19LINX 2: APPLIED LINGUISTICS

Compiled by

Dr. R. Lalitha Raja,

Assistant Professor, CAS in Linguistics, Annamalai University.

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19LINX2: Applied Linguistics

Unit - I: Translation

Need and scope, definition of translation, Types of translation,literal, conceptual translation; models of translation: metaphrase, paraphrase, imitation, adaptation, recreation; Translation equivalences - Nida's three Phase model; Theories of translation: theories of the present age – philological theory, Ethnolinguistic theory, Linguistic theory, Sociolinguistic theory, psycholinguistic theory, Linguistic problems, types of meanings; referential and connotative meaning, cultural diffusion.

Unit - II: Language Teaching Methods

Linguistic theories to the language teaching and learning; Language teaching methods-Grammar-Translation method-Direct method-Audio-lingual method-Cognitive method – Eclectic method - Interactive & Communicative approach. Language proficiency-isteningspeaking- reading-writing; First, Second, and foreign language acquisition; Teaching aids; contrastive analysis-error analysis-identification of errors-Description of errors-Explanation of errors; Language Testing-Basic concepts of Language Testing; Language Planning Vs Curriculum Planning.

Unit - III: Lexicography

Lexical and grammatical meaning; components of lexical meaning; meaning triangle of Ogden & Richards; Types of dictionaries – Encyclopedic vs Linguistic synchronic vs diachronic – general vs special; lexicographic method-basic decision – Articulation of work: collection of material – selection of entries – construction of entries – glosses, labels, subentries – reduced entries – presentation of polysemy; arrangement of entries – types of arrangement, alphabetic – semantic; appendices.

Unit - IV: Computational Linguistics:

Computer Anatomy – Input devices, output devices, central processing unit; memory-ROM, RAM; hardware Vs software; Programming Languages; Database; Introduction to Natural Language parsing-parsing techniques – Top-down parsing; Bottom-up parsing Machine Readable Dictionary (MRD); e-dictionary.

Unit-V: Psycholinguistics:

Concepts of psycholinguistics – the psychology of language – theories of language acquisition and learning – process of perception – process of comprehension: sentence comprehension and discourse comprehension – accessing – production – applied psycholinguistics: language disorder and brain, Aphasia and its classification – Disorders of written words: Dyslexia and dysgraphia.

UNIT – I TRANSLATION

The word *translation* is derived from Latin word *translatus:* Trans - across; latus - carried. Literally, then, translation is a matter of **carrying across** something from one state into another. According to Bell (1992) there are three uses of the term (1) translation as the process, (2) the product of the process, and (3) the abstract concept which is related to the process and product.

Translation is defined as a process of finding a target language equivalent for a source language text. Equivalence is sometimes defined in terms of not only the content but also of the function of the linguistic elements used in the source language. Creating equivalence for source language items involves the transference of the content of the source language text to the target language in a manner that is acceptable to the conventions of the target language. The identification of equivalence must be achieved in such a way that ambiguity, interference and variation in meaning are all avoided. Translation should aim at seeking the conceptual equivalents in between two languages. It should define conceptual equivalents accurately and render them in the linguistic terms of the target language. Many technical and scientific terminologies came into Tamil from the English language i.e. English functions as the major source language and Tamil as the target language.

Need and Scope

The importance of translation for the present day cannot be overstated. As an instrument of cross-cultured and interlingual contacts and of inter-communication for different people it is perhaps the most practicable means available to all. From Roman times to the present, every aspect of its culture, literature, administration, trade, religion and science has been deeply influenced by translators (Kelley, 1995).

This is largely true of the whole world today. Quick and efficient translation has become a must for information transfer demanded by an explosion of knowledge in a number of disciplines and by the escalation in the gathering and dissemination of volumes of information, for instance, pouring into countless news rooms around the world.

Translation has played a part in the cultural exchange between invaders and the subject people. It has brought subject people in contact with the culture and literature of the invaders. In reverse it has provided the invaders with glimpses of greatness abiding in the classics of their subjects. Translation smacks of a colonial hangover to some people at least in some

part: The intimate links between, for example, translation from non-western languages into English and the colonial hegemony they helped create are seldom examined.

Translation has served as a language learning and language teaching device that helps to study two languages in context. It facilitates second or foreign language learning to a great extent. As an exercise it adds to the student's power and range of expression and develops three qualities essential to learning: accuracy, clarity and flexibility. Translation contributes to understanding and peace between language communities and groups. It promotes information and technology transfer, particularly to third and fourth world countries. Having got to do with cultures it helps explain and clarify ethnic cultures and bridge wherever possible, their differences. Works of art, culture and literature, of religion and philosophy, and of science and technology are made available throughout the world through translation.

TRANSLATION - DEFINITION

Translation is a uni-directional process involving the conversion of source language material into a target language material. Translation is defined as the replacement of textual material in one language (SL) by equivalent textual material in another language (TL) (Catdford, 1965).

Translation is evaluated as good if the degree to which receptors of the message in the receptor language respond to it in substantially the same manner as the receptor in the source. This response can never be identical, for the cultural and historical settings are too different, but there should be a high degree of equivalence of response, or the translation will have failed to accomplish its purpose (Nida, 1974).

Translation may be defined as a 'process of finding a target language equivalent for a source language material'.

For understanding translation Pinchuk (1977) states it is important for the translator to study it as the whole before beginning to translate it. Translation can be undertaken only after obtaining a picture of the whole passage which the translator can break into parts depending upon the nature of the text, its length and its difficulties.

Translation is an act of presenting a text in a language other than the one in which it was originally written, in order to convey the meaning of the original text.

TYPES OF TRANSLATION

Literal translation vs. Conceptual Translation (conveying the sense of the text)

Literal translation is also called as direct translation which is found in everyday usage, literal translation means to render the text from one form the first language to another. In latin it means word-for-word translation rather than sentence translation. However in the study of translational language, literal translation basically means technical translation which is referred to the translation of technical, scientific, legal or even technological texts.

Many translators believe that an ideal translation is one in which all the words of the source language text are translated. No additions are made by the translator, nor does s/he omit any word. However, no two languages have exactly similar structures. That is to say different languages have different ways of putting words together to make sentences. Also, different languages have different ways of conveying meaning. However, sometimes two languages may be close to one another and their manner of organizing words and meanings may be similar. When the activity of translation takes place between two such languages, it may be possible to make a literal translation. Again, it may be possible to use this type of translation even among two dissimilar languages when the text is more information-oriented and less opinion-oriented. For instance, translations of scientific and technical texts may make use of this type of translation. As we can see, only certain types of texts require literal translation. The aim of texts from humanities, Social Sciences or Sciences /is primarily to convey information, that is, they are referential. In such texts we cannot let our imagination run away with us but have to keep as close to the SL text as possible so that the information conveyed is not distorted.

These translations not only mean document or **business translation** but also medical translations like Italian translation, French translation, German translation and Spanish translation. Metaphase is another word for literal translation and phrasal means paraphrase. At times it is considered as a bad practice to convey a word by word translation of the non technical type of data which is basically a misleading idiom. There are many forms of literal translation which varies in their forms and meanings from one period to another. Cribs are literal translations which are done by the writer without actually knowing the actual language. There are many writers who have even written many novels in this manner. Poetry to prose gives a translation in which the original text is translated but the style, poetry and beauty. However, a great deal of difference always remains between prose translation and poetic work. Now, when it comes to conveying the sense of the text, it is really important to

translate the content from the reader's point of view. Until and unless the reader understands what is being actually tried to convey. When the reader does not understand what the writer has actually written, all effort to get the things done perfectly become useless.

Metaphrase, word-for-word, interlinear translation;

it is the type found especially in the editions with parallel text, in which the translated page may not contain a real text, but simply an aid to the reading of the original. The translator here focuses her work not on the creation of a metatext, but rather on the translation of the single words so that the reader can trace back, without referring to a dictionary, to the original word. The term comes from the Greek "*metaphrázō*", i.e. «I express within", "I explain toward", and is now a seldom used word.

Paraphras

i.e. translation in which the translator has the author in mind; not his words, however, but his sense;

that implies the translator grasps the sense (apparently unique, without any possible ambiguous significations), and, without any possibility for error, decide the best way to re-express it in the reader's language; this term also comes from the Greek "*paraphrázō*", i.e. "I express near". At school, paraphrase is taught, meant as a sort of intralingual translation.

Imitation

where the translator (if now he has not lost that name) assumes the liberty, not only to vary from the words and sense, but to forsake them both as he sees occasion; and taking only some general hints from the original, to run division on the groundwork, as he pleases·

Conceptual Translation

More than just translation, it is more important to convey the sense of the text and it should always be kept in mind that the actual meaning of the original text should never be played with. And even if it is done, the meaning and the flow of the sentences should be framed in such a way that the flow of the sentence should always be maintained and that too in an artistic way. What is more important in this regard is that the actual meaning of the original article should never get deviated and even if there is any addition or deletion to the modified

matter, it should be done in strict accordance with the subject. Previously the condition was something else but now with the passage of time, there are many translation agencies which have sprouted up with professional translation services. There is absolutely no need to take so much of headache and thus under one roof only everything gets solved. Even the quality of the content is also maintained which is the most needed thing for any kind of translation.

Conceptual translation is based on the principle that the concept or the message is more important than the words. As such, a translator ought to lay more emphasis on the communication of the message rather than the translation of each and every word in the text. It is quite possible to translate each and every word in a text and yet fail to communicate the message of the writer of the original text. Conceptual translation is generally a shorter translation. It is shorter in structural length than the message in the original text. As such, conceptual translation is generally used when instruction are to be given to people who cannot read them in the original language.

Transcription

This denotes the rendering of the sounds of a source language into a target language form. Except in the case of Tamil whose script has no (justifiably so) provision for voiced and aspirated stops, transcription from one major Indian language into another is possible since they have more or less the same graphological organisation.

Transliteration

It is the process of rendering the graphemes of L1 into graphemes of L2 where L1 and L2 graphemic systems are different. Problem of transliteration will be less among languages sharing the same alphabet, such as German and English language.

Borrowing

Borrowing is generally resorted to when the target language has no equivalents for the source language words. Borrowing may be structural or conceptual or both. Even in languages which generally go in for loan translation, the items are first borrowed, in many cases, as they are, and then, in course of time, equivalents through loan translation are created or coined. In some cases the source language items may be translated using an expression not of language but of the adjacent familiar language with which the target language has transactional relationship. For example, Sanskrit equivalents for English will be used in Tamil while English items are translated into Tamil.

Adaptation/Recreation

Any translated material is not identical but only analogues to the source language material. Sometimes this results even in the modification, of the concept. Explanations are given using illustrations drawn from the target language. As the target language situation is not identical, it may have certain implications not originally intended by the material in the source language. And to that extent, concept modification could be assumed to have taken place. It is assumed that such adaptations would facilitate comprehension. While adaptation as a translation type may be a valid technique or process in literary translations, it is not a welcome process in the translation of science materials meant for scientists. It is, however, a welcome process if the resultant material is used for popularization purpose. Many of the original works of science – science text books written straightaway in the developing languages, at least those 'pioneering' ones, and fall under the category of adaptation translation. In a straight forward translation, this is not resorted to.

Wherever necessary, footnotes are given to elucidate the point under consideration.

Translation Equivalences

Vinay and Darbelnet and their definition of equivalence in translation

Vinay and Darbelnet view equivalence-oriented translation as a procedure which 'replicates the same situation as in the original, whilst using completely different wording' .They also suggest that, if this procedure is applied during the translation process, it can maintain the stylistic impact of the SL text in the TL text. According to them, equivalence is therefore the ideal method when the translator has to deal with proverbs, idioms, clichés, nominal or adjectival phrases and the onomatopoeia of animal sounds.

With regard to equivalent expressions between language pairs, Vinay and Darbelnet claim that they are acceptable as long as they are listed in a bilingual dictionary as 'full equivalents'. However, later they note that glossaries and collections of idiomatic expressions 'can never be exhaustive'. They conclude by saying that 'the need for creating equivalences arises from the situation, and it is in the situation of the SL text that translators have to look for a solution'. Indeed, they argue that even if the semantic equivalent of an expression in the SL text is quoted in a dictionary or a glossary, it is not enough, and it does not guarantee a successful translation. They provide a number of examples to prove their theory, and the following expression appears in their list: *Take one* is a fixed expression which would have as an equivalent French translation *Prenez-en un*. However, if the expression appeared as a

notice next to a basket of free samples in a large store, the translator would have to look for an equivalent term in a similar situation and use the expression *Échantillon gratuit* **.**

Jakobson and the concept of equivalence in difference

Roman Jakobson's study of equivalence gave new impetus to the theoretical analysis of translation since he introduced the notion of 'equivalence in difference'. On the basis of his semiotic approach to language and his aphorism 'there is no signatum without signum' (1959:232), he suggests three kinds of translation:

1. Intralingual (within one language, i.e. rewording or paraphrase)
2. Interlingual (between two languages)
3. Intersemiotic (between sign systems)

Jakobson claims that, in the case of interlingual translation, the translator makes use of synonyms in order to get the ST message across. This means that in interlingual translations there is no full equivalence between code units. According to his theory, 'translation involves two equivalent messages in two different codes' (ibid.:233). Jakobson goes on to say that from a grammatical point of view languages may differ from one another to a greater or lesser degree, but this does not mean that a translation cannot be possible, in other words, that the translator may face the problem of not finding a translation equivalent. He acknowledges that 'whenever there is deficiency, terminology may be qualified and amplified by loanwords or loan-translations, neologisms or semantic shifts, and finally, by circumlocutions'. Jakobson provides a number of examples by comparing English and Russian language structures and explains that in such cases where there is no a literal equivalent for a particular ST word or sentence, then it is up to the translator to choose the most suitable way to render it in the TT.

There seems to be some similarity between Vinay and Darbelnet's theory of translation procedures and Jakobson's theory of translation. Both theories stress the fact that, whenever a linguistic approach is no longer suitable to carry out a translation, the translator can rely on other procedures such as loan-translations, neologisms and the like. Both theories recognize the limitations of a linguistic theory and argue that a translation can never be impossible since there are several methods that the translator can choose. The role of the translator as the person who decides how to carry out the translation is emphasized in both theories. Both Vinay and Darbelnet as well as Jakobson conceive the translation task as something which can always be carried out from one language to another, regardless of the cultural or grammatical differences between ST and TT.

It can be concluded that Jakobson's theory is essentially based on his semiotic approach to translation according to which the translator has to recode the ST message first and then s/he has to transmit it into an equivalent message for the TC.

Nida and Taber: Formal correspondence and dynamic equivalence

Nida argued that there are two different types of equivalence, namely *formal equivalence*—which in the second edition by Nida and Taber (1982) is referred to as *formal correspondence*—and *dynamic equivalence.* Formal correspondence 'focuses attention on the message itself, in both form and content', unlike dynamic equivalence which is based upon 'the principle of equivalent effect' (1964:159). In the second edition (1982) or their work, the two theorists provide a more detailed explanation of each type of equivalence.

Formal correspondence consists of a TL item which represents the closest equivalent of a SL word or phrase. Nida and Taber make it clear that there are not always formal equivalents between language pairs. They therefore suggest that these formal equivalents should be used wherever possible if the translation aims at achieving formal rather than dynamic equivalence. The use of formal equivalents might at times have serious implications in the TT since the translation will not be easily understood by the target audience (Fawcett, 1997). Nida and Taber themselves assert that 'Typically, formal correspondence distorts the grammatical and stylistic patterns of the receptor language, and hence distorts the message, so as to cause the receptor to misunderstand or to labor unduly hard' .

Dynamic equivalence is defined as a translation principle according to which a translator seeks to translate the meaning of the original in such a way that the TL wording will trigger the same impact on the TC audience as the original wording did upon the ST audience. They argue that 'Frequently, the form of the original text is changed; but as long as the change follows the rules of back transformation in the source language, of contextual consistency in the transfer, and of transformation in the receptor language, the message is preserved and the translation is faithful' (Nida and Taber, 1982:200).

One can easily see that Nida is in favour of the application of dynamic equivalence, as a more effective translation procedure. This is perfectly understandable if we take into account the context of the situation in which Nida was dealing with the translation phenomenon, that is to say, his translation of the Bible. Thus, the product of the translation process, that is the text in the TL, must have the same impact on the different readers it was addressing. Despite using a linguistic approach to translation, Nida is much more interested in the message of the text or, in other words, in its semantic quality.

Catford and the introduction of translation shifts

Catford's approach to translation equivalence clearly differs from that adopted by Nida since Catford had a preference for a more linguistic-based approach to translation and this approach is based on the linguistic work of Firth and Halliday. His main contribution in the field of translation theory is the introduction of the concepts of types and shifts of translation. Catford proposed very broad types of translation in terms of three criteria:

1. The extent of translation (*full translation* vs *partial translation*);

2. The grammatical rank at which the translation equivalence is established (*rank-bound translation* vs. *unbounded translation*);

3. The levels of language involved in translation (*total translation* vs. *restricted translation*).

We will refer only to the second type of translation, since this is the one that concerns the concept of equivalence, and we will then move on to analyze the notion of translation shifts, as elaborated by Catford, which are based on the distinction between formal correspondence and textual equivalence. In *rank-bound translation* an equivalent is sought in the TL for each word, or for each morpheme encountered in the ST. One of the problems with formal correspondence is that, despite being a useful tool to employ in comparative linguistics, it seems that it is not really relevant in terms of assessing translation equivalence between ST and TT. For this reason we now turn to Catford's other dimension of correspondence, namely *textual equivalence* which occurs when any TL text or portion of text is 'observed on a particular occasion ... to be the equivalent of a given SL text or portion of text'. He implements this by a process of commutation, whereby 'a competent bilingual informant or translator' is consulted on the translation of various sentences whose ST items are changed in order to observe 'what changes if any occur in the TL text as a consequence' .

As far as translation shifts are concerned, Catford defines them as 'departures from formal correspondence in the process of going from the SL to the TL' (ibid.:73). Catford argues that there are two main types of translation shifts, namely *level shifts,* where the SL item at one linguistic level (e.g. grammar) has a TL equivalent at a different level (e.g. lexis), and *category shifts* which are divided into four types:

Structure-shifts, which involve a grammatical change between the structure of the ST and that of the TT;

1. Class-shifts, when a SL item is translated with a TL item which belongs to a different grammatical class, i.e. a verb may be translated with a noun;

2. *Unit-shifts,* which involve changes in rank;

3. *Intra-system shifts,* which occur when 'SL and TL possess systems which approximately correspond formally as to their constitution, but when translation involves selection of a non-corresponding term in the TL system'. For instance, when the SL singular becomes a TL plural.

4. Catford was very much criticized for his linguistic theory of translation. One of the most scathing criticisms came from Snell-Hornby (1988), who argued that Catford's definition of textual equivalence is 'circular', his theory's reliance on bilingual informants 'hopelessly inadequate', and his example sentences 'isolated and even absurdly simplistic'. She considers the concept of equivalence in translation as being an illusion. She asserts that the translation process cannot simply be reduced to a linguistic exercise, as claimed by Catford for instance, since there are also other factors, such as textual, cultural and situational aspects, which should be taken into consideration when translating. In other words, she does not believe that linguistics is the only discipline which enables people to carry out a translation, since translating involves different cultures and different situations at the same time and they do not always match from one language to another.

NIDA'S MODEL

His three phase model of translation theory holds the key to several problems in the study of translation. They are

(a) Text analysis

(b) Transfer and

(c) Restructuring

Text analysis consists of grammatical analysis focusing on the meaningful nature of grammar, same grammatical constructions having different meanings, necessary for making deep structure analysis, relationship of surface structure to Kernels, words having complex structures, classes of structurally complex terms, determination of structural role of elements by means of content, back transformation, different constructions expressing the same meaningful relationship between the parts, grammatical transformation from Kernels etc. It also includes an analysis of referential meaning and connotative meaning. Nida explains the problems connected with these such as the marking of meanings by

syntax and by sematics, the analysis of related meanings of different words, contrast in semantic areas and levels, overlapping in semantic areas, analysis of related meanings of a single word, the problem of figurative meanings, the size of the semantic units, factors concerned with connotative meaning, levels of usage, and the measurement of connotative meaning, aspects of linguistic message which carry connotative meaning etc.,

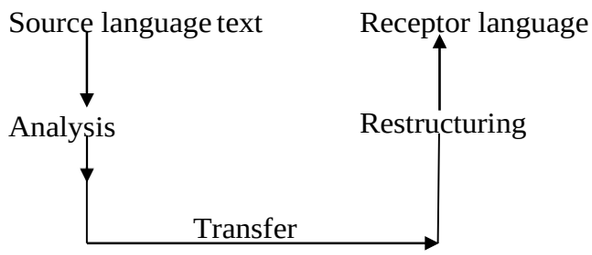


FIG. NIDA'S MODEL OF THE TRANSLATION PROCESS

The third stage relates to restructuring. Here a detailed account is given on the varieties of language or style which may be desirable, secondly the essential components and characteristics of three various styles, and thirdly the techniques which may be employed in producing the type of style desired. The above items incorporate levels of language for societies in which the language is only now being reduced to writing. Other aspect include dimensions of variations in language, oral and written style, sociological levels of language, situation levels of language, geographical dialects, types of discourse the components of style, classification of features of style for efficiency and special effects on formal and lexical levels, discourse structure, producing an appropriate style and training stylists for language lacking a literacy style.

Here some of the examples are given below for a better understanding of the translation process. Let us consider the question of translating *yes* and *hello* into Italian, French and German. These languages are closely related lexically and syntactically because they are belong to Indo-European language family. For the term *yes* standard dictionaries give:

French: Oui, Si

Italian: Si

German: ja

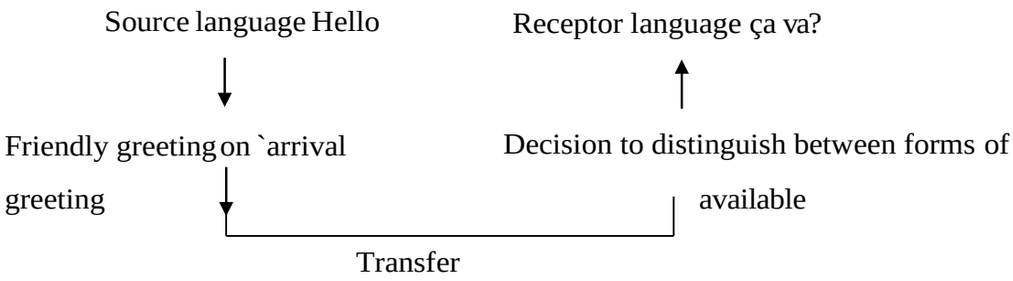
It is immediately obvious that the existence of two terms in French involves a usage that does not exist in the other languages. Future investigation shows that whilst *oui* is the generally used term, *si* is used specially in cases of contradiction, contention and dissent. The English or Tamil translator, therefore, must be mindful of this rule when translating the English or Tamil word that remains the same in all contexts (Susan Bassnett – McGuire, 1980).

When the use of the affirmative conversational speech is considered, another question arises. *Yes* cannot be always translated into the single words *oui, ja,* or *si,* for French, German and Italian all frequently double or 'string' affirmatives in a way that is outside standard English procedures (e.g. *si,si,si; ja, ja,* etc). Hence the Italian or German translation of *yes* by a single word can, at times, appear excessively brusque, whilst the stringing together or affirmatives in English is so hyperbolic that it often creates a comic effect.

The English word *hello*, is the form of friendly greeting when meeting, the problems are multiplied. The standard dictionaries give:

Italian: ola; pronto; ciao French: ça va?; hallo German: wie geht's; hallo

The translator will face lot of problems, while translating the English word *hello* into Italian, French and German. While translating the word *hello* into French he must first extract from the term a core meaning and the stages of the process, following Nida's diagram, might look like this way.



THEORIES OF TRANSLATION

Ethnolinguistic theory

In 1990, Prof. M. A. Sa'Adeddin proposed his ethnolinguistic theory whose aim is to reach a viable theory that can account for the various cultural barriers of translation across language communities. With a very practical interest in teaching students how to understand meaning of a given text before going on to translate it, this researcher analysed some texts in the light of the ethnolinguistic theory. It is almost taken for granted that for one to know the individual words of a sentence, so to speak, does not guarantee a full understanding of the sentence and eventually of the text. Problems related to the reading phase in the translating process can be ascribed to failure on the part of the translator or trainee to account for such areas as addresser-addressee, norm of interpretation, intertextuality and text acts. What is striking, though, is the fact the concept of 'equivalence' itself seems to need reformulation in the light of Sa'Adeddin's ethnolinguistic theory, which depends mainly on shifting focus from the text to the translator who will play the role of the comparative agent.

When asked a simple answer to the question: "What does translating involve?" one would assert that it is a process that involves three successive steps: reading, thinking (of how to solve the problem of non-equivalence) then rendering, or to put it differently: reading, decoding then encoding. It would therefore be very logical to say that to improve the skills of a translation trainee, each of the aforementioned steps must be dealt with effectively. Reading, being the first step in this tripartite process, seems to be instrumental in rendering a correct translation, for any incorrect reading will lead to incorrect translation.

There can be a multitude of problems facing students in reading for translation purposes, beginning with unfamiliar words, difficult collocations, or difficult structure on the phrase and clause levels (see Baker 1992). But even a simple text that uses no sophisticated words or structure can be misleading for the translator if it is culture-specific and in fact "no language can

exist unless it is steeped in the context of culture; and no culture can exist which does not have at its centre the structure of natural language" (Lotman 1978: 211-232).

Cultural awareness which is triggered in texts, is the set of values and beliefs which are prevalent within a given society or section of a society. It could refer to the achievements of a society in art, music, theatre and literature, to the habits, customs, social behaviour and assumptions about the world by a group of people, or could refer, as social discourse, to the social knowledge and interactive skills which are required in addition to the language system (McCarthy & Carter 1994: 150-151).

To look at a text from a cultural point of view means to "explore the ways in which forms of language, from individual words to complete structures, encode something of the beliefs and values held by the language user" (*ibid*: 150). When the text is full of the 'signs' that trigger cultural awareness, it becomes very difficult for the translator to understand what he or she reads, not to mention to know what to write in the target language. This means that special techniques should be devised in order to make a cultural text understandable.

So, the main instrumental factor, or the so called focal point, of the whole translation process is the translator himself or herself. This assumption seems to be in line with Sorvali, who stressed that the translator is a creative being whose role must by no means be overlooked (Sorvali 1998).

Again, ethnolinguistic theory (Sa'Adeddin 1990) tried to solve the problem of equivalence in translation by shifting focus from the text to the translator. According to ethnolinguistic theory, the translator plays a number of interrelated roles. The translator is a reader of the source text (ST), a perceiver and a producer of the target text (TT). Most importantly, the translator is an ethnographer because he or she deals with the experience of the source language and that of the target language. The translator according to this view is a comparative agent who tries to match the experience of the ST to that of the TT. Thus, Sa'Adeddin agrees with Beaugrande that "equivalence is the equivalence of the participants" (Beaugrande & Dressler 1981).

"What is your judgment on breaking one's fasting in a Ramadan3 day if the sun does not set until midnight?" This was the question asked by a 'fool' to a *faqeeh*4 and that question was enough to have him deemed a fool by the *faqeeh*. Calling the man a fool seems to have also been affirmed through the inclusion of this anecdote among other authentic ones in a splendid collection by Ibn Al-Jawzi. (Ibn Al-Jawzi 2007)

Elsewhere on the Internet (see for instance Islam QA), however, you read about places in this world where the sun does not set for a whole period of six months, a fact which refutes the 'stupidity' of the man's strange question to the *faqeeh*.

In the light of present knowledge about Earth and the Sun, when the above anecdote is looked upon by the reader without its context, the enquirer would not be deemed stupid at all. An informed reader would likely feel at a loss to understand the intention of one who tells a decontextualised version of the story. It is unlikely that the very word 'stupid' would spring into the 'informed' reader's mind in the light of the facts revealed by astronomy. Conversely, in our modern times, this question is wholly legitimate and requires the *fuqaha* (Jurisprudents) to give a plausible answer.

It is good and equally easy to say that the key to translating such an anecdote would be 'context'. But, what is context? Is it the 'text surrounding the word or the passage' or "the circumstances or

events that form the environment within which something exists or takes place", as defined by Encarta Dictionary (Microsoft Encarta 1999)? What are the components of context? Would it include "participants in speech events, the action taking place, other relevant features useful in making statements about meaning?" (Hatim & Mason 1990: 37) Or is it pragmatics (who is talking to whom, when, where under what conditions and in what manner?) with its speech acts and text acts that would better define what 'context' is?5 An equally important and legitimate question to ask is: even after deciding what context is, how can the translator benefit from the contextual components of a text in rendering an idiomatic translation into the other language?

Philological Theories

Philological theories rely upon 'philology' as the study of the development of language, and the classical literary studies. They are mainly concerned with the comparison of structures in the native and foreign languages, especially the functional correspondence and the literary genres in addition to stylistics and rhetoric .Nida explicitly states: The philological theories of translation are, of course based on a philological approach to literary analysis. They simply go one step further; in place of treating the form in which the text was first composed, they deal with corresponding structures in the source and receptor languages and attempt to evaluate their equivalences …… Philological theories of translation are normally concerned with all kinds of stylistic features and rhetorical devices. (Nida, 1976: 67-68)

Philosophical Theories

T he most prominent proponent of these theories is George Steiner, who claims that his book *After Babel* (1975) is the 'first systematic investigation of the theory and practice of translation since the eighteen century.' He primarily emphasizes the psychological and intellectual functioning of the mind of translator. He elucidates that meaning and understanding underlie the translation process, averring that a theory of translation is essentially a theory of semantic transfer from SL into TL. He defines his 'hermeneutic approach' as "the investigation of what it means to 'understand a piece of oral speech or written text, and the attempt to diagnose the process in terms of a general model of meaning" (Steiner,1975:249. He introduces his model in what he calls 'Hermeneutic Motion' to describe the process of literary translation. He looks upon the act of translation in the context of human communication across barriers of language, culture, time and personality, thus subdividing this motion into four stages (or moves). The first move is termed *trust* or *faith,*

which consists of the translator's assumption that the source text contains 'a sense to be extracted and retrieved into and via his own language, although this is generally an unconscious action. The second move is referred to as the *aggression, penetration* or *decipherment,* in which the translator "invades, extracts and brings home" the meaning of the original. The third move is termed '*incorporation, embodiment* or *appropriative use*. Translation can introduce new elements into the target linguistic and cultural system. The fourth and final stage or move is labelled '*compensation, restitution or fidelity'.* The translator must work to restore in his language what he has failed to recover from the original text.

Linguistic Theories

Linguistic theories of translation, according to Nida (1976:69), are based on a comparison of the Linguistic structures of the STs and TTs, rather than a comparison of literary genres and stylistic features of the philological theories. Their development is due to two factors: first, the application of the rapidly expanding linguistics, the scientific study of language, to several fields such as cognitive anthropology, semiotics, pragmatics, and teaching translation/interpreting skills; and second, the emergence of Machine Translation (MT) which has provided a significant motivation for basing translation procedures on linguistic analysis as well as for a rigorous description of SL and TL (Nida, 1976: 70).

These theories are perhaps best represented by proponent figures, such as Eugene Nida, Roger Bell and J.C. Catford who opens his well-known book '*A Linguistic Theory of Translation'* with the words: "Clearly, then, any theory of translation must draw upon a theory of language – a general linguistic theory" (165:1) This book has been translated into Arabic by As-Safi (1983). Accordingly, '*Linguistic Translation*' (or *Linguistic Approach*) is a

product of these theories which view translation as simply a question of replacing the linguistic units of the ST (source text) with "equivalent" TL units without reference to factors such as context or connotation. Catford (1965:20) defines translation (in Chapter One above) as a mere replacement of textual material in SL by equivalent textual material in the TL . According to Nida and Taber (1969:134) it is only a linguistic translation that can be considered 'faithful', because it "is one which only contains elements which can be directly derived from the ST wording, avoiding any kind of explanatory interpolation or cultural adjustment which can be justified on this basis." Nida (1976:75) suggests a three-stage model of the translation process. In this model, ST surface elements (grammar, meaning, connotations) are *analyzed* as linguistic kernel structures that can be *transferred* to the TL and *restructured* to form TL surface elements. His linguistic approach basically bears similarity with Chomsky's theory of syntax and transformational generative grammar.

Pertinent to linguistic theories is Newmark's binary classification of translation into semantic and communicative, which somehow resembles Nida's formal and dynamic equivalence. "Communicative translation," Newmark (1981:39) states, "attempts to produce on its readers an effect as close as possible to that obtained on the original. Semantic translation attempts to render, as closely as the semantic and syntactic structures of the second language allow, the exact contextual meaning of the original. These two approaches can best be illustrated in

the following figure (Newmark,1981: 39):

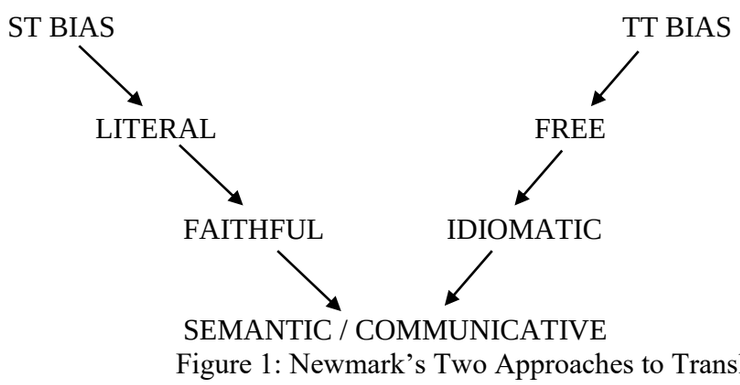


Figure 1: Newmark's Two Approaches to Translation

The contribution of linguistics to translation is twofold: to apply the findings of linguistics to the practice of translation, and to have a linguistic theory of translation, as opposed to other theories such as the literary theory of translation. There are, however, differences among linguistic theories, the principal of which, Nida (Ibid) maintains, lies in the extent to which the focus is on surface structures or corresponding deep structures. Theories based on surface-structures comparisons involve the use of elaborate sets of rules for matching corresponding structures, whereas those based on deep-structures involve transformational analyses employed in teaching the methods of translation.

Sociolinguistic Theories

These theories endeavour to link translation to communicative theory and information theory, with special emphasis on the receptor's role in the translation process. They do not completely overlook language structures, instead they deal with it at a higher level in accordance to their functions in the communicative process. These structures may involve rhetorical devices or figures of speech such as simile, metaphor, irony, hyperbole, etc., in both literary and non-literary texts. These theories require the translator exhibit language competence as well as language performance.

Interpretative Theory (or **Theory of Sense)**

This theory, originally designed to reflect the processes which are involved in *conference interpreting*, is associated with a group of scholars known as the Paris School. It is a reaction against some of the restricted views of linguistics of the time. The proponents of this theory argue that interpreters do not work merely with linguistic meaning, but also need to take into account such factors as the cognitive context of what has already been said, the setting in which the interpreting is taking place and the interpreter's own world knowledge (Lavault, 1996:97; in Shuttleworth and Cowie:2007: 85). The corollary is that the focus should be on the intended meaning or the sense rather than the words of the ST.

Psycholinguistic Theory

In the 60's and 70's, translation studies, embedded in linguistics, were preoccupied with the analyses of the source and target language texts (SL and TL texts). What was attracting the scholarly attention was the concept of translation equivalence1. All the research was orchestrated around the performance model that would ultimately direct the translator towards obtaining formal equivalence. What is vital to notice, that product-oriented approach rejected the human aspect, that is, the author, the translator and the receiver of the original and the translated texts. Any subjectivity was excluded.

First references to psycholinguistic aspects in translation were found in the book of the influential German theorist Wolfram Wilss *(The Science of Translation* 1982). In his book, Wilss devoted his attention to such issues as psycholinguistics, creativity and intuition in translation. It was only at that time that the first references to a translator as the subjective quality transmitter were made in translation studies. However, at that time, the psycho- linguistic considerations about the process of translation were in their infancy. The synchronisation of the psycholinguistic concepts and the translation theory took place in the 80's when the Think-Aloud

method of data elicitation was borrowed from the cognitive science (Think-Aloud protocols - TAPs). The new approach to translation (represented by such scholars as Hans Krings, Wolfgang Lörscher, Paul Kussmaul, Riitta Jääskeläinen or Sonja Tirkkonen-Condit) resulted in a considerable shift from the product- oriented to the process-oriented (dynamic) perspective.

LINGUISTIC PROBLEMS IN TRANSLATION

One might study problems of translation at four different linguistic levels, namely, phonological, morphological, syntactic and semantic.

Phonological Translation

Translation of technical terms involves identifying phonemes and phoneme combination equivalent (translation) to those found in the source language technical terms. Normally two languages may not have similar phonological or graphological system and structure. Often the graphemic system of the target language cannot be equivalent to the grapho-phono forms found in source language. Consequently, the target language orthography needs modernization so as to make it possible to represent exactly the loan forms in target language graphic form.

For instance, let us consider the translation of the words ‘sulphide and sulphite’ in Tamil. These words can be distinctively expressed in oral or phonoform; but in written grapho form it is not easy to represent the phonological contrast between these two forms. Similarly it is laborious to render fricative /f/ and other voiced stop phonemes such as g,b,d, etc., in Tamil. While nativizing the certain borrowed forms in general and while in transliterating some sounds and sound combination in particular, confusion arises as there is no standard established rule governing transliteration (Raja, 1993). Some of the examples, which reveal how certain borrowed items are the following:

Source language	**Target language**	
1. nitrite	/naiTraiT/	/naiTTiraiT/
2. antimony	/aaNTimani/	/aaNTTimani/
3. duralium	/Tiyurcaliyam/	/Tiyuuraaliyam/

Morphological Translation

At the morphological level, translation has to be done with basic units in language capable of meaning which are determinate with respect to segmentation. As in the case of other languages, the majority of forms in English are accounted for by several morphological rules. Irregularity will have to be considered as exceptions and they will have to be accommodated by particular ad-hoc rules.

In English, a majority of polymorphemic words can be phonologically marked out into constituent morphological units but there are some which cannot. Irregular plurals, irregular comparatives and superlatives are examples of the latter. In the case of polymorphemic words, of mostly Greek and Latin origin (e.g. anachronistic) the factorization of them into morphemes is one way of arriving at their meaning and of facilitating their translation. This can sometimes lead to a coinage in target language that is both expressive and evocative while being etymologically similar. Now we can discuss one example from English word which is translated into Malayalam.

Source language (English): anachronistic

ana (Greek) = backwards, reversed;

- khronos (Greek) = time;

- tic (Latin – icus) = pertaining to, characteristic of.

= reversed in time.

Target language (Malayalam): kaalaviparii Tamaaya

kaalam (Sanskrit) = time

- viparii Tam (Sanskrit) = opposite

- aaya = that which is / has become (adjectival in Malayalam)

= reversed in / opposed to time.

There is similarity as well as difference in the structures and combinations of morphemes as between English and Malayalam. Absence of one to one correspondence between one word and another, does not affect the overall compactness or economy of structures. English affixes can be either prepositional or postpositional. The same is true of Tamil and Malayalam. English as well as many European languages tend to use more prepositions than Tamil and Malayalam (Balakrishnan, 1996).

Syntactic Translation

At the syntactic level the decoding of meaning encoded in the source text in terms of the hierarchical categories of sentences, clauses, phrases etc., is the chief concern of the translator. Although translation equivalence is more than semantic equivalence, it is the first and fore most important criterion for evaluating appropriateness of translation.

This is not a straightforward or uncomplicated process. Semantic equivalence is not altogether independent of syntactic equivalence. In fact one is derivate of or complementary to the other in many instances. From the point of view of syntax, a literary translator reconstructs the target language text by capturing mood, emotion, attitude and emphasis in the source language text and restoring them as far as possible to the target language text in their quality as well as quantity. The variations that take place in syntactic structure of the target language may be considered in terms of bipolarity (a) syntactic parallelism and (b) syntactic divergence. The former implies structural resemblance between source language and target language in terms of topic and focus of information, while the second category implies changes/variations due to linguistic constraints and transformational processes (Balakrishnan, 1996).

Semantic Translation

A semantic translation tends to be more complex, more awkward, more concentrated and pursues the thought process rather than the intention of the transmitter. It tends to over-translate, to be more specific than the original, to include more meaning in its search for the meaning. A semantic translation is brief and more literal than a communicative translation. The basic difference between semantic and literal translation is that former respects contexts and the latter does not. In semantic translation the translator's loyalty is on the whole of the norms of the source language. Different methods are adopted while pursuing semantic translation (Raja, 1993). The different types are as follows: (1) word level translation (2) higher level to higher level translation and (3) partial translation.

Word level translation

When translating the source language technical terms into target language technical terms, it is advisable to search for simple words as equivalents. In fact while translating source language terms into target language equivalents, simple word forms are sought after:

SL (English)	TL (Tamil)
1) intensity	ceRivu
2) motion	iyakkam
3) particle	tukaL
4) strain	tiripu
5) stress	takaivu

Higher level to higher translation

Here higher level means the levels above the lexical level. In this type of translation, maximum number of technical terms involved are noun bases only. Here also structural and context similarity are maintained when units are translated from source language to target language. Some examples are given below:

SL (English)	TL (Tamil)
1) absolute zero of temperature	- tanicculi veppanilai
2) black body radiation	- KarumpooruL katirviivvu
3) electro-magnetic induction	- minkaantat tuuNTal
4) Thermo-electric effect	- Veppamin viLaivu
5) Thermo-electric series	- veppamin varicai

Partial translation

When any source language term is translated into target language, certain forms of the source language terms are transliterated and other forms are translated. Here also in Tamil scientific technical terms context is expressed in this manner. Some examples are given below:

SL (English)	TL (Tamil)
1) Peltier coefficient	- PelTiyar kuNakam
2) Plastic clay	- pLasTik kaLiman
3) platinum wire	- piLaaTinak kampi
4) radiowaves	- reeTiyoo alaikaL
5) rotary pump	- culal pump
6) tangent law	- TeenjaNT viti

Types of Meaning

Nida and Taber (1982: 56) classifies meaning into two classes, *referential meaning* and *connotative meaning*.

1. Referential meaning is word as symbol which refers to an object, process, abstract thing, and relation. Referential meaning dealing with grammatical, and lexical.

a. Syntactic marking

In some cases, the meaning of a word is governed by their grammatical structure. Here are the examples.

I		II	
1	*He picked up a stone.*	1	*They will stone him.*
2	*He saw a cloud.*	2	*The quarrel will cloud the issue.*
3	*She has a beautiful face.*	3	*He will face the audience.*
4	*He fell in the water.*	4	*Please, water the garden.*

From the examples above, it can be seen that in column I the words 'stone', 'cloud', 'face', and 'water' are nouns which are usually translated into '*batu*', '*awan*', '*wajah*', dan '*air*'. While in column II, the underlined words are not nouns, but verbs which in Indonesian language mean '*melempar (dengan batu)*', '*memperkeruh*', '*menghadapi*', and '*menyiram*'. In this case, grammatical structure of each word refers to the intended meaning explicitly. It remarks that one word also can defined by the word class.

b. Semotac marking

Meaning of a word is also determined by its relationship with other words in a certain context. In other words, semotac environment differentiates meaning. Here are the examples.

I		II	
1	*The horse runs fast.*	1	*The water runs through the path.*
2	*Your hand is dirty.*	2	*All hands up!*

The words 'runs' in sentence 1 in column I and II have different meaning because they have different subjects. In column I, the word 'runs' means '*berlari*' while in column II, it means '*mengalir*'. The words 'hand' in example 2 are also different in meaning.

2. Connotative Meaning.

Connotative meaning refers to a meaning that is implied by a word apart from the thing which it describe explicity. In understanding meaning of a word, it is not only based on the referred object of the word but also an emotional reaction of the word. In other word, a meaning also involves the sender's emotional condition not only from its concrete or abstrat dimension. To understand connotatve meaning, there are three main principles:

1. The relationship between the word and the speaker

When certain words relates with certain types of speaker, this will be accepted by the member of the group. Words which are used and understood by member of certain social class, level of education and religion. For example, a word such as *wall street*. It has different meaning in cetain social class. For people in Manhattan, *wall street* is a name of street in Manhatan. For shareholders or financial institution, *wall street* is center of stock market.

2. Condition of the speaker

The same word expressed by the same speaker but in different condition may rise different meaning. Some expresion related to certain place as in court police station, market, etc. For example, when I tell my friend that there is a robbery at my neighbor's house, it will just become an information to my friend. But if I tell the story in a police officer, it will have different response. The story will become a report that need to be handled.

3. Linguistics factor: Parallel words which are always in pairs with other ords give different various connotation. For example, the word "white" will have different meaning when it pairs with other following words.

White house -> a building for a president to live

A white shoes -> a shoes that is white

The word "white" is actually a kind of colour. But, it has different meaning when it occurs beore certain words that the receiver might react differently.

Suryawinata also classifies type of meanings into five, they are lexical meaning, grammatial meaning, textual meaning, situational meaning, and socio-cultural meaning.

1. Lexical meaning.

Meaning as defined in the dictionary is called lexical meaning. Usually it occurs when the word is used in isolation.

For example: Hand- the moveable parts at the end of the arms, including the fingers.

2. Grammatical meaning is a meaning that reached by a form or the structure in a phrase or a sentence.

For example:

a) She sweeps the floor. It indicates that she sweeps the floor in the recent time.
b) She swept the floor. It indicates that she sweeps the floor in the past time.
c) The floor sweeped by her. It indicates past voice.

3. Textual meaning can be reached by the influence of another word in a certain sentence.

For example:

a) Hand me your paper. (menyerahkan)
b) Just give me a hand. (membantu)
c) All hands up! (anak buah kapal)
d) They're always ready at hand. (siap)
e) Hands up! (angkat tangan)

Those sentences has the same "hand" but with the different meaning.

4. Situational meaning

Meaning or a word or phrase or sentence that exists in situation or context when it used.

Example :

The phrase "Good Morning" is usually used as a greeting when someone meets friends in the morning. But in different situation that greeting changes the meaning. Learn the new situation below. "A Staff, who always comes late and is lazy, is questioning by his manager but he is arguing and sure with his own reasons. This makes the manager irritates. At last he shouts : "That is enough. Good morning!

Those words are absolutely not a greeting, but it is a command for him to go out of the room as quickly as possible. The result of the translation in Indonesia is “Cukup Keluar”.

5. Socio-cultural meaning can be found in any certain culture and uses by people in it.

For example: In Java, people usually say: *“Endi oleh-olehe?”*or “Where is the souvenir?” after their friends or relations went to some places, it isn’t mean that they purely ask for souvenir but just for closely greeting.

Cultural Diffusion

A process in which one cultural trait, material object, idea, or behavior pattern is spread from one society to another.

Definition: the process by which an idea, invention, or way of behaving is borrowed from a foreign source and adopted by the borrowing people

Can have both positive and negative consequences

Can be intentional or unintentional

World has now become a global village. By global village what we mean is that everything is available to every person through the process of free information flow (Ascher, 2010). Globalization has brought everything closer and that has happened through cultural diffusion. Now to understand what cultural diffusion is, we first have to have a fair idea over what is diffusion. Secondly there is well defined process through which a culture is diffused in other cultures and makes it mark. This culture diffusion affects international business to the core because when we say that globalization have made its presence felt in the global economy, we see that it is there because of culture diffusion in different ways. This has also lead to come sort of cultural imperialism which we shall discuss in length in paragraphs to come.

Culture diffusion happens when non material and material culture travels to another culture (Wise, 2008). How this happens is a million dollar question which needs to be answered correctly and to the point. To have a profound knowledge over how it happens we go to the basics of it which is culture hearth. Now culture hearth is a place where civilizations first began and then they spread to different areas. Nowadays culture hearths are considered to be in those countries which are well developed and whose culture gets diffused to other developing countries because they have to be in tandem with each other so to have a good and viable trade. If we talk by considering the present world and international trade, we see that this cultural diffusion has spread many cultural straits wherever they got a chance to get diffused. Sometimes this spread is so rapid that no one can find out its origin, timing and spread. There are two different ways in which a culture is diffused to another culture; one is acculturation and another is Assimilation (Howes, 1996). Both are the ways in which culture is diffused in another culture. In acculturation what happens is that some cultural traits of strong cultures are being taken up by weak cultures like in ancient times we see that Spain had some cultural traits which are taken from Aztecs. Similarly if we see examples in the modern world we observe that a very common greeting ‘hello’ is also a cultural trait which is being taken by many cultures as a greeting by default. Why that happened so? Because it has its roots in western world and as West dominated for the last two centuries, all the trade, rules and policies were being written and implemented by

Western countries which influenced weak cultures to adopt the greeting and many other things which now we call globalization.

On the other hand, another way in which a culture can be diffused is through assimilation. In assimilation what happens is that cultures are intertwined with each other in such a way that it is hard to distinguish between where its origin had been. Lets for example when Arabs came to Indian Subcontinent, the Indians had nothing than a piece of cloth worn up to their knees with an open jacket as their vests but Arabs brought a new culture of a full length suit of cloth covering whole body. Now after centuries the Mongols and the warriors from Afghanistan brought minor changes to the original dress which made people easy to carry, walk and most of all made it best attire which can be used for combat purposes also. End result was that the whole thing got assimilated with each other so quickly that there was little difference left between what people wear in Arabian countries mainly the natives of Arab Emirates and the people wear in subcontinent. It specially pertains to the dressing of men.

Other thing which effects diffusion is the cultural barriers, time and distance delay and lastly physical barriers (Rauth, 2004). Cultural barriers includes things which are not acceptable to other culture at any cost for example Mc Donald came up in India with its different burgers mainly in beef but as Indians hold cow as sacred, they do not go for it so Mc Donald have to introduce veggie burgers instead of beef as local cultural barrier never allowed any assimilation or acculturization to take place. In time and distance delay, diffusion is hampered because time and distance which it would take to reach another culture would be more and then would become less futile for example Eskimos who live at poles, their cultures and way of living is different from us and still they are yet to have culture diffusion (Howes, 1996). Time and distance delay is somewhat linked with the physical barriers also which also helps in making things bad for cultural diffusion to take place for example the terrain which is very tough to pass would obviously make things worse for people to travel hence making it hard to diffuse a culture or similarly a sharp weather change would also create a physical barrier for culture diffusion to take place as it would be difficult to take things from one culture to another as culture traits differ from each other or not even close to each other.

UNIT II: Language Teaching Methods

Any serious study, which aims at contributing new ideas to Language Teaching Methods have to analyze, thoroughly the strength and weakness of the various language teaching methods erstwhile tried. Here an attempt is made to interpret and evaluate the methods that have been in vogue from time to time in different parts of the world. While discussing each of these methods, the prime objective, that is, the context of the ELT in India with particular reference to the ELT solution in Kerala, is borne in mind. The analysis of the methods includes the background in which the methods evolved the basic principles and characteristic features of the methods, the strength and weakness of each method and lastly the relevance of the method. Such an analysis of ELT methods is rendered here with the main objective of establishing the feasibility of

following a bilingual approach for the teaching of English as a second language in the State of Kerala especially in higher secondary and under graduate classes.

Some of the important methods and approaches discussed here are:

The Grammar- Translation method

The Direct Method

The Audio-lingual Method

Cognitive method

Communicative Language Teaching

Eclectic Method

The Grammar-Translation Method

Grammar Translation method, also known as the Classical Method or the Traditional Method, is clearly rooted in the formal teaching of Latin and Greek which prevailed in Europe for many centuries. Mackey says, "This is simply a combination of the activities of Grammar and Translation" (153). As its name suggests, "this method emphasizes the teaching of the second language grammar; its principal practice, technique in translation from and into the target language" (Stern 453).

The Grammar Translation Method is based on three assumptions:

(1) Translation interprets the words and phrases of the foreign language and ensures comprehension of the vocabulary items, collocations and sentences.

(2) In the Process of interpretation the foreign phraseology is assimilated.

(3) The structure of the target language is best learnt when compared and contrasted with that of the mother tongue.

This method became very popular in the late **18th** century and in the early 19th century. It advocates the learning of the rules of grammar and hence fails to produce fluency of expression in students. Lack of theoretical basis has not abated the applicability of the method even today when several linguistically sound methods are available. This method is most suited in teaching large classes with limited resources, since students can be made to listen, copy rules, write out exercises and correct them from the black board.

For this method the teacher need not be very competent in the target language. All that he needs to do is to follow the text carefully and discuss it using the mother tongue wherever necessary.

However, this method was not without weaknesses. There was a reaction against GMT in Europe around the year 1900. Stern, Sweet and Jesperson, to mention a few, realized that the use of translation as the only means of instructions would be ruinous. Palmer, who has no objection to using translation in certain specific contexts, attacks what he calls, 'The classical method', vehemently and says "It is one which treats all languages as if they were dead, as if each consisted essentially of a collection of ancient documents to be deciphered and analyzed ... It is the one which categorically ignores all considerations of phonetics, pronunciation and acoustic image, and boldly places language on a foundation of alphabets, spelling and writing systems". Wilga Rivers who succinctly sums up the limitations of the Grammar Translation Method says Little Stress is laid on accurate pronunciation and intonation; communication skills are neglected; there is a great deal of stress on knowing rules and exceptions, but little training in

using the language activity to express one's own meaning, even in writing ... The language learned is mostly of a literary type, and the vocabulary is detailed and sometimes, esoteric. The average students has to work hard at what he considers laborious and monotonous chores-vocabulary learning, translation and endless written exercises ... His role in the classroom is, for the greater part of the time, a passive one - he absorbs and then reconstitutes what he has absorbed to satisfy his teacher. Although as a teaching method it is imperfect, certain elements in it may be found useful in a teaching situation. Where rules facilitate the learning process there is no reason why they need not be incorporated in teaching. Similarly stalwarts of language teaching like Stern, Sweet, Palmer, Passy, Jesperson, while realizing translation as an inadequate means of instruction, felt that it could not and should not be totally banned from language teaching activities. "When the foreign word to be demonstrated is known to be for all practical purposes the equivalent of a native word, translation is a better mode than definition" (Palmer 58).

In India Grammar Translation method has been the most widely practiced method of teaching in Schools and Colleges. However in the past few decades a lot of changes have taken place in English Language Teaching Methodology. These changes and the introduction of new techniques have relegated the grammar translation method to the background. In theory this is what happened. But in the actual classroom situation, in spite of changes and new techniques, in most of the cases, what happens is adherence to the grammar translation method; the only difference is that it is being incorporated into other methods.

In Kerala, the situation is not different from that of other states of India. New innovations in the field of English language teaching could not bring much change in the attitude of the teachers of Schools and Colleges, especially of the rural areas, mainly because of the poor standard of the students, unwieldy size of the classes, incompetence of the teachers and the vast syllabuses imposed for the study.

The Direct Method

The language teaching reforms from 1850 to 1900 particularly in Europe attempted to make language teaching more effective by a radical change from grammar-translation. Various methods were developed during this period attesting to the general discontent with the prevailing theory and practice. The dissatisfaction is strikingly shown by the way in which new methods are run after.

"But none of these methods retain their popularity long – the interest in them soon dies out. There is a constant succession of them; Ollendorff, Ahn, Prendergast, Goniss to mention only a few - have all had their day. They have all failed to keep a permanent hold on the public mind because they have all failed to perform what they promised. After promising the impossibilities they have all turned out to be on the whole no better than the older methods" (Sweet 2-3).

The proposed reforms went under a variety of names: 'reform method', 'natural method', 'psychological method', 'phonetic method', but the most persistent term to describe the various features of new approaches in language teaching was the term 'direct method' (Stern 457). The Direct Method is characterized above all by the use of the target language as a means of instruction and communication in the language classroom, and by the avoidance of the use of the first language and of translation as a technique (Stem 456).

In a broad sense any method, which does not use the learner's mother tongue, may be said to be a direct method. Its main features as stated by Mackey are as follows:

(1) The use of everyday vocabulary and structure. (2) Grammar taught by situation. **(3)** Use of many new items in the same lesson to make the language look sound and natural and to encourage normal conversation. (4) Oral teaching of grammar and vocabulary. (5) Concrete meanings through object lessons: abstract ones through the association of ideas. (6) Grammar illustrated through visual presentation. (7) Extensive listening and imitation until forms become automatic. (8) Most of the work is done in the class; more class hours needed for the method. (9) The first few weeks devoted to pronunciation. (10) All reading matter first presented orally. Wilga Rivers comments on the Direct Method as follows: A Direct Method Class provided a clear contrast with the prevailing grammar translation classes. The course began with the learning of the foreign words and phrases for objects and actions in the classroom ... where the meaning of words could not be made clear by concrete representation, the teacher resorted to miming, sketches or explanations in the foreign language but never supplied native language translations. Grammar was not taught explicitly and deductively as in the grammar translation class but was learned largely through practice. Students

were encouraged to draw their own structural generalizations from what they had been learning by an inductive process. When grammar was taught more systematically, at a later stage, it was taught in the foreign language with the use of foreign language terminology...

Texts were read aloud by teacher and students were encouraged to seek direct comprehension by inferring meanings of unknown elements from the context rather than seeking equivalents in a bilingual vocabulary list where the meaning could not be discovered. In this way the teacher gave explanations in the foreign language. Student were never asked to translate passages into their native language; instead their apprehension of the meaning was tested by questioning and discussion in the foreign language ... The classroom was continuously filled with the sound of the foreign language and all activity was closely linked with its use in speech and writing. The approach initially precluded any resort to the mother tongue either for exercises or translation or for elucidation of vocabulary and grammar. "It was sanguinely expected that by banishing the vernacular from the classroom the pupils would be compelled to do their thinking in the new medium. "(Morris 10) Perhaps as a reaction to the Grammar Translation Method, the Direct Method did succeed in making an immediate appeal. This is one of the most widely known methods and one that has caused the most controversy. The method gave birth to more problems than it could solve. In the beginning it enjoyed a great popularity because it overcame two major defects of GMT. It substituted language contact in grammar recitation and language use for translation. Its focus on innovations of drill, vocabulary selection and systematic presentation went a long way to fetch laurels for it. In the hands of competent teachers this method succeeded with the whole class in contrast to the grammar translation method, which at best helped the exceptional students.

The important advantage of the direct method is that the student gets a lot of opportunities to listen to the spoken language. Listening is one of the important skills in language learning. The method lays emphasis on oral work and helps the student improve his speech habit. He can think

in the target language without the help of the mother tongue. Ability to think in the target language and ability to speak will induce confidence in the minds of the learners.

However the method has some inherent weaknesses. The exponents of the direct method do not think that the learning of the first language and the second language are not alike. The circumstances necessitate the child to imbibe his first language because he has to express his wants. A first language learner also gets ample exposure to the language. A second language learner has neither such compulsion nor is he exposed to the language so intensely. The method is, no doubt, very useful for young learners in the beginning classes, but it does not work well specially in higher classes. It lays greater emphasis on speech training but ignores other skills of language learning namely, reading and writing.

The main defect of the method was that the students plunged into 'a language bath' tended to use native language structures in foreign vocabulary, thus developing inaccurate fluency.

Since students were required at all times to make a direct association between foreign phrase and situation, it was the highly intelligent student with well developed powers of induction who profited most from the method, which could be very discouraging and be widening for the less talented. As a result, the members of an average class soon diverged considerably from each other in degree of foreign language acquisition. (Rivers 21)

Further, its efficient handling required competent teachers with good command of spoken language. It required teachers who had native like fluency in the foreign language. It was largely dependent on the teacher's skill rather than on a text book and not all teachers were proficient enough in the foreign language to adhere to the principles of the method. Moreover strict adherence to the principles of the method was often counter productive since teachers were required to go to great lengths to avoid using the native tongue when sometimes a simple brief explanation in the student's native tongue would have been more efficient route to comprehension. The psychologist of the Harvard University, Roger Brown (1973) described his frustration in observing a teacher performing verbal gymnastics in an attempt to convey the meaning of Japanese words, when translation would have been a more efficient technique to use. The British linguist Henry Sweet also recognized its limitations. He argued that the direct method offered innovations at the level of teaching procedures, but lacked a thorough methodology basis (Sweet 4). The direct method, Stern observes, "was a first attempt to make the language learning situation one of language use and to train the learner to abandon the first language as the frame of reference" (Stern 459).

In spite of all its drawbacks the direct method enjoyed immense popularity in many countries like Germany, France, Switzerland, Belgium, England and the United States. In India also during the twenties and thirties of the 20th century the Direct Method was introduced. The first book advocating the use of the method in India was P.C. Wrenn's 'The Direct Teaching of English in Indian Schools'. But the method did not fetch the desired result. The study group appointed by the Ministry of Education, Govt. of India in 1964 describes the chaotic situation created by the practice of the direct method in our country as follows:

In the large majority of schools in which it could not be implemented, it was practiced with ruinous consequences. The Direct Method drills would themselves have ensured correct expression on the part of pupils. But the teachers, uncertain of their own command over Spoken

English did not venture for it in that direction. The rules of grammar had in the meanwhile been exited *from* the classroom, since they were regarded as the accompaniment of a dead language. The result was that children at school developed a kind of English that was as primitive and *grammarless* as a war cry ... The teacher's diffidence with reference to spoken English and his almost subconscious belief that a second language can only be taught through the grammar and translation method made him use even a direct method or structural course book as he would have used a grammar and translation course book ... This is why we teach English for six years or more in schools and find that children have hardly learned to frame a correct sentence in English. Though the method was accepted and implemented throughout India for teaching English, there were limitations that led to its ineffectiveness.

The large classes of unmotivated students, as a result of our mass education programme, the ever growing demand for the rationalization of the medium of instruction at the school and college level and the impact of the three language formula on our school time table complicated the issue still further. Hence the time was ripe for the appearance of an effective and practicable method for ELT.

The Audio-Lingual method

While grammar translation and direct method had largely developed in the European School Systems, audio- lingualism had its origin mainly in America. But it considerably influenced language education in many parts of the world. It appeared under various names. In the 1950's it was most frequently referred to as the aural-oral method. It was Brooks(1964) who

proposed the term audio lingual. Brooks himself popularized another term that referred to the same method as 'New Key'. Carroll (1966) called the method the 'audio lingual habit theory'. While Smith (1970) referred to it as the 'functional skills strategy'.

Whatever it was called, the origin of audio lingualism is to be found in the 'Army Method' of American wartime language programmes in World War 11. After the war foreign language teachers and educational authorities became interested in techniques used in the Army Method. Many factors like growth of the theory and practice of the Army Method, the writings and teachings of C.C. Fries and R. Lado, the development of Contrastive Linguistics, the new technology of language laboratory and the theories of conditioning of behaviorist psychology contributed for the development of audio-lingualism.

The distinctive characteristics of the audio-lingual method listed by Stern are as follows:

(1) separation of the skills - listening, speaking, reading and writing - and the primacy of the audio lingual over the graphic skills;

(2) the use of dialogues as the chief means of presenting the language;

(3) emphasis on certain practice techniques, mimicry, memorization and pattern drills;

(4) the use of language laboratory;

(5) establishing a linguistic and psychological theory as a basis for the teaching method.

The growth of the theory was expressed in the five slogans listed by Moulton **(1963)**

(1) Language is speech, not writing

(2) A language is what its native speakers say, not what someone thinks they ought to say.

(3) Languages are different.

(4) A language is a set of habits.

(5) Teach the language, not about the language.

The fifth slogan expresses more a pedagogical than a linguistic principle. It emphasizes the need for practice rather than for explanation. All five principles became the tenets of language teaching doctrines during the two post war decades until they were questioned by the linguists under the influence of Transformational Generative Grammar.

The advocates of the Audio Lingual Method emphasize teaching through oral presentation prior to written presentation. They give the greatest importance to speech. At the same time reading and writing are not neglected. "The student is not however, left to pick up these skills as best as he can, using his native language as the basis of all his thinking. Instead he is trained to build up skills in these areas step by step, capitalizing on his growing knowledge of the structure of the language until both reading and writing become for him not exercises in transposition from one language to another but activities to be conducted entirely in the foreign language." (Rivers 45)

Student motivation in audio-lingual classes is, on the whole high. Students enjoy learning to use a language from the very first day of their introduction to it. Like the direct method, audio-lingualism tries to develop target language skills without reference to the mother tongue. Brooks (1960) for example regards a co-ordinate command of the second language as the ideal outcome of language learning. In the audio-lingual method the learning process is viewed as one of habituation and conditioning without the intervention of any intellectual analysis. Followers and supports of Audio-lingual method were influenced by B.F. Skinners 'Operant Conditioning' theories. For them the linguistic behavior of the child can change, as does its social behavior through the process of habit forming. The kind of thinking introduced mimicry, memorization and pattern drill into foreign language teaching. Audiolingual techniques, therefore, appeared to offer the possibility of language learning without requiring a strong academic background and inclination.

Thus language learning seemed to be within the scope of the ordinary learner.

Major contributions of audio-lingualism to language teaching are:

(1) It was among the first theories to recommend the development of 'a language teaching theory derived from linguistic and psychological principles.

(2) It tries to make language learning accessible to large groups of ordinary learners.

(3) It led to the development of simple techniques, without translation of varied, graded and intensive practice of the specific features of the language.

(4) It developed the separation of the language skills into a pedagogical device. (Stern 465-66)

Still the method failed. In the early 1960's audio lingualism had raised hopes of ushering in a golden age of language learning. But by the end of the decade it became the whipping boy for all that was wrong with language teaching. In the first place the importance given to achieve oral accuracy has only prompted many linguists to question the very necessity of a teacher.

Albert Valdman has criticized the exaggerated emphasis on oral drilling in Audio-Lingual Method (Valdman 30). The second objection to Audio Lingual Method is that the techniques of memorization and drilling can be tedious and boring. Only an imaginative teacher can minimize this.

Thus the teacher should be inventive and resourceful if the audiolingual method is to be successful. The teacher should be able enough to prepare the teaching materials, which will interest the students and motivate them. He should be able to innovate new ways of presenting the materials to keep aloof boredom. This implies that the service of well-trained and wellequipped teachers is very essential for the successful implementation of audio-lingual method.

In our part of the country, in the absence of well-trained teachers and other facilities needed for implementation of audio-lingual method, successful practice of the method in our schools and colleges is not still within our reach. The audio-lingual method gives stress to oral accuracy and lays emphasis on oral drilling. For the success of this method the service of welltrained resourceful teachers is very essential. In Kerala up to high schools those who have not got any training in the phonetics and phonology of English are forced to handle English Language. Further language laboratories are not established in schools; even the condition of the colleges is also not different. In such a situation one cannot expect the successful implementation of the audio-lingual method in our part of the country.

Cognitive Method

Sometimes, when someone calls us, we immediately hear it. Then, we give the response from his or her calling. From the phenomenon, unconsciously there is a process happens in our brain or thought. The process is called cognitive theories or cognitivism. According to Mergel (1998) cognitivism is a process based on the thought process behind the behavior. Changes in behavior are observed, and used as to what is happening inside the learner's mind. Cognitive theories emphasize the children conscious thought (Hebb, 2003:3). From the two definitions, I can infer that a process can be called cognitivism if a process happens in conscious thought(inside the learner's mind).

Cognition refers to mental activity including thinking, remembering, learning and using language. When we apply a cognitive approach to learning and teaching, we focus on the understanding of information and concepts. If we are able to understand the connections between concepts, break down information and rebuild with logical connections, then our retention of material and understanding will increase.

When we are aware of these mental actions, monitor them and control our learning processes it is called metacognition, which varies from situation to situation, will greatly effect how individuals behave in a given situation. Understanding of language, or *psycholinguistics*,is esstential to our understanding of print and oral acquistion of knowledge. *Comprehension and perception* will allow individuals to interpret information. Lastly, the overall *motivation*

THE EDUCATIONAL IMPLICATION OF COGNITIVE THEORIES

According to Suharno (2010:60) the cognitive view takes the learner to be an active processor of information. It means that the cognitive theory tries to create the people to be active to think. The implication of cognitive theories in educational field is try to produce the students to find the problem solving.do discovery learning, cognitive strategies, and project based learning.

Problem Based Learning

The application of the learning is try the students to find the solution of the problem. For example the student conducts a research. It means that he or she must find the solution to solve the problems of his or her research that consists of identifies the problem, collects and analyzes the data, draws the conclusion. The strength of problem based learning are it focuses on the meaningfulness not the facts, it can improve the students' initiative, it can improve the students' learning achievement etc.

Discovery Learning

Discovery learning is one of the applications of cognitivism . According to O'Donnell(1997) "Discovery Learning is an instructional method in which the students are free to work in learning environment with little or no guidance". This assumption from O'Donnell is also supported by Ryan & Muray (2009) who assume that discovery learning is problem based learning with minimal guidance". It means that through discovery learning the teacher gives opportunity to students to explore their selves by learning through the environment with little guidance from the teacher. There are some structures that must be paid attention in applying discovery learning. They are readiness to learn, intuitive and analytical thinking, motivates for learning. These structures must be moved from basic to advanced step.

From the example of the two types of implication of cognitive theories, the users of the theory must be paid attention to the principles itself. There are six principles of cognitivism theory to improve teaching (Magna publication, 1995).The first principle if information is to be learned, it must first be recognized as important. The second is during learning, learners act on information in ways that make it more meaningful. The third is learners store information in long term memory in an organized fashion related to their existing understanding of the world. The fourth is learners continually check understanding, which results in refinement and revision of what is retained. The fifth is transfer of learning to new contexts is not automatic, but results'-form exposure to multiple application,. The sixth is learning is facilitated when learners are aware of their learning strategies and monitor their use.

STRENGTH AND WEAKNESSES

Cognitivism is a theory of learning studies about the process occurs inside the learner's. So, as a teacher who wants to apply the cognitivism in his or her teaching learning process, he or she must consider the strength and weaknesses of it when it applies in classroom. The weakness of cognitivism is the learners learn the way to finish the task, but it is not a good way. The strength is the students are trained to do the task in the same way to produce the students who have consistency behavior (Schuman,1996 in Mergel, 1998).

Communicative Approach

In recent years, communicative language teaching has become popular as a method of teaching second/foreign language although it covers a variety of developments in the field, especially in respect of syllabus design and methodology of teaching. Moreover, as David Wilkins (1976) points out, "we do not know how to establish the communicative proficiency of the learner". Wilkins however expresses the hope that "While some people are experimenting with the notional syllabus as such, others should be attempting to develop the new testing techniques that

should accompany it". An attempt has been made here to outline some of the basic postulates of the CA to language teaching.

The origin of Communicative Language Teaching relates to the changes in the British language teaching tradition from the late 1960s. The real impetus for the CA came from the changing educational reality in Europe. With the emergence of many independent European countries, there arose the need to teach people the major languages of the member countries of the European Common Market. Education became one of the major activities of the Council of Europe. It encouraged conferences on language teaching and publications of books and monographs, which emphasized the need to develop alternative methods of language teaching methods, which were different from the methods like the Audio-lingual and the Situational. The CA, to language teaching, has since then become popular or at least in vogue in many countries of the world.

The CA draws inspiration from current ideas about language, particularly about language as a social tool. Therefore CLT is organized on the basis of certain communicational functions like apologizing, describing, inviting, promising etc. An ESL learner should be familiar with these functions. Scholars like Halliday (1969, 1973, 1978) Austin (1962) Searle (1969) and others have also made major contributions to its theoretical underpinnings. It was Hymes (1971) whose work crystallized the approach. The CA is rooted in a theory of language as communication and the goal of language teaching is to develop what Hymes calls 'Communicative Competence'. He suggests that linguistic theory should be seen as part of a more general theory incorporating communication and culture.

Communicative Language Teaching does not ignore the role of grammar in the process of language learning, but it insists that the grammatical rules are useless unless they are applied to real life situations.

Hymes maintains that grammatical competence is not a sufficient basis for communication. There must be a shift of emphasis from usage to that of use of the language. CLT lays emphasis on functional, communicative and social interactive activities. Communicative competence entails the knowledge of how to use language appropriately in given situations in given cultural contexts in order to achieve the desired objectives. To make language learning practical and realistic in the language classes it is essential to create social and real life like situations. Therefore creating and interpreting everyday situations in the language class should be the important strategy of teaching English as a second language. This is evident from what Little wood (1980) has to say "Foreign language learners need opportunities to develop the skills by being exposed to situations ... the learners need to acquire not only repertoire of linguistic items, but repertoire of strategies for using them in concrete situations" . CLT also lays emphasis on the semantic aspects of the language.

Advocates of CLT over the years tried to educate communicative approach to teaching English in their own ways. Amongst scholars who provided theoretical base to the CA, Halliday and Widdowson deserves special mention. Spelling out his functional accounts of language use Halliday (1947) remarks "linguistics is concerned with the description of speech acts or texts. Since only through the study of language in use are all the functions of language and therefore all components of meaning brought into focus"(145). Henry Widdwson's book, *Teaching Language*

as *Communication* (1978) has dealt with the scholarship between linguistic systems and their communication values in text and discourse. Harris was, of course, amongst the first scholars to view at language in terms of the combination or interconnection of sentences. "Language", he held, "does not occur in stray words or sentences but in connected discourse in purely formal terms as a series of connected sentencesU(l55). Scholars like Labov (1969) relate the use of language form to social actions.

Commands and refusals are actions; declarations, interrogations, and imperatives are linguistic categories things that are said rather than things that are done. The rules we need will show how things are done with words and how one interprets these inferences as actions. In other words relating what is done to what is said and what is said to what is done. One must take into account such sociological non-linguist categories as rules, rights and obligations (Labov 54-55). Experts &I the area of philosophy of language like Austin have specified the conditions attended upon as act of promising, advising, warning, greeting, congratulating and so on. But probably the most important work in the field of communication as Widdowson has done is discourse. He has made a useful distinction between 'signification' and 'value', between 'text & discourse' and between usage and use. Communicative competence thus rests in a set of composite skills.

The primary goal of a communicative approach must be to facilitate the integration of these types of knowledge for the learner, on outcome that is likely to result from over emphasis on one form of competence over the others throughout a second language programme. CLT pays systematic attention to functional as well as structural aspects of language.

Eclectic Approach: A Multidimensional Teaching Approach

Teaching foreign language to adults requires total consideration of psychological methods since adults may face some drawbacks to learning related to their self-image and confidence. However, the use of linguistic and mechanical approaches should be incorporated in some managed ways. As discussed in the previews part behavioral approaches to language teaching failed to come up with students' cognitive and mental ability. While introducing new methods such as communicative approach, lexical approach and inductive methods suffered theoretical foundation. In this proposed approach two general human derives including physical and mental are regarded. By physical, the researcher means the entire physical aspects of learning and teaching that are linguistic oriented methods, teaching instruments and strategies dealing with educational setting. By mental aspect, the researcher means the entire activities related to human mind and its operation. All aspects that one requires to dominate over a specific mental activity.

Physical Aspects of Language Teaching

Language learning is an activity that requires both physical and mental aspects. In this section the entire physical aspects are introduced. Providing an example can help better understanding of this aspect. It was happened to the researcher asking a retarded person who participated in learning Arabic language to repeat different forms of a simple verb. He repeated the term automatically without thinking, bout when he was asked to tell the simple personal past form or any other forms he could not think to provide a proper answer; however, this type of learning is known as parrot-like learning that needs to be connected and associated to mental aspects. The main dimensions of physical approach are as follows:

1. Repetition of colloquial, phrases, and idioms
2. Writing and spelling new term, stems and introducing inflectional endings
3. Introducing pronunciation rules, stress and intonations
4. Familiarizing students with different dialects, and forms of language production through exposing them to different verbal dialects.

In this approach vocabulary and grammar are learned through repetition in chunks, idioms and phrases are unchanged expressions that should be fostered and internalized through memorizing. Understanding vocabulary and stems as well as inflections including suffixed, prefixes and infinitives to construct words are physical activities that require habit formation and understanding rules governing these structures. Generative Transformational Grammar of Chomsky as a theoretical method is contributed in teaching of grammar and syntax. Pronunciations, stress, and intonations are mechanical patterns in learning in which teachers have to use them in contribution to other aspects of learning. Different forms of language production should be introduced and students are required to be familiar with different dialects.

In language syllabus each of the four above discussed activities should be managed in specific patterns and practices. A specific text with proper and relevant topic containing terms, colloquial, and idioms should be used in the proposed lesson so that the text must be broken down to the four patterns that were introduced. Before starting to teach each pattern mental and psychological aspects should be taken into consideration by teachers and some mental patters and practices should be proposed in the lesson curriculum. These patterns are types that are introduced in the next subheading.

Mental and Psychological Approach

Mental and psychological patterns are two types. One is related to teaching process in which requires teachers to include them into their teaching activity, the other is related to learners and students' contribution to learning that are introduced as follows.

Teaching Mental Patterns

Teaching mental patterns refers to the entire mental and psychological requirements for teaching based on adult learners' needs. Kolfschoten et al. [14] emphasized on learners as "flexible problem solvers in a dynamic world" (p. 562), while reading this aim developing such cognitive skills without teachers mediation in the process of learning is not possible. To reduce the obstacles associated with learners' self-image, teachers should avoid direct correction of mistakes, rebuking learners' inability and failure and every system of scoring should be removed from the process of teaching. The following patterns should be regulated by teachers.

1. Providing a teaching setting based on pictures, books and figures relevant to the lesion every session.
2. Providing a process of peer-scaffolding in learning mistakes instead of teacher's direct correction of mistakes. Pee-scaffolding refers to attempts by Barnard [15] and De Guerrero and Villamil [16] for considering a new trend of peer in addition to interactions between a teacher and classroom [17] as scaffolding. Therefore peer-scaffolding is a student to student scaffolding under this condition that one student should have better knowledge of the courses, so that this process reduces students apprehension and maintains their self-steam.

3. Introducing the curriculum text using up-down method; in this method the general topic is introduced and debated among teacher and students. Students' ideas toward the topic should not be suppressed while providing incorrect statements both in using language accuracy and relevant ideas. In order to understand their mistakes they should come up with their mistakes themselves so that they think the teacher is not aware of their mistakes. By narrowing sown step by step into the details, students move from a general discourse to detail lexical and grammatical usages like Halliday's model of language and discourse. In his model, Halliday introduced sociocultural environment and then deep downed into genre, register, discourse semantics and lexicogrammar. These teaching-oriented patterns are up-down strategies that can be practiced by answering practices discussed in the physical patterns.

4. Metacognitive strategies of teaching should be incorporated by teachers. Metacognitive strategies are actions taken by learners to coordinate their own learning process, going beyond purely cognitive devices. These strategies are essential to successfully learning language [19], but such strategies should be introduced and applied by teachers as well. They should reveal the philosophy and logic of learning processes to students and provide practices that require learners' autonomy in managing their learning.

Learning Mental Practices, Activities and Thinking

Learning mental practices are introduced because students need to be autonomous learners and in this process teachers should pursued learners to master self-automation learning strategies. This is possible since students in higher education are engaged in learning teaching strategies. By application of such strategies the can manage their own learning. The following patterns as learning patterns should be managed by teachers:

1. Learners should manage their learning as the teacher runs the process of learning.

2. Students should use problem-solving skills by referring to reference books, dictionaries and peers.

3. Students are required to participate in communicative situations using their mental ability and phrasal roles to produce correct and fluent utterances. They should manage their own learning practices.

4. Students should use think aloud skills, and record their speech, transcript their language performance and pinpoint their mistakes.

5. Students in higher education should learn using jargons and dialects in appropriate conditions.

6. All these skills should be educated by the teachers. Also they should consider their teaching framework as a dynamic framework by scoring the most useful aspects of the framework using students' performance.

This suggestive approach takes brings together the linguistic and physical practices and mental and psychological aspects of adults. Incorporating language practice and psychology of learning students experience no damaging stressful condition in the process of mastering their own learning. Besides, they learn how to foster language, language skills, and teaching strategies. Though the present approach is to some extent relied on previous ideas, it is innovative in this respect that the teaching methodology progresses in this way that students are alternative to teachers in the process of language learning so that they are autonomous learners.

Listening, Speaking, Reading and Writing

The four skills of language learning are Listening, Speaking, Reading, and Writing. They are four capabilities that allow an individual to comprehend, produce and use the language in effective interpersonal communication. They are most often acquired in the order of listening first, then speaking, then possibly reading and writing.

Listening and reading are called receptive skills because learners do not need to produce language to do these, they receive and understand it. Speaking and writing are called productive skills because learners doing these need to produce language.

Having a good English level means to understand and to produce the language, so we should teach and develop all the four language skills in our students.

Teaching Listening

Listening is a very important skill. It is the queen of the four skills as it helps students to speak, communicate with others and learn vocabulary and grammar. It is the first receptive language skill.

Listening difficulties

The speed

It is related to how many people are there in the conversation and how quickly they speak.

Vocabulary

It is related to the inability of students to understand the listening text if they cannot understand the vocabulary included.

Structures

It is related to the inability of students to understand the listening text if they cannot understand the key structures included.

The length and the topic

A long conversation about football, food, clothes, films or TV programs may be easier for students to understand than a short one about politics or science.

Intonation

The intonation and stress of English native speakers are different from speakers of other languages.

Stages of teaching a listening activity

Before listening:

Prepare students for the listening activity by:

- Making them interested with an interesting introduction to the topic.
- Giving them a reason for listening asking them a question to answer.
- Explaining the new words.
- Explaining the new structures.

During listening:

- Students listen to the text for the first time.
- Helping them guess what will happen next after listening to a part of the text.
- They compare their predictions after their first listening.
- Ask some questions to answer before they listen a second time.

- Students listen a second time.
- They do some activities e.g. filling in a table while listening the second time.

Post listening

- Check students' understanding of the whole listening text by asking more questions on details.
- The teacher reads aloud the text (the story) from the audio script with five or six mistakes (not the grammar of course). Students correct these mistakes either immediately or by making a list of these mistakes and tell the teacher of them after listening.

Teaching Speaking

Speaking problems and their solution

Problem	**Solution**
Some students are afraid of making mistakes.	Be patient and encourage group work. Correct only serious mistakes.
Some students don't get a chance to take part in speaking.	Speak to them after the lesson.
Passive students don't participate in speaking.	They need help and attention from the teacher.
The topic is not interesting to students.	Move on to a different topic.
Some of our students speak very quietly.	Encourage them to speak loudly.

Speaking activities

There are six activities a teacher should use in speaking:

1. Students make sentences about themselves.
2. The teacher asks a question to one student who, in turn, asks another friend to answer.
3. The teacher tells a learner to ask another a question.
4. The teacher asks a question and encourages students to give short, realistic answers.
5. The teacher asks the students to give a response of more than one sentence.
6. The teacher gives a real answer and asks the students to make a question for it.

Techniques for correcting speaking mistakes based on the type of mistake

Accuracy	**Fluency**
Expressions of face	Don't correct everything
Gesture with hands	Correct some at the end.
Something like "Try again".	List mistakes and deal with only common ones.

Teaching Reading

Reading is the second receptive language skill which includes the following three levels in sequence.

1. Getting the primary, directed meaning of a word, idea or sentence.
2. Getting what the writer is trying to say to us "between the lines" without actually stating it.
3. Analyzing what the writer says or means.

Techniques to teach reading:

1. KWL Technique (What I know – What I want to know – What I learned)

In this technique:

- The teacher uses a picture or the title to ask the students to say everything they know about the subject they're talking about and lists their pieces of information (What I know)
- Students ask questions to get information about the topic they are reading about. The teacher accepts any questions that the students ask (What I want to know)
- The teacher gives answers to the questions the students asked. The teacher lists these pieces of information (What I learned)

2. DRTA Technique (Directed Reading Thinking Activity)

In this technique:

- The teacher asks students what they think a story or text with a title like this might be about. Students then read part of the story or text.
- The teacher asks the students what they think now. Are their guesses right or wrong?
- The teacher asks students what it is in the story or text that makes them think this.
- The teacher asks the students what they think will happen next.

Teaching Writing

There are three stages to deal with writing: before writing, during writing, and after writing.

Before writing (4 steps):

Students get enough ideas and information necessary for writing. It helps learners focus on the purpose and possible readers of their written work before starting writing.

1. Grouping discussion.

Encourage your students to discuss a certain topic in groups. The advantages of this are:

- It helps students get different viewpoints.
- Stronger students can help weaker students.
- It helps the teacher find out whether his students have enough vocabulary and are good at language structures.

2. Sunshine outline.

- Students draw rays coming from the sun and write a question word on each ray: who, what…etc.
- Help students think of possible questions that begin with these question words. Then, they write a phrase or two to answer these questions.

3. Oral brainstorming.

This is done orally. It involves the use of questions. The teacher can write these questions on the board and ask each student to think out answers to them. The teacher should bear in mind the following points:

- Accept all students' answers.
- There are no wrong or right answers.
- Never force the students to follow your viewpoints.
- Never interrupt the students during answering.

The teacher discusses the answers with his students. Then, he asks them to go to the next step.

4. Interviewing.

Students interview each other. They share viewpoints and ideas. They usually share their personal experiences and think about them during the interview. This makes students relaxed and reduces the fear of writing.

During writing (3 steps): 1. Drafting, 2. Revising and 3. Editing.

- The teacher tells his students to write on every other line of their paper to allow room for revising and editing.
- Students write the first form of their writing.
- Students revise whether the content of their writing is clear or not, either in pairs or alone.
- Students edit their writing, either in pairs or alone, as they focus on grammatical, spelling and punctuation mistakes they might have in their writing.
- Students write the final form of their writing.

After writing (3 steps):

1. Publishing students' writing:

The teacher encourages his students to publish their writing in different ways, e.g. in classroom, school, newspaper or magazine. They can collect their written work in a classroom book. They can put it in the classroom, school library. Students can borrow it and read it.

2. Classroom discussion:

Students can read their writing to the whole class, in groups or in pairs. This helps students practice listening to and speaking about their writing.

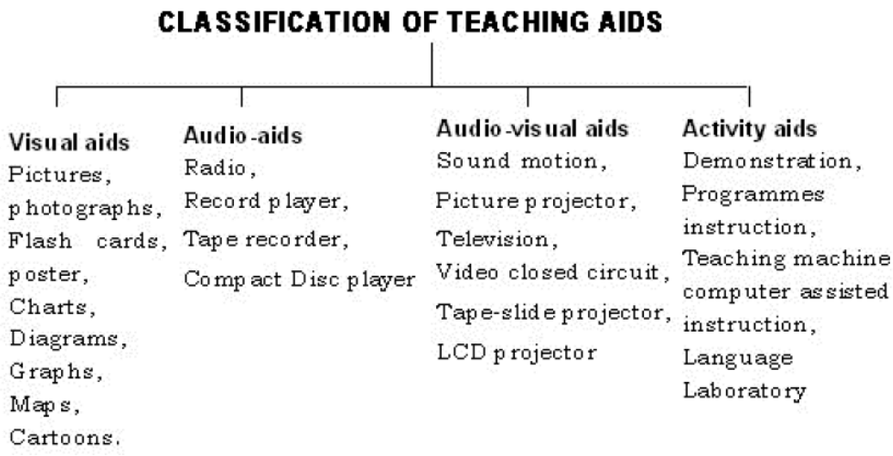
3. Drawing pictures based on the writing:

Students start drawing pictures based on their writing. This helps students realize that learning English can be fun, enjoyable and interesting.

Teaching Aids

Teaching aids reinforce the spoken or written words with concrete images and thus provide rich perceptual images which are the bases to learning. When these materials are used in an interrelated way they make learning permanent. They provide for a great variety of methods. They bring the outside world into the classroom and make us teach efficiently. In order to derive the advantages of using teaching aids, a teacher needs the knowledge of different types of teaching aids available, their place in the teaching-learning process and the methods of their evaluation. Teaching aids supplement the teacher and they do not supplant him.

The aids alone cannot accomplish the task of education and the teacher always remains the main pivot of all teaching. While using teaching aids the teacher should be clear about the objects of instruction and thus make the right use of the right material at the right place and at the right time.



ADVANTAGES OF USING TEACHING AIDS

Effective use of teaching aids:

1. Adds interest and involvement
2. Makes learning permanent
3. Reduces verbalism
4. Develops greater understanding
5. Stimulates self-activity
6. Fosters continuity of thought
7. Makes us teach efficiently
8. Helps in overcoming language barriers
9. Provides a great variety of methods
10. Brings the world into the class room

Classification of teaching aids

All teaching aids can be broadly classified under three heads namely,

1. Projected and non-projected aids
2. Audio aids, visual aids, audio-visual aids and activity aids.
3. Hardware and software

Here the classification followed is audio aids, visual aids, audio-visual aids and activity aids.

Filmstrip Projector

Filmstrips: Filmstrips are otherwise called ‘still films, strip films, or slide films’. It is a related sequence of transparent still pictures or images on a strip of 35mm, film. The picture may be in colour or black and white and it may be in single or double frame. Most of the film-strips have single frame pictures. Normally film-strip contain 20 to 50 frames in about two to five feet length.

Advantages of filmstrips

1. It is easy and convenient to use.
2. It takes up little space and can be stored easily in container.
3. A wide range of film-strips are available in colour or black and white.
4. The picture or images in film-strips are sequential in order.

5. It can be used at any desired place while teaching.
6. It can be used effectively even in semi-darkened room.
7. Some film-strips are accompanied by records carrying appropriate music and sound effects.

The overhead projector

From the name of the equipment itself, it would be evident that in overhead transparency projector, the projected image is obtained behind and over the head of the instructor. The OHP reflects images coming from a powerful light that shines through a transparency on a screen by means of tilted, highly polished mirror and lens assembly. The screen image is bright enough to be seen even in a lighted room.

The projector area ranges from 3" x 3" to 10" x 10". Normally overhead projectors are compared to a projection lamp, to act as a source of light, condensing lenses to concentrate all the light into usable beam, a polished mirror and lens assembly and a blower for cooling the system. OHP should not be kept on continuously for long periods. To use it as a chalk board is a very costly affair.

Advantages of OHP

1. A large image in a minimum projection distance is obtainable.
2. Permits the instructor to face the class as he writes or indicates points of importance on the transparency.
3. Projected images obtained could be seen even in a lighted room.
4. Simple and convenient to operate the equipment.
5. Low cost, home made materials could be used in minimum time.

The Micro Projecting

Micro projector is specialized projection equipment designed to project microscope slides to a class of pupils at the same time, during teaching learning process. The particular advantages of micro projector are:

1. It minimizes the need for expensive microscopes, for each student.
2. It presents a greatly enlarged picture of the object on the slide, and
3. It assures the teacher that his pupils are seeing precisely what he wants them to see.

Graphic Aids

Almost any material involving illustrations is basically graphic in nature. So it is difficult to define a rigid list of these materials. There can be almost infinite variety of graphic materials, however, there are certain categories of graphics worth considering. They are (1) Charts, (2) Diagrams, (3) Graphs, (4) Maps, (5) Posters and (6) Cartoons etc.,

Charts

The word chart in the common usage means variety of graphic presentations such as maps, graphs, pictures, diagrams, posters etc., for purposes of clarity, it is desirable to consider charts as a means of visualization with certain attributes. It may be defined ‘as combinations of graphic

and pictorial media designed for orderly and logical visualizing of relationships between key facts or ideas'.

Types of charts: There are many types of charts. The charts most commonly used in teaching are genealogy or tree charts, flow charts and chronology or tabulation charts.

Tree-charts: From the name itself it is clear that tree-chart is developed from a base composed of several roots which lead into trunk. The branches in turn represent development and relationships. This type of chart is useful in showing developments resulting from a combination of several factors.

Flow-charts: The organization, of student council or a unit of government, or the development of a manufacturing progress may be shown to advantage in a flow or organization-chart. In making a flow-chart, squares, rectangles or circles are used for each breakdown, and lines are used to show flow or directions.

Table-charts: The table-chart is indispensable in many teaching situations. It is effective, for example, in presenting a breakdown of financial statements such as bank balance sheet or the profit and loss statement. It may also be used for comparisons or for listing advantages or disadvantages of a business or organization. While making table charts, layout the charts with straight columns.

Titles and captions should be clearly visible. Do not overcrowd the chart. A good collection of charts helps the teacher considerably and if charts are available the teacher can make use of them during teaching. This will result considerably in saving time and energy. Minimum material required for the preparation of charts are:

1. Drawing paper of adequate size
2. Coloured card board.
3. Drawing pencils.
4. Colour crayons.
5. Nylon fibre – tip pens and different colour inks.
6. Letter stencils.
7. Self-adhesive tape.
8. Gauge cloth for packing.
9. Wood reapers of any light wood.

Diagrams

A diagram is a simplified drawing to show interrelationships primarily by means of lines and symbols. It is an abstract representation of a complex thing where the pictorial elements are absent. Since it uses a variety of symbols and similar materials of an abstract character, it requires careful foundation work before it is used in class. They present the elements or materials in a highly ondensed and symbolic means *viz.*, only by a line, a bare outline of an object or a cross sectional sketch of an object like cylinder.

Graphs

A graph is a visual representation of a numerical data, presented in a quick and an effective manner. Graphs are more useful than data or tabulations, since they reveal important

relationships such as trends and variations, significance of facts, principles, processes, procedures etc., in an easily understandable visual way. A good graph requires little explanation and conveys informations at a glance.

Types of graphs: The most commonly used graphs are the line, bar, circle or pie and the pictorial graph.

The line graph is the most accurate of all graphs. Plotting a line graph is more helpful. It is commonly used in industry, education etc. The line graph is used when the data are continuous. Bar graph is easy to understand and simple to construct. It consists of bars arranged horizontally or vertically from a base zero, size, length, or colour of the bars represents different values.

The circle or pie graph is a circle, the factors of which are used to represent component parts of a whole. They are especially valuable where distributions of values are important. Pie graphs always present totals or whole amounts and their parts of segments in percentages or fractional parts of a whole. Pictorial graphs are widely used in magazines, newspapers etc., because of its eye-catching nature. It has the added advantage of conveying meaning through realistic figures or pictures.

The following suggestions are of practical value while going for preparing graphs:

1. Determine the scale for the graph before plotting.
2. Use an adequate sized graph paper.
3. Layout graph with sharp pencil or colour crayons. Ink may be applied later.
4. Use a brief descriptive title.
5. Leave ample space to the left of zero line for all necessary drawing.

Maps

A map is an accurate representation in the form of a diagram of the surface of the earth or some part of it, drawn to scale. Maps are universal visual aids. They serve many valuable purposes in developing the concept of many social phenomena. They help to reduce the scale of areas and distances and thus bring the abstract concepts of size, distance and directions into a region of reality. The collection of maps is called an Atlas.

Display Boards

A variety of display boards are available for education, to make an attractive display of information to be communicated. They are the traditional black board or chalk board, bulletin board or tacks board, magnetic chalk board, flamed or khadi board etc. These display boards provide a variety of display techniques suited to the nature of the subject matters as well as to the needs of the pupils.

Black board / chalk board

The black board is probably the most widely used and versatile-tool of instruction. It provides a very convenient surface where the teacher can develop subject – matter visually in a manner and at pare to the suit the subject and the pupils. Neatness and orderly arrangement of black board matter contributes to the achievement of the purposes of instruction. The traditional black-boards are made up of the large wooden planks coated with black paint. Nowadays chalk boards with different types of writing surfaces are available. They are vitreous coated steel surface, paint coated pressed wood, ground glass board and dull finished plastic surface board. Chalk board is

an excellent supplement to other teaching aids. Facts, principles, concepts, process etc., can be explained with the help of writing, drawings, sketches and other usual symbols on black board in an easily understandable way. Black board can be effectively used by following the techniques given below:

1. Do not crowd the black board with too much information. A few important points make a vivid impression.
2. Plan black board summary in advance.
3. Gather everything needed before the class meets, chalk, ruler, eraser etc.
4. Check lighting conditions.
5. Write legibly and boldly on the black board.
6. Erase simulated materials.
7. Use colour techniques like template pattern, over head projection techniques for effective display.

Flannel board

A flannel board is a piece of rigid material covered with cotton, flannel, felt or wool. When objects like pictures, drawings, sings, symbols are backed with strips of paper they will adhere to the flannel board. Flannel board provides a unique basis for presentation of ideas and facts. It saves time during class presentation. It encourages visual presentation of ideas and concepts. It shows movements and arrangements. It shows accumulative processes.

Magnetic chalk board

The magnetic chalk board adds a new dimension and increased flexibility to class room presentations. It is a steel based porcelain-surface chalk board. Both chalk drawings as well as instructional materials fitted with magnetic holders may be used on this board. The porcelainized surface takes chalk well, permits ready removal of pencil or crayon marks and can be cleaned easily by using a damp cloth.

A variety of instructional materials equipped with magnetic holders is available, small magnets can also be purchased separately to be glued on special items used in teaching, possibly of movements. Three dimensional objects over the surface on the magnetic board is a valuable technique of instruction. An inexpensive magnetic chalk board can be prepared by a teacher by framing a light weight sheet with chalk board paint.

Non-projected aids - models

On certain occasions, while teaching, first hand learning experiences do not lend themselves for better learning. For example the operation of certain things like a pump, generator or an engine or certain abstract concepts cannot be seen from the outside or by providing first hand experiences. Knowledge of intricate construction of interior parts and their working is possible only through some modified direct experiences. One way of solving this issue is by using models, charts, objects, films etc. Of these, models play a vital role in teaching-learning process in accomplishing the goals of education. Especially in linguistics, many models can be used. For example, in phonetics oral cavity, lungs, tongue, teeth etc.

The Language Laboratory

Technological aids in language teaching are a major force today, and among these aids, the language laboratory occupies the most prominent place. Lab as centre of teaching is rejected here

for the following reasons: (1) It is more difficult and expensive to produce good materials that attempts to do everything than to produce materials that supplement the work of the teacher. (2) complete materials age rapidly and soon become out dated (3) such complete materials are inflexible and awkward without a teacher to control them and adapt them to the student.

The statement that such a lab will take the drudgery out of language teaching is problematical at best. Drudger can never be completely taken out of teaching, because teaching will always involve working with those who know less than the teacher. A teacher who feels so strongly that drill is a boring chore should seriously consider whether he should remain in the profession. One of the chief satisfactions of teaching is observing how the students learn what to them is new material; however old and familiar it may be to the teacher. By relegating all learning and drill to the language laboratory, the teacher can become merely a babysitter and examiner.

In the lab-as-an-aid point of view (1) the teacher is clearly thought of as the central figure teaching the student. (2) The lab is one more aid, not the central component of teaching. (3) The lab materials are designed to supplement class work selectively. (4) The materials are not complete lessons.

CONTRASTIVE ANALYSIS

Contrastive analysis conveys as many insights as possible into the differences and similarities between the languages being contrasted. It may be defined as a method that enables one to identify the differences and similarities between languages. The learner reacts to the learning of a new language in terms of patterns imposed by his mother tongue. A corollary to this is that the learners see the structure of the target language filtered through his in-built native habits.

Consequently he is led to commit errors mainly in those areas where the structures of the mother tongue and target language differ. Every language is founded on a set of rules. The rules are not identical between any two languages. When a child learns his mother tongue he learns a set of rules largely through intuition and imitation of the structures that he hears around him. Even then he flounders when he advances in his learning process and he misapplies the rules at times. The position becomes worse in the case of learning a foreign language. It may be explained amply in the words of Robert L. Politzer, “In foreign language teaching the problem of misapplying the rules looms even larger than in the native language. The mere fact that you already have a native language that will interfere with the foreign language makes second language learning and first language learning quite different processes”. It is, therefore, axiomatic that some linguistic methodology is required and devised to identify the areas of similarities and dissimilarities of mother tongue and target language. As P.D. Strevens (1965) points out “once sufficient descriptions of language exist, it becomes possible to embark upon a second stage in the improvement of the language teaching text books and materials, by preparing illuminating comparisons. It is axiomatic that if two pupils with the same mother tongue learn the same foreign language, they will encounter largely similar problems and difficulties; pupils with different problems; the recurrent difficulties of any individual pupil reflect the similarities and differences between his own language and the language he is learning; the most appropriate materials for teaching a language are those which embody a bi-lingual comparison (sometimes called a contrastive analysis) of the mother tongue and the target language”.

Learner transfers the entire sound system of his native language to the foreign language both for speaking and for listening. That is, he transfers the phonemes, their distribution, the patterns of sentences, the meanings when his attention is called to what in the foreign language constitute an error, he has no easy way to understand the error; he is not aware of what he has done, and he may not even perceive it". If the learner is made to understand the similarities and differences between his and the target language systems, then he may be able to keep a watch on the places where he is likely to err and he would keep a watch on the places where he habits under control without allowing it to interfere with the target language system. Contrastive analysis helps the learner to locate the problem spots. Contrastive analysis is carried out, generally, at five levels *viz*.

1. Phonological
2. Morphological
3. Syntactical
4. Lexical and
5. Cultural

A comprehensive analysis of two languages in the above said five levels can be considered to be full in every respect. Grading of language lessons with an eye on this analysis enables a language speaker to learn the other language early. It does not stop simply with learning the target language.

THE COMPARISON OF TWO PHONOLOGICAL STRUCTURES

In comparing two sound systems, three stages are involved:

1. Linguistic analysis of both the sound systems
2. Comparison of the sound systems involved
3. Description of troublesome contrasts

i) Prepare a linguistic analysis of the sound systems of the language to be learned and a similar description of the language of the learner.

ii) The comparison phonemes should include atleast checks:

a. Does the native language have a phonetically similar phoneme?

b. Are the variants of the phonemes similar in both languages?

c. Are the variants and the phonemes similarly distributed?

iii) When there is no phoneme in the native language that could be transferred to the foreign language, the student will substitute some phoneme from his native language stock.

English (1) /t/ Tamil /t/ put □ put

Regarding the distribution of phonemes:

German language d□t-# t□t-#. In English the words like *bud* and *but* will be pronounced alike by German students. The sequence of phonemes, certain consonant clusters in English are troublesome to many non English speakers, because these clusters are absent in those languages.

Eg. station □ s*teesan/ isteesen/ teesan

THE COMPARISON OF TWO GRAMMATICAL STRUCTURES

We mean by grammatical structure the systematic formal devices used in a language to convey certain meanings and relationships. The word order *is* before *he* in the sentence *is he there?*

spoken with a falling high-low intonation is the signal for one type of question in English. If a foreign speaker does not react to that sentence as a question he may be missing the structural significance of the word order arrangement.

A variety of formal devices may signal grammatical meanings. Among the most frequent elements used in various languages to signal grammatical structures are word order, inflection, correlation of forms, function words, intonation, stress and pauses.

1. Word order as a grammatical signal

In English *can he come?* With a falling high-low intonation signals a question in control to *he can come,* which is a statement. Again in English *pocket watch* is not the same as *watch pocket,* since the modifier-head relationship is signaled by position in English: whichever word comes first becomes the modifier. In *pocket watch,* the second word *watch* is the head, and *pocket* becomes the modifier. In *watch pocket* the roles are reversed.

2. Inflection as a grammatical signal

veenli, viidli, viixli ‘He came, he saw, he conquered’

vant-aan, kaNT-aan, veNR-aan

3. Correlation of forms as a grammatical signal

{I, we, you, they} know: {he, she, it} knows

This is correlation of inflection *–s* in verbs with a third person signals subject

such as *he/she/’u/John*, etc., in the present tense. This signals subject-verb

construction, in contrast to a modifier-head construction.

Eg. marriage promise (modifier-head).

Compare the following:

The *list* of books which *is* good (The list is good)

The list of *books* which *are* good (The books are good)

The *lists* of men which are good (The lists are good)

The lists of *men who* are good (The men are good)

In the fourth example the correlation between *who* and *men* helps to recognize the fact that the men are good, not the lists.

4. Function words as grammatical signals

John knows

Who knows?

The second sentence is a question signaled by the function word *who*.

5. Intonation as a grammatical signal

You’ happy?

You’re happy

You won the watch!

You won the watch.

6. Stress as a grammatical signal

John’ killed the rat last night (not peter)

John kill’ed the rat last night (not rat)

John killed the r’at last night (not cat)

John killed the rat la’st (not this morning)

7. Pauses as a grammatical signals

The following example will show to the pause as a grammatical signal, in English,

I scream : Ice cream

Twenty, three-cent stamps (20 stamps x 3c)

Twenty-three cent stamps (23 stamps x 1c)

A red wine, barrel (The wine is red)

A red, wine barrel (The barrel is red)

Grammatical structure a system of habits

Rober Lado (1964) considers acquisition of a system of habits. Each pattern, each structure contrasts not just with one other pattern but with many others. It is a complex set of these contrasts which constitutes a system for each language.

Compare the following examples from English:

He showed us the light house

He showed us the *house* light (Word order)

He showed us *a* light house (in definite)

He showed us the light houses (Plural object)

She showed us the light house (feminine subject)

He *has to* show us the light house (obligatory)

He *will* show us the light house (future)

He *show* us the light house (present)

Did he show us the light house? (In-Q)

Show us the light house (Imperative)

Dont show us the light house (prohibitive)

Who showed us the light house (Wh-Q)

Each example in the list above illustrates a potential change in the original simple sentence. The potential expansions are even more varied than the changes.

Compare one more example from English language,

The man who is standing over there showed some of *us*

(HE) (SHOWED)

Who are sailors and one fearful of being lost, the

(US)

light house that they say is at the entrance of the day, ……..

(THE LIGHT HOUSE)

In all these examples, in addition to partial changes and expression, there are things which cannot change in English can change in another language.

THE COMPARISON OF TWO LEXICAL SYSTEMS

Similarity and difference from the native language in form meaning and distribution will result in ease or difficulty in acquiring the vocabulary of a foreign language.

1) Similar in form and meaning:

table: TebiL (Tamil)

table: (French)

Parliament: paaraaLuman Ram (Tamil)

2) Similar in form but different in meaning

Library: librairie ‘book shop’ (French)

Wall: vaal ‘tail’ (Tamil)

3) Similar in meaning but different in form

Book: livre

4) Similar in primary meaning but different in connotation:

kicked the bucket ‘died’ (English)

tuňcinaar ‘died’ (Tamil)

aLakkiRaan

5) Similar in meaning with restrictions on geographical distribution. For example in Tamil as follows.

nirpeTTee ‘match box’

neruppupeTTi ‘match box’

tiippeTTi ‘match box’

vattippeTTi ‘match box’

6) Similar in meaning but different in type of construction

Run away: ooTippoo

7) One form to cover the entire range of meaning in one language and two or more forms in another language.

aaku (Telugu): i/ai/oolai ‘leaf’ (Tamil)

aLuku/vinu (Telugu): keel ‘ask’ (Tamil)

Those words which are similar in form and meaning will be here as **“cognates”**. It is immaterial whether they have the same origin or not. The usual meaning of the term is **“related in origin”**. Whatever the similarity, related, borrowed or accidental, these words constitute the lowest difficulty group. In fact, if they are similar enough, even Tamil speaking students who have never studied Kannada will recognize them. Those words are of value at the very elementary level of the mastery of the language.

“Cognates” can be found between English and Japanese and between Tamil and Sanskrit and many other languages which are quite unrelated to each other words which are similar in form but mean different things are called “deceptive cognates”. Tamil language borrowed the word *silk* from English but restricted it to ‘artificial silk’ (especially among uneducated people). This type of the word is similar to English but the meaning is only partly similar, since ‘it does not include (nature) silk’’.

for example,

silver - ever silver ‘stainless’

Teacher - female teacher (Tamil)

Saar - male teacher (Tamil)

Miruku - camel milk (Japanese)

Librairie - book shop (French)

ERROR ANALYSIS

There are two kinds of contrastive linguistic studies, one is the 'inter-lingual comparison' (what we have discussed so far), the other is 'error analysis' (EA). We shall now relate error analysis (EA) and contrastive analysis (CA). Contrastive analysis discovers the differences between the first and second languages and predicts that there will be learning problems, because they are problems, the learner will make errors. Error analysis, on the other hand, studies the nature of errors. When we make mistakes in our language, we know how to correct it and we judge a foreigner's knowledge of our language by the number and sort of errors he makes. From the study of errors we are able to infer the nature of his knowledge at that point in his learning career and discover what he still has to learn. Error analysis provides a check on the prediction of bilingual comparison. It is an important additional source of information for the selection of items to be incorporated into the syllabus.

When in the course of learning a second language, the learner is faced with the need to communicate something which requires knowledge or skill in the language which lies beyond what he possesses, he will have to resort to silence, gesture or the mother tongue. The classroom situation does not permit silence or gesture.

Mother tongue interference will cause errors. Not all errors are related to mother tongue interference.

For example, look : look-ed

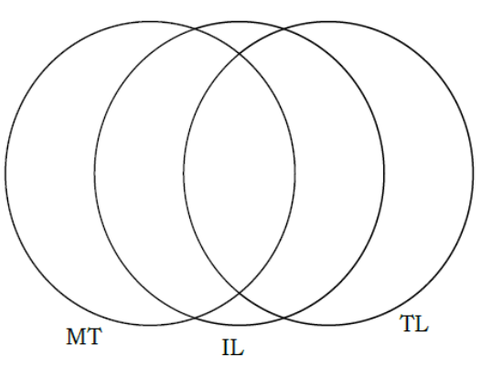
break : *break-ed, **brok-ed

This is only an **overgeneralization** of the rule for the formation of the past tense. The errors made due to mother tongue interference may be an important part of the data on which errors analysis is made. What is being compared in this case is not too existing or already known and described languages, but the language of the learner at some point in his course with the target language.

The learners so-called errors are systematic and it is precisely this regularity which shows that the learner is following a set of rules. These rules are not those of the target language but a 'transitional' form of language called **'interlanguage'** similar in many respects of the target language, but also similar to his mothertongue, or indeed any other language which he may be already in command.

Ibbaru bandaru	reNTu peeru vantaaru	ReNTu peeru vantaaŋka
MT	**IL**	**TL**

The errors are part of the data on which a description of this transitional language are identified.



The process of comparison is a two-step operation.

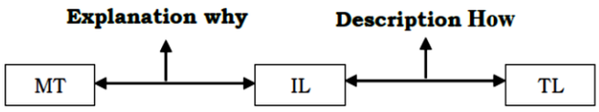
(a) By the study of learner's utterances we attempt to describe this transitional language or 'interlanguage'.

(b) We, then compare this description with the description of the target language.

The differences we find between IL and TL represent residual learning tasks of the learner.

We shall now relate error analysis with contrastive analysis. The contrastive analysis discovers the differences between the first and the second language and predicts that there will be learning problems; because they are problems, the learner will make errors. Errors analysis, on the other hand, studies the nature of these errors and confirms or reputes the predictions of contrastive analysis.

When interlanguage is compared with target language error analysis tries to explain how the learner has deviated from the rules of the target language in the construction of sentences, in other words, it tells us which rules he has broken, substituted or disregarded. This is known as description of error. When interlanguage is compared with mother tongue, error analysis tries to answer the question why he has broken, disregarded or ignored the rules of the target language. This is known as explanation of error. This can be shown in the figure as follows.



So far, in contrastive analysis and error analysis, we have dealt with the criterion of 'difference' for selecting material for language teaching. The other criterion is the criterion of 'difficulty'.

DESCRIPTION OF ERRORS

Error analysis is a comparative process that is comparing the synonymous utterances in the learner's dialect and the language. Error analysis, in this respect, is rather like undescribed and unrecorded language. Errors are classified into four categories

(1) **omission:** of some required element, (2) **Addition:** of some unnecessary or incorrect element (3) **Selection:** of an incorrect element and (4) **Misordering:** of elements.

Linguistic theory provides the language for talking of the learner with that of the native speaker, perhaps even for describing the difference between what the learner did and what a native speaker would have done in the same circumstances (Pitcorder, 1973). Here we will discuss about errors which are committed by the learner's at phonological and syntactic levels.

EXPLANATION OF ERRORS

PHONOLOGICAL LEVEL ERRORS

Errors which have been committed by the learners in the vowel lengthening and shortening are discussed below.

Vowel level

	Correct form	**Error**	**Meaning**
1)	Pallavar	Pallaavar	'the pallavas'
2)	Kavalai	Kavaalai	'worry'
3)	NaaTu	NaTu	'country'
4)	KaaTukaL	KaTukaL	'forests'

CHANGE IN THE PLACE OF ARTICULATION

Many learners have committed errors which involve change in the place of articulation. These errors also have been taken care, they are as follows.

Laterals

Many learner's have committed errors in the laterals only. This may be because they could not distinguish the different lateral sounds present in Tamil.

(a) kooL Kool/kool 'planet'

(b) nilal nilal/nilaL 'shadow'

In the nasal sounds also learner's could not identify the different nasals because there are five nasal sounds and appear to be similar to them. That is why learner's commit errors.

(a) kanicelvam kaNiccelvam 'mineral wealth'

(b) iNai inai 'parallel'

CHANGE IN THE MANNER OF ARTICULATION

Errors that involve change in the manner of articulation have also been identified. These are discussed in the following passage.

Laterals becomes nasal

Many learner's have committed this type of errors because there is orthographic similarity between these two sounds.

(a) vaalum vaamum 'living'

(b) peeraluttam peeramuttam 'great pressure'

Trill becomes flap

In this area also learner's commit errors because of the phonetic similarity.

(a) pooruttu pooRuttu 'fixing'

(b) parappu paRuppu'area'

Nasals becomes lateral

It is peculiar that some times lateral sounds have been substituted for nasal sounds erroneously by some learner's.

(a) tooTarKaL toolarkaL 'the todas'

SYNTACTIC LEVEL ERRORS

The sentence level errors committed by the learner's are described in the following way.

(a) Phonologically related case marker

(b) suuriyanaic cuRRivarum kooLkaLil onRu puumi

(c) 'earth is one of the planet rotating the sun'

In the above syntactic construction some learner's have used 'l' case marker, instead of using locative case marker 'l'. This may be because both the case marker have phonetic similarity.

Case marker substitution

NooykkirumikaL suuriya oLiyil koollappaTukinrana

"viruses are killed by sunlight'.

Here some learner's have used accusative case marker instead of using the locative case marker. This may be due to the learner's oversight. By this way many erroneous constructions have been formed.

Dropping of plural suffix

Oru naaTTin malaikaL, piiTapuumi, samaveLikaL, aakiyavaRRin amaippai
iyaRkkai amaiPPu enkiRoom

'The structure of mountains, plateau, plains of country is called physical structure'. Some of the learner's have dropped the plural marker in such construction. This erroneous construction may be due to the oversight of the learner.

SPOKEN LANGUAGE INFLUENCE

Learner's have used many dialectal forms in the syntactic construction. By this way the syntactic construction becomes erroneous. The influence of spoken language in the written language is clearly seen in the following example,

(a) ciilai ceLai 'saree'

(b) nilal niLal/nilal 'shadow'

(c) eelai ela 'poor'

REMEDIAL MEASURES

Many learners commit errors at the phonological and syntactic level. So far, we have discussed vowel lengthening, vowel shortening, change in the manner of articulation, case marker level errors, etc., For avoiding such errors the reinforcement is required, and certain remedial measures are given below.

(a) Teacher may try to distinguish all vowel and consonant sounds.

(b) In vowel mainly lengthening and shortening are to be distinguished.

(c) Laterals have to be clearly explained.

(d) Nasal sounds have to be clearly explained.

(e) Teacher has to give more exercises and explanation to the grammatical categories thoroughly.

Types of Language Tests

The needs of assessing the outcome of learning have led to the development and elaboration of different test formats. Testing language has traditionally taken the form of testing knowledge about language, usually the testing of knowledge of vocabulary and grammar. Stern (1983, p. 340) notes that "if the ultimate objective of language teaching is effective language learning, then our main concern must be the learning outcome". In the same line of thought, Wigglesworth (2008, p. 111) further adds that "In the assessment of languages, tasks are designed to measure learners‟ productive language skills through performances which allow candidates to demonstrate the kinds of language skills that may be required in a real world context." This is because a "specific purpose language test is one in which test content and methods are derived from an analysis of a specific purposes target language use situation, so that test tasks and content are authentically representative of tasks in the target situation" (Douglas, 2000, p. 19). Thus, the issue of authenticity is central to the assessment of language for specific functions. This is another way of saying that testing is a socially situated activity although the social aspects have been relatively under-explored (Wigglesworth, 2008). Yet, language tests differ with

respect to how they are designed, and what they are for, in other words, in respect to test method and test purpose.

In terms of method, we can broadly distinguish traditional paper-and-pencil language tests from performance tests.

Paper-and-pencil language tests are typically used for the assessment either of separate components of language knowledge (grammar, vocabulary etc.), or of a receptive understanding (listening and reading comprehension).

In performance-based tests, the language skills are assessed in an act of communication. Performance tests1 are most commonly tests of speaking and writing, for instance, to ask a language learner to introduce himself or herself formally or informally and to write a composition, a paragraph or an essay, A performance test is "a test in which the ability of candidates to perform particular tasks, usually associated with job or study requirements, is assessed" (Davies et al., 1999, p. 144). on the way he or she spent her summer holidays. These examples are elicited in the context of simulations of real-world tasks in realistic contexts. In terms of purpose, several types of language tests have devised to measure the learning outcomes accordingly. However, each test has its specific purpose, properties and criterion to be measured. The test types that will be dealt with in this part have been laid-out not in terms of importance, they are all of equal importance, but on the basis of alphabetical order. Yet, dictation, the traditional testing device which focuses much more on discrete language items, will have its fair of attention in terms of its pro‟s and con‟s.

1. Achievement Test

An achievement test, also referred to as attainment or summative test, are devised to measure how much of a language someone has learned with reference to a particular course of study or programme of instruction, e.g. end-of-year tests designed to show mastery of a language. An achievement test might be a listening comprehension test based on a particular set of situational dialogues in a textbook. The test has a two-fold objective: 1) To help the teachers judge the success of their teaching. 2) To identify the weaknesses of their learners. In more practical and pedagogical terms, Brown (1994, p. 259) defines an achievement test as „tests that are limited to particular material covered in a curriculum within a particular time frame‟. In other words, they are designed primarily to measure individual progress rather than as a means of motivating or reinforcing language. Ideally, achievement tests are rarely constructed by classroom teacher for a particular class. Richards et al. (1985) define a criterion-referenced test (CRT) as: a test which measures a student's performance according to a particular standard or criterion which has been agreed upon. The student must reach this level of performance to pass the test, and a student's score is therefore interpreted with reference to the criterion score, rather to the scores of the students. That definition is very different from their definition for a norm-referenced test (NRT) which they say is: a test which is designed to measure how the performance of a particular student or group of students compares with the performance of another student or group of students whose scores are given as the norm. a student's score is therefore interpreted with reference to the scores of other students or group of students, rather than to an agreed criterion score.

2. Cloze Test

A cloze test, also alternately referred to as cloze procedure, consists of a set of techniques for measuring, for example, reading comprehension. In a cloze test words are removed from a reading passage at regular intervals, leaving blanks. For example every fifth word may be removed. The reader must then read the passage and try to guess the missing words. For example, a cloze passage looks like this: A passage used in …… cloze test is a …… of written material in …… words have been regularly…… . The learners must then …… to reconstruct the passage …… filling the missing ……. (Adapted from Richards et al., 1989, p. 41) Here, the test-taker or the reader has to guess the following missing words: a, passage, which, removed, try, by and words. The cloze test can also be used to judge the difficulty of reading materials. If the cloze procedure is being used for language testing, the test-taker is given a score according to how well the words guessed match the original words, or whether or not they make sense.

Two types of scoring procedure are used: 1) The reader must guess the exact word which was used in the original (as in the example) above. This is called exact word method. 2) The reader can guess any word that is appropriate or acceptable in the context. This is called the acceptable word method. Another illustrative example of close test looks something like the following: ‘A week has seven .....’. The only word which will fit in this blank is „days“. But sometimes one can choose between two or more words, as in: ‘We write with a.....’. In this blank one can write „pen“ or „pencil“ or even „chalk“, „computer“ or „typewriter“ . However, two substantial criticisms have been made to the cloze-test types (Broughton et al., 1980). The first of these criticisms is that such tests rarely afford the person being tested any opportunity to produce language spontaneously. The second is that they are fundamentally trying to test that knowledge of the language system that underlies any actual instance of its use –linguistic competence in the Chomskyan sense- they are not concerned with the ability to master the language system for particular purposes with particular people in particular situations.

3. Diagnostic Test

As its name denotes, a diagnostic test is primarily designed to diagnose some particular linguistic aspects. Diagnostic tests in pronunciation, for example, might have the purpose of determining which particular phonological features of the English language are more likely to pose problems and difficulties for a group of learners. One of the well-known diagnostic tests in English is Prator“s (1972) Diagnostic Passage. It consists of a short written passage that the learner reads orally; the teacher then examines a tape recording of that reading against a very detailed checklist of pronunciation errors. Basically, diagnostic language tests have a threefold objective: 1. To provide learners with a way to start learning with their own personal learning programme or what would be called in the literature of testing learning paths. 2. To provide learners with a way to test their knowledge of a language. 3. To provide learners with better information about their strengths and weaknesses. Ideally, diagnostic tests are designed to assess students“ linguistic knowledge (knowledge of and about the language) and language skills (listening, speaking, reading and writing) before a course is begun. However, the term formative is sometimes used to designate a diagnostic test. One of the main advantages of a diagnostic test is that it offers useful pedagogical solutions for mixed-ability classes. In this very specific context, Broughton et al. (1980) contend that: There will certainly be a large block in the middle of the

ability range who can be separated off as a group for some parts of the lesson, or for some lessons, and will form a more homogenous teaching group. If this strategy is adopted, the poor ones and the better ones must receive their due time and attention. (Broughton et al. 1980, p. 189)

4. Discrete-Point Test

The discrete-point test, also called discrete-item test, is a language test which measures knowledge of individual language items, such as a grammar test which has different sections on tenses, adverbs and prepositions. Discrete-point tests are based on the theory that language consists of different parts such as speech sounds, grammar and vocabulary, and different skills such as listening, speaking, reading and writing, and these are made up of elements that can be tested separately. Test consisting of multiple-choice questions are usually regarded as discretepoint tests. Discrete-point tests are all too often contrasted with what are called integrative tests. An integrative test is one which requires a learner to use several skills at the same time. An essay-writing is an integrative test because it leans heavily on the knowledge of grammar, vocabulary, and rules of discourse; a dictation is also an integrative test as it requires knowledge of grammar, vocabulary and listening comprehension skills. In this vein, Harmer notes the following distinction between discrete-point testing and integrative testing, "Whereas discrete point-testing only tests on thing at a time such as asking students to choose the correct tense of a verb, integrative test items expect students to use a variety of language at any one given time – as they will have to do when writing a composition or doing a conversational oral test" (Harmer, 2001, p. 323). In the same line of thought and Broughton et al. ,more than some thirty years ago, noted that "Since language is seen as a number of systems, there will be items to test knowledge of both the production and reception of the sound segment system, of the stress system, the intonation system, and morphemic system, the grammatical system, the lexical system and so on" (Broughton et al., 1980, pp. 149-150).

5. Language Aptitude Test

Before one ventures into defining what a language aptitude test is, it would be wiser to start first by defining what a language aptitude is. Language aptitude, as a hybrid concept part linguistic and part psychological, refers to the genuine ability one is endowed with to learn a language. It is thought to be a combination of several abilities: Phonological ability, i.e. the ability to detect phonetic differences (e.g. of stress, intonation, vowel quality) in a new language. Syntactic ability, i.e., the ability to recognize the different grammatical functions of words in sentences. Psychological ability, i.e. rote-learning abilities and the ability to make inferences and inductive learning. Additionally, Crystal (1989, p. 371) suggests other variables conducive to successful language learning such as "empathy and adaptability, assertiveness and independence with good drive and powers of application". A high language-aptitude person can learn more quickly and 6 easily than a low language-aptitude individual. The evidence in such assertion is axiomatic in a language aptitude test. A language aptitude test tends to measure a learner aptitude for language learning, be it second or foreign, i.e. students performance in a language. Thus, it is used to identify those learners who are most likely to succeed.

Language aptitude tests usually consist of several different test items which measures such abilities as:

Sound-coding ability, i.e. the ability to identify and remember new sounds in a new language.
Grammar-coding ability, i.e. the ability to identify the grammatical functions of different parts of sentences.
Inductive-learning ability, i.e. the ability to work out meanings without explanation in the new language.
Memorization, i.e. the ability to remember and to recall words, patterns, rules in the new language. Two well-known standardized language aptitude tests have been used in the United States, the Modern Language Aptitude Test (Carroll and Sapon, 1958) and the Primsleur Language Aptitude Battery (Primsleur, 1966). Both of these are English tests and require students to perform such tasks as learning numbers, listening, detecting spelling clues and grammatical patterns and memorizing (Brown, 1994).

6. Placement Test

A placement test, as its name implies, is originally designed to place learners at an appropriate level in a programme or course. The term "placement test" as Richards et al. (1989) note does not refer to what a test contains or how it is constructed, but to the purpose for which it used. Various types or testing procedures such as dictation, interview or a grammar test (discrete or integrative) can be used for placement purposes. The English Placement test (EPT), which is a well-known test in America, is an illustrative example of this test-type. The EPT is designed to assess the level of reading and writing skills of entering undergraduate students so that they can be placed in appropriate courses. Those undergraduate students who do not demonstrate college or university-level skills will be directed to remedial courses or programmes to help them attain these skills.

7. Proficiency Test

A proficiency test is devised to measure how much of a language someone has learned. It is not linked to any particular course of instruction, but measures the learner‟s general level of language mastery. Most English language proficiency tests base their testing items on high frequency-count vocabulary and general basic grammar. Some proficiency tests have been standardized for worldwide use, such as the well-known American tests, the TOEFL, and the English Language Proficiency Test (ELPT) which are used to measure the English language proficiency of foreign students intending further study at English-speaking institutions, namely the USA. However, the Cambridge Certificate of Proficiency in English or CPE, as it is generally referred to, is the most advanced remains the only British top-value and highprestige standardized4 language test. It is the most advanced general English exam provided by the University of Cambridge. The Certificate is recognized by universities and employees throughout the world. The English level of those who pass the CPE is supposed to similar to that of a fairly educated native speaker of English. Clearly, as Valette posits, „the aim of a proficiency test is to determine whether this language ability corresponds to specific language requirements‟ (Valette, 1977, p. 6) Actually, there are four other types of Cambridge proficiency tests, the Cambridge Key English Test (KET), the Cambridge Preliminary English Test (PET), The Cambridge First Certificate of English (FCE) and the Cambridge Certificate in Advanced English (CAE). The material contained in proficiency tests can be used for teaching as well as for testing. In essence, a proficiency test measures what the student has learned in relation to a

specific purpose, e.g. does the student know enough English to follow a course offered in English?

The English Language Proficiency Test (ELPT) was the name of a test last administered in January 2005. It was a one-hour multiple choice question given on English language proficiency. A student whose native language was not English could have chosen to take this test instead of or in addition to the TOEFL for college or university entrance depending upon the requirements of the schools in which the student was planning to apply. Until 1994, the tests were known as Achievement Tests. The ELPT assessed both the understanding of spoken and written standard American English and the ability to function in a classroom where English is spoken. A standardized test is an exam which has been developed from tryouts and experimentation to ensure that it is reliable and valid. It is also a test for which norms have been established and it provides uniform procedures for administering (time limits, response format, and number of questions) and for scoring the test. "Standardized tests are often used by school systems for high-stakes decision making" (Menken, 2008, p. 402).

8. Progress Test

A progress test is an achievement-like test. It is closely related to a particular set of teaching materials or a particular course of instruction. Progress tests are usually administered at the end of a unit, a course, or term. A progress test may be viewed as similar to an achievement test but much narrower and much more specific in scope (Richards et al., 1989). They help examiners in general and language teachers in particular to assess the degree of success of their programmes and teaching and therefore to identify their shortcomings and weaknesses respectively. Progress tests can also be diagnostic to some degree, in the sense that they help identify areas of difficulties encountered by learners in general.

9. TOEFL

The Test of English as a Foreign Language, or TOEFL for short, is a large-scale language assessment. It is, "arguably the most well-known and widely used large-scale language assessment in the world" (Kunnan, 2008, p. 140). It was first developed in 1963 in the United States to help in the assessment of the language competence of non-native speakers. As a test type, it is a standardized test of English proficiency administered by the Educational Testing Service, Princeton. It is widely used to measure the English-language proficiency of foreign students wishing to enter American colleges and universities. According to Taylor and Angelis (cited in Kunnan, 2008) the first TOEFL was administered in 1964 at 57 test centres to 920 test candidates. Recently, the TOEFL has widely been recognized as a model test and have-take-test for our students, graduate and postgraduate, as well as our teachers and researchers in universities and higher education institutions wishing to read for higher degrees and develop further their research potential in North American universities5 . Kunnan (2008, p. 141) notes that, "Over the years, the TOEFL became mandatory for non-American and non-Canadian native speakers of English applicants to undergraduate and graduate programs in U.S. and Canadian English-medium universities". One of the most important realizations in the TOEFL enterprise was the launching of a more innovative test, the iBTOEFL, internet-based TOEFL, in 2005. This iBTOEFL is The International English Language Testing System, IELTS, is designed to assess the language ability of candidates who wish to study or work in countries where English is the

language of communication. IELTS is required for admission to British universities and colleges. It is also recognized by universities and employers in Australia, Canada, and the USA. IELTS is jointly managed by the University of Cambridge, British Council and IDP Education. regarded as a significant development over the previous TOEFL forms and the TOEFL CBT, Computer-Based Test, launched in 1996. The novel features of the iBTOEFL are a speaking section consisting of independent and integrated skills tasks, a listening section with longer lectures and conversations with note-taking, a reading section made up of questions that ask test-takers to categorize information and fill in a chart or complete a summary and a writing section that has both an independent and integrated task.

Language Planning vs. Curriculum Design

Language planning (also known as **language engineering**) is a deliberate effort to influence the function, structure or acquisition of languages or language varieties within a speech community. Robert L. Cooper (1989) defines language planning as "the activity of preparing a normative orthography, grammar, and dictionary for the guidance of writers and speakers in a non-homogeneous speech community". Along with language ideology and language practices, language planning is part of language policy - a typology drawn from Bernard Spolsky's theory of language policy. According to Spolsky, language management is a more precise term than language planning. Language management is defined as "the explicit and observable effort by someone or some group that has or claims authority over the participants in the domain to modify their practices or beliefs". Language planning is often associated with government planning, but is also used by a variety of non-governmental organizations such as grass-roots organizations as well as individuals. Goals of such planning vary. Better communication through assimilation of a single dominant language can bring economic benefits to minorities but is also perceived to facilitate their political domination. It involves the establishment of language regulators, such as formal or informal agencies, committees, societies or academies to design or develop new structures to meet contemporary needs.

Imagine a classroom in which a teacher is required to teach in a language her students do not speak or understand well. During the reading lesson, students struggle to master the most basic skills because the words and sounds of the language taught are foreign to them. During the science lesson, the children are unable to read their textbooks or apply their existing knowledge on the topic. When it comes time for mathematics instruction, the teacher struggles to communicate in a language that is challenging to her, too, while students find it hard to understand and ask questions. At home, most students are unable to receive support from their parents, who also do not understand the language of instruction.

The situation described above is all too common in many places throughout the world, particularly in sub-Saharan Africa and parts of Asia, where millions of children are expected to learn in a language they do not understand. According to a recent paper on language policy in education by the GEM Report, up to 40 % of the global population does not have access to education in a language they understand. Teachers, too, may be required to teach in languages they do not know well. The consequences are profound, with children unable to learn and

increasingly at risk for dropping out; teachers demoralized by their inability to communicate well with students; and entire school systems failing to provide a meaningful education.

Often, issues of how language is used—and *which* languages to use—in the classroom are viewed as too political, too complicated or too costly to tackle. Yet the longer efforts are postponed, the more children will continue to be denied access to education and to meaningful, child-centered learning. And even if they gain access, detrimental language policies and practices increase the likelihood that students will leave school before completing their education.

This is why all education stakeholders—from donors to Ministry of Education officials to educators and project implementers—need to engage *now* in language use planning. This includes providing instruction in children's familiar language, which has multiple advantages, including enabling students to apply their language skills and existing knowledge to the learning that takes place at school.. This approach fosters better teacher and student engagement, as well as parental involvement in education.

A blueprint for improving language use in education

Addressing and planning for how languages are used in the classroom is necessary to achieve the Sustainable Development Goals and other paramount education sector goals set by the U.S. Agency for International Development (USAID), the UK Department for International Development (DFID) and others. .

To support their achievement, USAID recently published *Planning for Language Use in Education: Best Practices and Practical Steps for Improving Learning*. The content and recommendations covered in the guide are summarized below.

Key factors to consider when planning for language use in education

Developing a holistic, effective plan for language use in the classroom requires understanding and planning for several key issues, including the following:

- ***Research on language and literacy acquisition.*** Knowing how children learn languages and learn to read is key to decision-making.
- ***Goals of the education system.*** The language(s) used to educate learners should be linked to a country's education access, equity and learning goals.
- ***Sociolinguistic context.*** This includes the number of language(s) spoken in the environment, parental and teacher language proficiency, and languages' writing system.
- ***Educational context.*** Understanding the context, including instructional time available, curriculum and materials, teacher skills and training, and teacher placement.

Key recommendations for planning for language use

- **Engage a wide range of stakeholders and conduct advocacy.** Successful planning and implementation require the involvement, support, and resources of a wide range of stakeholders, from senior education officials to teachers and parents.
- **Conduct relevant situation analysis.** This may include gathering information about policies, practices, programs and education materials available, and obtaining an up-to-date language map or conducting a mapping exercise.
- **Identify pedagogical approaches and languages for instruction.** These should be based on how children learn to speak, comprehend and read different languages, and the contextual and situational analysis about what is feasible—in the long and short term.

- **Develop curriculum, materials and assessments for languages used.** Children and their teachers must have appropriate and quality teaching and learning resources for the languages used for learning. Recent country experiences with developing materials across multiple grades and subjects (as was done in Ethiopia), as well as new technology such as the Bloom software, provide ideas and support for doing so.
- **Align teacher training and placement with languages and instructional approach.** Teacher training, recruitment, and placement should all align with the language approach.
- **Develop and implement a language policy and/or plan.** An approach to language use in education may be codified into official policy, but this alone is inadequate. An accompanying plan with key objectives, a time line, and a budget needs to be collaboratively developed.
- **Monitor and evaluate outcomes and refine the approach as needed.** Any approach for using language for learning should be monitored and evaluated to identify what works from an implementation perspective, and to identify whether learner outcomes are actually improving. Refinement may be needed over time before the "best" approach is identified.

A girl in Northern Nigeria learns to read in Hausa from materials designed to support the implementation of the country's language of instruction policy. Photo credit: RTI International

The Guide contains key planning tools and resources, including:

- A summary of research regarding language learning and acquisition
- A review of worldwide evidence and best practices regarding multilingual instruction
- A summary of activities and tasks to conduct during the planning process
- A situation analysis planning worksheet
- A checklist of conditions for effective language plan development and implementation.

Together, the advice and tools included in *The Guide* will help to facilitate the careful and collaborative planning that is needed to improve language use in education so that, every day, both teachers and students are engaged in meaningful learning, and have the support of parents and education leaders to achieve their potential.

Unit III: LEXICOGRAPHY

Lexicography is the description of lexical systems as Ethnography is the description of ethnic systems. But their goals are different. In lexicography, practical utility is primary and theoretical import is secondary, but in Ethnography it is the reverse. This difference is reflected in the format of the lexicon or dictionary in which the description of the lexical system is presented. Dictionary is not only a store-house of lexical information, but is also a

clearing house of that information. For many, it is also a court house whose verdict about correctness is final (Marckwardt, 1958; 477). As a store-house, its information must be authentic and as a clearing house, it must be easility retrievable. The need to be authentic explains the tedious labour which goes into the making of a dictionary to cull lexical information from a large number of sources.

Lexical and Grammatical Meaning

a. lexical meaning:

-far more concrete

-concerned with meanings of lexemes that belong to lexical word classes of nouns, verbs, adj, adverbs,etc.

-number of lexical meanings potentially infinite

descriptive meaning inside lexical meaning:

-sense/intension/denotation = relate to conceptual side of meaning

-reference/extension/connotation relate to extra-linguistic reality, relation bw lge - world

Based on the Oxford Advance Leaner's Dictionary, lexical meaning is "the meaning of a word considered in isolation from the sentence containing it, and regardless of its grammatical context, e.g. of *love* in or as represented by *loves, loved, loving*, etc".

According to the free dictionary , lexical is "the meaning of a word in relation to the physical world or to abstract concepts, without reference to any sentence in which the word may occur Compare grammatical meaning, content word.

Lexical words, also known as content words, have concrete meaning that goes beyond their function in a sentence. These words refer to things, people, actions, descriptions, or other ideas that have more than just a grammatical usage. Their meaning is easily identified by a clear concept or item.

The categories of English words that are lexical include nouns, adjectives, most verbs, and many adverbs. Nouns, for example, refer to specified ideas, people, places, or things. The concepts behind words like "dog," "love," or "Brazil," for example, are veryclear.

Adjectives describe nouns in well-defined ways, providing information about colors, texture, number, size, and so on. Likewise, adverbs can be lexical words if they specifically describe nouns or verbs. Because they evoke specific ideas, descriptors like "red," "quickly," "heavy," or "effectively" are considered lexical.

Most verbs also fall into the lexical category because they refer to specific actions. For example, the meanings of words like "think," "sing," "understand," and "jump" are easy to grasp.

b. ***grammatical meaning:***

-far more abstract

-concerned with function words (pronouns, pp, conj)

-meaning of inflectional affixes (tense, declension, conj)

-semantic roles (agent patient)

-number of grammatical meanings within a language is limited

According to Lyons (1995: 52) a lexeme may have different word-forms and these word-forms will generally differ in meaning: their grammatical meaning – the meaning in terms of grammar. For example, the forms of *student* and *students* differ in respect of their grammatical meaning, in that one is the singular form (of a noun of a particular class) and the other is plural form (of a noun of a particular class); and the difference between singular forms and plural forms is semantically relevant: it affects sentence-meaning. The meaning of a sentence is determined partly by the meaning of the words (i.e. lexemes) of which it consists and partly by its grammatical meaning.

Lyons introduces the term “categorial meaning” which is part of grammatical meaning: it is that part of the meaning of lexemes which derives from their being members of one category of major parts of speech rather than another (nouns rather than verbs, verbs rather than adjectives, and so on). Thus, all lexemes with full word-forms have a grammatical, more particularly, a categorical, meaning.

For example, the lexemes ‘easy’ and ‘difficult’ have the same categorial meaning: they are both adjectives. Each lexemes, however, has certain semantically relevant grammatical properties. The two word-forms *easy* and *easier* of the lexeme ‘easy’, though sharing some part of their categorical meaning, differ grammatically in that: one is the absolute form and the other the comparative form. This difference does not occur to the lexeme ‘difficult’ for this lexeme has only one form *difficult,* which does not accept any inflection.

Though ‘easy’ and ‘difficult’ belong to the same category of adjectives, having the same categorial meaning, they do not share all the grammatical features each has in terms of morphology and syntax. Likewise, all the lexemes sharing categorial meaning do not have all the grammatical meanings in common.

Grammatical words, also known as function words, have little definite meaning on their own and are ambiguous without context. Some also function to impart the speaker's attitude or perspective

onto other words. These kinds of words define the structure of a sentence and relate lexical words to each other.

Grammatical words include prepositions, modals and auxiliary verbs, pronouns, articles, conjunctions, and some adverbs.

· Prepositions are used in a variety of ways, and often have ambiguous meanings dependent on the context.

· Auxiliary verbs like "be" and "have" are used to shift a verb's time, while modals like "should" or "will" also impact the sense of verb in various ways related to time or attitude.

· Pronouns have little meaning except as placeholders for general nouns.

· Articles also simply qualify nouns.

· Question words, like "why," alter the function of a sentence or replace a noun. Other adverbs can shift the time or other senses of the lexical words they are connected to.

· Conjunctions link parts of a sentence together by establishing logical relationships between lexical words.

Grammatical meaning consists of word-class and inflectional paradigm.

1. Word-class

When a dictionary lists the function of a word, the definition does at least two things: it describes the word's lexical meaning and also gives what is traditionally known as the part of speech of the word, which modern linguists call the word-class; e.g. modern will be marked as a n adjective, modernize as a verb, and modernization as a noun. The word-class is essential, for when we use a word in a sentence, we have to take into consideration two factors: its specific lexical meaning and the position it normally occupies in a sentence, which is determined by the word class to which the word belongs.

Lexical meaning is dominant in content words, whereas grammatical meaning is dominant in function words, but in neither is grammatical meaning absent. The two kinds of meaning can be demonstrated by nonsense verse. Nonsense sentences of verses are not strings of random words put together. The words are combined according to regular rules of syntax with grammatical signals, i.e. function words, except that the content words are arbitrarily invented without lexical meaning and what is left is only grammatical meaning. Lewis Carroll's "Jabberwocky", which appears in his book through the Looking Glass, 1871, is probably the most famous poem in which most of the content words have no meaning – they do not exist in the vocabulary of the English language. Yet all the sentences "sound" as if they should be English sentences. The following is the first stanza of "Jabberwocky" (Note: the author have italicized all the content words):

“Twas *brillig*, and the *slithy toves*

Did *gyre* and *gimble* in the *wabe*;

All *mimsy* were the *borogoves*,

And the *mome raths outgrabe*.”

2. Inflectional paradigm

When used in actual speech, words (mainly nouns and verbs) appear in different forms; e.g. c*at* – *cats, mouse – mice,* to *walk, walks, walked,* to *write, writes, wrote, written*, etc. The set of grammatical forms of a word is called its paradigm. Nouns are declined, verbs are conjugated, and gradable adjectives have degrees of comparison. The lexical meaning of a word is the same throughout the paradigm; that is, all the word-forms of one and the same word have the same lexical meaning, yet the grammatical meaning varies from one word-form to another, e.g. *cat* is grammatically singular in meaning while *cats* is plural; *writes* denotes third person, singular, present tense, whereas *wrote* denotes past tense.

On the other hand the grammatical meaning is the same in identical sets of individual forms of different words, for example, the past-tense meaning in the word-forms of different verbs (*played, sang, worked*, etc.), or the grammatical meaning of plurality in the word-forms of various nouns (*desks, data, boxes*, etc.).

C. The Difference Between Lexical Words And Grammatical Words

Lexical words supply meaning to a sentence, whereas grammatical words relate the lexical words to one another. Look at the following sentence that only shows the lexical words: " ___ cat jumped ___ ___ tree ___ ___ dog ran ___." This looks like nonsense. All you know is that it is about jumping cats, running dogs, and trees. It may be possible to guess the complete meaning of the sentence, but you can't know for certain because cats, dogs, and trees can be related in different ways. Now look at the sentence with the grammatical words re-inserted: "The cat jumped into the tree as the dog ran forward." The sentence makes sense. Notice, however, that if you put a different set of grammatical words in, you get a completely different meaning: "The cat jumped from the tree after the dog ran away." You can see that the grammatical words clarify the logical relations between the lexical words and define their function in the sentence.

Although it's technical, the difference between lexical words and grammatical words is straightforward. It is an important concept for linguists because the distinction seems to exist in all languages, not just English. Understanding these differences helps scholars figure out the relationship between the different languages, as well as the history of the English language. It may even give some insight into how human minds work. Understanding these types of words will help increase your comprehension of English.

Lexical meaning is “the most outstanding individual of the word that makes it different from any other word”. The lexical meaning of a word may be thought of as the specific value it has in a particular language system, and the ‘personality’ it acquires through usage within that system.

The categories of English words that are lexical include nouns, adjectives, most verbs, and many adverbs.

Lexical meaning is dominant in content words, whereas grammatical meaning is dominant in function words, but in neither is grammatical meaning absent.

Grammatical words include prepositions, modals and auxiliary verbs, pronouns, articles, conjunctions, and some adverbs.

The difference between lexical words and grammatical words is straightforward. It is an important concept for linguists because the distinction seems to exist in all languages, not just English. Understanding these differences helps scholars figure out the relationship between the different languages, as well as the history of the English language. It may even give some insight into how human minds work. Understanding these types of words will help increase your comprehension of English.

Components of Lexical Meaning

In the general framework of lexical meaning the following components are singled out: 1) the denotational component; 2) the connotational component; 3) the pragmatic component.

*The **denotational** component* of lexical meaning is the part of lexical meaning which establishes correlation between the name and the object, phenomenon, action, process or characteristic feature of objective reality or thought as such, which is named by the given word. The denotational component of meaning conveys the bulk of information in the process of communication. The denotative component or denotation expresses the conceptual or notional content of the word, e.g. such words as “notorious, celebrated” both possess the denotation of “widely known”, but it is obvious that the denotative component alone is insufficient to give a full picture of the lexical meaning of the word.

*The **connotational** component* of lexical meaning is the part of meaning which reflects the attitude of the speaker towards what he speaks about and some additional information in the process of communication.

Different types of connotation include:

1) *the emotive charge,* e.g. “lonely” as compared to “alone”, the former presupposes melancholy and desolation while the latter means only solitary state;

2) *evaluation*, which may be positive or negative, e.g. “celebrated” vs. “notorious”, the former presupposes good fame, while the latter expresses a negative attitude;

3) *intensity, degree or expressiveness*, e.g. “to surprise” as compared to “to astound”, the latter showing an extreme degree of the feeling;

4) *cause,* e.g. “to shiver” vs. “to shudder”, where the former denotes trembling with cold and the latter – with fear, horror or disgust;

5) *attending circumstances*, “to wade” means “to walk through mud, water or anything that makes progress difficult;

6) *manner*, e.g. such verbs as “to stroll, to stride, to trot, to swagger, to stagger” encode in their semantic structure different types of walking, including the length of pace, tempo, gait, carriage, purposefulness etc.;

7) *attendant features*, e.g. “pretty” vs. “beautiful”, the former describing small delicate features and fresh complexion while the latter – classical features and figure;

8) *imagery*, e.g. “to wade” has a denotative component of “to walk with an effort” while used figuratively it gives rise to another meaning which is based on the same image as the denotative one – “to wade through a book”.

The pragmatic component of lexical meaning is the part of meaning which conveys information on the situation of communication. It falls into four sets:

1) *information on the “time and space” relationship of the participants*, e.g. the verbs “come” and “go” indicate the location of the speaker who is usually taken as the zero point in the description of the situation of communication. The time relationship is manifested through indirect reference to time, such as in the word “behold” which was widely used in the 17th century in the meaning of “to take notice of, to see” but which nowadays has become obsolete;

2) *information on the participants and the given language community.* G.Leech in “Semantics” analyses the same situation described by representatives of different social groups: (a) They chucked a stone at the cops, and then did a bunk with the loot, (b) after casting a stone at the police, they absconded with the money. G.Leech points out that sentence (a) could be said by criminals talking casually about the crime afterwards, while sentence (b) might be said by the chief inspector making an official report. So the words one uses in his speech can be indicative of the social status, education, occupation etc.;

3) *information of the tenor of discourse*. The tenors of discourse reflect how the speaker interacts with the addressee, tenors are based on social or family roles of the participants of the communication, e.g. there may be a situation of a mother talking to her children, or about her children; a situation of a stranger talking to a stranger, or a conversation of two friends, or a teacher talking to a student etc.;

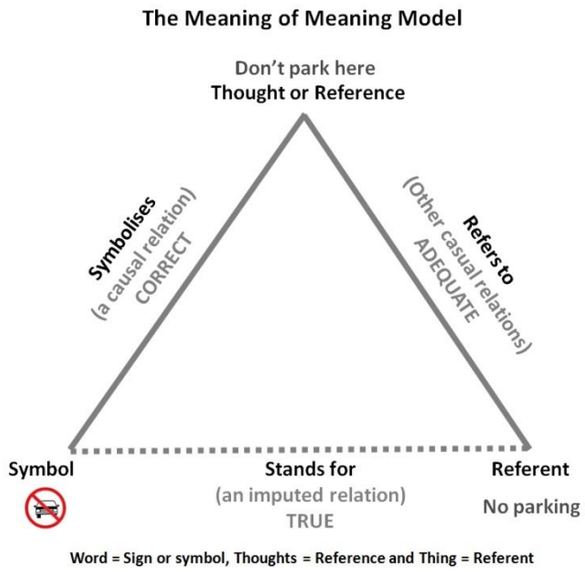
4) *information on the register of communication*. The register defines the general type of the situation of communication grading them in formality, ranging from extreme degrees through norm to extreme non-formality, so usually three main types of the register of communication are distinguished – formal, neutral and informal. Practically every word in the language is register-oriented. Thus, such words as “filial, anticipate, aid, solar” are indicative of the formal register, while “doc, g.f., hi, kid” belong to the informal register.

Meaning Triangle of Ogden & Richards

Charles Kay Ogden (1889–1957) and Ivor Armstrong Richards (1893 – 1979) was an English linguistic and English literary critic. Both of them were recognized by their book called “The Meaning of Meaning: A Study of the Influence of Language upon Thought and of the Science of Symbolism”. Ogden worked as philosopher, writer and linguist. He was a founder and editor of weekly “Cambridge Magazine” in 1912 and later it ceased in 1922. Richards was working as a Professor in Magdalene College at Cambridge. This theory emphasis that the meanings are not residing with words it resides with the people.

Theory

Charles Kay Ogden and Ivor Armstrong Richards identified that understanding comes from within the people rather than from the words they just interpret. They set a model called “The Triangle of Meaning” for better understanding how language works and basically it is a theory of signs. The triangle is meant to show the word’s relationship between thoughts and things.



The Semantic Triangle shows the direct relationship between Words & Thoughts and Thoughts & Thing. But the dotted lines represent the word (**sign**) is not the Thing (a **referent**) and there is no any direct relation between words and thing. The referent needs some prior experience and reference about the word or sign to be comprehensive.

The word means different things to different people in different situations. Any sign or word which has its own meaning is grasped with certain references to it. The process of grasping or understanding words or signs, which already have meaning, with the asserted meanings given by the references is called the meaning of meaning.

Any sign or word have their own meaning even though we need certain reference to understand is called “The Meaning of Meaning”. (1- Dictionary: If a word is new, a people need reference to understand the word. 2- **Mayan Code**: These codes are signs only. No one cannot understand meaning of the Mayan codes without any reference. So the signs have a direct relationship with reference and reference has direct relationship with referent)

Example 1:

- The Word love makes a different sense to different people. The way in which they understand this word must be in reference with their experiences and ideas relating to this word
- In America, socialism and communism are considered as a negative word. People even use the word communist to degrade other people. whereas in china the word communism is much of a great word and idea

Example 2:

The word "Book" – A people (referent) have some kind of reference (thoughts) in their mind about the shape, size etc. so they can able to visualize it. But the same word "book" is written in some other language will not understandable and they can't visualize it. The referent needs some kind of previous experience or reference to understand the words otherwise they cannot understand.

Ogden and Richard were improved the Saussure's dyadic semiotics. The analysis of major psychoanalyzing theories can be seen in this model. This theory is more about misunderstanding and its remedies. Charles Kay Ogden and Ivor Armstrong Richards studied about the misunderstanding that happens due to the difference in understanding worked forward for the remedies. This theory is the product of their working towards the remedy rather than a remedy.

Encyclopedia vs. Dictionary

Dictionaries	**Encyclopedia**
It concerns about the word	It concerns with denotata of the word
It provides information about the word	It provides information about the object
It is called as a word book	It is called as a thing book
It is concerned with linguistics aspect i.e. language and linguistic properties of a word or lexical unit	It is concerned with matter of fact, i.e. the extra-linguistic world as denoted by the words
It is concerned with contents of linguistic units. Dictionary gives different meanings or senses of a particular world	It is concerned with human knowledge.
It may contain additional encyclopaedic informations or character. It may give some information and it is not basic here.	But here the information is the basic one.
Dictionaries are concerned with lexical or lexical units or forms.	It is concerned with non-lexical.
It does not cover all the information about the word.	It covers all the branches of knowledge.

Types of dictionaries: Synchronic and Diachronic, General and Specific

The linguistic dictionary can be divided into two group's namely synchronic and diachronic dictionaries.

Diachronic lexicography

There are two types of diachronic dictionaries *viz.,* historical dictionary and etymological comparative dictionary.

1. ***Historical dictionary***

The historical dictionary is concerned with a systematic study of change affecting a lexical unit during its life i.e. within a period from which there is evidence e.g. in Oxford English Dictionary from the days of King Alfred to the present time. In order to present these changes in the structure and meaning of a word the lexicographer traces it back to its earliest available occurrence in the literature of the language. All the occurrences of the lexical units in different contexts in all works are found out. These contexts are analysed and compared with each other. By doing this the lexicographer finds out the different senses of a lexical unit and finer nuances of its meanings. Then these meanings and sub-meanings are arranged in chronological order.

2. ***Etymological comparative dictionary***

The etymological dictionary may contain words from a single language or a group of languages. Etymological dictionary contains both the cognates and uncognates. But comparative dictionary contains only cognates, ie. words belonging to a same language family. In the historical dictionaries the period of the word is given. If the exact data is available, the particular data is also provided. If it is not available, then the actual period is given (eg). If a word belongs to Sangam literature, then the period in given as Sangam period i.e. from 3^{rd} century B.C. to 5^{th} century A.D. If it is belongs to modern period, then the period is given i.e. from 18^{th} century A.D. to 21^{st} century A.D. In etymological comparative dictionary the words are compared from the modern period to the old period, as just opposite to the historical dictionary. The cognates are found and also the proto-form i.e. the old form is given in this kind of dictionary.

Synchronic dictionary

The synchronic dictionaries are generally grouped into two classes, general and special. **General** dictionaries contain those words of the languages which are of general use representing various spheres of life and presenting a complete picture of the general language. They are meant for the general user of the language.

Special dictionaries either cover a specific part of the vocabulary or are prepared with some definite purpose. By general dictionary it should not be understood that it contains the entire lexical stock of the language. No dictionary, except the dictionary of dead languages wherein the possibility of creation of new words is severely restricted, can give all the words of a language. Although the general dictionaries contain general word list some of the special dictionaries with their focus on some particular purpose contain the general word lists. For example of pronunciation, the reverse dictionaries, the frequency counts have special purpose

but their word list is general.

A. General Dictionary

The general dictionary is concerned with general language, especially of words.

The general dictionary is divided into three types *viz*

1. Standard descriptive dictionary,

2. Overall descriptive dictionary, and

3. Academic dictionary.

Standard descriptive dictionary

It describes only regular usage. Dialectal words, archaisms, absolute words are not included. The descriptive dictionary describes only the norm. This is expected to be used for some time. It concentrates on the future use. It sets the standard for future use. The domain of standard descriptive dictionary is standard national language. It has greater productive power and influencing on future use. The usages are the basic characteristic of the standard descriptive dictionary.

Overall descriptive dictionary

Such type of dictionary differs from standard descriptive, in two ways. Firstly, it describes more than the standard national language. It is an informative dictionary used when information is needed, while reading a text from any source of the language. It contains all the varieties.

The overall descriptive dictionary concerns everything that occurs in the language. Information about everything are included i.e. occasional application, dialectalism, more technical terms, archaisms, absolute words. It contains more encyclopaedic information. This type of dictionary helps the user to understand all the texts. It will be a reference dictionary. It could not be homogenous in nature, as that of standard descriptive dictionary.

Academic dictionary

The general dictionary is called academic dictionary. It is a comprehensive dictionary, more occasional, basically an overall descriptive dictionary. Sometimes this may contain archive words. Some of the labelled words are also used e.g. technical terms, slang etc.

B. Special/Restricted Dictionary

Restricted or special dictionary varies according to different fields. They are classified as follows:

Language variations

Dialect Dictionary

Such type of dictionary contains dialectal forms or words. Dialectal words belong to a single dialect. The dialectal words belong to different dialect of same language i.e. to find out the variations of a language. For example, Tirunelveli dialect, Kongu dialect, Kanyakumari or Nanjil dialect of Tamil language.

Occupational Terms

The words which belong to a particular occupation only is given in this type of dictionary. The occupation may be agriculture, weaving, pottery, salt making, fishing etc. In Telugu language, Krishnamurthy has made occupational dictionaries eg. Agriculture, constructions etc.

Technical Terms

The technical terms of science subjects like chemistry, physics, botany, zoology, engineering, medicine etc., are listed in the form of dictionary.

Glossary

This is a kind of technical dictionary. There is a medical glossary which contains only medical terms. In Tamil *arumporuTcol aKarati* is a kind of glossary.

Subject dictionary

It contains the words which belong to a particular subject only (eg) Linguistic dictionary, dictionary of lexicography etc., which contains words belonging to linguistic lexicography fields.

Text

The dictionary contains words belonging to a particular text only. It may be whole Sangam texts or particular text (eg) text of *pattupaaTTu* or text of *kuruntokai* or it may be particular subject. i.e. which may be of *akappaaTal* or *purappaaTal* or *kaatal paaTal* etc., or the text belonging to particular author only eg. *Kapilar paaTalakaL* or *auvaiyaar paaTulkaL*.

The text dictionary is of many kinds, as follows.

Indices -index

It contains words which belong only to a certain text. The words of whole paradigm which are present in that text are given. For example, index of tolkaappiyam.

Exegetic dictionary

This type of dictionary provides meanings of a particular lexical unit with linguistic explanations for commentary. It is sometimes encylopaedic in nature. For example,

KuRunci – malaiyum malai caarnta iTamum ‘hill and surrounding placed’

KuRuncittiNai – ‘conceptual thing’

Concordance

It contains the words with their contexts. In Tamil it is *toTaraTai*, (eg) *akaram*, this word is explained with the context *akara mutala eluttellaam.*

According to different purposes the restricted dictionaries are made. Restricted dictionary may be a dictionary of abbreviation, dictionary of proverbs, dictionary of idioms etc.

Semantic dictionary

The dictionaries classified on the basis of their semantic aspect and their relational value, in the lexical stock of the language are the following:

(a) Dictionary of synonyms

(b) Dictionary of antonyms

(c) Ideographical or Ideological dictionary

(d) Dictionary of frequent counts.

Forms

Special or restricted dictionaries classified on the basis of the formal aspects of the lexical units are of the following types:

(a) Spelling or orthographical dictionaries

(b) Pronouncing dictionaries

(c) Word formation dictionaries (including dictionaries of roots, verbs etc.)

(d) Dictionaries of homonymy

(e) Dictionaries of paronymy

(f) Grammatical dictionaries

(g) Reverse dictionaries

(h) Dictionaries of abbreviations, acronyms etc.

Special dictionaries classified on the basis of their collocational value are the following:

Dictionaries of collocations

These dictionaries give usual collocations of the lexical units. They give list of all the words that can be collocated with the head word. But such dictionaries are usually limited in their scope and

present only words of few grammatical categories *viz.,* nouns, verbs and adjectives etc. They are useful for language teaching purposes.

Dictionaries of usages

These dictionaries generally aim at providing guidelines for the correct and standard use of words and are normative in character.

Purpose

Such type of dictionaries is prepared for a particular purpose like pedagogical dictionary, learner's dictionary, reverse dictionary, descriptive dictionary, prescriptive dictionary etc.

Languages

From the point of view of the coverage of languages, dictionaries can be monolingual (or explanatory), bilingual and multilingual. But any of the dictionaries described earlier can be either monolingual or bilingual.

Size

Based on the size, dictionaries are classified into big dictionary, medium dictionary, small dictionary, pocket type dictionary.

Lexicographic Method

Dictionary making is a long, complex and time consuming activity. The preparation of dictionaries takes several years. The following table would show how length is the process of dictionary making:

Name of the dictionary	Year of beginning	Year of completion
Oxford English Dictionary	1888	1928
Tamil Lexicon	1913	1938
Malayalam Lexicon	1953	4 volumes appeared so far
Sanskrit Dictionary	1952	2 volumes appeared

Three-editions of Webster's III took 757 editorial years and Cost 3.5 million dollars.

As the work involved is stupendous, it is necessary that a detailed planning is done before the work begins. Some of the basic issues crucial for planning the work on a dictionary are discussed below:

The first point to be considered is about the type of the dictionary. The work on dictionary differs according to the types of dictionaries. The list of words in a reference dictionary is different from

the one in a learner's dictionary. The dialect dictionaries contain different types of word list from an academic or normative dictionary. The word list in a special dictionary is governed by the special purpose or restrictedness of the dictionary. The word list in a concise dictionary is much smaller than the word list of an unabridged dictionary.

Basic Decision

When planning a monolingual dictionary, we must make two basic decisions at the very beginning (Zgusta, 1971). First, it is necessary to analyse the language in question and find out what varieties there are and how they are interconnected. Among other things, it is necessary to know (atleast impression at the beginning of the work, but the more thoroughly the better) the difference between the literary and spoken form of the standard national language; are there frequent obsolete words in the literary form of the standard national language? Are there many (different) dialectalism to be found interspersed in texts couched generally in the standard national language? Is itself evident to a speaker of the language in question what form these dialectalism would have in the standard national language, and does he generally understand them? How far back goes the literature which is still read by the generally educated people, and that which is read in school of general education; what is the difference between the oldest texts that belong here and the texts written in the contemporary literary standard national language on one side, and the contemporary spoken standard national language on the other? When these and many similar questions are answered, at least

intuitively, or, even if this is impossible, when the lexicographer realizes where problems of this sort will probably be located, it is necessary to decide which varieties of the language the prepared dictionary will have to cover, and which criteria will be used to distinguish them. If the (preliminary) answers were only of the "impressionistic" and "intuitive" character, much care must be given to the observation whether the subsequent study of the concrete material colloborates or modifies them; if they are modified, it is vitally important to make the necessary change of policy when the work is not yet too progressed.

Second, it is necessary to decide to what type the prepared dictionary should belong. What questions are to be asked and answered follows from the preceding chapter about the types of dictionaries.

The character of nearly all the lexicographer's subsequent work and his subsequent decisions on single points and problems follows as a consequence of these two vital decisions. For example; If his dictionary is to be an overall descriptive one, the lexicographer will be less troubled by the presence of dialectalisms and archaism among his entries than if he prepares a standard – descriptive dictionary which has to have great generative power, etc. There is no general reply to a question like whether a dictionary should contain obsolete words or not, the choice among the different possible answers depends upon the two basic decisions mentioned above. A clear decision in both respects cannot guarantee freedom from error in every single case where such questions arise, but it will spare the lexicographer much vacillation from one case to another and

much nervousness when he sees similar things solved in a different way in other dictionaries that purpose other aims: and above all, it will give the dictionary the necessary conceptual and methodological unity.

The lexicographer who is concerned with languages, which are not fully stabilized, either because their standard national language is of very recent origin or because they are going through a period of rapid development (usually under the impact of new patterns of life brought about by the civilization of our time), will be confronted, at least in the majority of cases, with several quite neuralgic problems such as the following. Which form of language is to be considered as setting the standard, if there is not a clear prevalence of a dialect, of a group of texts, or if one the layers in diaglossia? Questions like this cannot be answered by the isolated effort of the lexicographer, nor will he be able to offer his part of the solution before he has gone through his material; he must, however, be aware of such problems before he starts his work in order to be able to observe the data from the very beginning (Zgusta, 1971, p.222-223).

Articulation of Work

There are four successive phases in the articulation of work *viz*, (1) **the collection of material,** (2) **the selection of entries,** (3) **the construction of entries** and (4) **the arrangement of entries.**

If the lexicographer is working on a bigger project, he will be well advised to workout some samples when he thinks that this material is sufficient. The collection of material is, however, continued and the lexicographer observes the effects the new material will have on the samples of entries. If the results of his observation are negative, the collection of material must remain the main task and new samples should be made later. These samples may differ in size and they can be used in different ways: in smaller projects, they are circulated among and discussed by the members of the team, but in bigger projects it is worth-while to have them published and discussed by many scholars.

Excerption of Texts/Collection of Material

The basic form of the collection of material is the **excerption of texts**. When he excerpts, the lexicographer takes out of a text lexical units which are of interest and puts them on single slips of paper; the excerption is of value above if-or rather only if the lexical unit in question is quoted with its lexicographic context and preparably if other indications are, such as citation of the source of the excerpt etc.

It is primarily written in the language in question, the situation is not fundamentally different: one begins generally with those oral texts which can be called “oral literature”, i.e. narrations and such things the texts of which is more or less mixed. But the language of this oral literature used frequently is different from the really spoken one, therefore the lexicographer has to collect the colloquial material also in the true sense of the word (not only monologues, but also elicited answers, and preferably dialogues, talks, discussions, negotiations of affairs in business and office etc.). (Zgusta, 1971, 225).

Types of excerption

Good lexicographic contexts which have a high illustrative power are rather rare. Even more is a single context which shows the lexicographer really all the semantic features of a word and the whole range of its application, at least in one of its senses if it is polysemous. The usual situation is that more, and frequently many, contexts are necessary: one context will show, for example, that the sort of speech called *oration* is a public one, another that it is a formal one, one context will show that a *register* is kept about marriages, another that it is used about funerals, yet another will show slips or voters as items of a register. The strategy of the excerption is very well described by F. Havlova.

One begins with the **total excerption** i.e. one excerpts the whole lexical stock occurring in the writings of the most important authors, irrespective of the probability that some of the later slips will give no new semantic information. This total excerption is carried out either on the thesaurus scale, or, more frequently, on the principle that if a word's signification is sufficiently attested in one author, slips attesting the same signification are not collected from the same author; they are, however, collected if they attest the same signification in another author.

Next type of excerption is called **partial excerption**: only those words and significations are excerpted which are not yet attested in the material, or which are attested by a few slips but are generally very rare. Also excerpted are passages which attest for a word, a signification identical to that of slips at hand, but a different forma, combinational property of the word, such as the prepositional reaction or case-reaction. Passages showing different ranges of application should also be collected irrespective of whether the signification itself is new or not.

The **special excerption** is chronologically independent from the two types already described. What is recorded are the typical words of the restricted languages, be it the political, economical, and scientific terms, or slang words, or jargon expressions, or any other similar material according to the type of the dictionary under preparation.

When all these three types of excerption are completed, one goes on with the **"gleaning":** not yet excerpted texts are read and extraordinary, i.e. not yet attested data are collected.

Selection of Entries

The second stage in the compilation of a dictionary, is the choice of the lexical units or words which are to be included as entries in the future dictionary against those lexical units which will be excluded (Zgusta, 1971). The two factors which influence this decision are (1) the form of the lexical units and (2) the density of the lexical units

The general language dictionaries will include words or lexical units with designative or denotative meaning such as *dog, tree, run, read* etc., with discernable denotata, but also function words such as conjunction e.g. *'and', 'but', 'or'* and propositions e.g. *'in', 'to', 'from'* etc., and

sometimes even native suffice e.g. *–cracy*, are also selected. In Tamil the productive suffixes like *–kaaran,–kaari* e.g. *paalKaaran, paalkaari* etc., are also included.

Lexeme

Another aspect to be considered about the form of the lexical units is the difference between the word form and the lexeme or lexical word. What is represented in the dictionary is the lexeme, the abstract form underlying the different word forms (inflected forms) occurring in the actual texts or colloquial forms, e.g. *maaTTuvaNTi, kaTTaivaNTi,* in the agricultural vocabulary dictionary. The methods of choosing the form to represent the lexeme or the canonical form will be included.

Multiword lexical units

While most of lexical units will be single words there will also be multiword lexical units, words constituted by more than one word. Multiword lexical units are those set combinations of words which have lexical meanings as wholes i.e. they express a single unified designatum and function in the sentence in the same way as single word lexical unit and the constituent words of the combination cannot be substituted by other words without affecting their grammatical status.

Density of entries

The problems connected with the density of entries are, unfortunately, far more complicated than those connected with their form and Malkiel is completely right when speaking about the absence of generally accepted norms for the selection of entries. Two problems seem to be of outstanding importance. In then first place the question of colloquialisms. Havranek is certainly right when he maintains that the colloquial variant of a language must not be forgotten in large or a medium dictionary and when he deplores the fact that many of the older dictionaries are based too exclusively on written texts. It is certainly a pity of the archives of some large, academic dictionaries is limited to only-printed material.

The description of a colloquialism does certainly belong to the description of the lexicon of a language. But on the other hand, one must not forget that some of these colloquialisms are extremely ephemeral: if other words are excluded from the selection because they are not stabilized, it would be a disproportion not to eliminate a colloquialism on the same principle. But stabilized, usual, frequently used colloquialisms are certainly eligible for selection.

The other problem that will cause the lexicographer much trouble is that of the technical terminology of the sciences. It goes without saying that the importance of a term and its eligibility for selection must be decided upon not from the point of view of the respective science, but from that of the general language. It is, however, not easy to decide whether the term is used generally or only in the specialized texts.

Apart from these, it is probably of some importance to indicate the personal names primarily if we compile a dictionary either of a dead language or of a language without a long literary tradition, and then only with a short indication of the categorical membership. The indication of

place names seems to be more important and the user expects to be informed where the place is situated. There is another basic problem, what to select and what to leave out in dictionaries of different sizes. The frequency of occurrences of the single words is certainly a

powerful factor in the selective decisions (cf. Zgusta, 1971, p. 247).

The Construction of Entries

Single lexical units are treated in single entries. All the entries of the dictionary should be constructed in as uniform a way as possible. Each entry should be treated as a compartment of its own, containing all the information about the respective lexical unit considered necessary for the purpose of the dictionary. The entry consists of two parts: the first part is called lemma, the lexical unit it is indicated. The second part gives the description of the lexical unit in terms of its meaning and usage. The first part may also be called the left hand or described part and the second part the right hand or the description part.

1 Lemma

The most important part of the lemma is the entry word (or head word), which is the indication of each respective lexical unit in its canonical form. The other indication of the lemma informs the user about the class of which the entry word is a member. This can be indicated either by the cardinal forms of each respective paradigm, or by the number of the paradigm or by an abbreviation or sign (e.g. noun in an Eng. Dictionary), or by any other similar means. Two things are, however, important in this connection. First, it is necessary to state fully and explicitly, in the foreword to the dictionary, what classes and categories are indicated, and by what means. Second, the bigger the dictionary, the more imperative the necessity to indicate all eventual abbreviations of the lexical unit from the usual paradigm i.e. to indicate all its “irregular forms”. It is irrelevant whether these irregular forms have some semantic peculiarities or not. The purpose of the lemma is to identify the lexical unit, to locate it in the (formal, frequently specifically morphological) system, and to describe its form; therefore, the “irregular forms” should be indicated, even if they have no observable effect on the meaning. The non-existence of a form (e.g. “no plural”) should also be indicated.

2 Pronunciation

The head word or entry word is followed by pronunciation. But it is an optional feature. It depends on the type of dictionary. In a Hindi dictionary for a native speaker this may not be necessary. The reader can have his own inferences. But if the dictionary is not meant for the native speaker the pronunciation should be given in the phonemic script or the phonetic script? In the guide to pronunciation in the front matter of the dictionary an inventory of the phonemes with all their allophones should be given. But should each individual entry give pronunciation in a detailed phonetic transcription or in the phonemic script? As suggested by Kemp Melone (1967, p. 117). “A good general principle to follow might be this, make the transcription phonemic for all the entries except those when the user of the book may be expected to go

seriously wrong unless he is given phonetic rather than merely phonemic guidance. And naturally the two systems should be sharply distinguished in the usual way, the phonemic ones by diagonal lines".

Another question associated with the problem of pronunciation is whether it should be given in the alphabetic of the International Phonetic Association (IPA) or the conventional orthography of the language with suitable modifications to suit the purpose. It depends on the nature of the language, the purpose of the dictionary and ultimately, the decision of the lexicographer. Suppose a dictionary is meant for native speaker of Tamil and as the spelling system is normally in agreement with the phonemic system of Tamil and as the pronunciation is predictable to the native speakers no special indication will the provided.

3 Grammatical information

Grammatical information is limited to the indication of major parts of speech or grammatical categories of lexical units. As this is not a general language dictionary, all the possible parts of speech are not represented in the selected words. The main parts of speech found are nouns and verbs. Among the nouns, proper nouns indicating both place names and personal names are also found. Pure adjectives and adverbs are few in Tamil. Normally they are derived from the addition of suffixes to nouns. Adjectives are derived from the addition of *aana, uLLa,* e.g. *veekammana, nampikkaiuLLa,* and adverbs by addition of *aaka, aay* e.g. *alakaaka, paTippaTiyaay* in Tamil. Mostly single word lexical units and multiword lexical units which are compounds are included as head words, some phrases, both noun and verb phrases, have to be included as head word and entries because of their exegetic significance, and their grammatical category will also be indicated.

The different parts of speech or grammatical categories of words which will be used in the dictionary along with their abbreviated labels are given below.

peyar-c-col	pe.	'noun'
vinai-c-col	vi.	'verb'
ciRappu-p-peyar	ci.pe.	'proper noun'
peyar-c-col toTar	pe.to.	'noun phrase'
vinai-c-col toTar	vi.to.	'verb phrases'
peyar aTai	pe.a.	'adjective'
vinaiy aTal	vi.a.	'adverb'
iTai-c-col	i.co.	'particles'
tuWai.vinai	tu.vi.	'auxillary'

Etymology

Many dictionaries give information about etymology in the lemma. Some dictionaries give etymologies at the end of the entry. The dictionary of Indian languages e.g. Hindi, Bengali etc.,

provide this information with the help of origin tags indicating the source language and the source-form of the lexical unit. For example,

Hindi	khopRaa (Sanskrit *kharpara*)	'sculp'
	gallaa (Arabic *gul*)	'noise'
Bengali	choṭa ksudra	'small'
	jiin (Persian *jiin*)	'the saddle of the horse'
Kannada	sante (Sanskrit *samsthaa*)	'weekly market'
Nepali	acaar pickles, chutney, relish(loan word in Hindi aaNcaar from persian	

Description of lexical meaning

The lexical meaning is described in the right hand side of the entry. Theoretical lexicographers show differences and similarities in their approach on how this description is to be done. Zgusta (cf. 1971, p. 252) says that four instruments are used for the description of lexical meaning. They are (1) the lexicographic definition, (2) synonyms, (3) exemplification and (4) glosses. A number of other theoreticians include synonyms as a kind of definition (cf. Svensen, 1993; 118-9; Kipfer, 1984, 1984: 67-8; Landon, 1989: 270, Hartmann and James, 1998; 135). What Zgusta calls exemplification, others such as Landon refer to as illustrative quotations, Ilson (1986, p. 207-11) as illustrative phrases, Svensen (1993, p. 139) as examples of usage and Kipfer (1984, p. 69,70) calls illustration or exemplification used as

organic part of the definition within parenthesis.

Label is another instrument used to describe the lexical meaning especially the connotation. Zgusta, regards labels as a species of glosses. But, others such as Svensen discusses it separately, Landon and Kipfer discuss it as part of the discussion of 'usage'.

Lexicographic definition

The lexicographic definition overlaps to some extent with the logical definition, but there are some striking differences. Probably the most important of them consists in the fact that whereas logical definition must be unequivocally identify the defined object in such a way that it is both put in a definite contrast against everything else that is definable and positively and unequivocally characterized as a member of the closet class, the lexicographic definition enumerates only the most important semantic features of the defined lexical unit, which suffice to differentiate it from other units.

The difference between logical definition and the lexicographic corresponds closely to the difference between scientific concept and the designatum. Designata of different lexical units frequently overlap: consequently, lexicographic definitions of English, *agreeable* and *pleasant* which would not show that there is a vast area of overlapping between the two words and would stress only their differences would be entirely wrong. The designate sometimes lack not only the

precision but also the systematic coordination of the scientific classification: therefore, English *whale* can be lexicographically defined as “kinds of large sea-animal some of the, which are hunted for their oil”. When the lexical units are applied in concrete sentences, one can frequently observe very different specification of their lexical meaning: the lexicographic definition must be sufficiently general to imply all the single possibilities without stating them; e.g., a definition like English, *beautiful*: “giving pleasure or delight to the mind or senses” is not sufficient from the point of view of logic (a pipe may give pleasure or delight to the senses without being beautiful) but it laudably does not try to state all the necessary attributes to beauty (Zgusta, 1971, p. 252-3).

In one field, genus and differentia definition, the lexicographical definition is nearer to the logical definition. Here the specific is defined in terms of the generic. The genus stands for all the semantic features. When we define the word *kamal* ‘lotus’ ‘as a kind of flower’ we include in the definition the features of flower which is the generic term. This is also explained in terms of hyponymy and hyperonymy. In these definitions genus is the expression of the logical definition. The definition should be as precise, accurate, and unambiguous as possible. It should avoid unnecessary words. Only minimum words with almost clarity should be used for defining a word.

Synonyms

The lexical units with similar meaning are used for defining in the dictionary in two ways:

(a) In addition to the definitions and

(b) Alone, without any definition

a. Many dictionaries give synonymous words in addition to the definition of a lexical unit to bring forth the finer shades of meanings. For example, English: *curl* vt. ‘to form into a spiral or curved shape’; coil Hindi: *tamaacaa* n. nathelii aur uNgaliyon se gaal par kiyaa huaa prahar. ‘the blow on the cheek by palm and fingers’; thappar, jjaapar ‘slap’ As a matter of fact, synonyms are superfluous if the definition of the lexical unit is adequate to describe the lexical unit clearly and unambiguously. Nevertheless, there are certain lexical units for which the synonyms add to the clarity in definition.

Exemplification

The purpose of **examples** is to show how the entry-word functions in combination with other lexical units. The absolute majority of dictionaries indicate example. The bigger the dictionary the more examples it generally contains. Only very small dictionaries can afford not to indicate them; but absolute absence of examples is usually accompanied by a severe lowering of the standard of the dictionary. Practically only the technical terms can be presented without examples, even in a large dictionary; but even in this case it is preferable if some examples are nevertheless indicated, primarily if the term has multiple meaning (i.e. if it has terminological value in different branches of science) and in order to show the eventual terminological multiword lexical units formed with it, if they are treated as subsequently.

Exemplication is always useful. Very frequently, many of the examples illustrate what is stated in the other parts of the entry, above all in the lexicographic definition. Even in this case, it is no mere re-statement of repetition, because the examples, being more concrete than the definition. So for instance, if we read, after the definition of English, *beautiful* "giving pleasure or delight to the mind or senses", also the example *beautiful face, flower, voice*; *beautiful weather, music*, we certainly gain much information, though these examples indicate nothing that is not covered by the definition and not everything that is covered by it. The series of these examples is certainly not complete by far. But completeness is out of the reach of the lexicographer, in the majority of such cases: how could he be expected to collect and elicit a complete list of items which can be characterized as beautiful? Therefore, he indicates only some examples which he considers typical and leaves it to the abstractive power of the user of the dictionary to form other combinations by analogy: restrictive statements like "used only"... are sometimes necessary but always dangerous. It is frequently necessary to add to such examples a short explanation of the nuance of meaning in which they are used in the given context.

Examples can be taken from the (usually written) texts of the language, or they can be constructed by the lexicographer with the eventual help of informants. The first type of examples has the great advantage that it has a highly factual character: evidence can be produced that the word in question really was used in certain passage by a certain author. Therefore, it is called **"quoted example"** and are preferred by philological dictionary and above all by the big ones. In the case of an overall-descriptive dictionary, and especially that of a dead language or of an older stage of a living language, the quoted examples are the only ones which are even possible.

The great advantage of **constructed examples** is just that the lexicographer can either construct them himself (by his competence as a native speaker) or elicit them from his informants precisely according to the purpose, to illustrate the difficult point. Constructed examples are usually very short, for example only the verb-its object, the adjectives with the substantive or vice versa.

SUB-ENTRIES

A Sub-Entry is a part of the main lexical entry given usually in reduced form under the same lexical entry. It carries meaning, examples, labels etc., like the general lexical entries. The sub-entry is vested with the main entry. e.g.

English	:	*break* vt. ~ off (a) 'stop speaking'
Hindi	:	*baat* n. 'talk' ~ *kaaTnaa* 'to interrupt'
Bengali	:	*Jor* adj.'high', 'strong' ~ *kapaal* n. 'the favour of luck ~ *jumum* n. 'using force'.

Sub-entries are more commonly used in case of idioms and phrases and even proverbs. In some dictionaries the sub-entries for idioms, and proverbs etc., are separated from the main entry and sub-entries for derivatives and compounds, by some other device usually by a rhombus e.g.

buddhi ‘mind’, ‘sense’, *sahaj* ~‘normal sense’ □ *ke piiche laaThii liye phirnaa* ‘to be against sense’ ~ *maarii jaanaa* ‘to loose sense’.

GLOSSES

Glosses are given in definition to show the meaning in a more concrete way. The glosses are short comments or some remarks showing grammatical, syntactic or semantic characteristics of the lexical units and are used in place of examples. They are usually given in brackets with the definition. As a matter of fact, the glosses are devices of saving some space in the dictionary. If long and complete illustrative examples are given the glosses are not needed. The glosses are of three types *viz* (1) semantic glosses, (2) Grammatical glosses and (3) Encyclopaedic glosses.

Semantic Glosses

They show some semantic features of the lexical units. Sometimes synonyms and antonyms are given with meanings. Certain restricting glosses are given to specify and delimit the usages. e.g.

Oriya: uThiaa ‘got free’, ‘get gratis (food)’

Akasaa ‘unseasoned (bamboo or cane)’

Russian: Mesto 1. ‘seat (in a theatre, at a table etc.,)’

‘berth (on a train, ship)’

2. ‘place, passage (in a book, magazine etc)’

3. ‘standing place (in society, history, sports etc)’

Lezhaat 1. ‘lie (in a horizontal position)’

2. ‘be (in some place, said of things)’

English: light adj and

adv.

‘(of beer and wine) not very strong’,

‘(of food) easily digested’,

‘(of meals) small in quantity’

‘(of sleep) not deep, easily disturbed’

Light ‘(opposite of darkness)’

handsome adj. 1. ‘of fine appearance (of men)’

‘good looking’ (of woman)) having a fine figure’.

Gondi: taraanaa v. ‘to dig or scratch up (of pigs)’

Santali: Radbad ‘rustling’, make a rustling sound especially in dry leaves)’.

Grammatical glosses

They indicate the different syntactical peculiarities of the lexical unit and are given in the dictionary in addition to the grammatical information given in them.

English: Let v. 1. (followed by a (pro) noun and an infinitive without to, rarely used in the

passive in this sense) allow to.

2. (used with first and third person pronoun to supply an indirect imperative)

Sanskrit: Daa To give, to accept, to offer, to present etc.

(usually with accusative for things and with dative) also genitive and

Russian: Prevraschaht To reduce (into)

Hindi: AaNkh lagnaa 1. to sleep

2. to fall in love (with instrumental)

e.g. kissi se aaNka lagnaa

3. to have evil eye (with genetive)

kisii kii aaNkh lagnaa

Glosses are explanatory or descriptive note given in the entry. Glosses are

given in the parenthesis (….). For example,

English: fugitive v. 1. Running away

2. Temporary interest or value (though, poem)

Tamil: Col 1. Tell (with locative)

2. Inform (with dative)

3. Speak about (with accusative)

4. Refer to somebody

Encyclopaedic glosses

They provide information of encyclopaedic in nature. For example, *citrus* n. (genus name for latin *citron* tree): any of the genus (citrus) of often thorny trees and shrubs. *namaaj* n. Prayer of God (by Muslims)

LABELS

Variations in the language whether temporal or regional or of usage and style are generally first manifested in the lexical stock of the language. If a lexicographer decides to include these variations in his dictionary he should use some device to indicate them.

Often words develop some special meanings for some special subject fields e.g. medicine, physics, botany, zoology, music etc. Moreover, some words and some meanings of some words are restricted socially. So the specificness of the lexical unit and their meanings should be indicated in a dictionary in a proper way. By doing so the lexicographer not only helps the reader find the correct usage, but also save time because the reader will search for the meaning in the particular subject field he is interested in.

The general lexicographical practice to show this peculiarity of lexical item is to put some labels either with entry word or with a particular meaning which require separate marking. Labels, like glosses, are space saving devices. If full examples are given for all the words and all their meanings there is no need of giving labels.

Webster's III defines label as "a word or a phrase used, with but not as a part of the dictionary definition usually in abbreviated form and distinctive type and provide information (as grammatical function or area or level of usage) about the word defined".

The labels are distinct from glosses. They are used for a group or class of lexical units, whereas the glosses are used for individual lexical units. The labels are decided in the beginning of the lexicographic work. A cursory view of the vocabulary of the language gives a fairly general idea of the nature of the lexical units and their meanings in respect of the range of their usage, on basis of which a general list of labels can be prepared before the work begins. This list is tentative in the beginning and can be expanded further later on. Glosses, on the other hand, are decided with single lexical units and are put with each individual lexical unit.

The labels can be broadly classified into three groups *viz.* (1). Functional labels, (2) subject labels and (3) status labels.

Functional labels

They are used to indicate the part of speech or other functional classification of the lexical unit. All dictionaries use them.

Subject labels

These labels indicate the special subject field in which a particular lexical unit or any meaning of a particular lexical unit is used.

Status labels

These are the most important labels in administration dictionary indicating the status of a lexical unit in respect of its usage. Actually, these are the labels which deserve greater attention and more careful treatment in a dictionary.

The labels are used to describe the level or the usage of a word, and so they are basically descriptive. But as a dictionary has some normative effect, the labels, in course of time, tend to become prescriptive or prohibitive. The labels *sabhya* (civilized), *aśliila* (vulgar), *gaalii* (abuse) in some dictionaries of the Indian languages and labeling of excepting as an improper word by Johnson point to the prescriptive nature of the labels (Sing, R.A. 1991, p. 153-56).

There are two ways of labeling in a dictionary. (a) The lexical unit itself is marked e.g. Hindi *kharocnaa* (local) see *khuracanaa* 'to scrap'. English *aboulia* (Psycho). (b) The meanings special to specific status are marked by labels.

English:		
Reduction	1.	(arithmatic) 'the process of changing an amount from one denomination to another'.
	2.	(logic) 'The process of reducing a syllogism (or proportion) to another especially, to a simpler or clear form'.
Benglai naayaka (alaṅkaara)	1.	ratir, aalambana 'a hero (of a drama, fiction etc.,)
Marathi: dadapana	2.	n.(fig.) 'curb', 'check' 'control'
Hindi:		carit (vyangya) karanii, karatuut 'work', 'deed'
Russian: kruto	3.	(colloquial) 'sternly', 'severely'
Malayalam: kuTam	4.	(joy) kumbham raaśi, 'aquarius' 'sign of the zodiac'
	5.	(śilpa) 'the spherical capital of a pillar'
	6.	(aayur) ' a swelled scrotum'

The labels can be grouped into different types on the basis of their characteristic features, which are given below:

TEMPORAL

They denote the currentness of the word or its usage. They are generally used in descriptive dictionaries. The labels coming under this class are the following:

Obsolete: Formerly in use, now no longer in use except historically. Webster's III put this label for words and meanings, no longer in use after 1755.

Archaic: No longer in general use but not absolutely obsolete.

Neologism: They are newly coined words and are considered as such by the speaking of the language.

Kelkar (1968) uses the label obsolescent for words which are nearly obsolete because according to him totally obsolete words do not find place in the dictionary of a contemporary language. Other labels used for denoting temporal status are *one time*, *formerly*, *old-fashioned* etc.

Spatial

The criterion for fixing up these labels is the geographical distribution of the lexical unit or its meaning. These may be:

(1) Regional: Pertaining to regional variations, e.g. Awadhi and Braj etc., in case of Hindi, Tanjore Tamil in case Tamil and Kudali, Vaidarbhi and Ahirani in case of Marathi.

(2) Local: This refers to usages peculiar to some locality or restricted region like Hindi of Varanasi or the Coimbatore usage in Tamil or the Burdwan usage in Bengali. Besides these, some other spatial variables may also be used to describe and label words in a dictionary, e.g.

(i) International: Some words especially scientific and technical terms like *sputnik, cosmonaut, Radio, RADAR* etc., are used in the majority of the languages of the world.

(ii) National: In case of international language like English the different types of English used in different countries may be labelled national. In a language situation like that of Hindi the term (words) used through-out the entire area may be national.

(iii) Individual: Many words are used by individual like creative writers, scientists, etc., for the first time and many words are used in a completely new sense by some individuals. Before being socialized, if the words are included in dictionary, they are to be marked suitably. Hapax lagomena are included under this category.

The labels used to denote these variations are *dialectal, provincial* (general term) and the names of the regions, etc., or *directions*, e.g. East, West, etc., closely related to the regional variations are the social variations. Words and meanings peculiar to certain castes, social groups and professions can be marked by their names, e.g. Christian, Brahmin, Carpentry, Law, Medicine etc.

The following table will show the differences between glosses and labels.

	Glosses	Labels
1.	Glosses are specific to the entry	Labels are common through out the dictionary
2.	Glosses are created at the spur of the moment, suit to the each entry	Labels are predetermined
3.	In glosses full words are normally used	In labels normally abbreviated forms are used
4.	It is individual lexical unit	It is used as group or classes of lexical units
5.	Glosses are created while constructing specific entry	Labels are prepared and determined before the construction
6.	Glosses are descriptive in nature	Labels are both descriptive and prescriptive in nature

REDUCED ENTRY

What has been discussed is the usual situation, the usual methods the lexicographer uses to describe the lexical meaning of the entry-word. The entries constructed in this way are usually self-contained: all the necessary information is contained in them. There are, however, reduced entries which describes the entry word by stating the difference (usually some additional semantic feature) from another entry-word (Zgusta, 1971, p. 272). For example, Lioness n. feminine lion.

ARRANGEMENT OF ENTRIES

The dictionary is not only a storehouse of the lexical information of a language. It is also a cleaning house of this information. The information should be presented in a dictionary in such a way that it is easily retrievable. The entries in a dictionary should, therefore, be arranged in such a way so as to enable the reader to find the information very quickly and correctly. It would be impractical to present the entries in a completely haphazard manner. This would "squarely defeat the very purpose of a reference work" (Malkiel, 1967, p. 18). "A good dictionary therefore, as Mary Hass (1967, p. 47) remarks is one in which you can find the information you are looking for preferably in the very first place you look. Nothing could be sillier than the silly assumption, for too commonly encountered, that it is somehow good

for the soul of the user if he has to work hard for what he is looking for" (Singh, 1991, p. 161).

ALPHABETICAL ARRANGEMENT

Alphabetical arrangement is a later arrival in the lexicographic practice, especially in the Indian context, is so very dominant that many reference materials like catalogues, mailing lists, directories etc., are associated with it by the general reader.

In this method the initial letter of a word is considered first, if they are identical the second letter is taken up, if it is also the same the third one, so on and so forth. In, English language the word *'marital'* adj. 'of a husband ….' And *maritime* adj. 'connected with sea or navigation' as the first five letters are identical the order of entries is decided by the sixth letter. Similarly in Hindi *kapaT* 'fraud' and *kapraa* 'cloth' as the first two letters are the same the third letter is taken into consideration.

The arrangement of entries in alphabetical order presents problems of the following type especially for the dictionaries of Indian languages.

(a) Where either new symbols or the existing alphabets are modified to represent the sounds for which there are no symbols either in the existing script or in the script being adopted for the language if it is an unwritten language. Tones in Tibeto Burman languages, glottal stop in Khasi (using Roman script), implosives in Sindhi and some sounds in borrowed words in Hindi, Punjabi and other Indo-Aryan languages present such problems.

(b) Where there is discrepancy in the traditional alphabetical order to the language and the traditional lexicographical arrangement of these alphabets in entries.

Anusvaara (am), r, ks, tr and jň present such problem. Ai and r occur at the end of the vowels and t before e, o etc., KS, tr, jň are similarly given with k, t, and j, respectively in the dictionary, although they are the last three consonants of the alphabet.

As for the first problem, it may be argued that the new symbols even if they are modifications of some alphabets, are given at the end of the alphabet. But as the user of a dictionary is accustomed to a set alphabetical system and its shape and sequential order it will be difficult for him to look for some entries after all the alphabets are exhausted. In such cases the modified alphabets should be given after the one on which they are based. E.g. Sindhi, fricative and implosive can be given after consonant.

It may also be suggested that the new symbols are given with the symbols which are phonetically close to them! q' may be given with K.

For the second problem although the disturbance of the alphabetical order may create some initial difficulties the lexicographical traditions should not be ignored. For arrangement of entries in alphabetical order the lexicographer should keep the following in view:

(1) Whatever be the system adopted it should clearly be stated and repeated as often as possible. (2) A complete list of alphabets in sequential order as adopted by the lexicographer for his dictionary should be given in the front matter of the dictionary. Any alternation or addition in the traditional order and script should be described clearly. (3) The phonemic values of the graphemes and then behaviour in isolation, in different environments and in combinations should be discussed prominently in the Reader's guide. In case of difficulties they may be displayed at the bottom of the page or some other obvious place in the dictionary pages.

SEMANTIC OR IDEOLOGICAL ARRANGEMENT

The semantic arrangement is followed in the dictionaries of synonyms, ideographical dictionaries i.e. the dictionaries which arrange their matter according to concept, thematic groups and semantic fields "in a semantic link under specific ideas which themselves are classified by objective world phenomena" (Katre, 1965, p. 5). This arrangement has been quite in vogue in the Indian lexicographical tradition.

From *NighaNTu* to the earlier *koshas* and the *nighaNTus* Indian languages, prior to the introduction of alphabetical order, there is a long list of such works.

In the dictionary of synonyms the arrangement is done by the set of synonyms. The dominant or the neutral word of the set is elected as the head word and other synonymous words are given with it. The entries are arranged either in the alphabetical order or according to subject fields. E.g. *beautiful* adj. *beautiful, lovely, handsome, pretty, bonny, fair, beauteous, pulchritudinous, good-looking*. Whenever these words occur at their alphabetical places a cross reference is made to the main word and the other synonyms are also given there. E.g. *lovely, beautiful, fair, homely, pretty, handsome, good-looking* etc. In the dictionaries basing

their arrangement on semantic field or thematic group, the words belonging to one group are given at one place. An interesting example is *C.D. Buck's A dictionary of selected synonyms in the principal Indo-European languages* where the lexical units are arranged under 22 subject fields. In the ideographical dictionaries the entries are arranged according to the concept. *Roget's The-sarus* and *Amar koŝa* are classical examples of such dictionaries.

Other arrangement

Another arrangement also quite well-known in the Indian lexicographical traditions is based on morphological criterion. In the dictionaries the lexical items are arranged according to the family of words derived from the same root. Here the root words or base forms are selected as the head word and the derivatives and phrases and idioms formed from them are given as sub-entries or run-ons. All of these, the roots, the sub-entries and run-ons are arranged in alphabetical order. The arrangement of entries in the dictionaries of phrases and idioms and proverbs follows the alphabetical order, which is determined by the first component of the entry.

Hindi: muśkil meN paRna 'to fall in trouble'

Bengali: gaache kaaTaal

goNpheletel 'expecting result before the beginning of the work'

In case, the component other than the initial one also contains equal semantic load, the phrase or idiom could be given an entry under this word also with a cross reference to the one which occurs earlier, e.g.

kaaTnaa baat ~ 'to interrupt'

baat ~ kaaTnaa 'to interrupt'

see kaaTnaa

In the frequency count dictionaries, the order is usually alphabetical. The number of frequency is given against the entry word. Sometimes words are arranged according to the degree of their frequency. The more frequent words are given first followed by less frequent ones in descending order.

In the reverse dictionaries, the arrangement is alphabetical although not based on the initial letters. The final letters of the lexical units are taken into consideration for alphabetical ordering. This system has a great advantage as it presents similar derivatives and inflected forms at one place which could help the text book writers and others engaged in material production (Singh, R.A., 1991, p. 162-4).

In some dictionaries dealing with lexical units of more than one language, e.g. etymological and comparative dictionaries, the entries are numbered. The lexical units are given in appendix in alphabetical order with the indication of the entry number e.g. *Dravidian Etymological Dictionary, Comparative Dictionary of the Indo- Aryan* Language.

Nests

Zgusta (1971) argued that, irrespective of the alphabet used, entries in the dictionary should be arranged by the alphabetic sequence of the entry words. Basic differences from this principle are observable in languages with other lexicographic traditions, but some differences are observable in any language.

Most important in this respect are the so-called **nests** (in the alphabetic order). A nest is a group of entries which is conflated into one; the conflation is effected almost always by the typhographological presentation as a run-on (i.e. the single entry words do not begin at a new line) and very frequently by the abbreviation of the entry-words. As far as the presentation of meaning goes, the most conflated nests present the second and following entries only by reference to the first member of the nest; but the more frequent situation is that the single member of the nest are presented separately as any other entries, with their own eventual polysemy and sometimes even with their own examples, etc. The main purpose of this procedure is to save space, but an illustrative presentation of the derivation and composition are sometimes also taken into consideration. In a very broad generalization, it can be observed that on the whole, nests containing derivations tend to be more conflated than those which deal with different composed words.

For example, the English word adj: *posthumous* and the adv. *Posthumously* differ only in respect to the grammatical categories, otherwise they have precisely the same meaning. Since there is an endless and rather open series of English pairs like this in which the adverb can be treated (not without some historical justification) as derived in a simple way from the adjective, and since in the overwhelming majority of such cases, the meaning of the member of the pair which is conceived as the derived one is absolutely predictable, it is possible to present the two entries in a conflated form, for example as follows:

1.	*posthumous* adj.	(1)"born after the death of the father',
		(2) "coming or happening after the death' –ly adv.
2.	Bad	~ly adv.
3.	Mad	~ly adv.

A nest conflated from entries whose entry-words cannot be conceived derivations from the first word can never be as rigid as the one described above; the main difference, is that each of them must have its own statement of meaning. For instance, if there is a German element Anti-, 'against' one can understand from the following nest.

Anti-,		
	anti – "against"	
		– alkoholiker "adversary of drinking"
		– biotikum "antibiotic"
		– Christ "Antichrist"
		– Christlich "opposed to Christianity"

UNIT-IV: COMPUTATIONAL LINGUISTICS

Computer Anatomy:

Definition : A Computer is an electronic device that can perform activities that involve Mathematical, Logical and graphical manipulations. Generally, the term is used to describe a collection of devices that function together as a system.

It performs the following three operations in sequence.

1. It receives data & instructions from the input device.
2. Processes the data as per instructions.
3. Provides the result (output) in a desired form.

Data : It is the collection of raw facts, figures & symbols.

Ex : Names of students and their marks in different subjects listed in random order.

Information : It is the data that is processed & presented in an organized manner.

Ex : When the names of students are arranged in alphabetical order, total and average marks are calculated & presented in a tabular form, it is information.

Program : Set of instructions that enables a computer to perform a given task.

Advantages of computers :

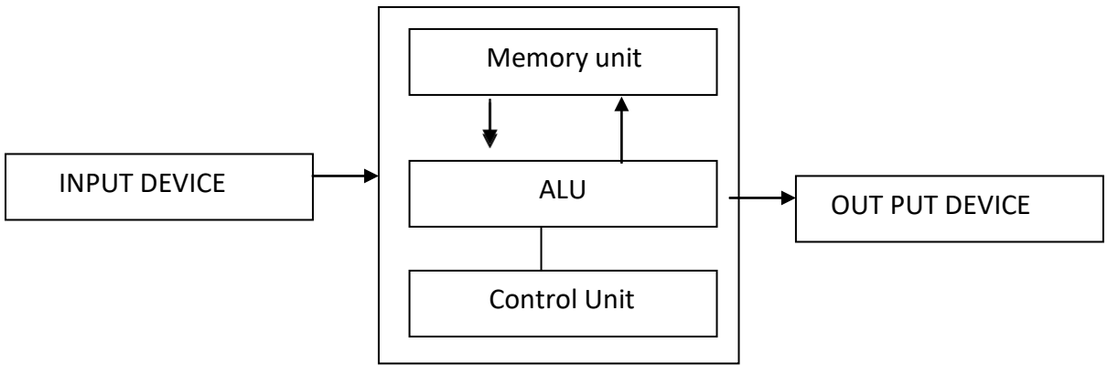
1. **High speed :** Computers have the ability to perform routine tasks at a greater speed than human beings. They can perform millions of calculations in seconds.
2. **Accuracy** : Computers are used to perform tasks in a way that ensures accuracy.
3. **Storage :** Computers can store large amount of information. Any item of data or any instruction stored in the memory can be retrieved by the computer at lightning speeds.
4. **Automation :** Computers can be instructed to perform complex tasks automatically (which increases the productivity).
5. **Diligence :** Computers can perform the same task repeatedly & with the same accuracy without getting tired.
6. **Versatility :** Computers are flexible to perform both simple and complex tasks.
7. **Cost effectiveness :** Computers reduce the amount of paper work and human effort, thereby reducing costs.

ANATOMY OF COMPUTERS

The computer system consists of three units:

1. Input device 2. Central Processing Unit (CPU) 3. Output device

Block diagram of a Computer :



The various functions of these units can be summarized as:

Unit **Function**

1. Input device : Reads information from input media and enters to the computer in a coded form
2. CPU

(a) Memory unit : Stores program and data

(b) Arithmetic Logic unit : Performs arithmetic and logical functions

(c) Control Unit : Interprets program instructions and controls the input and output devices

3. Output device : decodes information and presents it to the user

***Central Processing Unit*: It** is the part of the computer that carries out the instructions of a computer program. It is the unit that reads and executes program instructions. Hence it is known as the

–brain‖ of the computer. The CPU consists of storage or memory unit, Arithmetic Logic Unit (ALU) and control unit.

(a). Memory Unit: It is also known as the primary storage or main memory. It stores data, program instructions, internal results and final output temporarily before it is sent to an appropriate output device. It consists of thousands of cells called –storage locations‖. These cells activate with –off-on‖ or binary digits(0,1) mechanism. Thus a character either a letter or numerical digit is stored as a string of (0,1) Binary digits (BITS). These bits are used to store instructions and data by their combinations.

***(b)* Arithmetic and Logical Unit(ALU):** It is the unit where all Arithmetic operations (addition, subtraction etc.) and logical functions such as true or false, male or female are performed. Once data are fed into the main memory from input devices, they are held and transferred as needed to ALU where processing takes place. No process occurs in primary storage. Intermediate generated results in ALUare temporarily placed in memory until needed at later time. Data may move from primary memory to ALU and back again to storage many times before the process is finalized.

(c).Control Unit : It acts as a central nervous system and ensures that the information is stored correctly and the program instructions are followed in proper sequence as well as the data are selected from the memory as necessary. It also coordinates all the input and output devices of a

system .

Input Devices

Devices used to provide data and instructions to the computer are called Input devices. Some important input devices are

Key board, Mouse, Scanner, MICR, Web camera, Microphone etc.

1. ***Keyboard***: The Key board is used for typing text into the computer. It is also known as standard Input device. A computer keyboard is similar to that of a type writer with additional keys. The most commonly available computer keyboard has 104 keys.

There are different types of keys on the keyboard. The keys are categorized as :

- Alphanumeric keys , including letters & numbers.
- Punctuation keys, such as colon (:), semicolon (;) Question mark (?), Single & double quotes (_,‖)
- Special keys such as arrow keys, control keys, function keys (F1 to F12), HOME, END etc.

2.. **Mouse:** It is a device that controls the movement of the cursor on a monitor. A mouse will have 2 buttons on its top. The left button is the most frequently used button. There will be a wheel between the left and right buttons. This wheel enables us to smoothly scroll through screens of information. As we move the mouse, the pointer on the monitor moves in the same direction. Optical mouse is another advanced pointing device that uses a light emitting component instead of the mouse ball. Mouse cannot be used for entering the data. It is only useful to select the options on the screen.

3. **Scanner:** : It is an input device that can read text or illustrations printed on paper and translate into digital form. The main advantage of these scanners is that the data need not be entered separately resulting in saving lot of time.

Scanners are of two types: i) optical scanners ii) MICR

i) Optical scanners:

a. Optical character Recognition(OCR): In this, characters are read with the help of a light. This is used in office atomization, documentation in library etc.

b. Optical mark recognition(OMR): It is a technology where an OMR device senses the presence or absence of a mark such as a pencil mark. OMR is used in tests such as aptitude tests.

c. Optical barcode recognition(OBCR): Barcode readers are photoelectric scanners that read the bar codes or vertical zebra striped marks printed on product containers. This is used in super markets, book shops etc.

ii. MICR: This is widely used in banks to process the cheques. This allows the computer to recognize characters printed using magnetic ink.

4. **Magnetic Ink Character Recognition(MICR):** : It is a character recognition technology used primarily by the banking industry to facilitate the processing of the cheques. MICR characters (cheque No., Acc.No.etc) are printed in special ink usually containing iron oxide. When a document that contains the ink needs to be read, it passes through a machine which magnetizes the ink and there will be a reader sorter unit which translates the magnetic information into characters. MICR provides a secure, high speed of scanning and processing information. It scans about 2600 cheques/min.

Output devices

Any device that is capable of representing information on a computer is called an Output device. Output devices receive information from the CPU and present it to the user in the desired form.

Some important Output devices are : Monitor, Printer

1 **Terminal/Monitor**: It is similar to TV screen- either a monochrome (black & white) or colour – and it displays the output. It is also referred as Visual Display Unit(VDU). Several types of monitors are in use. Some of them are Colour Graphic Adapter(CGA), Enhanced Graphics Adaptor(EGA) , Video Graphics Adapter (VGA) and Super Video Graphics Adapter (SVGA).

The screen sizes differ from system to system. The standard size is 24 lines by 80 characters. Most systems have provision for scrolling which helps in moving the text vertically or horizontally on the screen.

2 **. Printer**: A printer is used to transfer data from a computer onto paper. The paper copy obtained from a printer is often referred as ―printout‖. The different printers and their speeds are as follows:

S. No.	Type	Mode of Printing	Speed
1	Dot – Matrix printer	Prints the character in dotted pattern through printer ribbon using either 24 pin or 9 pin	200/300 to 700 CPS
2	Ink Jet printer	Work by spraying ionized ink	Slow, 90 CPS
3	Laser printer	Also called page printer. Uses laser beam to produce an image.	6 to 12 PPM

4	Line printer	Prints lines at a time instead of single characters.	300 to 600 LPM
5	Plotter	Produces drawings or graphs through pens which are filled with different colours.	

(CPS: Characters Per Second; PPM: Pages Per Minutes; LPM : Lines Per Minute)

Laser printer

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MEMORY OF THE COMPUTER

Memory or storage capacity is one of the important components of a computer. Any storage unit of a computer system is classified on the basis of the following criteria:

1. Access time: This is the time required to locate and retrieve stored data from the storage unit in response to program instructions.
2. Storage capacity: It is the amount of data that can be stored in the storage unit.
3. Cost per bit of storage.

Units of memory: The computer stores a character in the storage cells with binary (0,1) mechanism. Thus the basic unit of memory is a bit (binary digit – 0,1). To store a character, a computer requires 8 bits or 1 byte. This is called the ― word length‖ of the storage unit. Hence the storage capacity of the computer is measured in the number of words it can store and is expressed in terms of bytes. The different units of measurement are

Conversion

8 Bits = 1 Byte

2^{10} (or) 1024 Bytes = 1 Kilo Byte (KB) 2^{10} (or)1024 KB = 1 Mega Byte (MB)

2^{10} (or)1024 MB = 1 Gega Byte (GB)

ASCII – American Standard Code for Information Interchange.

This code has given alphabets like some numbers which can be converted to Binary form.

A- 65 …….Z – 90 and a – 97.....z – 121

By using these codes the alphabets can be converted to digital & hence to Binary form.

Types of Memory : A computer memory is of two types

1. Primary Memory (Internal storage) 2. Secondary Memory (External storage)

Primary Memory : Primary memory is also called internal memory and is an important part of a computer. It is the main area in a computer where the data is stored. The stored data can be

recalled instantly and correctly whenever desired. This memory can be quickly accessed by the CPU for reading or storing information. Primary memory is further classified into two types:
Random Access Memory **(RAM)** and Read- Only Memory **(ROM) RAM**:
RAM is also known as read/write memory as information can be read from and written onto it. RAM is a place in a computer that holds instructions for the computer, its programs and the data. The CPU can directly access the data from RAM almost immediately. However, the storage of data and instructions in RAM is temporary, till the time the computer is running. It disappears from RAM as soon as the power to the computer is switched off. i.e it is volatile memory.

ROM:
It is called Read-only memory as information can only be read from and not written or changed onto ROM. ROM is the ‗built-in' memory of a computer. It stores some basic input – output instructions put by the manufacturer to operate the computer. The storage of data and instructions in ROM is permanent. It does not depend on the power supply. i.e it is non-volatile memory.
Secondary memory: The primary memory which is faster (and hence expensive) is generally not sufficient for large storage of data. As a result, additional memory, called the ―auxiliary‖ or ―secondary memory‖ is used. It is also referred as ―backup storage‖ as it is used to store large volume of data on a permanent basis which can be transferred to the primary memory whenever required for processing. Data are stored in secondary storage in the same binary codes as in the main (primary memory) storage. Some of the devices of secondary storages are Floppy Disk, Hard Disk, CD-ROM, DVD and Flash drive.
1. **Floppy Disk**: It is also referred as ―Diskette: and is made of flexible Vinyl material. It has a small hole on one side called ―Right protect notch‖, Which protects accidental writing/deleting the information from the disk. There is a hole in the centre through which the spindle of drive unit rotates the disk. The disks are available in two sizes of 5.25 and 3.5 inches and these could be either low- density or high-density floppies. Storage capacity of floppies are measured in kilobytes (KB) and megabytes (MB). The details about the storage capacities of the floppies are presented below:

Floppy Disk	**Storage Capacity**	**Size (Diameter)**
Low Density	360 KB	5.25 inches
High Density	1.2 MB	5.25 inches
High Density	1.44 MB	3.5 inches
Extended	2.8 MB	3.5 inches

2. **Hard Disk**: The hard disk can hold more information than the floppy disk and the retrieval of information from hard disk is faster when compared to floppies or tapes. A hard disk is fixed inside the CPU and its capacity ranges from 20 MB onwards. The hard disk is made up of a collection of discs (one below the other) known as platters on which the data is recorded. These platters are coated with magnetic material. It is less sensitive to external environmental disorders and hence the storage in hard disk is safe. A small hard disk might be as much as 25 times larger than a floppy disk. Storage Capacity of hard disks varies from 20 MB to several Gega bytes like 80GB, 160GB.

3. **CD-ROM**: CD-ROM stands for Compact Disk–Read Only Memory. It is used to store a wide variety of information. Its main advantage is that it is portable and can hold a large amount of data.. The storage capacity of most CD-ROMs is approximately 650 MB or 700 MB.

CD-ROMs have the following variations:

(i) CD-R(Compact disc Recordable): Data can be written onto it just once. The stored data can be read. Data once written onto it cannot be erased.

(ii) CD-RW(Compact disc Rewritable): It is also called erasable CD. Data once written onto it can be erased to write or record new information many times.

To use a CD-ROM, a device called CD drive is needed.

4. **DVD**: DVD stands for Digital Versatile Disc. It is similar to a CD-ROM, except that it can store larger amounts of data. The storage capacity of a DVD is at least 4.7MB. DVDs that can store up to 17GBs are also available. Because of their capacity, DVDs are generally used to store a very large multimedia presentations and movies that combine high quality sound and graphics.

5. **Flash Drive**: It is a small, portable device that can be used to store, access and transfer data. Due to its small size, it is commonly called **Pen drive.** It is also called USB drive. We can read, write, copy, delete, and move data from computer to pen drive or pen drive to computer. It comes

in various storage capacities of 2GB, 4GB, 8GB etc. It is popular because it is easy to use and small enough to be carried in a pocket. This device is plugged into the USB port of the computer and the computer automatically detects this device.

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HARDWARE and SOFTWARE

Hardware: The physical components of the computer are known as ―Hardware‖. It refers to the objects that we can actually touch.
Ex: input and output devices, processors, circuits and the cables.

Software: Software is a program or set of instructions that causes the Hardware to function in a desired way. The basic difference between the Hardware and Software is just the same as that exists between TV and TV studio. Without TV studio (software) from where the programs are telecast, the TV (Hardware) is a dead machine.

There are five categories of software. They are:
1. Operating System 2. Translators 3. Utility programs 4. Application programs 5. General purpose programs

1. **Operating System (OS) :** The software that manages the resources of a computer system and schedules its operation is called Operating system. The operating system acts as interface between the hardware and the user programs and facilitates the execution of programs.
Generally the OS acts as an interface between the user and the Hardware of the computer.
i.e It is a bridge between the user and the Hardware.
The User interface provided by the OS can be character based or graphical.
CUI -- Character user Interface
GUI -- Graphical user Interface
CUI : It is operated with keyboard only. Ex: MS-DOS, UNIX
GUI : The system can be operated with mouse and keyboard. Ex: Windows 95, Windows XP etc

- Disk Operating System (DOS): It was developed as early as 1980 by Bill Gates at the age of 19. It is suited for personal computers. Dos is a single user and single task operating system

- WINDOWS : It works with DOS and it supports single user and multitask

system. It requires a powerful PC with a minimum RAM of 8 MB .

- UNIX AND XENIX: It is suited for multi-user and multi-task system

2. **Translators** : Computers can understand instructions only when they are written in their own language – the machine language . Therefore, a program written in any other language should be translated into machine language. The software that ―translates‖ the instructions of different languages is known as translators .

There are two types of translators. They are **compilers** and **Interpreters**

A Compiler checks the entire user – written program (known as the source program) and if it is error free, produces a complete program in machine language (known as object program). The source program is retained for possible modifications and corrections and the object program is loaded into the computer for execution. If the source program contains errors, the compilers produce a list of errors at the end of the execution of the program. i.e a compiler translates the whole program before execution.

An interpreter does a similar job but in a different style. The interpreter translates one statement at a time and if it is error – free, executes. This continues till the last statement. Thus an interpreter

translates or executes the first instruction before it goes to the second, while a compiler translates the whole program before execution.

The major difference between compiler and interpreter is

1. Error correction is very much simpler in the case of interpreter as it translates the statements in stages. The compiler produces an error list of the entire program at the end.
2. Interpreter takes more time for the execution of the program compared to compilers as it translates one statement at a time

Programming Languages: There are three types of programming languages.

1. Machine Languages: Computers respond only to machine language. This language is in terms of binary codes (0,1). i.e. all programs should be written with these codes, which is difficult, time consuming and leading to errors while writing the programs. There is no unique standard machine language. Rather there are many machine languages. These are machine dependent. These are referred as the first generation languages.
2. Assembly Languages : It uses mnemonic codes rather than numeric codes (as in machine languages). Ex. Add or A is used as a symbol for addition. It requires translators to convert into machine language. Like machine language, writing program in assembly language is also time consuming. These are also machine dependent.
3. High Level Languages (HLL): These are referred as problem oriented languages (POL). These are referred as third generation languages. The advantages of these languages are

- The high level languages are convenient for writing programs as they can be written without any codes. These languages follow rules like –English‖ language.
- Because of their English like nature, less time is required to write a program.
- They are machine independent. A program written in any HLL can be run on computers of different types without any modifications.

Several High Level Languages which are in common use:

FORTRAN : FORmula TRANslation

COBOL : Common Business Oriented Language

BASIC : Beginner‘s All purpose Symbolic Instruction Code PROLOG: PROgramming in LOGic

ALGOL : ALGOrithmic Language

3. **Utility Programs:** These are pre-written programs supplied by the manufacturer for maintaining day to day activities of computer system.

Example: COPY, SORT, MAILING, virus scanning software etc.,

4. **Application Programs:** These are user written programs to do a specific job which can be changed to meet the individual needs. These programs are written in different languages such as BASIC or C or by using database packages like dBASE, Oracle.

Example: Payroll, Billing, Railway Reservation etc.

5. **General Purpose Packages:** These packages are developed to suit the needs of research workers / scientists in different fields. These packages are categorized as :

i) Data Analysis ii) Word Processing iii) Spread Sheet iv) Graphics and v) Databases

Data Analysis

Ex: SPSS (Statistical Package for Social Science), MSTAT,MICROSTAT, GENSTAT, SAS etc.

Word Processing

Ex: WORD PERFECT, WORDSTAR, MS-Word, CHIRATOR, NORTON EDITOR etc.

Spread Sheet

Ex: LOTUS, Qpro, VP-PLANNER, SYMPHONY, MS-Excel etc.

Graphics

Ex: LOTUS, STORY-BOARD, POWER-POINT etc.

Databases

Ex: dBASE, FOX-BASE, FOX-PRO, ORACLE, MS-Access etc.

DATABASE

The Database is an organized collection of data related to a particular topic or purpose. The database serves as a base from which a desired information can be retrieved, many meaningful conclusions can be drawn. A database stored electronically has distinct advantages over a manually organized system. A database can be maintained in a computer by using a database management system (DBMS).

DBMS is an application that enables to maintain data in a database. Maintaining data involves storing, organizing and retrieving data.

MS-ACCESS

MS-Access is a Relational Database Management System (RDBMS) that is used to store and manipulate large amount of information. The extension name of Ms-Access file is **.mdb**.

To start MS-Access:

1. Start Programs MS office Ms-Access Enter
2. Start Run Ms-Access Enter

An Access Database consists of 7 different **Database objects**.

1. **Tables :** Store database data in Rows (records) and columns (fields). Every row represents a Record. Each piece of information in a record is called a Field.

Ex: A table can contain personal information about all the students in a college.

Every row containing information about a student represents a record. The records in the student

table can include fields such as Admission number, Student name, Address, Phone number etc.

2. **Queries** : used to retrieve information from a database based on specific conditions. Ex: A Query can be used to extract details about students studying in a particular class.

3. **Forms :** used as interfaces for users to enter, view and modify data in a Table.

4. **Reports :** used to present data from tables or Queries in a format of our choice. i.e the printable form of the table or query or form. We cannot make changes to the data in a report. We can format the data in a report.

5. **Pages :** display shortcuts to data access pages in the database. A data access page displays data stored in a database over the internet.

6. **Macros :** used to automate frequently performed tasks. Ex: we can create a macro to print a report automatically.

7. **Modules :** used to perform advanced database operations, such as validating data against complex conditions.

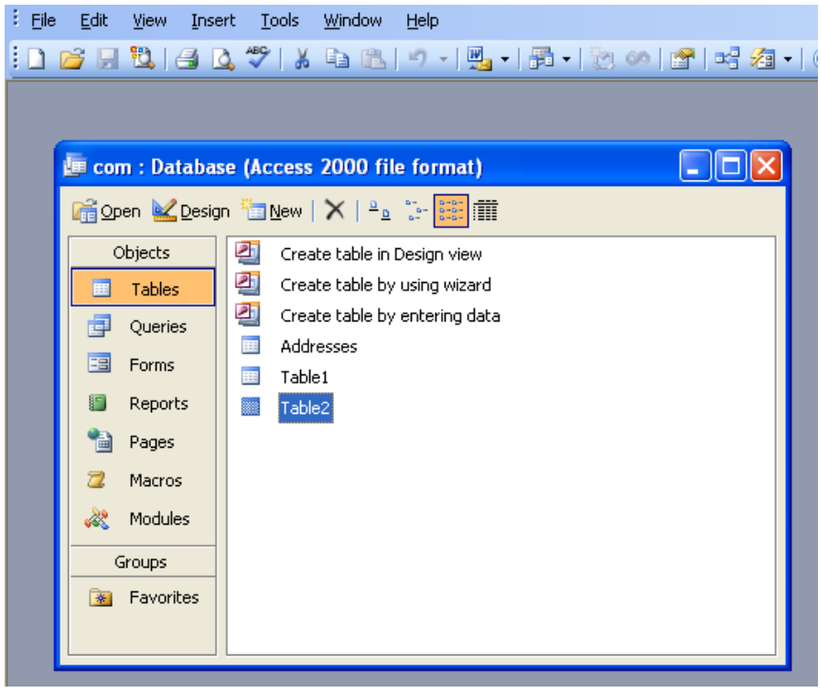
Creating a Database :

A Database can be created by using the database Wizard or by using the Blank Database command.

- The database Wizard is used to create tables, forms, queries and reports by following a series of steps provided by the wizard.
- The Blank Database command is used to create a blank database. All database objects should be created manually.

Click on File menu □ New □ Enter

A window appears □ give a name to the database



Creating a Table :

1. Open the database in which the table is to be created. The database window appears.

2. under objects, click Tables and then click New on the database window toolbar. The New Table dialog box appears.

Commands in the New Table dialog box

Command	**Purpose**
Create table by entering data	Used to create a table by entering values directly in a row and column format
Design view	Used to assign fields for the new table and modify field properties
Table wizard	Used to create a table through a guided sequence of steps

I. *Create Table by entering data:*

- Click on Table (object) in the main switch board.
- Click on create table on Datasheet view now a window appears here we find fields (field1, field2,……)
- Give the field names (Name, roll no., marks etc)
- Click on close button of the table and save the table with some name
- To enter details into the table, click on table in the main switch board and double click on the table name.
- Enter the details

Working with Database Fields :

Microsoft Access database fields are created by entering a *field name* and a *field data type* in each row of the field entry area of the database table window.

Data types in MS-Access :

The following list summarizes all the field data types available in MS- Access, their uses and their storage sizes.

- **Text :** used for text or combinations of text and numbers, such as addresses or for numbers that do not require calculations, such as phone numbers, or postal codes.

Stores up to 255 characters.

- **Memo :** Used for lengthy text and numbers, such as notes or descriptions. Stores upto 64,000 characters.
- **Number :** used for data to be included in Mathematical calculations, except calculations involving money. Stores 1,2,4 or 8 bytes.
- **Date / Time :** used for dates and times. Stores 8 bytes.
- **Currency :** used for currency values and to prevent rounding off during calculations. Stores 8 bytes.
- **Auto Number :** used for unique sequential or random numbers that are automatically inserted when a record is added.
- **Yes /No :** used for data that can be only one of two possible values, such as yes/ No, True/False, On/Off.
- **OLE object :** used for OLE objects like pictures, graphs and other binary data. Stores up to 1 GB.

II. *Create a table in Design view:*

1. click on table (object) in the main switch board.
2. Here click on ― create table in design view‖ Now a window appears here type the field names and their data types respectively.

Ex:

Field name	**Data types**
Roll No	Auto Number
Name	Text
Marks	Number

3. click on the close button of the table and save it with some name
4. To enter data into the table, double click on the table created.
5. Now enter the details.

Primary & Foreign keys:

Data should be checked for redundancy before it is stored in a database. Keys are used to maintain the integrity of data. Keys contain unique values that help to filter redundant information from the input data. Keys are of two types: primary & foreign.

Primary key: The field in a table that uniquely identifies each record is called the primary key. Usually this field is sequentially numbered.

Ex : Admission number field

Foreign key : When a primary key of one table appears as a field in another table, the field is called the foreign key in the second table.

Queries :

- By using queries we can view, change and analyze data in different ways. You can also use them as the source of records for forms and reports.
- You can bring together data from multiple tables and sort it in a particular order.
- You can perform calculations on groups of records.

Forms :

- In a table, number of records are displayed at a time. But, if the table has many fields, then it may not be possible for a user to view all of them. The screen may be too small to fit it. The user may have to scroll horizontally or vertically to view the rest of the fields/ records.
- In forms, the data can be displayed as per the users requirement. The records are generally displayed one at a time. The fields can be arranged as the user wants it. Pictures can be added to a form. The display and contents of the form is controlled fully by the user.
- In forms there are 3 views,

i. Design ii. Datasheet & iii. Form view

- The datasheet view shows many records whereas form view displays single record. You can toggle between these three views using the View Tool.

Report:

The data shown in a table, Query and forms are meant for displaying it on screen, but when you take the printout or the Hard copy, it is known as Report. In the database window, the open button is replaced by the preview button, when you click the report tab. Reports can be viewed either in print preview mode or design mode. Data cannot be edited in the reports. The report preview shows how the data will appear on taking out the printouts.

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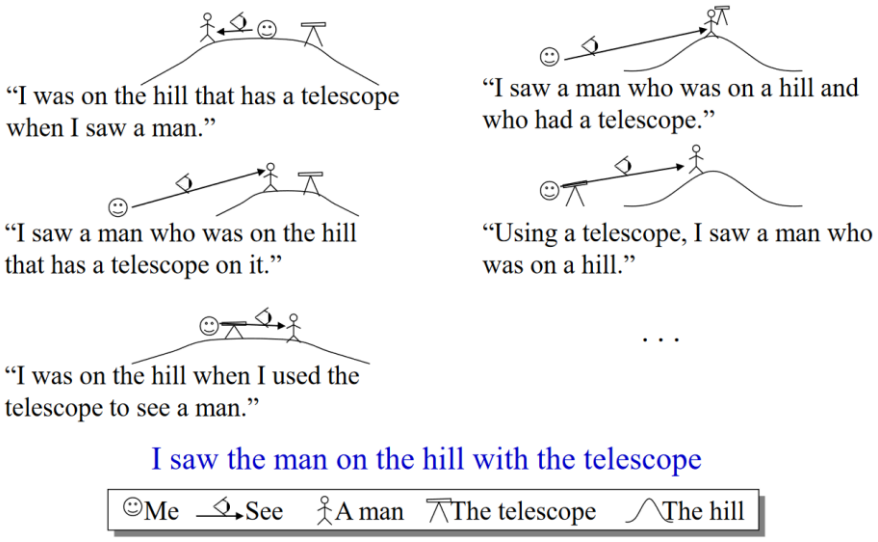
Natural Language Parsing

Natural languages were designed by humans, for humans to communicate. They're not in a form that can be easily processed or understood by computers. Therefore, natural language parsing is really about finding the underlying **structure** given an input of text. In some sense, it's the opposite of templating, where you start with a structure and then fill in the data. With parsing, you figure out the structure from the data.



Natural languages follow certain rules of **grammar**. This helps the parser extract the structure. Formally, we can define parsing as,

the process of determining whether a string of tokens can be generated by a grammar.

- the basics of natural language parsing

Text is a sequence of words. This can be simply represented as a "bag of words". This is not very useful. We can obtain a more useful representation by making use of syntactic structure. Such a structure exists because the sentence is expected to follow rules of grammar. By extracting and representing this structure, we transform the original plain input into something more useful for many downstream NLP tasks. Beyond syntax, parsing is also about obtaining the semantic structure.

Syntax

syntax: from the Greek *syntaxis*, meaning "setting out together or arrangement."

Refers to the way words are arranged together.

Why worry about syntax?

- The boy ate the frog.
- The frog was eaten by the boy.
- The frog that the boy ate died.

The boy whom the frog was eaten by died.

Syntactic Analysis

Key ideas:

- constituency: groups of words may behave as a single unit or phrase
- grammatical relations: refer to the subject, object, indirect object, etc.
- subcategorization and dependencies: refer to certain kinds of relations between words and phrases, e.g. *want* can be followed by an infinitive, but *find* and *work* cannot.

All can be modeled by various kinds of grammars that are based on context-free grammars.

Grammars and Parsing

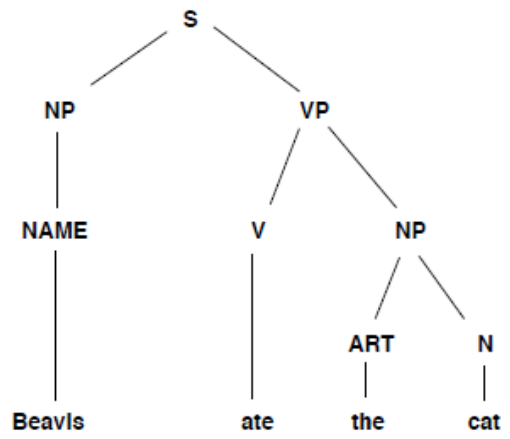
Need a grammar: a formal specification of the structures allowable in the language.

Need a parser: algorithm for assigning syntactic structure to an input sentence.

Sentence

Beavis ate the cat.

Parse Tree



CFG example

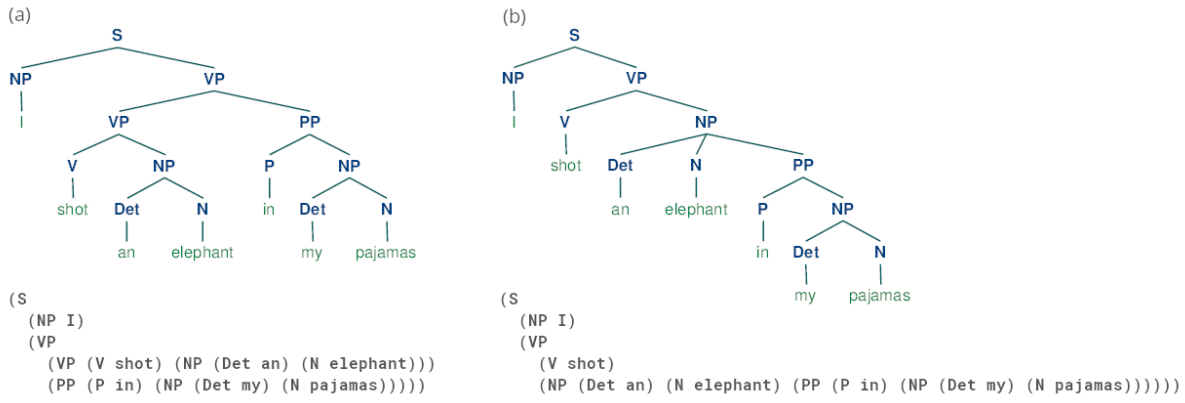
CFG's are also called phrase-structure grammars. Equivalent to Backus-Naur Form (BNF).

1. S → NP VP
2. VP → V NP
3. NP → NAME
4. NP → ART N
5. NAME → Beavis
6. V → ate
7. ART → the
8. N → cat

CFG's are *powerful* enough to describe most of the structure in natural languages.

CFG's are *restricted* enough so that efficient parsers can be built.

- common difficulties in natural language parsing?



Ambiguity produces two different parse trees, shown along with bracketing notation. Source: Adapted from Bird et al. 2019, fig. 3.

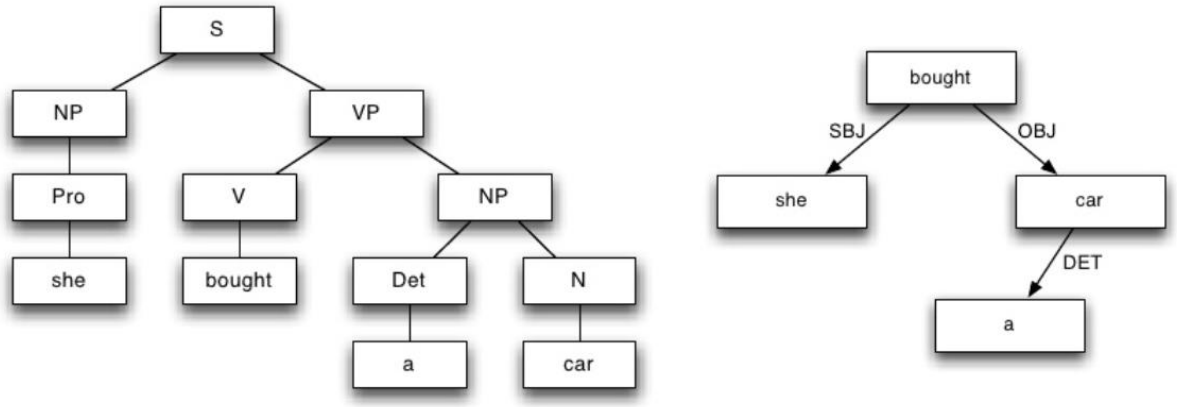
Breaking an input into sentences is the first challenge. Input could be formatted as tables or may contain page breaks. While punctuation is useful for this task, punctuation in abbreviations (e.g. or U.S.) can cause problems.

Given an input, a parser should be able to pick out the main phrases. This is not a solved problem. A more difficult problem is to obtain the correct semantic relationships and understand the context of discussion. Word embeddings such as word2vec operate at word level. This work needs to be extended to phrases.

Annotated corpora and neural network models are often about newswire content. Applying them to specific domains such as medicine is problematic.

Unlike parsing computer languages, parsing natural languages is more challenging because there's often ambiguity in human communication. A well-known example is "I shot an elephant in my pajamas." Was I or was the elephant wearing my pajamas? Humans also use sarcasm, colloquial phrases, idioms, and metaphors. They may also communicate with grammatical or spelling errors

- Could you compare constituency parsing with dependency parsing?



Phrase structure (left) and dependency structure (right). Source: Choi 2009, slide 4.

Constituency parsing and dependency parsing are respectively based on Phrase Structure Grammar (PSG) and Dependency Grammar (DG). Dependency parsing in particular is known to be useful in many NLP applications.

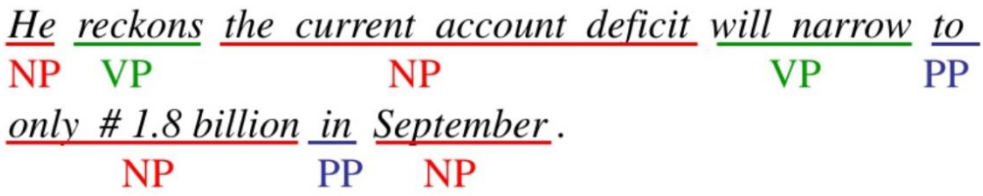
PSG breaks a sentence into its constituents or phrases. These phrases are in turn broken into more phrases. Thus, the parse tree is recursive. On the other hand, DG is not recursive,

implying that phrasal nodes are not produced. Rather, it identifies a network of relations. Two lexical items are asymmetrically related. One of them is the dependent word, the other is the head or governing word. Relations are labelled.

Consider the sentence, "She bought a car". In constituency parsing, "bought a car" is a verb phrase, which in turn contains noun phrase "a car". Thus, the structure is recursive. With dependency parsing, a directed arc identifies the relation along with a label. Typically, arrows go from head to dependent.

Languages such as Finnish that allow greater freedom of word order will benefit from dependency representation. This doesn't mean that English can't benefit from dependency representation.

- What is shallow parsing and how is it useful?



An example of shallow parsing. Source: Ananiadou et al. 2010, slide 40.

Constituency parsing is complex. Traditionally, such full parsing was not robust in noisy surroundings (although CoNLL 2007 Shared Task changed that). Some researchers therefore proposed **partial parsing** where completeness and depth of analysis were sacrificed for efficiency and reliability. **Chunking** or **shallow parsing** is a basic task in partial parsing.

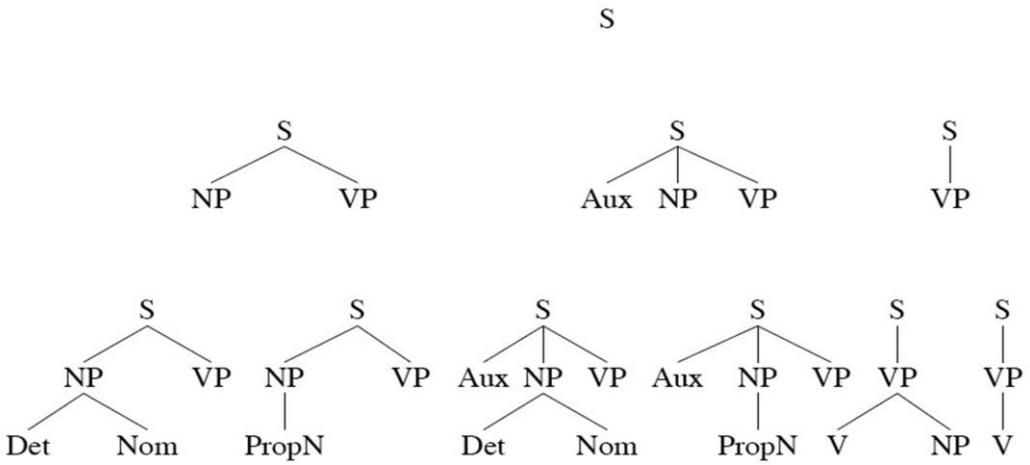
Chunking breaks up a sentence into syntactic constituents called *chunks*. Thus, each chunk can be one or more adjacent tokens. Unlike full parsing, chunks are not further analyzed. Chunking is thus non-recursive and fast. Chunks alone can be useful for other NLP tasks such as named entity recognition, text mining or terminology discovery. Chunks can also be a useful input to a dependency parser.

POS tagging tags the words but doesn't bring out the syntactic structure. Chunking can be seen as being somewhere between POS tagging and full parsing. Chunking can include the POS tags. Perceptron, SVM and bidirectional MEMM are some algorithms used for chunking.

- What are the main approaches to text parsing?

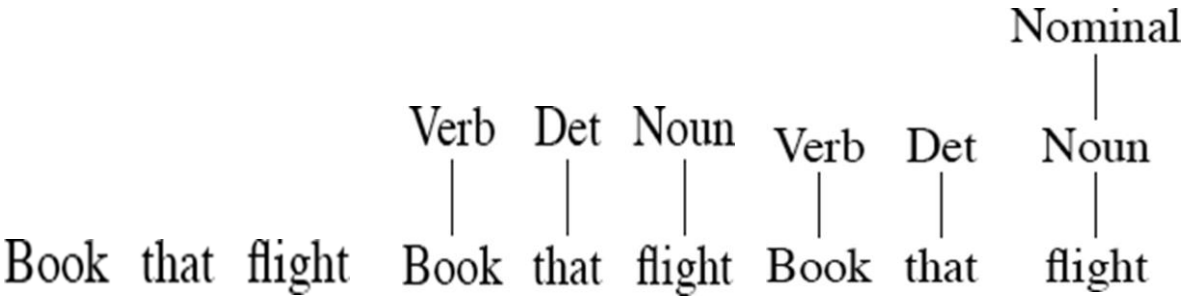
Parsing is really a search problem. Search space of possible parse trees is defined by a grammar. An example grammar rule is "VP → VP NP". Broadly, there are two parsing strategies:

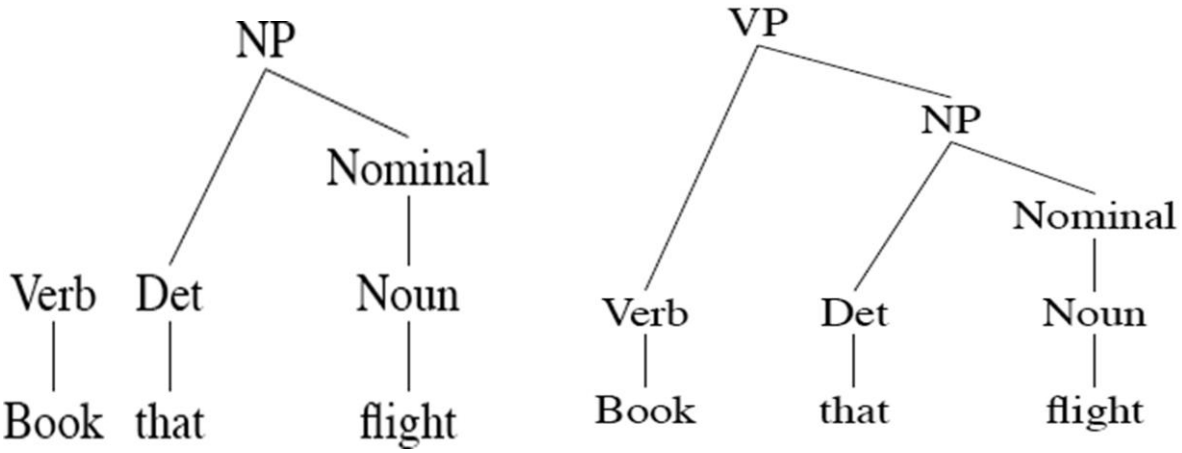
- **Top Down**: Goal-driven. Starts from the root node and expands to the next level of nodes using the grammar. Checks for left-hand side match of grammar rules. Repeat this until we reach the POS tags at the leaves. Trees that don't match the input are removed.
- Since we're trying to find trees rooted with an *S* (Sentences), why not start with the rules that give us an *S*.
- Then we can work our way down from there to the words.



- Start with goal of sentence
- S → NP VP
- S → Wh-word Aux NP VP
- Will try to find an NP 4 different ways before trying a parse where the verb comes first.
- **Bottom Up**: Data-driven. Starts from the input sequence of words and their POS tags. Builds the tree upwards using the grammar. Checks for right-hand side match of grammar rules.
- Of course, we also want trees that cover the input words. So we might also start with trees that link up with the words in the right way.
- Then work your way up from there to larger and larger trees.

Bottom-Up Search





- Start with words in sentence.
- What structures do they correspond to?
- Once a structure is built, kept on a CHART

While bottom-up can waste time searching trees that don't lead to the root sentence, it's grounded on the input and therefore never suggests trees that don't match the input. These pros and cons are reversed with top-down.

Recursive descent parser is top-down. Shift-reduce parser is bottom-up. Recursive descent parser can't handle left-recursive production. Left-corner parser is a hybrid that solves this problem.

Machine Readable Dictionary

MRD is a machine readable dictionary which consists of lexical databases which groups English words into sets of synonyms called Synsets, which gives simple meanings of the

word. It maintains various semantic relations among synonym sets. It maintains rich vocabulary organizational• structure. Using this it is very easy to construct and expand a domain lexicon. It provides rich semantic relations of words including synonym, antonym, and so on with which words are linked together to form a network. It is a structural notion where the meaning of a concept determined using its position relative to the other words in the structure. It is a dictionary in an electronic form that can be loaded in a database and can be queried via application software. It may be a single language explanatory dictionary or a multi-language dictionary to support translations between two or more languages or a combination of both. An MRD may be a dictionary with a proprietary• structure that is queried by dedicated software (for example online via internet) or it can be a dictionary that has an open structure and is available for loading in computer databases and thus can be used via various software applications.

MRD is an electronic lexical database, which is arranged semantically and contains nouns, verbs, adjectives and adverbs. Words that are synonymous are grouped together in Synonym sets are referred as synsets. Each synset has an associated definition named gloss, which is a short explanation of the meaning of the concept represented by the synset. Many words in MRD are polysemous i.e. they are included in more than one synsets. For example, the word computer can be found in the synset {computer, computing machine, computing device, data processor, electronic computer, information processing system}, which has the gloss ―a machine for performing calculations automatically‖, and in the synset {calculator, reckoner, figurer, estimator, computer} which has the gloss ―an expert at calculation (or at operating calculating machines)‖.Synsets are connected to each other through various semantic relations. The most important relations between nouns are the relations of hyponymy and hypernymy, which are transitive relations between synsets. The hypernymy relationship between synsets A and B means that B is a kind of A. Hypernymy and hyponymy are inverse relationships, so if A is a hypernym of B, then B is a hyponym of A. For example the synset {computer, computing machine, computing device, data processor, electronic computer, information processing system} is a hypernym of the synset {home computer}. Usually each synset has only one hypernym, therefore this relation organizes WordNet into a hierarchical structure. Another pair of inverse relations that hold between nouns is the meronymy and the holonymy relations. If A is a holonym of B (or in other words B is a meronym of A), it means that B is a part of A. For example, synset {keyboard} is a meronym of the synset {computer,

computing machine, computing device, data processor, electronic computer, information processing system.

The need for robust lexical and semantic information to assist in realistic natural language processing (NLP) applications is well known. Machine-readable dictionaries (MRDs) have been seen as a likely source of information for use in NLP because they contain an enormous amount of lexical and semantic knowledge collected together over years of effort by lexicographers. Considerable research has been devoted to devising methods to automatically extract this information from dictionaries. Early results in MRD research were promising and led many to feel that large knowledge bases could easily be derived automatically from MRDs.

Electronic Dictionary

Electronic dictionaries (EDRs) have been seen as a likely source of information in Natural Language Processing (NLP) because they contain an enormous amount of lexical and semantic knowledge collected together over years of effort by lexicographers.. An electronic dictionary is a "machine-readable version of a standard dictionary" or a "dictionary which is stored on computer and can be accessed by programs, e.g. so that definitions can be looked up and displayed on screen and used for natural language processing". Some electronic dictionaries contain only corpora for a single language (monolingual), but others are bilingual dictionaries and translation dictionaries and may also include medical or legal dictionaries, thesauri, travel dictionaries, dictionaries of idioms and colloquialisms, guide to pronunciations, grammar references, common phrases and collocations, and a dictionary of foreign loan words.

Types of Electronic dictionary and its advantage

Types of e-dictionary: According to Al-Rabi'i et.al.(2001:146), electronic dictionary can be divided into two different types:-

1. Online electronic dictionary: This dictionary is provided on the World Wide Web also known as internet dictionary. The dictionary is directly used from the internet. Some of the websites offered are free and some of them impose an annual fee. The advantage of using this dictionary is that it can be used at any place as long as there is internet connection. However, it takes up a lot of time caused by the congestion in the internet connection.

2. Offline electronic dictionary: It is in the form of compact disc. This type of dictionary can be used with a computer or a personal data assistant (PDA). The advantage of using this type of dictionary is that users are free from the interruption of internet connection and the disadvantage is that it requires an expensive tool.

Advantages of electronic dictionary

Now, the computer has made the creation and manipulation of information the central activity of the economy. This era is also known as the information age. If information explosion is the most pronounced phenomenon of the present era, the Internet is and will remain its greatest enabler. This explosion is triggering a global knowledge revolution. In many circumstances, reading an electronic dictionary is far superior to reading a traditional paper dictionary book.

Some features of electronic dictionary over traditional paper dictionary are stated below:

i) Portability: The wonderful thing about electronic Dictionary is that it takes up virtually no room, in both physical and digital sense. If someone has a storage card, he/she can walk around with at least a dozen e-dictionaries, and probably many more than that.

ii) Features: Because electronic books are digital, not only are they super-portable, but they also open up the possibility for some really useful features. Digital format-assuming copy protection doesn't get in the way- can be duplicated forever without decay or any real expense.

iii) Easy to read: The electronic format offers readers even more benefits over traditional paper dictionaries.

iv) Durability: The readability of an electronic dictionary won't degrade over time, the pages won't crumble because of high acid content, the binding can never break, and there can be no variations in the ink. Electronic dictionary are often more convenient than their paper based counterparts.

v) Updatedness: One major advantage of online dictionaries is their updatedness. Information or entries can be changed, edited, deleted or added at any time, which would not be possible in case of printed dictionaries as it implies designing, printing and publishing a whole new exercise

UNIT – V: PSYCHOLINGUISTICS

Concepts of PSYCHOLINGUISTICS

Psycholinguistics is a technical term for a relatively new area of linguistics. It is an interdisciplinary field of specialization which developed in the early 1950s. **Psycholinguistics** is a hybrid term combining *psycho-* (from psychology) with *linguistics*. Theoretically, psycholinguistics combines techniques of psychology with techniques of linguistics in the study of language.

Psycholinguistics or **psychology of language** is the study of the psychological and neurobiological factors that enable humans to acquire, use, and understand language. Initial forays into psycholinguistics were largely philosophical ventures, due mainly to a lack of cohesive data on how the human brain functioned. Modern research makes use of biology, neuroscience, cognitive science, and information theory to study how the brain processes language. There are a number of subdisciplines; for example, as non-invasive techniques to study the neurological workings of the brain become more and more used, *neurolinguistics* has become a field of its own.

Psycholinguistics covers the cognitive processes that make it possible to generate a grammatical and meaningful sentence out of vocabulary and grammatical structures, as well as the processes that make it possible to understand utterances, words, text, etc. Developmental psycholinguistics studies infants' and children's ability to learn language, usually with experimental or at least quantitative methods (as opposed to naturalistic observations such as those made by Jean Piaget in his research on the development of children).

Psycholinguistics is interdisciplinary in nature and is studied by people in a variety of fields, such as psychology, cognitive science, and linguistics. There are several subdivisions within **psycholinguistics** that are based on the components that make up human language.

- Phonetics and phonology are concerned with the study of speech sounds. Within **psycholinguistics**, research focuses on how the brain processes and understands these sounds.

- Morphology is the study of word structures, especially the relationships between related words (such as *dog* and *dogs*) and the formation of words based on rules (such as plural formation).
- Syntax is the study of the patterns which dictate how words are combined together to form sentences.
- Semantics deals with the meaning of words and sentences. Where syntax is concerned with the formal structure of sentences, semantics deals with the actual meaning of sentences.
- Pragmatics is concerned with the role of context in the interpretation of meaning.
- The study of word recognition and reading examines the processes involved in the extraction of orthographic, morphological, phonological, and semantic information from patterns in printed text

Psychology of language

The interest of psychologists in man's capacity to use langauge has been quite old -- almost as old as pschology itself. There is no doubt about it that "in the history of psychology language has always played a certain role." Psychologist have not only a made valuable contributions to the understanding of the facts of language, but have also deeply influenced most of linguists in course of time. The studies, investigations and enquiries relating to psychology and language form the basis of 'psychology of language'.

The language is considered as a 'system of symbols' for communicating ideas. These symbols are 'arbitrary' as well as 'vocal'. The whole system of language involves various kinds of units such as phonological, morphological and syntactic units which are phonemes, morphemes and sentence structures. A language system is studied and analyzed from a formal view point or in the abstract by linguists with little or no reference to how this system is acquired and used by the people. Psychologists study language from a functional point of view. They are concerned with how people learn and use the language. This 'province of psychology' is logically designated as the 'psychology of language'.

There is an intimate relationship between language and psychology. Language is closely related to the topics of general psychology like learning, memory, motivation, perception and thinking. Language is also related to personality which is an important field of psychological enquiry. Developmetal psychology or more specifically child psychology is yet

another area which is allied to language. This area deals with infancy, childhood and adolescence and psychologists are interested in the process of language development along with other kinds of developments during the entire period of child development. An equally important field of enquiry is the psychology of behavior and most psychologists treat language as one of the modes of human behavior. language disorders have also attracted the attention of psychologists and various psychological enquiries have been made with regard to them.

The history of the psychology of language can be traced back to the early nineteenth century German scholar, Wilhelm von Humboldt (1767-1835) who was basically a 'philologist' and a thinker of "general linguistic questions" but had also developed his deep interest in the psychological aspects of language. Significantly, Humboldt's theory of language lays stress on the "creative linguistic ability inherent in every speaker's brain or mind". According to him "a language is to be identified with the living capability by which speakers produce and understand utterances, not with the observed products on the acts of speaking and writing". He calls language a "creative ability, not a mere product".

In later peiods, the Humboldtians showed more interest in the pschological aspects of language. Heyman Steinthal (1823-1899), a student of Humboldt, was very much inspired by him in his development of "linguistic psychology". Steinthal who was a "psychologist-turned-linguist" along with a "linguist-turned- psychologist", Mortiz Lazarus founded a journal of "social psychology and linguistics" in 1860. It was first journal largely devoted to the psychology of language. Steinthal held the view that " a science of psychology is necessarily impossible without a science of language. Accordingly, the primary access to the mind of man was to be through the innate laws of language, not the senses".

Theories of LANGUAGE ACQUISITION and LEARNING

- Language acquisition is the process by which humans acquire the capacity to perceive, produce and use words to understand and communicate.
- The acquisition of language is doubtless the greatest intellectual feat any one of us is ever required to perform. (Leonard Bloomfield, Language1993)

  The capacity to learn language is deeply ingrained in us as a species ,just as the capacity to walk, to grasp objects, to recognize faces. We do not find any serious differences in children growing up in congested urban slums, in isolated mountain

villages, or in privileged suburban villas.(Dan slobin, The human language series2,1994)

THEORIES OF LANGUAGE ACQUISITION

Theory	Central idea	Linguist
Behaviorist	Children immediate adults	Skinner
Cognitive	Lang. is just one aspect of a child's overall intellectual development	Piaget
Innateness	Lang. is an innate capacity	Chomsky
Interaction	Emphasis the interaction b/w child and their care giver	Bruner

BF SKINNER- BEHAVIOURISM

- **(March 20,1904-August 18,1990)**

BEHAVIOURISM

- B.F Skinner (March 20,1904-August 18,1990) was an American Psychologist.
- B.F Skinner proposed this theory as an explanation for Language acquisition in human.
- B. F SKINNER'S entire system is based on operant conditioning (learning's a function of change in overt behaviour)

BEHAVIOURISTS' VIEWS:

- Behaviorists view the process of language acquisition as a building process that results from interaction with the environment. In outlining his assertion that human acquire spoken language as a result of behavioral conditioning. B.F. Skinner writes.
- A child acquires verbal behavior when relatively unpatterned vocalizations, selectively reinforced, gradually assume forms which produce appropriate consequences in a given verbal community" (Skinner 31)
- In formulating the process of language acquisition we do not feed to mention stimuli` occurring prior to the behavior to be reinforced. It is difficult, if not impossible, to discover stimuli which evoke specific vocal responses in the young child.
- There is no stimulus which makes a child say b or a or e, as one may make him salivate by placing a lemon drop in his mouth or make his pupils contract by shining a

light into his eyes. The raw responses from which verbal behavior is constructed are not "elicited." In order to reinforce a given response we simply wait until it occurs.

- Skinner views the child as the "passive subject of operant conditioning in whom randomly occurring behavior is selectively reinforced" (Vocate3).
- Operant conditioning lead towards rein forcing stimulus.

Schedules for reinforcement

- Continuous reinforcement(is the original scenario. Every time that the rat does the behaviour such as pedal pushing)
- Fixed Ratio Schedule(fixed ratio b/w behaviours and reionforcers:3 to 1, 5 to 1,20 to 1)
- The fixed interval schedule (uses a timing device of some sort)
- Variable Schedule (means you keep changing the time period ….first 20 seconds, then 5,then 10 and so on)
- The method of Successive approximants or Shaping How we get more complex sorts of behaviour)
- Aversive Stimulus (opposite of reinforcement, something we might find unpleasant or painful)

PRINCIPLES

1. Behaviour that is positively reinforced will reoccur
2. Information should be presented in small amounts so that responses can be reinforced (shaping)
3. Reinforcement will generalize similar stimuli stimulus generalization)

Limitations in Behaviorism

- Lang. is based on a set of structures or rules, which could not be worked out simply by imitating individual utterances
- Children are often unable to repeat what an adults says

JEAN WILLIAM FRITZ PIAGET

THEORY OF COGNITIVE DEVELOPMET 1896-1980

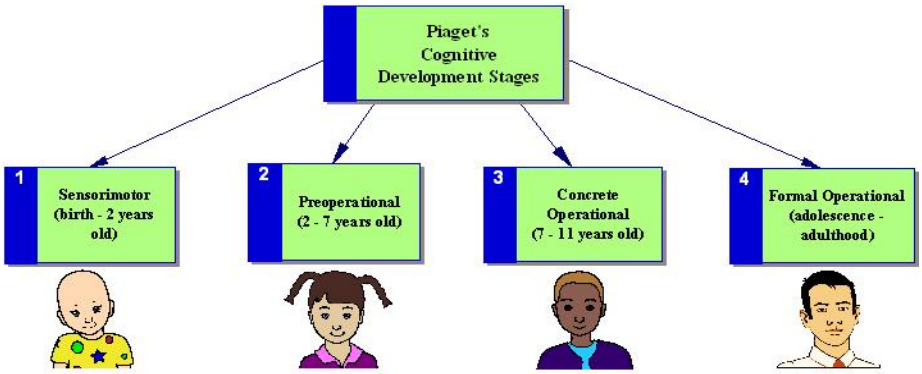
Cognitive Theory

The Swiss Psychologist Jean piaget placed acquisition of language within the context of a child's mental or cognitive development.

Language is just one aspect of a child's overall intellectual development.

The child has to understand a concept before he/she can acquire the particular language from which expresses that concept.

LANGUAGE ACQUISITION STAGES:



STAGES

- The four **developmental stages** are described in Piaget's theory as:

1. Sensorimotor Stage

- From birth to age 2(children are extremely egocentric, meaning they can't perceive the world from others viewpoints.

Sub Stages

1. Simple Reflexes(1 month infants reflexes such as rooting and sucking)
2. First habits and primary circular reaction(1 to 4 infants learn to coordinate sensation)
3. Secondary circular recation(4 to 8 infants become aware of things, they are more object oriented)
4. Cordition of secondary circular recation(8 to 12 infants do things intentionally)
5. 5. Tertiary circular reaction(12 to 18 infants explore new possibilities of objects)
6. 6. Internalization of schemes(18 to 24 they shift to symbolic thinking)
7. 2. Preoperational Stage
8. From 2 to 7 (magical thinking predominates). Egocentrism begins strongly and then weakens. Children can't conserve or use logical thinking.

3.Concrete Operational Stage

From 7 to 12(Children begin to think logically but are very concrete in their thinking). They are no longer egocentrics.

4. Formal Operational Stage

- Start from 11 and continues into adulthood. Individual move beyond concert experiences and begin to think abstractly)

OTHER MAJOR THEORIES OF LANGUAGE ACQUISITION:

- **INNATENESS:**

By Noam Chomsky

(born 7th December 1928---till present)

American Linguist, Institute Professor of Linguistics at M.I.T.

- **INTERACTIONIST**

By Jerome Seymour Bruner

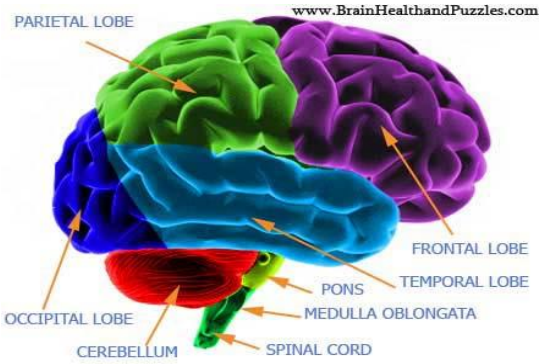
(born October 1, 1915---till present)

American Psychologist.

3. Innateness Theory

By Noam Chomsky (born 1928---Present)

ON FIRST LANGUAGE ACQUISITION.



Noam Chomsky says on Behaviorism:

- Whatever 'behaviorism' may have served in the past, it has become nothing more than a set of arbitrary restrictions on 'legitimate' theory construction . . . the kind of intellectual shackles that physical scientists would surely not tolerate and that condemns any intellectual pursuit to insignificance." (Bjork, 1993, p.204)

2. Noam Chomsky

Noam Chomsky is perhaps the best known and the most influential linguist of the second half of the Twentieth Century. He has made a number of strong claims about language : in particular, he suggests that LANGUAGE IS AN INNATE ABILITY - that is to say that we are born with set of rules about language in our brains called the '**UNIVERSAL GRAMMAR' or Generative Grammar.**

INNATENESS HYPOTHESIS:

- All the children whether deaf or blind or belonging to deaf or blind parents show the same language acquisition development stages.
- WHY?

UNIVERSAL GRAMMAR (U.G.):

- "Children are equipped with an innate template or blueprint for language and this blueprint aids the child in the task of constructing a grammar for their language."

- This is known as “Innateness Hypothesis.”

Children Construct Grammars:

- Language learning is not really something that the child does; it is something that happens to the child placed in an appropriate environment much as the child’s body grows and matures in a predetermined way when provided with appropriate nutrition and environmental stimulation.”

--Noam Chomsky

What does U.G. (Universal Grammar) have?

Chomsky says:

- The UG does not have the actual rules of each language but it has PRINCIPLES & PARAMETERS.
- The rules of language are derived from the PRINCIPLES & PARAMETERS.

CHOMSKYAN GENERATIVE GRAMMAR:

The Chomskyan approach towards Syntax, often termed Generative Grammar studies grammar as a body of knowledge possessed by language users. Since the 1960s, Chomsky has maintained that much of this knowledge is innate, implying that children need only learn certain parochial features of their native languages. The innate body of linguistic knowledge that is often termed Universal Grammar is already there.

CHOMSKYAN GENERATIVE GRAMMAR: (Example)

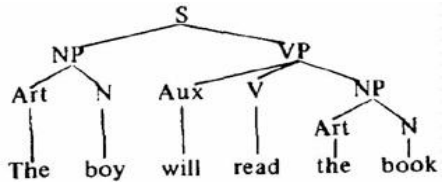
Syntactic Structures” by Noam Chomsky in 1957 (Revolutionary Book)

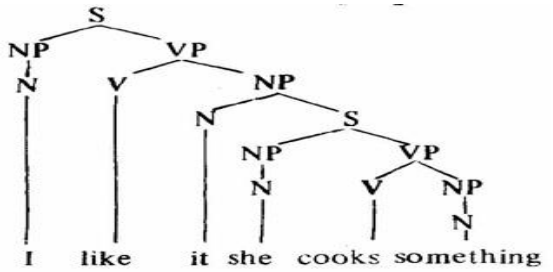
	Structuralism	*Generative Grammar*
Subject Matter	corpus of utterances	speaker's knowledge of how to produce and understand sentences, his linguistic competence
Goal	classification of the elements of the corpus	specification of the grammatical rules underlying the construction of sentences
Methods	discovery procedures	evaluation procedures

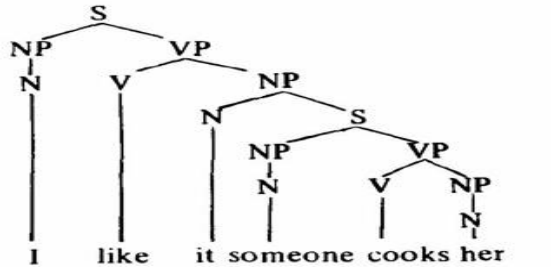
Chomsky’s Syntactic Theory:

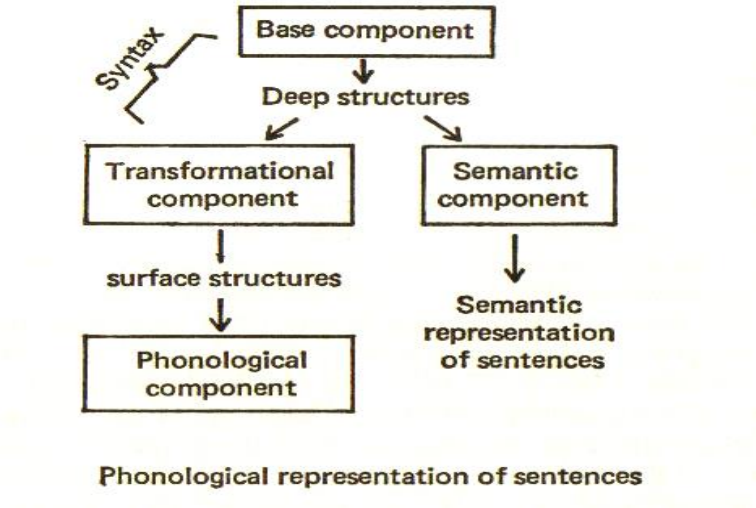
- The first task of Chomsky's syntax is to account for the speaker's understanding of the internal structure of sentences. Chomsky and other grammarians can represent much, though not all, of the speaker's knowledge of the internal structure of sentences with rules called "phrase structure" rules.

Chomskyan Tree:









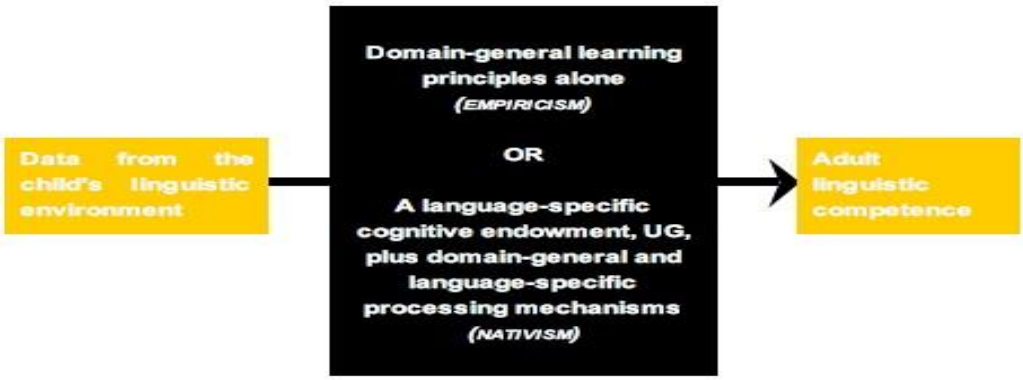
Principles & Parameters:

- Principles: universal basic features of Grammar e.g.. Nouns, Verbs & Structure Dependency etc.
- Parameters: the variation across language that determines one or more aspects of Grammar e.g. Pro, Drop and Head Direction.
- The Parameters are set during Language Acquisition.

Universal Grammar

- UG is hidden unknown somewhere in the brain.

INPUT → UNIVERSAL GRAMMAR → Adult Grammar: (Primary Linguistic Data)
Principles, parameters & Lexicon,



Chomsky says…Children possess..

Argument from Poverty of Stimulus:

Children manage to learn their language though they are exposed to very little correct language. Children hear many utterances but they often hear incomplete, unstructured and ungrammatical language. Still children construct their grammars according to their innate ability (U.G.).

Language Acquisition Device (L.A.D.):

- set of language learning tools, intuitive at birth in all children.

Chomsky says:

- According to Noam Chomsky, the mechanism of language acquisition formulates from innate processes. This theory is evidenced by children who live in the same linguistic community without a plethora of different experiences who arrive at comparable grammars.

- There is a critical age for learning a language as is true for the overall development of the human body.
- The innateness hypothesis also predicts that all languages follow the same principles of UG.
- Children set **parameters** of UG from their early stages of language acquisition.
- Language is species-specific.
- The U.G. (Universal Grammar) and Innate Ability are hidden in the brain and are independent.

All Children Share Same Innateness

- Chomsky thus proposes that "all children share the same internal constraints which characterize narrowly the grammar they are going to construct."

(Chomsky, 1977, p.98)

Mind & Language Acquisition

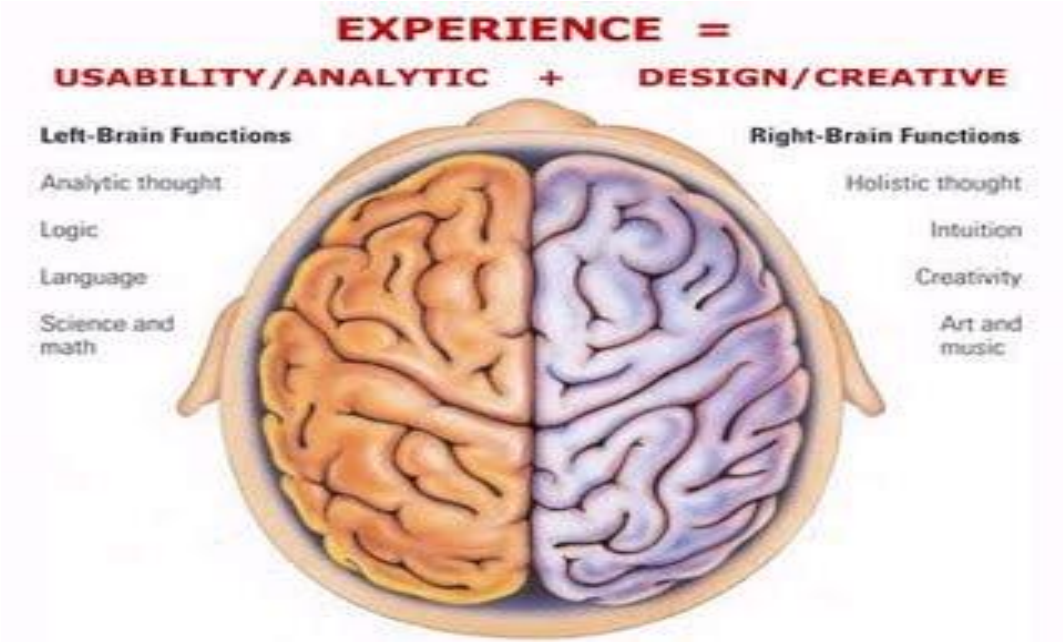
- **Since we live in a Biological world, "there is no reason for supposing the mental world to be an exception." (Chomsky, 1977, p.94)**

NOAM CHOMSKY: (1983)

- **"Language Development should be described as language growth because the language organ simply grows like any other body organ (in the brain)."**

--Noam Chomsky.

Language Ability Is In Brain (mind):



4.Jerome Bruner— Interactionist. (1915--Present)

The language behaviour of adults when talking to children (known by several names by most easily referred to as child-directed speech or CDS) is specially adapted to support the acquisition process. This support is often described to as scaffolding for the child's language learning. Bruner also coined the term Language Acquisition Support System or LASS in response to Chomsky's LAD."

Jerome Bruner (SOCIAL INTERACTIONIST THEORY):

- The psychologist Jerome is of the view that while Chomsky suggests a LAD, there must also be a **Language Acquisition Support System or LASS.** He is referring to the family and the social environment of the child in which he interacts and acquires language.

BRUNER'S LASS:

If we look at the child's early learning environment we can see how:

- **A CHILD INTERACTS WITH THE ADULTS AROUND HIM\HER.**
- **CONSTANT & CONTINUAL CHANCES ARE PROVIDED TO THE CHILD TO ACUIRE HIS\HER MOTHER TONGUE.**

PARENTS & ADULTS PROVIDE A LEARNIG ENIRONMENT TO THE CHILD.

THEORY OF BRUNER (Social Interaction)

- Bruner is one of the founding fathers of Constructivist Theory.

"Learners construct new ideas and concepts based upon their existing knowledge."

- Learning goes on and is an active process.

Research on Children's Development: (in 1966)

Bruner gave three modes of representation in children's development:

- Enactive representation (action-based),
- Iconic representation (image-based),
- **Symbolic representation (language-based).**

Intellectual Development

Bruner postulated three stages of intellectual development:

The first stage he termed "Enactive", when a person learns about the world through actions on physical objects and the outcomes of these actions.

(used in first 18 months)

- second stage was called "Iconic" where learning can be obtained through using models and pictures.

(develops from 18 months)

- The final stage was "Symbolic" in which the learner develops the capacity to think in abstract terms.

(6 to 7 years onwards)

CATEGORIZATION:

- Bruner's theories emphasize the significance of categorization in learning.

“To perceive is to categorize, to conceptualize is to categorize, to learn is to form categories, to make decisions is to categorize."

Bruner’s Theory:

- Like Piaget, Bruner believed that children have an innate capacity that helps them make sense of the work and that cognitive abilities develop through active interaction.
- Unlike Piaget however, Bruner argued that social factors, particularly language, were important for cognitive growth. These underpin the concept of ‘scaffolding’.
- Bruner was also concerned with how knowledge is represented and organised through different modes of representation

Scaffolding (1976)

- Wood, Bruner and Ross (1976) – adults particularly parents, support children's cognitive development through everyday play interactions.
- Scaffolding is a temporary support structure around that child’s attempts to understand new ideas and complete new tasks.

Scaffolding Purposes

- The purpose of the support is to allow the child to achieve higher levels of development by:
- 1. simplifying the task or idea
- 2. motivating and encouraging the child
- Highlighting important task elements or errors
- Giving models that can be imitated.

BRUNER’S VIEW:

- “The child learns how to use language within the social context of language use in which the child interacts. He grows up and needs to interact in the social scenario of the caretaker (s) around him and he gradually adopts their movements & language.”

Example of

A Childhood Game

- Bruner gives example of a well-known childhood game to explain language acquisition:

- First Language Acquisition takes place like a game in which the mother or care-taker first appear and then disappear with simple comments as ‘hello…how are you?” etc. and then lengthier comments or words and the child learns about the play as well as the contexts being provided t him.

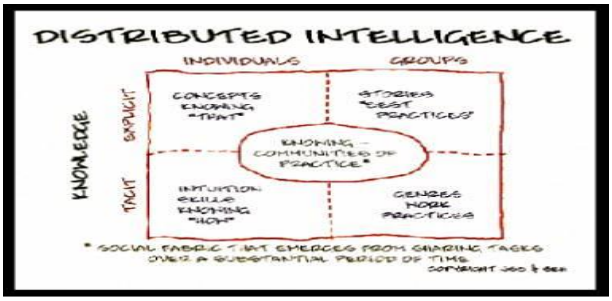
The Narrative Construction of Reality: (in 1991)

- In 1991, Bruner published an article “Critical Inquiry” entitled "The Narrative Construction of Reality." In this article, he argued:

“the mind structures its sense of reality using mediation through "cultural products, like **language** and other symbolic systems“.

He focuses on the idea of narrative as one of these cultural products.

Bruner



Further ideas of Bruner:

- Bruner’s Concepts have been explained further by **John McNamara** (a linguist):

“Children, rather than having an in-built language device, have an innate capacity to read meaning into social situations. It is this capacity that makes them capable of understanding language, and therefore learning it with ease, rather than an LAD.”

Second Language Acquisition:

- *Second Language L2 Acquisition deals with acquisition of additional languages in both children and adults. They are referred to as L2 (Second Language), L3 (Third Language), L4 (Fourth Language) etc.*

Difference

- ACQUISITION & LEARNING

Learning a Second Language.

Ability:

- After the Critical Period has passed around puberty it becomes very difficult to acquire another language fully.
- Linguists are of the view that
- children can acquire up to 5 or 6 languages by the age of 6 and have maximum ability.

- From 6 to 7 their language learning ability gradually reduces a bit.
- From the age of 7 to 11 they have a very good ability to acquire second language (s).
- Their language learning ability remains good from the age of 12 to 17.
- Their language learning ability gradually reduces from the age of 17 to 30 and almost ends or ends by the age of 30 or 31.

Language Learning Ability Experiment:

- Johnson and Newport found that the tests results of language depended heavily on the age at which the person had arrived in the United States:
- The people who arrived as children (between the ages of 3 and 8) did as well on the test as native speakers.
- People who arrived in between ages of 8 and 15 did not do so well as native speakers. And younger ones did better.
- The people in between 17 and 31 had the lowest scores!

L2 ABILITY…continued

- L2 or L3 Acquisition requires conscious attention, often good study and memory and mental ability as well.
- Therefore adults do not show enough competency in Second Language.
- Adults vary in their competency to acquire second language. Some are very successful, some are mediocre and other are failures.
- L2 Acquisition is different from L1 Acquisition: FUNDAMENTAL DIFFERENCE HYPOTHESIS

Interlanguage: L1&L2 Acquisition has fixed rules.

FACTORS Affecting L2 Acquisition:

- **The mother tongue or L1 features Acquisition:** takes over most of the language faculty with a resulting loss of flexibility or openness to receive the features of another language.
- Bilingualism & Multilingualism.
- Motivation.
- Input & Output.
- Sociolinguistic Competence:

“ Communicative Competence, Strategic Competence, and Grammatical Competence.”

Negative Factors:

- GRAMMAR TRANSLATION METHOD. Or dull traditional method of teaching\learning.
- Language diseases: Dyslexia & Aphasia.
- **The Affective Filter:** a kind of barrier related to negative feelings due to being stressed, uncomfortable, self-conscious or unmotivated in learning. Usually in adults (from 17 to 30..)

CONCLUSIONS:

- BEHIOURISM focuses on language learning mostly by social and environmental interaction and conditioning & reinforcement of BEHAVIOUR whereas Mentalism focuses mainly on language learning by hidden MENTAL ABILITY.
- Piaget focuses on the Cognitive, Conceptual & Intellectual Ability of children as useful in Languag Acquisition\Learning and focuses on "Cognitivism". Whereas Bruner focuses mainly on language learning\acquisition by social interaction and teachings of the care givers\care takers of the child or "Social Interaction."
- L1 Acquisition is different from L2 Learning \Acquisition mainly that L1 Acquisition takes place mostly unconsciously through natural abilities in a natural environment in a CRITICAL PERIOD whereas L2 or L3 …Learning requires a conscious effort along with natural abilities.

Process of Perception

Speech Perception: Empirical and Theoretical Considerations

What are the objects of speech perception? Speaking involves the production of meaningful streams of sounds. At the physical level, a *spectrogram* reveals the patterns of frequency and amplitude that ground audible features. The stream sounds like a complex acoustic structure involving patterns of audible qualities over time. The stream, however, auditorily appears to be segmented (speech in an unfamiliar language often seems like an unsegmented stream). The most salient segments are words, the meaningful units. Also discernible in the stream are segments that correspond to something like syllables. These units or segments are not ascribed meaning, but instead combine to form words in a way loosely analogous to the way words combine to form sentences. Even syllables, however, comprise perceptually distinguishable sound types. For instance, though 'dough' has one syllable, it includes the sounds of /d/ and /O/ (or /oʊ/). The sound of the one-syllable spoken word 'bad' includes /b/, /æ/, and /d/. Those of 'bat' and 'bash' differ because the former contains /t/ and the latter

contains /ʃ/. Such perceptible units, or *phonemes*, whose patterns form the basis for recognizing and distinguishing words, have been one primary focus of research into speech perception. Phonemes form a sort of "sound alphabet" from which audible words are built (Appelbaum 1999 critiques the "alphabetic" conception).

What is a phoneme? First, consider the universal class of *phones*, which contains all of the possibly distinguishable types of speech sounds that may mark a semantic difference in some world language. In contrast, phonemes are specific to a particular language. Phonemes also may be understood in terms of equivalence classes of sounds. Phonemes are semantically significant sound types that constitute the spoken words in a given language. The boundaries between phonemes in a language mark sound differences that may be semantically significant for that language.

Phonemes thus may differ across languages. For instance, though certain phonemes are shared, the class of English phonemes differs from that of Japanese. English, for example, distinguishes the [l] and [r] sounds (phones) as distinct phonemes, while Japanese does not. Instead, Japanese treats them as *allophones*, or variants of a common phoneme. Standard Chinese distinguishes distinct phonemes that correspond to allophones of the single English phoneme /p/ (the aspirated /p^h/ and unaspirated /p/). It is noteworthy that infants prior to language learning distinguish phones that are later subsumed to a single phonemic equivalence class (see, e.g., Werker 1995, Kuhl 2000 for review and commentary). In addition, certain languages make use of novel sounds, such as clicks, that others do not. So, when compared with each other, distinct languages may differ in which sounds they include or omit among their respective phonemes, and they may differ in which sound pairs they treat as distinct phonemes or as allophonic.

The central puzzle of speech perception is that there is no obvious direct, consistent correspondence between the surface properties of a physical acoustic signal and the phonemes perceived when listening to speech.

This is manifested in a number of ways. Pioneers into speech perception research aimed initially to develop an automated reading machine for the blind that worked by replacing individual letters with specific sounds. The project failed miserably—listeners were unable at the rates of normal speech to resolve the sequence of individual sounds required to detect words (see Liberman 1996).

Most importantly, there is no clear *invariant* property of a sound signal that corresponds to a given phoneme. What sounds like a single phoneme might have very different acoustic correlates depending not just upon the speaker or the speaker's mood, but also upon the phonemic context. For instance, /di/ and /du/ audibly share the /d/ phoneme. However, the acoustic signal corresponding to /d/ differs greatly in these cases (see Liberman et al. 1967, 435, fig. 1). While /di/ includes a formant that begins at a higher frequency and rises, /du/ includes a formant that begins at a lower frequency and drops. Acoustically, nothing straightforward in the signal corresponds to the /d/ sound one auditorily experiences in both cases. Two different audible phonemes also might share acoustic correlates, again depending on context. The acoustic signal that corresponds to /p/ is nearly identical to that of /k/ in the contexts /pi/ and /ka/ (Cooper et al. 1952). Prima facie, phonemes thus are not identical with distinctive invariant acoustic structures.

Lack of invariance stems in large part from *coarticulation*. In contrast to how things seem auditorily, how a speaker articulates a given phoneme depends upon what precedes or follows that phoneme. Being followed by /i/ rather than /u/ impacts how one pronounces /d/, and being preceded by /d/ impacts the vowel. When pronouncing 'dab', the effects of pronouncing both /d/ and /b/ are evident in the acoustic signature of /a/. The articulatory consequences of phonemic context change the acoustic features of the signal and confound attempts to map phonemes to signals (which presents the difficulty for artificial speech production and recognition). Furthermore, due to coarticulation, the signal lacks the clear *segmentation* of categorically perceived phonemes, which have been likened to beads on a string (Bloomfield 1933). In effect, speakers pronounce two or more phonemes at a time, and transitions are fluid rather than discrete (see, e.g., Liberman 1970, 309, fig. 5, Diehl et al. 2004).

One response to this, compatible with realism about perceptible phonological features, is to search for more complex acoustic structures or to higher-order acoustical properties that correspond to apparent phonemes (see, e.g., Blumstein and Stevens 1981, Diehl et al. 2004, Holt and Lotto 2008 for the *general auditory* approach). On the other hand, some philosophers instead conclude that phonological features are mere intentional objects, or 'intentional inexistents' (see Rey 2012). Pautz (2017, 27–28), for instance, maintains that differences in acoustical features cannot account for apparent categorical differences between phonemes.

Another type of realist approach appeals to aspects of the *gestures* used to pronounce phonemes—ways of moving one's throat and mouth and tongue—which are reasonably invariant across contexts. For instance, pronouncing /d/ involves placing the tip of the tongue on the alveolar ridge directly behind the teeth. The alveolar consonants /d/ and /t/ differ from each other in being *voiced*, or accompanied by vocal fold movement. Whether you say /di/ or /du/, your tongue touches the alveolar ridge and you voice the consonant. But, while you articulate the gestures associated with /d/, you anticipate and begin to articulate those associated with /i/ or /u/. This alters the overall acoustic signature of the gestures associated with /d/. Gestures, rather than the complex acoustic signals they produce, on this view make intelligible the perceptual individuation of phonemes. Some therefore hold that perceiving phonemes involves recovering information about articulatory gestures from the acoustic signal. The *motor theory* (Liberman et al. 1967, Liberman and Mattingly 1985) and *direct realism* (Fowler 1986) are very different versions of this approach. Articulatory gestures thus make plausible candidates for objects of phoneme perception. They are, however, imperfect candidates, since they do not entirely escape worries about the context dependence and lack of discrete segmentation stemming from fluid coarticulation (Appelbaum 1996, Remez and Trout 2009).

Nonetheless, the claim is supported by the surprising finding that visual processes impact the auditory experience of speech. For instance, the McGurk effect includes one instance in which seeing video of a speaker pronouncing /ga/ dubbed with audio of /ba/ leads to hearing as of the /da/ phoneme (McGurk and Macdonald 1976). If perceiving speech involves perceiving gestures, it is not surprising that the visual evidence for articulatory gestures should be weighed against auditory evidence.

Some researchers who hold that intended or actual gestures are the best candidates for the objects of phoneme perception argue that speech perception therefore is special. That is, speech perception's *objects* differ in kind from the sounds and acoustic structures we hear in general audition (Liberman et al. 1967, Liberman and Mattingly 1985). Liberman and Mattingly (1985), furthermore, use the claim that audition has distinctive objects to motivate the claim that speech perception therefore involves distinctive perceptual *processes*. They even argue that although speech perception shares an end organ with auditory perception, it constitutes a functionally distinct *modular* perceptual system (Liberman and Mattingly 1985, 7–10, 27–30, see also 1989). Part of the motivation for their *motor theory* of speech

perception, against auditory theories, is to integrate explanations of speech perception and speech production (1985, 23–5, 30–1, see also Matthen 2005, ch 9, which uses the Motor Theory to support a Codependency Thesis linking the capacities to perceive and produce phonemes, 221). On this account, a single modular system is responsible for both the production and perception of speech. This purported link between capacities for production and perception suggests that humans are unique in possessing a speech perception system. Humans, but not other creatures, are capable of discerning speech for many of the same reasons they are capable of producing the articulatory gestures that correspond to perceived phonemes. Other animals presumably hear just sounds (Liberman et al. 1967, Liberman and Mattingly 1985).

One might accept that perceived phonemes should be identified with articulatory gestures but reject that this makes speech special (see, e.g., Fowler 1986, Mole 2009). If auditory perception generally implicates environmental happenings or sound sources, then the gestures and activities associated with speech production are not entirely distinctive among objects of audition. If hearing even *sounds* is not merely a matter of hearing features of acoustic signals or structures, and if it is part of the function of auditory perception to furnish information about distal events on the basis of their audible characteristics, then speech is not entirely unique among things we hear (see also Rosenbaum 2004, O'Callaghan 2015).

The *processes* associated with speech perception therefore need not be understood as entirely distinct in function or in kind from those devoted to general audition, as Liberman and Mattingly contend. Given this, it is not surprising to learn that good evidence suggests humans are not special in possessing the capacity to perceptually individuate the sounds of speech (see, e.g., Lotto et al. 1997 for details).

The processes associated with speech need not be *entirely* continuous with those of general audition. The overall claim is compatible with higher acuity or sensitivity for speech sounds, and it allows for special selectivity for speech sounds. Even if hearing speech marshals perceptual resources continuous with those devoted to hearing other sounds and events in one's environment, it would be very surprising to discover that there were *not* processes and resources devoted to the perception of speech. Research in fact supports a special status for speech among the things we auditorily perceive. First, evidence suggests that human neonates prefer sounds of speech to non-speech (Vouloumanos and Werker 2007). Second, adults are able to distinguish speech from non-speech based on visual cues alone (Soto-Faraco et al.

2007). Third, infants can detect and distinguish different languages auditorily (Mehler et al. 1988, Bosch et al. 1997). Finally, infants aged approximately 4–6 months can detect, based on visual cues alone, when a speaker changes from one language to another, though all but those in bilingual households lose that ability by roughly 8 months (Weikum et al. 2007).

To review, no obvious acoustic correlates exist for phonetic segments heard in speech. Complex acoustic cues therefore must trigger perceptual experiences of phonemes. Articulatory gestures, however, are good (though imperfect) candidates for objects of speech perception. This does not imply that speech perception involves entirely different kinds of objects or processes from ordinary non-linguistic audition, nor does it imply that speech perception is a uniquely human capacity. Nevertheless, speech clearly is special for humans, in that we have special sensitivity for speech sounds. Speech perception promises to reward additional philosophical attention (see O'Callaghan 2015 for further development).

Process of Comprehension

Sentence processing

Sentence processing takes place whenever a reader or listener processes a language utterance, either in isolation or in the context of a conversation or a text.

Many studies of the human language comprehension process have focused on reading of single utterances (sentences) without context. Extensive research has shown, however, that language comprehension is affected also by context preceding a given utterance, as well as many other factors.

Ambiguity and sentence comprehension

Sentence comprehension has to deal with ambiguity in spoken and written utterances, for example lexical, structural, and semantic ambiguities. Ambiguity is ubiquitous, but people usually resolve it so effortlessly that they don't even notice it. For example, the sentence *Time flies like an arrow* has (at least) the interpretations *Time moves as quickly as an arrow*, *A special kind of fly, called time fly, likes arrows* and *Measure the speed of flies like you would measure the speed of an arrow*. Usually, readers will be only aware of the first interpretation.

Instances of ambiguity can be classified as **local** or **global** ambiguities. A sentence is globally ambiguous if it has two distinct interpretations. Examples are sentences like *Someone shot the servant of the actress who was on the balcony.* (was it the servant or the actress who was on the balcony?) or *The cop chased the criminal with a fast car.* (did the cop or the criminal have a fast car?). Comprehenders may have a preferential interpretation for either of these cases, but syntactically and semantically, neither of the possible interpretations can be ruled out.

Local ambiguities persist only for a short amount of time as an utterance is heard or written and are resolved during the course of the utterance, so that the complete utterance has only one interpretation. Examples include sentences like *The critic wrote the interview was enlightening,* which is ambiguous when *The critic wrote the book* has been encountered, but *was enlightening* remains to be processed. At this point, the sentence could either end, stating that the critic is the author of the book, or it could go on to clarify that the critic wrote something about a book. The ambiguity ends at *was enlightening*, which determines that the second alternative is correct.

When readers process a local ambiguity, they settle on one of the possible interpretations immediately, without waiting to hear or read more words that might help decide which interpretation is correct (this behaviour is called *incremental processing*). If they are surprised by the turn the sentence really takes, processing is slowed. This is visible for example in reading times. Locally ambiguous sentences therefore have been used as test cases to investigate the influence of a number of different factors on human sentence processing. If a factor helps readers to avoid difficulty, it is clear that this factor plays a factor in sentence processing.

Theories about language comprehension

Experimental research has spawned a large number of hypotheses about the architecture and mechanisms of sentence comprehension. Issues like modularity versus interactive processing and serial versus parallel computation of analyses have been theoretical divides in the field.

Architectural issues

Modular vs. interactive

A modular view of sentence processing assumes that each factor involved in sentence processing is computed in its own module, which has limited means of communication with the other modules. For example, syntactic analysis creation takes place without input from semantic analysis or context-dependent information, which are processed separately. A common assumption of modular accounts is a *feed-forward* architecture, in which the output of one processing step is passed on to the next step without feedback mechanisms that would allow the output of the first module to be corrected. Syntactic processing is usually taken to be the most basic analysis step, which feeds into semantic processing and the inclusion of other information.

Interactive accounts assume that all available information is processed at the same time and can immediately influence the computation of the final analysis.

Serial vs. parallel

Serial accounts assume that humans construct only one of the possible interpretations at first, and try another only if the first one turns out to be wrong. Parallel accounts assume the construction of multiple interpretations at the same time. To explain why comprehenders are usually only aware of one possible analysis of what they hear, models can assume that all analyses ranked, and the highest-ranking one is entertained.

Models

There are a number of influential models of human sentence processing that draw on different combinations of architectural choices.

Garden path model

The Garden Path Model (Frazier 1987) is a serial modular parsing model. It proposes that a single parse is constructed by a syntactic module. Contextual and semantic factors influence processing at a later stage and can induce re-analysis of the syntactic parse. Re-analysis is costly and leads to an observable slowdown in reading. When the parser encounters an ambiguity, it is guided by two principles: Late Closure and Minimal Attachment. This type of

model has been supported with research on the Early left anterior negativity, an event-related potential often elicited as a response to phrase structure violations.

Late Closure causes new words or phrases to be attached to the current clause. For example, "John said he would leave yesterday" would be parsed as *John said (he would leave yesterday)*, and not as *John said (he would leave) yesterday* (i.e., he spoke yesterday). **Minimal Attachment** is a strategy of parsimony: The parser builds the simplest syntactic structure possible (that is, the one with the fewest phrasal nodes).

A **Garden path sentence** is a sentence for which the responder's most intuitive interpretation is an incorrect one, ultimately luring them into an improper parse. Garden path sentences are used in psycholinguistics to illustrate that, while reading, human beings process language one word at a time. The "garden path" is a reference to the saying "to be led up the garden path", meaning "to be misled".

As a person reads a garden path sentence, they establish a meaning structure one word at a time. At some point, it becomes clear to the responder that they have been building an incorrect structure; the next word or phrase does not agree with the path the responder has been led down. Garden path sentences are rare in spoken communication, because the prosodic qualities of speech (such as the stress) and the tone of voice serve to remedy ambiguities encountered in text.

Constraint-based model

Parallel and interactive

We do generate more than one syntactic analysis, based on evidence provided against Constraint-Based Model:

Evidence for the Constraint-Based Model: Comprehenders do use their lexical knowledge.

Syntactic ambiguity

Syntactic ambiguity is a property of sentences which may be reasonably interpreted in more than one way, or reasonably interpreted to mean more than one thing. Ambiguity may or may not involve one word having two parts of speech or homonyms.

Syntactic ambiguity arises not from the range of meanings of single words, but from the relationship between the words and clauses of a sentence, and the sentence structure implied thereby. When a reader can reasonably interpret the same sentence as having more than one possible structure, the text is equivocal and meets the definition of syntactic ambiguity.

Contrast

Syntactic ambiguity can be contrasted with semantic ambiguity. The former represents multiple ways to infer the underlying structure of an entire sentence. The latter represents multiple ways to define individual words within a sentence.

Examples

Here are some examples:

> *Bear left at zoo*. (Do you turn left when you get to the zoo, or did someone leave a bear there?)
> *I'm going to sleep*. ("Going" can be a verb with destination "sleep" or an auxiliary indicating near future. So it can mean "I am (now) falling asleep" or "I am (in the future) intending to sleep".)
> *The word of the Lord came to Zechariah, son of Berekiah, son of Iddo, the prophet.* (Which of the three is the prophet?)
> *British left waffles on Falklands* (Did the British leave waffles behind, or was there waffling by the British Left?)
> *The cow was found by a stream by a farmer.* (Did the farmer find the cow near the stream? Or was the cow found near a stream that was near a farmer? Or did the stream find the cow near a farmer?)
> *Monty flies back to front.* (Monty returns to the frontline; or Monty flies backwards?)
> *Flying planes can be dangerous.* (Either flying planes *is* dangerous, or flying planes *are* dangerous.)

The Electric Light Orchestra (An orchestra of electric lights, or a light orchestra that's electric)

I know whom John knows. (Either I am acquainted with the same people as John is, or I know who John's acquaintances are.)

They are hunting dogs. (Either "they" are hunting for dogs, or those dogs are a type known as "hunting dogs".)

(The following is actually an example of scope ambiguity -- which operator is logically 'above' the other. Some linguistic theories consider them syntactic ambiguities, while other linguistic theories consider them semantic ambiguities.)

Someone ate every tomato. (Either some one person ate all of the tomatoes, or for each tomato there is some one person who ate it--Sally ate one, John ate one, etc.)

A surgeon general's warning on packs of cigarettes in the United States reads, "Quitting smoking now greatly reduces your risk of cancer." (Quitting smoking today will reduce your risk of cancer; It is now the case (but was not in the past) that quitting smoking reduces the chance of cancer)

A warning on London buses for fare dodging reads "Failure to travel with a valid ticket for the whole of your journey may result in a fine." (You must have a valid ticket for the full journey or you will be fined, but it can be interpreted to mean that if you had a valid ticket for part of your journey, you won't be fined)

A noteworthy example in the field of computer natural language processing is *Time flies like an arrow*. Although humans unambiguously understand it to mean "Time flies in the same way that an arrow does," it could also mean:

- measure the speed of flying insects like you would measure that of an arrow (thus interpreted as an imperative) - i.e. (You should) time flies as you would (time) an arrow.;
- measure the speed of flying insects like an arrow would (this example is also in the imperative mood)- i.e. (You should) time flies in the same way that an arrow would (time them).;

- measure the speed of flying insects that are like arrows - i.e. Time those flies that are like arrows;
- all of a type of flying insect, "time-flies," collectively enjoy a single arrow (compare Fruit flies like a banana);
- each of a type of flying insect, "time-flies," individually enjoys a different arrow (similar comparison applies);

(As Groucho Marx is said to have observed, "Time flies like an arrow; fruit flies like a banana.")

In legal disputes, courts may be asked to interpret the meaning of syntactic ambiguities in statutes or contracts. In some instances, arguments asserting highly unlikely interpretations have been deemed frivolous.

Speech Production

Speech production is the process by which thoughts are translated into speech. This includes the selection of words, the organization of relevant grammatical forms, and then the articulation of the resulting sounds by the motor system using the vocal apparatus. Speech production can be spontaneous such as when a person creates the words of a conversation, reactive such as when they name a picture or read aloud a written word, or imitative, such as in speech repetition. Speech production is not the same as language production since language can also be produced manually by signs.

In ordinary fluent conversation people pronounce roughly four syllables, ten or twelve phonemes and two to three words out of their vocabulary (that can contain 10 to 100 thousand words) each second. Errors in speech production are relatively rare occurring at a rate of about once in every 900 words in spontaneous speech. Words that are commonly spoken or learned early in life or easily imagined are quicker to say than ones that are rarely said, learnt later in life, or are abstract.

Normally speech is created with pulmonary pressure provided by the lungs that generates sound by phonation through the glottis in the larynx that then is modified by the vocal tract into different vowels and consonants. However speech production can occur without the

use of the lungs and glottis in alaryngeal speech by using the upper parts of the vocal tract. An example of such alaryngeal speech is Donald Duck talk.

The vocal production of speech may be associated with the production of hand gestures that act to enhance the comprehensibility of what is being said.

The development of speech production throughout an individual's life starts from an infant's first babble and is transformed into fully developed speech by the age of five. The first stage of speech doesn't occur until around age one (holophrastic phase). Between the ages of one and a half and two and a half the infant can produce short sentences (telegraphic phase). After two and a half years the infant develops systems of lemmas used in speech production. Around four or five the child's lemmas are largely increased, this enhances the child's production of correct speech and they can now produce speech like an adult. An adult now develops speech in four stages: Activation of lexical concepts, select lemmas needed, morphologically and phonologically encode speech, and the word is phonetically encoded

Psychological aspects of Speech Production:

Speech is produced as a sequence of sounds. The articulators such as jaw, tongue, velum, lips, mouth and their shapes, sizes and positions changes over time to produce sounds. Based on the psychological aspects we can divide the speech production process in three different stages. They are

1. Conceptualisation.
2. Formulation.
3. Articulation.

Speech actually starts from our brain as a thought process. It can be considered as a pre-verbal message. This process is known as conceptualisation.

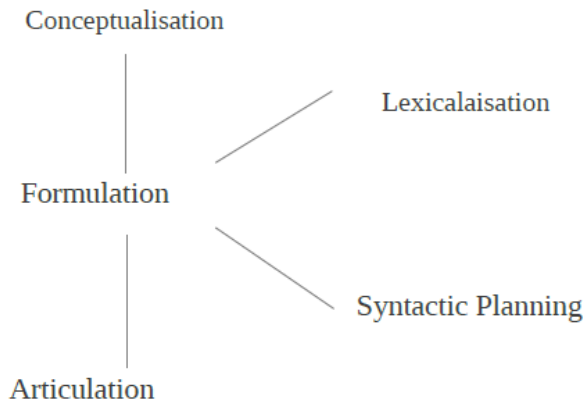
Second stage of speech production process is speech formulation. In formulation stage our thought(pre-verbal message) is converted into linguistic form. This is known as speech formulation. This stages is again divided into two stages.

They are

a) Lexicalisation:- Here, our thought will be converted to appropriate words.

b)Syntactic Planning:-Here, the appropriate words will be arranged in the right way(in syntactically correct way).

Articulation is the last stage of speech production. Here, the sound will be produced to convey message.



Three Stages

So,the production of spoken language involves three major levels of processing: conceptualization, formulation, and articulation.

The first is the processes of conceptualization or conceptual preparation, in which the intention to create speech links a desired concept to the particular spoken words to be expressed. Here the preverbal intended messages are formulated that specify the concepts to be expressed.

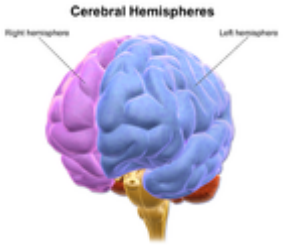
The second stage is formulation in which the linguistic form required for the expression of the desired message is created. Formulation includes grammatical encoding, morpho-phonological encoding, and phonetic encoding. Grammatical encoding is the process of selecting the appropriate syntactic word or lemma. The selected lemma then activates the appropriate syntactic frame for the conceptualized message. Morpho-phonological encoding is the process of breaking words down into syllables to be produced in overt speech. Syllabification is dependent on the preceding and proceeding words, for instance: *I-com-pre-hend* vs. *I-com-pre-hen-dit*. The final part of the formulation stage is phonetic encoding. This involves the activation of articulatory gestures dependent on the syllables selected in the morpho-phonological process, creating an articulatory score as the utterance is pieced together and the order of movements of the vocal apparatus is completed.

The third stage of speech production is articulation, which is the execution of the articulatory score by the lungs, glottis, larynx, tongue, lips, jaw and other parts of the vocal apparatus resulting in speech.

Neuroscience

The motor control for speech production in right handed people depends mostly upon areas in the left cerebral hemisphere. These areas include the bilateral supplementary motor area, the

left posterior inferior frontal gyrus, the left insula, the left primary motor cortex and temporal cortex. There are also subcortical areas involved such as the basal ganglia and cerebellum. The cerebellum aids the sequencing of speech syllables into fast, smooth and rhythmically organized words and longer utterances.



For right handed people, the majority of speech production activity occurs in the left cerebral hemisphere

History of Speech Production Research

Until the late 1960s research on speech was focused on comprehension. As researchers collected greater volumes of speech error data, they began to investigate the psychological processes responsible for the production of speech sounds and to contemplate possible processes for fluent speech. Findings from speech error research were soon incorporated into speech production models. Evidence from speech error data supports the following conclusions about speech production.

Some of these ideas include:

1. Speech is planned in advance.
2. The lexicon is organized both semantically and phonologically. That is by meaning, and by the sound of the words.
3. Morphologically complex words are assembled. Words that we produce that contain morphemes are put together during the speech production process. Morphemes are the smallest units of language that contain meaning. For example, "ed" on a past tense word.
4. Affixes and functors behave differently from context words in slips of the tongue. This means the rules about the ways in which a word can be used are likely stored with them, which means generally when speech errors are made, the mistake words maintain their functions and make grammatical sense.
5. Speech errors reflect rule knowledge. Even in our mistakes, speech is not nonsensical. The words and sentences that are produced in speech errors are typically grammatical, and do not violate the rules of the language being spoken.

Target	Error
a. Can you pick up the truck from the shop?	Can you pick up the tramp from the shop?
b. Could you lock the door behind you?	Could you lock the door in front of you?
c. In the winter, the parent helps the child tie is boots	In the winter, the parent helps the child tie is scoots
d. Hickory Dickory dock, The mouse ran up the clock	Hickory Dickory dock, the clouse ran up the mock
e. Dentist to patient: "I see that you have been eating a lot of sweets"	"I see that you have been eating a lot of cavities"

Examples of speech errors: The target is what the speaker intended to say. The error is what the speaker actually said. These mistakes have been studied to learn about the structure of speech production.

Aspects of Speech Production Models

Models of speech production must contain specific elements to be viable. These include the elements from which speech is composed, listed below. The accepted models of speech production discussed in more detail below all incorporate these stages either explicitly or implicitly, and the ones that are now outdated or disputed have been criticized for overlooking one or more of the following stages.

The attributes of accepted speech models are:

a) a conceptual stage where the speaker abstractly identifies what they wish to express.

b) a syntactic stage where a frame is chosen that words will be placed into, this frame is usually sentence structure.

c) a lexical stage where a search for a word occurs based on meaning. Once the word is selected and retrieved, information about it becomes available to the speaker involving phonology and morphology.

d) a phonological stage where the abstract information is converted into a speech like form.

e) a phonetic stage where instructions are prepared to be sent to the muscles of articulation.

Also, models must allow for forward planning mechanisms, a buffer, and a monitoring mechanism.

Following are a few of the influential models of speech production that account for or incorporate the previously mentioned stages and include information discovered as a result of speech error studies and other disfluency data, such as tip-of-the-tongue research.

Models

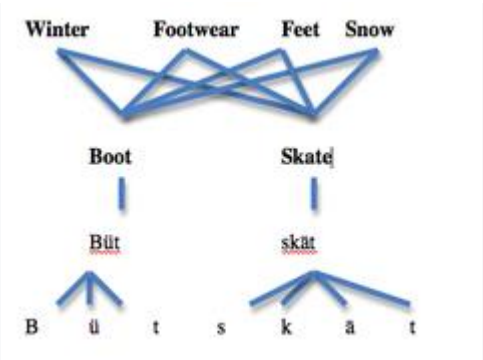
The Utterance Generator Model (1971)

The Utterance Generator Model was proposed by Fromkin (1971). It is composed of six stages and was an attempt to account for the previous findings of speech error research. The stages of the Utterance Generator Model were based on possible changes in representations

of a particular utterance. The first stage is where a person generates the meaning they wish to convey. The second stage involves the message being translated onto a syntactic structure. Here, the message is given an outline. The third stage proposed by Fromkin is where/when the message gains different stresses and intonations based on the meaning. The fourth stage Fromkin suggested is concerned with the selection of words from the lexicon. After the words have been selected in Stage 4, the message undergoes phonological specification. The fifth stage applies rules of pronunciation and produces syllables that are to be outputted. The sixth and final stage of Fromkin's Utterance Generator Model is the coordination of the motor commands necessary for speech. Here, phonetic features of the message are sent to the relevant muscles of the vocal tract so that the intended message can be produced. Despite the ingenuity of Fromkin's model, researchers have criticized this interpretation of speech production. Although The Utterance Generator Model accounts for many nuances and data found by speech error studies, researchers decided it still had room to be improved.

The Garrett model (1975)

A more recent (than Fromkin's) attempt to explain speech production was published by Garrett in 1975. Garrett also created this model by compiling speech error data. There are many overlaps between this model and the Fromkin model from which it was based, but he added a few things to the Fromkin model that filled some of the gaps being pointed out by other researchers. The Garrett Fromkin models both distinguish between three levels—a conceptual level, and sentence level, and a motor level. These three levels are common to contemporary understanding of Speech Production.



This is an interpretation of the Dell's model. The words at the top represent the semantic category. The second level represents the words that denote the semantic category. The third level represents the phonemes (syllabic information including onset, vowels, and codas).

Dell's model (1994)

In 1994, Dell proposed a model of the lexical network that became fundamental in the understanding of the way speech is produced. This model of the lexical network attempts to

symbolically represent the lexicon, and in turn, explain how people choose the words they wish to produce, and how those words are to be organized into speech. Dell's model was composed of three stages, semantics, words, and phonemes. The words in the highest stage of the model represent the semantic category. (In the image, the words representing semantic category are winter, footwear, feet, and snow represent the semantic categories of boot and skate.) The second level represents the words that refer to the semantic category (In the image, boot and skate). And, the third level represents the phonemes (syllabic information including onset, vowels, and codas).

Levelt model (1999)

Levelt further refined the lexical network proposed by Dell. Through the use of speech error data, Levelt recreated the three levels in Dell's model. The conceptual stratum, the top and most abstract level, contains information a person has about ideas of particular concepts. The conceptual stratum also contains ideas about how concepts relate to each other. This is where word selection would occur, a person would choose which words they wish to express. The next, or middle level, the lemma-stratum, contains information about the syntactic functions of individual words including tense and function. This level functions to maintain syntax and place words correctly into sentence structure that makes sense to the speaker. The lowest and final level is the form stratum which, similarly to the Dell Model, contains syllabic information. From here, the information stored at the form stratum level is sent to the motor cortex where the vocal apparatus are coordinated to physically produce speech sounds.

Applied Psycholinguistics

Language disorders and brain

The classical view of brain-language relations shown in figure-1 below makes the following assumptions: (1) The primary auditory area and the Wernicke's area located in the superior temporal gyrus (STG) in the left hemisphere receive and process auditory stimuli and are therefore responsible for comprehension of meanings (2) Arcuate fasciculus permits sharing of these meanings between temporal lobe and frontal lobe language areas (3) Broca's area in the inferior frontal gyrus (IfG) instructs the structures of speech articulation in the motor cortex to produce speech and that (4) There is a greater left than right hemispheric involvement in language processing.

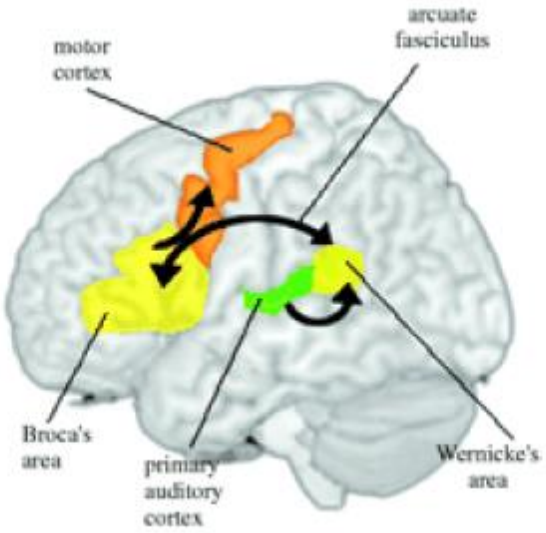


Figure-1: Classical model of language-brain relationship

The idea that sensory images and motor images of words are connected to concept center in the temporal lobe has been in vogue since late 19th century and has dominated the neuroscience literature for the last one hundred years. However, during the last couple of decades, this notion of left-greater-than-right hemisphere asymmetry began to be challenged and cognitive neuroscientists started paying greater attention to linguistic representations more complex than single words as well as to possible differences in processing styles of the right and left hemispheres in language comprehension. The question that is still subject to much debate is *are there some levels of language processing that bias more activation / participation of the left hemisphere as opposed to other levels of processing that calls for more balanced activation from both the hemispheres?* Some of the debates about linguistic representations, their cortical networks, different tasks tapping different processing loads explained in this module will provide partial answers to this important question. There is considerable on-going debate on the nature of linguistic representations and processing patterns in bilingual individuals (e.g. selective access or parallel access to lexical entries) which is not included in this module in view of the space limitations. 2

Linguistic Representations

What happens when we hear someone say the word, 'carrot'? Our brain is able to figure out immediately not only that this word refers to an edible object of orange color, but also that it is a noun; it contains five phonemes k.æ.r.ʧ.t; two syllables, kæ-ret; that the first syllable receives more stress than the second syllable, and that it differs from the word, kə-sət (spelled as cassette) in which the second syllable receives more stress than the first syllable and so on. Further, we also know that while the word 'carrot' combines with verbs such as eat, cut, slice, cook etc., in sentences, cassette doesn't go with any of these verbs and instead, is associated with action verbs such as 'insert', 'open', 'close' etc. Most users of English also know that carrot and cassette are count nouns, and that they take on regular plural suffix –s in plural forms. Suppose the word was, 'camel', the image of 'camel' along with several perceptual and functional attributes of that animal immediately come to our mind, and we will correctly produce the plural form by adding –z morpheme (pronounced as kæmelz) instead of –s. Phonemes, morphemes, syllables, words (nouns and verbs) and sentences are some of the linguistic representations the language processor activates during speech production or comprehension. These language-specific representations interact with each other in complex ways during speaking, signing, reading and writing. Representations are therefore conceived as memories localized in neural networks that encode linguistic information and when activated, they enable access to mentally stored information. Processing on the other hand refers to the computations or algorithmic operations that are independent of the nature of modality of the stimulus that is being processed. Processes are representations that remain activated over a period of time. Neuro-anatomical and psycholinguistic approaches have paid greater attention to the notion of representations whereas cognitive neuropsychological models have stressed the importance of addressing the interconnected processing components.

3. The Mental Lexicon

Every adults has access to at least 50000 words stored in their mental lexicon, each of which contains sound based (phonological), grammar based (morpho-syntactc) and meaning-based (semantic) information and in the case of literate adults, even spelling based (graphemic) information. The structure of the mental lexicon is even more complicated in bi or multilingual individuals. English makes a clear cut distinction between open-class (Nouns,

verbs, adjectives, adverbs) versus closed-class (pronouns, articles, prepositions and conjunctions) items which serve different grammatical functions. Nouns have stronger visual associations, whereas, verbs have strong association with actions and therefore their cortical representations are somewhat different.

There are different kinds of nouns such as for instance, living vs. non-living; common vs. proper; concrete vs. abstract; simple vs. compound and so on. Also, words belonging to similar meaning categories form individual semantic fields such as fruits, vegetables, vehicles, furniture etc. with each field containing super-ordinate (e.g. Dog) as well as subordinate items (e.g. Poodle). Similarly, words might be related to each other based on their sound properties such as rhyming words (pat-bat-mat); words that are similar in meaning (e.g. climb, ascend) or those that suggest opposite meanings (e.g. ascend vs. descend). Even verbs differ from one another in terms of whether they represent events, experiences, accomplishments etc and language specific inflections for tense, aspect and transitivity. There is considerable psycholinguistic and neurolinguistic research into where in the brain all these representations are stored and how they are recruited in the course of finding intended meaning of utterances that we hear someone speak or encounter in print form. However, one important point to keep in mind is that the units of linguistic computation such as phonemes, syllables and words are incommensurable with neurobiological units of computation (dendrites, neurons, synapses, cell-assemblies etc) because the disciplines of linguistics and cognitive neuroscience employ very different theoretical and empirical approaches (see Poeppel and Embick 2005; Grimaldi 2012 for an elaborate discussion of this point).

Cortical networks for words

Early babbling and word productions are caused by neuronal activity in the inferior frontal lobes and the motor cortex in the left hemisphere. The articulation of words causes activity in the auditory cortical areas, particularly in the superior part of the temporal lobe. Arcuate fasciculus, the band of fibers that connects the two classical language areas referred to as Broca's and Wernicke's areas provide the substance for the associative learning mechanisms involving functional webs distributed over the perisylvian cortex. Research has shown that the brain is capable of distinguishing between words and similar but novel meaningless items and that within 100-200 m.sec of hearing or seeing a stimulus, the distributed neuron web becomes active supporting existence of a "word-recognition point".

 We learn the meanings of some words, usually nouns, in the context of an object to which they refer to. If the referent is an object perceived through visual modality, neurons in the temporo-parietal areas get included in the web. If the word refers to actions or objects that are manipulated frequently, then neurons in the action related frontal lobe areas form a network:

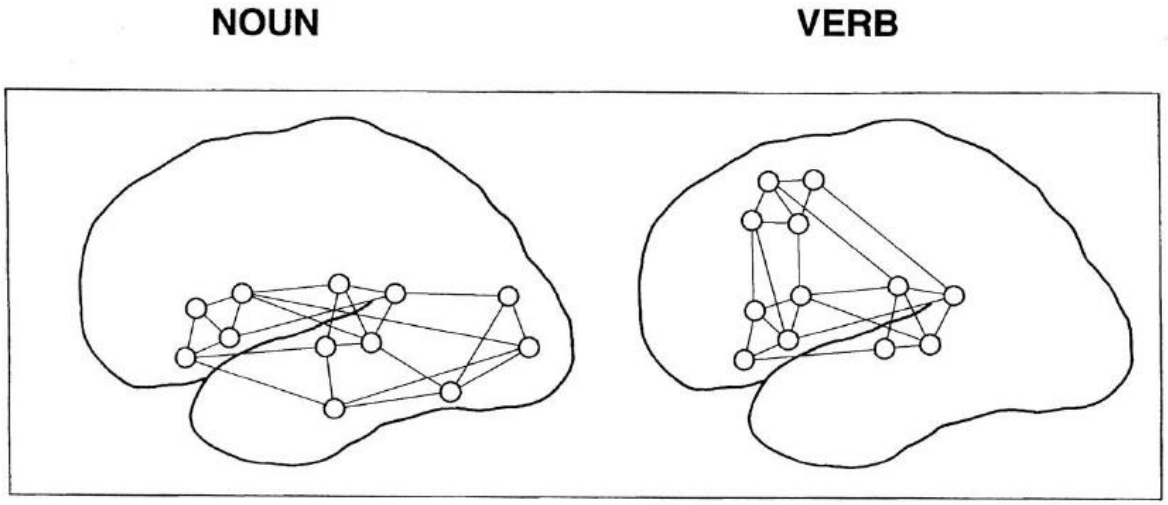


Figure-2: Cortical maps for nouns and verbs From: Pulvermuller, F. et al 1999; 9, 497-506

 Word meanings can also be picked up from contexts in which the referents are not present. Their meaning is revealed by other words used in the same sentence or discourse context and this would mean greater neural activity in the phonological representations in the perisylvian areas.

 Because action words (usually verbs) relate to involvement of different body parts (for e.g. kick, pick and lick involving legs, hands and mouth respectively), researchers have demonstrated that cortical distribution of their networks differ (see figure-3 below taken from Pulvermuller's "Words in the Brain"):

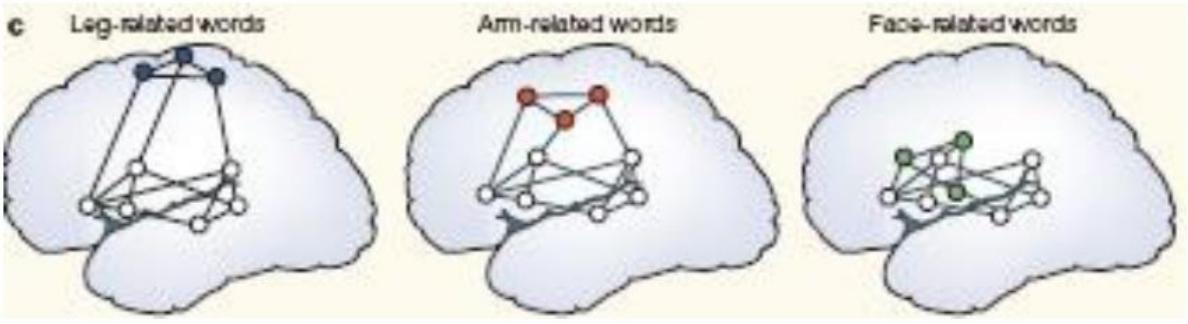


Figure-3: Cortical maps for leg / arm/face related words

These differences in the topographies of word webs imply existence of meaning related processing differences between word categories and selective loss of either nouns or verbs after brain damage involving specific cortical areas. The cortical distributions of nouns and verbs also differ depending on the grammatical markers attached to them as in noun phrases

or verb phrases. Specifically, research based on neuroimaging experiments has shown limited differential activation in the cortex when a noun (e.g. battle) or a verb (e.g. drive) was presented in isolation. Yet, substantial differences in processing a mini noun phrase such as for example, *a battle* or a mini verb phrase such as *you drive* was observed in these experiments. The verb phrase, it was argued by the researchers, might have produced greater activation in the posterior middle temporal gyrus and superior temporal gyrus compared to noun phrases possibly due to the fact that verb phrases carry additional grammatical load and therefore draw additional processing resources (see extended discussion on this topic in Talking Brains blog dated August 2008). To summarize, different word categories have different somatotopic spatial representations that get activated differently in different tasks such as picture naming or word-picture matching etc.

Processing during picture naming

On the basis of a review of over 80 different neuroimaging studies of word production, Indefrey and Levelt (2004) offered temporal activation patterns for picture naming as shown in the figure below:

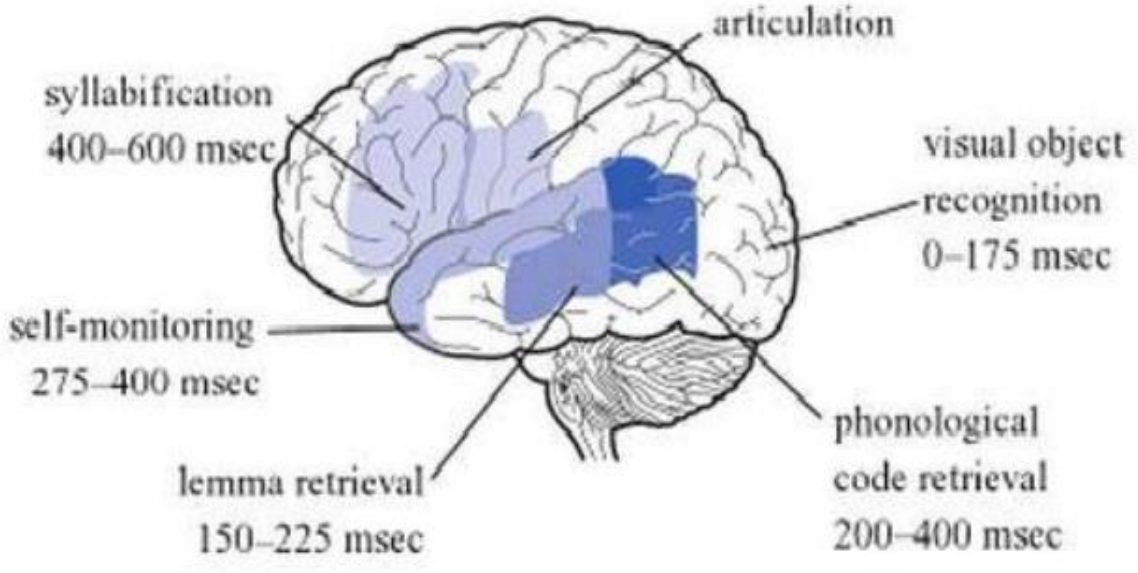


Figure-4: Temporal activation patterns in the left hemisphere during word production

Spoken or visual word recognition involves acoustic-phonetic / visual feature activation, retrieval of lemmas and phonological codes and then finally syllabification of the word. It was noted that syllables heard in meaningful context result in similarly located but markedly different levels of activation from syllables in a non-meaningful context. In silent reading, visual feature analysis is said to occur at around 100 msec. after the presentation of a stimulus with letter string analysis starting at about 150 msec. Letter string analysis is said to be heavily lateralized to the left hemisphere compared to general visual feature analysis with reading comprehension occurring from 200-600 msec. It is during this period that words are distinguished from non-words. Several studies on brain damaged individuals supported existence of such spatiotemporal representations which get activated during simple tasks such as naming a picture or repeating or reading a word. The point to be noted is that speech production and comprehension at least at the word level might involve overlapping cortical areas and not separate brain centers as envisaged in the classical model.

Challenges to Left hemisphere dominance for language

The move away from lesion studies to advanced neuro-imaging techniques and cross-linguistic aphasiological studies in the past decade has led to questioning of the left-greater-than-right asymmetry model of brain-language relationship. Stowe et al (2005) presented evidence that suggests that there are a number of networks of brain areas that support specific cognitive functions underlying language as well as other non-linguistic cognitive processes, and that language processing shares components with several non-linguistic tasks. The PET and fMRI studies they reviewed demonstrated activity in mid frontal gyrus, pre-motor cortex, mid temporal gyrus, mid superior temporal gyrus along with classical language areas such as Broca's and wernicke's areas during production and comprehension tasks necessitating an alternative perspective on the dichotomy of production vs. comprehension. According to the new model these authors proposed, Broca's area is likely to be supporting syntactic processing both in production and comprehension and that Wernicke's area seems to support primarily lexical semantic processing.

Stowe et al looked at studies that made use of tasks more complex than picture naming such as for instance, interpreting meaning of ambiguous sentences, parsing ambiguous sentences, judging the plausibility of last sentence in a short paragraph, processing sentences with greater semantic complexity, accessing meaningful ambiguous words (second meanings), interpretation of metaphors and so on, and concluded that as the linguistic complexity increases, even the right hemisphere is recruited for processing language. In their concluding

section, they argued that the classical model needs to be extended to deal with the contribution from motor areas (including cerebellum and face area), anterior temporal lobes, superior frontal gyrus and right frontal lobe to language processing. In terms of functional specialization of the right and left hemispheres for different language processing operations, there is evidence in the literature to suggest existence of a division of labour between the two hemispheres (see Table-1 below): 6

Left hemisphere involvement	**Both right and left hemisphere involvement**
Stimulus driven bottom-up processing	Top down memory driven processing
Rapidly changing acoustic signal processing at the sub-lexical level (categorizing phonemes/syllables)	Meaningful object names and lexical semantic processing
Automatic processing of spatial / motor features of speech, verb generation	Controlled processing of abstract words, coherence extraction, processing of prosody
Dorsal 'where/how' pathway	Ventral 'what' pathway

Table-1: Right and Left hemispheres in Language processing

The realization that representations do not derive from neutrally produced computations, instead they are the same entities differently realized by the dynamic, distributed and continuously interconnected cortical and sub-cortical activities of the brain at both spatial and temporal levels (Grimaldi 2012) led to models of language processing that draw on the strengths of both the hemispheres and that are able to account for processing complexity involved in understanding the meaning of sentences with or without ambiguity.

Aphasia

Aphasia is a disturbance of one or more aspects of the complex process of comprehending and formulating verbal messages that result from newly acquired disease of the central nervous system (CNS). We shall begin by considering this operational definition of aphasia, analyzing each of its components.

Newly Acquired Disease:

It is important to note that the disease that produces aphasia is both acquired and recent (e.g., cerebral infarction, tumor, or contusion) rather than congenital and long standing (e.g., genetic or environment induced prenatal cerebral defect). The former (acquired disease) deals with individuals previously capable of using language appropriately. The latter may produce

developmental language defects in young individuals whose ability to use language will never attain a normal level.

Most clinicians will agree that although aphasic disability is complex, many patients are clinically similar and will fall into recurring identifiable groups. This is a basic thesis of this book. There are many classifications, indicating that none is altogether satisfactory, but also that this effort is useful and even necessary to diagnose and treat aphasics or to understand the phenomena. The bewildering proliferation of the nomenclature deters most but the truly devoted to master classification. With clinical experience comes the realization that:

1. Indeed there is a need for classification.
2. The patients and their symptomatology are complex yet similar enough to the experience of others.
3. Many of the classifiers describe the same phenomena from a different angle and in fact, complement rather than contradict each other.

The opponents of classification point out the numerous disagreements among observers, the many exceptions that cannot be fitted into categories, and the frequent evolution of certain types into others. They also object to the over simplification involved in any practical, descriptive system.

The Etiology of Aphasia:

The etiology of aphasia is one of the few areas in which general agreement can be found. Aphasic symptoms are caused by brain damage that may result from such diverse factors as cerebral vascular accidents, tumor, penetrating wounds, and other diseases that produce cerebral lesions.

Cerebral vascular accident (CVA), what the layman now knows as strokes and formerly knew as apoplexy - is the major etiology of aphasia. Over two million Americans have suffered cerebral vascular accidents. With the improved methods of medical treatment now available, more of the CVA patients survive. Many of these survivors experience aphasia. [10]

Brain damage results from a CVA, most authorities believe, because of the damage that occurs primarily from changes in the brain cells after their oxygen supply has been depleted. [11] The oxygen supply to the brain can be disrupted in three ways by CVAs: (1) a blood clot in a cerebral artery; (2) a ruptured artery; and (3) the compression of an artery.

There are four forms of CVAs that produce these disruptions of the oxygen supply to the brain: (1) thrombosis; (2) embolism; (3) hemorrhage; and (4) the compression of a

cerebral artery (Figure 1). Each of these types of CVAs reduces the blood supply to the brain, producing irreparable damage to the cerebrum's neural cells.

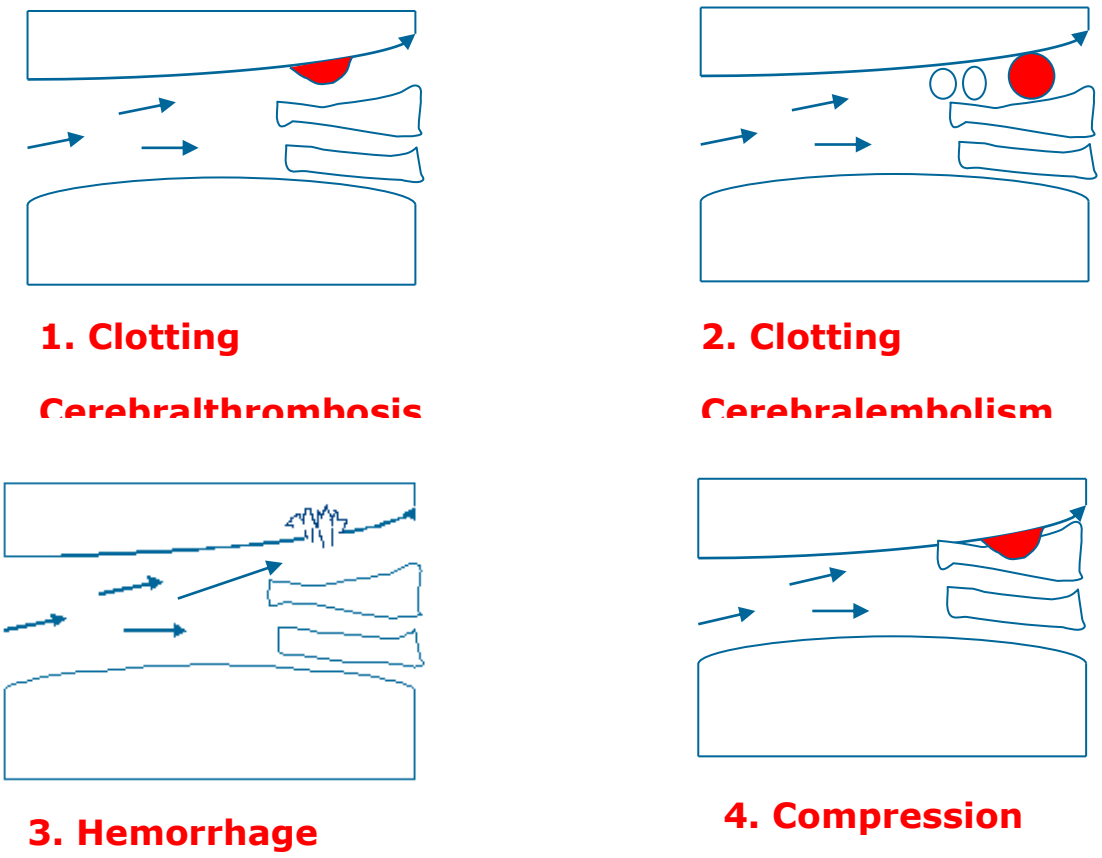


Figure 1

Thrombosis and embolism are types of blood clots that form inside a cerebral artery, thereby interfering with the blood supply to the brain. Cerebral thrombosis is the condition in which a stationary blood clot, called a thrombus, forms inside an artery obstructing the cerebral supply. Cerebral thrombosis sometimes occurs when the arterial walls, damaged by arteriosclerosis, are covered with a thick deposit that slows the blood flow by narrowing the passageway. Clots are sometimes then produced by the blood as it flows past the rough deposits that project from the arterial walls, restricting the blood flow. Cerebral embolism occurs when a blood clot, instead of remaining stationary as does the thrombus, is carried free in the blood stream. When this travelling clot, called an embolus, becomes wedged in one of the cerebral arteries, interference with the blood supply results. The consequence, as with cerebral thrombosis, is permanent brain damage.

Cerebral hemorrhage results when a diseased artery bursts, flooding the surrounding brain tissues with blood. Hemorrhage produces two adverse effects that result in brain damage. First, neural cells dependent upon the escaped blood for nutrients and oxygen, of course, suffer irreparable damage. Second, the residual blood that flows out into the

surrounding cerebral tissues may further disrupt brain function. Hemorrhage may result from various etiologies. It may result from the combination of arteriosclerosis and high blood pressure. [12] Also, aneurysms, abnormal pouch-like structures filled with blood that balloon out from the arterial walls, may burst, producing hemorrhage. Head injury, caused by a blow to the head or accident, also may produce hemorrhage.

Compression of a cerebral artery is a type of CVA produced by pressure exerted on the brain tissue or cerebral arteries. Hemorrhage, for example, may produce spilled blood that eventually forms a solid mass that exerts pressure against an artery, impairing the flow of blood. Any type of brain tumor may also press against surrounding brain tissue or artery. In each of these cases, compression serves to reduce the flow of blood to the cerebral cells, producing permanent brain injury.

Cerebral vascular accidents, as stated previously, are the chief cause of aphasia, although head wounds and injuries resulting from combat in war or highway accidents also deserve mention. Other causes of aphasic symptoms are neoplastic growths such as tumors (either benign or malignant), infectious processes such as meningitis, and degenerative diseases such as multiple sclerosis.

Classification of Aphasia :

Classifications are a necessary evil, but reviewing the classification systems of aphasia can be a discouraging task. The variety of criteria used over the past 100 years may disorient the reader at first. The diversity of the nomenclature will cause exasperation. The seeming conflict between systems that include as many as eight different varieties of aphasia and those that limit themselves to two or three will be a source of puzzlement. Yet, the student of aphasia should realize that the diversity and conflict reflect a historical evolution of the science of the aphasias and are more apparent than real. From the practical standpoint, few of the many available classification systems have survived. Current researchers and clinicians in leading aphasiological centers use but one or two of the more recent systems. Furthermore, some of the apparently discrepant systems are not really so, since they derive from different points of view in relation to the phenomena of aphasia. For instance, Weisenburg and McBride's (1935) classic designations of EXPRESSIVE, RECEPTIVE, and MIXED aphasia reflect a clinical vantage point. Luria's (1966) nomenclature - for example, EFFERENT and AFFERENT MOTOR, or DYNAMIC - reflects a physiological approach. On the other hand, Jakobson's (1964) description of CONTIGUITY (or combination) and SIMILARITY (or

selection) defects is the product of a psycholinguistic point of view. It should be clear that the systems do not conflict but rather complement each other. Be that as it may, a modern researcher or clinician should have a working knowledge of the different classification systems, from Wernicke's (1874) to Geschwind's (1965). This should be complemented with a fully conversant use of one modern classification system : the proper definition of each of its categories, their anatomical and physiological significance, and their prognostic implications.

In our opinion, the system generally associated with the Boston school of aphasia is currently the most useful one. It can be used in conjunction with most forms of laboratory and bedside assessment and does not necessarily require the use of the Boston Diagnostic Aphasia Examination (BDAE). The Boston classification comprises all of the frequently encountered syndromes for which there is an established and accepted anatomical correlation. The nomenclature utilizes a combination of eponyms, clinically descriptive terms, and physiologically based terms and is quite evocative (see Goodglass& Kaplan, 1972). The following paragraphs contain a standard description of the major syndromes, in their acute phase. But the reader should be advised that some cases will only approximate the description and will fail to manifest all the characteristics detailed here.

The Syndromes of Aphasia :

Wernicke's Aphasia

Wernicke's aphasia is the most fundamental and least controversial of aphasic syndromes. Speech is fluent and well articulated, with frequent paraphasias but preserved syntactic structure. Aural comprehension is defective. Repetition of words and sentences is defective also. In general, both reading and writing are disturbed.

Most patients present with language difficulties and may have no other evidence of neurological disease. (Right hemiparesis is infrequent and can be transient; right visual field defects are not the rule). Thus, the diagnosis rests almost solely on the signs of aphasia, and the accuracy of the diagnosis is mandatory: For the unskilled examiner, a patient with acute Wernicke's aphasia may sound "confused", with the consequence that a psychiatric rather than neurological diagnostic approach may be taken. Even assuming that the mistake is corrected eventually, the delay can be disastrous.

In our experience, patients with Wernicke's aphasia are less easily frustrated than those with Broca's aphasia. Yet, the suspicious tendency of the Wernicke patients is more evident than in Broca's aphasia, and it should be recalled than these are among the few neurological patients who can develop a major paranoid syndrome and become homicidal.

This complex syndrome, which combines both output and input disturbances, is also known as RECEPTIVE aphasia, from Weisenburg and McBride's classification (1935), and as SENSORY aphasia, as Wernicke himself called it (1874), with appreciable modesty but little physiological sense. Kleist (1934) aptly called it WORD DEAFNESS, but the term is rarely used, while Brain (1961) named it PURE WORD DEAFNESS, an inaccurate designation, since patients with Wernicke's aphasia are indeed word deaf but clearly not in pure form. (Patients with pure word deafness do exist, however; they are unable to understand speech and to repeat words but speak fluently and WITHOUT paraphasias.) Head (1926) called it SYNTACTIC aphasia, which is an ambiguous designation.

Broca'sAphasia :

The existence of Broca's syndrome is currently well established. Yet some of the major controversies in the history of aphasia have revolved around the nature and pathological correlation of Broca's aphasia. The first patient described by Broca in 1861 did not have what came to be known as Broca's aphasia, and it appears that the degree of involvement of Broca's area and of the surrounding frontal operculum produce considerably different degrees of aphasia (Mohr et al., 1978). What currently is called Broca's aphasia can be defined as the opposition of Wernicke's aphasia. The speech is nonfluent. There are few words, short sentences, and many intervening pauses, and what words there appear are produced with labor and often with distorted sounds. The melodic contour is flat. The general appearance of speech is telegraphic, due to the rather selective deletion of many connective words. On the other hand, aural comprehension is relatively intact in colloquial conversation, although formal testing often discloses a defective performance. Repetition of words and sentences is impaired.

Unlike patients with Wernicke's aphasia, the patient with Broca's aphasia invariably presents with a right-sided motor defect (often a complete hemiparesis more marked in the upper extremity and face). As a consequence, patients with Broca's aphasia are less vulnerable to mis-diagnosis. Their presentation is clearly neurological. On the other hand, they are often depressed and respond to testing failures with "catastrophic" reactions (sudden weeping and refusal to proceed with examination) more frequently than do Wernicke's aphasics.

Broca's aphasia has also been known as EXPRESSIVE (Weisenburg& McBride, 1935) and MOTOR (Goldstein, 1948; Wernicke, 1874). For a time it was refused the status of aphasis and called ANARTHRIA (Marie, 1906), and, later, DYSARTHRIA (Bay, 1962). Head (1926) called it VERBAL aphasia.

Conduction Aphasia:

The speech of conduction aphasics is fluent although usually less abundant than that of Wernicke's. There are commonly minor defects in aural comprehension, though comprehension of colloquial conversation is intact. But it is the impairment in repetition of words and sentences that dominates this syndrome. The defect takes many forms. Most commonly, patients repeat words with phonemic paraphasias, but often they will omit or substitute words, and they may fail to repeat anything at all if function words rather than nouns are requested. Comprehension of the defectively repeated sentences is good. Similarly, patients comprehend the sentences that they read aloud with numerous paraphasias. (This TRANSCODING performance from reading to oral expression is a form of repetition.)

Conduction aphasics often have some accompanying motor signs (paresis of the right side of the face and of the right upper extremity), but recovery is good. The syndrome has been known as CENTRAL aphasia, Goldstein's (1948) curious designation, and as AFFERENT MOTOR, Luria's term. Luria attempted to break down the syndrome, giving it a motor component (AFFERENT MOTOR) and an auditory one (ACOUSTIC AMNESIC). Kertesz (1979) proposed a comparable distinction (EFFERENT CONDUCTION and AFFERENT CONDUCTION).

Transcortical Sensory Aphasia (TSA):

Patients with TSA have fluent and paraphasic speech (global paraphasias predominate over phonemic ones) and a severe impairment in aural comprehension. Yet their repetition is intact (occasionally echolalic), setting them clearly apart from Wernicke's aphasics. The distinction of the syndromes is important since the localization of the lesion is different (see Chapter 2 on localization). This underscores the need to test repetition is every aphasic patient.

TRANSCORTICAL was the original designation of Goldstein, and it has held well through the years, both for TSA and for transcortical motor aphasia, some cases of which Luria preferred to call DYNAMIC aphasia (Luria &Tsevtkova, 1968).

Transcortical Motor Aphasia (TMA)

Patients with TMA have intact repetition, just as patients with TSA, and can have echolalia too. But the speech is nonfluent and troubled by phonemic and global paraphasias, perseveration, and loss of connective words. In our experience, auditory comprehension is impaired too when tested formally, although patients can often carry on a simple conversation at bedside.

Patients with TMA should be distinguished from those with mutism on several counts. Firstly, patients with TMA are inclined to communicate and do so, within their verbal limitations. Patients with mutism do not and are as impoverished in nonverbal as in verbal communication. Secondly, the speech of TMA is clearly aphasic; for example, there are unquestionable phoentic, lexical, and syntactical errors, whereas patients with mutism either produce no speech at all or utter a few short but linguistically correct sentences. Again, the distinction is important because the localization of the lesion is different.

Global Aphasia:

As the name implies, global aphasics present with an almost complete loss of ability to comprehend or formulate verbal communication. Propositional speech may be reduced to a few words, the remainder of verbal communication consisting of emotional exclamations and serial utterances. Auditory comprehension is often reduced to a variable number of nouns and verbs, while the comprehension of functor words or of syntactically organized sentences is virtually negligible.

Anomic Aphasia:

Nominal aphasia (also known as *anomic aphasia*) is a form of aphasia (loss of language capability caused by brain damage) in which the subject has difficulty remembering or recognizing names which the subject should know well. The subject speaks fluently, grammatically, has normal comprehension, and the only deficit is trouble with "word finding," that is, finding appropriate words for what they mean to say.

Subjects often use circumlocutions (speaking in a roundabout way) in order to express a certain word for which they cannot remember the name. Sometimes the subject can recall the name when given clues. Sufferers are often frustrated when they know they know the name, but cannot produce it.

"Hold on, I should know the name of that thing... Give me a minute ..."

Sometimes subjects may know what to do with an object, but still not be able to give a name to the object. For example, show a subject an orange, and ask what it's called. The same subject may be well aware that the object can be peeled and eaten, and may be able to demonstrate this by actions or even verbal responses. Whether such a subject could name the *color* of the orange is unknown.

Anomia is caused by damage to various parts of the parietal lobe or the temporal lobe of the brain. This type of phenomenon can be quite complex, and usually involves a breakdown in one or more pathways between regions in the brain. The responses may also differ depending on whether objects are shown in the right or left hand side of the visual field.

"Averbia" is a specific type of anomia in which the subject has trouble remembering only verbs. This is caused by damage to the frontal cortex, in or near Broca's area.

Another type of anomia is "color anomia", where the patient can distinguish between colors but cannot identify them by name.

Alexia with Agraphia:

The pure syndrome of alexia with graphia is rare if at all existent. More often than not, patients have signs of Wernicke's aphasia or of transcortical sensory aphasia. In the absence of aphasia, they generally have notable parietal lobe signs. But it is reasonable to make the diagnosis of alexia with agraphia when the disturbances of reading and writing predominate over the aphasic or parietal symptomatology. The fact that this syndrome can be associated with impaired as well as intact repetition, and with a greater or smaller extent of accompanying signs, suggest that a large segment of parietal and temporal lobe structures, cortical and subcortical, is engaged in the complex processes of reading and writing. Therefore, the anatomical significance of this entity is considerably smaller than that of most aphasic syndromes or of the syndrome of alexia WITHOUT agraphia (pure alexia).

Learning disability (LD)

Children with special learning disabilities exhibit a disorder in one or more of the basic psychological process involved in understanding or in using their ability for speaking and writing. These may be manifested in disorders of listening, thinking, talking, reading, writing, spelling, or arithmetic.

We can also say that

1. The LD child shows a discrepancy between achievement and intelligence.
2. Handicaps such as mental retardation, visual and hearing impairment and emotional behavioural disorders must be ruled out.
3. A LD is psychological processing disorder and presumes a central nervous dysfunction.

70% of LDs are right brain dominants.

Types of LD:

Dyslexia:

Dyslexia is the presence of a significant discrepancy between intellectual ability and reading and/or writing performance.

Different types of dyslexia:

There are two terms sometimes used to describe typical symptoms of dyslexia - 'dysphonetic' and 'dyseidetic'. Someone who is dysphonetic finds it hard to connect sounds to symbols. They would make spelling mistakes regularly and have many difficulties in sounding out words. It is also sometimes referred to as auditory dyslexia since it is related to the way in which the child processes sound.

Someone who is dyseidetic has difficulties with word recognition and spelling. It is also referred to as surface dyslexia or visual dyslexia since it is related to the way in which the child processes visual information

Dyscalculia: Dyscalculia is a specific learning disability in mathematics; in particular, a difficulty in performing arithmetic operations.

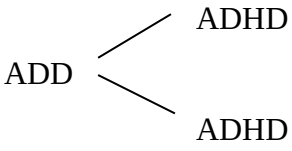
Dysgraphia: Dysgraphia is essentially a difficulty in handwriting.

There are three main types of dysgraphia and they are as follows:

Dyslexic dysgraphia: Illegible written text, poor oral spelling, normal drawing and copying of original text, normal finger tapping speed (a measure of fine-motor speed).

Motor dysgraphia: Illegible written and copied text, normal oral spelling abilities, difficulties in drawing and abnormal finger tapping speed.

Spatial dysgraphia: Illegible writing, whether spontaneously produced or copied, normal oral spelling and fingers tapping speed, but great difficulties drawing.



Some children have more trouble paying attention in class and completing academic assignments than others. It is estimated that from 3 to 10 percent of the population has a condition known as Attention Deficit Disorder (ADD)

The degree of dyslexia ranges from mild to severe.

Difficult to find pure dyslexic.

Dyslexics differ with their problems.

Dyslexia

Dyslexia is a complex reading, writing and learning troubles in which letters and numbers are reversed or even seen and written upside down. Children are affected more and more with Dyslexia which in turn extends in their later life and we have Dyslexic adults also. It may contribute to functional illiteracy in an estimated 25 % of Indians. It also causes low self-esteem and frustration on a massive scale! This article aims to show that dyslexia is *not* due to brain damage or stupidity. Many dyslexics are far brighter than average. Treating them as though they are 'dumb' or 'slow' is absolutely incorrect.

Actually, dyslexics suffer not so much from a learning disability, but from a teaching disability: few teachers know how to teach these children.

Symptoms

Indications of dyslexia usually begin to show up around age five or six. Symptoms many include:

- Shapes or sequences of letters or numbers appear changed or reversed.
- Spelling is incorrect or inconsistent.
- Words or lines are skipped when reading or writing.
- Letters and numbers appear to move, disappear, grow or shrink.
- Punctuation marks or capital letters are omitted, ignored or not seen.
- Words and letters are omitted, altered or substituted while reading or writing.
- Some speech sounds are difficult to make or mispronounced.
- False sounds are perceived.
- The person appears to not listen or hear what is said.
- One can experience dizziness or nausea while reading.
- There is a poor sense of direction.
- Inability to sit still.
- Problems with balance and coordination.
- Hyperactivity or hypoactivity can occur due to frustration.
- Excessive daydreaming, and trouble being on time.

Most people think that **dyslexia** causes a person to see words or sentences backwards, or that it causes a person to confuse the letter 'b' with the letter 'd.' This is just one form of dyslexia, known as **strephosymbolia**. Dyslexia, also known as **developmental reading disorder**, affects a person's ability to comprehend either oral or written language or sometimes both. In other words, it is a general, language-related learning disorder. Tasks and activities many of

us take for granted, such as writing out a grocery list, reading the newspaper or listening to a book on tape, could be problematic for someone with dyslexia.

While reading the following deviations in language production are found:

1. Addition, 2. Deletion, 3. Substitution, 4. Repetetion, 5. Reversal.

For example

1.Addtion:-

Vowel :- In Initial position

1. avalai > a:valai
2. taram > ta:ram
3. palakkam > pa:lakkam
4. natakka > na:takka

In Medial position: No addition is found

In Final position

1. a:nvar > a:nva:r
2. ku:ruvar > ku:ruva:r

Consonant:- Doubling

1. veku > vekku
2. palakum > palakkum

Mute consonant > Mute consonant +cv

$c_1 > c_1 + c_1 u$

2.Deletion:-

Vowel:- In initial position

1. pa:rtta:rkal > parttarkal (also medial)
2. a:kaya:l > akaya:l
3. va:ykka:l > vaykka:l

In final position

1. valankuva:r > valankuvar

Consonant:- In medial position

1.ko:likkunca:lum	>	ko:likuncum
2.arivutamaya:l	>	arivutama:l

3.Subtitutions:-

Words:-

When story is known or if able comprehend to the last part of the sentence, with out reading last word / last part, substitutes with synonyms.

1.vi:cina:l	>	vi:cuva:rkal
2.tappittu kollala:m	>	tappikkala:m
3.tappittatu	>	pilaittatu
4.virittanar	>	vi:cinar
5.perumai pe:ciyatu	>	perumai atittatu

Also words from spoken language are substituted.

Vowel substitution:-

Often o, o:, e, e: are confused when a combined with consonants and occurs as syllables. This is because of the grapheme problem of Tamil, which is to be properly taught to children.

Eg,

1.perumai	>	porumai
2.therivikka	>	thorivikka
3.ke:TTa:r	>	ko:TTa:r
4.e:te:num	>	e:tenum

Consonant substitution:-

R > r

1.paRRi	>	parri
2.na:yirrukilamai	>	na:yirukilamai

4.Repetitions:-

For every sentence, atleast one word is repeated once or twice mostly, they are case markers

Eg: pa:tiliruntu. Here iruntu is reapted.

5.Reversals:-

Vowel:-

1.ku:riyava:ru > ku:riya:varu

Consonant

1.kavilntum > kalvintum

2.amarntanar > armantanar

3.irunta:r > inruta:r

Dysgraphia

Dysgraphia is a learning disability resulting from the difficulty in expressing thoughts in writing and graphing. It generally refers to extremely poor handwriting. It is a deficiency in the ability to write, primarily in terms of handwriting, but perhaps also in terms of coherence. People with dysgraphia usually can write on some level, and often lack other fine motor skills and may be cross dominant, finding tasks such as tying shoes difficult. It often does not affect all fine motor skills. They can also lack basic grammar and spelling skills (for example, having difficulties with the letters p, q, b, and d), and often will write the wrong word when trying to formulate thoughts (on paper). In childhood, the disorder generally emerges when the child is first introduced to writing. The child may make inappropriately sized and spaced letters, or write wrong or misspelled words despite thorough instruction. Children with the disorder may have other learning disabilities, but they usually have no social or other academic problems.

Types of dysgraphia

Three principal subtypes of dysgraphia are recognized. Some children may have a combination of two or all three of these, and individual symptoms may vary in presentation from what is described here.

1. **Dyslexic dysgraphia**

With dyslexic dysgraphia, spontaneously written work is illegible, copied work is fairly good, and spelling is bad. Finger tapping speed (a method for identifying fine motor problems) is normal, indicating the deficit does not likely stem from cerebellar damage. A dyslexic dysgraphic does not necessarily have dyslexia. (Dyslexia and dysgraphia appear to be unrelated but are often found together.)

2. **Motor dysgraphia**

Motor dysgraphia is due to deficient fine motor skills, poor dexterity, poor muscle tone, or unspecified motor clumsiness. Motor dysgraphia may be part of the larger problem of motor apraxia. Generally, written work is poor to illegible, even if copied by sight from another document. Letter formation may be acceptable in very short samples of writing, but this requires extreme effort and an unreasonable amount of time to accomplish, and cannot be sustained for a significant length of time. Writing long passages is extremely painful and cannot be sustained. Letter shape and size becomes increasingly inconsistent and illegible. Writing is often slanted due to holding a pen or pencil incorrectly. Spelling skills are not impaired. Finger tapping speed results are below normal.

3. **Spatial dysgraphia**

A person with dysgraphia due to a defect in the understanding of space has illegible spontaneously written work, illegible copied work, but normal spelling and normal tapping speed.

Symptoms

A mixture of upper/lower case letters, irregular letter sizes and shapes, unfinished letters, struggle to use writing as a communications tool, odd writing grip, many spelling mistakes (sometimes), pain when writing, decreased or increased speed of writing and copying, talks to self while writing, muscle spasms in the arm and shoulder (sometimes in the rest of the

body), inability to flex (sometimes move) the arm (creating an L-like shape), and general illegibility.

Many people who are dysgraphic experience pain while writing. The pain usually starts in the center of the forearm and then spreads along the nervous system to the entire body. This pain can get worse or even appear when a dysgraphic is stressed. Few people who do not have dysgraphia know about this, because many with dysgraphia will not mention it to anyone. There are a few reasons why pain while writing is rarely mentioned:

- Sufferers do not know that it is unusual to experience this type of pain with writing.
- If they know that it is different from how others experience writing, they feel that few will believe them.
- Those who do not believe that the pain while writing is real will often not understand it. It will usually be attributed to muscle ache or cramping, and it will often be considered only a minor inconvenience.
- For some people with dysgraphia, they no longer write, and just type everything, so they no longer feel this pain.

Dysgraphics who experience this pain may exhibit reluctance or refusal to complete writing tasks.

Problems of Dyslexics and Dysgraphics:

In Reading and Writing are found in the following,

- Spelling
- Morphology
- Syntax
- Comprehension

The addition, deletion, substitution and reversals are the main problems found in their reading and writing.

Reading

Spelling:

	[deviant--form]	[Correct--form]

Addition:

Initial: black - back

Medial:	oven	-	own
Final:	battli	-	battle
	boys	-	boy
Substitution:			
Initial:	dabl	-	trouble
	harer	-	However
Medial:	trow	-	through
Deletion:			
Initial:	tips	-	troops
	ha:ndli-		handedly
Medial:	refd	-	refused
	indias	-	Indians
Final:	no	-	known
	luk	-	lucky
Reversal:	ben	-	pen

Morphology:

Addition:			
Initial:	dis	-	un
Final	ing	-	ed
	ed	-	ing
	Negative marker		
Deletion:	negation		
Substitution:	pronouns, lexical items.		

Syntax:

1. Substitution in 'wh' words
2. Reversal of word order.

Writing

Spelling:

Addition:

Initial:	tricket	-	ticket
Medial:	reaypai	-	repay
	quine	-	queen
Final	thife	-	thief
	theafe		

Deletion:

Initial:	rigule	-	wriggle
	cinties	-	Scientist
	sintest		
Medial:	usful	-	useful
	knoldge	-	Knowledge
Final:	killdele	-	killed

Reversal:

	buring	-	during
	foriegn	-	Foreign

Substitution:

Initial:	phasin	-	faster
Medial:	facine	-	fasten
Final:	plased	-	placed

Morphology:

Addition:

Initial:	dis	-	un
Final	ing	-	ed
	ed	-	ing

Negative marker

Deletion: negation

Substitution: pronouns, lexical items.

Syntax:

1. Substitution in 'wh' words
2. Reversal of word order.

These problems increase in these children is also due to the complexity of the language. Teachers must have this in their mind while teaching a language. Let us see some of them in the following.

Spelling:

English have,

Silent letters

Blends

Digraphs

Complexities in pronouncing vowel that occur in different environment confusion in 'c' and 'k', and in 'g' and 'j'.

In Tamil the orthographic complexities leads to increase the problem of children.

Morphology:

Problems found in affixes

Syntax:

Word order problem is found

Substitution of lexical items and 'wh' words are found.

Mostly lexical expansion is found.

Comprehension:

Interpreting the meaning of content is problem for these children.