

**DEVELOPMENT OF HINDI LANGUAGE TEST FOR CHILDREN IN THE
AGE RANGE OF 3 TO 6 YEARS- AN ADAPTATION**

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18SLP022

A dissertation submitted in part fulfillment of degree of

Master of Science (Speech-Language Pathology)

University of Mysore, Mysuru.



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JULY 2020

CERTIFICATE

This is to certify that this dissertation entitled “*Development of Hindi Language Test for Children in The Age Range of 3 to 6 Years- An Adaptation*” is a bonafide work submitted in part fulfillment for the degree of Master of Science (Speech-Language Pathology) of the student Registration Number: 18SLP022. This has been carried out under the guidance of a faculty of this institute and has not been submitted earlier to any other university for the award of any other Diploma or Degree.

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DECLARATION

This is to certify that this dissertation entitled “*Development of Hindi Language Test for Children in the Age Range of 3 to 6 Years- An Adaptation*” is the result of my own study under the guidance of Dr. Jayshree C Shanbal, Associate Professor in Language Pathology, Department of Speech Language Pathology, All India Institute of Speech and Hearing, Mysuru, and has not been submitted earlier to any other University for the reward of any other Diploma or Degree.

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DEDICATED TO BABA

Thank you for teaching me to aim for the stars
and beyond.

Thank you for pushing me to fulfill my dreams

You have and always will be my inspiration

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Chapter 1

Introduction

Language acquisition is one of the most fascinating facets of human development. Children acquire knowledge of the language or languages around them in a relatively brief time, and with little apparent efforts. This could not be possible without two crucial ingredients: a biologically based predisposition to acquire language, and experience with language in the environment” (Fernandez& Cairns, 2011:97)

1.1 Language Development

Chomsky proposed in 1965 that a child who is capable of learning language must have a technique for representing input signals and a way representing structural information about these signals. The first years of a child’s life are the most important for the development of language skills, which occurs in phases and it is associated with linguistic and situational contexts. The development of verbal language begins with the birth cry of the child and develops till late Adulthood. During this the child progresses through various stages namely, the preverbal phase stage, single word stage, two-word stage, three-word stage, and complex structure formulation.

According to Szczegielniak (1986), by 6 months babies begin to lose the ability to discriminate between sounds that are not phonemic in the languages they are acquiring. Babbling begins at about 6 months and is considered the earliest stage of language acquisition. Deaf babies babble with their hands like hearing babies babble using sounds. After the age of one, children figure out that sounds are related to meanings and start to produce their first words. This stage is called as holophrastic phase. This suggests that children know more language than they can express.

Language development in children presents individual differences not only with respect to acquisition, but also to speed and quality. Children who start to lag behind their peers on measures of emergent literacy skills (e.g., print knowledge) in the preschool years fall further behind as they begin formal schooling (e.g., Dickinson et al., 2003; Juel, 1988; Shonkoff & Philips, 2000; Stanovich, 1986), and this gap persists into adulthood (Bruck, 1998). This development is thus complex and dependent on several factors, which range from neuropsychological maturity, affection, and cognitive development to the contexts in which the child is inserted. The family is the first context in the life of a child, playing a fundamental role at all levels of development. Children need an enabling environment to fully develop their potentials.

It is reported that for comprehension, a child uses both linguistic and conceptual input plus his or her memory. In contrast, production also uses linguistic and conceptual input but relies on linguistic knowledge alone for encoding (Carpenter, 1991). Initially, recognition and comprehension are holistic. Infant acoustic- phonetic comprehension of first word may be less specific (Walley, 1993). Over 50% of the most common monosyllabic words spoken by 1 to 3 years old children have three or more other words that differ by only one phoneme (Dollaghan, 1994).

Comprehension and production of first words pose a different problem. Full comprehension would require a greater linguistic and experiential background than that of a year-old infant (Paul, 1990). In fact, up through age 2, comprehension is highly context- dependent (Striano, Rochat&Legerstee, 2003). Later, pre-schoolers focus on linguistic factors to gain the information needed. In summary, the ability to comprehend words develops gradually, and initially is highly context- dependent.

Symbolic comprehension continues to develop through the second year of life (Striano, Rochat, & Legerstee, 2003). During the second year of life, a child increases his or her vocabulary and begins to combine words within a single utterance.

1.2 Need of the study

India is a country which has enormous number of Language being spoken in, including 1652 mother tongues (census of India, 2018) and 22 official languages. The need for the indigenous tests standardised on local population becomes a necessity. According to census of India (2018) 53.60% of total population speak Hindi. Among them 41.03% are native speakers of Hindi language. And around 17.80% are second language Hindi speakers. Hindi is one among the languages wherein there are no standardised tests available to assess language (both comprehensive and expressive language skills) for children between 3 to 6 years in the Indian scenario though there are few informal methods used in schools to evaluate children's language abilities. However, these methods do not provide standard instructions to be utilised by professionals to arrive at a diagnosis. Currently, LPT Hindi by Sharma, (1995) is the only language test available to assess language abilities for children with age range 6 to 16 years. Also the norms available for few of these tools are more than decades old, and hence there is a need also to relook and reconsider these norms to the current situation. If an appropriate assessment tool is not used, a child without any language delay may be diagnosed with language delay, and vice versa leading to increased false positive or false negative rates. This in turn can impact the intervention decisions that need to be taken by a professional such as a Speech-Language therapist on using appropriate intervention strategies. It is also known that language impairments, if untreated can also lead to academic related issues, thus affecting a child's

performance in school as well. This can affect a child's overall quality of life as well (Carvalho & Goulart, 2015)

The assessment of language plays a major role in making a diagnosis and providing efficient intervention. The non-availability of speech and language tests in Hindi at an early age pose a great hindrance in establishing a robust diagnosis and subsequent management in Hindi speaking children. Hindi Language test will allow a quality assessment at early age (3 to 6 years) and will help in early diagnosis and intervention.

Aim of the study

The primary aim of the study was to develop Hindi Language Test for children in the age range of 3 to 6 years- An Adaptation. This study employed across sectional study design of descriptive research method.

Objectives: The objectives of the study were as follows:

- i) To investigate developmental trend, if any in Hindi speaking children across age range of 3 to 6 years for semantics and syntactic skills.
- ii) To investigate effect of gender, if any, in Hindi speaking children across age range of 3 to 6 years for semantics and syntactic skills.
- iii) To validate the developed tool on a few clinical population of children with hearing impairment, autism spectrum disorder, specific language impairment, and intellectual disability.

Null Hypothesis

The following null hypotheses were proposed for the study:-

- i) There is no significant developmental trend in Hindi speaking children across age range of 3 to 6 years for semantics and syntactic skills.
- ii) There is no significant difference in gender for Hindi speaking children across age range of 3 to 6 years for semantics and syntactic skills.
- iii) The tool is not valid for clinical population with language impairment such as hearing impairment, autism spectrum disorder, specific language impairment, and intellectual disability.

Chapter 2

Review of literature

"Language can be defined as a socially shared code or a conventional system for representing concepts through the use of arbitrary symbols and rule-governed combinations of those symbols. Languages evolve, grow, and change" (Backus, 1999). According to Gleason, "language is a hierarchically structured cognitive and psycholinguistic system encompassing subsystems of phonology, morphology, syntax, semantics, and pragmatics." The next question arises on how children acquire Language and are how Language develops over the life span. Development starts right from birth to an older age. These include physical, social, cognitive, auditory, and speech development. Many researchers have proposed different theories explaining the process of language acquisition and factors responsible for language development.

Lenneberg gave widely accepted theory in 1967 named as Biological maturation theory. The theory proposed that language acquisition depends on the universality of language acquisition, Innate mechanism, and Nature vs. Nurture phenomenon. Innateness helps in language acquisition, but the environment also plays a major role. The environment as responsible agents language is not fundamentally different from any other behavior. The theory explains that language disorder involves pathology at the level of cells and tissues within an organism. The theory explains that macrostructure and microstructure are responsible for language learning. The theory also talks about the critical period. Babies are better at six months than at ten months. According to critical period, language development happens faster and quicker in the

critical period. Language acquisition is more rapid and better during the critical period. Skinner proposed a different view on language acquisition.

The behavioral theory was proposed by Skinner, stating that Learning acquires Language. According to Skinner, Learning happens through classical and operant conditioning. Skinner suggested that each person can learn in a similar pattern if the conditions in which the Learning takes place are the same for each person. Another theory that explains language acquisition was Chomsky's theory of language acquisition. The author stated that individual Language is composed of repertoires of skills that are learned. Social interaction theory, given by Vygotsky in 1962, viewed different aspects of language acquisition. According to Vygotsky, Language develops from experience. The main component, he proposed for language acquisition are social interaction precedes language development, MKO, and Zone of proximal development. He also suggested that early language development in young developing children depends on motherese, eye contact, eye gaze, and Scaffolding. Another majorly accepted theory was the linguistic theory proposed by Chomsky (1965). According to him, children are able to acquire Language because they are born with innate rules or principles related to structures of human languages. According to his theory for language development, two main components are LAD and UG. Chomsky (1957) derived Transformational generative grammar account for the production of an unlimited number of grammatically acceptable sentences. This grammar suggests that Language proceeds at two levels and two kinds of rules describe what is occurring at each level. The levels are deep and surface level.

According to Moreno, (2015), Language doesn't follow any particular language developmental pattern. Every child develops at different rates, and in that process, some children develop in certain domains faster than others. Speech and

language skills are the most common and prominent areas of development that can be noticed and measured on delay. About 28% of children learn to talk or use words later than other children their age. In the development period, each child develops language skills in different environments. Hence, language skills vary from comprehension to production phase in young growing children.

2.1 Development of Language skills

The development of Language is an incredible yet basically universal human achievement. Language starts developing even before the child is born. Studies have proved that before babies are born, they start paying attention and are listening to the Language spoken around them. Especially the Language and words used by the mother. Research has shown that newborns prefer to hear the Language they heard during the gestation period. Also, it was noticed that the newborn has a greater ability to identify the sounds and words which were exposed to him during the gestation period. The recognition of the intonation pattern and quick response for those similar patterns of intonation are observed in the infants. Infants begin to acquire the communication and language skills, long before they say their first words. Childs (1988) studied prenatal language development. He found that during the third trimester of gestation, a baby in the mother's womb can clearly listen to her voice. This way, they learn the rhythms, tones, and sequences of Language whatever the mother is speaking. Gervain, (2018) researched on prenatal experience on language development. He found that infants respond to speech in the womb. Prosody acquisition starts by the third trimester, which later lay the foundation for later language development.

According to "Bloom and Lahey (1978), Language can be divided into three main components: form, content, and use." "The form includes syntax, morphology, and phonology, the components that connect sounds and symbols in order. Content encompasses meaning or semantics, and use is termed pragmatics."

Gleason summarizes her language acquisition, saying that communication skills begin in infancy, before the emergence of the first word. This is occurring past the hypothesized. "critical period" and the implications of this language development as related Singing to children may help the development of language skills Life. All social animals communicate with each other, from bees and ants to whales and apes. Still, only humans have the well-formed brain structures for language development that is more than a set the Development of Language Studies in Developmental.

2.1.1 Infant and toddler language development

Newborn infants possess a powerful innate learning mechanism that equips them for language acquisition (Gopnik, Meltzoff, and kuh, 1999). Infants develop perceptual preference that prepares them for interaction with people and the task of learning language (Barna&Legerstee, 2005). From gazing at the human face till imitating the facial gestures made by humans are developed by 2 months of age (Nelson, 1987). Although cognition is innate for language acquisition, language develops only by experience and interaction with people, things, and actions within the environment.

Language development from birth to 3 years

Bushnell, Sai, & Mullin, (1989) observed that 4 day old infants looked longer at their mother's faces than for the unfamiliar faces. By the age of 6 months, infants start recognizing facial expressions (Moses et al., 2002). Vocal turn-taking is achieved

by 3 months of age (Masataka, 1995). By 4 months, detection for intonation patterns in speech is developed. At 5 months, imitation for sounds appears (Mandel, Jusczyk, & Pisoni, 1995). By 8 months, it recognizes its own voice (Legerstee, Anderson, & Schaffer, 1998). By the end of the first year, they start comprehending many words within the sentence.

For production, by 2 months reflexive sounds appear, 3 months they begin with syllable production. Imitation starts at 5 months of age. Reduplicated babbling appears by 6 to 7 months, and variegated babbling appears around 8 to 9 months (Dore, Franklin, & Miller, 1976). Jargon appears by 9 to 12 months. After first year words start developing. By 24 to 36 months starts with two-word utterances. They are able to produce longer utterances as their vocabulary increases. By age 3, children use language to communicate their feelings, observations and needs with better phonemic accuracy.

Semantic development in typically developing children

Owens (1996) stated semantics as a system of rules that governs the meaning or content of words and the combination of words. The way forms are used in relation to the world of objects, ideas, and experiences, which are beyond linguistics, give rise to meaning. According to Reznick, Bates, and Thai (1994), the semantic acquisition is the process of learning to encode and decode meaning. It is the course of how the words, their meanings and the link between them are acquired., During the semantic development process, the strategies used by children to learn word meanings and to relate them to one another change as there are continuous growth and reorganization of the internal representation of language. The volume of child's lexicon increases in a significantly quicker way during first few years of life -- from

only several words at age 12 months to 300 words at age 24 months to 60,000 words by early adulthood (Aitchinson, 1994; Fenson, Dale, Reznick, Bates, & Thai, 1994). Biemiller (2005) stated that about 860 words in a year are acquired by children of age range 1-7 years, which, when averaged, would be 2 new words per day during that specific period.

Vocabulary development begins at about 12 months. By 15 – 18 months, the child has a vocabulary of around 20 words and 200-300 words at 24 months. Children start acquiring new words every day. After 16 months, the child learns five words on an average per day until 6 years of age (Carey, 1978). By 6 years of age, the vocabulary reaches 10000 words (Anglin, 1993). Delay in language development shows less vocabulary growth (Ganger & Brent, 2004). In the language development phase, receptive vocabulary generally exceeds the expressive vocabulary. The most common error present while semantic development is underextension and overextension. Children's understanding of the meaning of words develops over time as conceptual, and vocabulary skills develop. Few children fail to learn novel words. (Nash & Donaldson, 2005) said that children require both phonological awareness and the ability to establish meaning for learning and developing new words. The development of relational terms and relationship terms starts in the later stage of language acquisition. Semantic relations develop after two words utterance is acquired. That happens around 18-24 months of age (Levey, 2011).

Researchers believe that children undergo a vocabulary spurt or word spurt beginning near the end of the second year and continuing for several years (Choi & Gopnik, 1995). Syntax governs the form of the structure of a sentence. (Gleason & Ratner, 2001). The order of words, phrases, and clauses are specified by these rules of syntax. Further, they also specify sentence organization and the relationship between

words, word classes, and other sentence elements. The syntax is important because the child can code and communicate about events in the environment by the virtue of it, which transcends the possibilities allowed by the single words (Tomasello & Brooks, 1999).

At the initial stage, young children use their words in a variety of context, but they always limit their message by speaking one word at a time. The young children use their words in different contexts despite of the limitations of their message by themselves using one word at a time. They start to build their first sentences as they put words together in the beginning of the second year. Brown(1973) language development cannot be predicted merely by the chronological age. s. The average length of the children's utterances can be measured in terms of morphemes that can provide an index to compare the development phases of the children. It can also be considered as a sensitive measure of a child's language development over a period of time. Table 1 shows Brown's stages of language development.

Table 2.1

Characteristics of Brown's Stages of Language Development

Stage	MLU	Approximate age (in months)	Characteristics
I	1.0-2.0	12-26	Linear semantic rules
II	2.0-2.5	27-30	Morphological development
III	2.5-3.0	31-34	Sentence- form development
IV	3.0-3.75	35-40	Embedding of sentence elements
V	3.75-4.5	41-46	Joining of clauses
V+	4.5+	47+	Compound sentence

On the other hand, Crystal, Fletcher and Garman (1976) used chronological age to identify syntactic development as indicated in Table 2.

Table 2.2

Characteristics by Crystal, Fletcher and Garman Stages of Language Development

Stage	Age (in months)	Characteristics
I	9- 18	Single element sentence.
II	19-24	Two element sentences. Lack prosodic coherence of a sentence.
III	25- 30	Sentence containing three main elements.
IV	31- 36	Increasing sentence structure, containing four or more elements. Emergence or coordination within phrases. Statements, questions, commands, transitive's and intransitives clauses.
V	37- 42	Learning of complex sentence structures and basic pattern of sentence sequence. Use of 'and' to join clauses is particularly noticeable. Comparative structures develop along with associated inflections. Phrases get more complex with emergence of relative clauses.
VI	43- 54	All the emerging grammatical system are thoroughly acquired. New grammatical feature begins to develop
VII	55+	Learn to perceive the form of the sentence. E.g. jokes, riddles, and the like, etc

Brown (1973) further quoted that, because of the individual differences among the children, chronological age could not be considered as a good measure of

language. For that reason, child's mean length of utterance was used by the linguists for the measure of language development. The telegraphic stage describes The phase when children are likely to omit function morphemes like articles, subject pronouns, auxiliaries, and verbal inflection is the telegraphic phase.; nevertheless, absent, when there are no function morphemes, these sentences have hierarchical constituent structure like adult sentences.

Horne and Lowe (1996) identified that was naming as a developmental phenomenon that appeared at about 2-years of age. Gilic, (2005), found that typically developing 2-year olds, were identified to be missing Naming for objects which contradicts the previous finding by Horne and Lowe. Horne and Lowe (1996) found that the echoic was key to the development of Naming in infants.

Ingram and Tyack (1977) studied children's production and comprehension of questions. Children from 2;0 to 3;11 were considered. They found that the usage of yes-no, what and where questions was high at the age of 2;0. Why and how questions were infrequent but they increased with the age. Who and when question were hardly asked and answered by the children in that particular age range. Suggested that who and when question are acquired at the preschool age.

Syntactic development in typically developing children

A child must know the syntactic categories of words in order to apply syntactic rules – Semantic bootstrapping. Word frames may also help children determine the syntactic categories for words.

Syntax starts developing when children begin to produce two word utterance about 18 months of age. The early developed sentences consist of noun phrase and verb phrase. Pronoun appears by 31 to 34 months (brown's stage III). By the age of 3, most children consistently use function morphemes and can produce complex syntactic structures. After 3.6 children can produce wh-questions, and relative pronouns. Sometime after 4 children have acquired most of the adult syntactic competence. Children's early acquisition of nouns is associated with their semantic properties and concrete object reference.

The first verbs produced by young children describe simple actions (Bloom, Lightbown, & Hood, 1978), for example eat, sleep. The common error children makes while learning verb is overgeneralizing the regular verb form (add -ed) to produce an irregular form (e.g. eated, goed). Children have no difficulty with no change verb. Sentence development starts with the correct use of noun phrase and verb phrase. Children starts with negative sentence form (e.g. no milk, not book). Next comprehension starts with the interrogative sentences forms and then imperative and declarative sentence form.

Shortly before their second birthdays, children begin to acquire few verb vocabularies. Authors have suggested that acquisition of verbs presents a distinct challenge for the language learner, and verbs may in fact be more difficult to acquire than nouns (e.g., Gentner, 1978; Gleitman, 1990; Gleitman, Cassidy, Nappa, Papafragou, & Trueswell, 2005). Through age three, verbs constitute a smaller portion of early vocabularies than nouns, both receptively and expressively (e.g., Bornstein et al., 2004; Fenson, Marchman, Thal, Dale, Reznick, & Bates, 2007; Gentner, 1982), and the gap between receptive and expressive knowledge is greater for verbs than for nouns (Casasola & Cohen, 2000)

Barner, Lui, and Zapf (2012) studied that children bootstrap the distinction between the words *one* and *two* by observing their use with singular–plural marking (*one ball/two balls*). Many other authors argued that the numeral *two* marks plurality before children begin using numerals to denote precise quantities. So In present study the author tested the relation between numerals and singular–plural marking in English-speaking 2- and 3-year-olds by asking them to label sets of objects. They found that when children were not prompted to use numerals they hardly ever did so, although they did frequently use plural marking. Thus, it does not appear that children spontaneously use numerals like *two* as plural markers. Also, children who used numerals when labeling sets were significantly more likely to use a plural marker than children who did not use numerals, suggesting that most children view plural marking as obligatory when numerals are used, rather than viewing the 2 forms as alternative markers of plurality. They conclude that *two* is not a plural marker in early child language.

2.1.3. Language development in younger children

During preschool period, the children are able to express sentences that have complex meanings, and they have a better understanding of spoken language. The major changes happen in the expressive language during this period. Children start producing longer and complex sentences.

Language development is driven by many factors, out of which cognition plays a major role. Piaget's stages of cognitive development (1954) state that children between the ages of 2- 6 years are at the preoperational stage of cognitive development. This includes awareness of time, space and quantity concepts. Children

with a theory of mind are able to express their own feelings and thoughts while also able to interpret others. Typically developing children below 3 years of age lacks theory of mind.

Semantic development in younger children

Main concepts of semantic develop between 2 to 5 years like spatial concept, temporal concept, quantity concept, quality concept and socio-emotional concept. Semantic development, also seen as the vocabulary of the child, increases. A spurt in vocabulary skills is seen for 2 years. (Golinkoff, Mervis& Hirsh, 1994) and reaches 2,000 words by 5 years of age (Owens, 2000). Metalinguistic awareness also appears during the preschool years. Semantic relations, semantic terms also start developing during the preschool period (Bowerman, 1973). Semantics includes subsection like semantic Naming, antonymy, synonymy, homonymy, acquisition of colour concept, paradigmatic relations, syntagmatic relations, question comprehension. Development of these subsections happens at different age. Greer & Pistoljevic (2015) studied emergence of naming in preschoolers. The concept of Naming being a function of multiple exemplar instructions (MEI) was also explained by him.

Other factors which influence naming were seen as visual perception and attention network. Ammawat et. al., (2019). In his study, he took children in the age range of 4-7 years and found that a positive association was present between He considered children of 4 to 7 years for the study. He found a direct positive association between both attention network and visual perception for naming speed. He concluded that children with higher and better visual perception is strongly better for Naming and will have better reading abilities in higher education.

Johnson (2016) studied development of colour knowledge in preschool children. Age range considered was 3 to 5 years. He used 4 primary hues, 4 secondary hues, and 2 achromatic for the stimulus. He found that development of colour concept appears before 3 years of age. They also suggested that primarily colour is more readily learned than the secondary colour. Another result they found was that girls had better performance compared to boys. Murphy (2015) conducted a study on antonymy in preschool children. Age range considered was 2 to 5 years old. They found that children use antonymy at very early ages. They also found that children use more of antonymy in connected speech than isolation. Children use antonymy for mostly the same discursive purpose as adults do.

Researchers have reported that children have difficulty in comprehending homonymy. Doherty, (1999) studied understanding of homonymy in preschool children. They took children from 3-5 years of age for the study. The task was to identify the target homonymy out of choice of four. They found that younger group of children failed to identify the pictures. Comprehension of homonymy had a significant and strong relation to the comprehension of synonymy. This shows that the child is able to understand homonyms, and this can be related to the ability the child has to make a distinction characteristic of representation. This is a fundamental aspect that is required to both metalinguistic awareness and theory of mind. Peters and Zaidel (1980) studied acquisition of homonymy. Age range considered was 3.3 to 6.3 years. They found that younger group of children had difficulty in identifying the homonymy. There is clear increment at 4.4 age. And later it increases with the age. They also found that girls did better than the boys across all the ages. Schwartz (2013) conducted study to find out the impact of language development on paradigmatic and syntagmatic relations. Age range considered was 4-5 years. They found that language

development was not sufficient for the acquisition of paradigmatic and syntagmatic relations. These studies show us the development of both occurs through direct and structured formal language learning.

Syntactic development in younger children

Syntax is the component of language that incorporates the rules of language in combining words. The basic syntactic structure has a noun phrase and a verb phrase. Single words production begins to emerge from 12 months of age, and syntax begins to emerge at around 18 months of age along with combination of two words. It begins with expressive requests. (more cookie), then gradually moves to notification (that doggy), and then negation (no bed). As the child's age increases, the complexity, and length of sentences keep increases. This development occurs with the inclusion of grammatical morphemes (e.g., going and toys) and children's development of vocabulary skills.

Table 2.3

Children's early sentence production (Bernstein, 2011)

Sentence	Example
Declarative	I'm sleepy.
Interrogative	Where mommy?
Imperative	Gimme cookie.
Negatives	No more milk.
Quantity use	I have two cars.
Adjectives use	Give me the big ball.
Adverb use	Run fast

Children's syntax becomes adultlike by 4 years of age (Gopnik, 1997). At this stage, they move on to use greater variety of syntactic structures. The semantic content increases, length, and complexity of sentence increases. The child also begins to use the auxiliary verb. Interrogative sentences appear by 3 years of age along with negative sentence (e.g. I not crying). Negative interrogatives generally do not emerge until age 5 (Owens, 2012).

When the mean length of utterance extends beyond 3.0, sentence complexity appears in children's language (Lahey, 1988). Complex structure includes main clause and a subordinate clause (Diessel&Tomasello, 2001). Children starts using different types of complex sentences (Stefani, 2007). Development of Coordination, noun phrase, infinitives with the same subject and relative clause appears at this stage. Syrett (2014) studied acquisition of comparatives and degree construction. He considered very young age group for the study. Acquisition of comparatives begins at very young age group.

Layton and Stick, (1979) did a study on 100 children in the age range of 2; 6 to 4;6 years, to understand the comprehension and expression of comparatives and superlatives. In the study, they used ten objects that were used to evaluate comprehension, production, and imitation of comparative and superlative suffixes. The results revealed that comprehension increased with age; All subjects were able to imitate using the comparative forms. The children of the youngest age group (2;6) used the *-er* suffix more often than the *-est* suffix, and there was a reversal of these findings seen in the older age groups. They also concluded that comprehension of superlatives was better than the comparatives. older children can comprehend more comparative/ superlative forms better than younger children.

Studies by Deevy and Leonard (2018) is done to see the developmental trend of morphosyntax in preschoolers with and without developmental language disorder. Age range considered was 3 to 5 years. Results revealed that children with DLD did not show anticipatory looking, which was based on the number of information contained in the auxiliary (is or are) when compared to the younger TD children. Even when given information on the fronted auxiliary, children with DLD did not show any sensitivity towards it. This could be attributed to the fact the children with DLD had a poor grasp on the commands of tense/ agreement forms in their speech.

Genetic makeup, such as maturation of the brain, also plays an important role in language development. This is a pivotal aspect in the comprehension of complex syntactic structures. Anatomical structures such as the fronto-temporal connection within left perisylvian regions, are structures that support the processing of syntactically complex sentences, which are still immature at preschool age. In this current study, resting state fMRI data of 5-year-old typically developing children. Behavioral syntactic comprehension tests were also conducted outside the scanner. The results revealed that there was a correlation between the hemispheres, between the left IFG, and its right-hemispheric homolog was predominant in children. These findings give us insights into the relationship between intrinsic functional connectivity and syntactic language abilities in preschool children.

The development of tense forms was studied by Kuczaj, 1977. They analysed 15 children's spontaneous speech. They found that there was no clear cut conclusion for the acquisition of the tense form. The data didn't support whether irregular past tense is acquired better or vice versa. Overgeneralization errors such as (*goedvswented*), and partial regularity of blockswere seen as a developmental trend. Smith and Zapf, (2008) studied if meaning plays a role in children's plural

productions or not. Studies also report that young children (2 years) that two-year-old do use plurals but are not able to use it in all obligatory contexts. The study concluded that the plural acquisition could be attributed to various factors such as knowledge of nouns, and the properties of the labelled sets that are linked to the underlying meaning of plurals.

2.2 Studies of language development in the clinical population

There have been various attempts made by researchers and clinicians to study the language development in the clinical population when compared to the typically developing children. Since the current study focuses on clinical conditions such as Specific Language Impairment (SLI), Autism Spectrum Disorders (ASD), Intellectual Disability (ID) and Hearing Impairment (HI), studies related specifically to these conditions have been reviewed and reported in the following section.

a) Specific language impairment

In children with SLI, common language deficit we find are language acquisition at slower pace. Word combinations do not appear at the age of 18 to 24 months as expected. Delay in syntax acquisition like inflectional morpheme, auxiliary verbs and articles. SLI is diagnosed on the basis of difficulties with the production and reception of language in a child who is otherwise developing normally. The disorder is highly heritable (Bishop, 2002)

Maillart and Parrisé (2009) performed the study to investigate the phonology and syntax acquisition in children with SLI. The number of correct words was computed for both the section phonology and syntax. They found out that children with specific language impairment (SLI) presented great difficulties in phonology

when compared with typically developing children matched by MLU (TDC). Results revealed a significant difference between SLI and TDC for the phonology section but not for the syntax section. There was a trend that showed that the difference between SLI and TDC children tended to increase with age. In the phonology category, phonemic discrimination and phoneme identification was majorly affected and had the least scored among all the other language skills. In the syntax category, a significant difference was found for prepositions, nouns, adjectives, subject pronouns, and verbs. Also, a different pattern was observed in the development of determiners and prepositions in the syntax subsection. Observation made was that the acquisition of syntactic skills starts along with phonological skills only for the comprehension. Later on, production is achieved. They concluded that there are differences between SLI and TDC grow with age and where there is a timing difference between phonology (earlier) and syntax (later). Looking into the neuroanatomical basis for SLI. Rosen et al (1985) said that SLI presented with sized left planum and an atypically large right planum temporale. Abnormal gyrification in the anterior language cortex was observed by Gauger and Leonard (1997). Atypically rightward asymmetry also described in SLI in the posterior language cortex (Herbal et al., 2005). Three studies measured blood flow at rest and found reduced asymmetry, or hypoperfusion of the left hemisphere, or both in language-impaired children compared to controls (Denays et al., 1989; Lou, Henriksen, & Bruhn, 1990; Ors et al., 2005). One fMRI study used of the listening to a recording mother's voice to activate the left hemisphere in 10 of 14 controls successfully, and whereas right hemisphere activation was seen in 5 of 6 late talkers over the age of 3 years (Bernal & Altman, 2003).

Schuele had conducted a longitudinal study on children with specific language impairment in 2005. He found out that Children with SLI acquire grammatical morphemes more slowly and in a different pattern compared to the children who are learning Language in a typical manner. Moreover, it was also observed that children with SLI use grammatical morphemes less accurately than MLU-matched children. SLI children found to have a limited vocabulary and hence reported having difficulty in using grammatical morphemes.

Whereas typically developing children nearly always master verb markings by age five, children with SLI may not have reached mastery even by age seven (Rice, Wexler, & Hershberger, 1998). Other grammatical difficulties observed in children with SLI include, for example, pronoun case errors and difficulties with subject-auxiliary inversion, case markers, PNG markers and participial constructions. Two complex syntax structures have been explored in children with SLI: relative clauses, particularly subject relative clauses, and infinitives. Schuele and her colleagues (Schuele, 1995; Schuele, & Nicholls, 2000; Wisman, & Schuele, 2001) reported that children with SLI produced subject relative clauses later than typically developing children.

Another observation made for children with SLI, omissions of relative markers was indicative of grammatical vulnerability, whereas, for typical children, omissions appeared more like deviant language skill rather than the delayed or abnormal. TDC uses the relative markers inconsistently according to the sentence structure and demand of the conversation. SLI having limited vocabulary shows a significant delay and limited usage of the relative markers (Schuele, Dykes, & Wisman, 2001).

For studying the acquisition of tenses Rice and Wexler, (1998) studied The Longitudinal Course of Tense Acquisition in Children with SLI. Tense markers appear late in children with SLI. Children from 2;9 to 7;9 age range were considered for the study. The results revealed that the tense marking is not mastered until 4 years of age for TDC whereas in case of SLI tense marking is learned after 8 years of age.

Pijnacker et. al., (2017) conducted one electrophysiological study on children with SLI. He performed the N400 test to check Semantic Processing of Sentences in Preschoolers. N400 recording was done for the responses to semantically congruent and incongruent spoken sentences (e.g., "My father is eating an apple/*blanket"). Results showed that the SLI group demonstrated only N400 effect in the later time window, 500–800 ms, and did not show a stronger presence at posterior electrodes whereas in TD group a strong posterior N400 effect in time windows 300–500 ms and 500–800 ms. They concluded that neuronal processing of semantic information at sentence level is atypical in preschoolers with SLI compared with TD children.

Turner (2015). The study reported age 5 morphology and syntax skills in late talkers identified at age 2 and typically developing comparison children. Results revealed that the late talkers manifested significant morphological delays at ages 3 and 4 relative to comparison peers. Based on the 14 morphemes analyzed at age 5, the only significant group difference was on the third person regular –s inflection.

b) Autism Spectrum Disorders (ASD)

The DSM-IV-TR (APA, 2000), included major features of autism like impaired social interaction and communication, delayed language development, avoidance of eye contact, interaction difficulties with peers, as well as restricted and repetitive behaviours. Some author has reported that children younger than 3 years old exhibit typical development, like acquisition of few words. However, if they have autism or features of autism, these words and development stagnates or does not progress. In conclusion, if there is a typical period of development, it cannot extend beyond 3 years of age.

Kwok et. al., (2014) to study the receptive and expressive language skills, they conducted Meta-analysis study included 74 studies. ASD groups often show an atypical language profile in which expressive Language exceeds receptive language competency. In the ASD group, it was observed to have Sensory issues as a symptom under the restricted/repetitive behavior category. This includes hyper- or hypo-reactivity to stimuli (lights, sounds, tastes, touch, etc.) or unusual interests in stimuli (staring at lights, spinning objects, etc.). Overall, children with ASD showed equally impaired receptive and expressive language skills. Although some individual children with ASD may have an expressive-better-than-receptive language profile, this profile is not common enough to be a useful marker of ASD.

Neuroanatomical basis, researchers have noticed different pattern of brain development and also abnormalities in the brain structure for ASD. These structural and functional abnormalities of the brain will lead to delay in language development in children. Some of the most common neuronal abnormalities noticed are Increased gray matter in the frontal and temporal lobes (Carper & Courchesne, 2005; Hazlett,

Poe, Gerig, Smith, & Piven, 2006; Palmen et al., 2005). Decreased white matter compared with gray matter by adolescence (Volkmar, Lord, Bailey, Schultz, & Klin, 2004). Anatomical and functional differences in the cerebellum and in the limbic system (Volkmar et al., 2004).

Differences in the brain's response to the environment, includes decreased neural sensitivity to dynamic gaze shifts in infancy (Elsabbagh et al., 2012). Preference for nonsocial versus social processing and hemispheric asymmetries in event-related potentials (ERPs; McCleery, Askchoomoff, Dobkins, & Carver, 2009). Disruptions in normative patterns of social neurodevelopment that contribute to diminished attention to social stimuli (Jones, Carr, & Klin, 2008). Neurotransmitters imbalance also affected the process of language acquisition in children with ASD. Cook (1990), Narayan et al. (1993) have reviewed the studies on neurotransmitters in autism. Many of the studies have produced inconsistent results with respect to Serotonin, Opioids Peptides - found in higher levels in children with ASD.

Brynskov (2014) studied syntax and morphology development in children with autism spectrum disorder. They examined delay in syntax and morphology, and vocabulary, in autism spectrum disorder. Children ages 4-6 years with ASD and typical development. They found that ASD group had significant delays in both syntax and morphology, and vocabulary measures. ASD group of children talk seems to have good vocabulary & sentence structure but communication is inappropriate to that situation (Westby & Mckellar, 2000). Also they noticed inability to Generate and formulate an appropriate response to match the various and rapidly changing demands of different situations. Difficulty in matching form and content to context, introduce inappropriate topics.

Children with ASD have impairments in many socio-communicative domains including gestural communication (Rapin, 2006). Gestures play an important role in the acquisition and development of language and form the link between actions and spoken words in young children (Capirci & Volterra, 2008; Capirci et al., 2005; Iversen et al., 1994; Thal & Bates, 1988). ASD did not compensate for their verbal communication deficits by gestural production (Wetherby et al., 2007). Children with ASD are more likely to use pointing for requests (Instrumental pointing) than pointing to share attention (proto-declarative pointing), suggesting that meta-representational and social skills are impaired (Baron-Cohen, 1989; Kiln et al., 2002).

Barone et al., (2019), conducted study to check Online comprehension across different semantic categories in preschool children with autism spectrum disorder. They made the observation saying that ASD group significantly showed less accurate fixation on the target words and sentences. Direct effects of non-verbal cognitive levels, vocabulary levels and gesture productions on online word recognition in both groups support a dimensional view of language abilities in ASD. This shows disconnected fragments of information that would lack context and temporal continuity.

Language acquisition in the ASD group can be attributed to the amount of functional play the child is involved in. With respect to functional play, it has been found that children with autism spend significantly less time playing functionally than controls (Lewis and Boucher 1988; Jarrold et al. 1996; Sigman and Ungerer 1984), show lower levels of appropriate object use (Freeman et al. 1984), less variety in their functional play (Sigman and Ungerer 1984), more repetition (Atlas 1990; Williams et al. 2001). Children with autism spectrum disorders (ASD) may experience particularly difficulties in symbolic play. When symbolic play is performed, their play

behavior may be more like 'learned routine' rather than spontaneous play (Williams et al. 2001).

Kover, (2015) also performed similar study for Sentence Comprehension in Boys with Autism Spectrum Disorder. Age range considered was from 2 to 6 years old children. They found that Boys with ASD did not differ from younger typically developing boys matched on receptive vocabulary in overall sentence comprehension. No significant difference was found in children with only asd. But the subgroup of boys with ASD and intellectual disability had poorer overall performance and committed more lexical errors than younger typically developing boys matched on nonverbal cognition.

c) Hearing impairment

Iwasaki (2011) studied language development in children who received cochlear implant and hearing aid. They found that bilateral cochlear implant at early age had better language development as compared to the unilateral CI implant. They also indicated that CI was more effective for productive vocabulary and syntax compared to hearing aid. In young children it was observed. The vocal development of HI infants is delayed and incomplete in relation with the infants with hearing. Late onset of babbling and restricted formant frequency range. limited phonetic and syllabic inventories Lack of expressive jargon and prewords leads to delayed phonological development. (Ertmer& Stark, 1995). Newport and Meier (1985) found at 12 months of age, children with HI produce isolated signs drawn from the vocabulary of adult language. Feldman (1975) found that deictic gestures were the most commonly used and the 1st acquired by the HI children. Children with HI expressed nonverbally in the same range of semantic functions and pragmatic intents as those expressed verbally

by hearing children at the one word stage of language development. Newport and Meier (1985) found at 12 months of age, children with HI produce isolated signs drawn from the vocabulary of adult language

Feldman (1975) found that deictic gestures were the most commonly used and the 1st acquired by the HI children. Children with HI expressed nonverbally in the same range of semantic functions and pragmatic intents as those expressed verbally by hearing children at the one-word stage of language development. Children with profound hearing loss were found to be delayed as much as 4 to 5 years in terms of semantic development (Markides, 1970). Children with HI had 0 to 9 words by 18 months compared with 20 to 50 words for hearing children; similar kind of words, total communication children had more vocabulary than oral communication users (Schafer and Lynch, 1980). Poor rhythm in HI could be because of the inappropriate use of pauses along with timing errors leading to perception of improper grouping of syllables (Hungins, 1996)

d) Intellectual disability

Abbeduto(2007) studied language development in downs syndrome. Language, however, is among the most impaired domains of functioning in DS and, perhaps, also the greatest barrier to independent meaningful inclusion in the community. They reviewed the language development from prelinguistic stage till the literacy stage. They found that language delay in children with intellectual disability from the early stage. Children with ID usually develop skills slower than do their typically developing peers, but some follow patterns of typical development; those with ASD may not follow the typical developmental progression of skills across domains (e.g., communication and social interaction). Research shows that

individuals with ASD have difficulty with theory of mind (i.e., understanding the perspective of others), regardless of their level of cognitive functioning; these difficulties are more severe in individuals with ASD than in individuals with ID alone (Yirmiya et.al, 1998).

There are various tools developed to assess language skills in children across the globe. A few of these tools are enlisted in the sections below.

Western tools: In western context, very few tools have been developed to document to check language acquisition in children. Earliest Test for evaluating Language skills was Receptive and Expressive Emergent Language Scale formulated by Bzoch and League (1971) for children in the age range from 0 to 3 years of age. It assesses receptive and expressive language skills. Test for auditory comprehension was developed by Carrow (1985) for children within age range of 3-12 years. It assesses vocabulary, grammatical morphemes and elaborated phrases and sentences. Further Dunn (1982) formulated British picture vocabulary scale for children of age range 3 to 18 years to evaluate receptive Language. To assess purely grammar aspects Carrow-Woolfolk (1974) has developed Carrow elicited language inventory for children within age range 3-16 years. Further Preschool Language Assessment Instrument was developed by Blank, Rose, and Berlin (1978). Children age ranging from 3- 6 years is assessed for how effectively a child integrates cognitive, linguistic and pragmatic components to deal with student-to-teacher verbal exchanges.

Later Reynell developmental language scale was developed by Reynell (1985) for children age ranging 2 to 7 years. It assesses Selecting objects, Relating two objects, Verbs, Verb morphology, Pronouns, Complex sentences. Bankson Language Screening Test was developed by Bankson, (1990) for children age ranging 3-7 years.

It assesses semantics, morphology and syntax. Recently to assess syntax and semantics Clinical Evaluation of Language Fundamentals- Preschool was developed by SemelandWiig, (2006) for children within age range 3- 6.11 years. It evaluates Semantics, Syntax, memory and pragmatics. Clinical Evaluation of Language Fundamentals - Preschool (2nd Edition) for Kannada-speaking English Language Learners was developed by Priya, (2016) for children within age range 3-6 years. It assesses Semantics, Syntax, memory and pragmatics.

To assess various aspects of Language a wide array of tools is available all over the world as mentioned above. Due to socio-cultural difference, socio-economic background, linguistics differences, these tools cannot be used directly in the Indian population and hence Indian tools are used to assess Language in Indian children. below shows a list of various commonly used Indian tools that are available to assess the different aspects of Language (morphology, syntax, semantics, phonology, pragmatics) for Indian children commonly for very young age children.

Indian tools: In Indian context, very few tools have been developed to document structure of language acquisition. The earliest attempt in direction of developing language tools to quantify the language acquisition of Indian children was "Linguistic Profile test" (LPT). LPT was developed in Bengali, Gujarati, Hindi, Kannada, Marathi, Oriya and Tamil Language under the United Nations Children's Fund (UNICEF) project (1990) with joint collaboration of Ali Yavarjung National Institute for the Hearing Handicapped (AYJNIHH) Mumbai and Regional Rehabilitation Training centre (RRTC) Chennai. Later LPT was adapted in Telugu (Suhasini, 1997) and Malayalam (Asha, 1997). LPT quantifies semantic, syntactic and phonological abilities of children within 6 to 15+ years of age range. Similarly, Kannada language test (KLT) (Kathyayini, 1984.) and Malayalam language test (MLT) (Rukmini, 1994)

was developed to assess syntax and semantic skills. In the same line 'Screening Test for the Acquisition of Syntax in Kannada' (STAS-K) was formulated by Vijayalakshmi (1981) and further Adapted into Hindi Language under ARF project (2010). STAS-H (Basavaraj, Goswami & Priyadarshini, 2010) assess various grammatical categories and sentence structure of 2-5 years old children on comprehension and expression domains. This tool is also available in Malayalam-STAS-M (Preethi, Basavaraj & Goswami, 2012) and Telugu- STAS-T (Gopikishore, Basavaraj & Goswami, 2012).

Further a syntax Screening Test in Tamil (Murthy, 1981) assess negations, definite determiners, wh - questions, yes/no questions, person sub domain, adjectives, tenses, post positions, comparatives, superlatives, pronominal terminations for children within age range of 2 - 5 years. For evaluating various concepts of expression in terms of nouns, verbs, gender markers, tense markers. Language Test in Kannada for expression in children (Kathyayini, 1984) was developed for children of age range 5 - 8 years. For screening purpose for young children of age range 3-6 years, a Screening Picture Vocabulary Test in Kannada-KPVT was developed by Sreedevi, (1988) that helps in screening language acquisition of Kannada speaking children. Used as a clinical tool to identify comprehension deficits in Language disordered children. Recently Language assessment remediation and screening procedure in English was developed by Prakash (2012) for children within age range of 0.9 to 4.6 years. It assesses all aspects of morphosyntax.

Similarly, Language assessment remediation and screening procedure in Hindi was adapted by Khanna (2012). Assessment of language development evaluates comprehension and expressive skills in children for age range 0 to 7.11 years was developed by Lakkanna, Kathyayni and Bhat, (2007). Most recently English language

test for Indian children was developed by Bhuvaneshwari, (2010) for children within age range 4 – 6 years. It assesses semantic knowledge, morphological rules and syntactic rules. Clinical Evaluation of Language Fundamentals - Preschool (2nd Edition) for Kannada-speaking English Language Learners was developed by Priya, (2016) for children within age range 3-6 years. It assesses Semantics, Syntax, memory and pragmatics.

Chapter 3

METHOD

The primary aim of the study was to develop Hindi Language Test for children in the age range of 3 to 6 years- An Adaptation.

Research Design

The study was carried out in three phases adhering to the AIISH ethical committee guidelines for Bio-behavioural Sciences for human subjects (AEC, 2009):

Phase 1: Test development, scoring criteria and content validity of the adapted test material

Phase 2: Pilot study

Phase 3: Administration of the test material

3.1 Participants

The participants were classified into two groups- control group and clinical group.

3.1.1 Control Group

The present study included thirty children in the age range of 3 to 6 years. The participants included for the study were native speakers of Hindi and the details are in Table 3.1. An informed consent was taken from the parents or teachers before administering the test.

Table 3.1*Details of Groups with Age Range and Number of Participants*

Age (in years)	Number of participants		Total
	Male	Female	
>3.0 to ≤ 4.0	5	5	10
>4.0 to ≤ 5.0	5	5	10
>5.0 to ≤ 6.0	5	5	10
Total	15	15	30

Participant selection criteria. The inclusion criteria followed will be:

- i) Native speakers of Hindi (with Hindi as Mother tongue and native language).
- ii) Typically developing children with no history of physical or sensory difficulties. WHO ten disability checklists (Singhi, Kumar, Malhi& Kumar, 2007) will be used to screen the children.
- iii) Children from middle socio-economic status (NIMH Scale-R; Venkatesan, 2011) were included for the study.

3.1.2 Clinical Group

A total of eight children in the age range of 3 to 6 years were included in the study. The participants of the study were native speakers of Hindi. Details of this group are given in Table 3.2.

Table 3.2*Details of Clinical Groups with Number of Participants*

Clinical group	Number of participants	Age/Gender
Specific language impairment	2	
SLI1		4 years/Male
SLI2		4.4 years/ Female
Autism spectrum disorder (ASD)	2	
ASD 1		3.5 years/ Male
ASD 2		5 years/ Male
Intellectual disability (ID)	2	
ID 1		5 years/ Male
ID 2		5.5 years/ Female
Hearing Impairment (HI)	2	
HI 1		5.3 years/ Male
HI 2		5.5 years/ Male
Total	8	

Participant inclusionary criteria

- i) Children diagnosed by qualified professionals such as Speech-Language Pathologists, a Clinical Psychologists and a Physiotherapists or Occupational therapists.
- ii) Native speakers of Hindi (with Hindi as Mother tongue and native language).
- iii) Children from middle socio-economic status (NIMH Scale-R Venkatesan, 2011)

3.2 Stimuli / Test material

Hindi Language test (HLT) is developed by adapting the existing Kannada Language Test (KLT; AYJNIHH, 1984). The HLT included two subsections: semantics and syntax. The test is developed based on three phases.

Phase 1: Test development, scoring criteria and content validity of the adapted test material.

Phase 2: Pilot study

Phase 3: Administration of the developed test material

3.2.1 Phase 1: Test development, scoring criteria and content validity of the adapted test material.

The test included two subsections: Syntax and Semantics. The test stimulus for semantics and syntax was prepared by utilizing various sources like that of existing KLT (AYJNIHH, 1984) as well as Hindi books appropriate for children in the age range of 3 to 6 years. Following which, the picture stimuli is made, line drawings of the pictures were prepared.

In the first section, Semantics, there are two major subsections, semantic discrimination and semantic expression. In semantic discrimination, the participant will be instructed to discriminate and point to colors and body parts. In the semantic expression subsection, eleven tasks are included (naming, lexical category, Semantic similarity, Semantic anomaly, Semantic contiguity, Paradigmatic relations, Syntagmatic relations, Polar questions, Antonymy, Synonymy and Homonymy). Instruction were given to the participant before administering the test. The

participants were given with the model example before the actual test administration. The test was administrated in the quite environment.

In the second section, Syntax included subsections (morphophonemic structure, plural forms, tenses, PNG markers, Case markers, Conditional clauses, Transitive, Intransitive and Causative, Sentence type, Conjunctions and Quotatives, Comparatives, Participial construction). The children were asked to pay attention and listen carefully to the stimulus and judge the stimuli for its grammatical correctness. The stimuli was presented through auditory mode. The participants were given with the model example before the actual test administration. The test was administrated in the quite environment

The picture stimuli included target pictures (minimal pair) and two other pictures for each pair, i.e., one sheet will have four plates. The other pictures were chosen in a way that they are similar to the target picture either semantically or phonemically. The pictures are line drawing. All the pictures included in the study are concrete. Taking the age range into consideration, the whole test material has picture stimulus.

Content validity of the adapted test material

Once the stimulus was ready, it was given to three SLPs for validation, who were native speakers of Hindi. The SLPs were asked to judge each item on a 3 point Likert rating scale for familiarity, that is, 0- unfamiliar, 1- somewhat familiar and 2- familiar of the stimuli and the pictures associated with the stimuli and rate them as very poor, poor, fair, good or excellent on the aspects of size and appearance of the pictures, iconicity, stimulability and clinical relevance and suggest modifications, if

required. The items were revised if necessary and only the validated items were selected.

Two rounds of validation was carried out, for the picture stimulus. The final stimulus for the study was included after the final validation.

3.2.2 Phase 2: Pilot study

After the construction of the test material, and before the final administration, a pilot study was conducted on four children from each age group of typically developing children. Based on the pilot study the test was finalized for administration to the actual group of participants. No changes were made in the test material and test stimulus after the pilot study. For test stimuli refer Appendix I.

3.2.3 Phase 3: Administration of the developed test material

The test was administered after making necessary modifications based on the content validity and the final test. The following procedure was used while administering the developed test material.

3.2.3.1 Procedure

An informed consent was obtained from the school principals and the parents of the respective participant. The participants were made to be seated comfortably, and the test was administered on each of them. The participant was briefly explained about the test before administering. The instruction was given to the participant prior to the final test administration.

In the first section, semantics, there are two major subsections, semantic discrimination and semantic expression. In semantic discrimination, the participant will be instructed to discriminate and point to colors and body parts. In the subsection,

semantic expression, the children will be instructed to produce the word as per the instructions and example given. Responses were matched with the answer key given and scoring was done accordingly. Scores were marked simultaneously on the scoring sheet for the respective subsections.

In the second section, syntax, the participant was asked to listen carefully and judge the stimuli for its grammatical correctness. The stimuli were presented through auditory mode. Responses were matched with the answer key given and scoring was done accordingly. Scores were marked simultaneously on the scoring sheet in the respective subsections.

3.2.4 Phase 4: Validation of the adapted test material

The test was validated on a sample of clinical population. The test material was administered on 8 children (as in Table 4), who were native Hindi speakers, in the age range of 3-6 years.

3.3 Scoring and Analysis

The scoring criterion followed in MLT (Rukmini, 1994) and KLT (AYJNIHH, Bombay and RRTC, KK Nagar, Chennai 1990) was followed.

The scores were recorded on a score sheet; correct responses of the child were marked under each sub tests. For the Syntax subsection, the scoring was same for both comprehension and expression as indicated below.

NR/IR (No Response/ Incorrect response) = 0

ER (Emergent Response) = 0.5

CR (Correct Response) = 1

For the semantics subsection, scoring was similar to syntax section for both comprehension and expression.

NR/IR (No Response/ Incorrect response) = 0

ER (Emergent Response) = 0.5

CR (Correct Response) = 1

The scores were recorded on a score sheet; correct responses of the child were marked under each sub domains. The grand total of all the subsections was calculated. The responses were recorded and the data was subjected to statistical analysis using SPSS 21.0 version.

Chapter 4

Results

The primary aim of the present study was to develop a language test in Hindi for children between 3-6 years. The main objective of the study was:

1. To investigate developmental trend, if any in Hindi speaking children across the age range of 3 to 6 years for semantics and syntactic skills.
2. To investigate the effect of gender, if any, in Hindi speaking children across the age range of 3 to 6 years for semantics and syntactic skills.
3. To validate the developed tool on a few clinical populations of children with hearing impairment, autism spectrum disorder, specific language impairment, and intellectual disability.

The data obtained after administration of the test material were subjected to statistical analysis. Shapiro Wilk's test for normality was done, and the results revealed that the data did not follow a normal distribution ($p < 0.05$). Hence, non-parametric tests were carried out. The data was analyzed using the following statistical procedures:

- a) Descriptive statistics were carried out to obtain mean, median, standard deviation (SD) for the total as well as the sections; semantics and syntax and total were obtained.
- b) Kruskal Wallis test was carried out to find out the significant effect of age on the scores of semantics and syntax and a total of HLT- Hindi.
- c) Mann Whitney U- test was carried out, for pairwise comparison across age groups on the scores of semantics and syntax and a total of HLT- Hindi across the age range of 3; 0 to 6; 0 years.

d) Mann Whitney U- test was carried out, for pairwise comparison across gender on the scores of semantics and syntax and total scores across the age range of 3; 0 to 6; 0 years.

Mann Whitney U- test was carried out to compare the difference between the scores of semantic and syntax in the normal and clinical group. The results of the present study are explained in the following sections:

- 4.1 Comparison of language performance of Hindi speaking children across the age range of 3 to 6 years for semantics and syntactic skills
- 4.2 Effect of gender for language performance on HLT of children across age range of 3 to 6 years for semantic and syntactic skills
- 4.3 Comparison of language performance of typically developing children and clinical group for semantics and syntactic skills.

4.1 Comparison of performance of Hindi speaking children across the age range of 3 to 6 years for semantics and syntactic skills

Descriptive statistics showed the Mean, Median and Standard deviation (SD) of the total obtained across the age range. Table 4.1 shows Overall mean, median and SD on HLT across age groups (3-6 years) (N=30).

Table 4.1

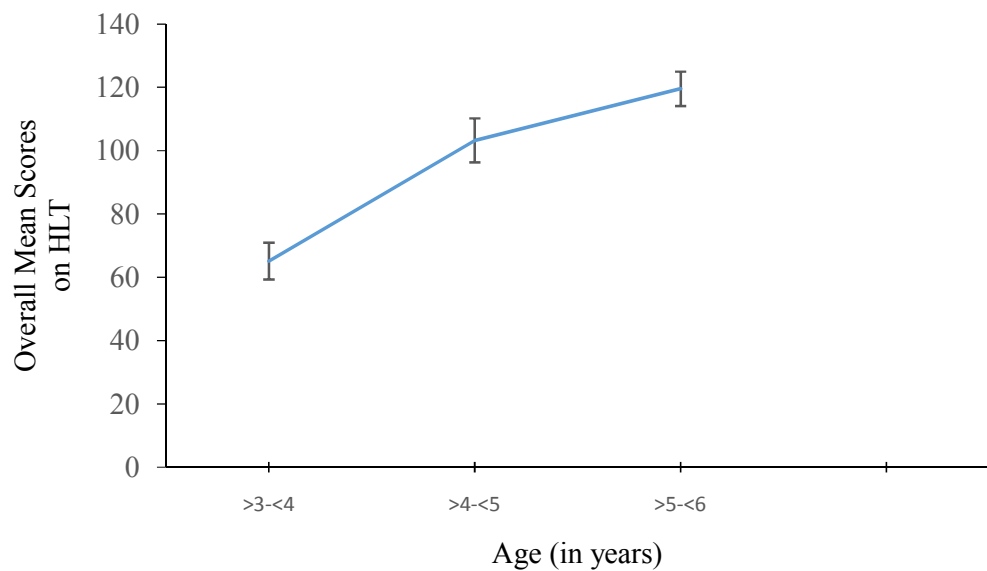
Overall Mean, Median Scores and SD on HLT Across Age Groups (N=30).

Age range (in years)	N	HLT Overall Score		
		Mean	Median	SD
>3 - <4	10	65.1	65.5	5.83
>4 - <5	10	103.25	105	6.97
>5 - <6	10	119.55	120	5.43

The results showed that the mean scores ranged from 65.1 to 119.55, and the median scores ranged from 65.5 to 120. The results revealed there was a linear increment in scores from >3 - <4 years to >5 - <6 years, which means that children performed better on the HLT from lower age group to higher age group indicating a developmental trend. Figure 4.1 shows overall language performance of children on HLT across age groups.

Figure 4.1

Overall Language Performance of Children on HLT Across Age Groups (N=30)



Non-parametric Kruskal - Wallis test was done to check if there was an effect of age and on overall language scores. Table 4.2 shows Comparison of language performance on HLT across age groups using Kruskal –Wallis test. This table revealed that there was a statistically significant effect of age across all the age groups at $p < 0.05$ level. This indicates that there were differences in scores for all the age groups across various sections and for the total scores.

Table 4.2

Comparison of Language Performance on HLT Across Age Groups using Kruskal – Wallis test.

Section	Subsections	Chi-Square	Df	Asymp. Sig.
Semantics	SNR	.92	2	.63
	SNE	1.14	2	.57
	BPR	.45	2	.81
	CR	.92	2	.64
	LCE	4.90	2	.09
	SSR	2.91	2	.24
	SSE	5.17	2	.08
	SAR	1.78	2	.41
	SAE	9.13	2	.01
	SCR	1.46	2	.49
	SCE	1.71	2	.42
	PRR	3.82	2	.15
	PRE	10.75	2	.05
	SRR	0.81	2	.67
	SRE	9.46	2	.01
	PQR	5.43	2	.07
	PQE	5.46	2	.07
	AR	19.67	2	.00
	AE	10.97	2	.04
	SR	3.91	2	.14
SE	4.34	2	.11	
HR	10.13	2	.06	
HE	1.92	2	.38	
TOTAL	8.91	2	.02	

Section	Subsections	Chi-Square	Df	Asymp. Sig.
Syntax	MSR	15.03	2	.01
	MSE	10.94	2	.04
	PFR	19.77	2	.00
	PFE	16.45	2	.00
	TR	19.61	2	.00
	TE	18.91	2	.00
	PNG MR	18.78	2	.00
	PNG ME	18.64	2	.00
	CMR	19.78	2	.00
	CME	20.31	2	.00
	CCR	.17	2	0.92
	CCE	8.21	2	.02
	TICR	.12	2	.91
	TICE	5.51	2	.07
	STR	3.94	2	.14
	STE	6.38	2	.04
	CQR	7.07	2	.03
	CQE	4.19	2	.12
	CR	.98	2	.62
	CE	8.51	2	.04
	PCR	4.12	2	.12
PCQ	11.08	2	.04	
TOTAL	12.59	2	.02	

Note: SNR=Semanticnaming-receptive, SNE=Semantics naming-expressive, BDR=Body parts-Receptive, CR=Colour-reception, LCE=Lexical category-expressive, SSR=Semantic similarity-Receptive, SSE=Semantic similarity-Expressive, SAR=Semantic anomaly-Receptive, SAE=Semantic anomaly-Expressive, SCR=Semantic contiguity-Receptive, SCE=Semantic contiguity-Expressive, PRR=Paradigmatic relations-Receptive, PRE=Paradigmatic relations-Expressive, SRR=Syntagmatic relations-Receptive, SRE=Syntagmatic relations-Expressive, PQR=Polar questions-Receptive, PQE=Polar questions-Expressive, AR=Antonymy-Receptive, AE=Antonymy-Expressive, SR=Synonymy-Receptive, SE= Synonymy-Expressive, HR=Homonymy-Receptive, HE=Homonymy-Expressive, MSR=Morphophonemic structures-Receptive, MSE=Morphophonemic structures-Expressive, PFR=Plural forms-Receptive, PFE=Plural forms-Expressive, TR=Tenses-Receptive, TE=Tenses-Expressive, PNG MR=PNG markers-Receptive, PNG ME=PNG markers-Expressive, CMR=Case markers-Receptive, CME=Case markers-Expressive, CCR=Conditional clauses-Receptive, CCE=Conditional clauses-Expressive, TICR=Transitive, Intransitive and Causatives-Receptive, TICE=Transitive, Intransitive and Causatives-Expressive, STR=Sentence types-Receptive, STE= Sentence types-Expressive, CQR=Conjunctive and Quotatives-Receptive, CQE=Conjunctive and Quotatives-Expressive, CR=Comparatives-Receptive, CE=Comparatives-Expressive, PCR=Participial construction-Receptive and PCE=Participial construction-Expressive.

Kruskal Wallis test results showed that there was a statistically significant effect of age across all the age groups at $p < 0.05$ level. Significant difference was observed between expressive and receptive language skills for both semantics and syntax across the age groups. Hence Mann Whitney U test was used for pair wise

comparison across age groups. The test was performed for the overall scores as well as each section (semantics and syntax). Table 4.3 shows $|z|$ values of overall scores on HLT for comparison across the age groups using Mann Whitney U test.

Table 4.3

$|z|$ values of overall scores on HLT for comparison across the age groups using Mann Whitney U test.

Age	>3 – 4	>4 – 5	>5 – 6
>3 - <4		2.938*	2.694*
>4 - <5			NS
>5 - <6			

NOTE: * $p < 0.05$ level, NS= Non significant

In the pair wise comparison as indicated in the above table 4.3, it was found for total scores that there was a significant difference between the >3 to <4 years and all the higher age groups (>4 to <5 years; >5 to <6 years) at $p < 0.05$ level. In the Comparison of children >4 - <5 years with all the other age groups in developmental order, there was no significant difference with other age groups (>5 to <6 years) at $p < 0.05$ level.

4.1.1 Comparison Between Receptive and Expressive Language Scores of HLT Across Age Groups.

Both the groups attained better scores for the receptive language as compared to the expressive language. Table 4.4 shows mean, median and SD on HLT overall reception and expression scores across age groups.

Table 4.4

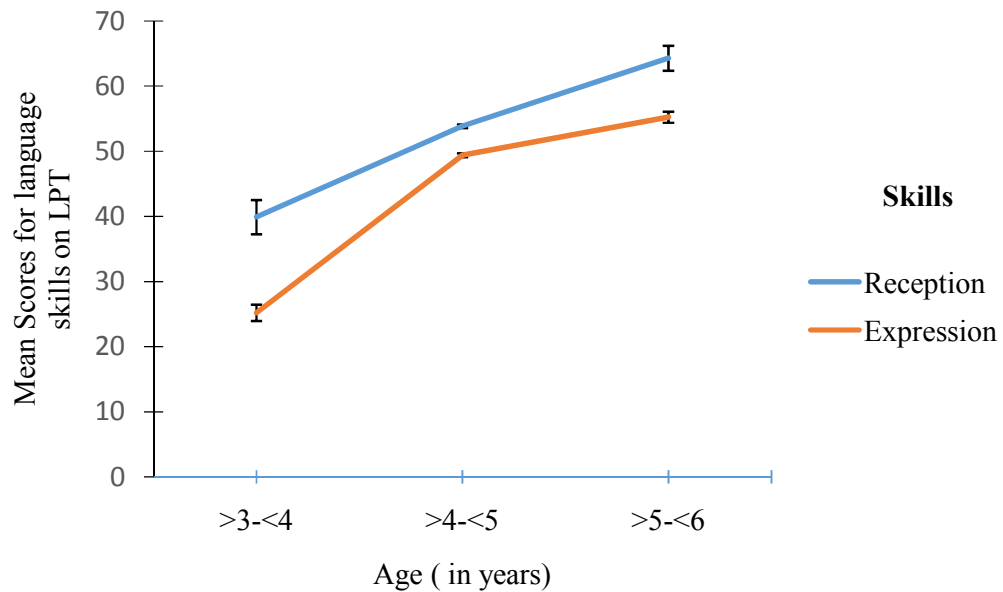
Mean, Median and SD on HLT Overall Reception and Expression Scores Across Age Groups(N=30)

Age (In years)	Language Receptive			Language Expressive		
	Mean	Median	SD	Mean	Median	SD
>3 - <4	39.9	39.75	2.63	25.2	24.75	1.25
>4 - <5	53.85	54.25	0.28	49.4	50.25	0.31
>5 - <6	64.3	64.75	1.93	55.25	55.25	0.85

The results showed that the Mean scores ranged from 39.9 to 64.3, for receptive language skills and the mean scores ranged from 25.2 to 55.25 for the expressive language skills. The values represented in the above table shows there was a significant difference in the receptive and expressive language skills. The receptive language scores are better compared to the expressive language scores across the age groups. This depicts there is language development trend being followed as the age increases, which means that children performed better on the HLT for reception than the expressive language. As shown in figure 4.2 mean, median and SD on HLT overall reception and expression scores across age groups.

Figure 4.2

Mean, Median and SD on HLT Overall Reception and Expression Scores Across Age Groups (N=30)



After noticing a significant difference between receptive and Expressive language skills, sections (Semantic and syntax) wise comparison was done. Table 4.5 Mean, Median and SD on HLT Overall Semantic Reception and Expression Scores Across Age Groups (N=30).

Table 4.5

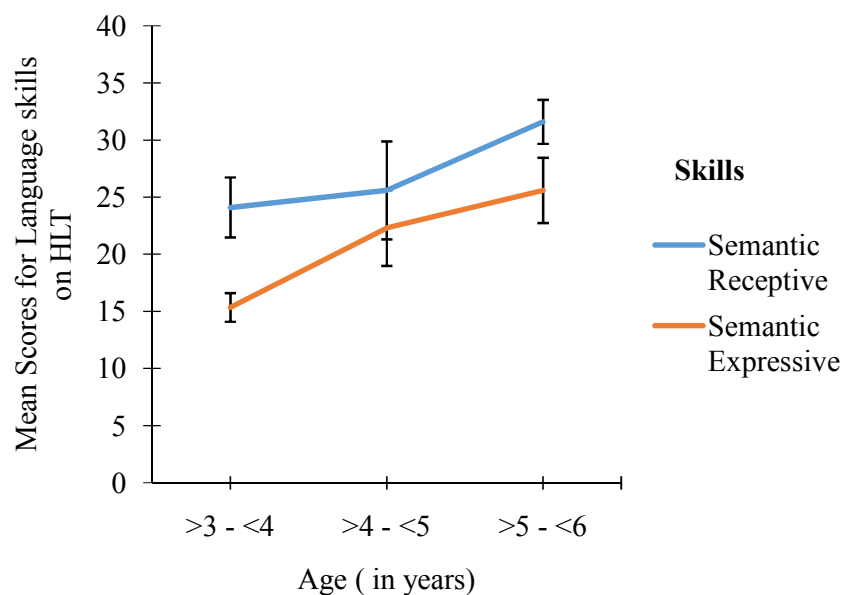
Mean, Median and SD on HLT Overall Semantic Reception and Expression Scores Across Age Groups(N=30)

Age (In years)	Semantic Receptive			Semantic Expressive		
	Mean	Median	SD	Mean	Median	SD
>3 - <4	24.1	24	2.63	15.35	15.25	1.25
>4 - <5	25.6	26.75	4.28	22.3	23	3.31
>5 - <6	31.6	32	1.93	25.6	25.75	2.85

The results showed that the mean scores ranged from 24.1 to 31.6, for Semantic receptive language skills and the mean scores ranged from 15.35 to 25.26 for the Semantic expressive language skills. The Semantic receptive language scores are better compared to the Semantic expressive language scores across the age groups. This shows that comprehension of semantic skills was achieved before the production. Children receptive language skills develop first, which later can be helpful for developing the expressive language skills. Significant difference was noticed between the semantic expressive and receptive language skills. figure 4.3 Performance of children for semantic language skills on HLT across age groups.

Figure 4.3

Performance of children for semantic language skills on HLT across age groups.



Similarly, comparison was made for syntactic receptive and expressive language skills. Table 4.6 shows Mean, Median and SD on HLT Overall Syntax Reception and Expression Scores Across Age Groups(N=30)

Table 4.6

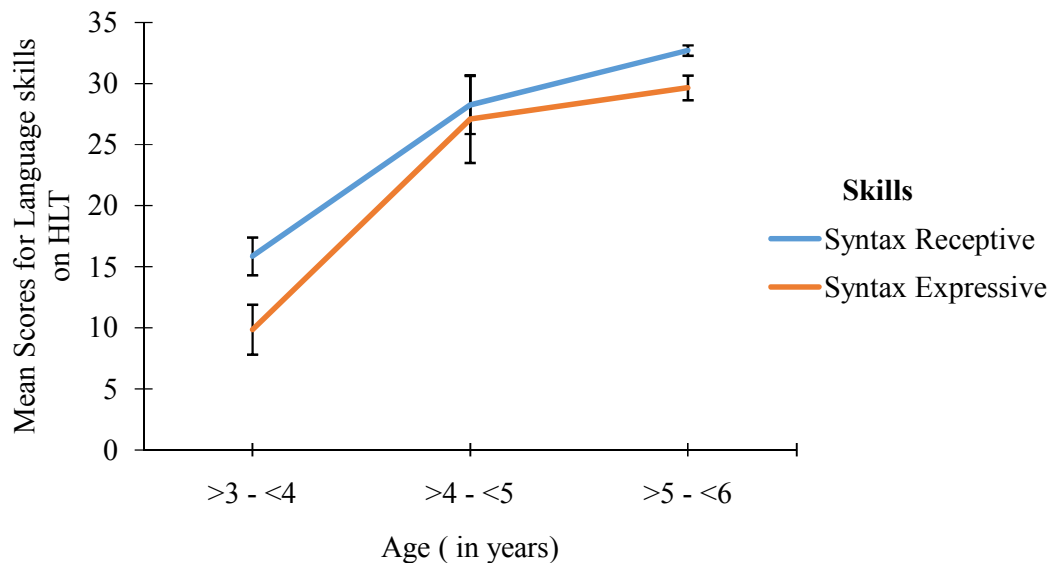
Mean, Median and SD on HLT Overall Syntax Reception and Expression Scores Across Age Groups (N=30)

Age (In years)	Syntax Receptive			Syntax Expressive		
	Mean	Median	SD	Mean	Median	SD
>3 - <4	15.8	15.75	1.55	9.85	9.5	2.04
>4 - <5	28.25	28.25	2.38	27.1	27.25	3.59
>5 - <6	32.7	32.75	.43	29.65	29.5	1.01

The results showed that the Mean scores ranged from 15.8 to 32.7, for Syntactic receptive language skills and the mean scores ranged from 9.85 to 29.65 for the Syntactic expressive language skills. The similar development pattern is followed for syntax as well same as semantic. The syntactic receptive language scores are better compared to the Syntactic expressive language scores across the age groups. For the younger and higher age group there was a significant difference observed, but for the middle age group (4-5 years) the difference was not that significant. We observed a sharp rising pattern indicating fast development of language skills in younger age group. From the middle age group (4-5 years) the language development was more gradual as shown in figure4.4.

Figure 4.4

Performance of children for syntactic language skills on HLT across age groups.



4.1.1.1 Comparison of performance on HLT of Semantics and Syntax across age groups

Descriptive statistics showed the mean, median and standard deviation (SD) of the sections of HLT, namely Semantics and Syntax in Table 4.7 mean, median and SD on HLT Overall Syntax Reception and Expression Scores Across Age Groups(N=30).

Table 4.7

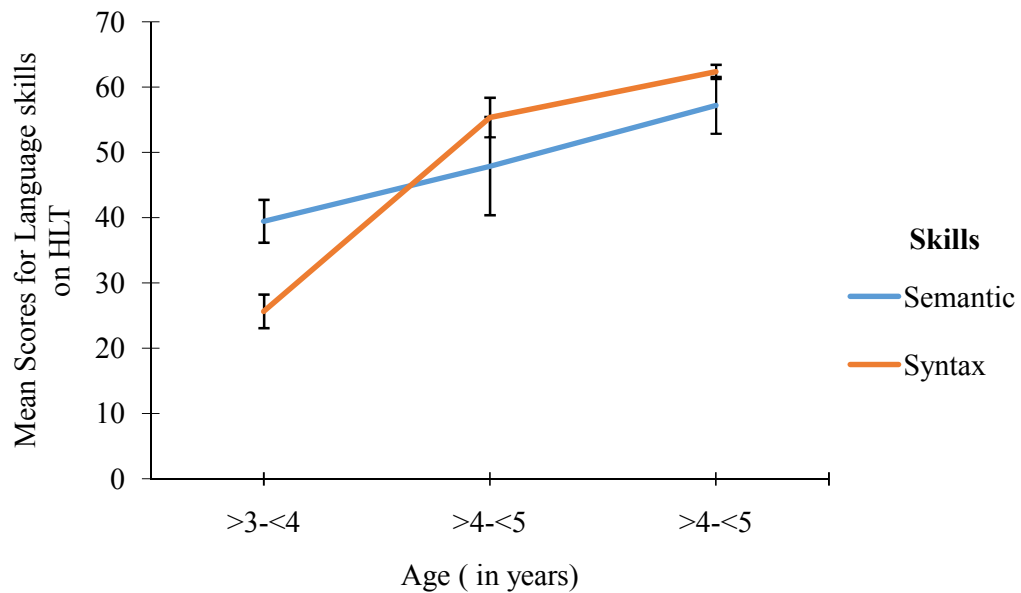
Mean, Median and SD on HLT Overall Syntax Reception and Expression Scores Across Age Groups (N=30)

Age (In years)	n	Semantics			Syntax		
		Mean	Median	SD	Mean	Median	SD
>3 - <4	10	39.45	39.5	3.27	25.65	26	2.56
>4 - <5	10	47.9	49.75	7.52	55.35	55.25	3.03
>5 - <6	10	57.2	57.5	4.34	62.35	62.5	1.08

The table above showed the Mean value ranges from 39.45 to 57.2 for semantics and 25.65 to 62.35 for syntax section across age groups. Results indicated that the Mean scores of semantics are higher compared to the syntax in the age group of >3-<4 years age range. For the age group >4-<5 years and >5-<6 years syntax scores were obtained higher than the semantic section. The linear increment in mean scores for both semantic and syntax, indicates an improvement in language development during the developmental period. As figure4.5 shows Performance of children for syntactic language skills on HLT across age groups

Figure 4.5

Performance of children for syntactic language skills on HLT across age groups



Mann Whitney U test was used for pair wise comparison across age groups for semantic and syntactic skills. Table 4.8 shows $|z|$ values of semantic scores on HLT for comparison across the age groups using Mann Whitney U test

Table 4.8

$|z|$ values of semantic scores on HLT for comparison across the age groups using Mann Whitney U test.

	>3 – 4	>4 – 5	>5 – 6
>3 - <4		2.122*	2.694*
>4 - <5			NS
>5 - <6			

*Note: *p<0.05 level, NS- Non significant*

Comparison of Semantic scores of children >3- <4 years with all the other age groups, shows there was a significant difference observed with >4 to <5 years and >5-<6 age group at $p<0.05$ level. Whereas, no significant difference was observed in children between >4 - <5 years with >5 - <6 years. Hence, it shows that after 3 years of age language development (semantic skills) is more gradual in typically developing children.

Pair wise comparison was performed across age groups for semantic and syntactic skills. Table 4.9 shows $|z|$ values of syntactic scores on HLT for comparison across the age groups using Mann Whitney U test.

Table 4.9

$|z|$ values of syntactic scores on HLT for comparison across the age groups using Mann Whitney U test

	>3 – 4	>4 – 5	>5 – 6
>3 - <4		3.005*	2.582*
>4 - <5			2.407*
>5 - <6			

*Note: * $p<0.05$ level*

Comparison of Syntactic scores of children >3- <4 years with all the other age groups, shows there was a significant difference observed with >4 to <5 years and >5-<6 age group at $p<0.05$ level. Also, when comparing children of >4 - <5 years with >5 - <6 years, significant difference was observed at $p< 0.05$ level. Hence, it shows that language development (syntactic skills) trend follows different pattern compared to semantics.

The results revealed that as age increases, language age also increases. In age group >3->4 years, subsections like semantic naming, body parts, colours, lexical category are achieved. Other subsections under semantics are found to be emerging. Antonymy, synonymy and homonymy started acquiring after 5 years of age. In age group >4->5 years, homonymy and synonymy only reception has emerged but not the expression. By the age of >5->6 years, all the subsections under the semantic category are achieved, except homonymy and synonymy expression. Similarly looking into in the syntax section morphophonemic structure, plurals and tenses start developing at the age of >4->5 years. Other subsections are emerging and developing with age.

4.2.1 Effect of gender for language performance on HLT of children across age range of 3 to 6 years for semantic and syntactic skills

As we have seen the language development across the ages, similarly we wanted to investigate if there was any gender effect present or not across and within the age ranges. After performing the descriptive statistic and the non-parametric test was performed and Gender effect was noticed in both the sections of semantics and syntax. Table 4.10 shows mean, median and Standard Deviation of HLT Overall Scores across age groups in males and females.

Table: 4.10

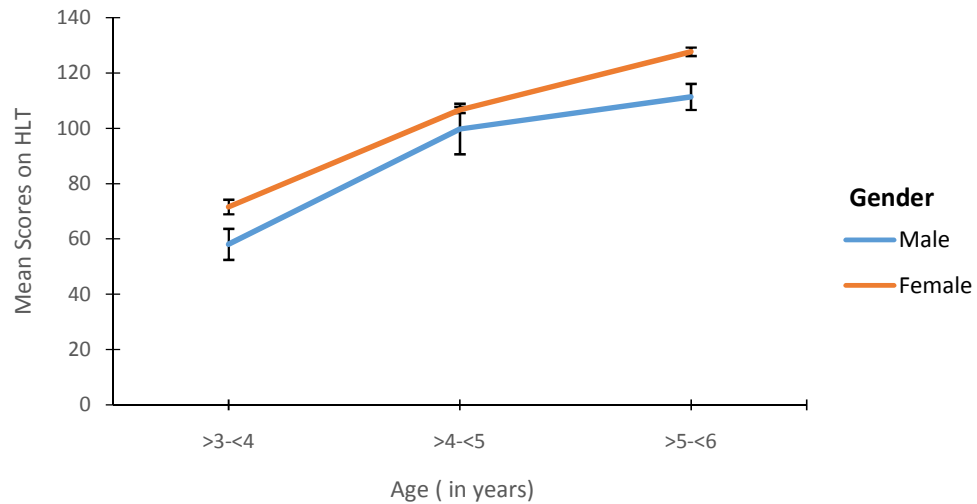
Mean, Median and Standard Deviation of HLT Overall Scores Across Age Groups in Males and Females (N=30)

Age range (in years)	HLT Overall Score							
	Males				Females			
	n	Mean	Median	SD	n	Mean	Median	SD
>3 - <4	5	58.1	59	5.60	5	71.6	72	2.63
>4 - <5	5	99.8	101.5	9.17	5	106.7	108.5	1.08
>5 - <6	5	111.4	111.5	4.71	5	127.7	128.5	1.56

The results showed that the mean scores ranged from 58.1 to 111.4 for males and 71.6 to 127.7 for Females. The overall language scores show a significant difference between males and females language scores across the age groups. It was observed that as age increases, there was an increment in language scores for both males and females. Language growth in males was observed to be gradual across the age groups, whereas there was significant increase in language scores from 3 to 6 years in females across age groups as shown in figure 4.6.

Figure 4.6

Comparison of Mean Scores on HLT Overall Score Across Age groups in both Males and Females



Overall Comparison of language scores in semantic and syntax across age groups in males and females showed that females performed better than males in all the domains of HLT and also had higher overall scores.

4.2.2 Comparison of Performance on HLT for Semantics in males and Females Across Age Groups.

As age increases, gradually the language age was also developing. There was a linear increment in scores of semantic in both males and females across age groups. Table 4.11 shows mean, median and Standard deviation on HLT in Semantics for males and females across age groups.

Table 4.11

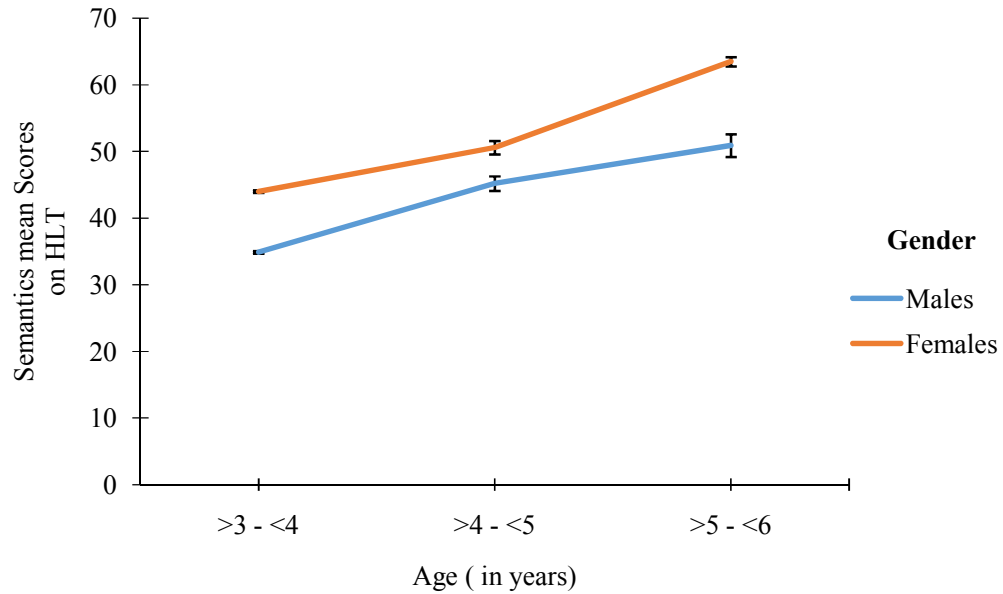
Mean, Median and Standard Deviation on HLT for Semantics in Males and Females Across the Age Groups.

Age (In Years)	Females			Males		
	Mean	Median	SD	Mean	Median	SD
>3 - <4	44	44	0.19	34.9	35	0.19
>4 - <5	50.60	52	1.00	45.20	47.5	1.09
>5 - <6	63.50	64	0.70	50.90	51.00	1.70

Comparison for performance on semantic section revealed that in females and males, the scores increased from 3 to 6 years. The Mean scores ranges from 44 to 63.50 for Females and 34.9 to 50.90 for Males. The results showed that the performance of Females was observed to be better than the males in all the subsections of semantics. The scores are increasing gradually from 3 to 6 years in both males and Females. The language development in males for semantics is gradual whereas in females, there was a gradual increase in scores from 3 to 5 years but later the scores increase more steeply till 6 years of age. As shown in figure 4.7 mean scores on HLT for semantics for Females and Males Across Age Groups.

Figure 4.7

Mean scores on HLT for Semantics for Females and Males Across Age Groups.



To confirm the significant difference between the gender, A non-parametric Mann-Whitney test was administered for both male and female across the age groups. Tables 4.12 and 4.13 show $|z|$ values for semantic scores obtained by males and females on HLT for comparison across the age groups using Mann Whitney U test.

Table 4.12

$|z|$ Values for Semantic Scores Obtained By Males On HLT For Comparison Across the Age Groups Using Mann Whitney U Test

	>3 – 4	>4 – 5	>5 – 6
>3 - <4		NS	2.627*
>4 - <5			NS
>5 - <6			

*Note: * $p < 0.05$ level, NS- No significance*

Table 4.13

|z| Values for Semantic Scores Obtained By Females On HLT For Comparison Across the Age Groups Using Mann Whitney U Test

	>3 –<4	>4 – <5	>5 –<6
>3 - <4		NS	2.619*
>4 - <5			2.619*
>5 - <6			

*Note: *p<0.05 level, NS- Non significant*

Comparison of children >3-<4 years with the >4-<5 years revealed no significant difference. But while comparing children of >3-<4 years with >5-<6 years showed significant difference at $p < 0.05$ level. There was significant difference observed while comparing >4- <5 years with >5- <6 years at $p < 0.05$ level. As it was observed that in females the language development occurs gradually from 3 to 5 years. Hence there was no significant difference was notices. But there was significant difference between the younger group (3 years) and the older group (6 years) in language scores.

Comparison of children >3-<4 years with the >4-<5 years revealed no significant difference. But while comparing children of >3-<4 years with >5 - <6 years showed significant difference at $p < 0.05$ level. There was no significant difference observed while comparing >4- <5 years with >5- <6 years at $p < 0.05$ level.

4.2.2.1 Comparison of Performance on HLT for Syntax in Males and Females Across Age Groups

Similarly, comparison for syntax in Males and Females was performed. Table 4.14 shows comparison of mean, median and standard Deviation for syntax in females and Males across age groups

Table 4.14

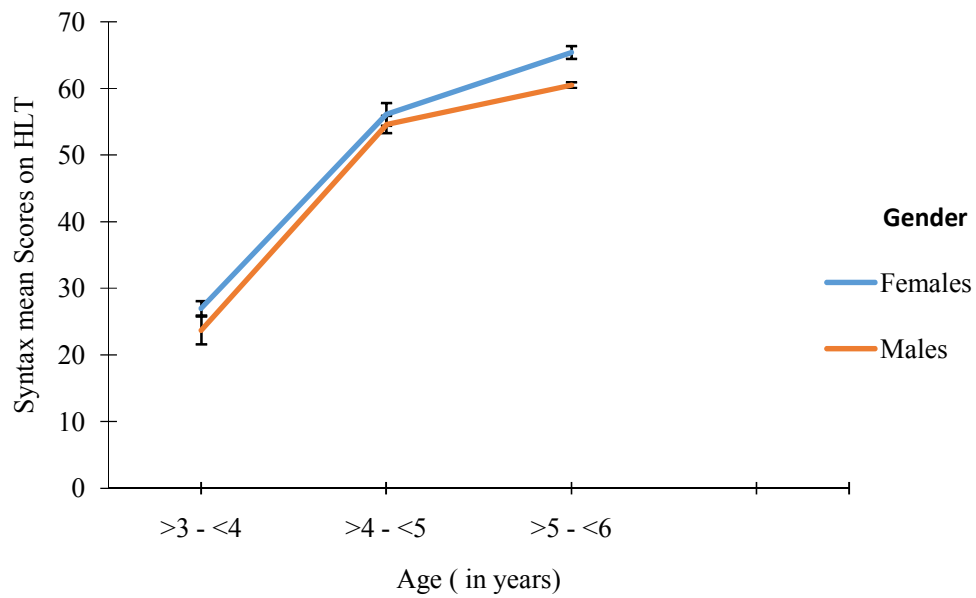
Mean, Median and Standard Deviation on HLT for Syntax in males and females Across Age Groups.

Age (In Years)	Females			Males		
	Mean	Median	SD	Mean	Median	SD
>3 - <4	27	28	1.09	23.7	24	2.09
>4 - <5	56.10	56.5	1.30	54.60	54	1.30
>5 - <6	65.4	64.5	0.41	60.50	60.5	0.41

Comparison for Syntax in females and males, showed that the scores increase from 3 to 6 years. The Mean scores ranges from 27 to 65.4 for Females and 23.7 to 60.50 for Males. The results showed that the performance of Females was observed to be better than the males in all the subsections of syntax. The scores are increasing gradually from 3 to 6 years in both males and Females as shown in figure 4.8.

Figure 4.8

Comparison of Mean on HLT for Syntax in males and females Across Age Groups.



To find out whether there was a significant difference between the gender, non-parametric Mann-Whitney test was administered for both male and female across the age groups. Tables 4.15 and 4.16 show $|z|$ values for syntactic scores obtained by males and females on HLT for comparison across the age groups using Mann Whitney U test.

Table 4.15

$|z|$ values for syntactic scores obtained by males on HLT for comparison across the age groups using Mann Whitney U test.

	>3 - 4	>4 - 5	>5 - 6
>3 - <4		2.611*	2.627*
>4 - <5		NS	2.440*
>5 - <6			

Note: * $p < 0.05$ level, NS- No significance

In the Comparison of children >3- <4 years with all the other age groups in developmental order, there was a significant difference with >4 to <5 years old children at $p < 0.05$ level. Above this age, there was a significant difference observed with >5-<6 age group. In the Comparison of children >4 - <5 years with all the other age groups in developmental order, there was a significant difference with the age groups >5-<6 years at $p < 0.05$ level (as shown in tables 4.13 & 4.14).

Table 4.16

|z| values for syntactic scores obtained by females on HLT for comparison across the age groups using Mann Whitney U test.

	>3 – <4	>4 - <5	>5 –<6
>3 - <4		2.635*	2.627*
>4 - <5			2.635*
>5 - <6			

NOTE: * $p < 0.05$ level, NS- No significance

Significant difference was observed while comparing >3- <4 years with >4 - <5 years and >5 - 6 years at $p < 0.05$ level. Similarly while comparing >4- <5 years with the >5 - <6 years, significant difference was observed at $p < 0.05$ level.

A non-parametric Kruskal - Wallis test was done to check if there was an effect of age on language scores. Table 4.17 shows comparison of language performance on HLT between gender using Kruskal –Wallis test.

The results are represented in table 4.16. This table revealed that there was a significant effect of age across all the age groups for both males and females in both reception and expression at $p < 0.05$ level. There are subsections with a significant

difference across the age ranges. But there are subsections with no significant difference, shown in table4.17.

Table 4.17

Comparison of Language Performance on HLT between Gender Using Kruskal – Wallis Test.

Section	Subsections	Male			Female		
		Chi-Square	Df	Asymp. Sig.	Chi-Square	Df	Asymp. Sig.
Semantics	SNR	.00	2	.00	.00	2	1.00
	SNE	.00	2	.00	.00	2	1.00
	BPR	.00	2	.00	.00	2	1.00
	CR	.00	2	.00	.00	2	1.00
	LCE	1.87	2	.00	10.88	2	.04
	SSR	3.70	2	.00	4.31	2	.11
	SSE	2.81	2	.00	13.47	2	.01
	SAR	4.34	2	.00	1.09	2	.58
	SAE	8.75	2	.00	10.51	2	.05
	SCR	3.88	2	.00	.00	2	1.00
	SCE	3.57	2	.00	3.67	2	.16
	PRR	10.78	2	.00	2.00	2	.37
	PRE	9.01	2	.00	12.37	2	.02
	SRR	1.21	2	.00	.00	2	1.00
	SRE	8.03	2	.09	14.00	2	.01
	PQR	6.43	2	.04	.00	2	1.00
	PQE	2.57	2	.28	10.18	2	.06
	AR	13.36	2	.01	11.50	2	.03
	AE	4.63	2	.01	10.12	2	.06
	SR	.00	2	1.00	5.20	2	.07
SE	4.29	2	.12	6.38	2	.04	
HR	1.08	2	.58	14.00	2	.01	
HE	.00	2	1.00	2.00	2	.37	
	TOTAL	7.49	2	.02	10.54	2	.05
Syntax	MSR	10.05	2	.07	9.50	2	.09
	MSE	10.94	2	.04	13.43	2	.01
	PFR	12.13	2	.02	12.15	2	.02
	PFE	10.80	2	.05	8.69	2	.01
	TR	11.54	2	.03	11.52	2	.03
	TE	11.13	2	.04	11.17	2	.04

Section	Subsection	Chi-Square	Df	Asymp. Sig.	Chi-Square	Df	Asymp. Sig.
	s						
	PNG MR	10.89	2	.04	12.17	2	.02
	PNG ME	11.87	2	.03	12.15	2	.02
	CMR	12.67	2	.02	12.17	2	.02
	CME	12.67	2	.02	12.67	2	.02
	CCR	.00	2	1.00	2.00	2	.37
	CCE	8.62	2	.01	11.08	2	.04
	TICR	.00	2	1.00	.00	2	1.00
	TICE	11.06	2	.03	3.43	2	.18
	STR	3.12	2	.21	5.20	2	.07
	STE	3.83	2	.14	9.64	2	.08
	CQR	9.94	2	.07	6.9	2	.03
	CQE	3.17	2	.20	8.99	2	.01
	CR	2.20	2	.33	.00	2	1.00
	CE	9.06	2	.01	7.57	2	.02
	PCR	10.00	2	.01	2.00	2	.37
	PCQ	8.56	2	.01	9.75	2	.08
	TOTAL	12.13	2	.02	12.59	2	.02

Note: SNR=Semantic naming-receptive, SNE=Semantics naming-expressive, BDR=Body parts-Receptive, CR=Colour-reception, LCE=Lexical category-expressive, SSR=Semantic similarity-Receptive, SSE=Semantic similarity-Expressive, SAR=Semantic anomaly-Receptive, SAE=Semantic anomaly-Expressive, SCR=Semantic contiguity-Receptive, SCE=Semantic contiguity-Expressive, PRR=Paradigmatic relations-Receptive, PRE=Paradigmatic relations-Expressive, SRR=Syntagmatic relations-Receptive, SRE=Syntagmatic relations-Expressive, PQR=Polar questions-Receptive, PQE=Polar questions-Expressive, AR=Antonymy-Receptive, AE=Antonymy-Expressive, SR=Synonymy-Receptive, SE=Synonymy-Expressive, HR=Homonymy-Receptive, HE=Homonymy-Expressive, MSR=Morphophonemic structures-Receptive, MSE=Morphophonemic structures-Expressive, PFR=Plural forms-Receptive, PFE=Plural forms-Expressive, TR=Tenses-Receptive, TE=Tenses-Expressive, PNG MR=PNG markers-Receptive, PNG ME=PNG markers-Expressive, CMR=Case markers-Receptive, CME=Case markers-Expressive, CCR=Conditional clauses-Receptive, CCE=Conditional clauses-Expressive, TICR=Transitive, Intransitive and Causatives-Receptive, TICE=Transitive, Intransitive and Causatives-Expressive, STR=Sentence types-Receptive, STE=Sentence types-Expressive, CQR=Conjunctive and Quotatives-Receptive, CQE=Conjunctive and Quotatives-Expressive, CR=Comparatives-Receptive, CE=Comparatives-Expressive, PCR=Participial construction-Receptive and PCE=Participial construction-Expressive.

Across the age groups, significant difference was observed in language scores between males and females. Both male and female language scores increase as age increases. With the overall comparison, it was observed that female scored better than males for both the sections semantics and syntax. It was observed that female group have better receptive skills than males across the age groups. Within the same age

group, there was no significant difference observed between male and female, whereas across age groups there was a significant difference observed. In male group, the language scores increase gradually but in female group the scores increased in rising patterns.

4.3. Comparison of Performance of Typically Developing Children and Clinical Group for Semantics and Syntactic Skills

The data obtained from the children with spoken language disorders (autism spectrum disorder, intellectual disability, specific language impairment and hearing impairment) was compared with the mean and median scores of typically developing children.

Table 4.19 presents the HLT scores obtained by each participant in the section syntax and semantic. These results indicated that the total scores obtained by this group of children under each section were lower than that of the mean and median scores of typically developing children. This indicated that this group of children falls below the age level in their linguistic skills compared to their typically developing peers. Thus, the test scores obtained clearly distinguishes the children with and without speech and language problems.

Both semantic and syntax scores are compared between typical developing children and clinical groups. All the subsections under semantic and syntax showed a significant difference. Table 4.19 mean, median and SD values on HLT between Typically developing children and Clinical group

Table 4.18

Mean, Median and SD values on HLT Between Typically developing children and Clinical group

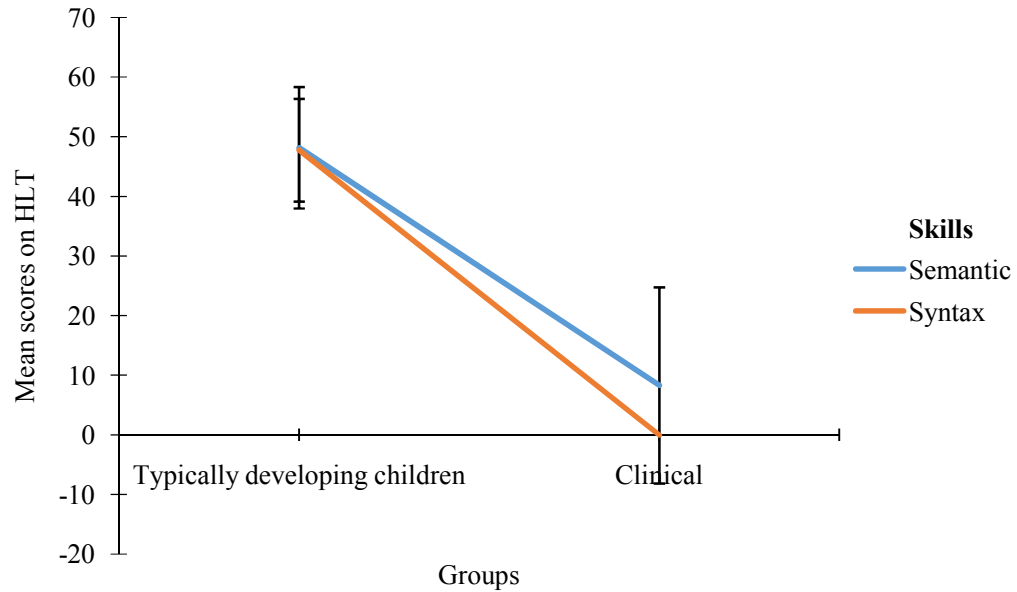
Category	TDC			Clinical		
	Mean	Median	SD	Mean	Median	SD
Semantic	48.18	47.25	10.18	8.31	5.25	8.61
Syntax	47.78	55.75	16.44	.00	.00	.00

Note: TDC- Typically developing children

The tabular values clearly indicate that there was a significant difference in semantics between the groups with mean values 48.18, median 47.25 and SD 10.187 for the TDC and mean value 8.31, median 5.25 and standard deviation 8.610 for the clinical group. Similarly, syntax also showed a significant difference between the group. For the typically developing children, the mean value is 47.7833, median 55.75 and SD 16.44. in clinical group mean value is 0.00, the median is 0.00 and S.D. value is 0.00. Figure 4.9 Comparison of Mean and SD values Between Typically developing children and Clinical group

Figure 4.9

Comparison of Mean and SD values Between Typically developing children and Clinical group



While comparing the scores within each section as indicated in table 4.20 and figure 4.10 shows the receptive and expressive language scores in semantic and syntax section for typically developing individuals and children with spoken language disorders.

Table 4.19

Mean, Median and SD values on HLT for Typically developing children and Clinical Group in Semantics section

Category	Semantic Receptive			Semantic Expressive		
	Mean	Median	SD	Mean	Median	SD
Normal	27.1	27	0.05	21.08	20.5	2.58
Clinical	6.93	4.75	6.71	2.06	1.00	2.62

The Mean value for the receptive language is 27.1 and for expressive language is 21.08 for semantics. Similarly, in the clinical group, the Mean value for receptive language is 6.93 and for expressive language is 2.06 for semantics. Both the sections, semantics and syntax receptive language scores are higher compared to the expressive language scores for normal than the clinical group as shown in Figure 4.10.

Figure 4.10

Mean value on HLT for Typically developing children and Clinical Group in Semantics section

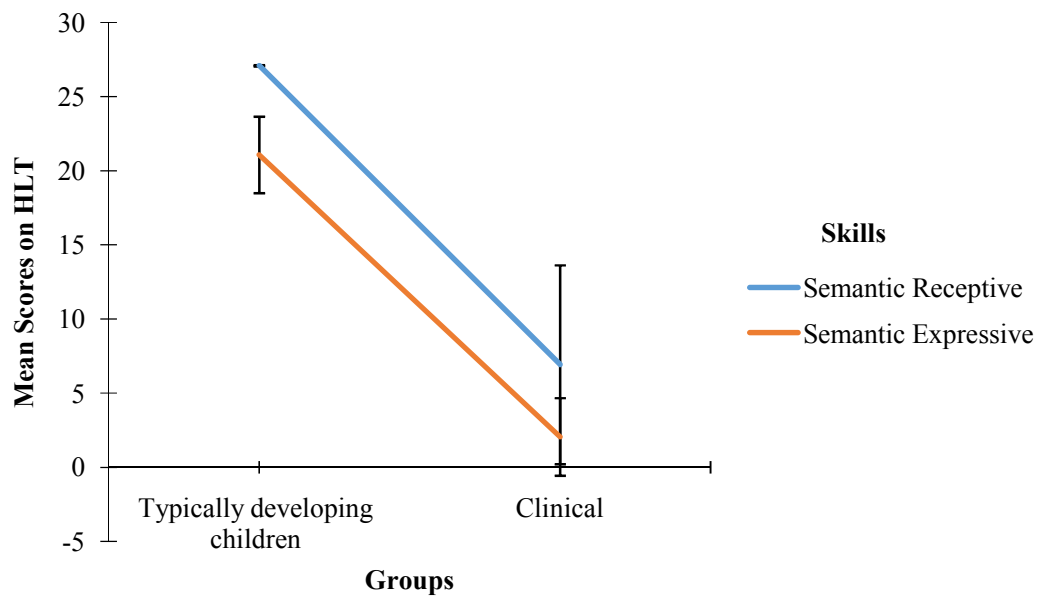


Table 4.20

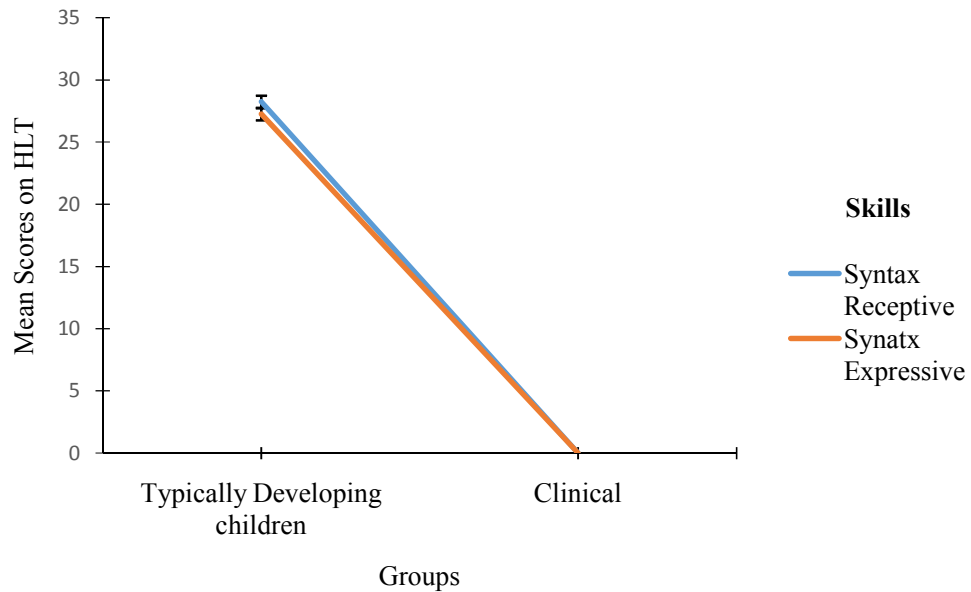
Mean, Median and SD values on HLT for Typically developing children and Clinical Group in Syntax section

Category	Syntax Receptive			Syntax Expressive		
	Mean	Median	SD	Mean	Median	SD
Normal	25.58	28.25	0.48	22.2	27.25	0.18
Clinical	0.00	0.00	0.00	0.00	0.00	0.00

Comparison of the syntax scores among both the groups. Figure 4.11 shows that receptive and expressive language scores are better for the TDC group than the clinical group. For the TDC group, the mean value for receptive language is 25.58 and for the expressive language is 22.22. Whereas in the clinical group the scores obtained are less than the typically developing children group. The mean scores for receptive language in clinical group is 0.00 and for the expressive language is 0.00. Figure 4.11 shows mean values on HLT for typically developing children and clinical Group in Syntax section.

Figure 4.11

Mean values on HLT for Typically developing children and Clinical Group in Syntax section



The participants in the clinical group faced difficulty in following the instructions in the syntax section. Hence the score in the syntax section is lower than the semantic section. The overall performance of the clinical group was poor compared to the TDC group.

Chapter V

DISCUSSION

The present study aimed to investigate the developmental trend, if any in Hindi speaking children across age range of 3 to 6 years for semantics and syntactic skills and also to investigate gender effect, if any, in Hindi speaking children across age range of 3 to 6 years for semantics and syntactic skills.

The findings of the study are explained under the following headings:

- 5.1 Comparison of performance of Hindi speaking children across age range of 3 to 6 years for semantics and syntactic skills
- 5.2 Effect of gender in Hindi speaking children across age range of 3 to 6 years for semantics and syntactic skills.
- 5.3 Comparison of performance of typically developing children and clinical group (Hearing impaired, Specific Language Impairment, Intellectual disability, autism spectrum disorder) for semantics and syntactic skills on the developed tool.

5.1 Comparison of performance of Hindi speaking children across age range of 3 to 6 years for semantics and syntactic skills

The results on descriptive statistics as shown in table 4.1 represent the overall language scores across the age groups. The findings of the study revealed that there was a significant developmental trend present in the language scores from the age group >3->4 years to >5->6 years.

Our findings of this linear developmental trend can be supported by theories of different viewpoints such as the Biological maturation theory (Lenneberg,1967)

which depends on the universality of language acquisition. The combination of the child's genetic makeup (Macrostructures, Microstructures) and his/her environment (Nature vs Nurture) play a pivotal role as the child's cognition, language and behaviour develops. This theory also gives emphasis on rate of language acquisition during the critical period, which would be faster during this period. Also the Social interaction theory that was given by Vygotsky in 1962 brings into light another important element in language acquisition, this theory suggests that the child is able to learn and acquire language based on his or her experiences with the environment and those individuals (MKO) and the child's ability to learn from the same (Zone of proximal development) The trend that is seen in our study can also be attributed to social interaction, as the child grows the interaction of the child with those in his or her environment also increase and helps in acquiring language.

The linguistic theory proposed by Chomsky (1965) states that each child is able to acquire language because of two main components that are the language acquisition device and the universal grammar. The transformational generative grammar spoken by this theory is an important aspect in allowing a child to produce an unlimited number grammatically acceptable sentences. As the child grows the two levels of processing that occurs in the deep and the surface level also increases. This theory supports our findings that the semantics and syntax of the child keep increasing with age as the LAD and UG get activated and processing increases.

A study done by Rukmini (1994), which states that with the increase in age, the development of receptive and expressive language development also takes place and this is supportive of our overall finding.

The overall performance in each age group has shown that receptive Language is better than expressive Language in both the sections. Wolters, (1995) conducted another study to see the acquisition of receptive and expressive language skills and they found that expressive Language is significantly lower than receptive Language in typically developing children. The discrepancy between receptive and expressive language was significant. A similar study was done by Hudry(2010) and the results revealed that in early typical language development, children understand words before they are able to use them in speech. In our findings also the receptive language is better than expressive language. This can be attributed to the fact that the developing brain is able to comprehend much faster than it is able to express, as comprehension increases the child begins to express much later on. Supportive of the theories seen before it is seen that a child who is stimulated and has social interaction during his or her critical period will have better comprehension which in turn leads to better expression.

The results of current study for the semantic naming and semantic discrimination subsections revealed that that the acquisition of these skills could have achieved before the age of 3 years as children in the 3-4 years group had already achieved the maximum scores. Our findings are supported by other studies and theories such as a study done by Horne and Lowe, (1996) which states that the skill of semantic naming is achieved by 2 years of age. Experiments that have been conducted by various authors and have concluded that multiple exemplar instruction (MEI) plays an important role in the emergence of naming and differences are seen between typically developing children and those children with a language delay (Fiorile & Greer, 2007; Gilic, 2005; Greer, Stolfi et al., 2005; Nirgudkar, 2005). Skinner (1957) also proposed that children learn better when learning is paired with concrete aspects

and objects rather than abstract words (ostensive learning). These findings along with the results of the present facilitate understanding that by the age of 3 years, the child has interacted with objects in various environments and contexts. Which helps them in comprehension and expression of the same, although the naming of different lexical concepts are acquired at different ages.

The lexical concept of naming colours as seen in our study is completely achieved by 3 years of age, which is supported by studies done by various authors. Kimball and Dale (1972) conducted a study in which it was seen that children achieve this concept of naming colours by 2.5 years of age. This is indicative that children by the age of 3 years as in our study should have acquired this concept.

Another concept in semantics is that of the development of the lexical category. In our study it was revealed that the development of this concept begins to emerge at 3-4 years of age and is achieved by 5-6 years of age. Different authors (Skinner, 1957) have reported that children with good naming scores are expected to score better for lexical category. As seen our study that older age group (5-6 years) have attained the maximum score in the lexical category. This shows that children of the older age group (5-6 years) have better naming skills when compared to the younger age group (3-4 years).

Another finding that was seen in our study was that older children have better comprehension than expression of concepts such as semantic similarity, semantic anomaly and semantic contiguity. Children of this age group were able to comprehend but the expressive skill of the same were still emerging. The younger age group performance was poor on these subsections. These finding again correlate with the study done by Hurdy (2010) in which receptive skills are significantly better than

expressive skills as the child is able to initially comprehend better than he or she is able to express.

The concept of paradigmatic (superordination, subordinate, part-whole relations) and syntagmatic relations were found to be difficult for the younger age group (3-4 years) thus leading to poor scores when compared to the older age group. These findings can be attributed to the fact that paradigmatic relations are concepts of higher order cognitive skills (conceptualization, categorization, classification and de-contextualization of word concepts). These concepts improve better with age as there is also exposure to formal education. (Anglin, 1985; Vygotsky, 1962). In the same study it was seen that the older children had better scores in paradigmatic relations than syntagmatic relations which is similar to the findings in our present study and can be credited that paradigmatic categorical knowledge.

With regard to the paradigmatic/syntagmatic distinction, it has also been found that the ability to produce the superordinate, paradigmatic categorical knowledge for basic concepts, such as a dog is an animal, develops later than the ability to provide a description (syntagmatic knowledge) of these concepts (Anglin, 1985). In this context, Anglin's data said that children as young as three can produce the names of subordinates for concrete objects (e.g., food, animals, transport) as well as their part-whole hierarchy (e.g., a dog has legs and a tail).

In polar question subsection, the younger group (3-4years) scored similar for receptive and expressive language. In the older age group (5-6 years) it was seen that receptive skills were achieved and the expressive skills was still emerging. The developmental trend can be seen is that younger children asked more what and where questions, then gradually moving on to when, how and why interrogatives for the

older children (Smith, 1987). Who words showed an increase across the age group. A very similar observation was made in the present study such that younger children answered what and where questions when compared to why and when questions which the older children were able to achieve as these questions required more reasoning.

In the overall semantic section, it was observed that the children scored less for subsections of antonym, synonyms and homonymy when compared to the other subsections. This finding is supported by the fact the comprehension and expression of antonyms and synonyms begin to develop around 4.5 years of age and homonymy developed later on at around 6 years of age. It is seen that children can comprehend polarity of adjectives earlier but they are found to have difficulty in the ability to distinguish dimensions which are described by spatial adjectives in particular.

Research also state that meanings of antonymously-paired relative adjectives (like dark/light and short/tall) are learned earlier and with fewer errors than unpaired absolute adjectives such as chromatic colour terms (e.g., Landau & Gleitman, 1985). Children at the age of the 6 were able to master antonyms, but were only able to master synonyms until 2 years later (Heidenheimer, 1978) Acquisition of antonyms can be in various ways, studies reveal it can be an all or none achievement (Kreezer & Dallenbach, 1929) Another study done on four year olds revealed that children made use of a lexical strategy, which usually involves an antonym ('The ship is small'), as often as they use syntactic negation strategies ('The ship is not large') (Akiyama, 1985) These findings along with the findings of our study show that comprehension and expression of antonyms and synonyms are achieved above 5 years of age.

The ability to identify homonymy was gradually developing with age. Younger group couldn't identify the homonymy out of the four pictures given as options. (Locke and Locke, 1971) found a direct relation between the semantic naming and finding homonymy. It was reported that children with good semantic naming ability, scored better on identification of homonymy. Zaidel, (1998) conducted study on homonymy to find out the reason for homonymy comprehension. The author reported that some children were better at finding homonyms because they had a greater vocabulary proficiency. The ability to find homonym pairs depends then, not only on an understanding of the nature of the task involved, but also on having access to the phonological representations of the critical words in order to be able to compare them for identity. Bakscheider & Gelman, (1995) the ability to select homonyms, or judge others' selection of homonyms, arises around the age of four years. The findings in our study show that comprehension of homonyms were just emerging in the older age group (5-6 years) as development of homonyms begin at around 6 years of age.

Looking into syntax section (table 4.1.1) the comparison between syntax and semantics. The younger group performed better for semantic section, whereas the elder group was better in the syntax section. This finding could be related to the reason that syntactic structures make more use of sentence comprehension, sentence structures, and complex grammar which develop at around 5 years of age. Therefore, the younger children had more difficult comprehending syntax whereas the older age group (5-6 years) were able to comprehend and express it better. This can also be supported by the processing of universal grammar which occurs in both deep and surface level as proposed by linguistic theory. The younger children (3-4 years)

performed better in semantics, this could be attributed that word learning, vocabulary explosion and the critical age period during this age.

In the syntactic section; the morphonemic subsection showed that younger children had better expressive language better than the receptive language which was opposite to what was being expected from our study. For plurals subsection, 3-year-old children were not able to comprehend the instructions to understand the plurals. By the age of 5-6 years group, children have achieved the concept of plurals. Even though children at 2 years use plurals, they could not comprehend it in all obligatory contexts. (Zaft and Smith,2008), Children at the younger age group started to comprehend plurals, and by 6 years of age it had been achieved.

Looking into tenses acquisition, The older age group (5-6 years) scored better. They had achieved it completely, than the younger age groups (3-4 years) The middle age group(4-5 years) had better receptive scores than expressive scores. Kuczaj, (1977) stated that irregular past tense form is an earlier acquisition than the regular past tense form. In his longitudinal investigation of three children's acquisition of their first language, Brown (1973) reported that the irregular past tense inflection appeared to be an earlier acquisition than its regular counterpart (-ed), a finding which is congruent with other investigations of the acquisition of the past tense inflection (Cazden, 1968; Ervin, 1964). The acquisition of the past tense is also interesting in that the regular inflection is commonly overgeneralized to irregular forms, resulting in errors such as goed, eated, wented, felled, etcetera (Brown, 1973; Cazden, 1968; Ervin, 1964; Slobin, 1971a, b, 1973). The first past tense forms used by the child appear to be irregular forms such as fell and broke (Brown, 1973; Ervin, 1964; Slobin, 1971b). Soon after the child has produced some correct irregular past tense forms, he begins to produce forms such as walked, helped, buyed; and goed (Ervin, 1964;

Slobin, 1971b). The present study also showed the similar developmental trend for tenses. Younger children found difficult to comprehend the tense form but at 5 years of age they attained the maximum scores, although the difference in the acquisition pattern of regular and irregular tense is not noticed.

Subsection of PNG markers, case markers, conditional clauses, transitives, intransitives and causatives under the syntax category were found to be difficult for the younger age group as they could not answer, but with age it was seen that Only the younger group of children couldn't answer, but with age it started to develop and was almost achieved by 6 years of age. Both receptive and expressive language scores were better as the age increases. According to James, (2000) Comprehension of sentence starts by 4 months of age. Children understand types of sentences at different stages. Most of the children understand interrogative sentence earlier than the declarative, imperative and exclamatory sentence. Similarly, in present study younger group could answer for all the interrogative type of sentences. For the elder population, they started understanding all the types of sentences.

Conjunctives and quotatives and participial construction are developed at the later stages. In our study receptive language scores were maximum by the age of 6 years but expressive language was still not achieved completely. It is found that comparatives are used from very young age. Layton and Stick, (2008) conducted a study which revealed that comprehension was better at older age groups than younger age groups. These results are similar to the findings of our present study and can be attributed to sentence comprehension was achieved only by 4 years of age. The younger group of children uses superlatives more than the degree of comparison. E.g. instead of 'bigger' young children will use 'more big'. This finding is also supported

by a study done by Wales and Campbell (1970) in which superlatives were acquired before comparatives.

Overall developmentally all scores of both semantic and syntax increased with age. It was seen that semantics had significant difference between 3-4 years and 4-5 years but not significant difference was seen between 4-5 years and 5-6 years of age. These findings can be attributed to the fact that word learning occurs and vocabulary explosion during the critical period after which learning becomes more gradual. In syntax significant difference was seen for all three age groups and this can be related that syntax requires sentence comprehension which is achieved at around 4 years of age, formal education also begins at this age which helps in accelerating the comprehension and expression of the same.

With the abovementioned findings, the null hypothesis stating that there is no significant developmental trend in Hindi speaking children across age range of 3 to 6 years for semantics and syntactic skills is rejected. There was a significant developmental trend observed in the present study across 3 to 6 years.

5.2 Comparison of Performance of Children to Investigate Gender Effect in Hindi Speaking Children Across Age Range of 3 to 6 years for Semantics and Syntactic skills.

Comparison was performed between the male and female group to investigate gender effect if any present across age groups. Table 4.10 and 4.11 shows the overall scores of HLT in male and females respectively. While comparing the overall scores across the age range, we found that females has better scores compared to males for both semantic and syntax. In all the subsections, females obtained greater scores

compared to males. It has been supported by findings of Bloom et al, 2018 who recognized the existence of gender disparities, but also stated that they are limited and often associated with a variety of factors, such as age, socio economic status, parental education and genetic factors. The consistent superior performance of the girls might be generally related to their advanced maturation in comparison with boys and also more particularly to their superiority with Language. (Maccoby 1966).

As observed that in all the subsections, there was a gradual increase in the scores across the age groups for both male and females. Politzer, (1983) reported that females used social learning strategies significantly more than males. Hence, better results for female was reported compared to males. Within age group comparison it was found that there was no significant difference observed. Whereas across age the gender effect observed was significant. Another observation was made that as age increases gender difference observed to be decreasing. Both across the age group and within the age group similar pattern was observed. This is supported by the finding of a study that says gender differences generally decrease with age (Lange, Euler & Zaretsky, 2016). Some contradictory studies also present stating that by the age of 4 years, the young children produces same form of language, with gender difference observed. (Gleason, 2004)

Early development of pre-linguistic skills helps in language development. Louis, (2006) studied prelinguistic skills in infants. Response to smile, eye contact, eye gaze, etc. It was observed that lack of early prelinguistic development and focus on early vocal development in infants during first two years has been found to influence later language development. Another observation made was boys lack behind girls in early prelinguistic development especially for eye contact and social smile. These prelinguistic skills helps in language development. These findings

support our present study, wherein girls performed better than boys both across and within the age group.

In the semantic section, in all the subsections females performed better than the male group. Subsections like Naming, identification of body parts both the group performed equally. As stated by Horne and Lowe, (1996) naming is achieved by 2 years of age. Hence no difference was found between male and female group. Kimball & Dale, (1972) stated that accuracy of colour naming is associated with language skills. similar results are found in the current study as well, children with good language skills were more accurate in identification of colours. Also, girls were observed to have overall better language skills, colour identification was observed to be more accurate for girls than boys. According to Nash, (1970) additionally, differential color sensitivity might be pertinent, since as early as 5 months of age girls display more interest in colors than boys do, thus suggesting a biological predisposition for color sensitivity. Certainly, the girls superior performance obtained at every age level, although the direction of scores suggested the possibility of an overlap between the performance of boys and girls at later age levels. Hence supporting the current study results, wherein it was found that girls have better scores in colour identifications.

Many researchers have quoted that pattern of socialization is important of language development and can also cause gender difference. Females and males learn the appropriate behaviors and attitudes from the family and overall culture they grow up with, and so non-physical gender differences are a product of socialization (Eagly, 1987; Eagly & Karau, 2002). As observed that boys have relatively poor socialization skills compared to girls. This explains the results obtained from the present study that girls with good socialization skills have better language development than boys.

Children with good socialization skills and good socioeconomic status have better language development irrespective of the gender (Karau, 2002).

Educational research in the last several decades has proven that the gender differences manifestly influence students academic interests, needs, and achievements (Halpern, 1986; Collins, Kenway & McLeod, 2000; Swiatek & Shoplik, 2000). It was found that till preschool, both male and female academic performance was similar with no discrepancy observed. According to the present study, academic performance was observed to be better for females compared to males. As females had better language scores than males, highlighting the better academic performance for females.

Not enough attention has been paid in the past to the variable of sex differences in language-learning research. This may be because it is taken as proven that girls are superior to boys in language ability. Although the majority of evidence does favour this conclusion, there is one area of language ability in which boys seem to be superior to girls, even in view of overall female superiority in language proficiency. Comprehension of heard vocabulary was observed to be better in males than females. This support the present study, wherein males performed almost similar to females in syntax section. Overall it was given by Benbow and Stanley, (1980) that girls are superior to boys in language ability. Similar results are observed in the current study, where overall results of HLT was better in females compared to males. In McGlone study 1980, explained that the differences are purported to stem from biological distinctions in the lateralization of function between the hemispheres of the brain. This explains one of the reasons for the better performance in female group compared to the male group.

It is true that nearly all studies on verbal ability seem to establish female superiority, Maccoby and Jacklin (1974) concluded that, boys tend to do better than girls in language based tasks. even when the girls general language proficiency is superior to that of the boys in the area of listening vocabulary. This study contradicts the findings of the present study, wherein it was observed that overall girl's performance was better than the boys in all the subsections of semantics and syntax. Few of the subsections in syntax, like plurals, tenses, Comparatives, transitives and intratransitives showed equal performance in both males and females. Maccoby finding can support this as boys are able to match to the girl's performance. Brimer, (1969) suggests that because girls develop faster than do boys in expressive use of their native Language, boys are dependent upon discriminating listening for a longer period than are girls, and thus may become more proficient in it.

With the above mentioned findings, the null hypothesis stating that there is no significant difference in gender for Hindi speaking children across age range of 3 to 6 years for semantics and syntactic skills is rejected. In the present study there was a significant effect of gender observed in the present study and it was found that females performed better than males.

5.3 Comparison of performance of typically developing children and clinical group for semantics and syntactic skills.

In the present study the results showed that overall scores for TDC group of children are better than the clinical group for both semantics and syntax sections. While comparing receptive and expressive language scores within the sections, it was found that receptive language scores are better than the expressive language scores for both semantic and syntax.

Maillart and Parisse (2009), found out that children with specific language impairment (SLI) presented strong difficulties in phonology when compared with normally developing children matched by MLU. Similar finding was observed in the current study where SLI group scored poorly on the discrimination task. Not just the phonological skills, other language skills are also affected in SLI group. According to Schuele, (2005) children with SLI acquire grammatical morphemes more slowly than children who are acquiring language in a typical manner. Hence, supporting the results of present study which showed that SLI group scored less for morphophonemic structures than the TDC group.

As observed that overall language acquisition is delayed in SLI group. Rice and Wexler, (1998) conducted the study to find the acquisition pattern for tense markers. He found that tense markers appear late in children with SLI. In the present study as well SLI group scored poor compared to the typically developing children. Studies done in autism spectrum disorder group also shows language delay compared to the typically developing children. ASD group almost scored zero in all the subsections except for naming subsection. Brynskov, (2014) found delay in syntax and morphology, and vocabulary, in autism spectrum disorder compared to typically developing children. Due to lack of attention and concentration, language development was delayed in ASD group. This was supported by Barone et. al., (2019) which showed delayed in sentence comprehension for ASD group. This can be one possible reason for the poor scores for the syntax section in ASD group as the children were finding difficulty to comprehend the sentences. The stimulus as well as the instructions. Attention span plays a major role in sentence comprehension. As reported by few authors ASD group of children has less attention span compared to the typically developing children. It was difficult for them to follow the instructions

and respond for the stimuli. Language development in ASD children is slower compared to the typically developing children of age matched group. Very few studies are present showing the gender difference in ASD. One study done by Kover, (2015), found that the boys with ASD did not differ from younger typically developing boys matched on receptive vocabulary in overall sentence comprehension.

A qualitative analysis of the clinical group was also carried out as summarised Table 5.1.

Table 5.1

Qualitative analysis of control and clinical groups

Language of performance of typically developing children and children in the Clinical group				
		TDC	SLI 1	SLI 2
Semantics	CA	4-5 years	4-5 years	4-5 years
	Receptive			
	Semantic anomaly	Achieved	Not achieved	Not achieved
	Semantic similarity	Achieved	Not achieved	Not achieved
	Paradigmatic relations and Syntagmatic relations	Emerging	Not achieved	Not achieved
	Semantic contiguity	Emerging	Not achieved	Not achieved
	Polar questions	Emerging	Not achieved	Not achieved
	Antonymy, Synonymy and Homonymy	Not achieved	Not achieved	Not achieved
	Expressive			
		Lexical category: emerging	Lexical category: emerging	No language skills are achieved
Syntax	Receptive	All the parameters starts developing	Syntactic skills are absent	Syntactic skills are not achieved
	Expressive	Emerging	Not achieved	Not achieved
	CA		3- 4 years	4-5 years
		TDC	ASD 1	ASD 2
Semantic	Receptive			
	Naming	Achieved	Not achieved	Emerging
	Body parts	Achieved	Not achieved	Emerging
	Colours	Achieved	Not achieved	Emerging

Syntax	Expressive	Emerging	Not achieved	Not achieved
	Receptive	Most of the language skills are developed by 5 years of age	Not achieved	Not achieved
CA	Expressive	Emerging	Not achieved 4-5 years	Not achieved 5-6 years
Semantics	Receptive	TDC Mostly of the parameters are achieved by the age of years.	Not achieved ID 1	Not achieved ID 2
Syntax	Expressive	Emerging	Not achieved	Naming- emerging
	Receptive	Scored maximum for all the parameters by 5 years of age.	Not achieved	Body parts- emerging
Age group	Expressive	Emerging	Not achieved	Colours- emerging
		5-6 years		Not achieved
Semantic	Receptive	TDC	Hearing impairment 1	Hearing impairment 2
	Semantic similarity	Achieved	Not achieved	Not achieved
	Semantic anomaly	Achieved	Not achieved	Not achieved
	Syntagmatic relations	Achieved	Not achieved	Not achieved
	Semantic contiguity	Achieved	Not achieved	Not achieved
	Polar questions	Achieved	Not achieved	Not achieved
	Expressive			
Syntax	Lexical category	Achieved	Emerging	Emerging
	Expressive	Maximum scored obtained in all the Language skills by 6 years of age.	Not achieved	Not achieved
	Receptive	Emerging	Not achieved	Not achieved

As noted in table 5.1, in the subsection of semantics, both receptive and expressive scores when comparing across the TDC and SLI group it is seen that the normal child has achieved more language skills in terms of both receptive and expressive language skills

Qualitative analysis of individual data in the clinical group was done. It was found that child with SLI1 when compared to the corresponding typically developing children in the age range of 4-5 years showed that on comparison of language skills semantic naming, comprehension of body part and colour, semantic contiguity, paradigmatic relation and polar questions was emerging, which was achieved in the normal group in similar age group. In comparison for syntax skills, the SLI child couldn't score in any of the language skill. As the language score was found to be low in SLI 1 child. Syntax scores also observed to be poor compared to TDC within the same age range. The child has reported to have good receptive skills than the expressive skills. The child has limited vocabulary for expressive language skills. The child was having difficulty in understanding spoken language and poor language production. Word finding difficulty was observed predominantly for SLI 1 child. Understanding and production of meaningful utterances in specific context is impaired. The child was finding difficulty in uttering complex words and sentences. Inconsistence speech sound production was observed.

When comparing between SLI II and the TDC it was observed that in SLI II child, semantic naming, body part and colour comprehension was emerging, which was achieved in the TDC group. Like in TDC group syntax skills were achieved, SLI II child was lacking in syntactic skills. The child had limited expressive language

vocabulary. Large difference was observed in the receptive and expressive language skills. Poor auditory comprehension was observed. The child tried speaking in long but poorly intelligible utterances. The child had word finding problems and difficulty putting ideas into words. The child was observed with poor comprehension for connected speech. Pragmatic skills were also affected in specific context.

Comparison between both the SLI I and SLI II group shows that SLI I had achieved more parameters in semantics and syntax than SLI II. SLI I have better comprehensive and expressive language skills compared to SLI II. SLI I reported to have better vocabulary than the SLI I. auditory comprehension was affected in both the children. Word finding difficulty was also observed predominantly in both the children. Difficulty in specific word and sound production was observed only in SLI II. SLI I child had better MLU than the SLI II. SLI II was using more of telegraphic speech. Syntactic skills at sentence level was affected more in SLI II child compared to SLI I child.

On observation of the semantic expressive group it is seen that the TDC has achieved more than SLI children. Overall expressive language skills were affected in both SLI I and II. In expressive language, only expression for lexical category was present in SLI I, and was absent for SLI II child. Expression for other subsections in semantic and syntax was affected in both SLI I and SLI II, which was achieved by their age matching group.

Child with ASD 1 when compared to the corresponding typically developing children in the age range of 4-5 years showed that on comparison ASD 1 children scored poor for both receptive and expressive skills. Across ASD 1 and TDC, the ASD 1 child couldn't score in both semantic and syntax for receptive and expressive

language skills. The child was 4.5 years old. The child observed to have too many behavioural issues. The child had limited vocabulary of maximum 5-6 words. The child communicates mostly through non verbal mode. Repetitive behaviour (e.g. hand flapping, head movement) were observed. The child reported to have sensory issues also. Reported to have lack of social communication

ASD II and TDC, the child was 5 years old. The child could name 2 out of 3 items in naming category. The child identified all the body parts and 2 out of 3 colours. The child had better receptive skills than the expressive skills. The child reported to have vocabulary of around 15-20 words. SLI II also had repetitive behaviour. Echolalia was observed.

Comparison between both the ASD I and ASD II group shows that ASD II had achieved more parameters in semantics than ASD I. ASD I scored poor for receptive and expressive language skills compared to ASD II. ASD I child had more behavioural issues compared to the ASD II child. He lacked social communication skills. More repetitive behaviour was observed. Sensory issues were observed more for ASD I child. Both the child found difficult to follow the instruction. Poor auditory comprehension was observed. Attention span and concentration was more in ASD II child than the ASD I.

Child with ID 1 when compared to the corresponding typically developing children in the age range of 4-5 years showed that on comparison across ID 1 and TDC, the child with ID scored minimum compared to the TDC with same age range. The child was diagnosed with moderate intellectual disability with severe behaviour issues. The child observed to have self-harm behaviour. The child also reported to have frequent seizure attacks and was under medication for the same. The child has

limited expressive vocabulary of 3-4 words. Severely affected auditory comprehension.

Comparison of Child with ID II and TDC, the child was 5.5 years old. The child had vocabulary of around 10 to 12 words. The child's IQ level was near borderline intelligence. The child reported to have less behavioural issues. Unintelligible speech was observed. Receptive language skills are observed to be more delayed as compared to expressive language. Reduced MLU.

Comparison between both the child ID I and child with ID II group shows that child with IDII had achieved more parameters in semantics than child with ID I. child with ID II had less behavioural issues and good IQ compared to the child with ID I. Because of comorbid medical condition Child with ID I had poor language comprehension and expression. Overall vocabulary was better for child with ID II compared to child with ID I. pragmatic skills were affected more for Child with ID I.

Child with HI 1 when compared to the corresponding typically developing children in the age range of 4-5 years showed that on comparison in TDC and child with HI I. the child was diagnosed with profound hearing loss. Looking into the language skills Semantic naming, colour concept and identification of body parts is achieved. Semantic congruity, syntagmatic relations and polar questions observed to be emerging for receptive language in child with HI whereas these language skills are already developed in the TDC by 5 years of age. The child with HI has achieved expressive skills for lexical category. Other language skills scored minimum compared with the TDC. The child faced difficulty in comprehending the long and complex sentences. MLU was observed to be reduced. Found to have general difficulty in comprehending word meaning. Acquisition of antonymy, synonymy and

homonymy observed to be delayed. The child observed to be more dependent on visual cues while responding. Due to limited use of words, speech looks like telegraphic speech. Pragmatic skills observed to be good. Unintelligible speech was noticed.

TDC and child with HI II. The child was diagnosed with profound hearing loss. Among the language skills under semantic, naming and comprehension and expression of lexical category was observed. The receptive and expressive language skills was observed to be poor compared to the normal within same age range. Poor MLU and limited vocabulary was observed. The child uses more of simple sentences. Production of complex, compound, embedded and passive sentences question forms conjunctions observed to be limited. Unintelligible speech observed. Pragmatic skills are affected more. Poor in topic initiation and maintenance. Reluctant to speak and limited conversation. Lack of good social skills. Intonation was observed to be flat and monotonous. Low volume voice was observed.

Comparison between both the child with HI I and child with HI II group shows that child with HI I had achieved more parameters in semantics than child with HI II. The child with HI I has better expressive and receptive language skills compared to child with HI II. Even though both the children were diagnosed to have profound hearing loss, still the language age is different. The child with HI I was early identified and started with early intervention. Hence reported to have better language skills compared to the child with HI II. Child with HI I have better vocabulary, good MLU and good language skills compared to child with HI II. Prosody, articulation and resonance was affected in both the children. Pragmatic skills were observed to be better in child with HI 1 than the child with HI II. Child with HI II was observed to

use more of gestures and non verbal communication. Overall communication skills were better in child with HI 1 compared to child with HI II

Chapter 6

Summary and conclusion

The present study aimed to develop the Hindi Language Test for children in the age range of 3 to 6 years- An Adaptation. The objective of the study included investigating developmental trend, if any in Hindi speaking children across the age range of 3 to 6 years for semantics and syntactic skills and to investigate the effect of gender, if any, in Hindi speaking children across the age range of 3 to 6 years for semantics and syntactic skills. The other objective of the study was to validate the developed tool on a few clinical populations of children with hearing impairment, autism spectrum disorder, specific language impairment, and intellectual disability.

The study was carried out in three phases. Phase one included the generation of the stimulus for semantic and syntax sections, test scoring, and content validation. The words were chosen from the Ncert textbooks of preschool and the 1st standard. The raw words were categorized into the subsections for the final stimulus. Line drawings were made for the particular test stimulus for each section separately. Scoring was given for each section separately (No Response/ Incorrect response = 0, Emergent Response = 0.5, Correct Response = 1). The final stimulus was given to three SLPs for validation, who are native speakers of Hindi. The SLPs were asked to judge each item on a 3-point Likert rating scale for the familiarity of the stimuli and suggest modifications. Only the validated items were included for the final test material. Phase two was to perform a pilot study on four children from each age group of typically developing children. Phase three was to administer the developed test material and to validate the same for the clinical population. The test material was administered on school children in the age range of 3+ to 5+ years. In the study, 2

components of language, i.e., semantics and syntax, were tested on a group of 30 participants, both males, and females, who all were a native speaker of Hindi, coming from the middle socio-economic background. The overall results showed that language performance improves with age. The scores of semantic and syntax sections increased gradually with age. Performance on expression is poorer than on comprehension for most of the subsections. The performance of semantics was better for the younger group, but the syntax was better after 4 years of age. In gender-wise comparison, females performed overall better compared to boys in all the subsections under semantics and syntax. Within the same age group, there was not a significant difference in the language scores, but while seeing across the age range, there was a significant difference in language scores in males and females. Also, there was a significant difference noticed in the performance of typically developing children and the clinical group. The clinical group performed poorly in all the subsections under semantics and syntax compared to the typically developing children group.

In conclusion, the Hindi language test is a very useful tool in identifying various language disorders across the age groups of 3 to 6 years. It can be used to check the early language development in the younger age group.

Limitations

- The sample size taken in the present study was less in each group, hence a larger sample can be considered for generalization and standardization of the results. Also, all the participants taken for the study were chosen from a single school. Hence studies in future can be taken using representative samples from different regions and schools.

Implications of the study

The development of the Hindi Language test will help professionals in the field of communication sciences and disorders to be used in clinical and research settings, specifically for the Hindi speaking children. The study will provide an insight into developmental patterns in Hindi speaking children, if any, in the age range of 3-6 years. It can be used as a part of a protocol for assessment in the case of the various clinical population such as Specific Language Impairment, Spoken language disorder secondary to HI, ASD, ID, Language-based learning disability, and so on. This tool will help to assess Hindi speaking children in their native language, providing an accurate diagnosis. This tool will assess early language skills (semantics and syntax skills) in children of a very young age, thus facilitating early identification and early intervention. This tool will provide the preliminary norms that will be valid in the current scenario for Hindi speaking children.

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Appendix A

HINDI LANGUAGE TEST

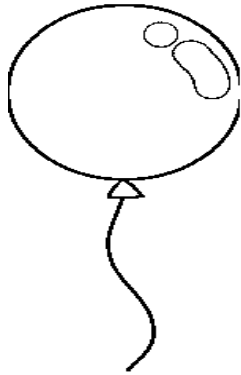
TEST MATERIAL--

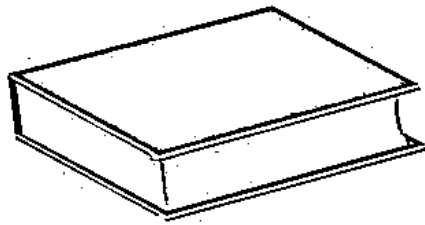
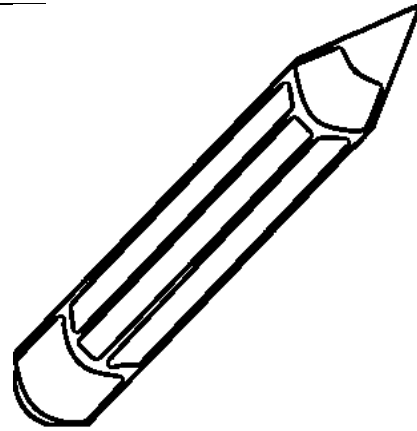
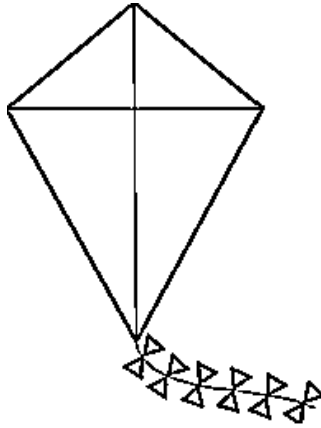
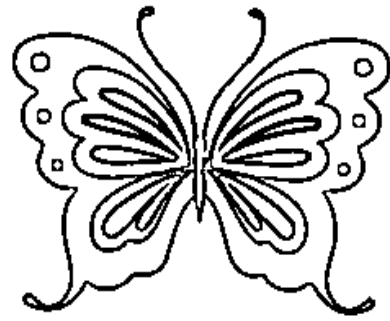
D) SEMANTICS

1. Naming

Instructions: Ask the subject to name the picture presented. If he fails to do so, give him phonemic cue. Repeat them once if necessary. Accept correction once. Score one for each item identified correctly. Score 0.5 if he is able to identify with the phoneme cues. Similarly when the clinician will name the picture, he is expected to point at the correct picture.

SI. NO.	Verbal/ Visual stimuli	Expected Response
Reception		
1.	कप /kʌp/	Point to Picture No.
2.	गेंद /gɛn:d̪/	Point to Picture No.
3.	गुब्बारा /gʊbʌrɑ/	Point to Picture No.
Expression		
4.	Point to Picture No.	घड़ी /gʱʌd̪i/
5.	Point to Picture No.	तितली /t̪it̪li/
6.	Point to Picture No.	पतंग /pʌt̪ʌng/

Test stimuli



2. Semantic Discrimination

A. Body parts

Instructions: Ask the subject to name the picture presented. If he fails to do so, give him phonemic cue. Repeat them once if necessary. Accept correction once. Score one for each item identified correctly. Score 0.5 if he is able to identify with the phoneme cues.

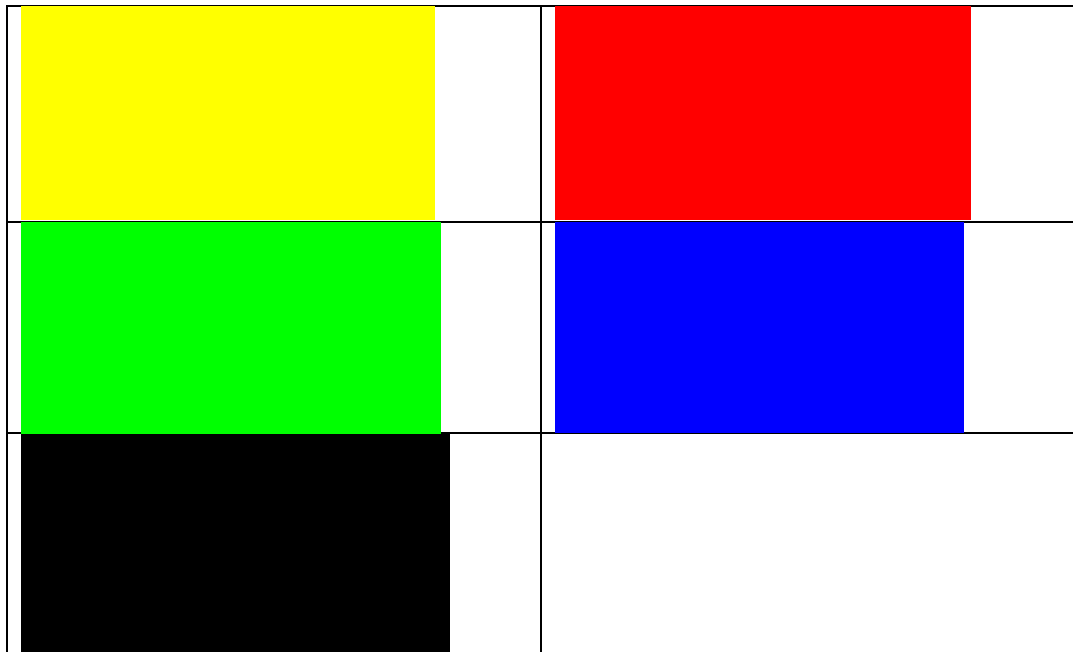
SI. NO.	Verbal/ Visual stimuli	Expected Response
Reception		
1.	आँख /ãk ^h /	Point to Picture No.
2.	नाक /nak/	Point to Picture No.
3.	हाथ /ha ^h /	Point to Picture No.



B. Colors

Instructions: Ask the subject to name the picture presented. If he fails to do so, give him phonemic cue. Repeat them once if necessary. Accept correction once. Score one for each item identified correctly. Score 0.5 if he is able to identify with the phoneme cues.

SI. NO.	Verbal/ Visual stimuli	Expected Response
Expression		
1.	Point to Picture No.	लाल /lal/
2.	Point to Picture No.	हरा /hara/
3.	Point to Picture No.	काला /kala/



3. Lexical category

Instructions: Ask the subject to name the lexical items as mentioned in the headings.

SI. NO.	Verbal/ Visual stimuli	Expected Response
Expression		
1.	5 जानवरोकेनाम /5 dʒɪʌnvʌrɔkɛnam/	Any 5 animals names
2.	5 फलकेनाम /5 fʌlkɛnam/	Any 5 fruits names
3.	5 बर्तनोकेनाम /5 bʌrtʌnokɛnam/	Any 5 utensils names

4. Semantic Similarity

Instructions: instruct the subject to match and explain the relationship between the following groups of words given verbally. Score '1' for each correct response.

SI. NO.	Verbal/ Visual stimuli	Expected Response
Reception		
Model: a) गाना-गाओ /ganagao/Right		
1.	खेलो -खेल /kʰɛl - kʰɛlo/	Right
2.	दूध- काटना /duːh - katna/	Wrong
3.	चमच- खाना/ʧʌmʌʧ - kʰana/	Right
Expression		
Model: a) आँख-? /ãkʰ/ देखना /dekʰna/		
b) आम-? /am/ मीठा,फल /mɪtʰafʌl/		
4.	किताब-? /kɪtʌb/	पढ़ना /pʌdʰna/
5.	काम-? /kam/	करना /kʌrna/
6.	कान-? /kan/	सुनना /sun.na/

5. Semantic Anomaly

Instructions: instruct the subject to indicate whether each of the following sentence are meaningful or not and explain why, if not meaningful. Text items to be given orally. Score '1' for each correct explanation.

SI. NO.	Verbal/ Visual stimuli	Expected Response
Reception		
Model: a) चाँदरातकोदिखताहै /tʃɑ̃d̪rɑt̪ko d̪ikʰt̪ɑhe/Right		
b) चीनीखट्टीहोतीहै /tʃiːniːkʰʌtl̪hoti he/Wrong		
1.	केलालरंगकाहोताहै /kelalalan:g ka hoʈɑhe/	Wrong
2.	आगठंडीहोतीहै /aagʰʌnd̪l̪hoti he/	Wrong
3.	मोरनाचताहै /mor naʈʈɑ he/	Correct
Expression		
Model: a). हाथीछोटाहोताहै /hɑθ̪iːt̪ʰotahota he/.....Wrong		
हाथीबड़ाहोताहै /hɑθ̪iːb̪d̪ahota he/		
b). चिड़ियापानीमेंरहतीहै /tʃid̪ijaːpani me reht̪i he/.....Wrong		
चिड़ियाआसमानमेंउड़ती/ रहतीहै //tʃid̪ijaːsman me rehʈ̪i he/		
4.	सबएकसब्जीहै /sʌbeksʌbd̪ʒi he/	फलहै /fʌl he/
5.	हाथमेंचारउंगलियांहोतीहै /hɑθ̪i me tʃarun:glijahot̪i he/	पांचहोतीहै /pan:tʃhoʈ̪i he/
6.	बादलज़मीनपरहोतेहै /baɖʌld̪ʒmiːnɪpɑr̪hoʈ̪ɑhe/	आसमानमेंहोतेहै /asman me hoʈ̪e he/

6. Semantic Contiguity

Instructions: instruct the subject to match and explain the relationship between the following groups of words given verbally. Score '1' for each correct response.

SI. NO.	Verbal/ Visual stimuli	Expected Response
Reception		

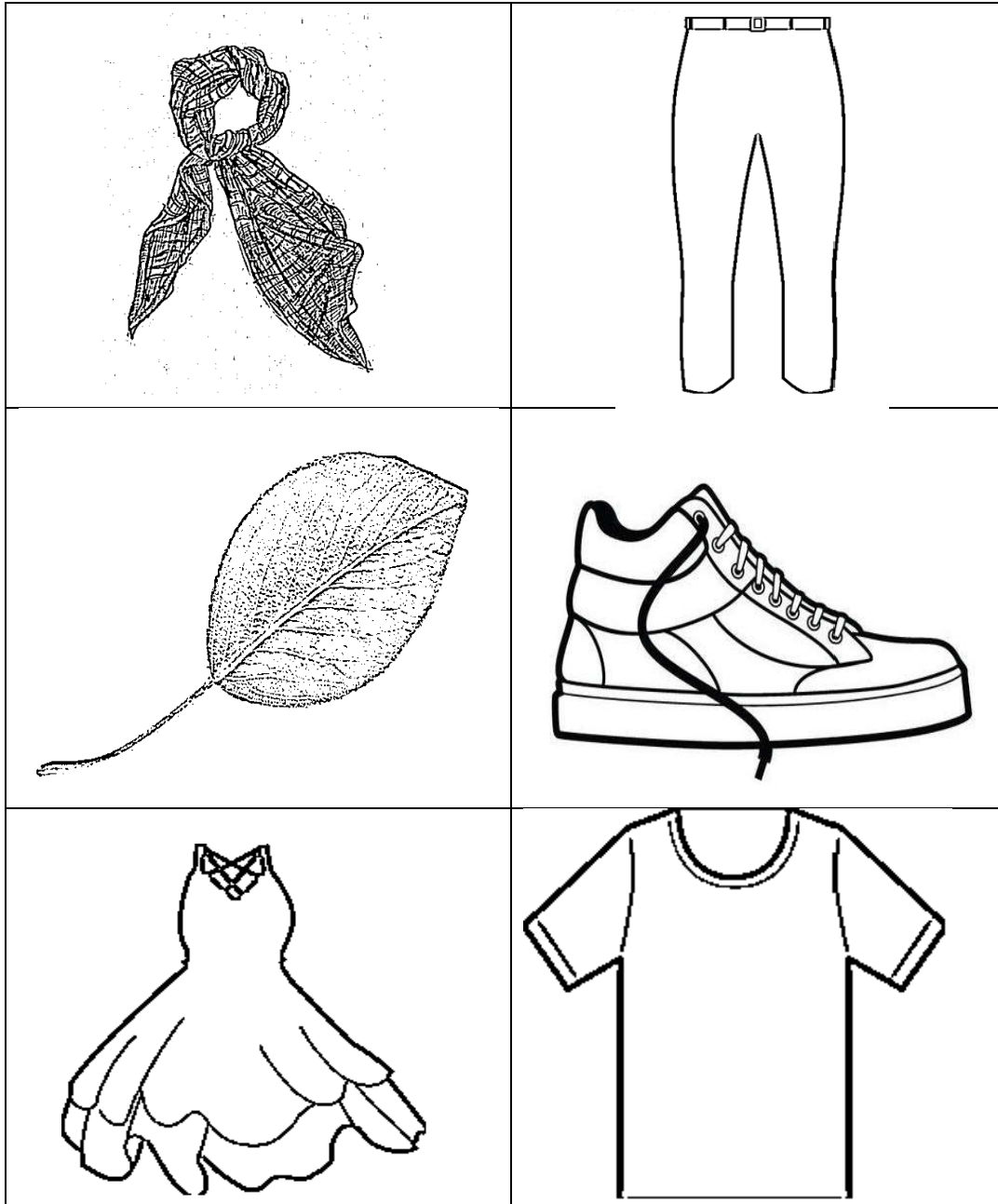
Model: बारिश-पानी /barIʃ- paɪni/.....Right	
पेड़-पत्ते /ped- pʌtʃe/..... Right	
1.	दूध-काला /d̪ʊd̪h kala/ Wrong
2.	पंखा-हवा /pʌŋkʰa/ Right
3.	कुर्सी-बैठना /kʊrsi- betʰna/ Right
Expression	
Model: कलम-लिखना, किताब-? /kʌlʌm- likʰna, kɪtʌb-?/ पढ़ना /pʌdʰna/ आग- गरम, बर्फ-? /ag-ɡʌrʌm, bʌrf-?/ ठंडी /tʰʌndi/	
4.	चिड़िया-उड़ना, मछली- ? /tʃidija- udna, mʌtʃʰli- ?/ तैरना /t̪erna/
5.	आम- फल, भिन्डी- ? /am- fʌl, bʰIndi-?/ सब्जी /sbdʒi/
6.	रात- चांद, दिन- ? /rat- tʃʌn:d̪, d̪ɪn- ?/ सूरज /surʌdʒ/

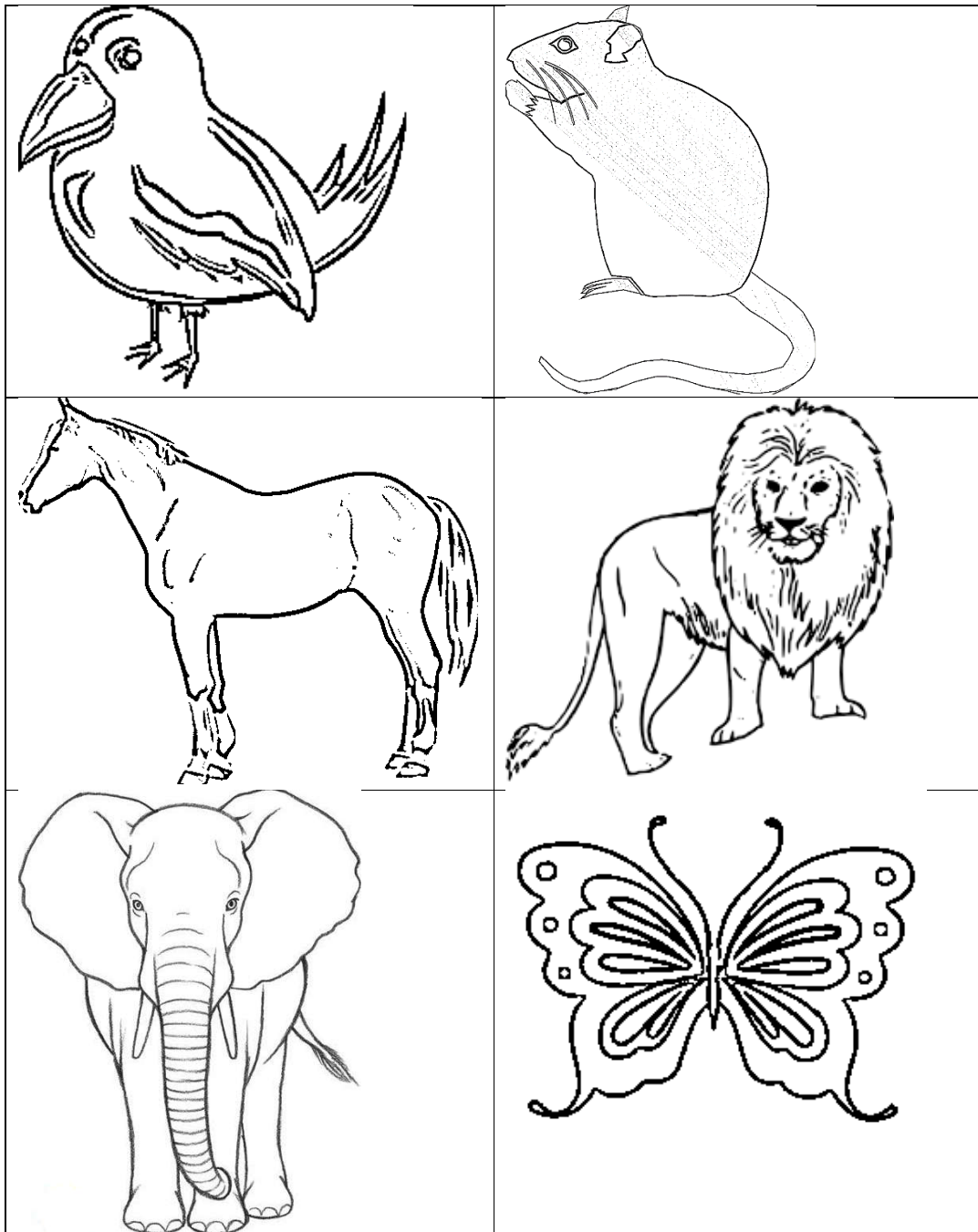
7. Paradigmatic Relations

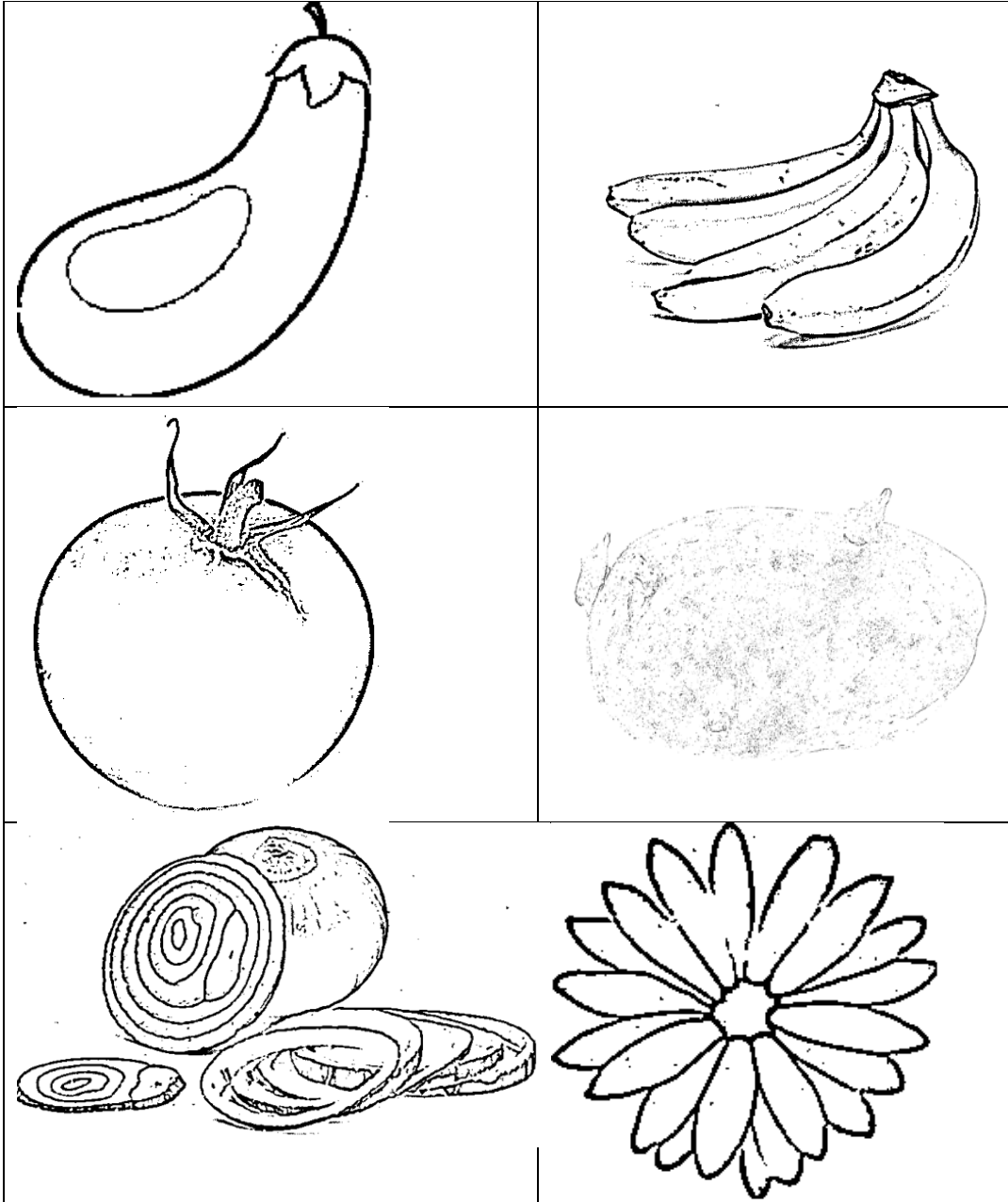
Instructions: instruct the subject to match and explain the relationship between the following groups of words given verbally. Score '1' for each correct response.

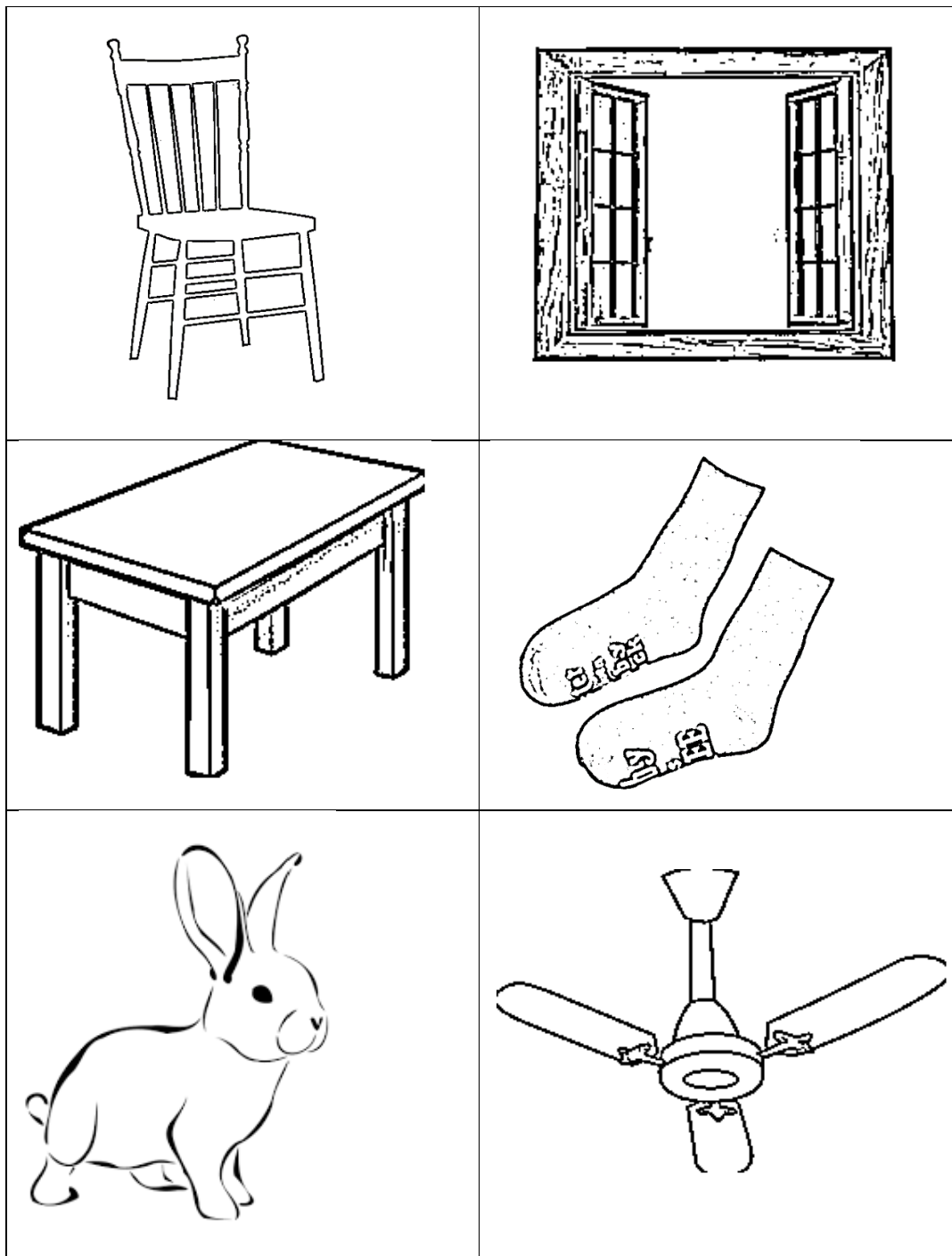
SI. NO.	Verbal/ Visual stimuli	Expected Response
Reception		
Model: चारकपड़ोंकेनामबताओ /tʃʌrkʌpʌd̪ʊkɛnʌmbʌtʌo/..... point to pictures		
1.	चारजानवरोंकेनामबताओ /tʃʌrdʒʌnʌvr̪kɛnʌmbʌtʌo/	point to pictures
2.	चारसब्जियोंकेनामबताओ /tʃʌrsʌbdʒijokɛnʌmbʌtʌo/	point to pictures
3.	चारमामूलीचीजोंकेनामबताओ /tʃʌrmʌm̪ʊli:tʃi:ʒokɛnʌmbʌtʌo/	point to pictures
Expression		
Model: a). तोता, चिड़िया, मोर /t̪ʊtʌ, tʃidija, moɾ/ बत्तख /bʌtʌk/ b). मां, पिता, भाई /mʌ, pi:tʌ, bʰai/.....बहन /bʌhʌn/		
4.	टमाटर, आलू, गोभी /tʌmatʌr, ʌlu, go:bi/	भिन्डी /bʰIndi/
5.	बस, कार, साइकिल	स्कूटर /skutʌr/

	/bʌs, kʌr, sʌkʌl/	
6.	खिड़की, दरवाज़ा, मेज़ /kʰɪdki, dʌrvʌdʒʌ, medʒ/	कुर्सी /kursɪ/









8. Syntagmatic Relations

Instruction: Instruct the subject to fill in the missing slot. Test items to be given verbally. Score '1' for each correct response.

SI. NO.	Verbal/ Visual stimuli	Expected Response
Reception		
Model : a. रात -चाँद, दिन -सूरज -rat/ ʃʌnd/, d̪In- surʌdʒ/Right		
b. शेर- गुरांना, कुत्ता- मियांउ/ ʃer- gur:ana, kUttʌ- mɪjau/ Wrong		
1.	गेंद -खेलना, पेंसिल- लिखना /gɛn:d̪/- k ^h elna, pen:sil- lɪk ^h na/	Right
2.	आँख -देखना, कान -बोलना / ʌk ^h / - d̪ɛk ^h na/, kan- bolna/	Wrong
3.	कौआ- काका, बिल्ली- बाउबाऊ /bau bau -bɪli ,kaka-kaua/	Wrong
Expression		
Model : a. आग- गरम, बरफ़-ग- ? - ʌrʌm, bʌrf-?/.....ठंडी/ ^h ndi		
b. रोटी - खाना, पानी-rotI/ ?- ^h/ ?-panI ,anaपीना/pina/		
4.	हाथ - लिखना, पाँव - (?) /ha ^h - lɪk ^h na, pav-(?)/	चलना/ ʃʌlna/
5.	चेहरा - धोना, बाल - (?) /ʃɛhra- d̪ ^h ona, bal-(?)/	बांधना/कंधीकरना /band ^h :na/ kʌŋ ^h ɪkʌrna/
6.	मछली- तैरना, चिड़िया - (?) / mʌʃ ^h II- t̪ɛrna, ʃɪdɪja- (?)/	उड़ना/udna/

9. Polar Questions

Instruction: instruct the subject to answer the following question with either 'right' or 'wrong'. The question will be asked verbally. Score '1' for the correct response.

SI. NO.	Verbal/ Visual stimuli	Expected Response
Expression		
Model: a) क्यापत्थरपानीमेंडूबजाताहै? /kja pʌ ^h ʌrpanɪ me d̪Ubdʒʌtʌhe/.....Right		

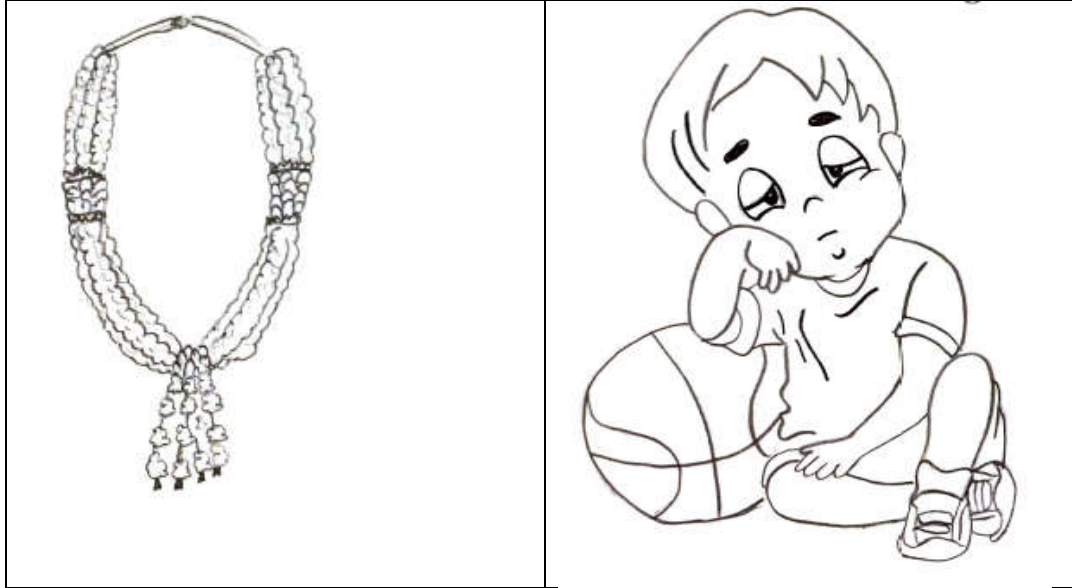
SI. NO.	Verbal/ Visual stimuli	Expected Response
Reception		
Model- a). आकाश = आसमान /akɑʃ= asman/ Right b). बाप =बेटा /bap=beta/ Wrong		
1.	छोटा- नन्हा /tʃʰota- nɑnhɑ/	Right
2.	गणेश – गणपति /gʌneʃ- gʌnpʌti/	Right
3.	केला -फूल /kela- fʊl/	Wrong
Expression		
Model - a) मित्र = (?) /mɪtrɑ=(?) दोस्त /dʊst/		
b) गरु = (?) /gʌru=(?) गाय /gaj/		
4.	नाग = (?) /nag= (?)/	साँप /sãp/
5.	चाँद = (?) /tʃand= (?)/	चन्द्रमा /tʃʌndrʌmɑ/
6.	पिताजी = (?) /pɪtɑdʒi= (?)/	बाप,पापा /bap, papa/

12. Homonymy

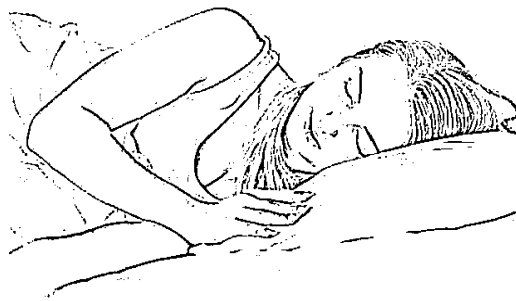
Instructions: instruct the subject to give the alternative meaning for the following word. Test words will be given verbally. Score ‘1’ for each correct response.

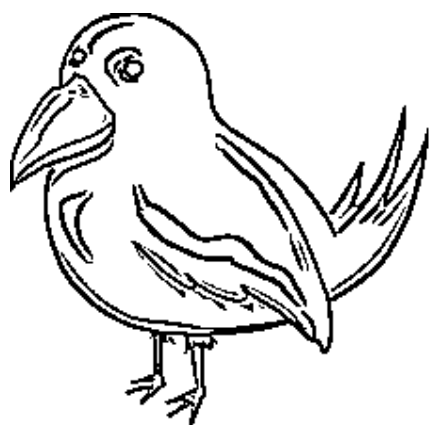
SI. NO.	Verbal/ Visual stimuli	Expected Response
Reception		
Model: a) हार /har/.....Point to Pictures b) सोना /sona/..... Point to Pictures		
1.	जल /dʒʌl/	Point to Pictures
2.	बाग /bag/	Point to Pictures
3.	गाना /gana/	Point to Pictures
Expression		
Model: a). दिन /dɪn/दिन /dɪn/ ,गरीब /gʌrib/		

b). गृह /gruh/.....सूत्रा /surja/ , चंद्र /ʃʌndrʌ /, घर /gʰʌr/		
4.	जगत /dʒʌgʌtʃ/	कुँकाचौतरा ,संसार /kue ka ʃʌutʃrʌ, sʌn:sʌr/
5.	सामान /saman/	बराबर ,वस्तु /bʌrabʌr, vʌstʌ/
6.	बलि /bʌlɪ/	वीर, बलिदान /vir, bʌlɪdʌn/

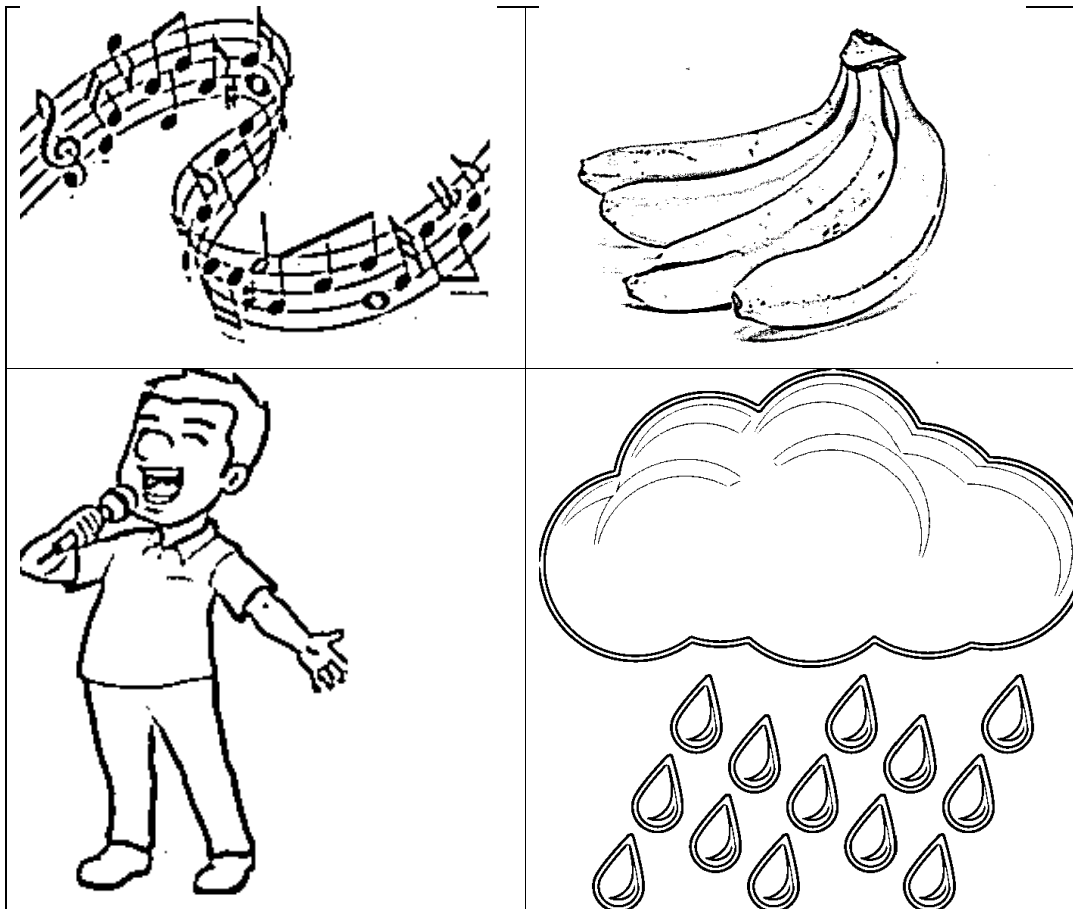


4









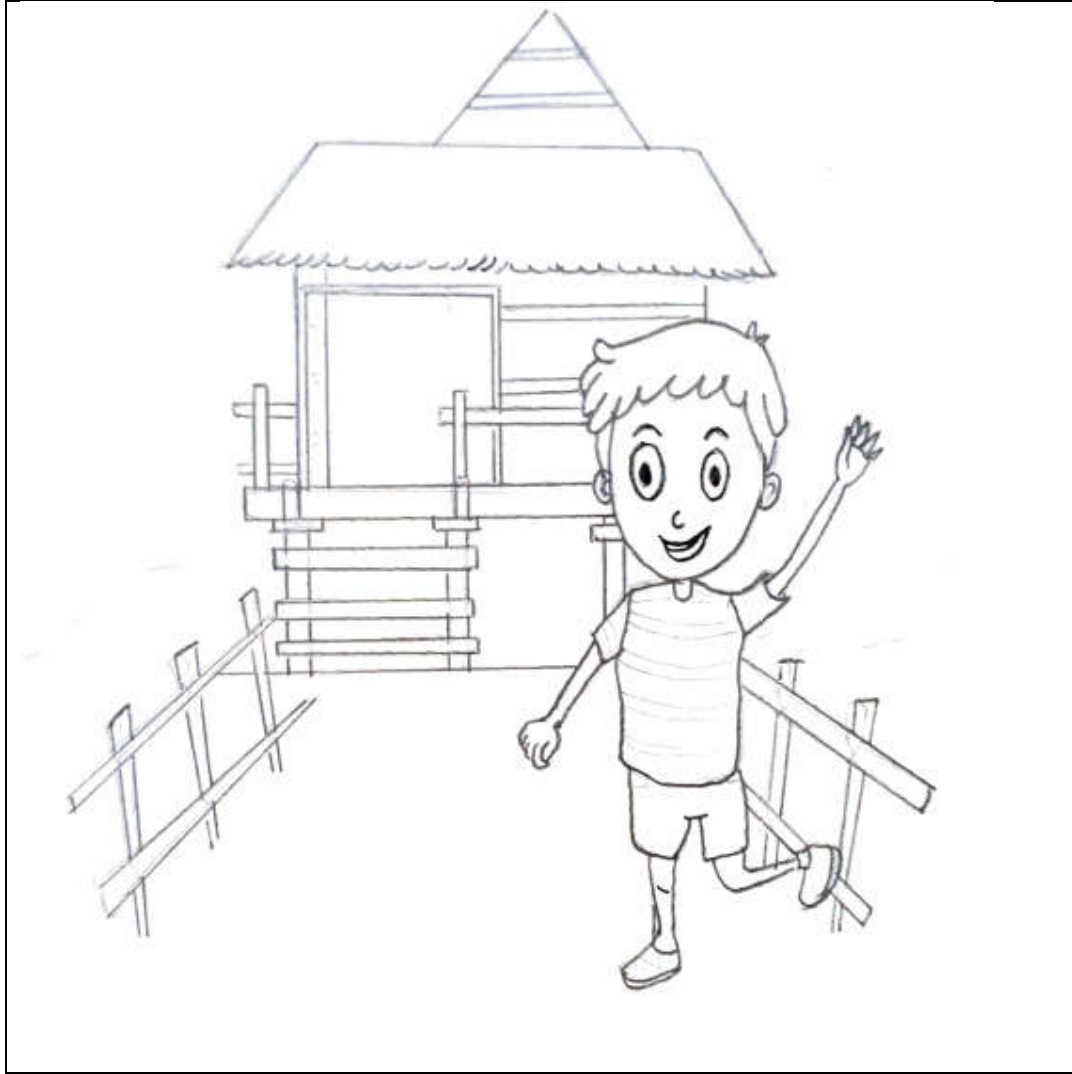
II. SYNTAX

A. Morphophonemic Structures

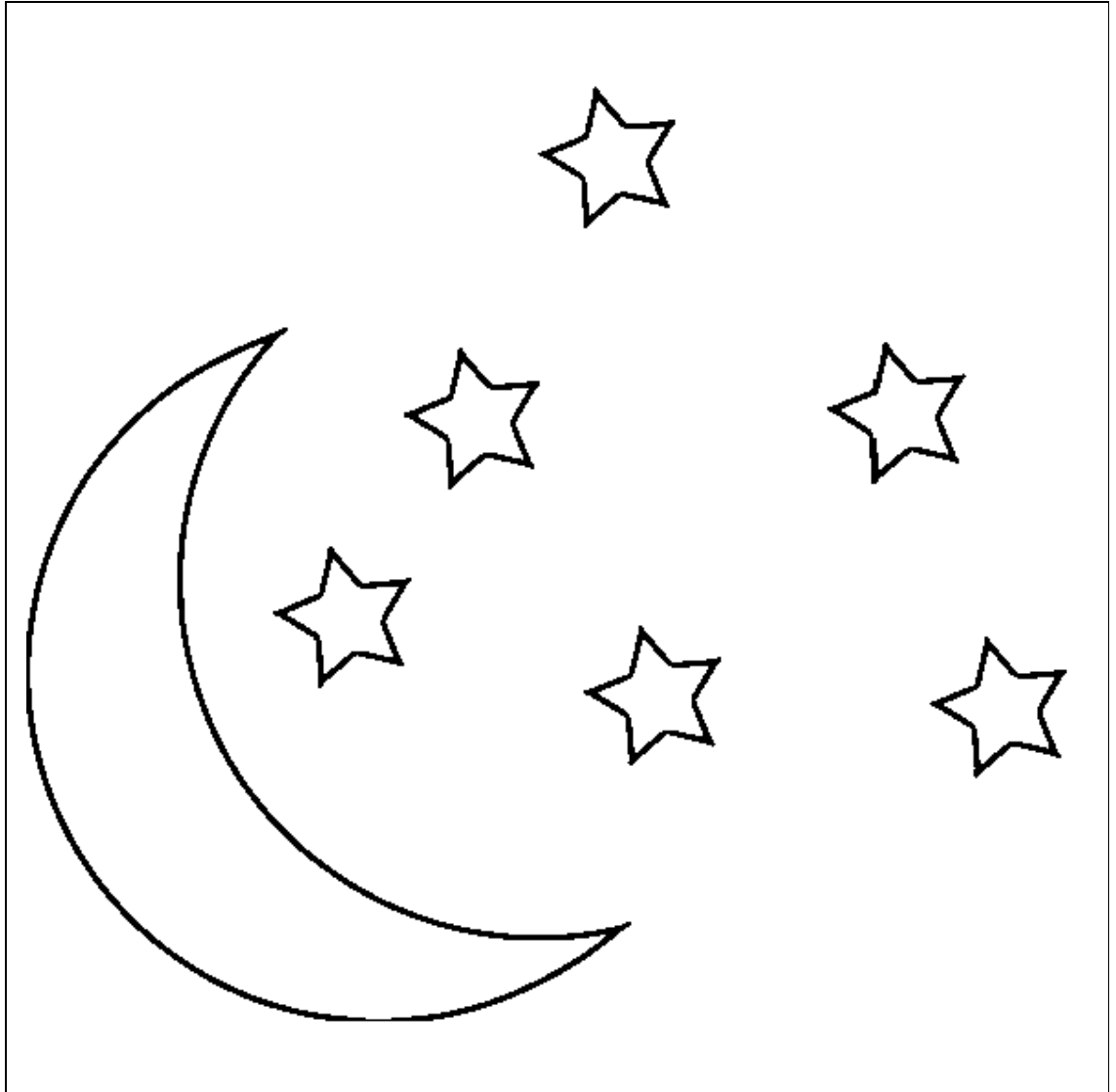
Instructions: Ask the subject to name the picture presented. If he fails to do so, give him phonemic cue. Repeat them once if necessary. Accept correction once. Score one for each item identified correctly. Score '0.5' if he is able to identify with the phoneme cues. Score '1' for the correct response. Similarly when the clinician will name the picture, he is expected to point at the correct picture.

SI. NO.	Verbal/ Visual stimuli	Expected Response
Reception		
Model: a) उपयोग- उपायोप उपयोग		
	/Up^j^g/-/Upaj^g/	/Up^j^g/
b) अनार-अनारी..... अनार		
	/^nar/-/^nari/	/^nar/
1.	कल- केल /k^l/-/kEl/	कल /k^l/
2.	रात- राति /rat/-/ratI/	रात /rat/
3.	किताब- बिताब /kItab/-/bItab/	किताब /kItab/
Expression		
Model: a) (Point) लड़काकहाँ है ?लड़काघरकेबाहर है।		
	/l^d;kak^hahæ/	/l^d;kag^h^rkEbah^rhæ/
b) (Point) मछलीकहाँ है?..... मछलीपानीमें है।		
	/m^tj^hlik^hahæ/	/m^tj^hlipanimEhæ/

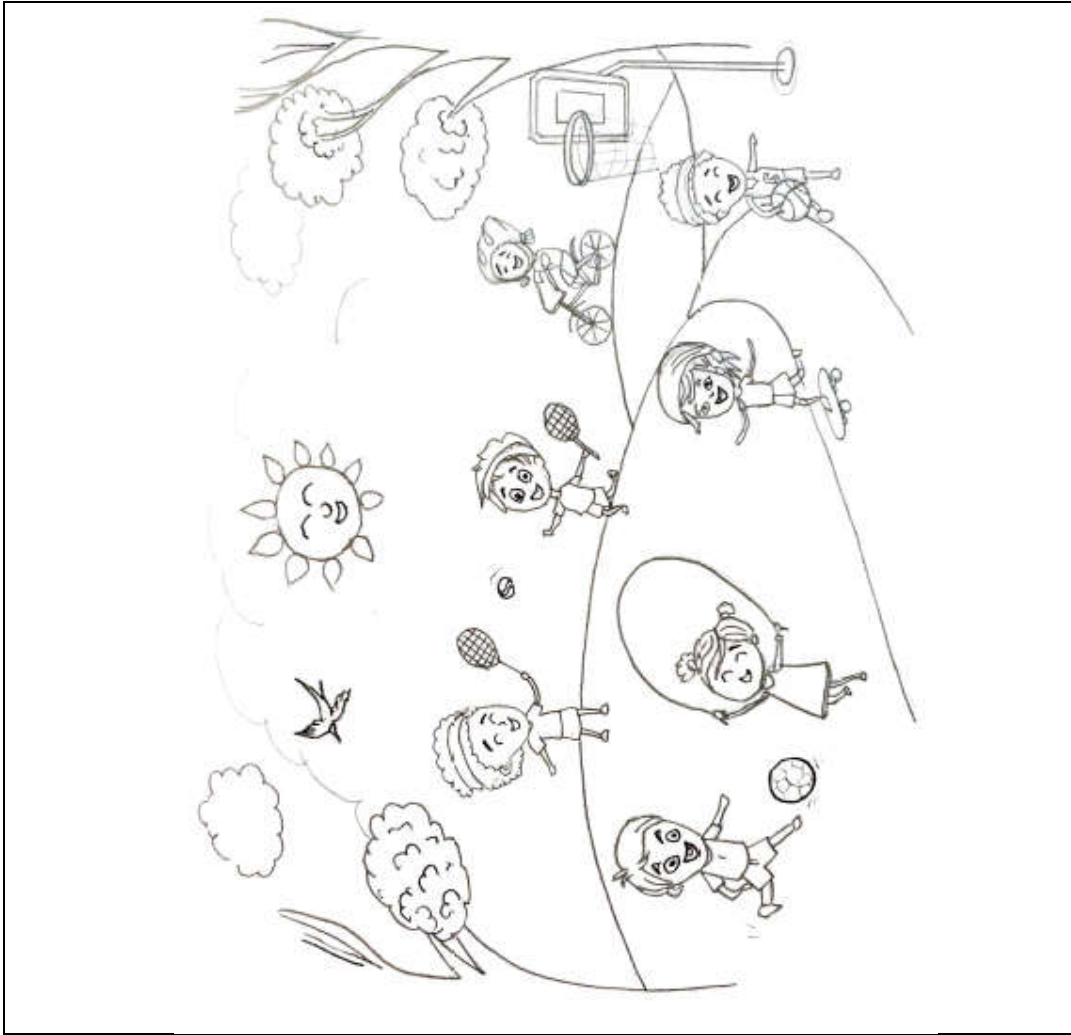
4.	तारे कहाँ हैं? /tarɛkʌhahæ/	तारे आसमान में हैं /tarɛasmanmɛhæ/
5.	छतरी को कब इस्तेमाल करते हैं? /tʃʰʌt̪ri ko kʌbɪstɛmʌlkʌrtɛhæ/	छतरी बारिश में इस्तेमाल करते हैं। /tʃʰʌt̪ribarɪʃmɛɪstɛmʌlkʌrtɛhæ/
6.	बच्चे कहाँ खेल रहे हैं? /bʌtʃɪʃkʌhʌkʰɛlɾʌhɛhæ/	बच्चे मैदान/पार्क में खेल रहे हैं। /bʌtʃɪʃmædan park kʰɛlɾʌhɛhæ/



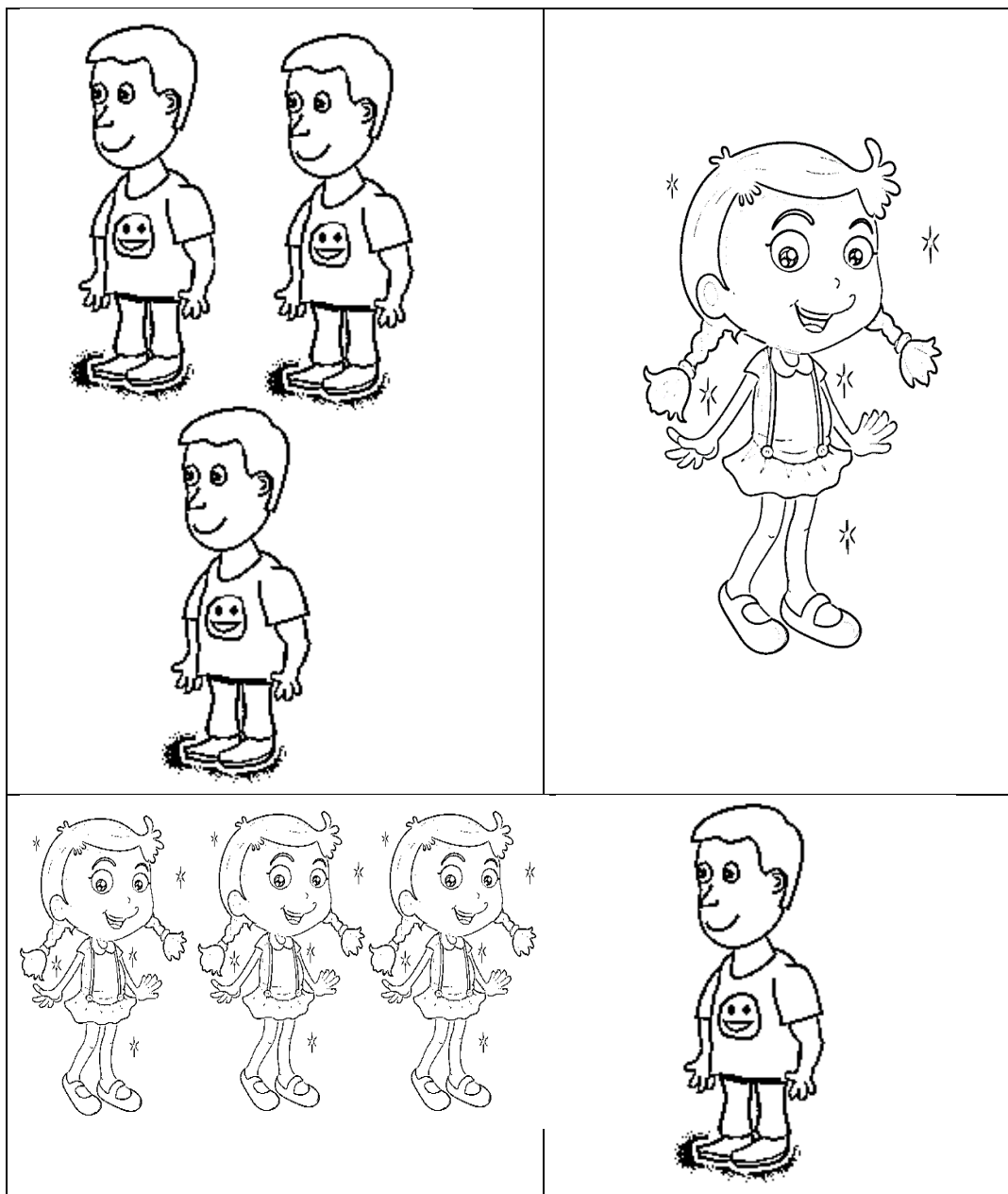


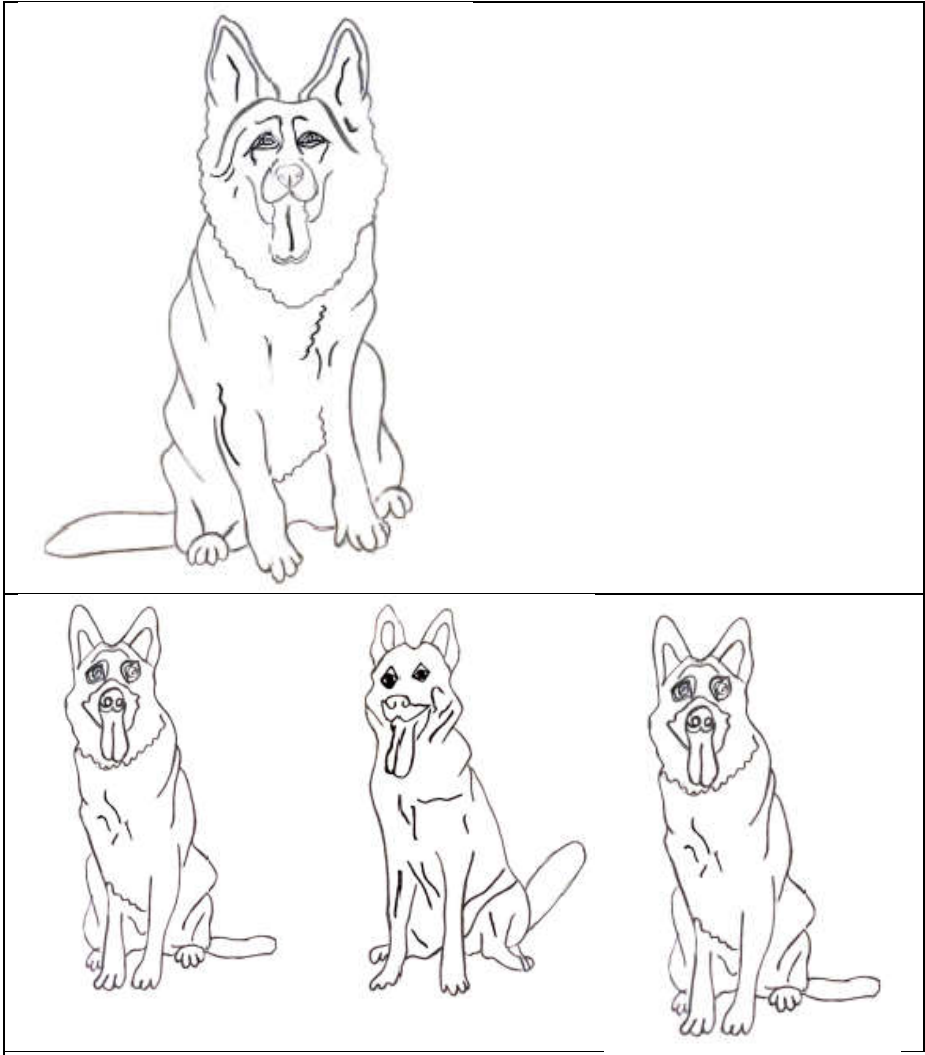


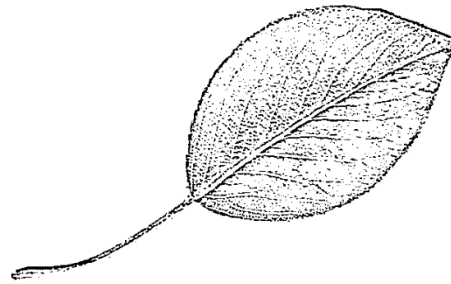
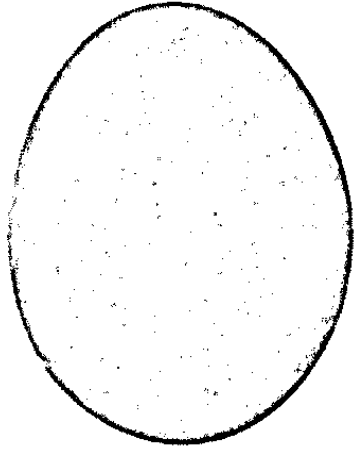


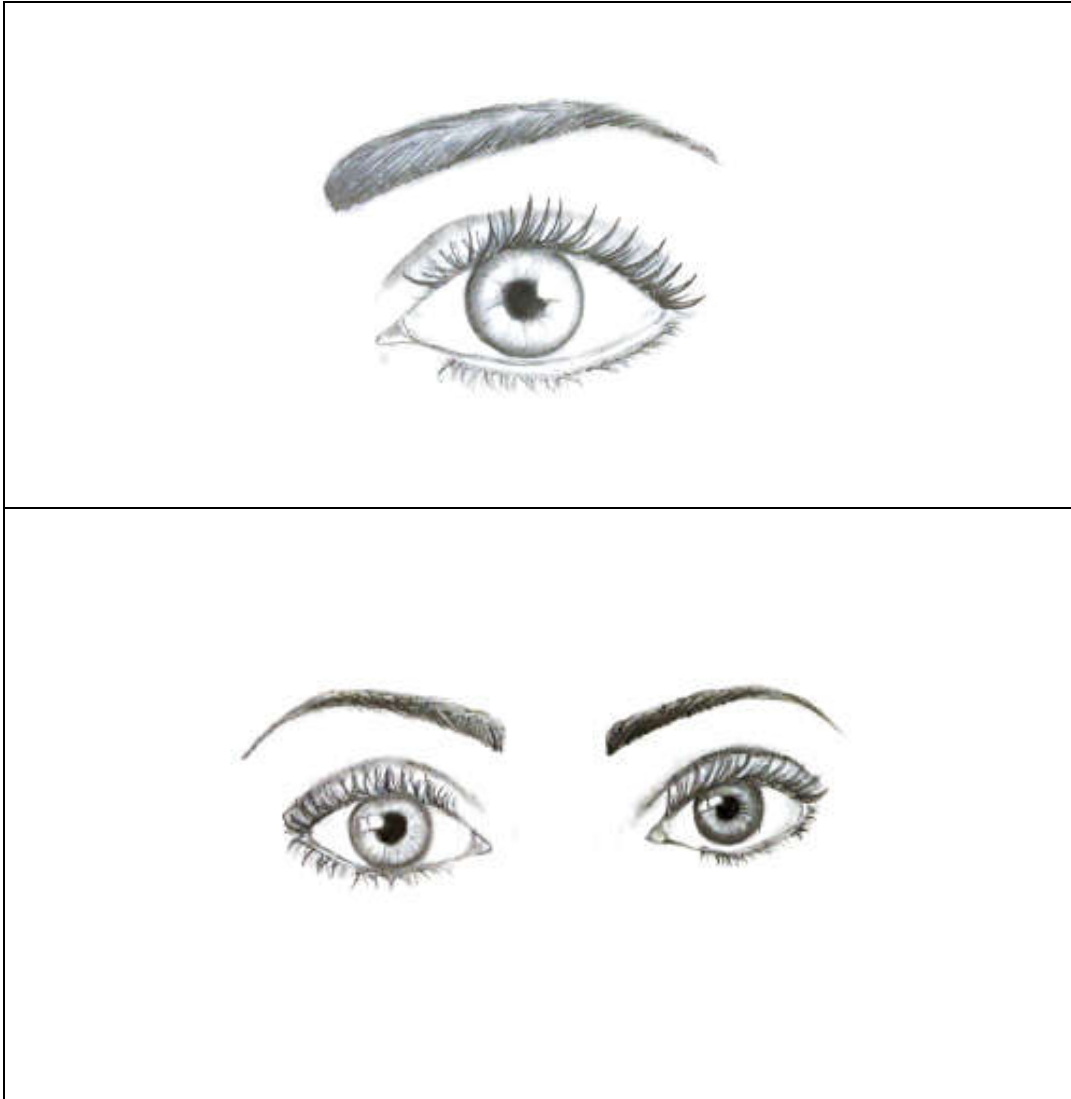


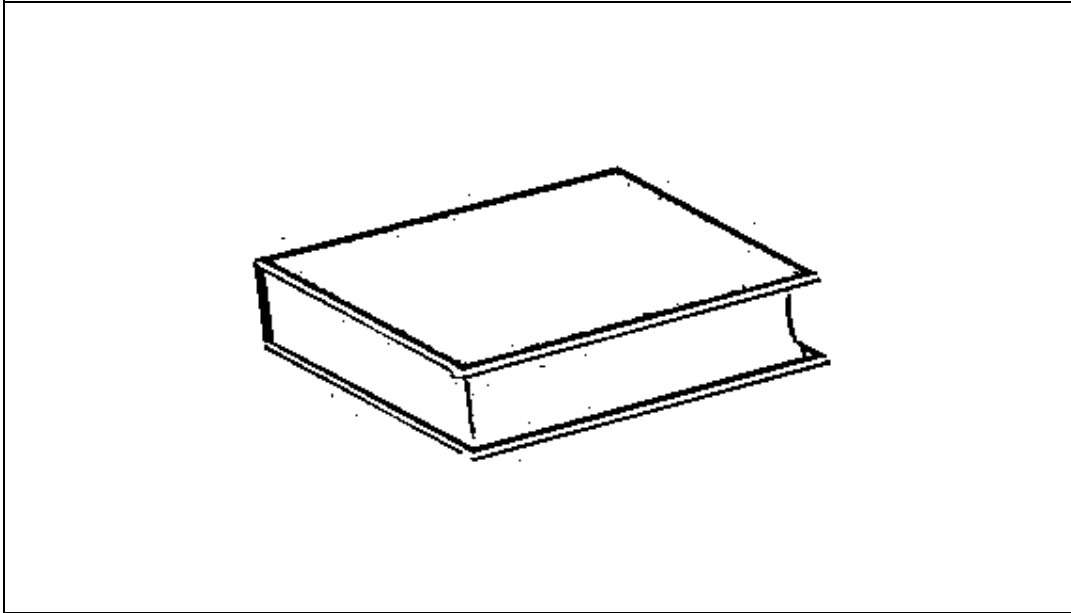
/gUbbara/ Point to Picture No. गुब्बारे /gUbbarɛ/		
4.	Point to Picture No. Point to Picture No.	जूता /dʒuʈa/ जूते / dʒuʈɛ/
5.	Point to Picture No. Point to Picture No.	टोपी /tɔpi/ टोपियां /tɔpija/
6.	Point to Picture No. Point to Picture No.	चूहा /tʃUha/ चूहे / tʃUhɛ/

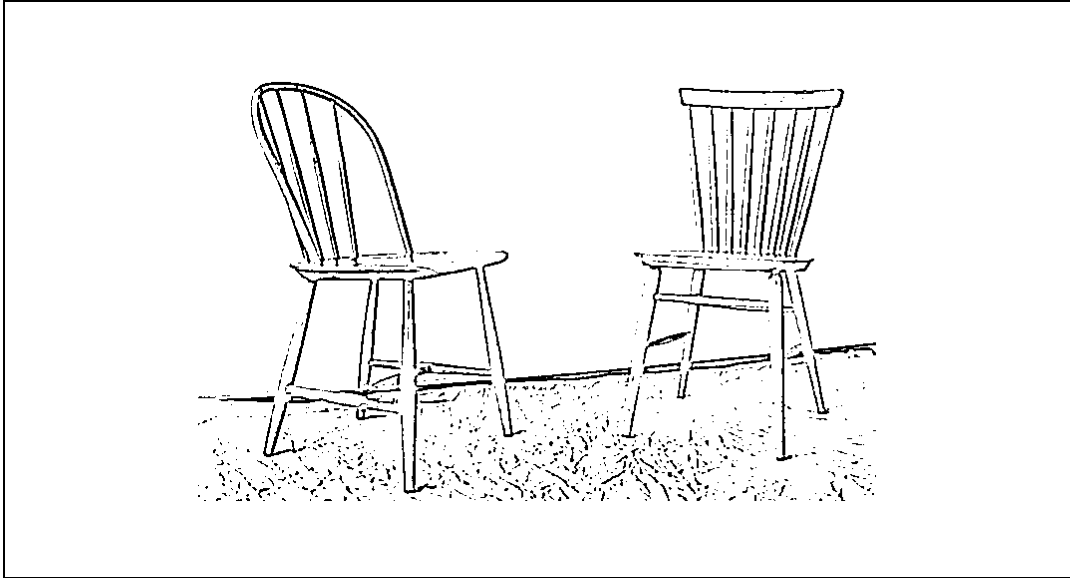
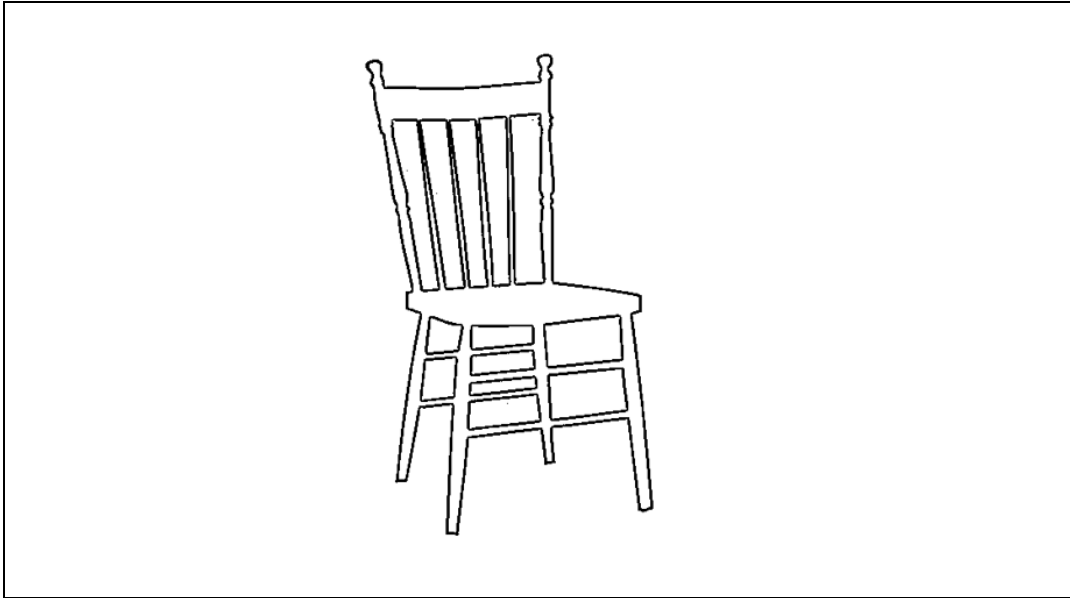


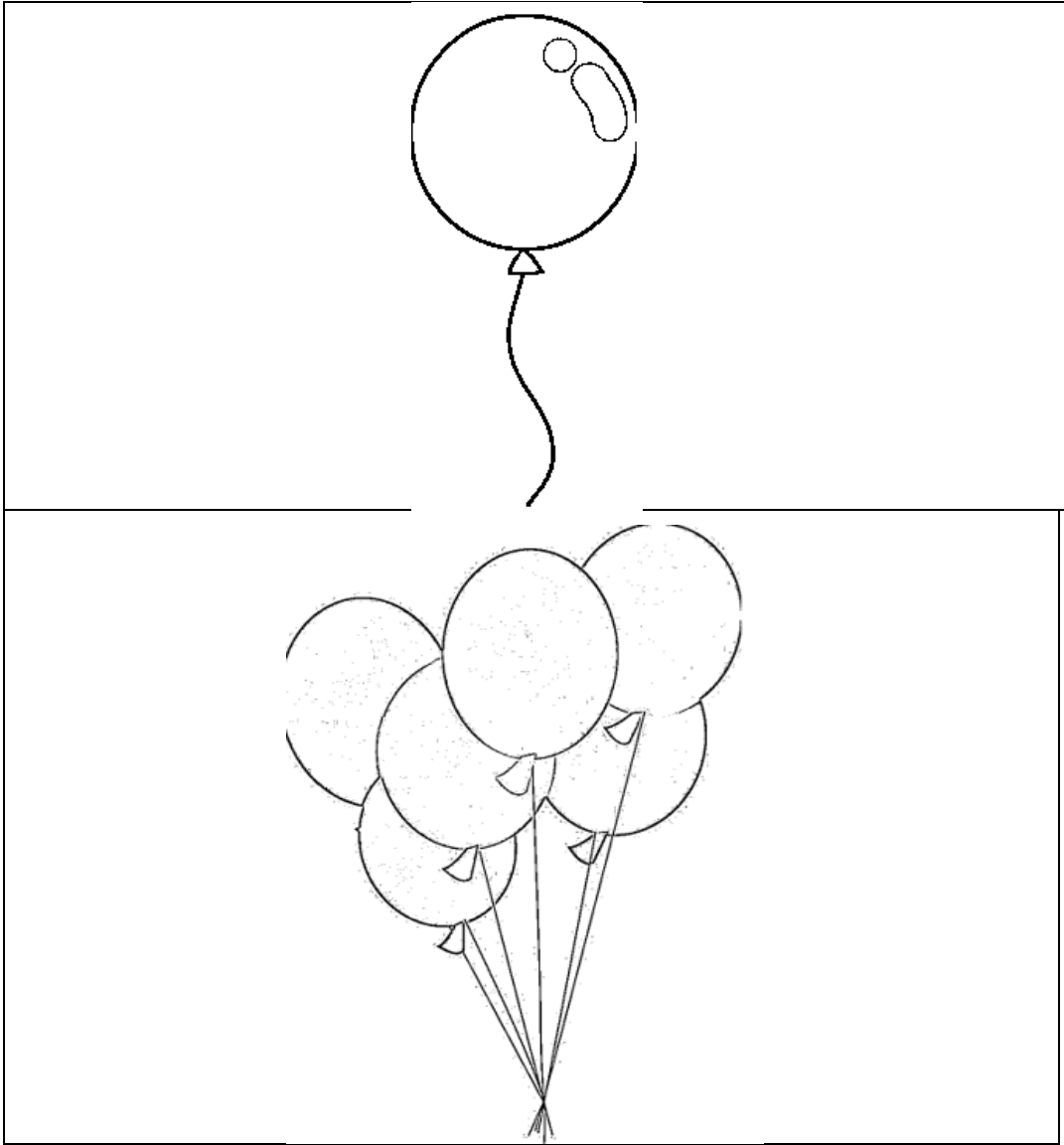




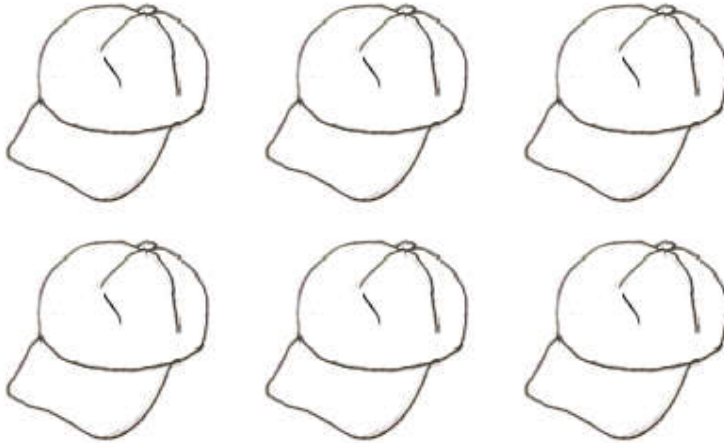


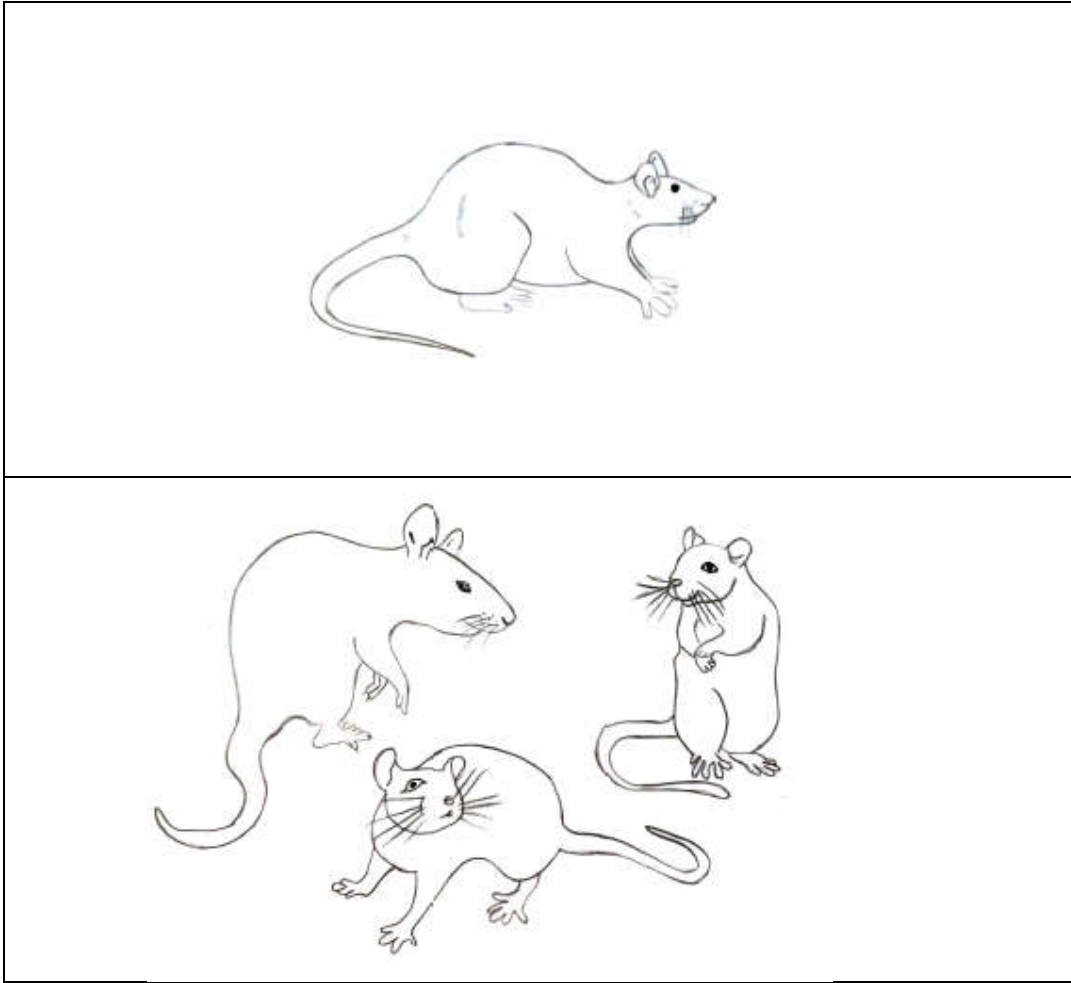










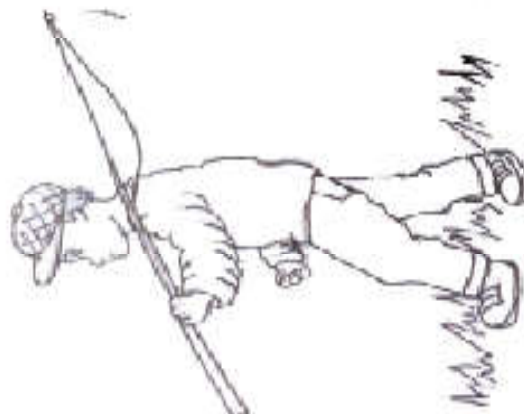
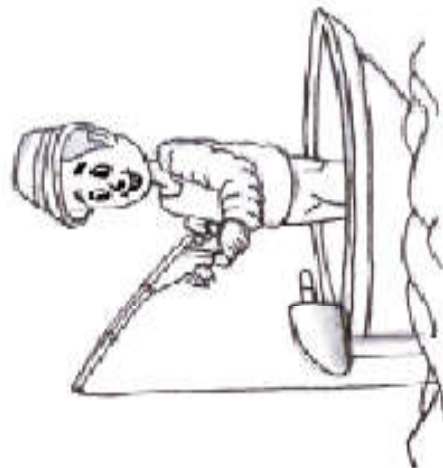


C. Tenses

Instructions: Ask the subject to name the picture presented. If he fails to do so, give him phonemic cue. Repeat them once if necessary. Accept correction once. Score one for each item identified correctly. Score '0.5' if he is able to identify with the phoneme cues. Score '1' for the correct response. Similarly when the clinician will name the picture, he is expected to point at the correct picture.

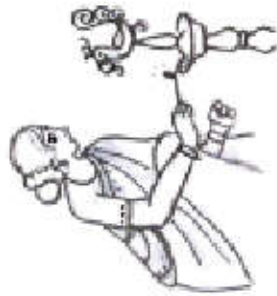
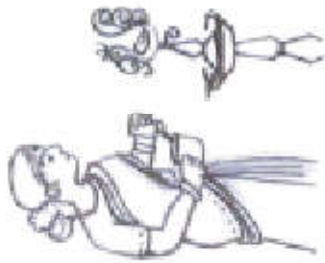
SI. NO.	Verbal/ Visual stimuli	Expected Response
Reception		
Model: a). लड़कामछलीपकड़रहाहै.....point to Picture No. /ʌdʌka mʌtʃ ^h lɪpʌkʌdɪrʌhahæ/ लड़केनेमछलीपकड़लीहै..... point to Picture No. /ʌdʌkɛ nɛ mʌtʃ ^h lɪpʌkʌdɪ li hæ/ b). माँदीयाजलारहीहै..... point to Picture No. /ma dɪja dʒʌlarʌhihæ/ माँनेदीयाजलालिया/ दिया.....point to Picture No. /ma nɛdʒʌlɪjɑdɪjɑ/		
1.	लड़कापेड़परचढ़रहाहै /ʌdʌkɑpɛdɪpʌrtʃʌd ^h rʌhahæ/ लड़कापेड़परचढ़गया। /ʌdʌkɑpɛdɪpʌrtʃʌd ^h gʌjɑ/	Point to Picture No. Point to Picture No.
2.	लड़कीफूलतोड़रहीहै। /ʌdʌkɪfultodɪrʌhihæ/ लड़कीनेफूलतोड़दिया/लियाहै /ʌdʌkɪnɛfultodɪdɪjɑlɪjɑhæ/	Point to Picture No. Point to Picture No.
3.	माँसब्जीकाटनेजारहीहै ma sʌbzɪkɑtnɛdʒɑrʌhihæ/ माँसब्जीकाटरहीहै। ma sʌbzɪkɑtrʌhihæ/	Point to Picture No. Point to Picture No.
Expression		
Model: a) Point to Picture No.लड़काखानाखारहाहै /ʌdʌkɑkʰɑnɑ kʰɑ rʌhahæ/ Point to Picture No.लड़केनेखानाखालियाहै /ʌdʌkɛnɛkʰɑnɑ kʰɑ lɪjɑhæ/ b) Point to Picture No.लड़कापढ़रहाहै /ʌdʌkɑpʌd ^h rʌhahæ/ Point to picture No.लड़केनेपढ़लिया /ʌdʌkɛnɛpʌd ^h lɪjɑ/		
4.	Point to Picture No.	लड़कीछाता/छतरीखोलरहीहै /ʌdʌkɪtʃʰɑtɑtʃʰɑtrɪkʰolrʌhihæ/

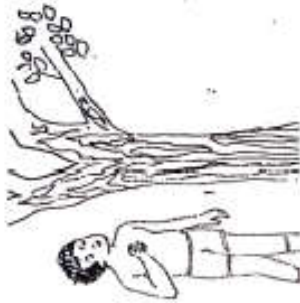
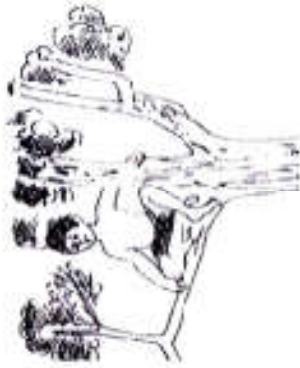
5.	Point to Picture No.	लइकेनेसीडीचढली /l^d_kɛnɛsid_iʃ^d^h li/
6.	Point to Picture No.	लइकागुबबाराफुलारहाहै /l^d_kagUbbarafUlar^hahæ/

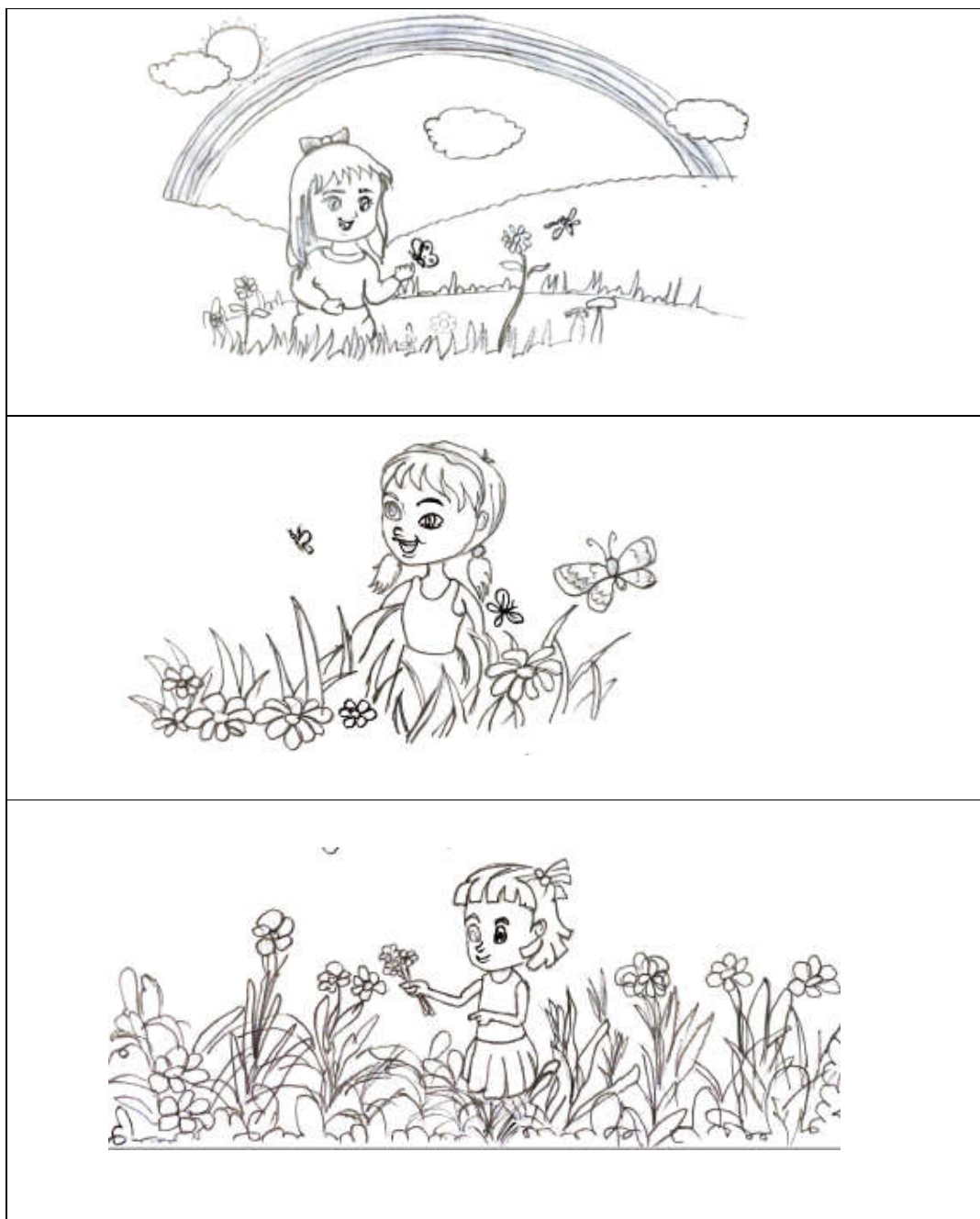


Mr. S. S. S. S. S.

Mr. S. S. S. S. S.





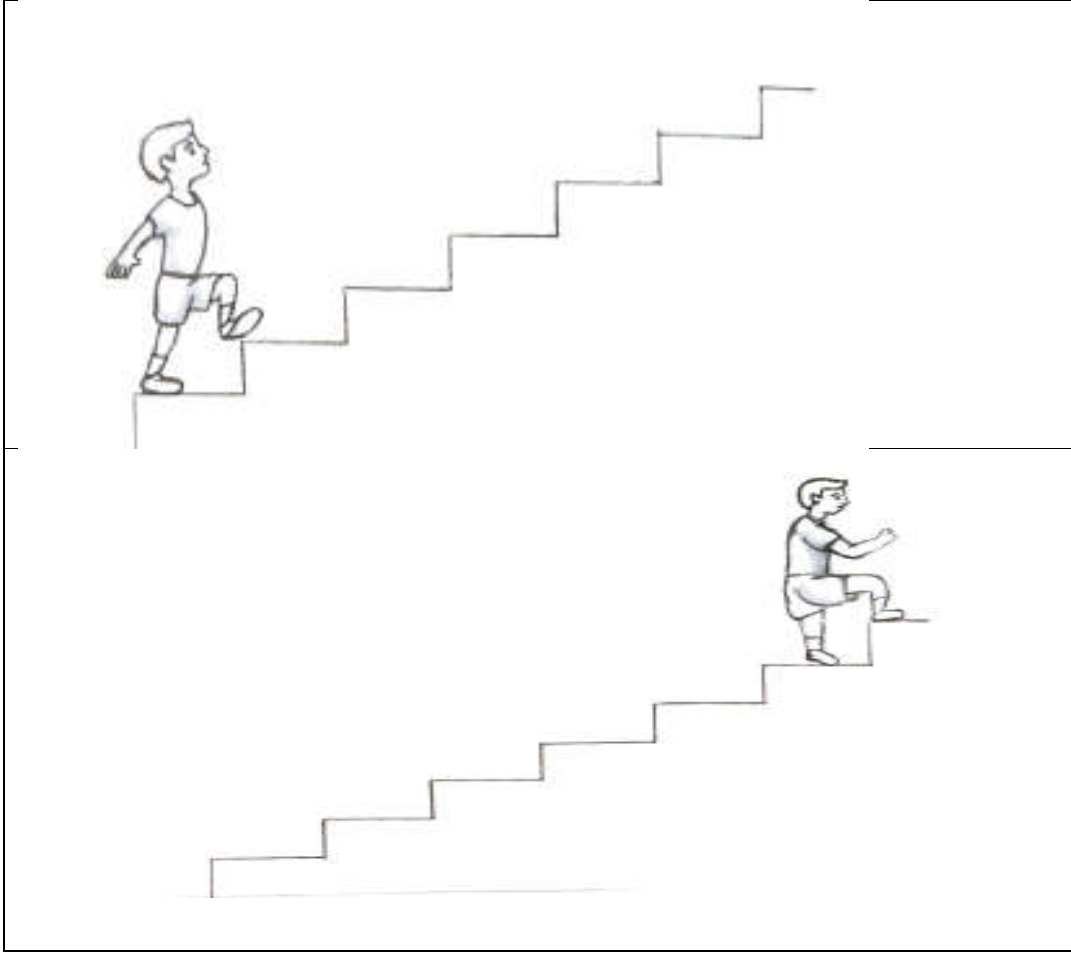












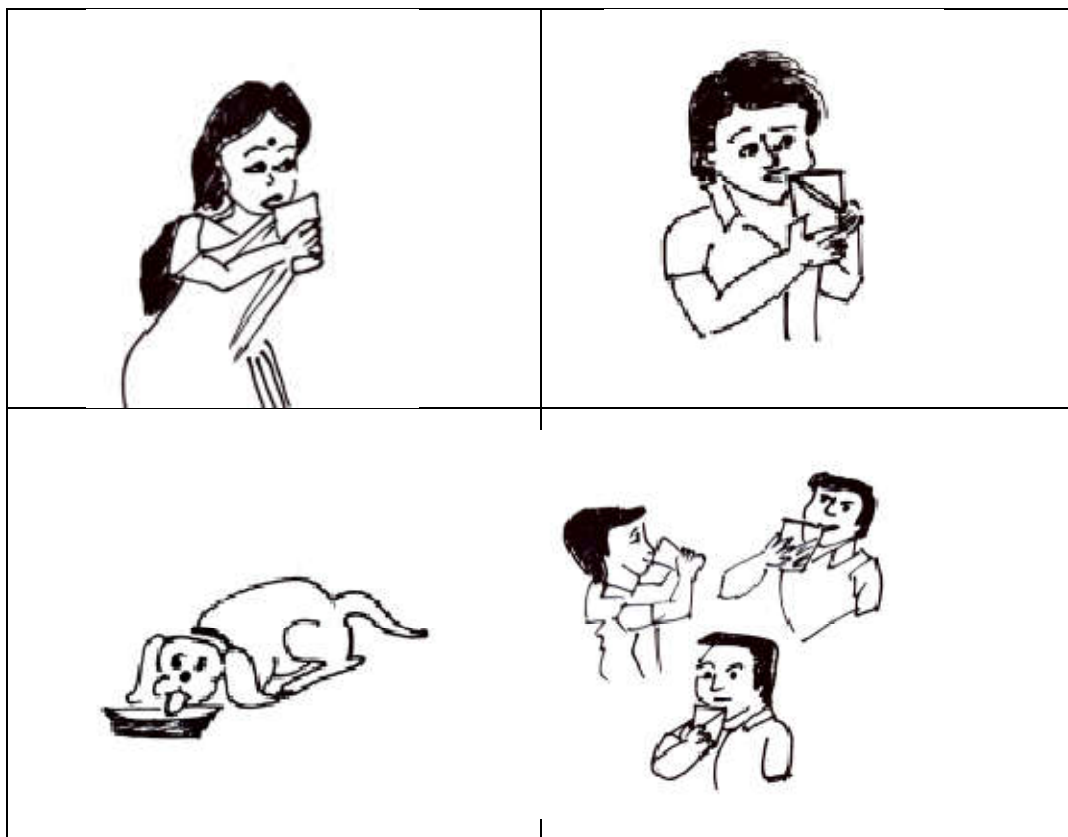


D. PNG Markers

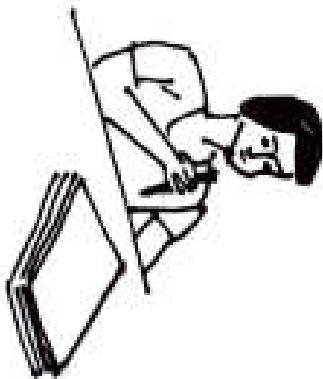
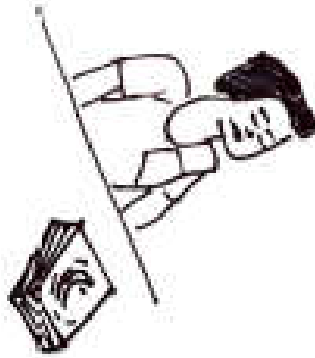
Instructions: Ask the subject to name the picture presented. If he fails to do so, give him phonemic cue. Repeat them once if necessary. Accept correction once. Score one for each item identified correctly. Score '0.5' if he is able to identify with the phoneme cues. Score '1' for the correct response. Similarly when the clinician will name the picture, he is expected to point at the correct picture.

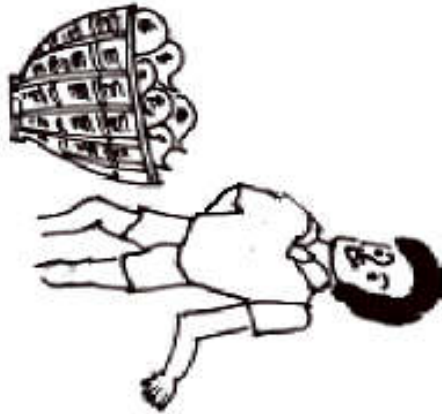
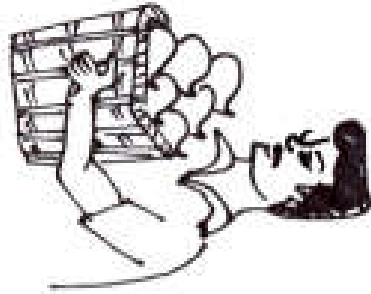
SI. NO.	Verbal/ Visual stimuli	Expected Response
Reception		
Model : a. सोरहेहै .Point to Picture No..... /sor^hɛhæ/		
1.	सोरहीहै /sor^hihæ/	Point to Picture No.
2.	सोरहाहै /sor^hahæ/	Point to Picture No.
3.	सोरहेहै /sor^hɛhæ/	Point to Picture No.
Expression		
Model: a) Point to Picture No.वोपानीपीरहेहै vo pani pi/ r^hɛhæ/		
b) Point to Picture No.कुत्तापानीपीरहाहै /kUtta pani pir^hahæ/		
4.	Point to Picture No.	कुत्तापानीपीरहाहै /kUtta pani pir^hahæ
5.	आपसुबहउठकरक्याकरतेहै	मैब्रशकरता/करतीहूँ m/æbr ^ʃ k^ɹtak^ɹti hu/
6.	मैंनेअभीक्याकिया ?	आपनेअभीलिखा/आपनेअभीपूछा /apnɛ^b^hɪlik^haapnɛ^b^hɪputʃ^hə/







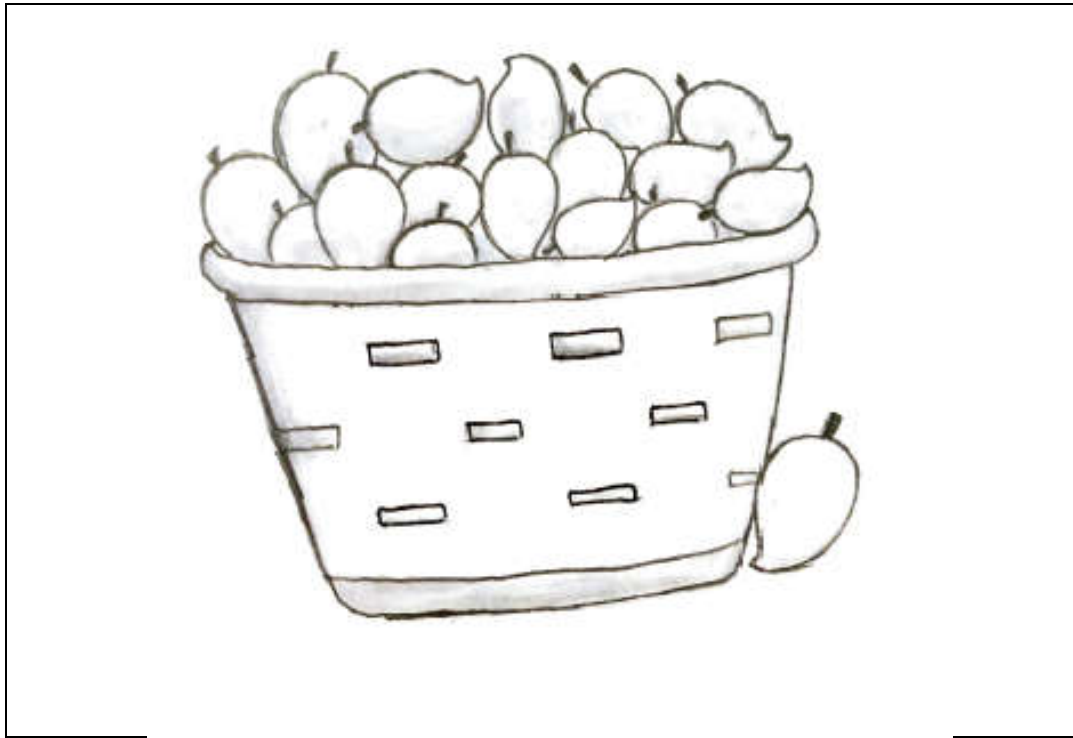












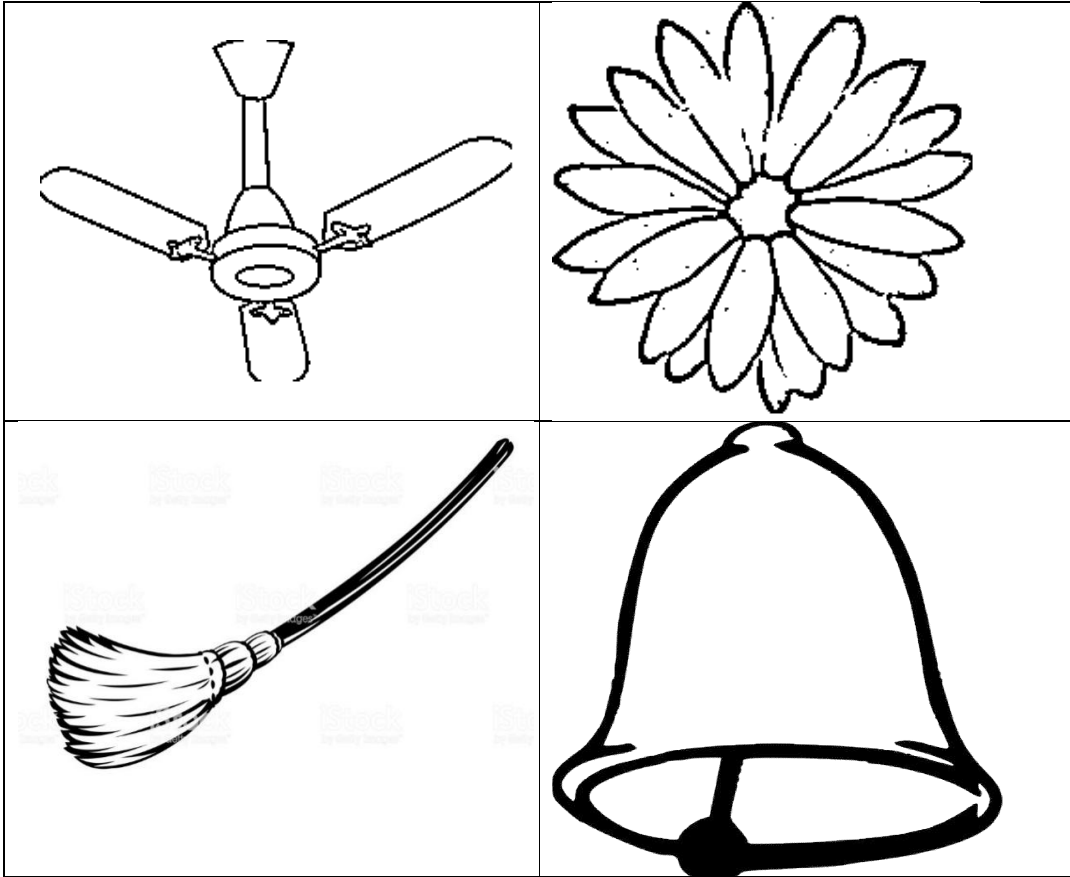


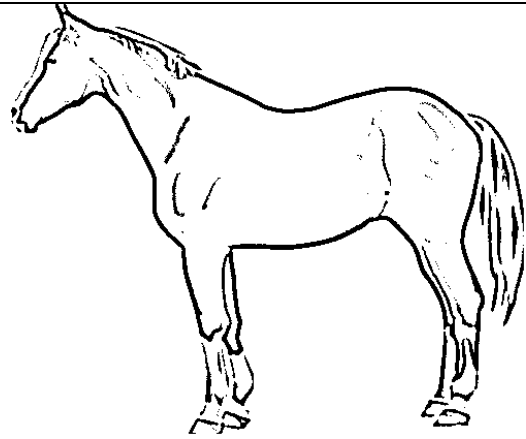
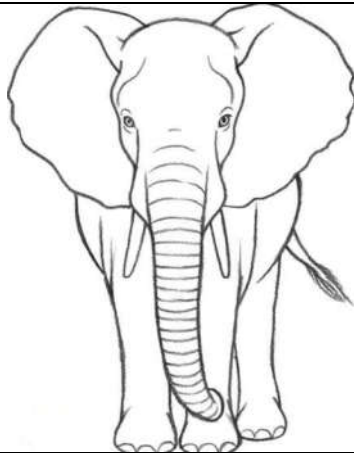
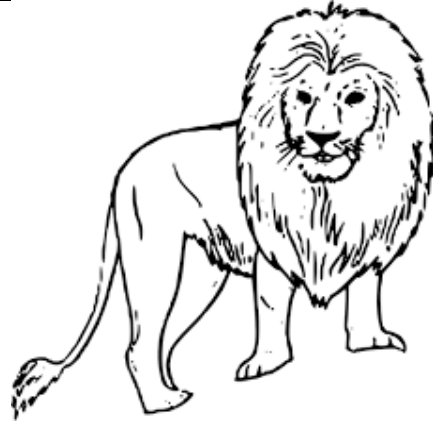
5 Conditional Clauses

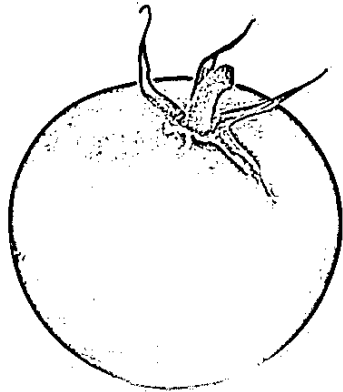
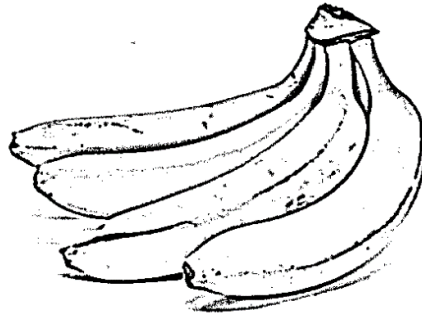
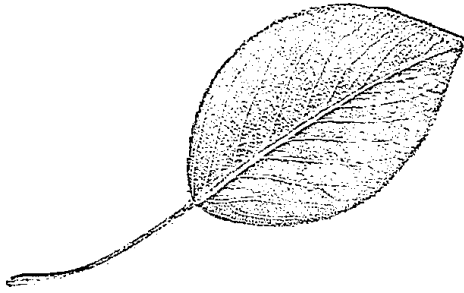
Instructions: Ask the subject to name the picture presented. If he fails to do so, give him phonemic cue. Repeat them once if necessary. Accept correction once. Score one for each item identified correctly. Score '0.5' if he is able to identify with the phoneme cues. Score '1' for the correct response. Similarly when the clinician will name the picture, he is expected to point at the correct picture.

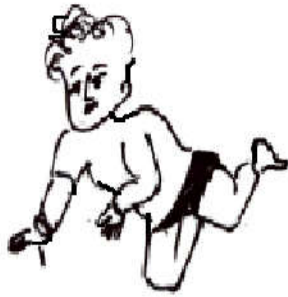
SI. NO	Verbal/ Visual stimuli	Expected Response
Reception		
Model: a). अगरपंखेकाचित्रहैतोदिखाओ.....Point to the Picture No. /ʌgʌrpʌkʰɛ ka tʃɪtrahætɔdɪkʰao/		
b). अगरहाथीकाचित्रहैतोतालीबजाओ।.....Do not clap /ʌgʌrhatʰi ka tʃɪtrahætɔtʌlibʌdʒao/		
1.	अगरकेलेकाचित्रहैतोहाथउठाए /ʌgʌrkɛɪɛ ka tʃɪtrahætɔhatʰUthaɛ/	Does not raise hand
2.	अगरचप्पलकाचित्रहैतोतालीबजाओ । /ʌgʌrtʃʌppʌl ka tʃɪtrahætɔtʌlibʌdʒao/	Close your eyes
3.	अगरबच्चेकाचित्रहैतोउसकोहाथसेढकदो। /ʌgʌrbʌtʃɪɛ ka tʃɪtrahætɔUskohatʰsɛdʰʌkdo/	Close baby's picture
Expression		
Model: a). हमदवाईकबलेतेहै? बुखार, सर्दी, बीमार /hʌmdʌvajikʌblɛtɛhæ/ /bUkʰarsʌrdibimar/		
b). हमकबछाता/ छतरीकाइस्तेमालकरतेहै? बारिशमें /hʌmkʌbtʃʰatʃʰʌtri ka Istʌmalkʌrtɛhæ/ /barɪʃmɛ/		
4.	कांचकाकपकेसेटूटजाताहै? /katʃ ka kʌpkæsɛtʃutɔdʒatahæ/	जबवहनीचेगिरताहै। /dʒʌbvʌhʌ nitʃɛgɪrtahæ/
5.	हममोमबत्तीकाइस्तेमालकबकरते	जबबिजलीनहींहोतीहै/ अँधेरेमें।

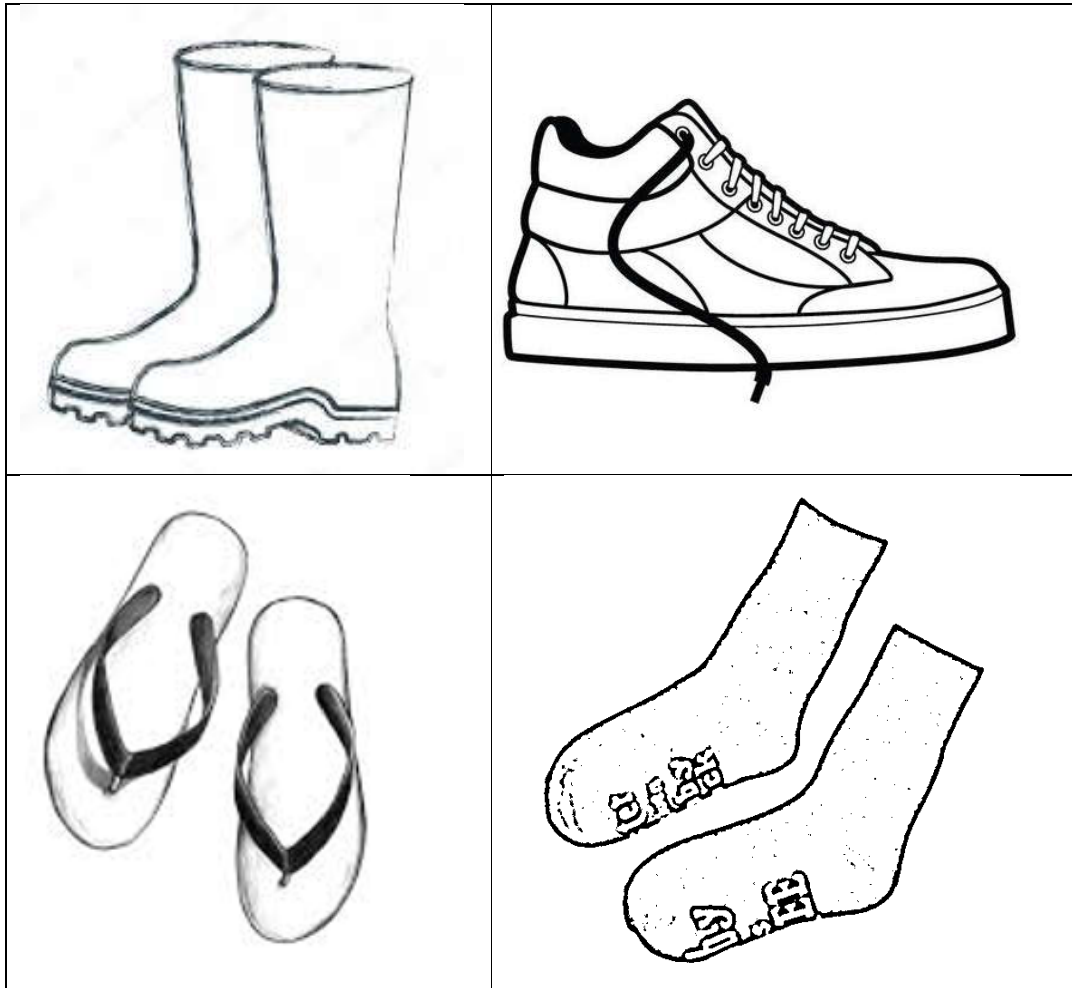
	है ? /h^mmomb^ttI ka Ist^malk^bk^rt̪hæ/	/dʒ^bbIdʒlin^hihoʈihæ ^nd^hErEmɛ/
6.	आपकीमाँआपकोकबडांटतीहै? /apki ma apkok^bd̪at̪ihæ/	जबमैपढाईनहींकरता/करती / जबमैशरारतकरता/करतीहूँ /dʒ^bmæp^d^haik^rt̪ak^rt̪idʒ^bmæf^rar^tk^r t̪ak^rt̪i hu/











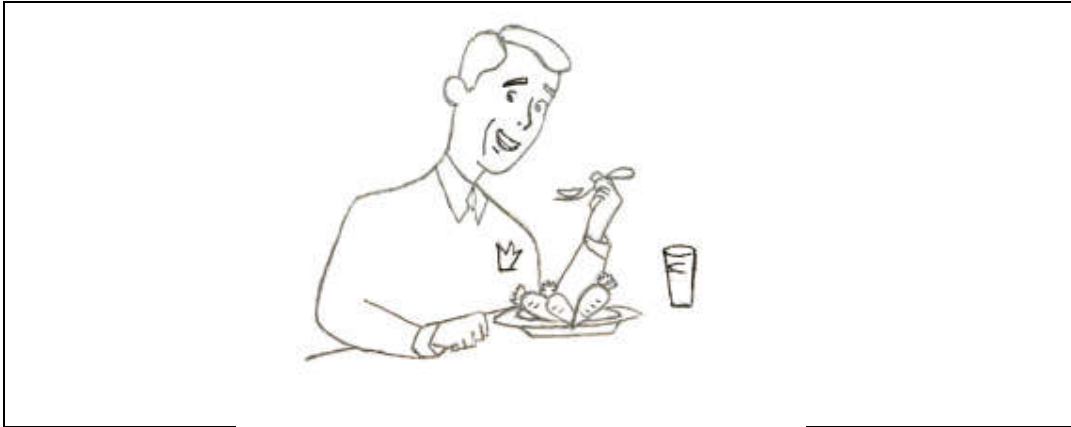
F. Transitives, Intransitives and Causatives

Instructions: Ask the subject to name the picture presented. If he fails to do so, give him phonemic cue. Repeat them once if necessary. Accept correction once. Score one for each item identified correctly. Score '0.5' if he is able to identify with the phoneme cues. Score '1' for the correct response. Similarly when the clinician will name the picture, he is expected to point at the correct picture.

SI. NO.	Verbal/ Visual stimuli	Expected Response
Reception		
Model: a) मांसोरहीहै।Point to Picture No. /ma so r ^h ihæ/		
b) मांबच्चेकोसुलारहीहै।Point to Picture No. /ma batʃtʃɛ ko sUlar ^h ihæ/		
1.	मांचलरहीहै। /ma tʃ ^l r ^h ihæ /	Point to Picture No.
2.	पिताबच्चेकोखानाखिलारहेहैं। /pItabatʃtʃɛ ko k ^h anak ^h ilar ^h ɛhæ/	Point to Picture No.
3.	बच्चारोरहाहै। /batʃtʃaror ^h ahæ/	Point to Picture No.
Expression		
Model: a) point to Picture No. पितापतंगउडारहेहै। /pItap ^t angUdar ^h ɛhæ/		
b) point to Pictue No. पिताबच्चेकेसाथपतंगउडारहेहै। /pItabatʃtʃɛkɛsat ^h p ^t angUdar ^h ɛhæ/		
4.	Point to Picture No.	लडकाखेलरहाहै। /l ^d ikak ^h ɛlr ^h ahæ/
5.	Point to Picture No.	वहबच्चेकोजूतापहनारहीहै। /v ^h batʃtʃɛ ko dʒutap ^h nar ^h ihæ/
6.	Point to Picture No.	अध्यापकलिखरहेहै। /a ^d hap ^k lik ^h r ^h ɛhæ/

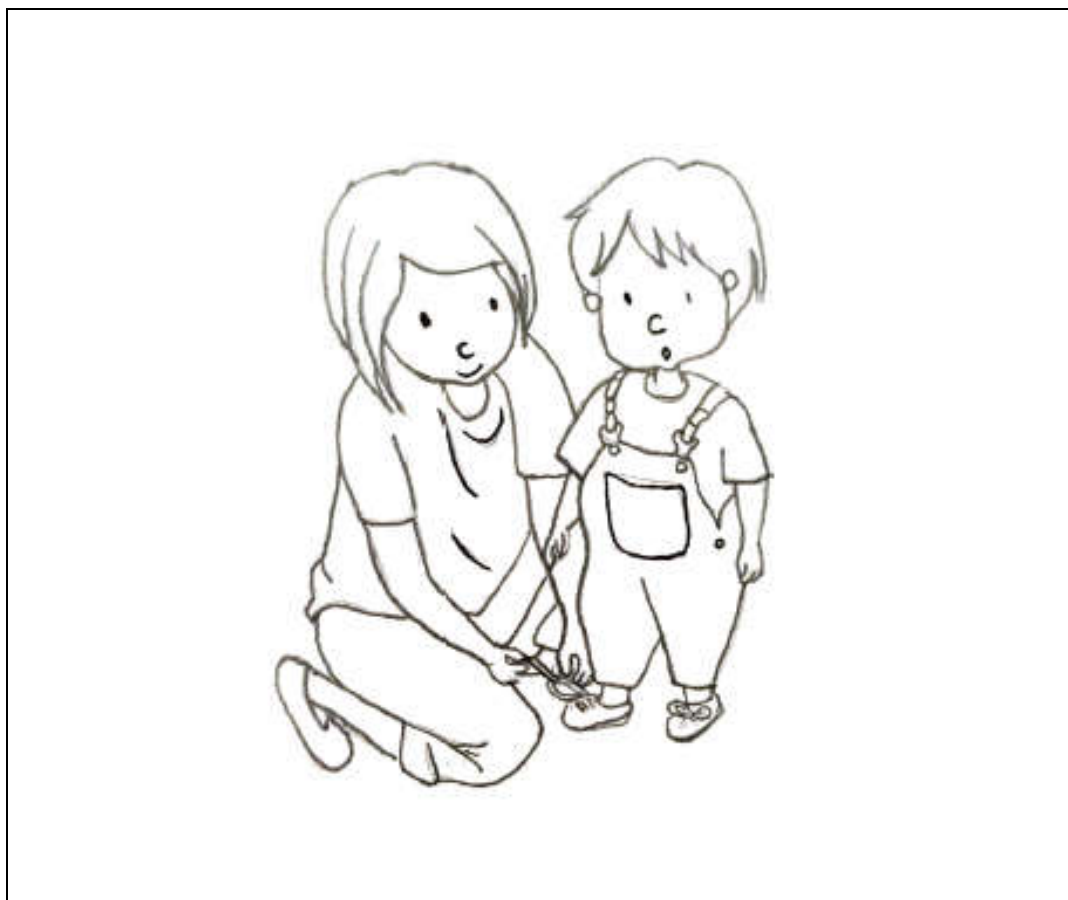


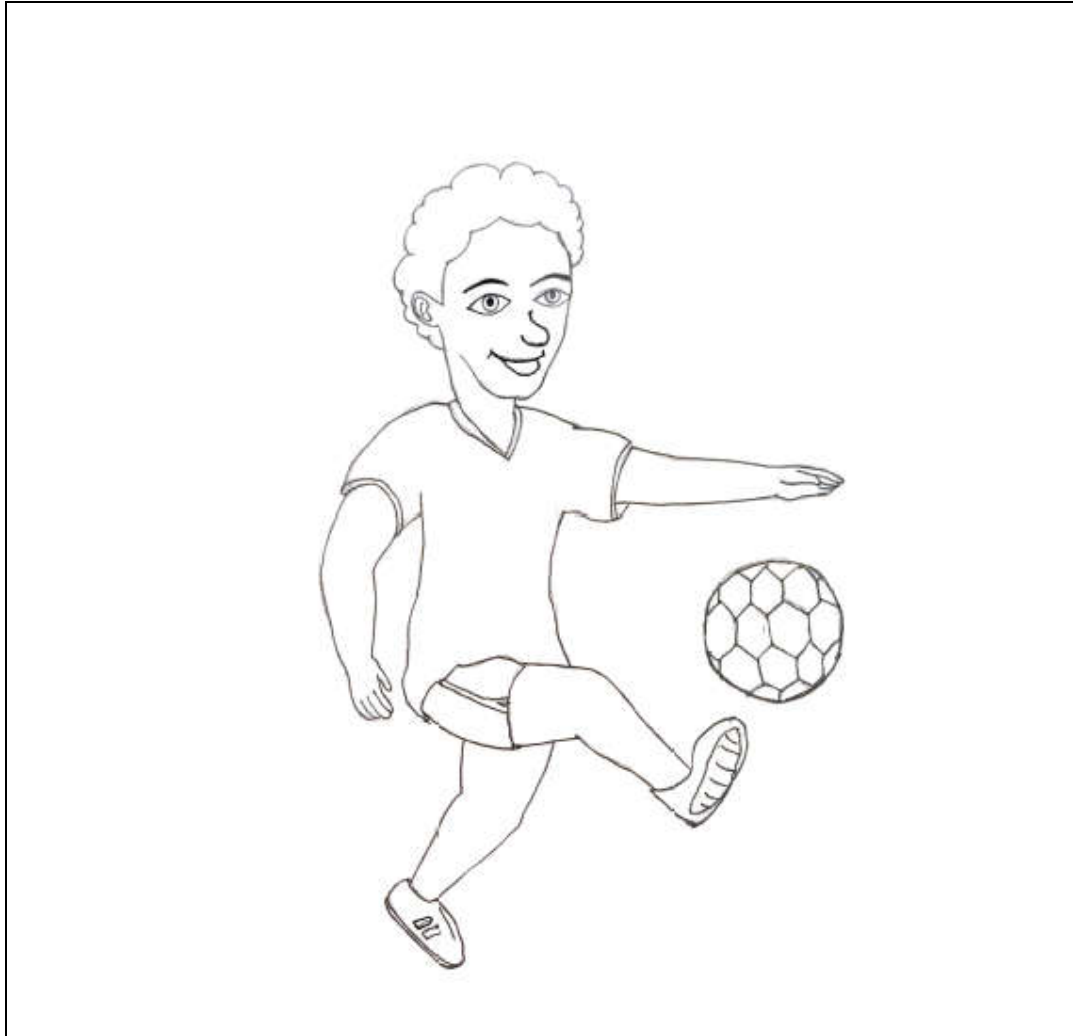


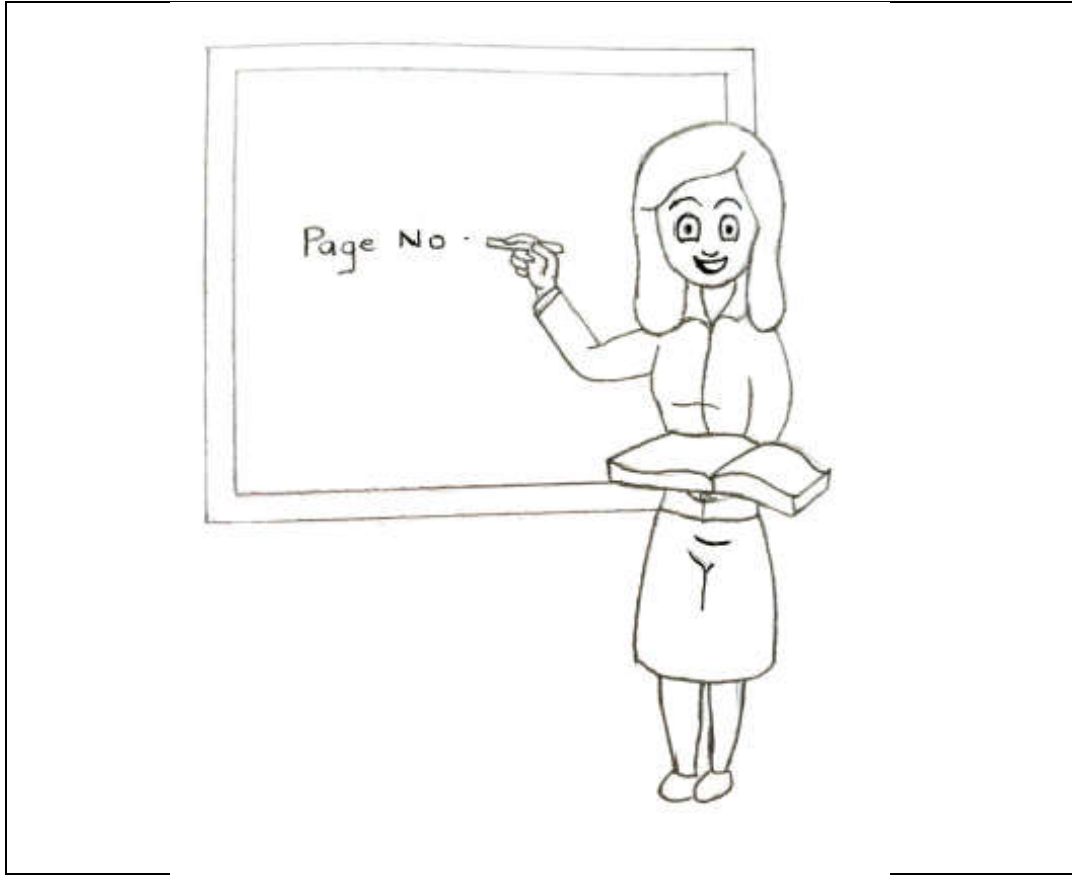








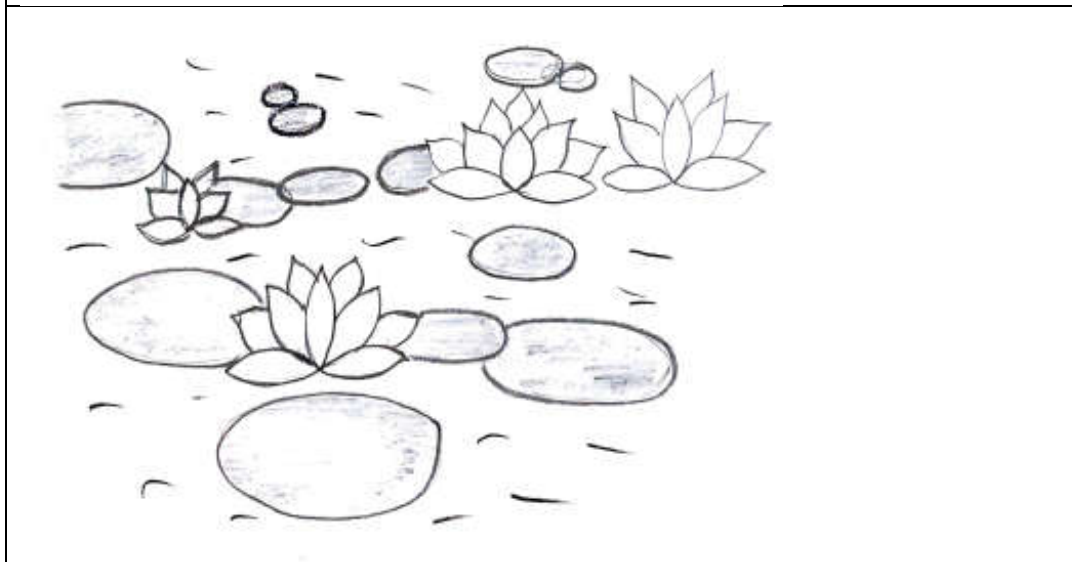
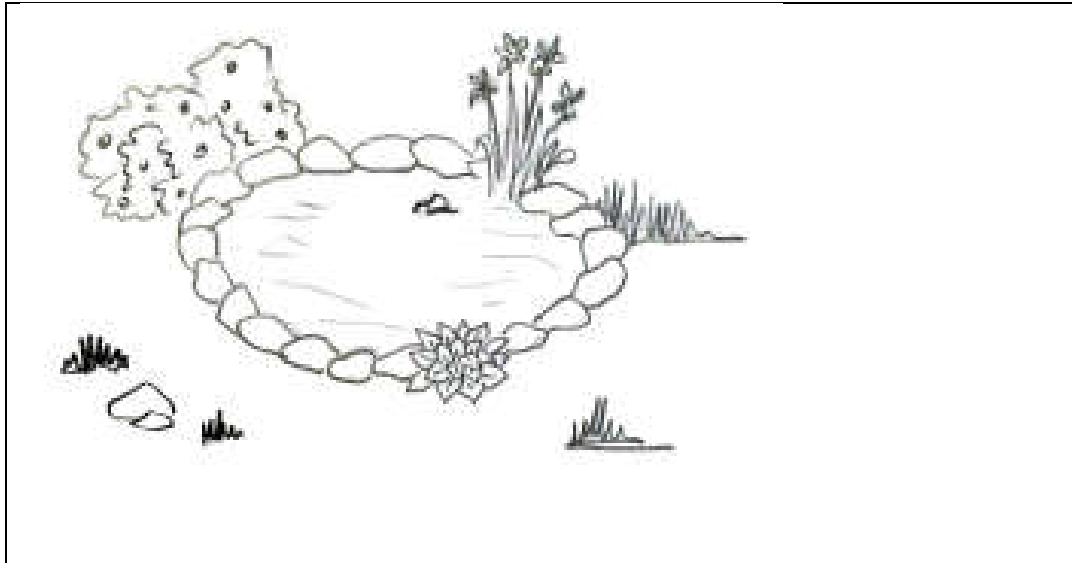


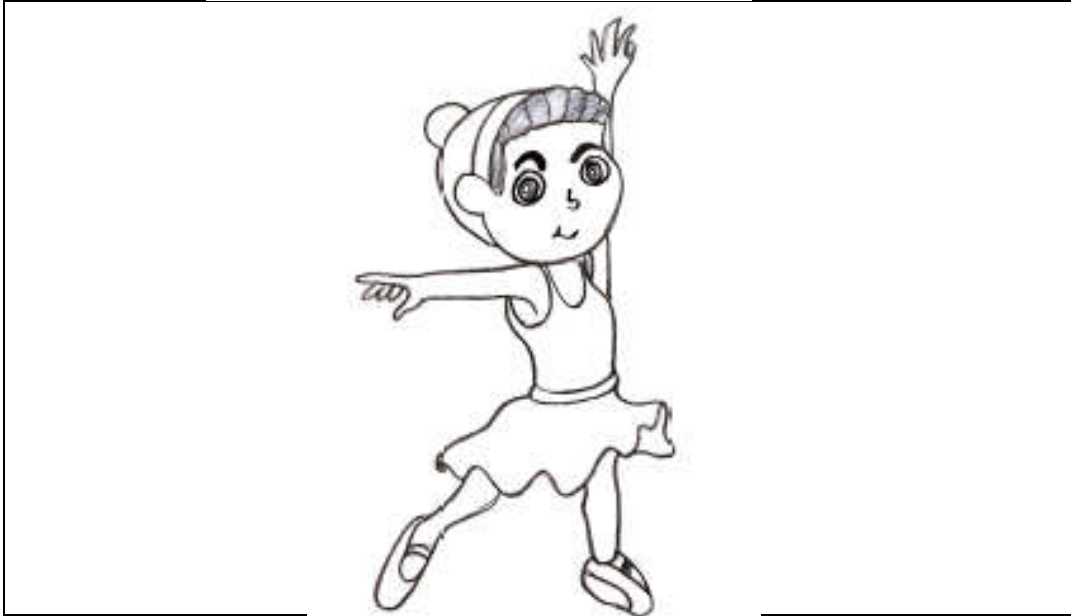
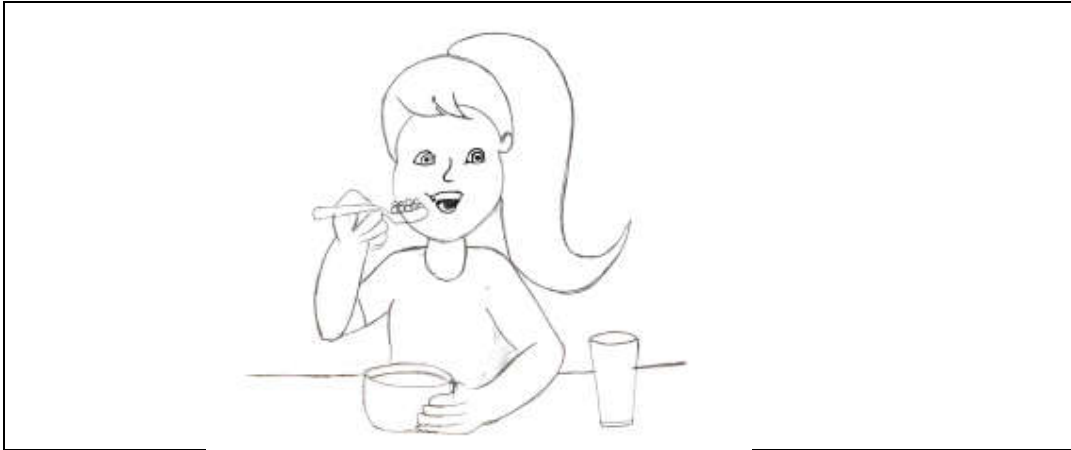


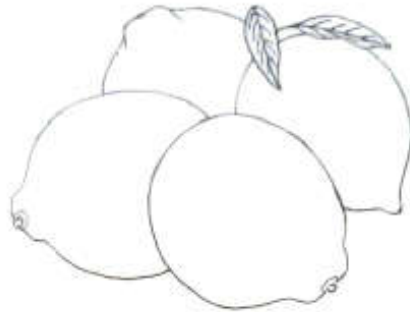
G. Sentence Types

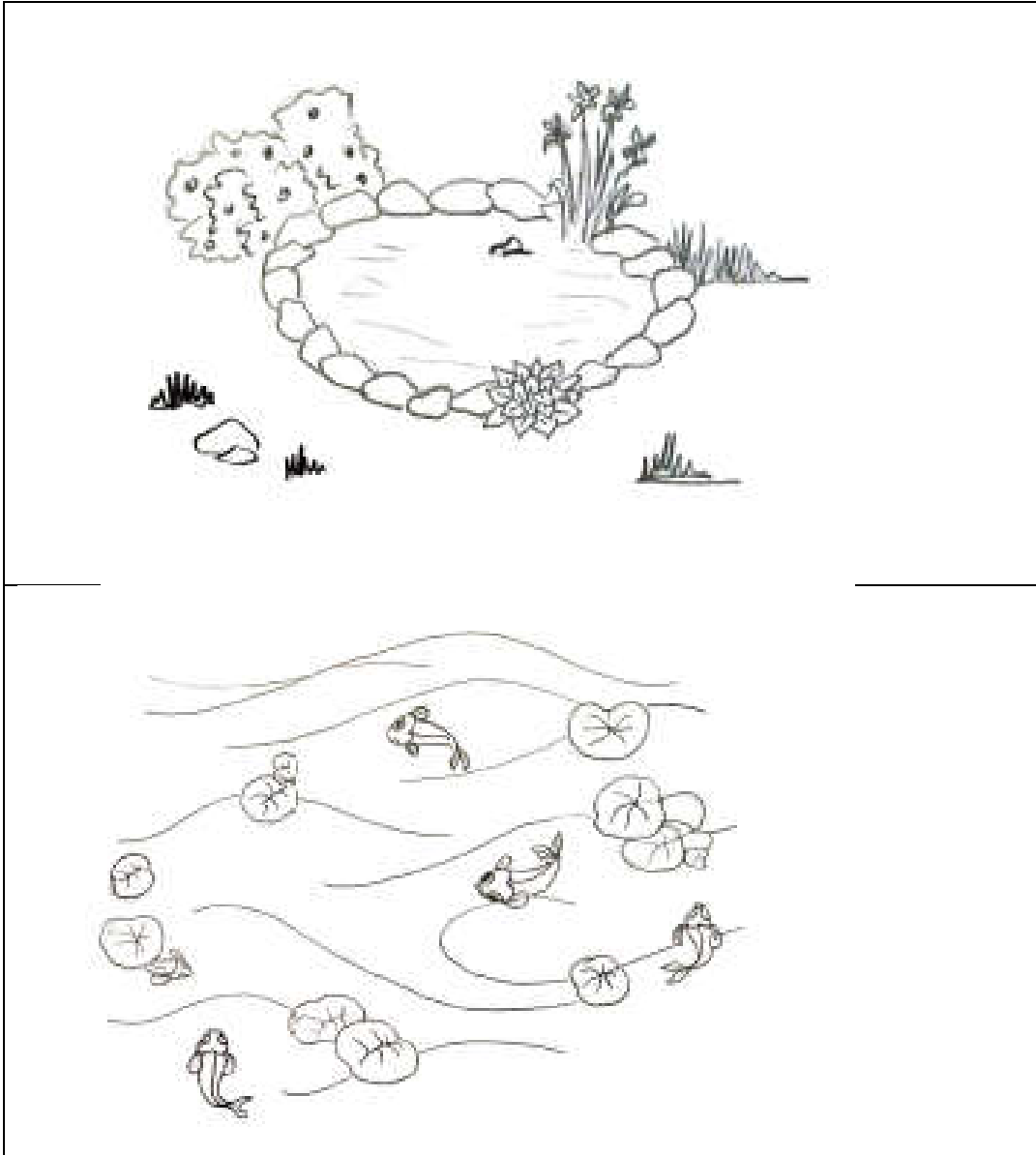
Instructions: Ask the subject to name the picture presented. If he fails to do so, give him phonemic cue. Repeat them once if necessary. Accept correction once. Score one for each item identified correctly. Score '0.5' if he is able to identify with the phoneme cues. Score '1' for the correct response. Similarly when the clinician will name the picture, he is expected to point at the correct picture.

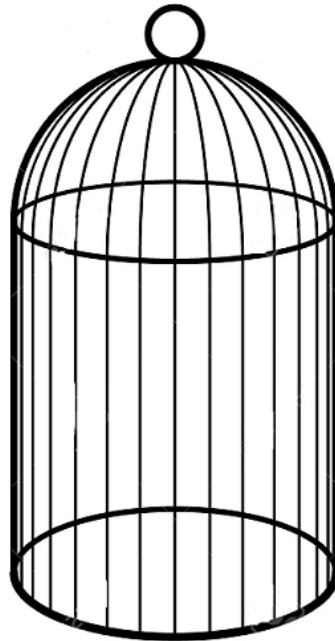
SI. NO.	Verbal/ Visual stimuli	Expected Response
Reception		
Model: a) किताबमेज़पररखीहै Point to Picture No. /kiʈabmɛdʒpARRAKʰihɛ/		
b) कौनसाबच्चाचलरहाहै? Point to Picture No. /kɔnsabətʃatʃʌlrəhahɛ/		
1.	कौनसेतालाबमेंफूलहै? /kɔnsetʌlabmɛpʰulhɛ/	Point to Picture No.
2.	कौनसीलड़कीनाचरहीहै? /kɔnsiləḍkiɪnətʃrəhihɛ/	Point to Picture No.
3.	निम्बूपेड़परहै /nimbupɛḍ pərhɛ/	Point to Picture No.
Expression		
Model: a) Point to Picture No.तालाबमेंमछलियाँहै. /talabmɛmətʃlijaɦɛ/		
b) Point to Picture No.तालाबमेंमछलियाँनहींहै. /talabmɛmətʃlijanəhiɦɛ/		
4.	Point to Picture No.	तोतापिंजरेमेंहै. /tɔtapindʒAREMEɦɛ/
5.	Point to Picture No.	तोतापिंजरेमेंनहींहै. /tɔtapindʒAREMENəhiɦɛ/
6.	Point to Picture No.	गिलासमेंकितनापानीहै? /gilasmekiʈnapanihɛ/











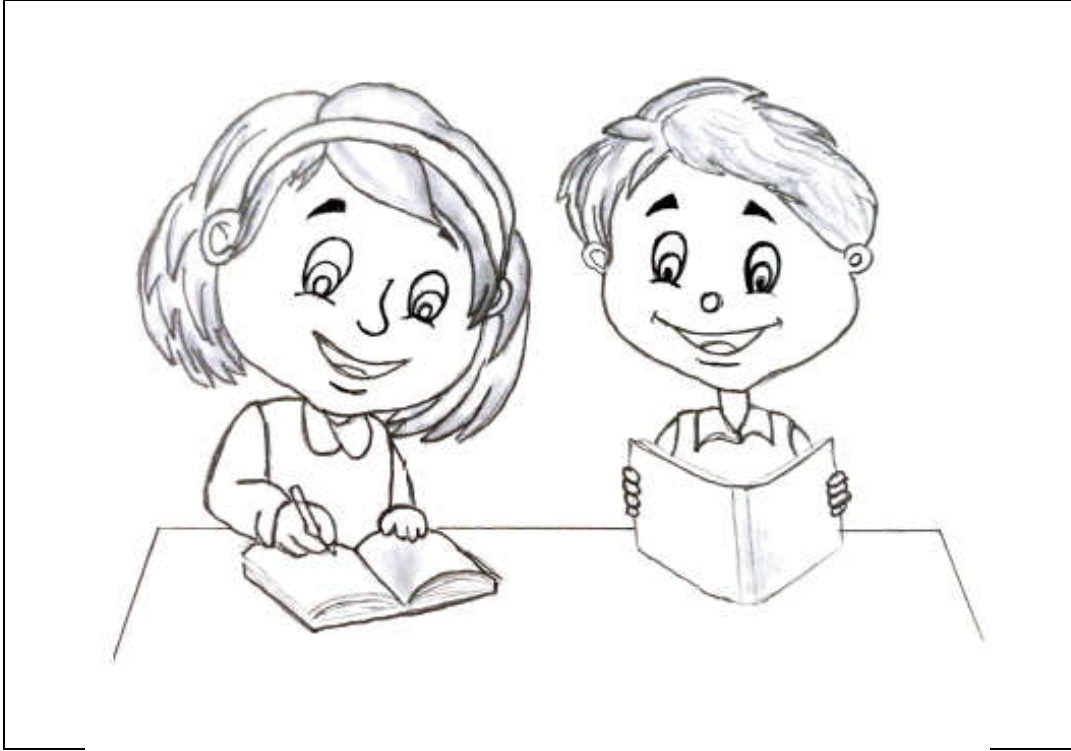


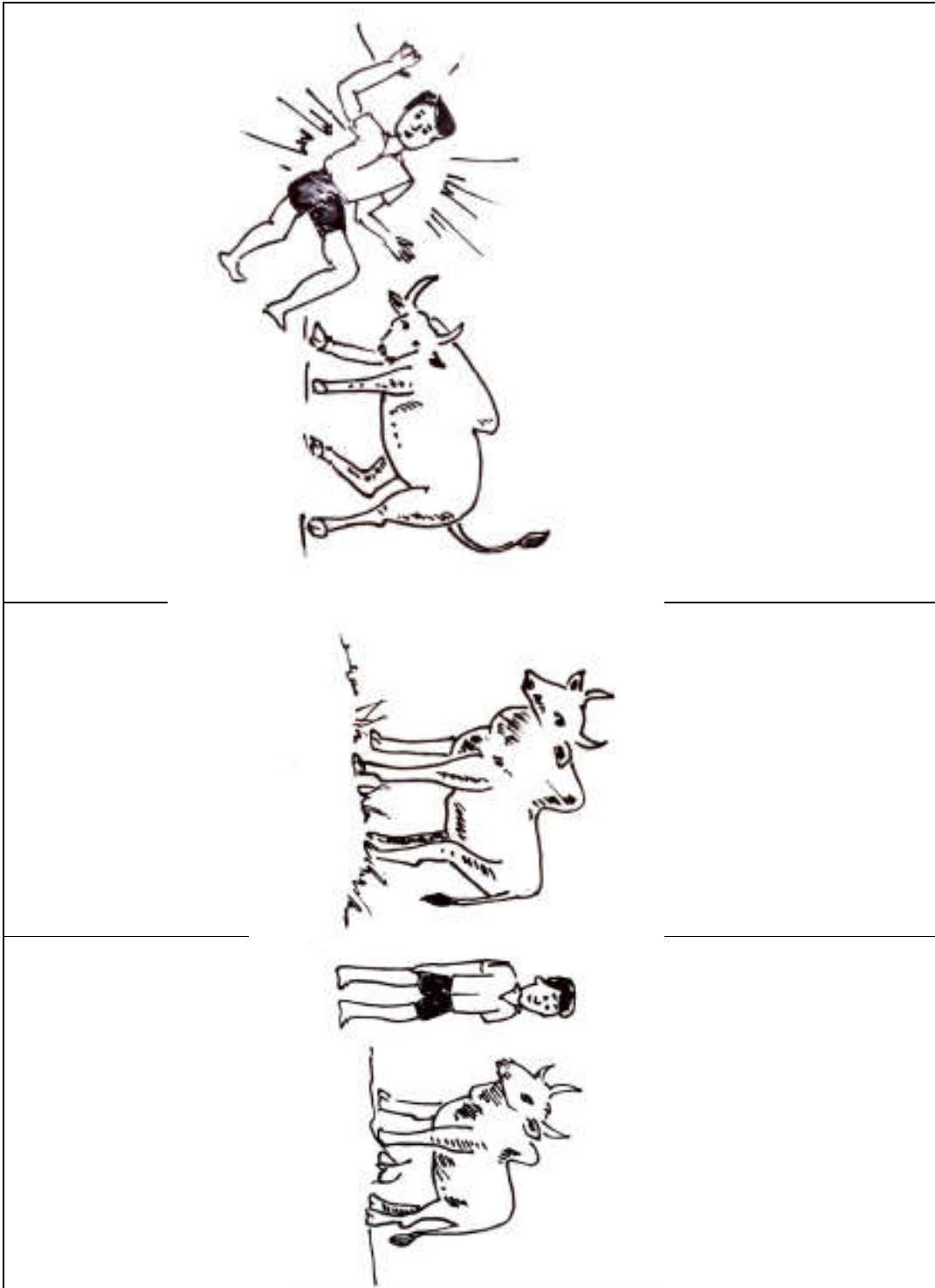
H. Conjunctives and Quotatives

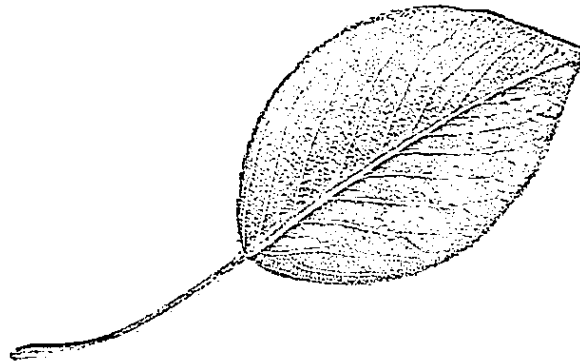
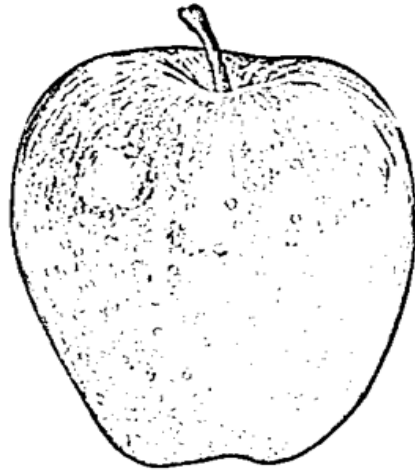
Instructions: Ask the subject to name the picture presented. If he fails to do so, give him phonemic cue. Repeat them once if necessary. Accept correction once. Score one for each item identified correctly. Score '0.5' if he is able to identify with the phoneme cues. Score '1' for the correct response. Similarly when the clinician will name the picture, he is expected to point at the correct picture.

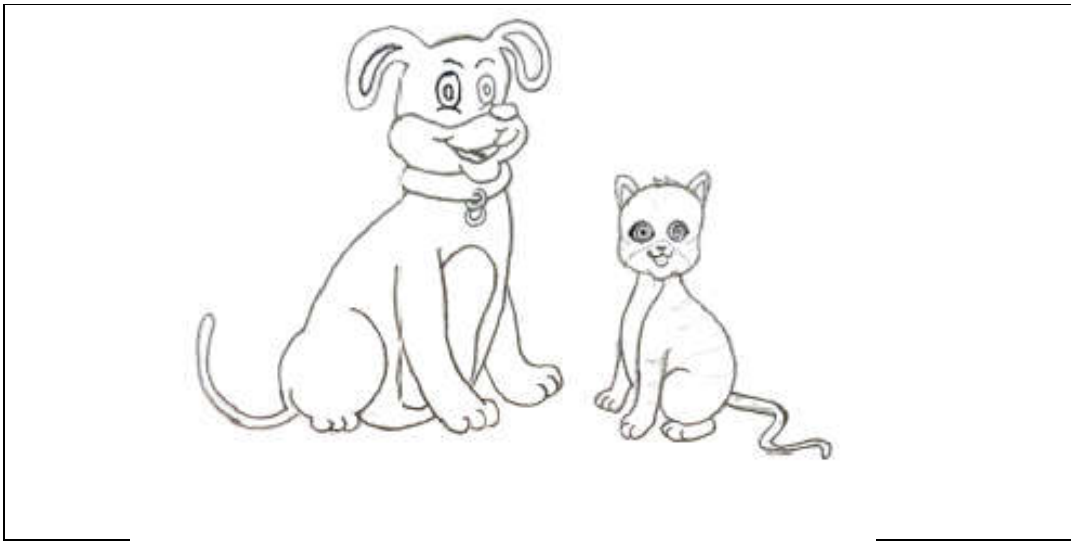
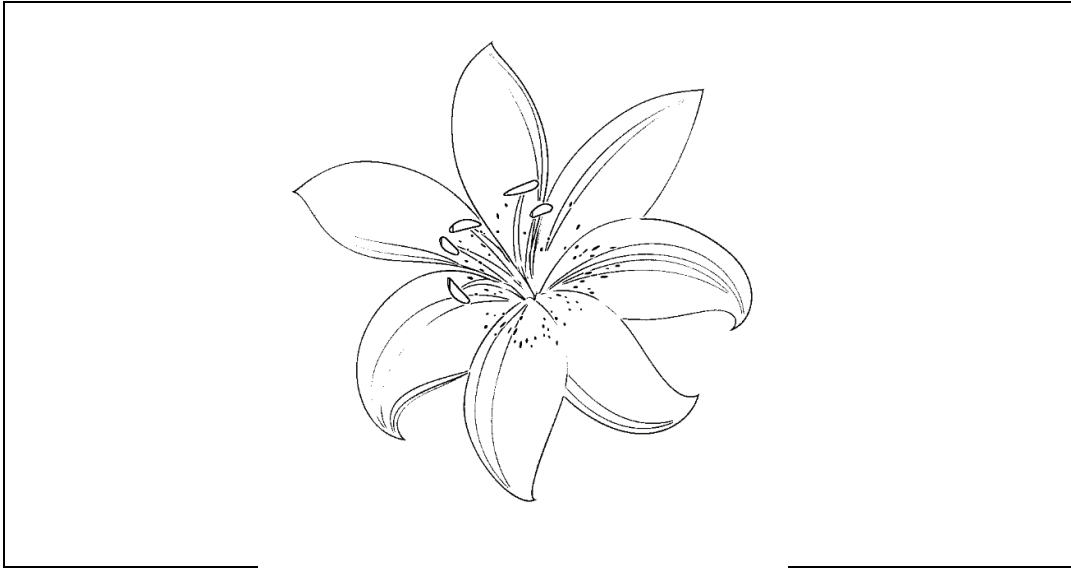
SI. NO.	Verbal/ Visual stimuli	Expected Response
Reception		
Model: a) लड़का और लड़की पढ़ रहे हैं। Point to Picture No. /lʌdʌkəʊrlʌdʌkɪpʌdʌ rʌhehe/		
b) गायके मारने से लड़का गिर गया। Point to Picture No. /gajkəmarne se lʌdʌkagɪrgʌjə/		
1.	कुत्ता बिल्ली का पीछा कर रहा है। /kuttabillɪkəpɪtʃhəkʌrrəhəhe/	Point to Picture No.
2.	मुझे फूल या पत्ती दिखाओ। /mudʒepʰuljəpʌttɪdɪkʰəo/	Point to Picture No.
3.	मुझे पेंसिल की नहीं किताब का चित्र दिखाओ। /mudʒepensilkɪnəhɪkɪtʌb kə tʃɪtrʌdɪkʰəo/	Point to Picture No.
Expression		
Model: a). card _____ पुस्तक और कलम एक मेज़ पर रखे है। /pustʌkɔrkələmekmɛdʒpərrɛkʰehə/		
b). card _____ Point to Picture No. सीता और गीता बात कर रहे हैं। /sɪtʌərgɪtʌbʌt kərrʌhehe/		
Point to Picture No. सीताने बताया कपड़े अच्छे हैं, यह तुम्हें किसने दिए /sɪtʌne bʌtʌjəkʌpʌdɛətʃɛhe, jhʌtumhɛkɪsnɛdɪjə/		
Point to Picture No. गीताने क्या जवाब दिया होगा? (मेरे पापाने मुझे दिया।) /gɪtʌnekjʌdʒʌvʌbdɪjəhoga (/mɛrɛpʌpʌnɛmudʒɛ dɪjə/		
4.	Point to Picture No.	मछली और अंडे प्लेट में रखे है। /mʌtʃɪlɪəʊndɛplɛt mɛrʌkʰehə/
5.	Point to Picture No.	इस बॉक्स/ डब्बे में पेंसिल, रबर, स्केलस भी रखे है। /ɛkbɔksdɪbbɛmɛpensɪl, rʌbər, skɛlsʌbʰihə/
6.	Point to Picture No.	वह गुड़िया के बारे में बातार ही है।

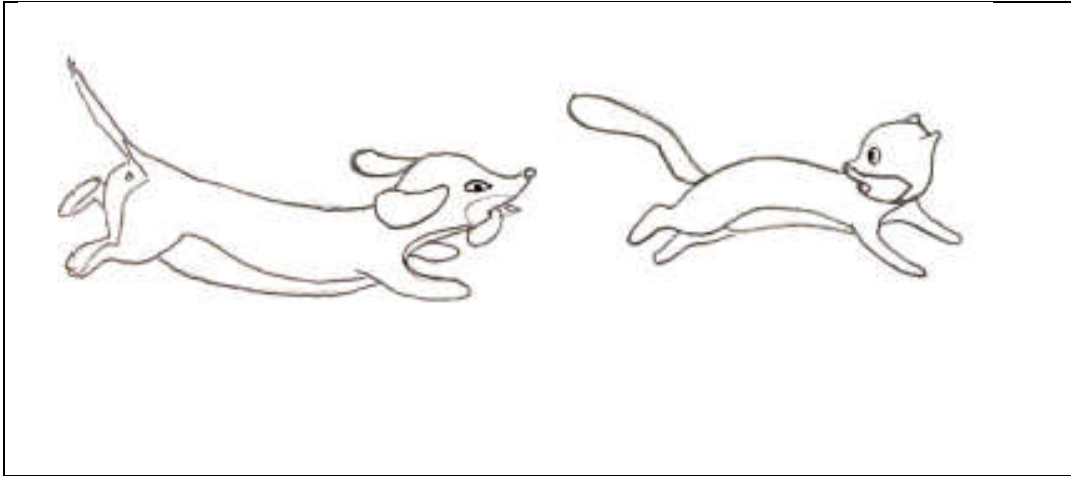
		वहगुडियादिखारहीहै /vʌɡuɖijakebʌɾɛmɛbʌɾʌhiɛ/ vʌʌɡuɖijaɖikʰʌɾəhiɛ/
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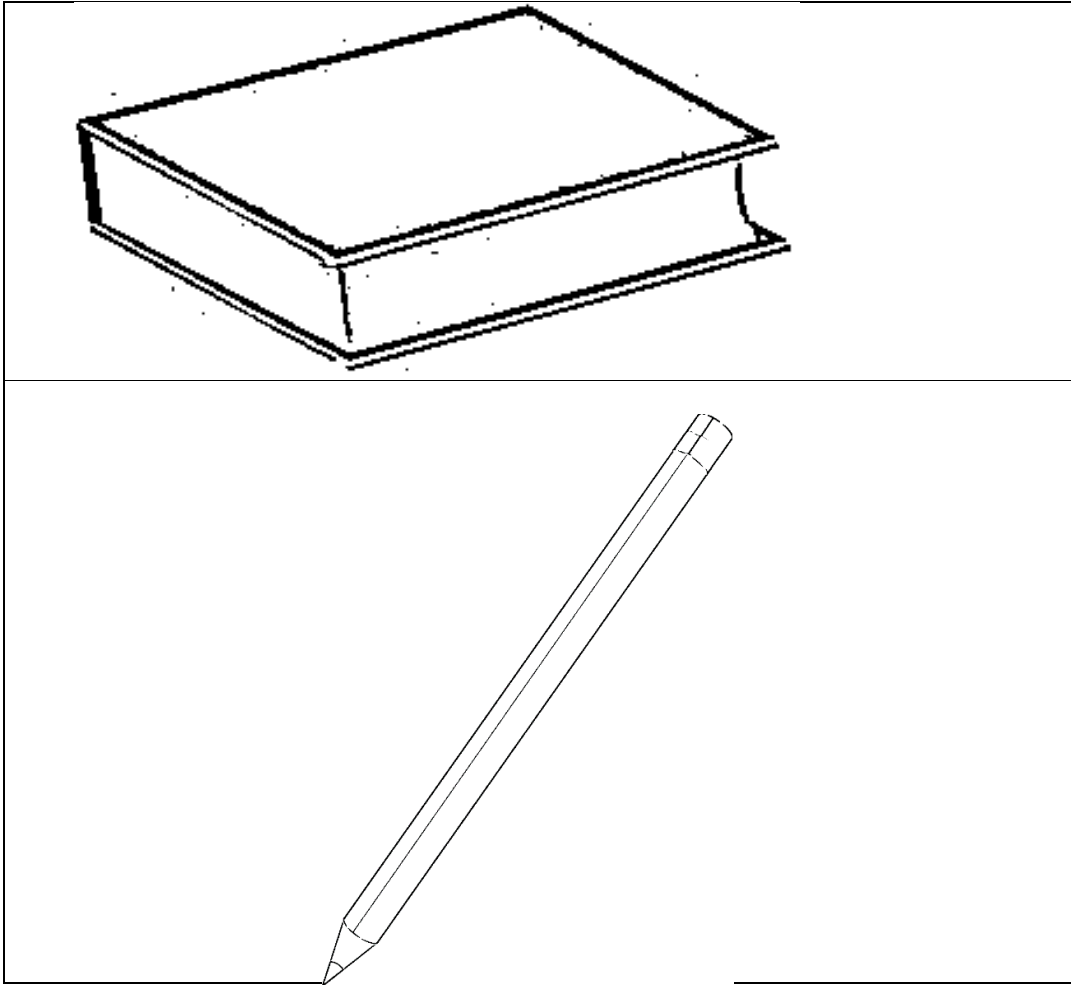


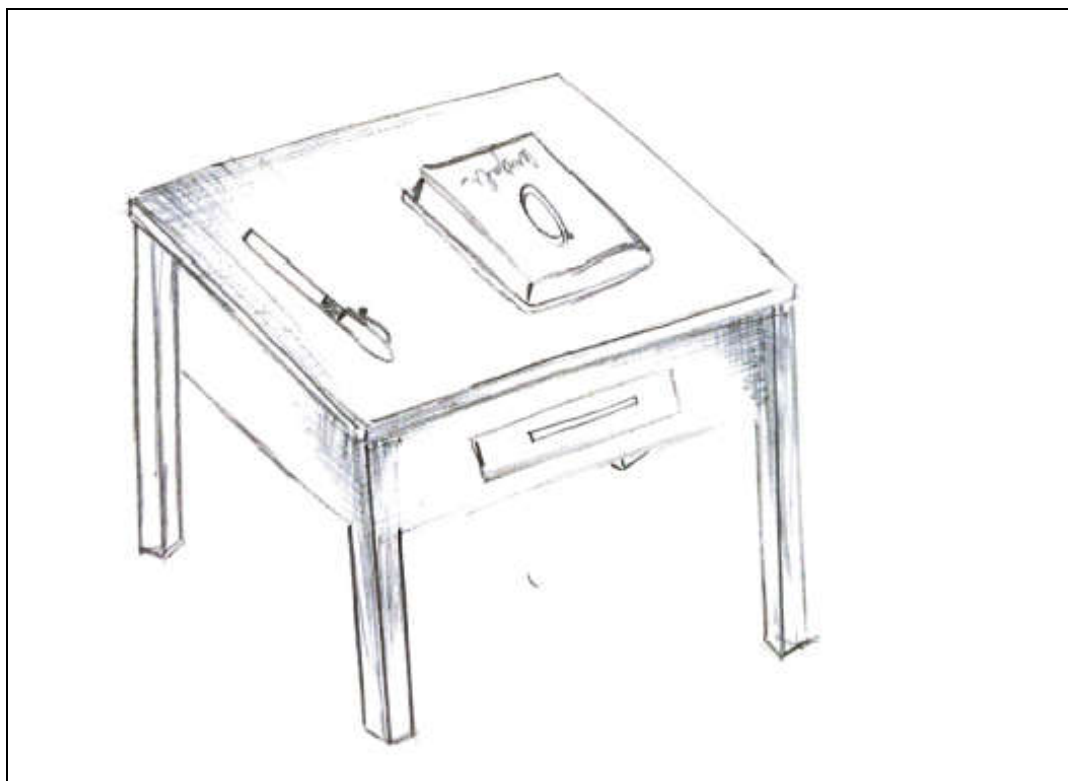


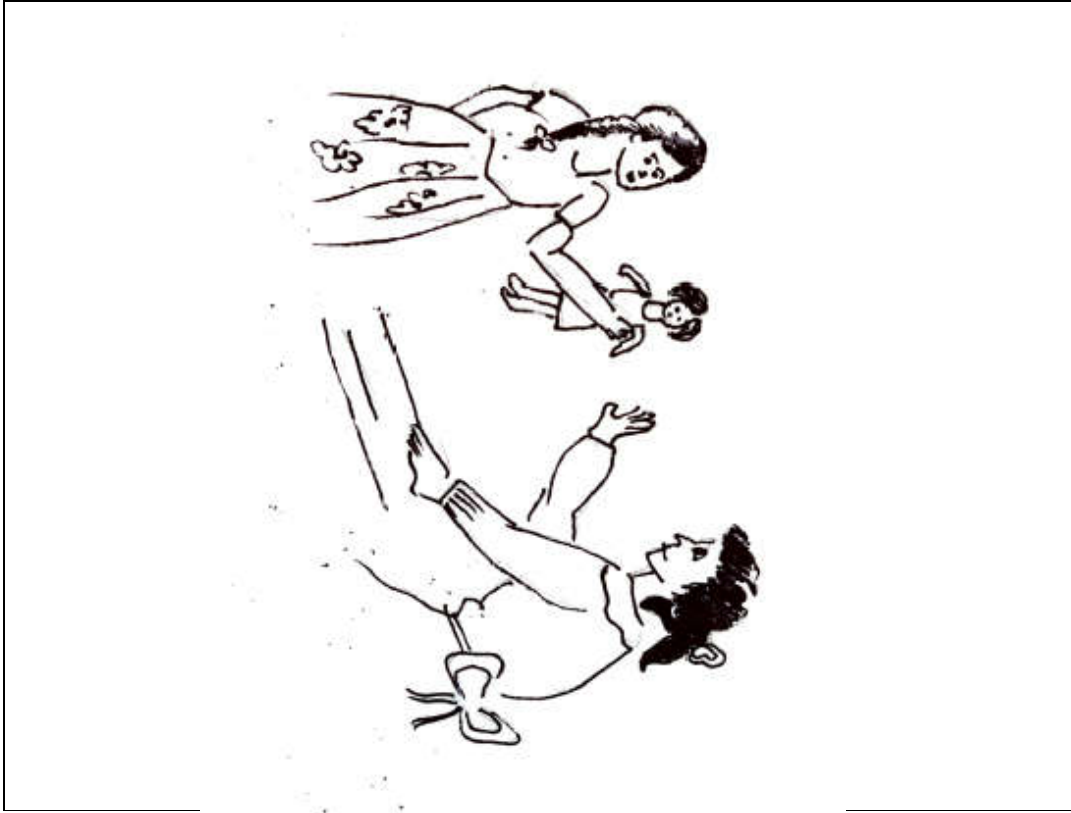


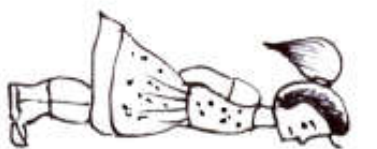


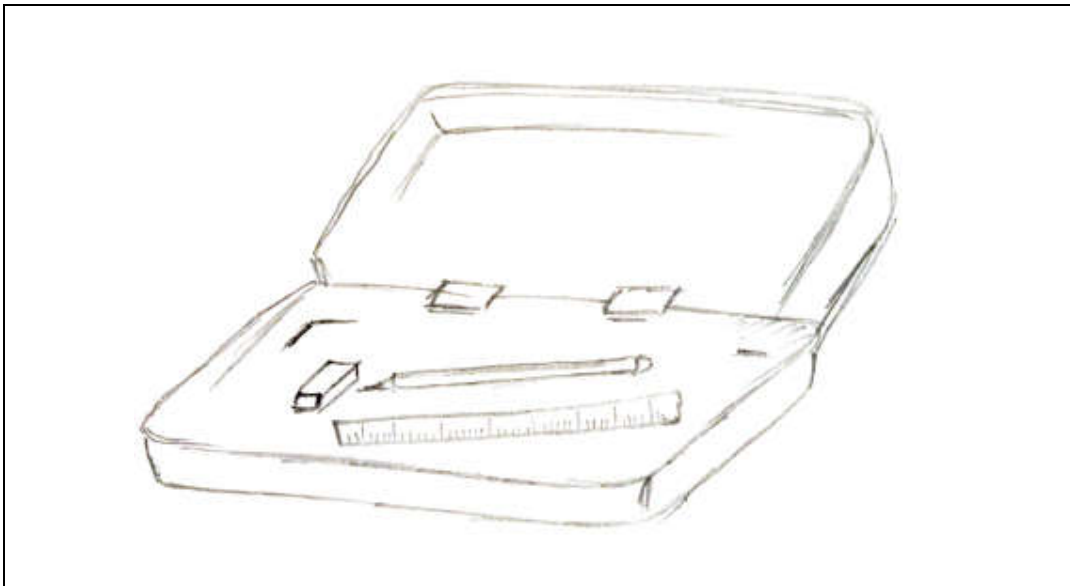
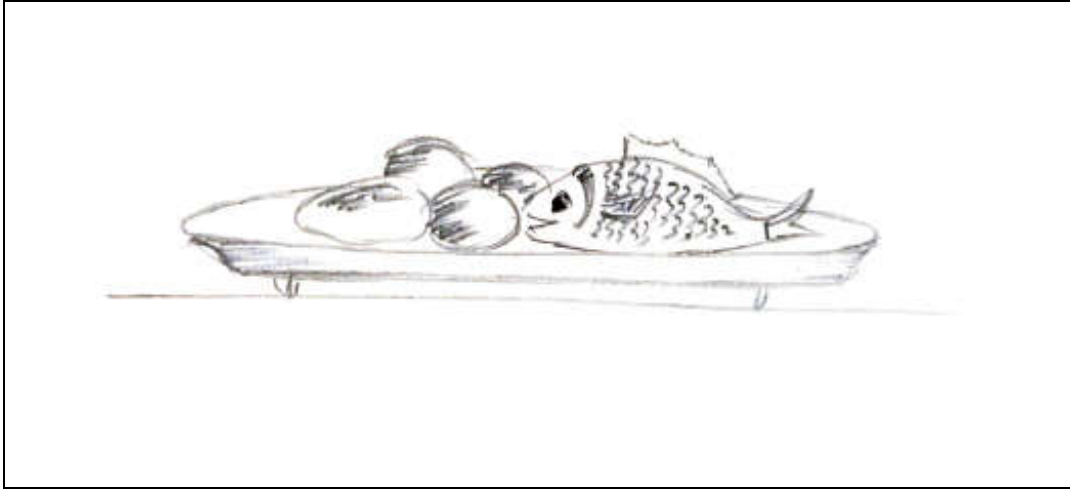












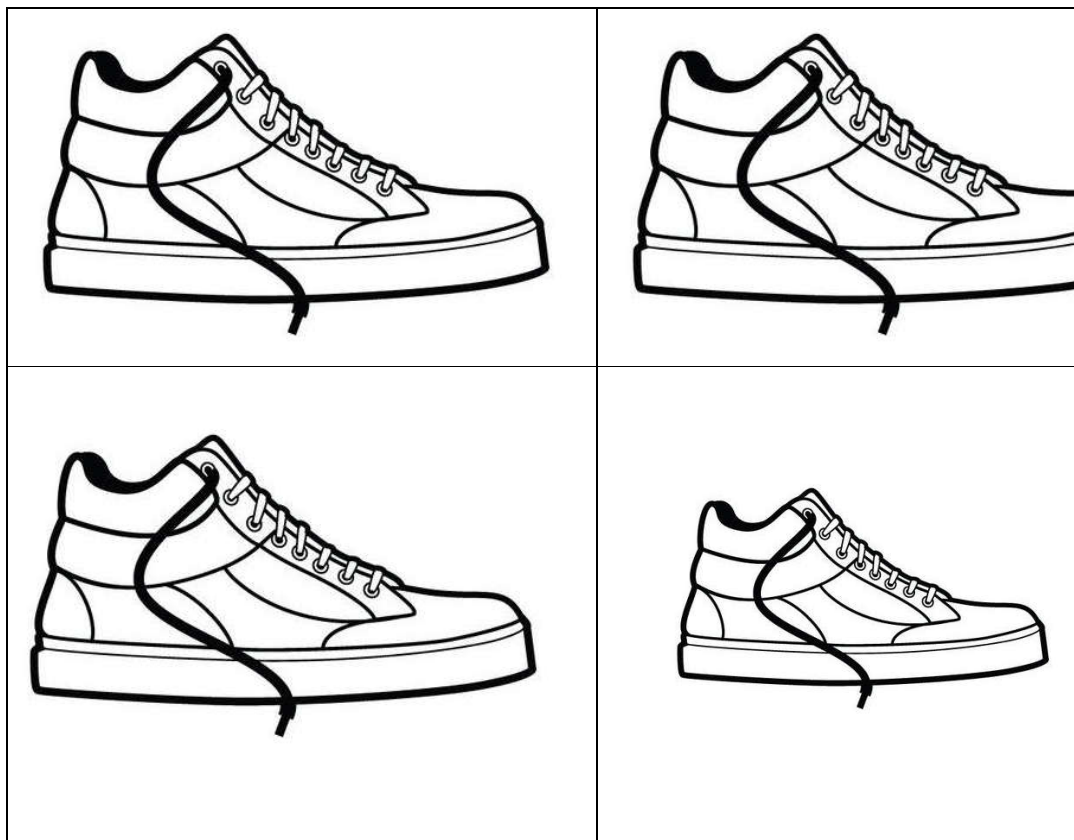
I. Comparatives

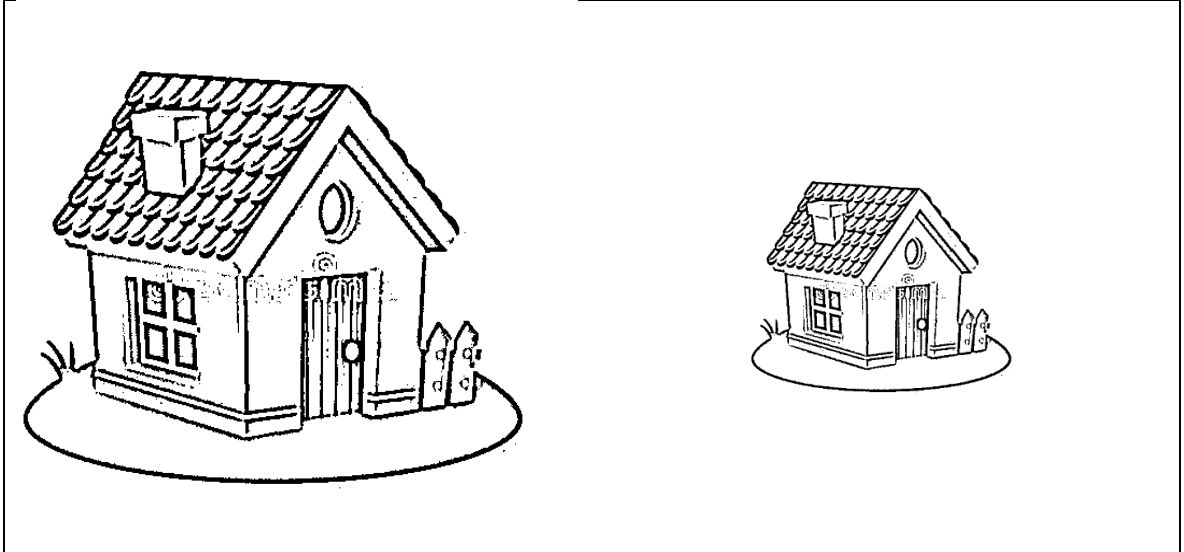
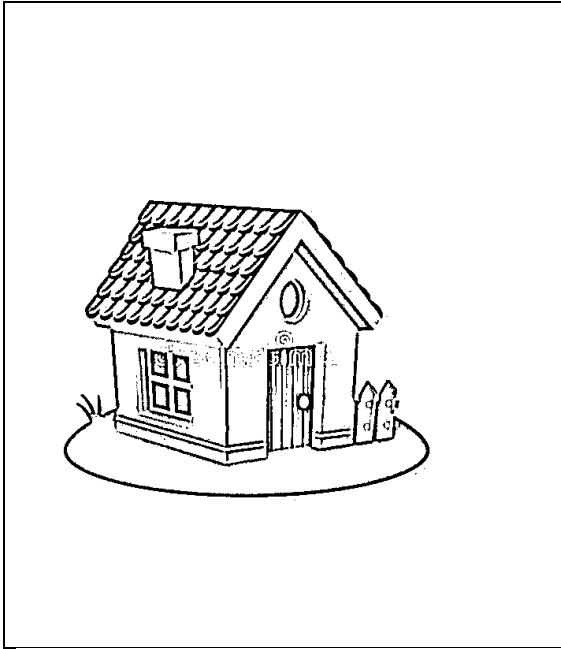
Instructions: Ask the subject to name the picture presented. If he fails to do so, give him phonemic cue. Repeat them once if necessary. Accept correction once. Score

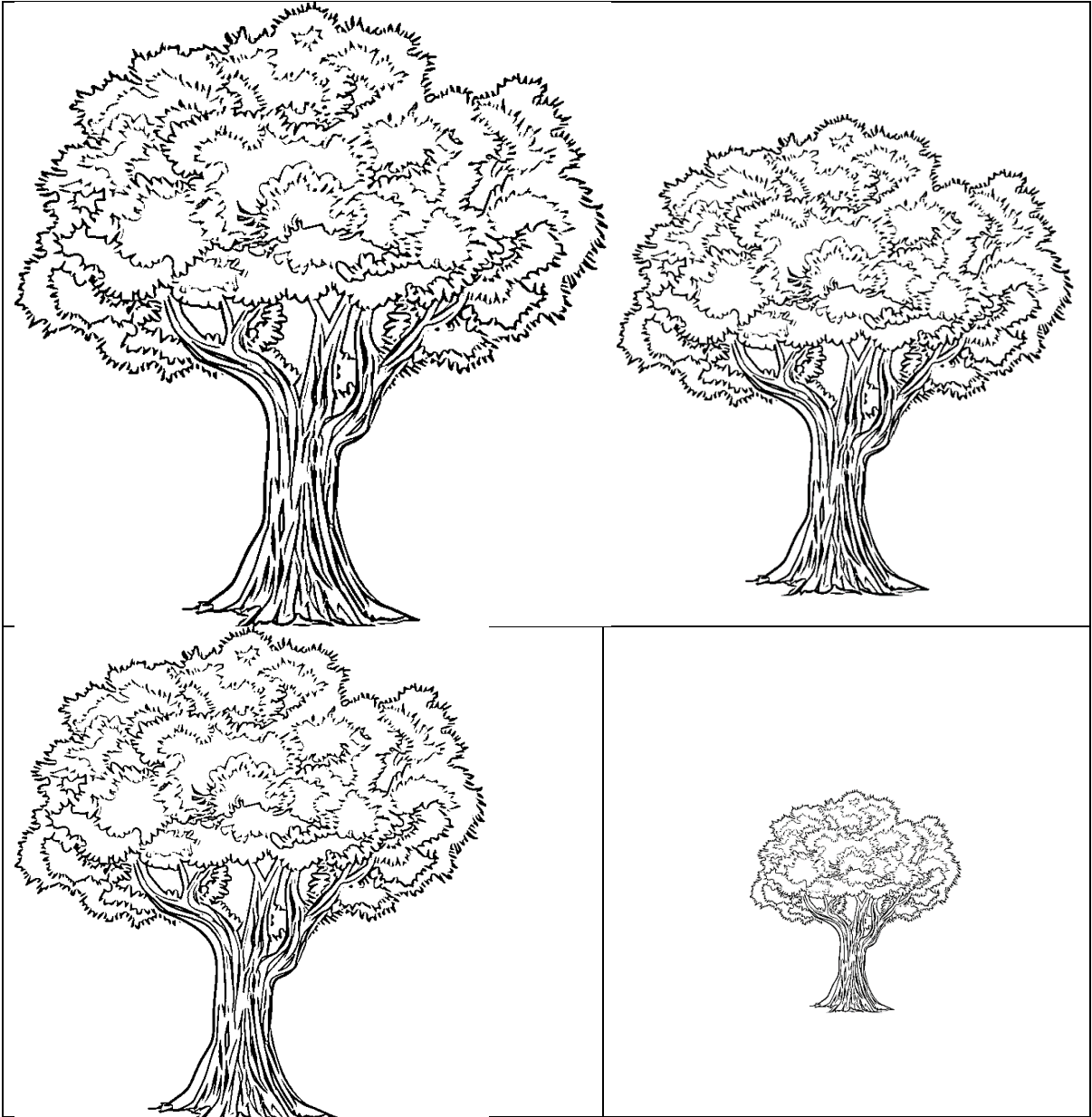
one for each item identified correctly. Score '0.5' if he is able to identify with the phoneme cues. Score '1' for the correct response. Similarly when the clinician will name the picture, he is expected to point at the correct picture.

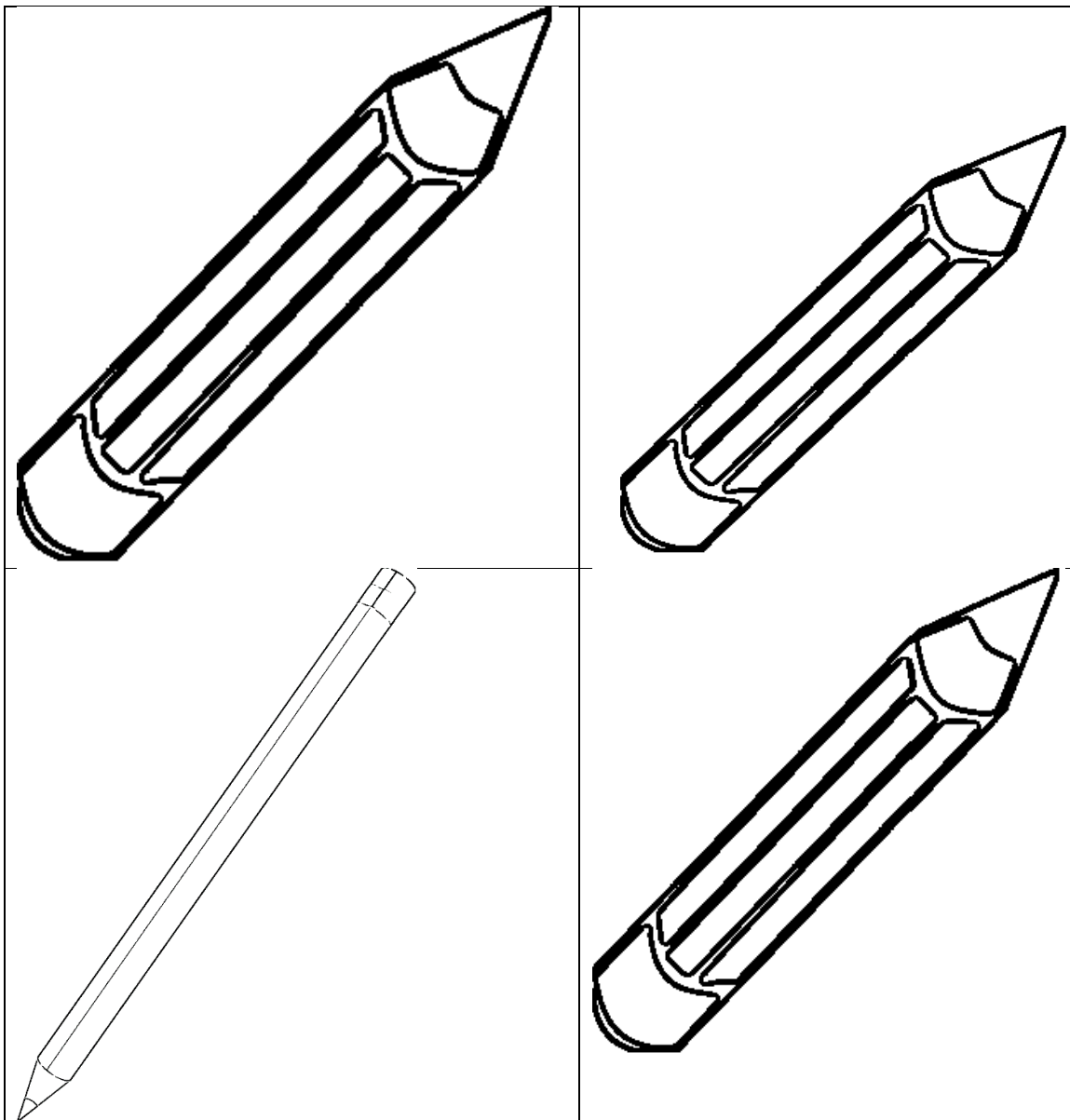
SI. NO.	Verbal/ Visual stimuli	Expected Response
Reception		
Model: a). एकजैसीदिखनेवालीगुड़ियादिखाओ।.....Point to Picture /ɛkdʒisid̪ikʰnevaligud̪ijad̪ikʰao/		
b). point to picture and ask इसमेंकौनसाजूताछोटाहै?.....Point to Picture No. /ismɛkɔnsadʒutɑtʃɔtaɦɛ/		
1.	इसमेंकौनसाघरछोटाहै? /ismɛkɔnsagʰʌR tʃɔtaɦɛ/	Point to Picture No.
2.	इनसबमेंसेसबसेबड़ापेड़कौनसाहै? /inmɛsʌbmɛsɛbʌd̪apɛd̪ kɔnsaɦɛ/	Point to Picture No.
3.	सबसेपतलीपेंसिलकौनसीहै? /sʌbsɛpʌt̪ʌli pɛnsilkɔnsiɦɛ/	Point to Picture No.
Expression		
Model: a). Point to picture and ask यहकैसीहै?.....वहछोटीहै। /jʌhʌ kɔnsiɦɛ ?.....vʌhʌ tʃɔtiɦɛ/		
b). point to picture and ask वह/यहपेड़कैसाहै?.....यह/वहपेड़सबसेबड़ाहै। /jʌhʌ/vʌhʌ pɛd̪ kɛsaɦɛ?.....jʌhʌ/vʌhʌ pɛd̪ sʌbsɛbʌd̪aɦɛ/		
4.	यहपतंगकैसीहै? jʌhʌ pʌtāngkɛsiɦɛ/	यहपतंगएकजैसी/ समानहै। /jʌhʌ pʌtāngɛkdʒʌsisʌman ɦɛ/
5.	यहकारकैसीहै? /jʌhʌ karkɛsiɦɛ/	यहकारइससेबड़ीहै। /jʌhʌ karissɛbʌd̪iɦɛ/
6.	वहलड़काकैसाहै? /vʌhʌ lʌd̪ʌkakɛsaɦɛ/	वह/वोमोटाहै। /vʌhʌ vomoɦɛ/

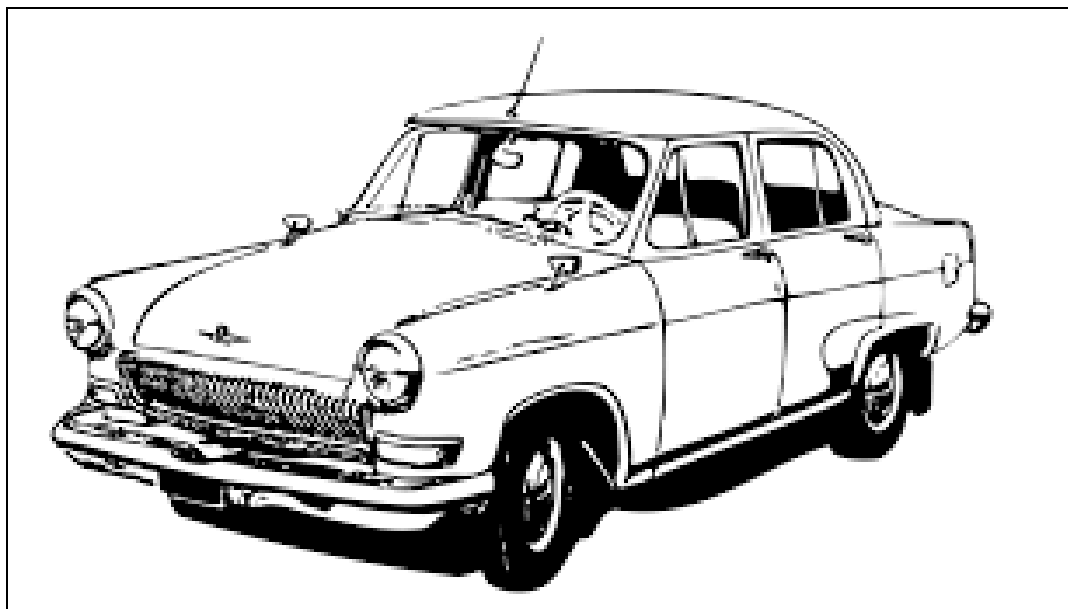


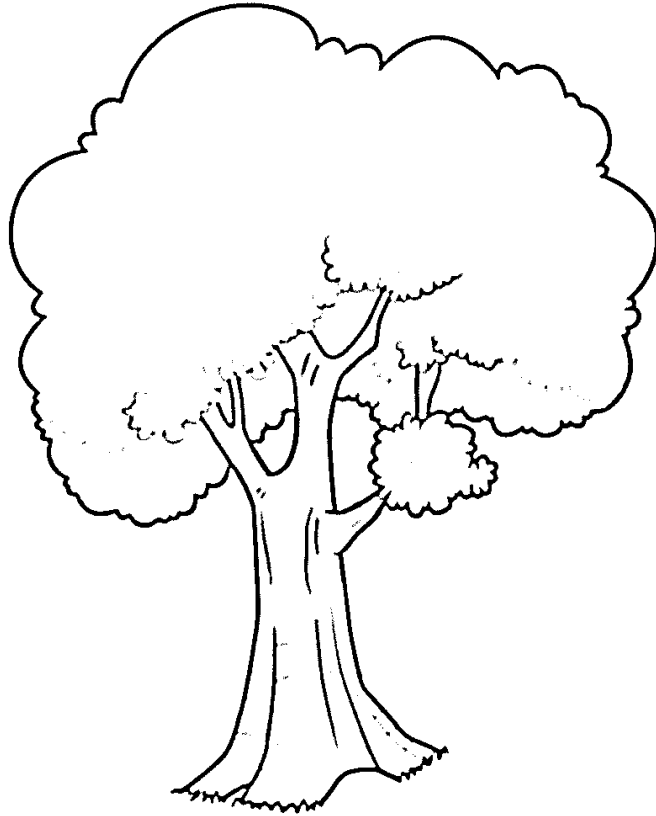
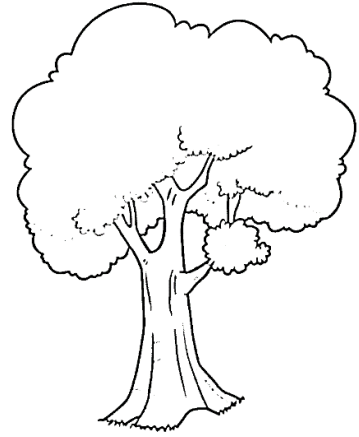
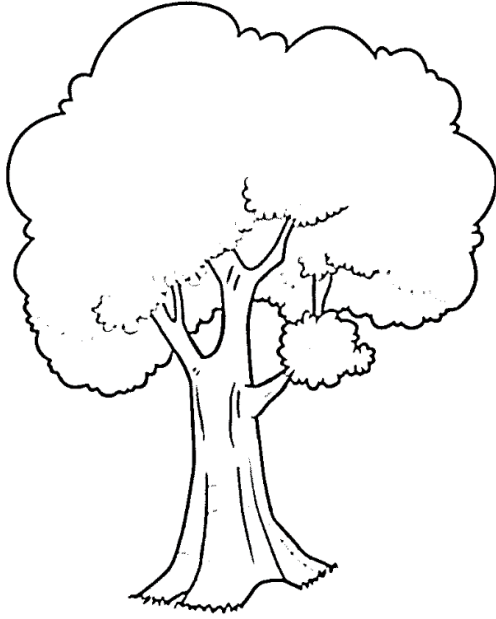


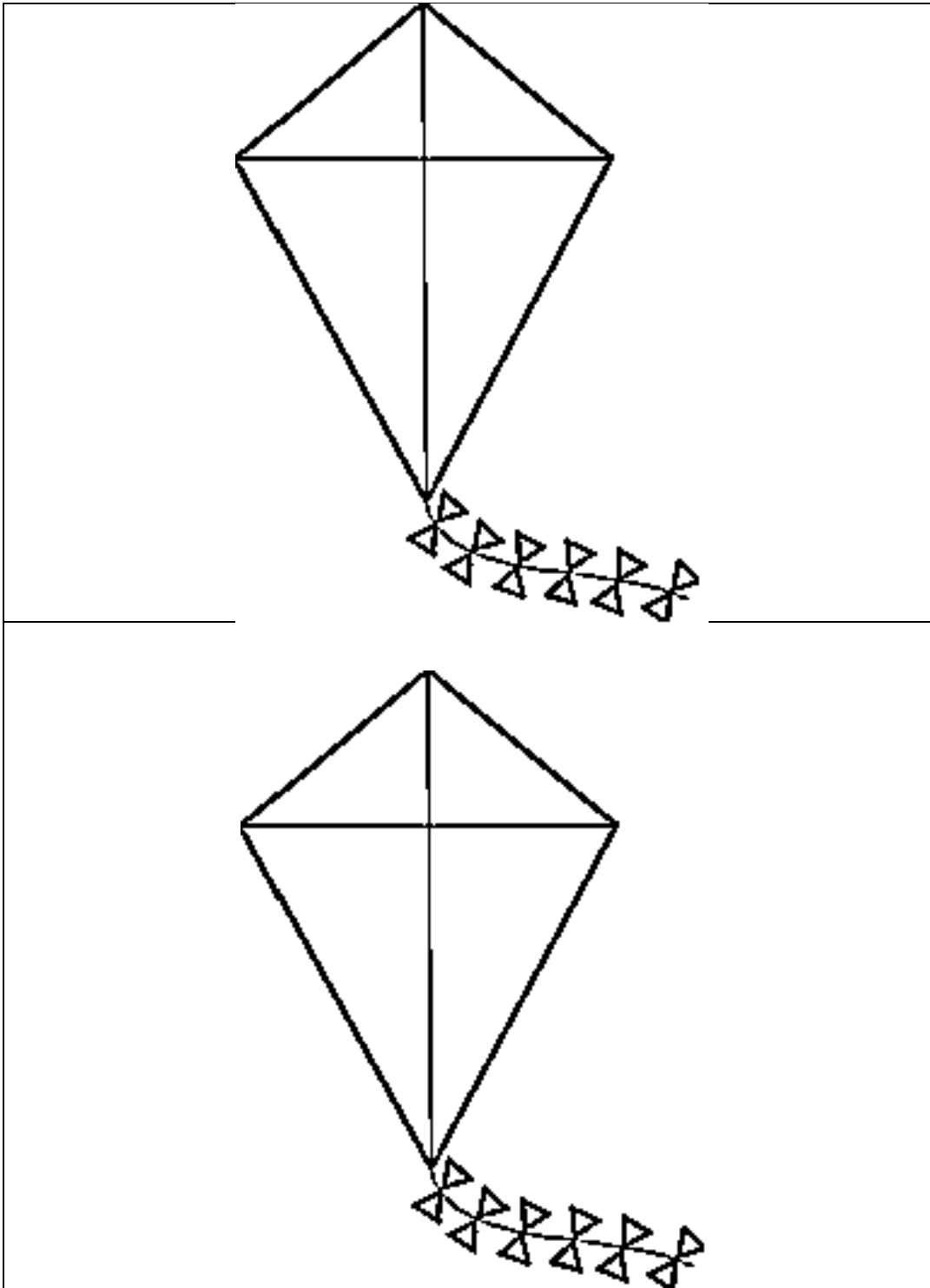




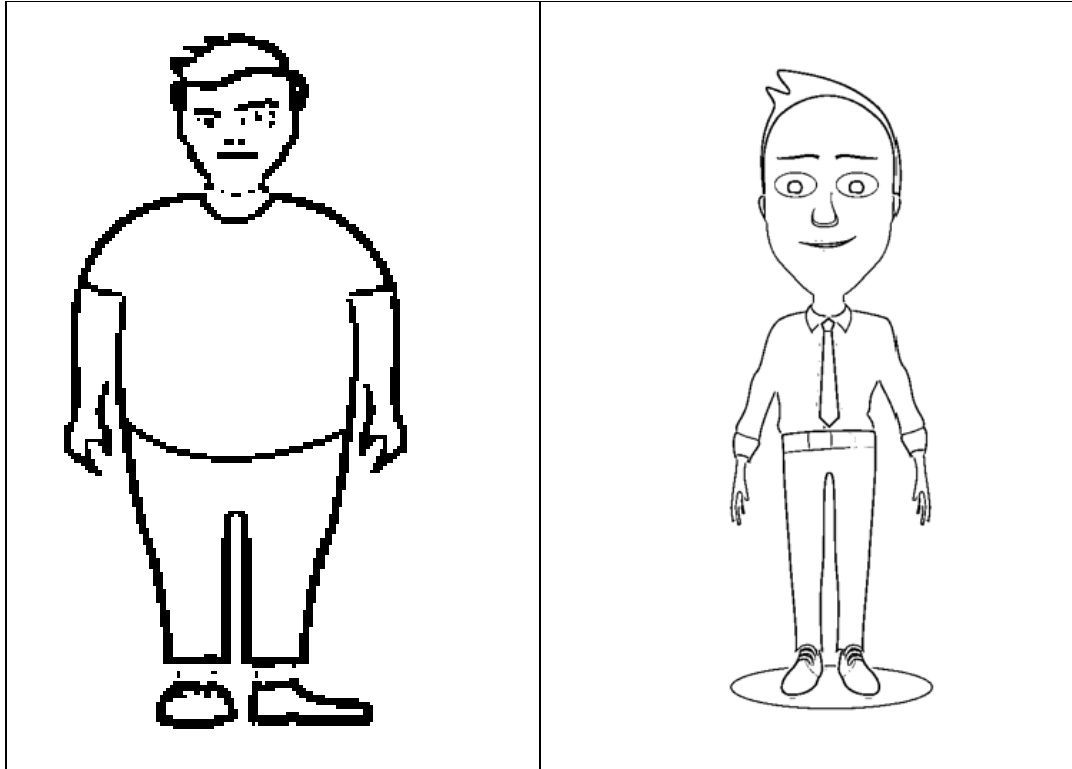












J. Participial Constructions

Instructions: Ask the subject to name the picture presented. If he fails to do so, give him phonemic cue. Repeat them once if necessary. Accept correction once. Score one for each item identified correctly. Score '0.5' if he is able to identify with the phoneme cues. Score '1' for the correct response. Similarly when the clinician will name the picture, he is expected to point at the correct picture.

SI. N O.	Verbal/ Visual stimuli	Expected Response
Reception		
Model: a). वह पढ़ते समय हुए पानी पी रही है।.....Point to Picture No. /vʌhʌ pʌdʰɛsəmljhuɛpənɪpɪrəhɪhɛ/ b). Card ____ - क्या ये वही स्कूल है, जिसमें आप पढ़ते हैं।.....नहीं /kjaɛvʌhɪskulhɛ, dʒɪsmɛappɾdʌtɛhɛ/		
1.	वह खाना खाते समय पढ़ रहा है। /vʌhʌ kʰʌnəkʰʌtɛsəmljɾdʰrəhəhɛ/	Point to Picture No.
2.	Card ____ क्या यह वही जूता है जिसे आप पहनते हैं? /kjaɛjʌhʌvʌhɪdʒɪtʌhɛdʒɪsɛappɛhʌnɛR ʌhɪtɛhɛ/	नहीं /nahi/
3.	क्या यह वही पेसिल है जिसे आप लिखने के लिए इस्ते माल करते हैं। /kjaɛjʌhʌvʌhɪpɛnsɪlhɛdʒɪsɛ ap lɪkʰnɛkɛlɪjɛɪstʌmʌlkʌɾtɛhɛ/	हाँ /ha/
Expression		
Model: a). card ____ - वह सुनते हुए लिख/पढ़ रही है। /vʌhʌsunʌtɛhuɛlɪkʰɾdʰrəhɪhɛ/ b). card ____ - वह अपने दांत ब्रश करके पानी पीयेगा। /vʌhʌpɾnɛdʌt bɾʌʃkʌrkepanɪpɪjɛgɛ/		
4.	Card No.	चढ़ते समय वह गिर गया। /tʃʌdʰtɛsəmljvʌhɪgɪrgɪjə/
5.	Card No.	वह चलते समय आइस क्रीम खारही है। /vʌhʌtʃʌlʰtɛsəmljʌɪskrɪmkʰa rɛhɪhɛ/
6.	Card No.	लड़का पढ़ने के बाद सो गया.

		/ l^d^ka rld^nekebađ so g^ja/
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