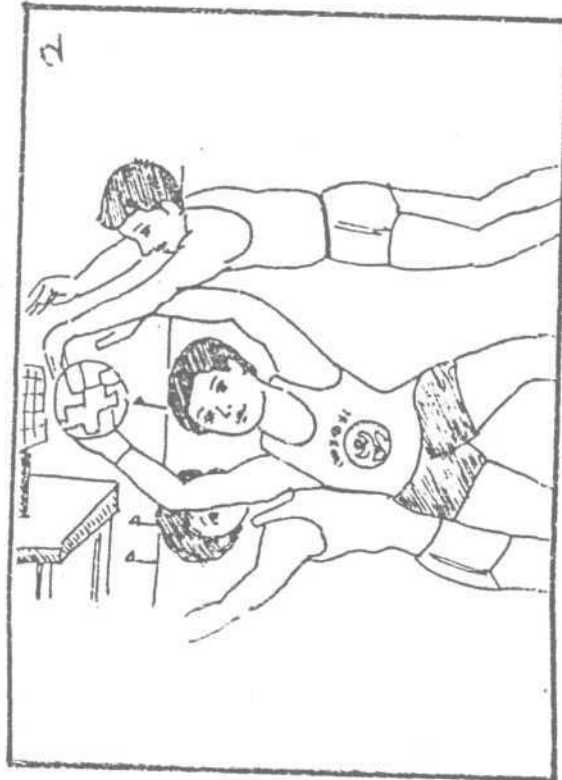
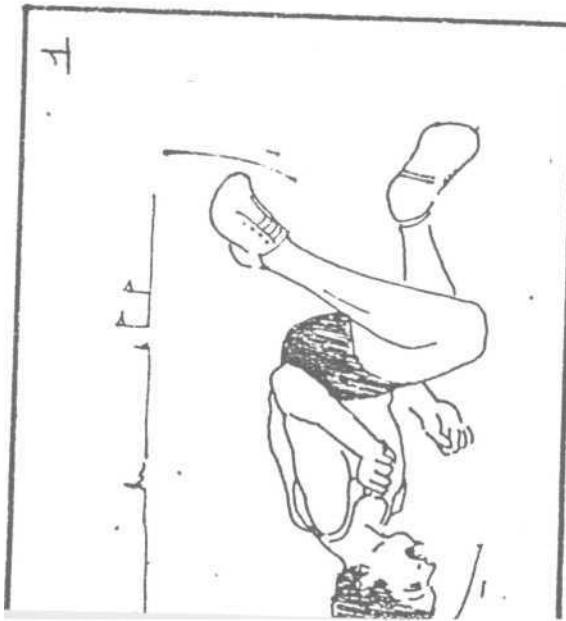


Question: Point to picture 2 and ask, "I maneginta chikka mane yavudu?"  
(Which house is smaller than this one?)

Expected Answer: Point to picture 4.



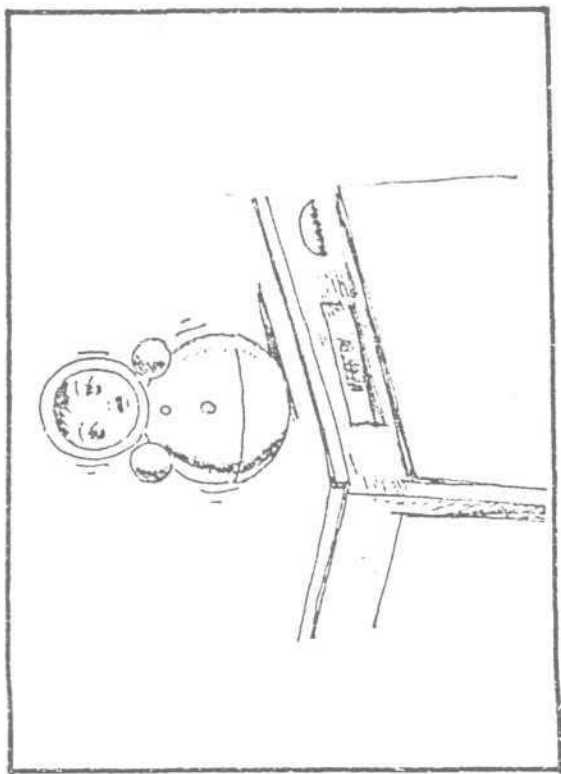
Question: I chitradalli gubbachi iddare thorisu  
(Tr. H. are is a chennal in the picture chinn me)



Question: Huduga atavudthidhaga bidida.  
(While playing, the boy fell)

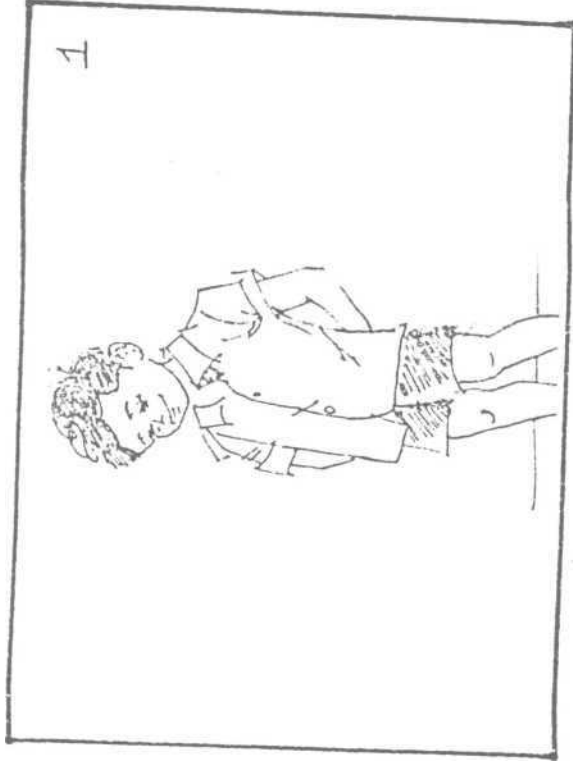
Expected Answer: Point to picture 3.

SAMPLE ITEMS FROM THE EXPRESSION SECTION



Question : Bombe yelli ide ?  
(Where is the doll ?)

Expected Answer : Bombe mejima mélé ide  
(The doll is on the table).

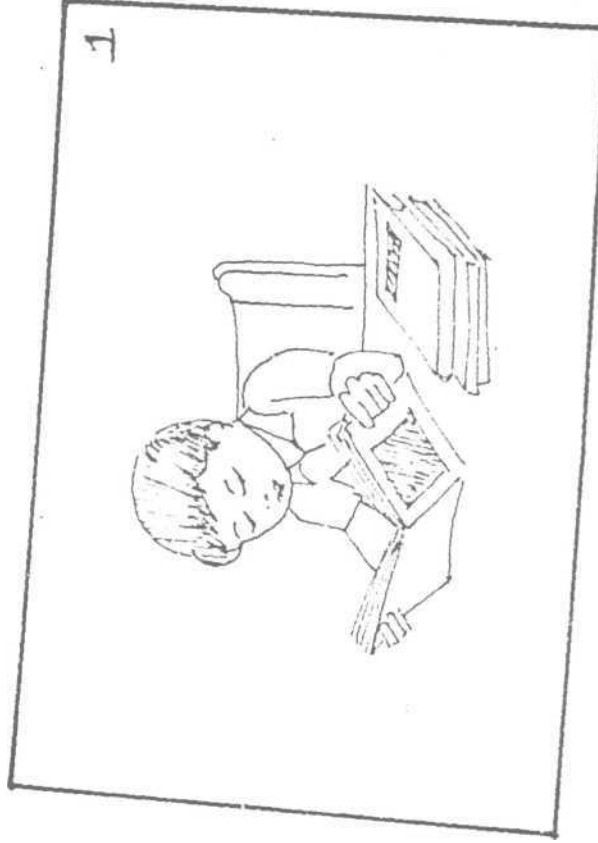


Question : Point to picture 1

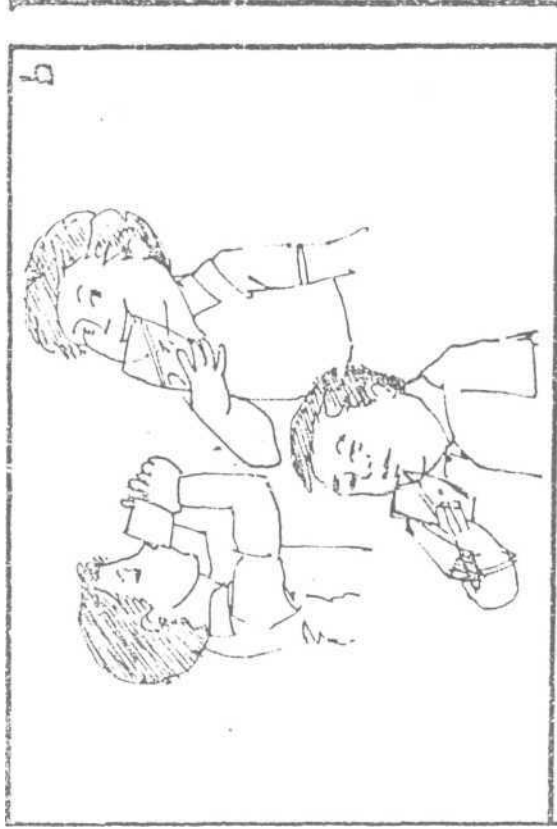
Expected Answer : Huduga (Boy)

Question : Point to picture 2

Expected Answer : Hudugaru (Boys)



Question : Point to picture 1  
Expected Answer : Huduga vodhithiddane  
(The boy is reading)



Point to picture 7  
...thidam

3—

c







Question : Point to the picture

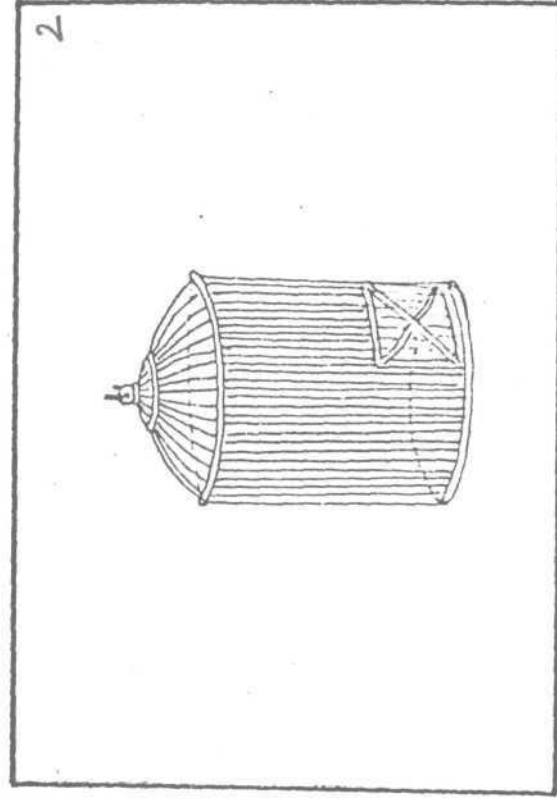
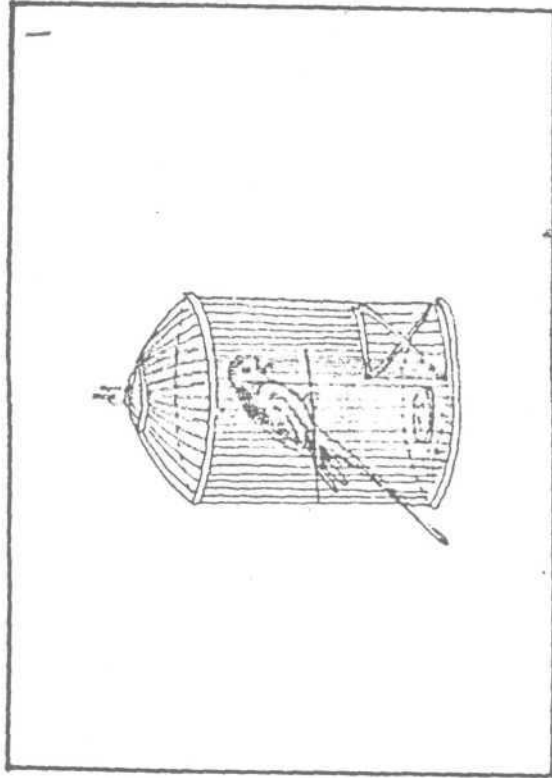
Expected Answer : Police kallamannu voyyuthiddane  
(The police is taking away the thief)



Question : Point to the picture

Expected Answer : Huduga ijuthiddame

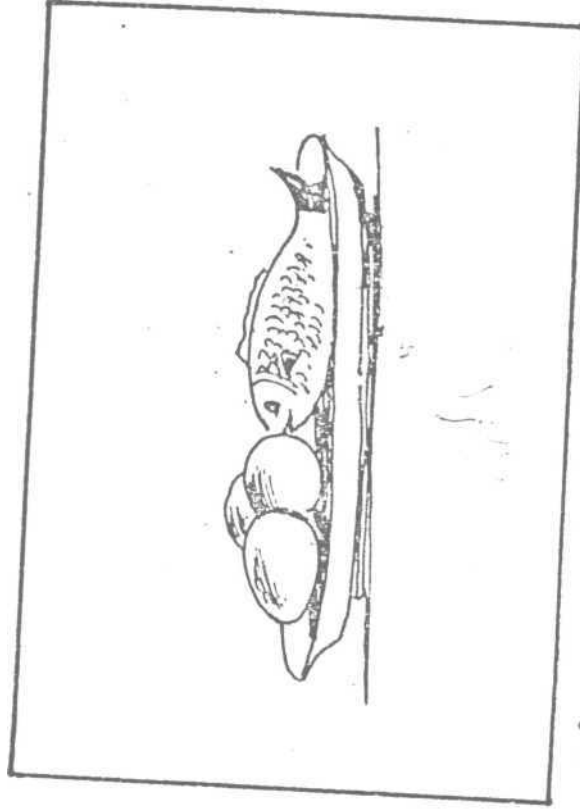
(The boy is swimming)



Question : Point to picture 1

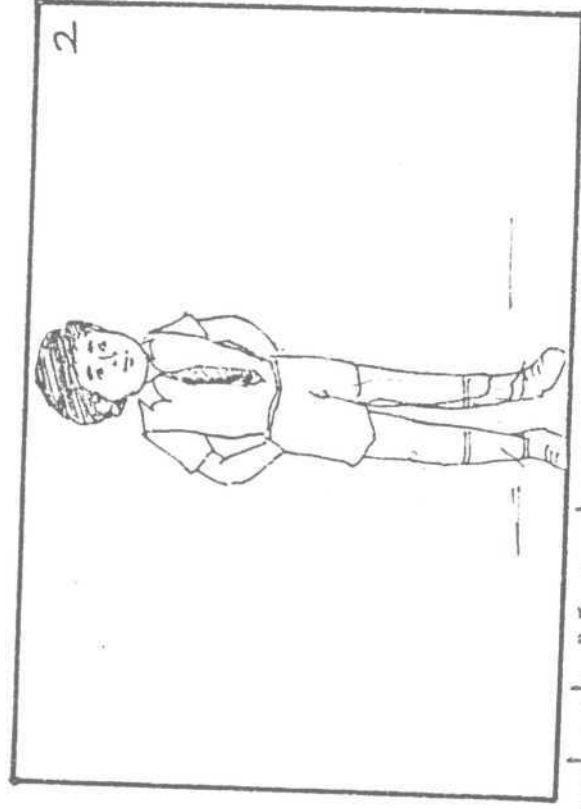
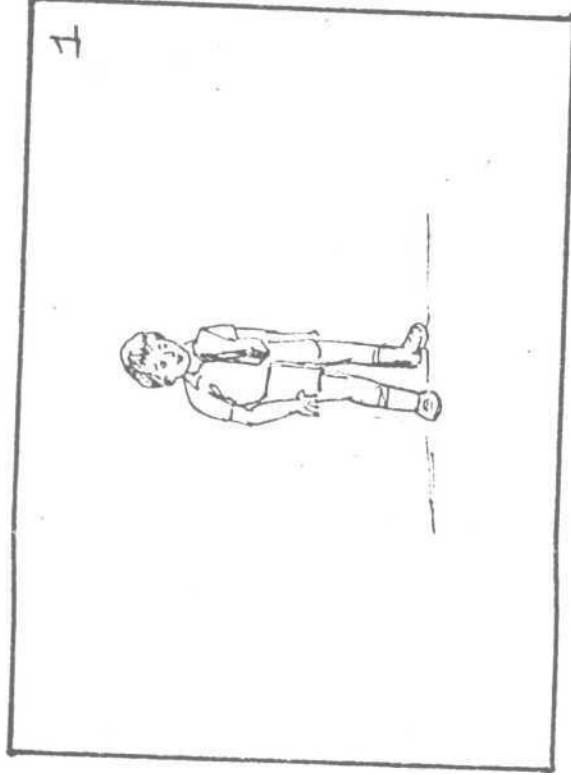
Expected Answer : Hakki gudinalli ide  
(The bird is in the cage)

H-6



Question : Point to the picture

Expected Answer : Meenu haagu mottegaju thatteyalli ive  
(The fish and the eggs are on the plate)



Question : Point to picture 2 and ask, "I huduga hegiddane?"  
(How is this boy?)

Expected Answer: Ivanu avanagintha uddavagiddane  
(He is taller than him)- referring to boy in picture 1.



Question: Point to the picture

ected Answer: Hudugi nadeyutta ice cream thinuthiddale

(As she is walking, the girl is eating ice cream)