WORD RETRIEVAL MANUAL: HINDI APHASICS

(WORM: HA)

Reg. No: L0480012

Master's Dissertation as a part of fulfillment of Final Year Masters in Science (Speech-Language Pathology),
Submitted to the University of Mysore.

ALL INDIA INSTITUTE OF SPEECH AND HEARING,
Mysore - 570006
May, 2006

Dedicated To,

आई, बाबा,

आणि

दादा

CERTIFICATE

This is to certify that this master's dissertation entitled **"Word Retrieval Manual: Hindi Aphasics (WORM: HA)"** is the bonafide work done in part fulfillment of the degree of Master of Science (Speech-Language Pathology) of the student with **Reg. No.: L0480012.** 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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CERTIFICATE

This is to certify that this master's dissertation entitled **"Word Retrieval Manual: Hindi Aphasics (WORM: HA)"** has been prepared under my supervision and guidance. It also certified that this has not been submitted in any other university for the award of any diploma or degree.

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DECLARATION

This is to certify that this Master's Dissertation entitled **"Word Retrieval, Manual: Hindi Aphasics (WORM: HA)"** is the result of my own study and has not been submitted earlier at any University for any other Diploma or Degree.

Mysore

May, 2006 **Reg. No. L0480012. j**

ACKNOWLEDGEMENTS

/ would like to extend my heartful gratitude to my guide Dr .S. P. ***Goswami sir,*** *for his guidance throughout this dissertation. Thank u sir for showing acceptance, approval, & appreciation. These are all gifts that always I will remember.*

I thank to ***Prof. M. Jayaram, director,*** *All India Institute of Speech and Hearing, Mysore, for permitting me to carryout this study.*

I am grateful to my lecturer, ***Prof. K. C. Shyamala*** *in language disorder.*

I would like to thank ***Dr. Pushpavathi mam*** *for her encouraging comments and complements.*

I would like to thank my ***entire lecturer*** *during my bachelor.*

I am grateful to my ***parents*** *whose watchful eye, unconditional love & constant encouragement, made me the person I am today*

I am grateful to my ***Dada, Jayashritai, Seematai****.....it's your blessings & prayers which has made me reach where I am today.*

I thankful to ***Neelu Somani,for*** *always showing me the way.*

I am thankful to my athletics& gymnastic coach ***Anna Kane****.....The kind of challenges you had made me face, you gave me motivation to pursue the best, & to reject the common place.*

I am thankful to my classmate, friend, guide & philosopher ***Anuroopa...*** *Thank you for believing in me when I found it difficult to believe in myself... for saying what I've needed*

to hear sometimes, instead of what I've wanted to hear... for siding with me... and for giving me another side to consider. I couldn 't have done without your invaluable support.

***Ravi** & **Shiva,** through ups and downs, you have always stood for me. Survival here would have been impossible without you people.*

Thank you for putting so much thought and care and imagination into our friendship.....for sharing so many nice times and making so many special memories with me. I will memories u till my last breath. I will miss u.

*I am thankful to **Rajat** being my senior, friend, and brother.....you brightened my days.*

Thanks for your help & moral support.

*I would like to thank **Amit** & **Venkat** for U R constant support &Help.*

***Sonal,** thanks a lot for those fun filled moments' & your moral support.*

***Baba, Noor** & **sanjay.** u people added the colors to my hostel life. I will miss u lot.*

***Marti** & tessy, you people have always been beside me sharing my happy and sad moments.*

All classmate, you have made my life easier at AIISH. Thank you all so much and the fun, which I had with u people, is never forgettable, i will miss you all and all the best for your bright

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Chapter 1

INTRODUCTION

The ability to refer to objects by names may be at the root of human language development, in phylogeny as well as in ontogeny, (Terrace, 1985). Yet naming is a relatively straight forward cognitive operation, whose outlines are well understood. Naming uses only a limited number of cognitive processing stages and the nature of these stages are fairly well known.

Naming problems are a core symptom of aphasia, and all persons with aphasia have naming problems. Different site of lesion responsible for these problems may differ among aphasia syndromes and even within an aphasic individual, but their prevalence and affect on communication make them a natural target for treatment.

Word retrieval failure can stem from either phonologic or semantic stages of lexical processing; it is of interest to examine whether treatments that target purported stages of lexical dysfunction have greater influence on word retrieval recovery.

As investigation of word retrieval impairment have moved their focus from nouns to verbs. Some recent treatment investigations have been influenced by cognitive neuropsychological models that recognize that word retrieval, involves complex series of processes and representations. Researchers generally acknowledge that word retrieval of familiar words requires, at a minimum, semantic and phonologic lexical mechanism whereby word meanings and corresponding spoken forms is activated for familiar words.

Various therapy techniques have been devised over the years for the treatment of specific impairments in the parameters of language.

There are number of manuals available in western context as well as in Indian context most of them are not treatment specific oriented. In Indian Richa, (2004) and Venugopal (2005) developed a Manual for Adult Non-Fluent aphasia Therapy in Hindi and Kannada respectively.

NEED FOR THE STUDY

The vast ethno cultural and language factors make it possible to apply these therapy materials directly in clinical situation, not substantial work has been done in Indian context. There is a dearth of training material in Indian languages. Thus the present manual in Hindi is an attempt to develop remediation strategies of word retrieval deficit in all aphasics which can provide readymade material to the clinician and caregivers.

AIM

To develop a treatment manual for word retrieval deficits in Hindi speaking aphasics.

Chapter-2

REVIEW OF LITERATURE

Impairment of word retrieval and production are a common and distressing feature of aphasia and much clinical time is devoted at attempts their remediation. Lexical retrieval problem are pervasive in aphasia and are important focus of treatment.

Howard and Hatfield (1987) gave historical review of approaches to the treatment of aphasia. These included surgical, pharmacological (e.g. crocodile grease) and behavioral treatments. However, the vast majority of treatments over the past 100 years have been behaviorally based. Although many treatments have been demonstrated to positively impact on lexical retrieval in aphasia.

Behavioral approaches take many forms, and can be divided into those that aim to rehabilitate the impaired process(es) and those that attempt to provide an alternative mechanism to achieve a goal (such as successful word production) using processes not normally implicated. (Nickels, 2002)

"Aphasia" refers to a family of clinically diverse disorders that affect the ability to communicate by oral or written language, or both, following brain damage. (Harold & Goodglass, 1987)

Finding words is the most common problem with aphasia, and it is manifested through writing as well as speech. The same aphasic person also had problems comprehending as well as listening. Moreover, the modalities are not impaired equally, and there is a typical pattern of comparative deficit. Aphasic people nearly

always comprehend better than they talk or write and reading-writing skills are usually more impaired than auditory-speech skills (Basso & Vignoco, 1978; Duffy & Ulrich, 1976; Schuell & Jenkins, 1967; Smith, 1976).

Wepman, Jones, Bock and Pest (1960) suggested that aphasia occur "in the arousal of a meaningful state, in the semantic process of word sensation, or in the syntactic processes".

Disorders of Word Retrieval:

"Naming" is a discrete language function than can be selectively damaged by certain focal lesions. Anomia, or impaired access to one's vocabulary, is virtually universal in aphasia. Anomia or difficulty in naming things, objects and person is a basic problem.

Clinical observations of aphasic patients have revealed a treasure prove of phenomena that in different ways reflect disorders in the retrieval of the names of objects and other concepts. Recovered aphasic patients have often reported that they wanted to say, but had difficulty finding the right word for it. When they could think of the right word, they tried hard to some how get that word activated. Some patients show such struggle in their face that one gets the impression that they are trying to literally squeeze the word out of their exhausted brain.

An aphasic patient who cannot find a word may be able to talk about it in the fashion of beating around the bush. A wrong response, dredged out after much effort, can persist even when the patient realizes the mistake. A patient, who said "hat" when

shown the picture of a house, went on like this, "Hat, shucks, no Hat". Then he gave up in frustration and dismay. This positive symptom is called the circumlocution (As cited in Davis, 2000).

"I know what I want to say", I just can't think of the words". All of us experience having a word on the lip of our tongue, but for someone with aphasia, saying any word at any time can be like reaching for a distant fruit on a tree. Anomia (also dysnomia) is a broad term for the problem of finding words, and it is the most consistent feature of aphasia (As cited in Davis 2000).

Thus in brief it can be stated that patient with aphasia exhibit a varying degrees of deficits depending upon the site and extent of lesion. But poor naming ability is most common feature seen in almost all aphasics.

CLASSIFICATION OF NAMING DEFICITS:

Benson (1976) has provided an attractive clinical classification of naming deficit, like Geschwind (1967); he differentiated aphasic anomia from the naming deficits associated with generalized cortical dysfunction and severe mental illness. Unlike Geschwind, however, who distinguished only two types of aphasic anomia. Benson (1976) divided aphasic misnaming into six types.

1) Word production anomia
2) Word selection anomia
3) Semantic anomia
4) Category specific anomia

5) Modality specific anomia
6) Limited anomia

CLINICAL FORMS OF ANOMIA:

In describing the symptomology of anomia, it is indispensable to define the various error types that commonly appear in aphasia speech.

Paraphasia:

Collectively, the term "paraphasia" is applied to any unintended error of word or sound choice. Paraphasia is a word substitution problem. It is found frequently and grammatically. But the words they cannot remember are easily substituted with wrong or unusual words. Paraphasias are produced unintentionally and patient may be surprised upon hearing these mistakes.

Paraphasia differ according to the linguistic relationship between the intended word and the error, without circumlocutions or clear context, the patients target can be difficult to identify during conversation. Types of paraphasia are revealed best when clinician already knows the targeted words. Therefore, we ask patients to name objects, repeat words, or read word aloud.

Paraphasia are divided into two broad categories.

1) A real word is substituted for another called lexical error.
2) Or a non word is produced, called sub lexical errors (Dell, Schwartz, Martin & Saffron, 1997).

In general description it has been indicated by usual terminology i.e.

a. Verbal paraphasia

b. Neologism

a) Verbal Paraphasia: The entire word is substituted. These are of two types:

Semantic Paraphasia: The substituted word is similar in meaning to the one intended.

E.g.: Son for daughter

Random Paraphasia: Substituted and intended words are not semantically similar.

b) Neologistic Paraphasia: The use of a meaningless invented word.

Paraphasias are generally absent in automatic speech. E.g. exclamations, cursing, number series etc.

Perseveration: Perseveration is one of the most common behavioral disorders with aphasia. The term refers to the inappropriate continuation recurrences of an earlier response after the task requirement has change.

In aphasia perseveration manifests in three forms:

a) Stuck in set variety: Inappropriate maintenance of a category or framework of response.

b) Continuous variety: Inappropriate prolongation or continuation of behaviour without cessation.

c) Recurrent variety: Inappropriate occurrence of a previous response following the intervening presentation of new stimulus. E.g. Naming consecutive colours.

Brown for brown Pink for pink Brown for blue

In all the three variety of perseveration, recurrent perseveration is most frequently seen in aphasia. For the treatment of perseveration, the treatment of aphasic perseveration (TAP) program was developed by Helm-Estabrooks, Emery and Albert (1987).

Aphasia manifests different language symptoms and syndromes as a result of where in the language-dominant hemisphere damage has occurred.

Aphasic individuals almost uniformly have some difficulty in using the substantive words of their native language. Most experts in aphasia recognize that aphasia varies along two major dimensions: auditory comprehension ability and fluency of speech output. In reality, aphasic behaviors vary greatly from individual to individual, and fluctuate in a given individual as a result of fatigue and other factors. In addition, largely in relationship to lesion size, aphasias differ in overall severity.

TREATMENT OF **NAMING:**

The foregoing reviews confirm that aphasic-naming problems can differ and that some differences may be predicted from the type of aphasia the patient has. Naming may fail either because of impaired access to intact semantic networks, as in

patient with Broca's aphasia, or because the networks themselves are impaired, as in many patients with Wernicke's aphasia. At the extremes of a therapeutic continuum for remediating these deficits, clinician can select simple facilitation approach in which correct names are merely elicited usually by client of the clinician's creative stimulus selection and caring, or they can select a more didactic approach in which the patient's knowledge about words and how to evoke them with self cueing enhanced.

In simple facilitation, clinicians choose the stimuli, usually high frequency of occurrence and manipulate the timing order form such as objects, pictures, or written words. Mode of stimulus presentation, usually auditory, visual or auditory-visual so that the speaker's success is nearly guaranteed. The right combination is repeated so that each treated response is elicited several times within and across sessions. Such treatment is especially appropriate for acutely aphasic persons (Rosenbek & Wertz, 1987).

Didactic Approach:

Didactic approaches differ slightly or substantially, depending on how far along the treatment continuum they are. Clinicians select the stimuli and manipulate timing, order, form and mode of presentation. The emphasis, however, is less on the number of correct responses and more on teaching the patient self-cueing and how to cope with errors. A didactic approach is most useful with chronically aphasic persons (Rosenbek & Wertz, 1987).

Didactic approaches have a greater chance of helping anomic speakers regain stable word finding that does simple facilitation, especially if (1) these speakers have only mild or moderate aphasic residuals, (2) anomia is a major symptom, and (3) they want to improve and work hard for improvement.

Cueing Hierarchies in Naming Treatment:

Cueing hierarchies to improve naming abound because the systematic presentation of orderly array of cues is at the heart of aphasia treatment, especially for impaired naming, regardless of whether the practitioner believes in facilitation or in didacticism. Some cues appear in more than one hierarchy, although not necessarily always in the same place.

NINE STEP DIAGNOSTIC HIERARCHY IN NAMING TREATMENT:

Brown (1972) organized nine cueing conditions into a hierarchy based on his assumption that there are several stages in the naming of an object.

Hierarchy as Follows:

1) Responsive using functional ("It is used for sharing") or descriptive ("It has a metal blade") statements.

2) Embedding, in which a word is embedded in a sentence ("You use a_____ for shaving")

3) Synonyms and antonyms

4) Rhyming words

5) Spelling the word

6) Open ended sentences where the target word is to go at the end of the sentence ("you shave with a_____").

7) Automatic completions ("A straight - edge").

8) Phonemic cues (re/ or? r/)

9) Repetition

Hierarchy of Six Cues: Pease & Goodglass (1978) gave six hierarchical cues:

(1) Providing the first sound or sound combination

(2) Providing a super ordinate ("Animal" to cue as a "dog")

(3) Providing an environmental context or location of the target.

(4) Providing a rhyming word

(5) Providing a statement of function

(6) Providing a sentence completion cue

Step involves organized way from most to least facilitating based.

Step one: First sound or sound combination

Step two: Sentence completion

Step three: Rhyme

Step Four: Super ordinate, function, location

Hierarchy of Four Cues:

Love & Webb (1977) - reported four hierarchical cues on the picture naming through:

1) Imitation
2) Initial sound and sound combination
3) Sentence completion
4) Reading

Specific Approaches to the Remediation of Word Retrieval:

Treatment of word-production/retrieval impairment aims to facilitate naming by reorganizing the processes utilized, such that intact processes are used to compensate for or support the impaired processes (Howard & Patterson, 1989).

Common to most of these approaches is the use of knowledge of the written form of a word to help retrieve the spoken form.

One of the most widely used methods for utilizing orthographic knowledge rests on the fact that some individuals who have word-retrieval impairments benefit from phonemic cues (Bruce & Howard, 1987).

Facilitation, Repair & Reteaching Approaches:

A number of different tasks have been shown to be effective in the remediation of word-retrieval/production impairments (Hillis & Caramazza, 1994) they can produce durable effects, which can carry over into connected speech and conversation

(Best & Howard, 2000). It can be administered by clinician and / or computer and can be obtained on verbs as well as the more commonly treated nouns (Raymer & Ellsworth, 2002).

A widely accepted current hypothesis is that each different level of breakdown in word production will be best enhanced by a different type of treatment (Hillis & Caramazza, 1994) for e.g. a word-finding difficulty can be treated by focusing on meaning (e.g. matching a word to one of a choice of picture), whereas a problem retrieving the sounds of a word (phonology) will require a treatment focusing on word sounds (e.g. repeating a spoken word) Nettleton & Lesser, 1991.

Therapy for Semantic Impairment:

Semantic task as a Therapy:

Semantic tasks are not restricted in their use to those individuals who have semantic impairments. Indeed there is some evidence that semantic tasks can improve word production even for those individuals with good semantic processing and even when the tasks are performed accurately (Nickels & Best, 1996). The aim of this therapy is to develop impaired semantic processing and word retrieval in the absence of (severe) semantic impairment.

Tasks: Selecting the "odd man out" of a set of pictures from the same semantic category and or

- Word-picture matching.

- Matching a spoken or written word to one of a set of semantically related pictures. These tasks widely used in the remediation of word-retrieval impairments.

Therapy for Phonological Impairments:

"Phonological tasks" range from repetition of the target, phonological (and orthographic) cueing of picture naming, tasks involving phonological judgements such as rhyme judgement, syllable and phoneme counting and phoneme segmentation to tasks combining orthography and phonology using reading, anagrams. In much the same way as with semantic tasks, many of these have been used to facilitate word retrieval and not exclusively in individual with phonological impairment.

Phonological tasks have been widely argued to be the most appropriate for impairments in retrieval of (or damage to) the phonological form from the phonological output lexicon (Nettleton & Lesser, 1991) argue that as these tasks focus at the level of activation of individual entries in the phonological output lexicon, their effects should be item-specific result of "priming" retrieval of the phonological form (Millis & Caramazza, 1996).

Other Tasks and Word Retrieval:

Word Retrieval treatment involving phonological, orthographic and semantic tasks. Semantic tasks generally involved matching words or definition to pictures, or categorizing pictures themselves.

Yet, another task may also be tapping these same processes. Rose & Douglas (2002) investigated the efficacy of gesture using both iconic gesture (which can be thought of as another semantic task) and cued articulation (which systematically maps onto phonology in a similar way to letter-sound correspondences). Similarly, drawing can be perceived as a semantic task and has been used as part of some of the treatments described earlier (Hillis, 1992, 1998).

To improve naming, Basso (1978) used a variety of cueing hierarchies, rapid, repetitive stimulation; and quick movement up and down the appropriate hierarchy.

Other kinds of Programs:

Not all programs are constructed around a kind of therapeutic Jacob's ladder; although an ordering of something - stimuli, amount of cueing, amount of independence. Characterizes most program features hierarchies less ands other principles auditory stimulation, deblocking, priming, multi modality stimulation.

SORRT (semantic, oppositional, rhyming, and retrieval training): Logue & Dixon (1979) were among the very few to assign their naming program an acronym. SORRT stands for semantic, oppositional and rhyming retrieval training. The program began with listening.

In Step 1: The patient is faced with word pair that rhymes words, synonyms or antonyms. The patient has to indicate what each pair is.

Step 2: The patient makes similar judgement about paired visual stimuli.

A Computer Program:

Colby, Christinas & Parkinson (1981) have published a computer program for anomic patients. It is based on the tip of the tongue phenomenon. "The general approaches" are:

1) To store as a database a lexical - semantic memory in which content and relation approximates the patient's lexical memory.
2) To heuristically search this memory using clues the patient supplies about the target word. Patient's abilities to read, write and make associations are measured prior to the programs initiations are measured prior to the program's initiations, and the program requires that they have considerable facility with all three.

SUMMARY

Word finding difficulties are a ubiquitous feature of aphasia. It is therefore encouraging that in recent years a large number of studies have been published showing that therapy can be effective in improving these (see Nickels 2002 for a review). However, a limitation of these studies is that they fail to look at word retrieval in conversation. Instead, for the most part, effectiveness is measured by looking at improvement on tests of picture naming following therapy. Whilst picture naming is a reliable and sensitive measure of word finding ability, it is open to criticism on the grounds of limited functionality (Lesser & Algar, 1995).

Chapter-3

METHOD

This manual is based on general principles and guidelines reported in the literature for word retrieval deficits in aphasics. Intervention strategies were reviewed from books, journals, Internet sites and other possible sources.

The treatment tasks were divided under two broad categories

- Level I
- Level **II**

Level I: Task of maximal performance (Cronbach, 1970)

Performance task were designed to assess what a person can do under the conditions represented by the testing situations.

Level II: Speed task

Speed task refers to the ability of an individual to name as many items as possible in one minute (Heaton, Grant, & Matthews, 1992: Spreen & Straus, 1991).

Performance Task

1. **Repetition Naming:** Repetition is to determine, if patient can repeat word or phoneme.

   E.g.: Repeat letter 'P' or Repeat word 'Duck'.

2. **Category Naming:**
    - *Semantic Category:* classifying on the basis of generalized idea of class of objects. E.g.: Animal, Fruits, Body parts.
    - *Perceptual category:* sensory quality of stimulus. E.g.: Shape, Size.

3. **Confrontation Naming:** By representing objects, action, events and relationship or pictures. E.g.: can you name this picture object?

4. **Responsive Naming:** It refers to a task where in the patient provides a substantive word in response to contextually related questions.E.g. What colour is snow? Task also helps to retrieval of other word categories such as action words and nouns.

5. **Automatic Closure Naming:** The capacity to complete a closed ended sentences or phrase such as "The sky is_____" (Blue).

Speed Task

1. **Automatic Serial Naming:** Recitation of over learned material. E.g.: Days, Months, Counting.
2. **Verbal Fluency:** The word fluency task involves producing a number of words to single stimulus. Two types of word fluency tasks include producing words

starting with a letter and a lexical category (Denton & Spreen, 1967). E.g. Phoneme Fluency and semantic fluency respectively.

- Different tasks were categorized keeping in mind different symptoms of aphasics, i.e., in anterior aphasics stress was given equally to speed and performance task while in posterior aphasics more emphasis was given to performance tasks.
- Stimuli used were line drawing pictures, objects, written form material.
- Pictures were taken from Internet sites and a professional artist to depict the training material drew few.
- The pictures were tested for ambiguity.
- Stimuli were arranged in hierarchy, keeping in mind the level of word retrieval in aphasics.

Visual Material	**Verbal Material**
Real Objects	Content Words
Line Drawing Pictures	Noun
Words, Letters	Adjective
	'Verb
	Function Words

Total numbers of tokens were ranged from 12 to 20 in different section. Performance criteria or progression criteria are 25%, 50%, 75% cutoff.

Progression criterion

Level 1:25%

Level 2: 50%

Level 3: 75%

- Progression criteria for each level of activity is given at the below of each subsection.
- Hindi speaking SLP's were judged the training material for its familiarity and semanticity. Daily used vocabulary and sentences were chosen as the training material.

Scoring:

The responses will be scored as correct or incorrect responses.

'0' score will be allotted for incorrect response and '1' for every correct response.

The scoring sheet was designed for keeping the record of patient's responses.

Chapter-4

ABOUT WORM: HA

WORM: HA consists of two main sections

1) Performance task
2) Speed task

PERFORMANCE TASK:

Aims to enable the aphasic patient to retrieve the words as many as possible through various sub-tasks. Under performance task there are five sub-tasks, which are ordered hierarchically. These sub-tasks are:

/. ***Repetition naming (RA):*** It consists of three levels

(i)Level-l: Includes repetition of syllables and words. A total of 12 items, with 6 token for each syllable and word repetition.

(ii) Level-2: includes repetition of phrases. A total 4 token

(iii)Level-3: includes repetition of phrases. Total 4 token

//. ***Category Naming*** *(CAN):* It consist of two main categories Category

1) Semantic category (class of object)
2) Perceptual category (shape & size)

Semantic category: it consists of 14-sub category. Those are: Daily object, body parts, furniture, clothes, fruits, vegetables, colors, professionals, kitchen objects, animals, vehicles, birds, electronic items, tools.

Total number of tokens range from 8 to 20 in each section.

Perceptual category: Consists of shapes and sizes, total no. of tokens are **14**

///. ***Confrontation naming (CON):*** It consists of namely object or picture naming. It consists of 32 tokens.

IV. Responsive naming (REN): It is task, which provides a substantive word in response to contextually, related questions. No. of token in this task are 20.

V. Automatic closure naming (CAN): It refers to complete close-ended sentences or phrase. Total no. of tokens in this category are 20.

SPEED TASK:

This aims to improve the reaction time of the aphasic patient on given task. Speed task has two sub-sections.

/. ***Automatic serial naming:*** It includes retrieval of over learned behavior.

E.g. tell the no's, or alphabets

//. ***Verbal fluency:*** It includes two types of fluency tasks namely semantic and phonemic fluency.

(a) Semantic fluency consists of within category and remote category fluency. It has three stages namely stage-1, stage-2 and stage-3.

(b) Phoneme fluency: It consists producing the words starting with specified syllable.

E.g. tell the word that starts with syllable /Pa/. It has three stages namely stage-1, stage-2 and stage-3.

CUEING HIERARCHIES

i. Named with visual cues
ii. Named with phonemic cues
iii. Named with fill in cues
iv. Named without any cues

PROGRESSION CRITERION

Performance task begins with repetition naming. The activity of repetition has different level. When the patient scores 25% at first level, move to the next level.

- Level 1: 25%
- Level 2: 50%
- Level 3: 75%

In category naming if patient achieves 25% criteria move towards next level and more number of picture can be added.

Note: Within category progression criteria should be 50 % (E.g. Within the category of animals two sub-categories like wild and domestic animals, subject should have 50% of performance in one category following which the other can be taken up).

Speed task begins with automatic serial naming.

Instructions are provided for each task separately.

SCORING:

The responses will be scored as correct or incorrect responses.

'0' score will be allotted for incorrect response and ' 1' for every correct response.

SCORING SHEET

The score sheet was designed for the clinician use.

It enables the clinician to document the patient's responses.

S.No.	Correct Response	No Response	Attempted
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

PERFORMANCE TASK

I. REPETITIVE NAMING

Instruction for different levels

Level 1 - Request the patient to repeat syllable and words.

Level 2 - Request the patient to repeat phrases.

Level 3 - Request the patient to repeat sentences.

Scoring

0 - No score

1 - Intelligible response

Progression criteria

Level 1 - 25%

Level 2 - 50%

Level 3 - 75%

Level 1

अक्षर दोहराओ		शब्द दोहराओ	
प	द	पानी /pa:ni/	दादी /dadi/
ब	त	बकरी /bʌkʌri/	ताला /ta:la/
म	ड	माता /mata:/	डाकू /dʌku:/

Level 2

पानी दो | pa:ni° d̪o:| खाना दो | kha:na d̪o:|

ताला खोलो |ʈʌlʌ kʰo:lo:| बॉल दो | bɔl d̪o:|

Level 3

लड़का पानी पी रहा है । ||ʌɖka pa:ni° pi: ɾʌha hai°|

लड़की सो रही है । ||ʌɖki° pa:ni° pi: ɾʌhi° hai°|

लड़का पढ़ रहा है । | ʌɖkʌ pa:d̪h ɾaha hai°|

मैने खाना खाया । | meine kha:na kha:ʈa|

II. CATEGORY NAMING

General instructions: Show the pictures to the patient one by one and ask, - *What is this?*

Scoring:

0 - No score

1 - Intelligible response

Specific instructions and Progression criteria for each category:

Level 1 - Request the patient to name the picture

Level 2 - Request the patient to name at least five pictures

Level 3 - Request the patient to name at least ten pictures

Level 1 - 25%

Level 2 - 50%

Level 3 - 75%

(a) Semantic category (class of objects)

(1)	Daily objects	(2)	Body Parts
(3)	Furniture	(4)	Clothes
(5)	Fruits	(6)	Vegetables
(7)	Colors	(8)	Professionals
(9)	Kitchen objects	(10)	Animals - Domestic Wild
(11)	Vehicles	(12)	Birds
(13)	Electronic items	(14)	Tools

1. Daily objects

(1)	ताला / ʈa:la/	(2)	कंघी | kʌ̃ŋghi |
(3)	घड़ी | ghʌdi: |	(4)	चप्पल | ca:ppa:l |
(5)	किताब | kiʈa:b |	(6)	कप | kʌp |
(7)	कुर्सी | kursi |	(8)	आईना | aĩ:na |
(9)	झाड़ू | ja:dũ |	(10)	साबून | sʌbũn |
(11)	पेन्सिल | pencil |	(12)	कॅलेंडर | kalendʌr |

2. Body Parts

(1) कान |ka:n|
(2) नाक |na:k|
(3) आँख |ã:kʰ|
(4) होंठ |hõ:thˌ|
(5) हाथ |ha:tʰˌ|
(6) पैर |peir|
(7) पेट |pe:t|
(8) मुँह |mũh|
(9) सिर /sir/
(10) बाल |ba:l|
(11) दाँत |dˌã:tˌ|
(12) नाखून |na:kʰũn|
(13) अंगूठा |ãŋgũthˌa|
(14) उँगली |ũŋgli|

Furniture

(1) कुर्सी |kursi|
(2) मेज़ |me:z|
(3) बेड |be:d|
(4) पेटी |pe:tĩ|
(5) खिडकी |khiˌdki|
(6) दरवाज़ा |dˌʌrva:za|
(7) पलंग |pʌlʌŋg|
(8) स्टूल |stu:l|

Clothes

(1) पैंट |pɛ̃t|
(2) शर्ट |ʃʌrt|
(3) टोपी |tõpi|
(4) मोजा |moj ʌ|
(5) धोती |dho:tˌi|
(6) कुर्ता |kurtˌa:|
(7) जॅकेट |jɔket|
(8) हाथमोजा |hatʰˌmoj ʌ|
(9) साड़ी |sa:diˌ|
(10) ब्लाउज |blʌʊj:|
(11) फॉल |frɔk|
(12) स्कर्ट |skʌrt|
(13) बनियान |bani:jan|
(14) हॉफ पेन्ट

5. Fruits

(1) आम /a:m/ (2) केला /kela/

(3) अँगूर /ãgu:r/ (4) सेब /seb/

(5) अनानस /ʌnʌnʌs/ (6) सीताफल /si:t̪aphʌl/

(7) अमरूद /ʌmru:d̪/ (8) चीकू /cĭku/

(9) पपीता /pʌpi:t̪a/ (10) मोसंबी /mosʌbĭ/

(11) संतरा /sʌnt̪ara/ (12) जामून /jamu:n/

(13) कटहल /kʌthʌl/ (14) अनार /ʌnɑ:r/

(15) इमली /ĭmʌlĭ/

6. Vegetables

(1) आलू /a:lu/ (2) पालक /pa:lʌk/

(3) बैंगन /beĭgʌn/ (4) मुली /mu:lĭ/

(5) शिमला मिर्च /ʃimlamirc/ (6) प्याज /pja:z/

(7) चुकंदर /cukʌnd̪ʌr/ (8) गाजर /ga:jʌr/

(9) भेंडी /bhemdĭ/ (10) कद्दू /kʌd̪d̪u/

(11) टमाटर /ʈʌmaʈʌr/ (12) मिर्च /mĭrc/

(13) मटर /mʌʈʌr/ (14) नींबू /nĭmbu/

(15) तोरई /toraĭ:/ (16) अदरक /ʌd̪rʌk/

(17) शलजम /sʌlʃʌm/

7. Colours

(1) काला |ka:la:|
(2) नीला |ni:la|
(3) हरा |hʌra:|
(4) पीला | pi:la|
(5) सफ़ेद |sʌfe:d|
(6) गुलाबी |gula:bi|
(7) केसरिया |kesʌrija|
(8) जामुनी |ja:muni|
(9) लाल |la:l|
(10) भूरा |bʰu:ra|
(11) बैंगनी |beingni|
(12) आसमानी |a:smani|

8. Professionals

(1) डाक्टर /daktʌr/
(2) नर्स /nʌrs/
(3) शिक्षिका /siksikʌ/
(4) पुलिस /pulis/
(5) कार्पेंटर /karpentʌr/
(6) सिपाही /sipʰi:/
(7) दर्जी /darji/
(8) पोस्टमैन /postmɔn/
(9) मिस्त्री /mistri:/
(10) ड्रायवर /drʌijʌr/
(11) मोची /mochi:/
(12) नाई /nʌi:/
(13) किसान /ki:sʌn/
(14) पुजारी /pujʌri/

9. Kitchen items

(1) चम्मच | cʌmmʌc|
(2) कढ़ाई | kʌdʰa:i:|
(3) थाली | tʰa:li°|
(4) कुकर | ku:kʌr|
(5) कप | kʌp|
(6) चाकू | cʌku:|
(7) मिक्सर | miksʌr|
(8) माचीस | ma:ci:s|
(9) कटोरी | kʌtori°|
(10) घड़ा | gʰʌdʌ|
(11) बेलन | belʌn|
(12) मग | mng|
(13) ग्लास | gla:s|
(14) बकेट | bʌket|
(15) प्लेट | ple:t|

10. Animals (a) Domestic
(b) Wild

Animals- Domestic

(1) कुत्ता | kuṭṭa|
(2) बिल्ली | bi°ḷi°|
(3) गाय | ga:j|
(4) भैंस | bʰei:s|
(5) बकरी | bʌkri:|
(6) घोड़ा | gʰo:da:|
(7) ऊँट | u:nt|
(8) गधा | gʌdʰa:|
(9) भेड | bʰedʌ|
(10) खरगोश | kʰʌrgo:sh|
(11) चूहा | cu:ha:|
(12) कछुआ | kʌchua:|

Animals - Wild

(1) शेर | she:r|
(2) बंदर | bãdar|
(3) बाघ | bagh|
(4) हाथी | hathi:|
(5) हिरन | hiran|
(6) भालू | bhalu:|
(7) लोमड़ी | lomdi|
(8) जिराफ़ | jiraf|
(9) साँप | samp|
(10) सियार | siya:r|

11. Vehicles

(1) साईकिल | sai:kal|
(2) स्कूटर | sku:tar|
(3) हवाई जहाज | havaijahaj|
(4) नाँव | nav|
(5) रेल गाड़ी | relgadi|
(6) कार | kar|
(7) बस | BAS|
(8) ऑटो | ato|
(9) टांगा | tangal|
(10) ट्रैक्टर | traktar|
(11) बैल गाड़ी | Be:lgadi|
(12) हेलीकाप्टर | helikaptar|
(13) जीप | ji:p|
(14) ट्रक | trak|
(15) रिक्शा | rikshal|

12. Birds

(1) तोता | to:tʌ| (2) मोर | mor|

(3) उल्लू | ullu:| (4) मैना | meina|

(5) चिड़िया | chi:diyʌ| (6) हंस | hɔ̃s|

(7) चिल | chil| (8) कबूतर | kbu:tar|

(9) बगुला | bagula| (10) मुर्गी | murgi:|

(11) बतख | bʌttakh| (12) कौवाँ | kʌuvʌ|

13. Electronic items

(1) टेलीविज़न | telivijʌn| (2) रेडियो | redio|

(3) कंप्यूटर | kʌmpu:tʌ| (4) टार्च | ta:rch|

(5) मिक्सर | mi:ksʌr| (6) टेप रिकार्डर | tep re:kʌrdʌR|

(7) कैमेरा | kemera:| (8) फ़ैन / पंखा | pa:ŋ khʌ|

(9) रिफ्रिजिरेटर | rifrifiretar| (10) लाईट / बल्ब | bʌlba|

(11) घड़ी | ghadi:| (12) लैंप | lamp|

(13) इस्त्री | i:stri| (14) वाशिंग मशीन | vʌshiŋ mashin|

(15) फोन | phon|

14. Tools

(1) हथौडा /hɔtʰɔ̃ɽa:/ (2) कैंची /kɛ̃ĩci̥/

(3) कुल्हाडी /kulha:ɖi̥/ (4) चिमटा /ci̥:mʌtɑ:/

(5) चाकू /cʌku:/ (6) खुरपी /kʰʊ̃rpi̥:/

(7) पेंचकस /pɛckʌs/ (8) आरी /ʌ:ri̥:/

(9) फावड़ा /pʰɑ̃vɽa/ (10) हल /hʌl/

(11) खिला /kʰi̥lɑ/ (12) कुदाल /kʊ̃dal/

(b) Geometrical figures (Shapes)

गोल /go:la:/ त्रिकोण /triko:ɳ/

चौका /caukʌ/ आयत /a:ja:tʌ/

ओवल /ovʌl/ षट्कोण /ʃʌtko:ɳ/

अर्धगोल /ʌrdʰgo:lʌ/ विंदु /bi̥ɳdu/

(c) Size

छोटा x बड़ा Big x small - /chɔ̃:tʌ/ /bʌdʌ/

पतला x मोटा /pʌtʌlʌ/ /mo:tʌ/

लंबा x छोटा /ʃa:ɳbʌ/ /chɔ̃:tʌ/

III. CONFRONTATION NAMING

Note: Use the tokens as listed in category naming

By presenting picture and objects (if any) provide the following instruction for different levels and follow the progression criteria

Level 1: Should be able to name minimum 5items out of twenty token (25%)

Level 2: Should be able to name minimum 10 items out of twenty token (50%)

Level-3: Should be able to name minimum 15items out of twenty token (75%)

Scoring:

0 - No score

1 - Intelligible response

Body Parts			
हाथ	नाक	कान	पैर
Fruits			
आम	केला	सेब	अनानस
Animals			
कुत्ता	बिल्ली	घोडा	बकरी
शेर	खरगोश	बंदर	हाथी
Furniture			
मेज	कुर्सी	अलमारी	दरवाज़ा
Kitchen items			
चम्मच	कढ़ाई	थाली	कप

Clothes

पैंट	शर्ट	टोपी	पायजामा

Electronic Items

टी वी	रेडियो	फैन	घडी

IV. RESPONSIVE NAMING

Present the stimuli and provide the following instruction for different levels and follow the progression criteria

Level 1: Should be able to name minimum 5items out of twenty token (25%)

Level 2: Should be able to name minimum 10 items out of twenty token (50%)

Level-3: Should be able to name minimum 15items out of twenty token (75%)

Scoring:

0 - No score

1 - Intelligible response

1. आपको क्या अच्छा लगता है ? कॉफी / चाय
| ʌpko kɔ ʌ:chhʌ lagata hai |

2. आपको कौनसा फल अच्छा लगता है ?
| ʌpko kaunsʌ phʌl ʌ:chhʌ lagata hai |

3. कौनसा रंग आपको अच्छा लगता है ?
| kaunsa| rʌŋ ʌpko ʌ:chhʌ la:gata hai |

4. हम बाल किससे बनाते हैं ? कंघी
| ham ba:l ki:sʌse bʌnʌte haĩ |

5. पैर में क्या पहनते हैं ? जूते / चप्पल
|pei:rme kɔ pʌhʌnʌte haĩ |

6. हम तारीख किसमें देखते हैं ? कैलेंड़र
|hʌmtʌri:kh kĩsme dekhʌte haĩ |

7. हम किससे सुनते हैं ? कान
| hʌm kĩsase sũnte haĩ |

8. हम किससे साँस लेते हैं ? नाक
| hʌm kĩ:sase sʌs le:te haĩ |

9. हम किससे देखते हैं ? आँख
| hʌm kĩ:sase dekhte haĩ |

10. हम किससे लिखते हैं ? — पेन / पेन्सिल
| hʌm kiˆsʌse ʃikhate haiˆ |.

11. सूरज कब निकलता है ? — दिन / सुबह
| suːrʌj kʌb niˆkalatʌ haiˆ|

12. हम कपड़े किसमें रखते हैं ? — अलमारी / अलमिरा
| hʌm kʌpʌde kiˆsme rʌkhate haiˆ|

13. गेंद का आकार कैसे होता है ? — गोल
| gendˆ kʌ ʌkʌr kaise hoˆta haiˆ|

14. इलाज कौन करता है ? — डॉक्टर
| iˆlaj kaun kʌrʌta haiˆ|

15. पानी किसमें पीते हैं ? — ग्लास / गिलास
| pʌniˆː kiˆsme piˆːte haiˆ|

16. खाना किसमें खाते हैं ? — प्लेट / थाली
| khaːna kiˆsme khʌte haiˆ|

17. कागज़ किससे काटते हैं ? — कैंची / ब्लेड
| kʌːgʌj kiˆsʌse kʌtˆte haiˆ|

18. चाय किसमें पीते हैं ? — ग्लास / कप
| cʌi kiˆsʌme piˆte haiˆ|

19. बच्चों को स्कूल में कौन पढ़ाता है ? — शिक्षक / शिक्षिका
| bʌchchʰo kʌ skuːl me kaun padhata haiˆ|

20. आम मीठा होता है । करेला ..... होता है । — कड़वा
| aːm, miˆːtha hotaː haiˆ | kʌrela - - - - hoˆtʌ haiˆ|.

V. AUTOMATIC CLOSURE NAMING

Present the stimuli and provide the following instruction for different levels and follow the progression criteria

Level 1: Should be able to name minimum 5items out of twenty token (25%)

Level 2: Should be able to name minimum 10 items out of twenty token (50%)

Level 3: Should be able to name minimum 15items out of twenty token (75%)

Scoring:

0 - No score

1 - Intelligible response

1. मछली ..... (पानी) में रहती है ।
2. कलम से ..... (लिखते) हैं ।
3. पौधा छोटा होता है, पेड ..... (बड़ा) होता है ।
4. गाय ..... (दूध) देती है ।
5. इमली ..... ( ) होती है ।
6. साइकिल / बस ..... (सड़क) पर चलती है ।
7. किताब ..... (पढते)
8. हम पलंग पर ..... (सोते) हैं ।

9. पंखों से ..... (हवा) मिलती है ।

10. हम घड़ी में ..... (समय) देखते हैं ।

11. गाजर का रंग ..... (लाल) होता है ।

12. कौवे का रंग ..... (काला) होता है ।

13. शेर ..... (जंगल) में रहता है ।

14. नाँव / जहाज ..... (पानी) में चलती है ।

15. चाकू से सब्जियाँ ..... (काटते) हैं ।

16. जूते / चप्पल ..... (पैर) में पहनते हैं ।

17. हाथी बड़ा होता है । खरगोश ..... (छोटा) होता है ।

18. ताला ..... (चाबी) से खोलते हैं ।

19. लाईट / बत्ती से ..... (रोशनी) मिलती है ।

20. शेर दहाड़ता है । कुत्ता ..... (भौंकता) है ।

SPEED TASK

General instructions: Ask the patient to name as many items as he/she can in given time.

Level 1 - 25%

Level 2 - 50%

Level 3 - 75%

Scoring:

0 - No score

1 - Intelligible response

I. AUTOMATIC SERIAL NAMING

Level 1 - Request the patient to repeat each item in the following list.

1. दिन के नाम बताओ (Maximum score: 7)
2. अक्षर बताओ: (Maximum score: 20 and above)
3. गिनती बताओ: (Maximum score: 20 and above)
4. महीने के नाम बताओ: (Maximum score: 12)

Level 2 - Request the patient to repeat at least 2 items within one minute.

Level 3 - Request the patient to repeat item from the list within one minute.

II. VERBAL FLUENCY

This is sub-divided into two parts.

a) Semantic fluency b) phoneme fluency

Note: The activities given in each sub-sections are just the example. Clinicians have an open choice to add the number of categories and phonemes. All token are time bound i.e. for one minute duration.

Instructions **and** progression criteria

At level - ! Patient should name at least any five animals to achieve 25% criteria

At level - 2 Patients should name at least ten animals to achieve 50% criteria

At level -3 Patients should name at least any fifteen animals to achieve 75% criteria

Scoring:

0 - No score

1 - Intelligible response

Maximum score: 20 and above

(a) Semantic fluency (Maximum score: 20)

Number of words to single stimulus

1. डाक्टर / अस्पताल
2. खेत
3. ट्रेन
4. स्कूल
5. चिड़िया घर
6. फर्नीचर
7. खाना
8. शर्ट

(b) Phoneme fluency

Stage: 1

Level 1: Name as many as meaningful words starting with a (e.g. /Pa/) Syllable. Patient should name at least any five meaningful words in one minute to achieve 25% criteria

Level 2: Name as many as meaningful words starting with (e.g. /ba/) Syllable. Patient should name at least any ten meaningful words in one minute to achieve 50% criteria

Level 3: Name as many as meaningful words starting with (e.g. /ka/) Syllable. Patient should name at least any fifteen meaningful words in one minute to achieve 75% criteria

Stage: 2

Level 1: Name as many as domestic animals starting with a (e.g. /Pa/) Syllable. Patient should name at least any five meaningful words in one minute to achieve 25% criteria

Level 2: Name as many as domestic and wild animals starting with (e.g. /ba/) Syllable. Patient should name at least any ten meaningful words in one minute to achieve 50% criteria

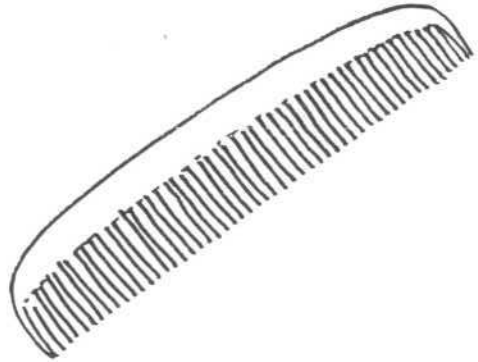
Level 3: Name as many as fruits starting with (e.g. /ka/) Syllable. Patient should name at least any fifteen meaningful words in one minute to achieve 75% criteria

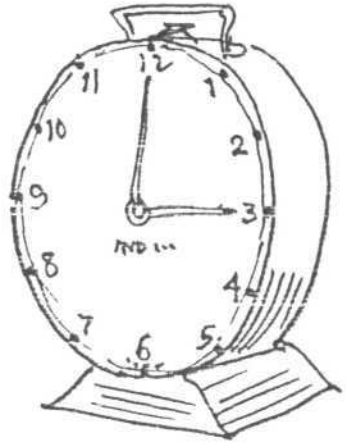
Stage:3

Level 1: Name only one item in each domestic animals wild animals, fruits, body parts, and vehicle starting with a (e.g. /Pa/) Syllable. Patient should name at least any five meaningful words in one minute to achieve 25% criteria

Level 2: Name only two items in each furniture, cloths, kitchen items, electronic items, and daily objects starting with a (e.g. /Pa/) Syllable. Patient should name at least any ten meaningful words in one minute to achieve 50% criteria

Level 3: Name only three items in each geometrical shapes, professionals, tools, birds, colours, starting with a (e.g. /Pa/) Patient should name at least any fifteen meaningful words in one minute to achieve 75% criteria





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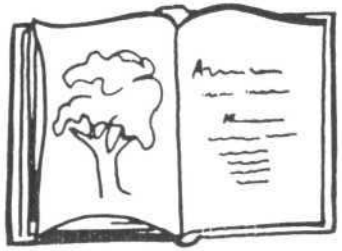

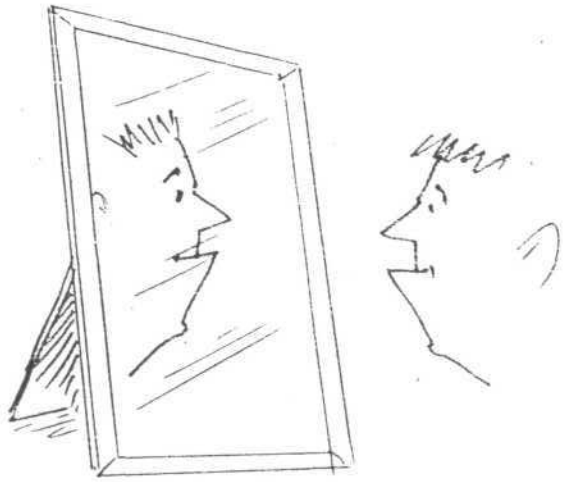

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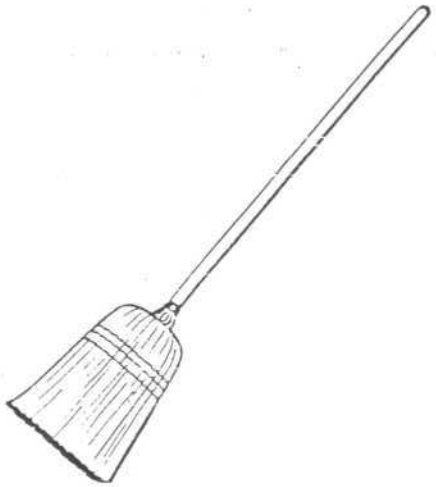
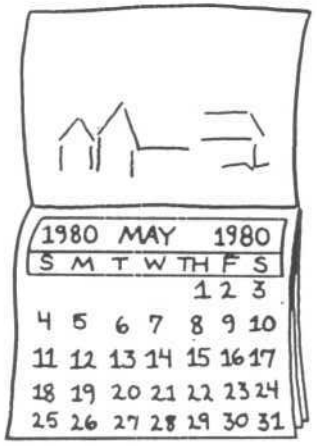



SOAP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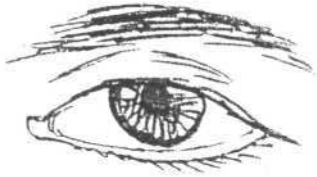

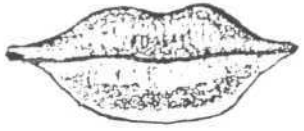

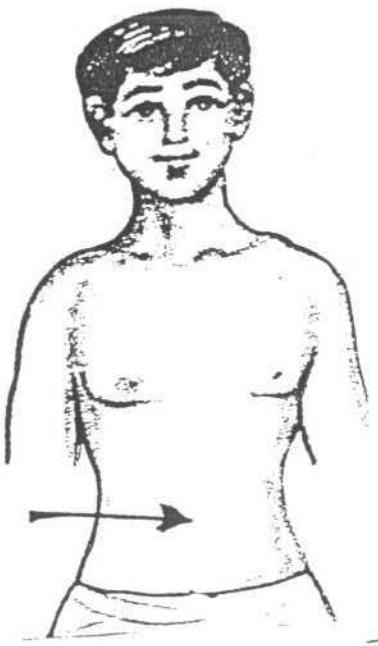

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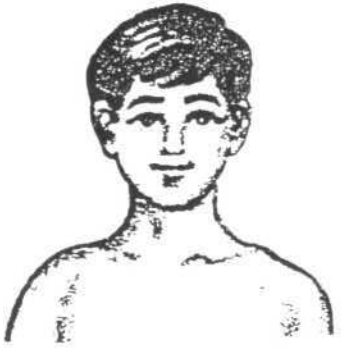

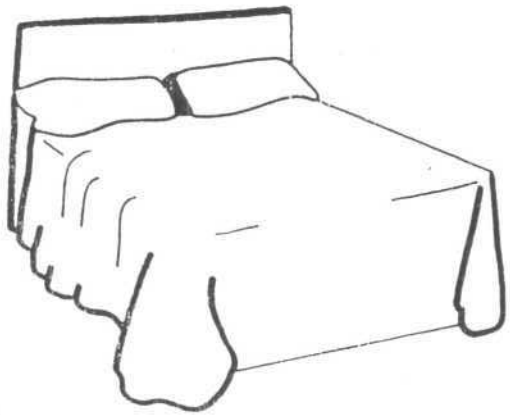

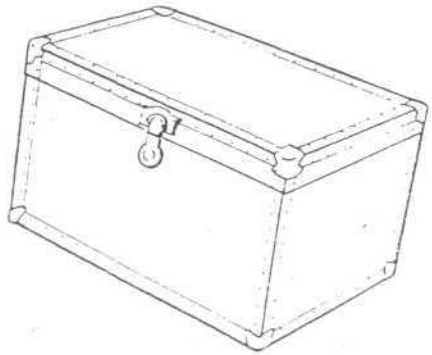

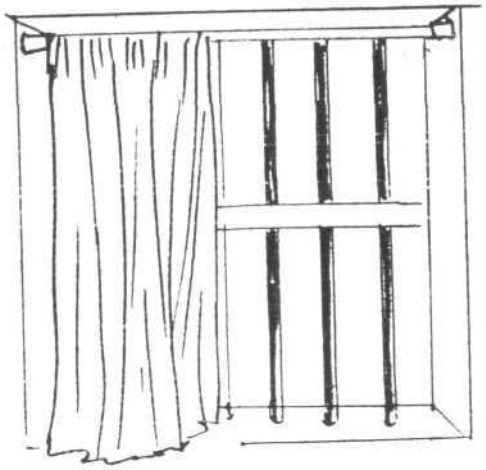

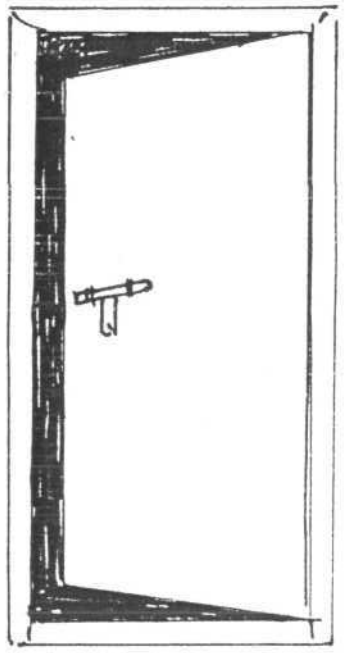

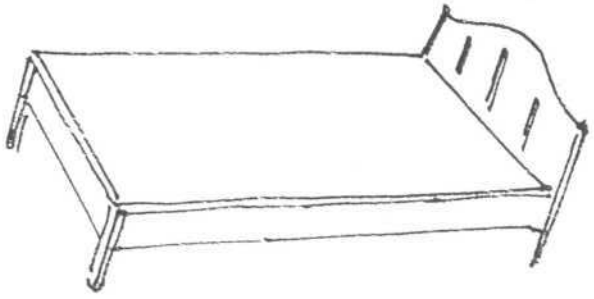

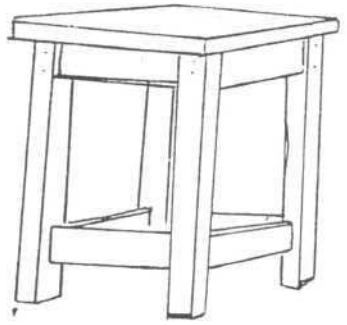

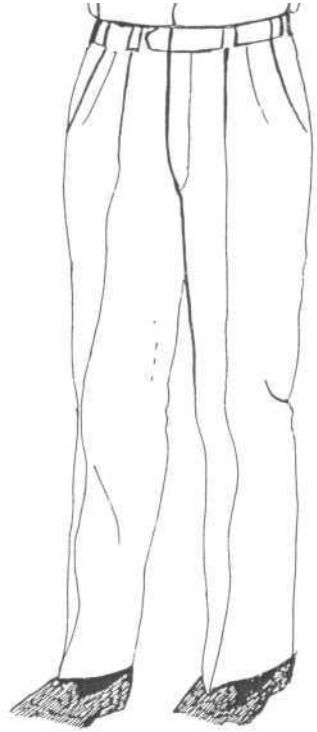

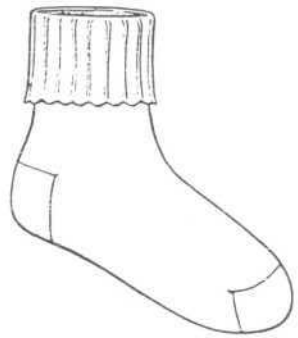

IIa-Ж-55

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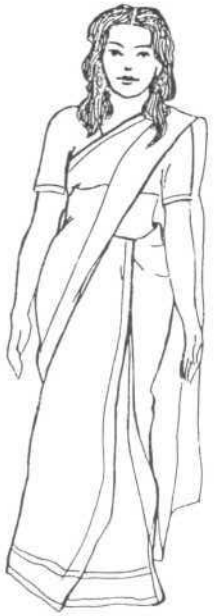
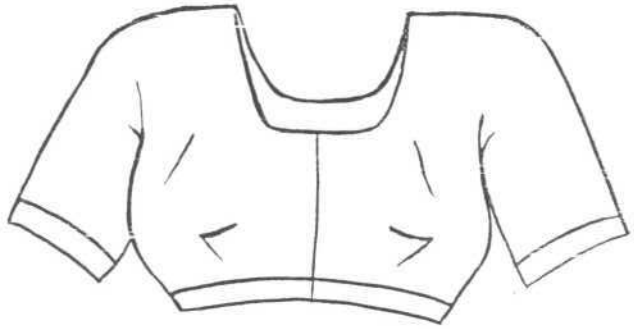
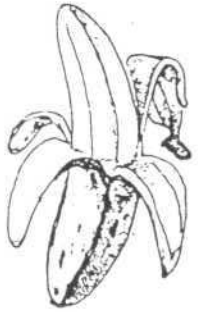
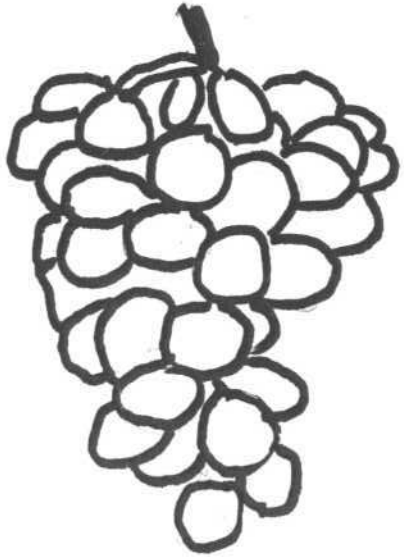
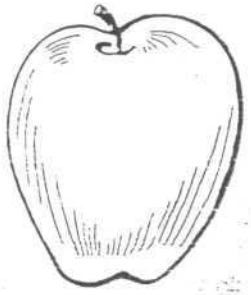


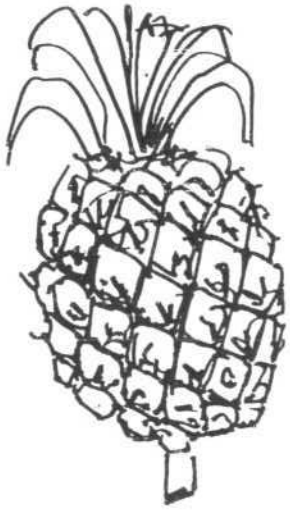


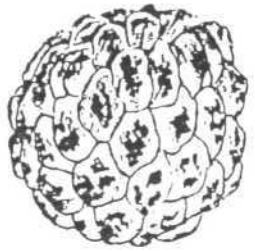
III a-4-57

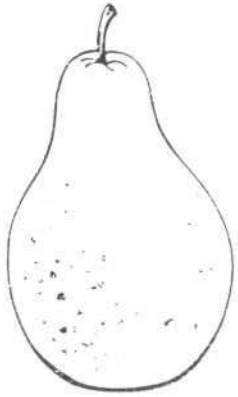


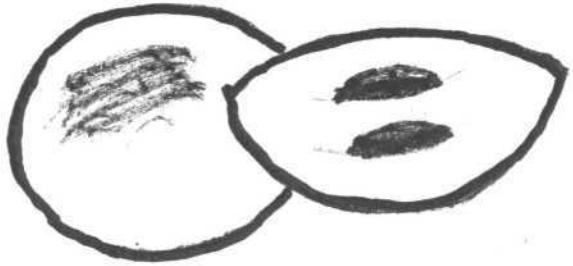












II-a-5-60

II – a – 5 – 61

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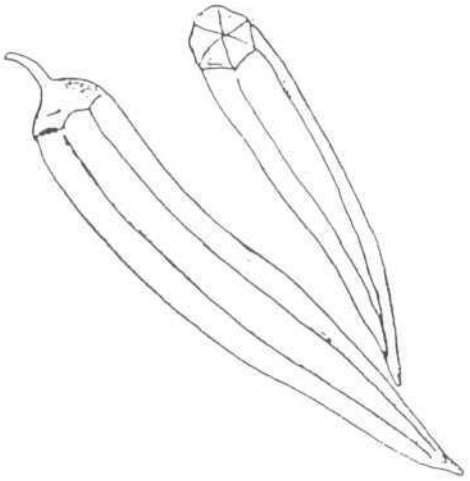
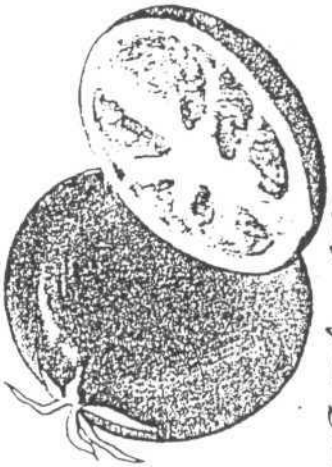
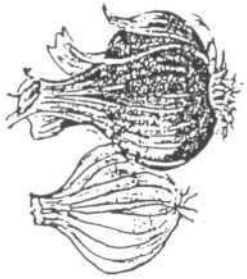
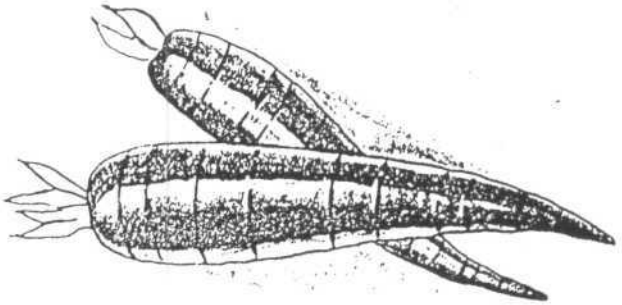
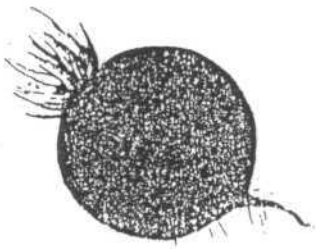
II-5-6-29

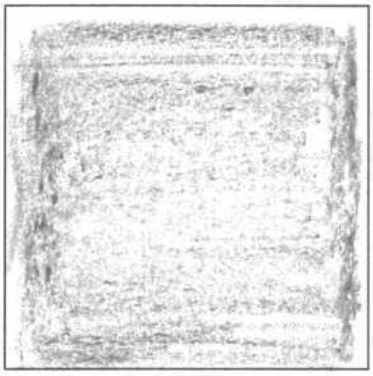


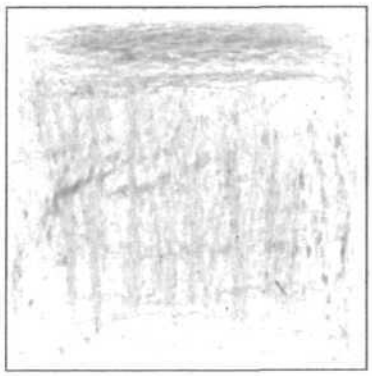


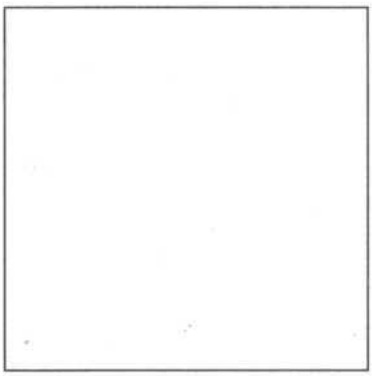


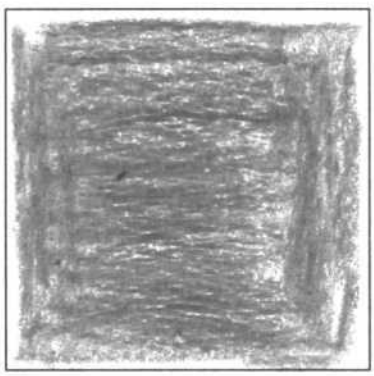


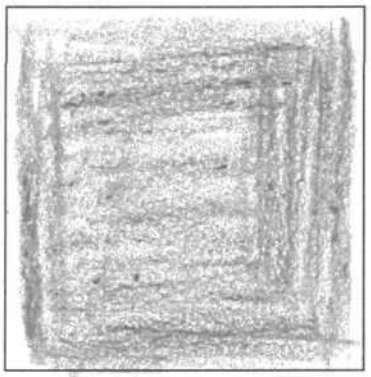


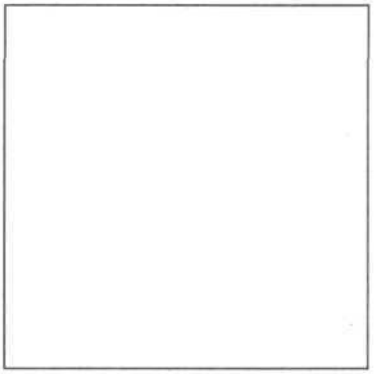


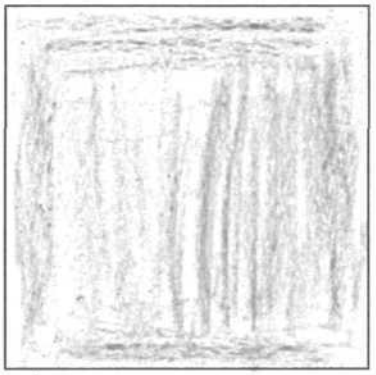


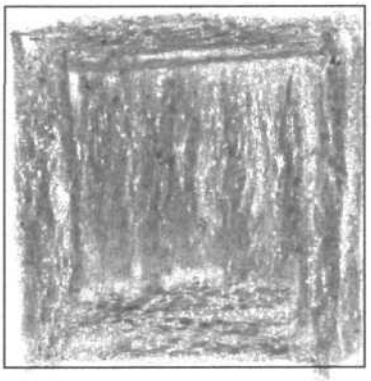


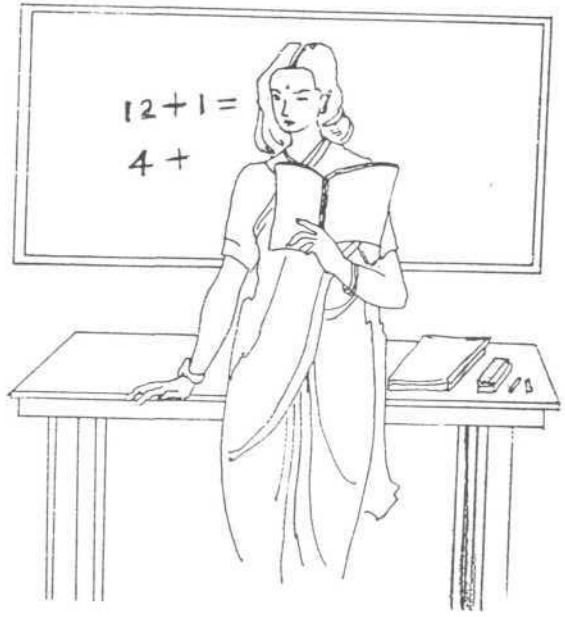


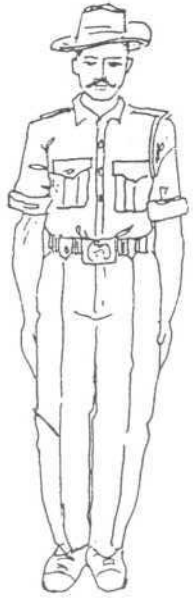












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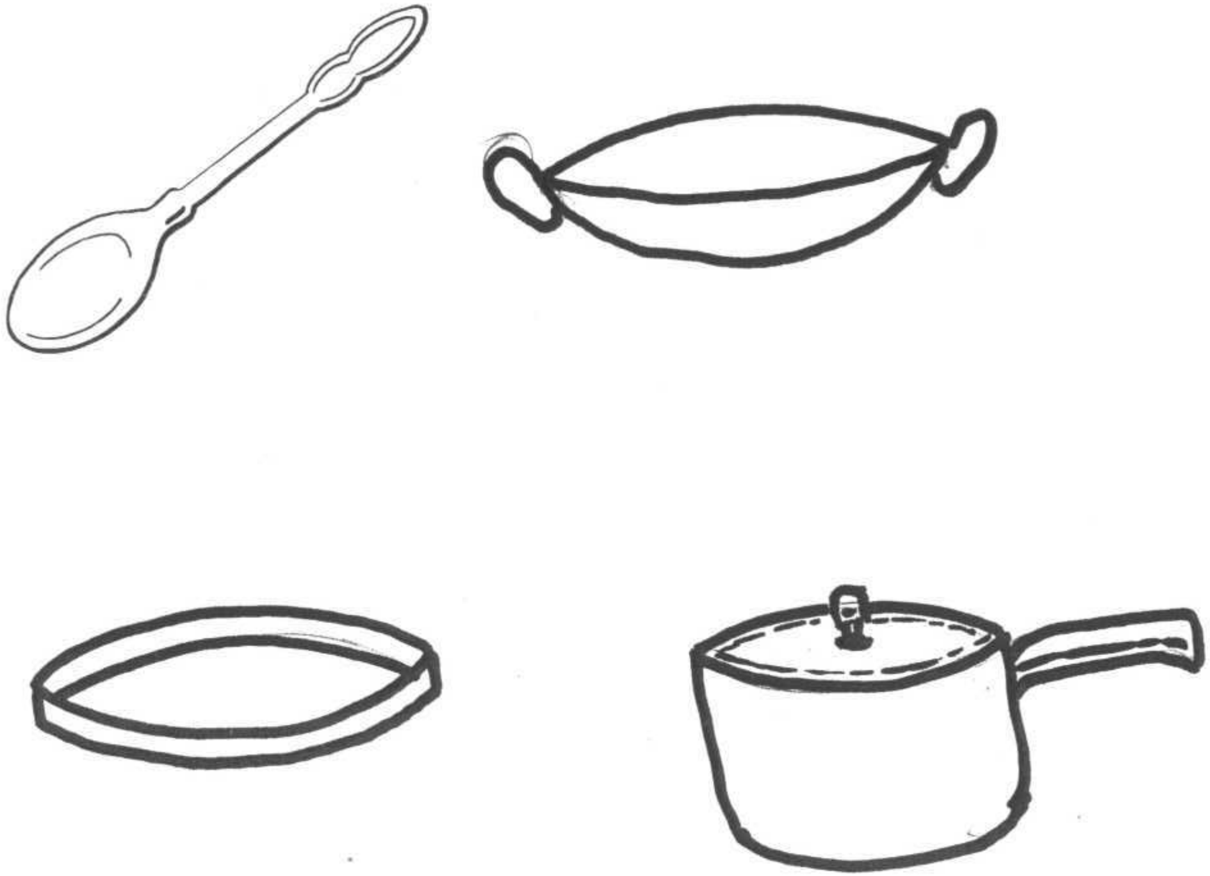
II-a-8-70



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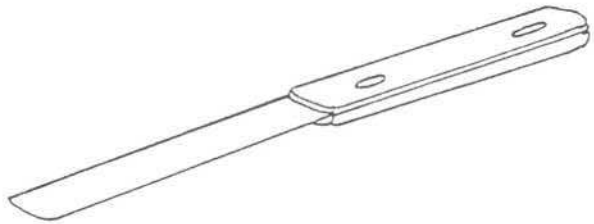
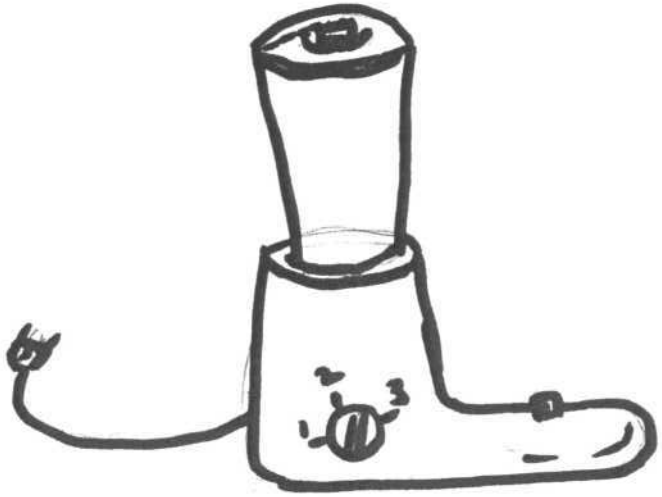
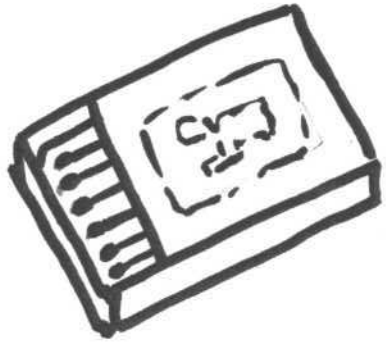
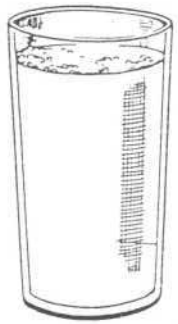






II-a-9-74

II-9-9-75



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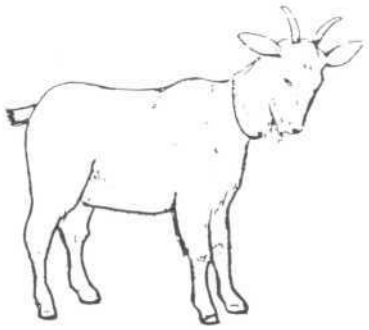

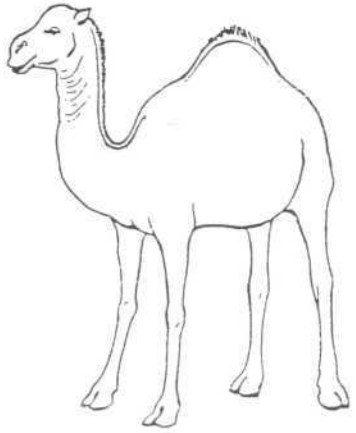

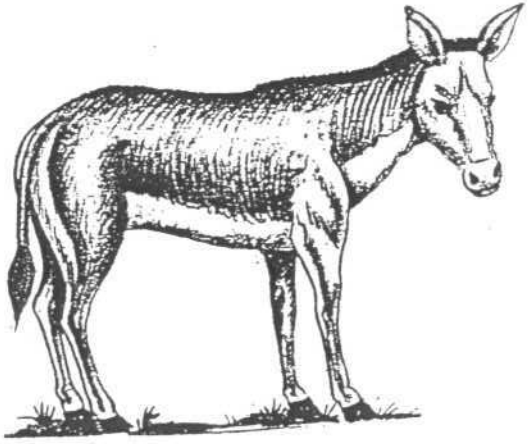

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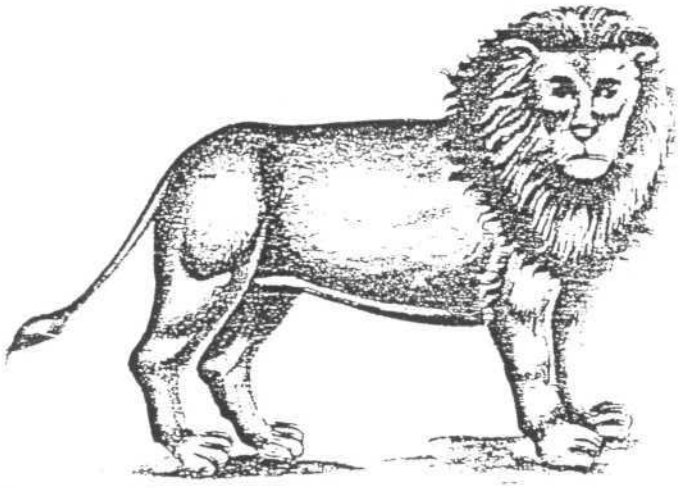
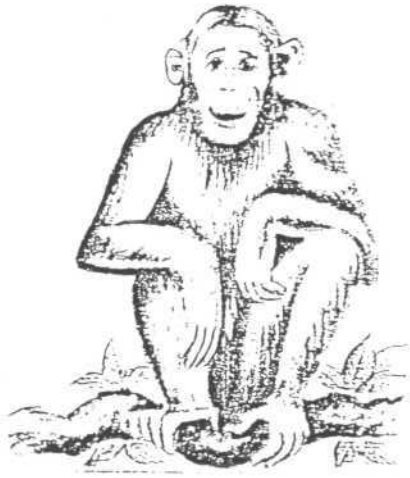
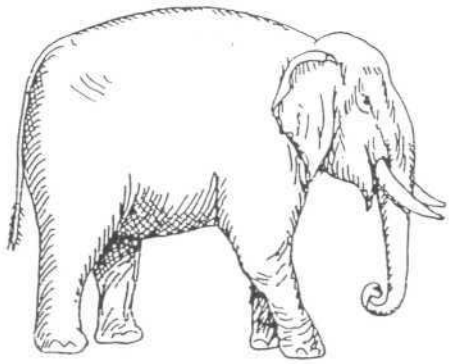
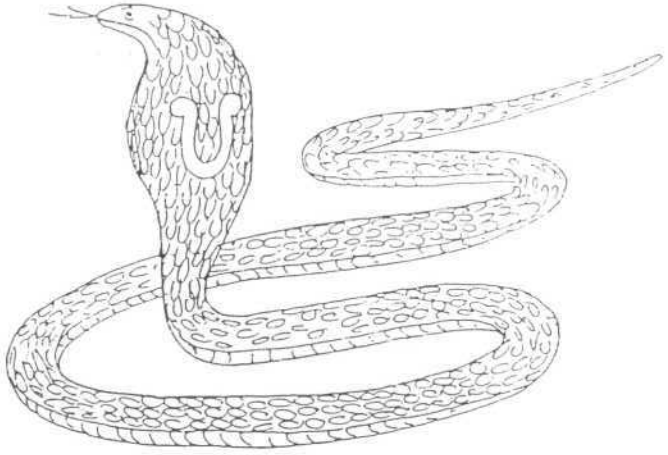


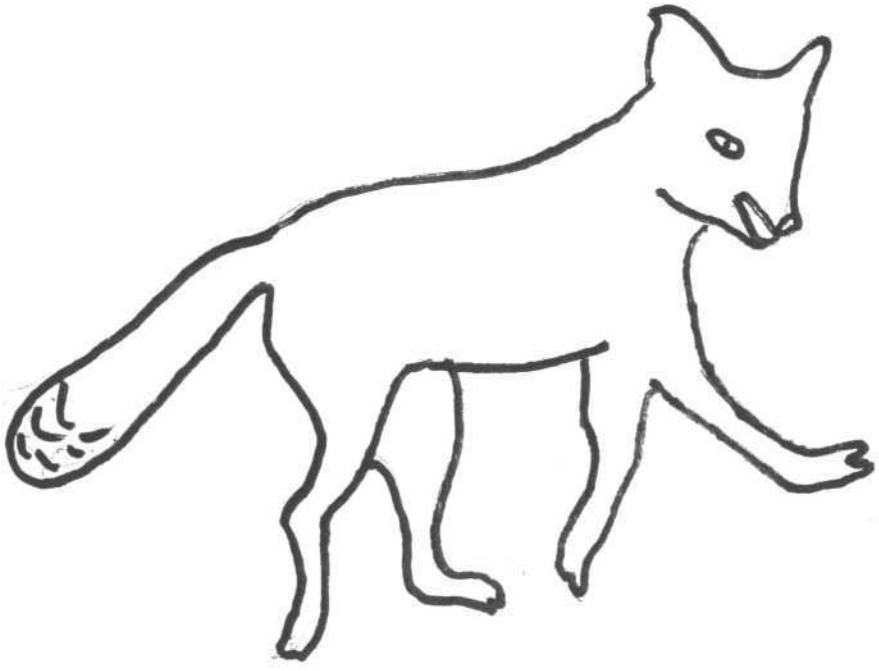




II-9-10-80

II-2-10-81





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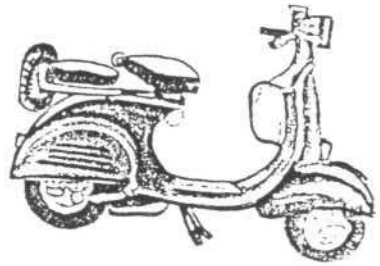

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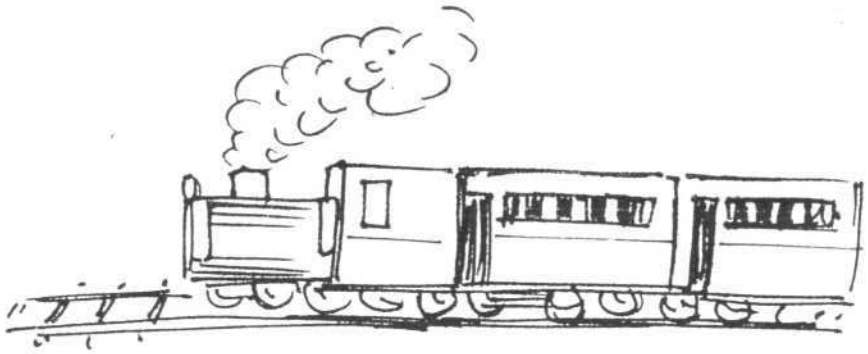

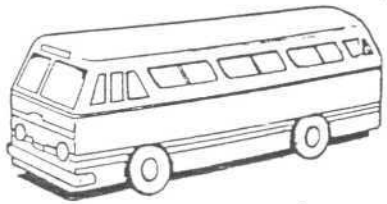

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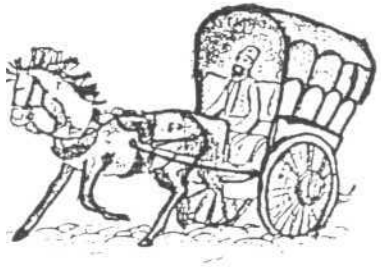
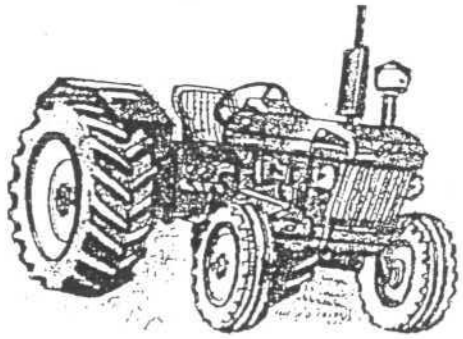
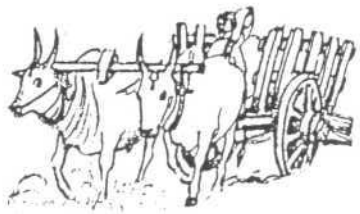
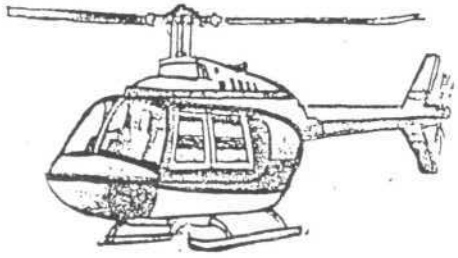
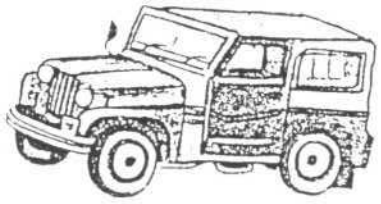


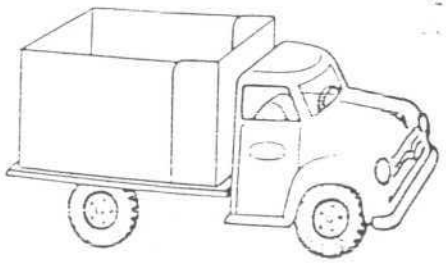




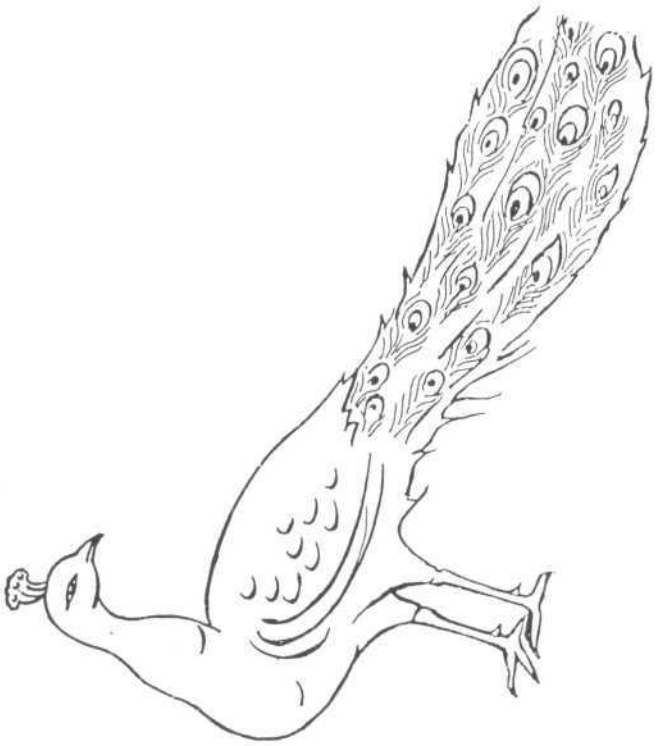


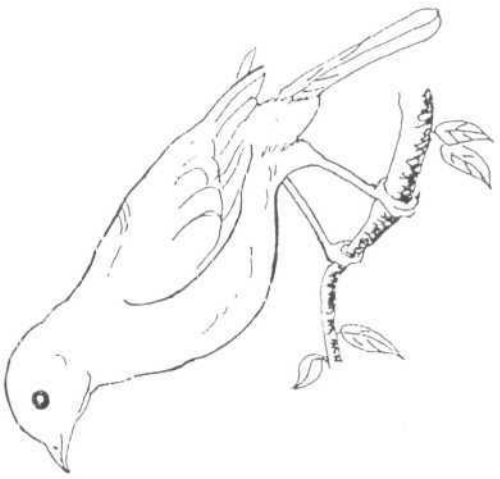
II - a - 11 - 85

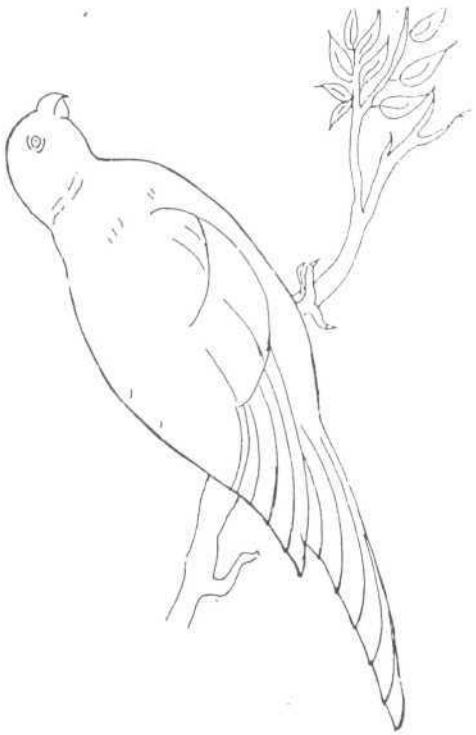


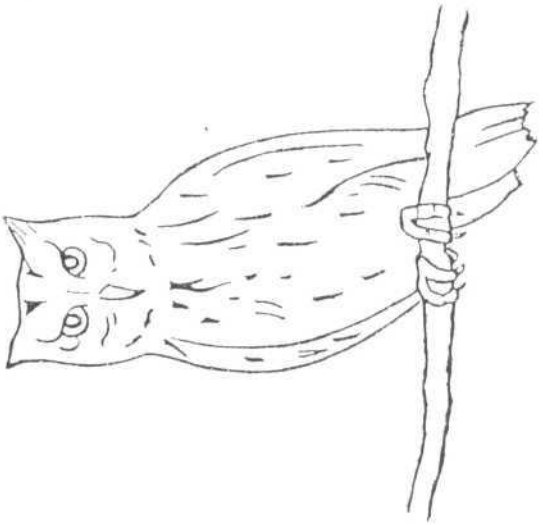


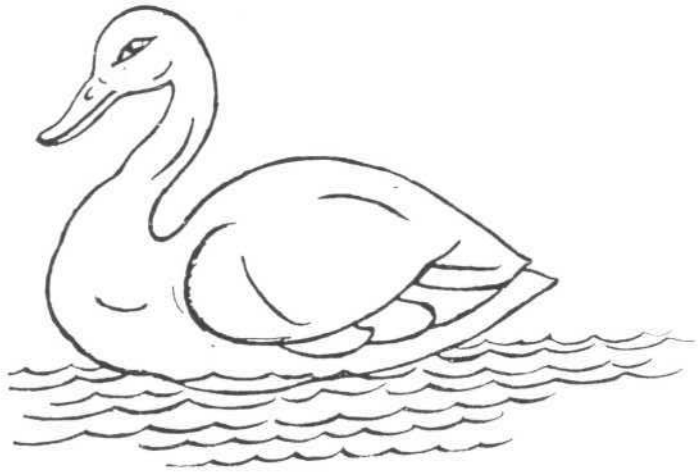
II - a - 11 - 86

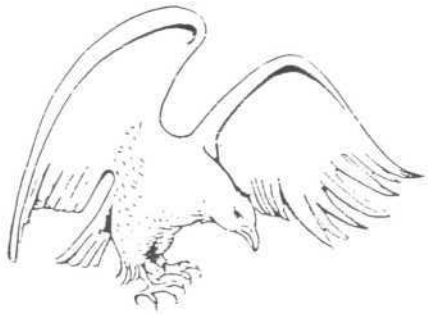


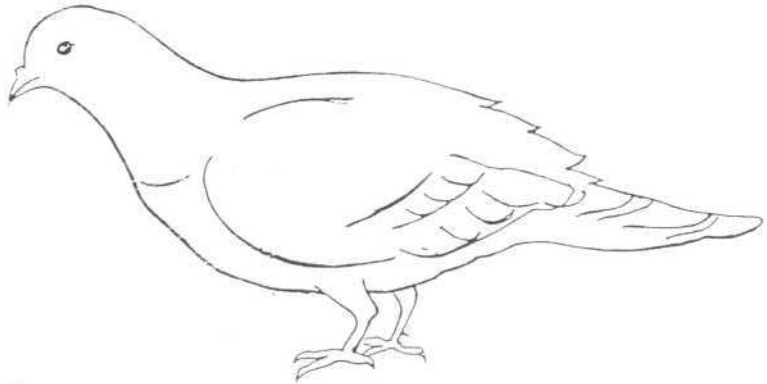












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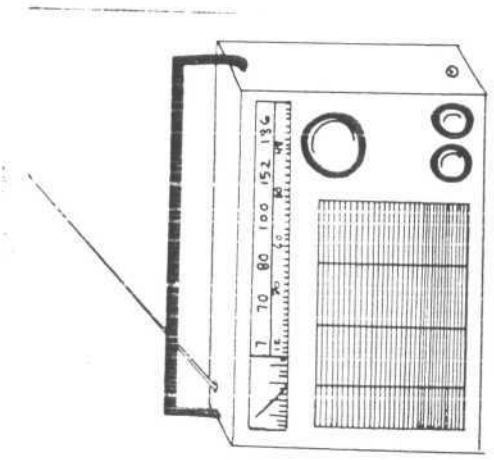
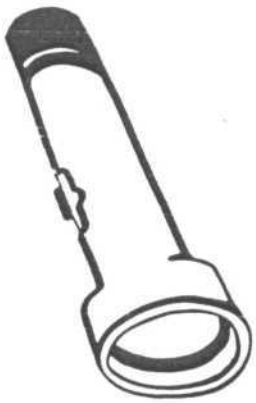
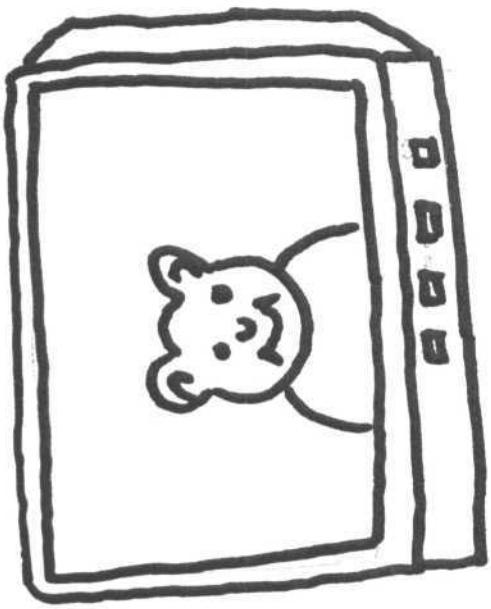
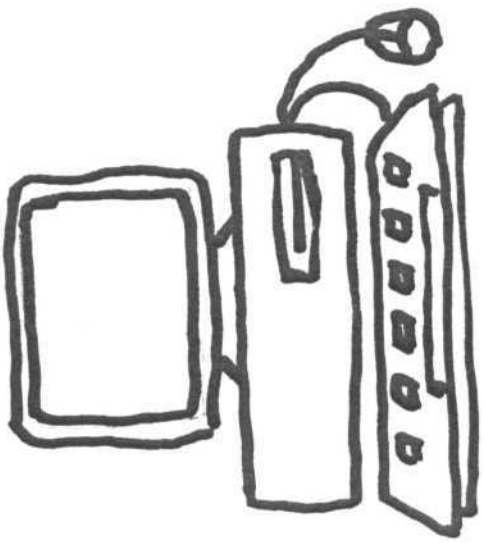
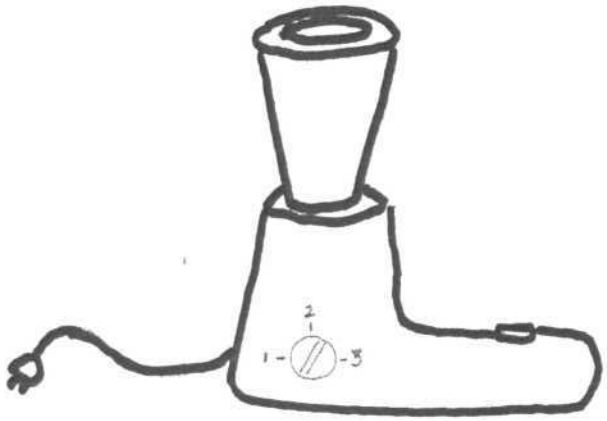
II-D-12-89

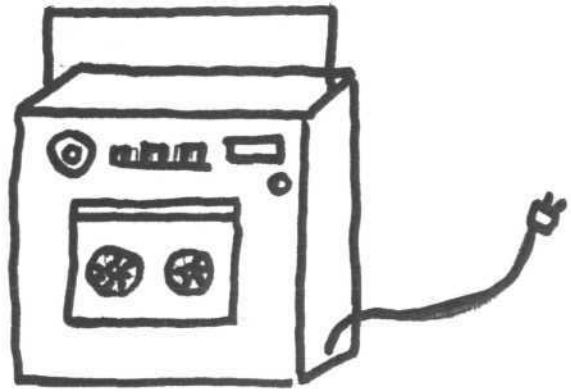


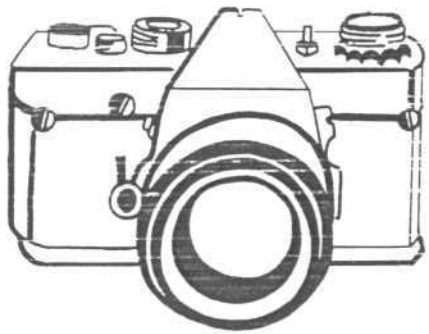


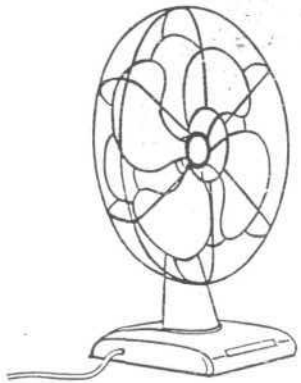












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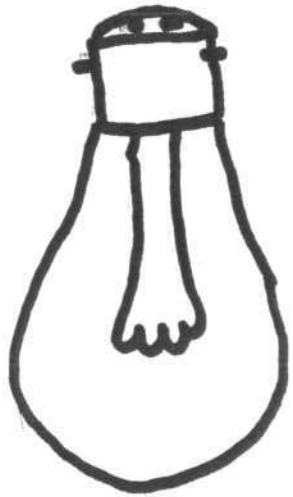

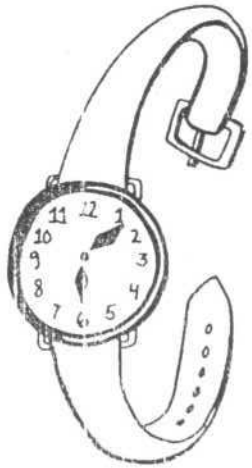

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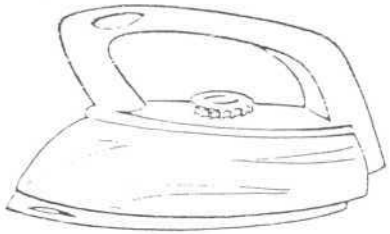

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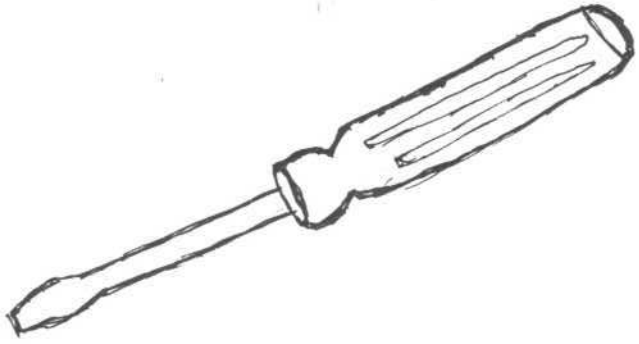

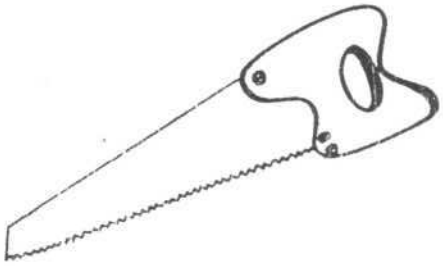

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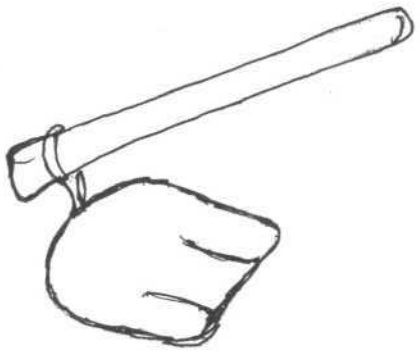

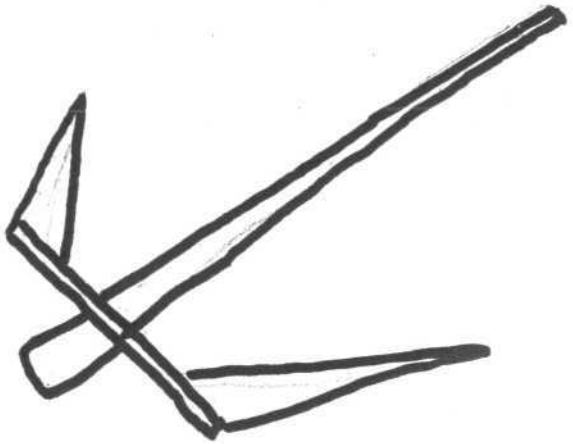

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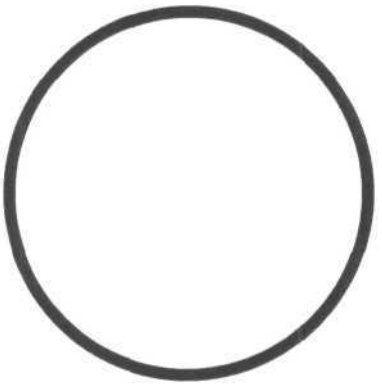

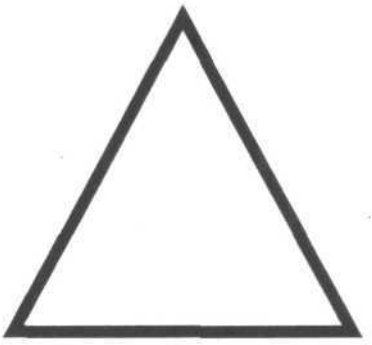

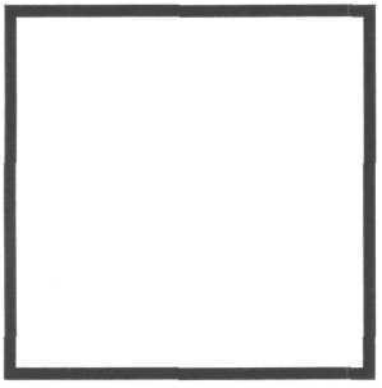

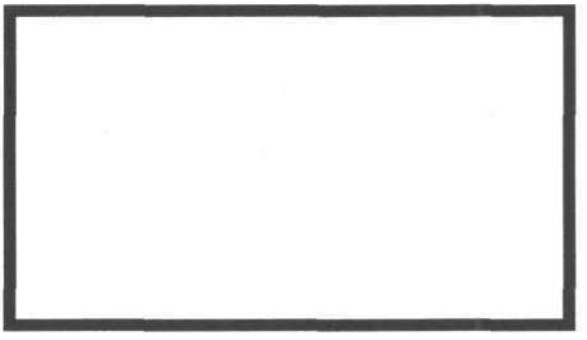

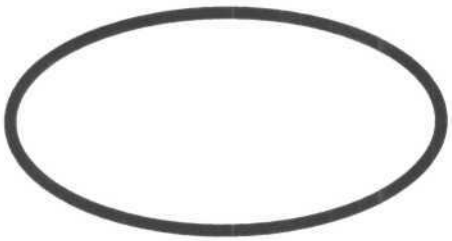

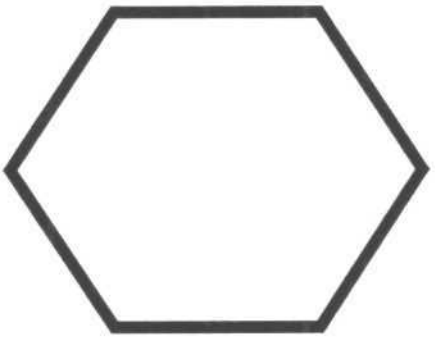

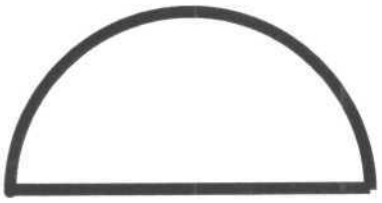

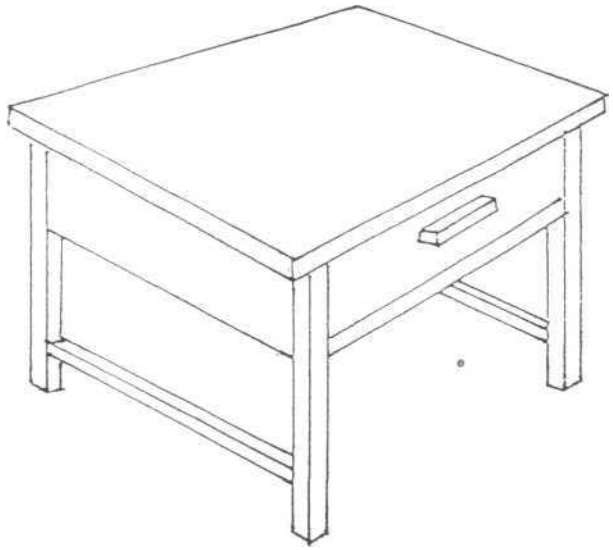

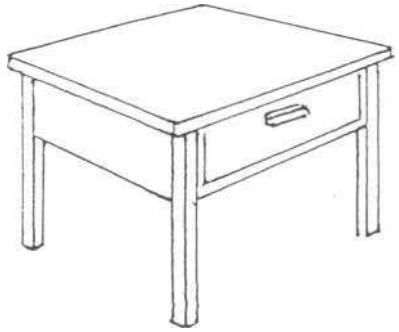

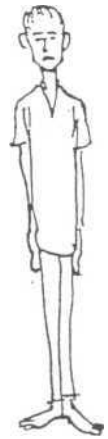

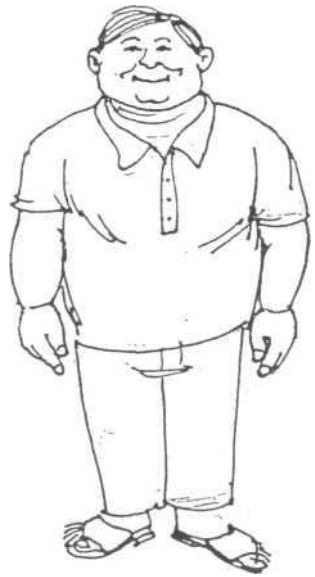

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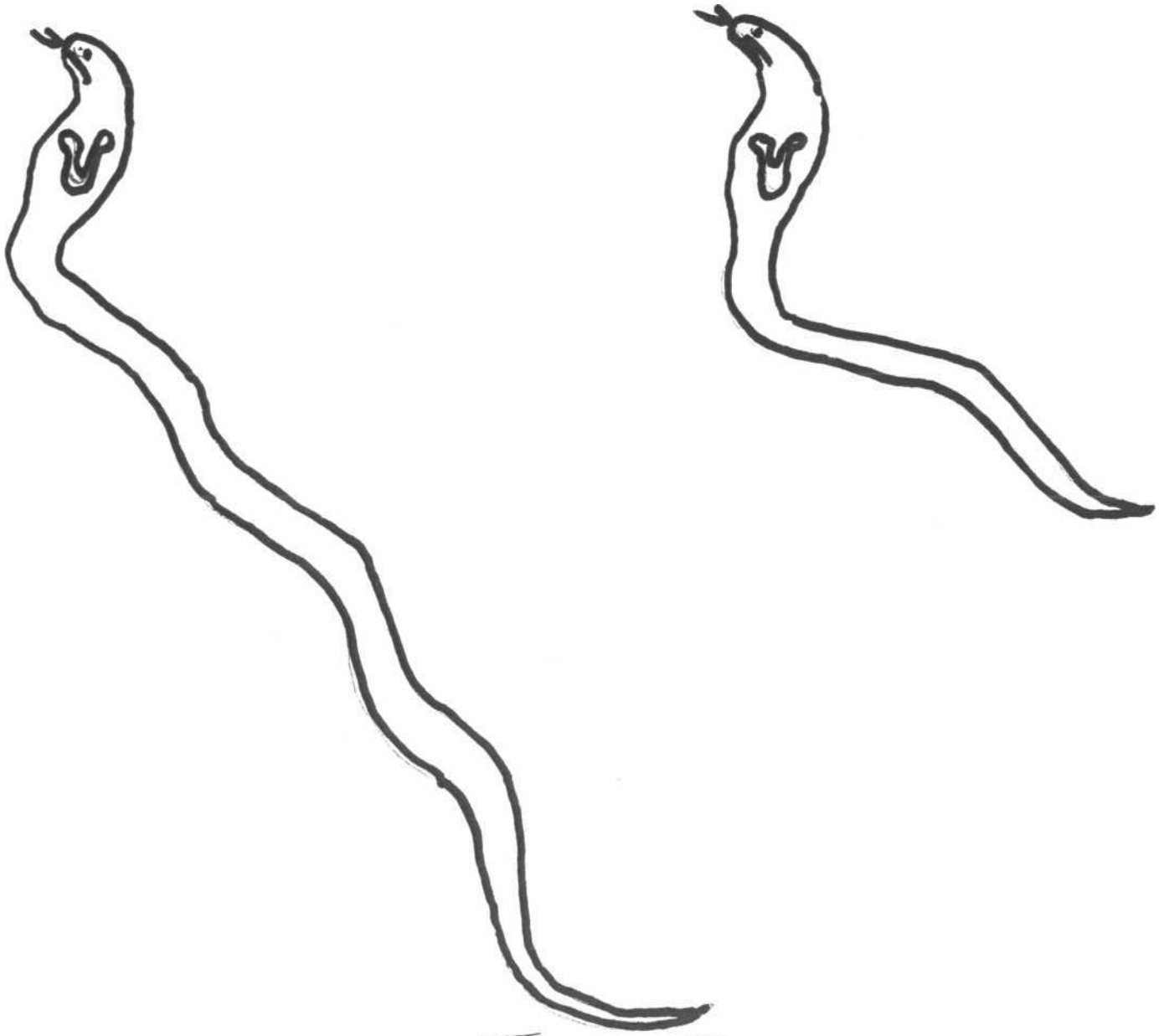

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Chapter-5

SUMMARY AND CONCLUSION

The present manual is designed keeping in the view the word retrieval deficits in aphasics.

The main domains of manual are:

Performance task

- Speed task

- Under these tasks the various naming categories are designed.
- Material is arranged in a hierarchal order
- A scoring pattern and progression is given for each subcategory.
- A progression criterion is also given for the progression from one subcategory to the other.

Scope of the manual

It is expected that the present manual will b helpful for students at graduate, post graduate levels, professionals and care givers of patients with aphasia. The material can be modified according the severity of nominal deficits in various aphasics.

Limitations

- The manual has not been tried in aphasics due to time constraint. Hence efficacy the manual needs to be looked upon.
- The hierarchy of the various tasks and cues in Indian context has not been explored, therefore it requires a field trail.

REFERENCES

Benson, D.F., & Geschwind, N. (1976). Aphasia and related disturbances. In A. B. Baker (Ed.), *Clinical Neurology* (Vol. 1, pp. 1-28) New York: Harper & Row.

Best, w., Howard, d., Bruce, c, (1997b). A treatment for anomia combining semantics, phonology, and orthography. In. s. chiat, j. law, & j. Marshall (Eds.), *language disorder in children and adults: psycholinguistic approaches to therapy.* London: whurr.

Brown, J. W. (1972). Aphasia, apraxia, and agnosia: *Clinical and theoretical aspects.* Springfield, IL: Charles C Thomas.

Bruce, C, & Howard, D. (1987) Computer-generated phonemic cues: An effective aid for naming in aphasia. *British journal of Disorders of Communication,* 22, 191-201.

Davis, A., & Pring, T. (1991). Therapy for word finding deficits: More on the effects of semantic and phonological approaches to treatment with dysphasic patients. *Neuropsychological Rehabilitation,* 1, 135-145.

Geschwind, N. (1967). The varieties of naming errors. *Cortex,* 3, 97-112.

Hillis, A., & Caramazza, A. (1994).Theories of lexical processing and rehabilitation of lexical deficits. In MJ. Riddoch & G.W. Humphreys (Eds.), *Cognitive neuropsychology and Cognitive rehabilitation.* Hove, UK: Lawrence Erlbaum Associates Ltd.

Howard, D., & Hatfield, F.M. (1987). *Aphasia therapy: historical and contemporary issues.* Hove, UK: Lawrence Erlbaum Associates Ltd.

Longerich, M.C. & Bordeaux, (1954,) *Aphasia Therapeutics.* New York: The Macmillan Company.

Love, R. J., & Webb, w. G. (1977).The efficiency of cueing techniques in Broca's aphasia. *Journal of Speech and Hearing Disorders,* 42,170-178.

Nettleton, J., & Lesser, R. (1991). Therapy for naming difficulties in aphasia: Application of a cognitive neuropsychological model. *Journal of Neurolinguistics,* 6, 139-157.

Nickels, L.A., & Best, w. (1996a). Therapy for naming deficit (part 1): Principles, puzzles, and progress. *Aphasiology,* 10, 21-47.

Pease, D., & Goodglass, H. (1978). The effects of cueing on picture naming in aphasia. *Cortex,* 14, 178-189.

Raymer, A.M., & Ellsworth, T. (2002).Response to contrasting verb retrieval treatments: A case study. *Aphasiology*, 16, 1003-1045.

Richa.D ,(2004). *"Manual for Adult Non-Fluent Aphasia Therapy-In HinaT* (unpublished dissertation).

Rose, M, Douglas, J., (2002).The comparative effectiveness of gesture and verbal treatments for a specific phonologic naming impairment. *Aphasiology*, 16, 1001-1030.

Rosenbek, J. C. (1987). A changing criterion design in the treatment of aphasia. Paper presented to the conference on the Adult Aphasic: *A Management Approach*, Long Beach, CA.

Shewan, C.M. & Bandur, D.L. (1986). Treatment of Aphasia: *A Language-Oriented Approach*. Austin, TX: Pro-Ed.

Venugopal. (2005). *"Manual for Adult Non-Fluent Aphasia Therapy-In kannada"* (unpublished dissertation).