Course-M.A. English

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The Structure of Modern English

For M.A. 1st Semester

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Unit-1: Introduction to Linguistics

Structure

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1.0 Introduction

The first and foremost question that students often ask me is: What is linguistics? And believe me, I find it too hard to give a reply to this simple question; it is just because my every sentence encourages them to ask more questions. Well, the definition of linguistics that we always give is that '*linguistics is a scientific study of language'*. And we can predict what would be the immediate question if one were to listen to this meaning.

This unit is devoted to the discussion of different aspects of what comes under introduction to linguistics. Chiefly, this unit will focus on the introduction to linguistics, definitions of linguistics, the historical development of linguistics and a brief introduction to phonetics, phonology and morphology. By the end of this unit, students will be able to understand, differentiate and discuss various branches of linguistics and the diverse levels at which a linguistic analysis can be brought out. Besides, this unit also includes assessment questions to enable students to use their knowledge to check for themselves whether they have understood the topics covered or not. On other hand, assessment questions or activities make students recapitulate and think about what they have learnt and understood.

1.1 Objectives

The unit has been aimed to fulfil the following objectives:

- To familiarize students with different definitions of Linguistics
- To make students appreciate the importance of Linguistics
- To enable students to understand the branches of Linguistics
- To acquaint students with phonetics and phonology
- To allow students to understand the morphology

1.2 Introduction to Linguistics

Before we start talking about *Linguistics let us try to understand what language is*, as most of us are familiar with, *language is a medium through which we try to express or share our ideas, feelings and emotions*. It can further define as *a system of communication, a medium for thought, a vehicle for literary expression, a social institution, a matter for political controversy, a factor in nation-building* and so on so forth. And it is understood that all human beings are interested in learning a language to a possible extent and each one of us has curiosity in understanding how language is structured and how it can be used effectively in our day to day conversations.

Some of you might be wondering as to what is there to learn in language. Despite everything, speaking or writing one's native language is the most instinctive and easy job which we do all the time. Language is in and around us. Hence, apart from a few rules of pronunciation and grammatical rules, what else is there to explain about human language? But it resulted that there is a great deal to learn if we look at it as an object to be consciously studied and merely used. In the end, one should think about why we require language and when we need language. Answers to all such questions, this unit will give a proper introduction and make students aware of concerns and challenges about linguistics.

1.2.1 Definitions of Linguistics:

The word '*linguistics*' originates from the Latin word "*Lingua*" which means "*tongue*"**.** Linguistics must certainly deal with language. It can be defined as '*the scientific study of language*'. It further made me recall, Lewis Thomas's quotation mentioned in his book, *The lives*

of a Cell (1974) '*The gift of the language is the single human trait that marks us all genetically, setting us apart from the rest of life.'*

Let us see some more definitions of linguistics mentioned below:

Online *Merriam Webster* defines *Linguistics* as '*the study of human speech including the units, nature, structure and modification of language*'.

Macmillan English Dictionary for Advanced Learners, International Edition defines, '*Linguistics is the study of language and how it works*.'

According to *Oxford Languages and Google*, *Linguistics* is '*the scientific study of language and its structure, including the study of grammar, syntax, and phonetics. Specific branches of linguistics include sociolinguistics, dialectology, psycholinguistics, computational linguistics, comparative linguistics, and structural linguistics*.'

Julia Menard-Warwick, a professor of linguistics defines, '*Linguistics is the systematic study of the structure and evolution of human language and it applies to every aspect of human endeavour*.

Check your progress

1. Define the term '*Linguistics*'.

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2. What are the salient features of *linguistics*?

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1.2.1.0 What is NOT Linguistics?

Before we study more about what linguistics is, let us first try to understand what is not linguistics. We have understood that all human beings are fascinated by learning a language to a certain extent. Most people are only concerned with language when they have difficulty with it, they cannot find the appropriate words for what they want to converse or they can't remember how to spell a word. They often have difficulty with pronunciation and learning a new language. This, however, linguistics does not mean that a collection of methods to assist people with language issues and to resolve the problems of language users.

People who are interested in language learn more languages to have fun playing with *riddles*, *crossword puzzles*, referring to *dictionaries* and motivate with language. Playing with these simply does not mean that these people are working with linguistics. Linguistics is not an informal interest in language, however strong that interest may be. Journalists and authors write books and articles, political leaders make public speeches. Translators take ideas from one language and restructure them in another language. Promoters select the best words to sell a product. But using a language is not merely linguistics. Language is not the same as studying a language but it is beyond that. Linguistics is the objective study of language and not the use of language. But linguistics is not an interest in language for some other purpose. It is an interest in language for studying the language itself. It differs from all other disciplines in having needed external motivation. The linguistic study of language is unique and studied for the sake of art.

Check your progress

1. Briefly comment on what is not linguistics.

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1.2.1.1 What is Scientific?

Linguistics is a '***scientific*** study of language. We have already discussed the distinctiveness feature of human language which makes a distinction from the animals' communication system. Now, let us talk about the meaning of the word, '***scientific***'. Let us first discuss what science is to understand better the meaning of a word, ***scientific***. The majority of the students think that the main thing about science is its subject matter, the things that scientists study. For such students, science is the study of the physical world of what it is made of chemistry, the forces and energy that operate in its physics, living things, biology, stars and planets, astronomy, and so on so forth. They usually think that they are not physical like the mind, emotions, human behaviour, art and literature, etc cannot be part of science.

The other definition of science is that it seeks to explain why things are the way they are. It is the search for explanations, an attempt to answer the question of why, which is the essence of science. Science is about solving problems. And to solve the problems we have to examine the facts closely, decide which facts are relevant and which are not; make imaginative guesses, and then check your guesses using rigorous logical thinking. A scientist, therefore, believes that

explanation is more important than just describing and classifying a wide range of data, is willing to narrow the data and even delay for the time being problems that could not be solved at the time and recognize that being disproved does not devaluate his contribution.

Similarly, a linguist, just like a scientist, clarifies the observed data of natural languages by constructing hypotheses, theories and laws. And like scientific theories, a linguistic theory has not only explain the observed data but also predict that which constitute potential though not actual data. Therefore the details of the observed data and prediction of the potential data are the two roles of any scientific theory. Explanation and prediction are two sides of the same coin. A general principle explains what has already been observed and predicts what has not been observed as yet. And to end with, like a true scientist, the linguist is constantly occupied with discovering more about languages, refining his methods of investigation and constructing better theories.

1.2.1.2 Studying a Language

What do we understand by the word '*study*'? Is there any difference between learning a language and studying a language? All of us have learnt to use at least two languages, our mother tongue and English. Learning a language means learning how to use the language. However, when we say a linguist studies a language, we mean he studies the mechanism of the language. That is, he studies the way a language works. Linguistics comprises language in all its forms and manifestations. It aims to seek a scientific understanding of language and how it is organized to fulfil the needs of its servers and the function it performs in life. Again, linguistics is not concerned with any particular language or languages. It is concerned with human language as a universal and recognizable part of human behaviour. Thus, the study of an individual language is the grammar of that language while the study of language, in general, is linguistics.

Check your progress

1. Explain what is studying a language.

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1.2.1.3 Definitions of Language

The term '*language*' has been described differently by different linguists. Let us discuss some of these definitions to understand what language is? Most common people define *'language as means of communication'*. Whereas linguists who have worked and contributed extensively in the field of linguistics described in another way. Some of these definitions are given below:

According to Hockett (1958), language is "*the most valuable single possession of the human race*". Each one of us makes use of the language in virtually everything we do. The use of language is an integral part of being human.

Humboldt has even gone to the extent saying that " *man is the man through the use of language alone*"

Sapir (1921) defines "*Language is a purely human and non-instinctive method of communicating ideas, emotions and desires using voluntarily produced symbols*".

Brown (1984) says '*Language is the most sophisticated and versatile means available to human beings for the communication of meaning*'.

Trager (1949) describes '*A language is a system of arbitrary vocal symbols by means which the members of a society interact in terms of their total culture*'.

R.H. Robbins (1990) defines "*A language is a form of communication through the system of symbols principally transmitted by vocal sounds*".

Fromkin and Rodman (1974) describe "*Language is the system by which sounds and meanings are related*"

Mario Pei and Frank Gaynor (1954) in a '*Dictionary of Linguistics*' defines "*Language is a system of communication by sound, i.e. through the organs of speech and hearing, among human beings of a certain group or community, using vocal symbols possessing arbitrary conventional meanings*".

According to Oxford Advanced Learner's Dictionary (1989): 'Language means a system of sounds, words, patterns, etc. used by humans to communicate thoughts and feelings.

Functions of Language: Language enables humans to do many things, thus serving different functions in society.

Finch (1998) lists seven general or micro functions. They are as follows: psychological function, phatic function, recording function, identifying function, reasoning function, communicating function and pleasure function.

Check your progress

1. Define the term '*Language*'.

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1.2.1.4 Animal Communication System vs Human Language:

Animals have a communication system opposite to humans who have language. Language, in the limited sense in which linguists define the term, is a special gift to human beings. Only human beings have the power of speech. The logical question, therefore, to ask at this point is: how is the animal communication system differs from human language? To answer this question, we shall now study the similarities and differences between animal communication systems and human language. These characteristics are set up regarding human languages are listed by the famous American linguist Charles F. Hockett (1955), who identified some design features; the *duality of structure/patterning*, *creativity*/*productivity*, *interchangeability*, *cultural transmission, displacement,* and *specialization*. Let us discuss this design features one by one in detail;

Duality/Patterning: Human language presents two levels of patterning where meaningless units i.e. phonemes are combined to form arbitrary signs i.e. words and these signs, in turn, are recombined to form new meaningful larger units i.e. sentences. In other words in languages investigated so far two levels of structures are found: level one, compounding of sounds into words and level two, compounding of words into sentences. There is no evidence of this type of patterning in the animal communication system. Hence, we can state that the major difference between the animal communication system and human language is the duality of structure or patterning.

Creativity/Productivity: It refers to the fact that human language can generate new messages on any topic at any time. A sentence never heard of before can be created by human beings. That is, the same limited sets of phonemes are combined in a novel form to give novel messages. For example: If I say "*last night I had a pleasant meal with a leopard on top of a tree*" it would be a novel sentence that I think I have ever heard or read anywhere. The production of any new sentence needs creativity/productivity. The following quotation sums up this special feature of the human language:

The most striking aspect of linguistic competence is what we may call '*creativity*, which is the speaker's ability to produce new sentences that are instantly understood by other speakers although they bear no physical resemblance to familiar sentences. (Chomsky as quoted in Verma and Krishnaswamy 1989:147)

Interchangeability: Interchangeability means that all members of the species can both send and receive messages. This is a special characteristic feature of human language but not the case with the animal communication system. Bee dance is done only by foragers and birdsong is performed only by males. The calls are not interchangeable between the sexes in the animal communication system but they are fully interchangeable in human language.

Cultural transmission: Language is a set of principles that have grown as a result of the common living of a large number of people. These are, therefore, conventions common to the entire social group which uses the language. This implies that languages have to be learnt. They cannot be transmitted through heredity. Charles Hockett (1955) points out that the system of conventions particular to each language is culturally transmitted i.e. acquired through learning and not genetically transmitted i.e. acquired through heredity.

Displacement: Displacement implies that users of the system can refer to events remote in space and time. Animals cannot communicate about imaginary past or future which humans can do with language. In other words, animal communication is context-bound but human language is context-free. Human beings can talk about the experience without actually living them because human language is not controlled by the stimulus.

Specialization: Specialization implies that there should not be total physical involvement in the process of communication. Human beings can talk while engaged in activities unrelated to the subject under discussion. For example, human beings can discuss football while cooking food. A bee in a bee dance, however, is completely involved physically in the communication process. Hence, it cannot do anything new. Several other features relating to the differences between the animal communication system and the human language have also been mentioned by linguists. Some of these are discussed below:

Arbitrariness: This special feature implies that there is no natural or inherent connection between a written word or sounds and its reference or symbols. This is true of human language with the possible exception of a few onomatopoeic terms. That is, the relationship between words and their meanings is quite arbitrary; it is a matter of conventions. For example, there is

no logic behind why a word like rose refers to a flower of a specific kind is purely arbitrary. There is nothing scientific about it. A few people decided to call it a rose and society accepted it as a word of the English language. The animal communication system generally does not have any arbitrariness, although vervet alarm calls are said to have arbitrariness.

Redundancy: There is a lot of redundancy in human language. For example, when we speak a sentence like: Are you going? There are two markers to show that it is a question: the placement of the helping verb at the beginning, and the rising tone with which the question would be asked. And when we write the sentence there are also two markers to show that it is a question: the placement of the helping verb at the beginning, and the punctuation at the end of the sentence to show that it is a question. This kind of redundancy i.e. two or three markers to show the same thing cannot be observed in the animal communication system.

Discreteness: Bee-dancing or bird song seems to have very few distinct elements which are combinable. Human language has phonemes, syllables, morphemes, words, etc. which are distinct elements and can be recombined to mean different things. For example, with the help of three distinct elements like ***p***, ***a*** and ***t*** we can create ***apt***, ***pat***, and ***tap***. This is not possible in the animal communication system.

Reflexiveness: Reflexiveness means the ability to use the communication system to discuss the system itself. No evidence exists that any other species write grammar or linguistic textbooks.

The approximate number of basic vocal signals for different species is given below:

Species	**No. of vocal sounds**
Human beings	11-20
Dogs	10
Foxes	36
Pigs	23
Cows	08

Dolphins	7-9
Monkeys	10-37
Chickens	20

Based on the number of signals alone, we say that the monkeys that use 37 signals are more sophisticated than human beings who use a language that has about 20 signals. Language is a symbol system based on arbitrary convention infinitely extendable and modifiable according to the changing needs and conditions of the speakers. - R.H. Robins; 1964: 13

Human languages are a limitless set of distinct signals that have great structural complexity structured on at least two levels. - R W Langacker: 1967: 20-21

When we study human language, we are impending what some might call "*human essence*", the distinctive analytics of mind that are, so far as we know, unique to men. - N Chomsky: 1968: 100

Characteristic Features of
Human Language and Animals Communication System

Characteristic Feature	**Humans**	**Animals**
Duality of Patterning	Yes	No
Productivity	Yes	No
Interchangeability	Yes	No

Cultural transmitted	Yes	No
Displacement	Yes	No
Specialization	Yes	No
Arbitrariness	Yes	No
Redundancy	Yes	No
Discreteness	Yes	No
Reflexiveness	Yes	No

Check your progress

1. How is the animal communication system differs from human language?

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1.2.2 Branches of Linguistics

1.2.2.0 History of Linguistics:

So far, we have discussed what was meant by the terms scientific, study, and language when we defined linguistics as a scientific study of language. Now, let us focus on the historical development of linguistics and the different levels of linguistic analysis and the related disciplines that have emerged.

1.2.2.1 Dimensions of Linguistics: Linguistics can be studied from different perspectives. Some of these linguistic dimensions are mentioned below:

Linguistics: Some of the linguistic dimensions are, applied linguistics, comparative, diachronic, descriptive, synchronic and theoretical linguistics. All these dimensions can be distinguished, depending on the focus and interest of the linguist. We, therefore, have diachronic and synchronic linguistics developed as a result of the distinction introduced by Ferdinand de Saussure. Diachronic linguistics deals with changes in language in connection with the historical development of the language over some time. A study of the history of the Hindi language will

be a diachronic study. Synchronic linguistics is the study of language states, regardless of their history. That is, a study of language as it exists at a particular point in time. Hence if we make a study of French as it was spoken in the 1960s or of the English language of Chaucer's time, it would be a synchronic study. When linguists try to establish general principles for the study of all languages, they are said to be practising theoretical linguistics. When they focus on establishing the facts of a particular language system, they practice descriptive linguistics. When the focus is on the similarities and differences between languages, the subject is often referred to as comparative or typological linguistics. And the application of the concepts and methods used in linguistics to other areas like language teaching, translation or testing is called applied linguistics.

1.2.2.2 Levels of Linguistic analysis: As we already discussed that speakers of a particular language can make several utterances, including many that are new and unfamiliar. In other words, languages have a unique characteristic called *creativity*. However, when we talk from the human beings point of view, this unique feature can be called linguistic competence. It is this linguistic competence, which represents the central subject matter of modern linguistics. In investigating linguistic competence, linguists focus on the mental system which allows one to form and interpret the words and sentences of one's language. This system is also known as the "*grammar*" of that language. Some of the major elements of this "*grammar*" are given below:

Component	**Responsibility**
Phonetics	the articulation and perception of speech sounds
Phonology	the patterning of speech sounds
Morphology	the formation of words
Syntax	the formation of phrases and sentences
Semantics	the interpretation of words and sentences

All the mentioned above elements are interrelated and have been set up for doing linguistic analysis. These are often referred to as different levels of linguistics analysis.

1.2.2.3 Interdisciplinary fields in Linguistics:

David Crystal (1987) in his encyclopedia named *The Cambridge Encyclopedia of Language* has classified different interdisciplinary fields of linguistics. A brief introduction is also provided along with each discipline. The description of the interdisciplinary fields given below has been taken from Crystal (1987: 412).

Applied Linguistics: The application of linguistic theories, methods, and findings to 'the education of language problems that have arisen in other fields. The term is especially used regarding the field of foreign language learning and teaching, but it relates just as to several other fields, such as stylistics, lexicography translation, and language planning, as well as to clinical and to child development.

Sociolinguistics: The study of the interaction between language and the structure and functioning of society.

Clinical Linguistics: The application of linguistic theories and methods to the analysis of disorders in spoken, written, or signed language.

Computational Linguistics: The study of language using the techniques and concepts of computer science is especially used concerning both the history of language in the human race and child development.

Educational linguistics: The application of linguistic theories and methods to the study of the teaching and learning of a language especially a first language in schools and other educational settings.

Ethnolinguistics: The study of language concerning ethnic types and behaviour, especially regarding the way social interaction proceeds.

Neurolinguistics: The study of the neurological basis of language development and use in human beings, especially of the brain's control over the processes of speech and understanding.

Theolinguistics: The study of the language used by biblical scholars, theologians, and others involved in the theory and practice of religious belief.

Psycholinguistics: The study of the relationship between linguistic behaviour and the psychological processes e.g. memory, attention thought to underline it.

Anthropological linguistics: The study of language variation and use of the cultural patterns and beliefs of the human race, as investigated using the theories and methods of anthropology.

Biological Linguistics: The study of biological conditions for language development and use in human beings, concerning both the history of language in the human race and child development.
Geographical linguistics: The study of the regional distribution of languages and dialects, seen with geographical factors in the environment.
Mathematical linguistics: The study of the mathematical properties of language, using concepts from such fields as algebra, computer science, and statistics.
Philosophical linguistics: The study of the role of language in the education of philosophical concepts, and the philosophical status of linguistic theories, methods and observations.
Statistical linguistics: The study of the statistical or quantitative properties of language.

Check your progress

1. Write a brief note on branches of linguistics.

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2. Write a short note on '*applied linguistics*.

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1.2.2.4 Approaches to Linguistics:

The Traditional Approach: The growth of linguistics can be classified into three stages: the traditional, the structural and the cognitive. In this section, we shall trace the origins of linguistics often referred to as the traditional approach to linguistics. Historical evidence tells us that language has been an object of fascination and a subject of serious inquiry for over 2000 years. Panini and his near-contemporary Plato were the first to give us convincingly complete grammar: Panini gave us grammar of Sanskrit, and Plato, of Greek. Later, it has been recorded, scholars like Aristotle, Dionysius Thrax and Protagoras investigated aspects of pronunciation, grammar and vocabulary and in an organized way. The Greeks were primarily interested in the written form of a language. And they thought that only the language of the great writers was "*pure*" and correct and any deviation from it was seen as a corrupt and decayed form of language. Later when the Latin grammarians came, they simply adopted the Greek model for the description of Latin. They thought that the Greek model could be used for the description of any language. Intellectuals during this period took meaning into account while explaining

grammatical categories, and they seemed to believe that syntax i.e. the way words are put together in sentences followed "logically" from meaning. The traditionalists were also interested in language as a tool for analyzing reality. They further believed that the structure of language was also a product of reason. Therefore, linguistics is looked upon as subordinate to logic and philosophy. And the linguistic description of language was prescriptive. This type of understanding and investigation of language continued until about the end of the 19th century.

The discovery of Sanskrit by western scholars like Leibniz and Sir William Jones was one of the major factors in the development of linguistics during the 19th century. Sir William Jones was struck by the similarity that Sanskrit bore to Greek and Latin. Researchers during this period started comparing different languages and tracing them to a common origin. This way of analyzing languages came to be known as '*comparative philology*. The contribution of comparative philology to the development of linguistic science. It developed a methodology for setting up language families, a general theory of linguistic change, linguistic relationship and concentrated on the observation of facts of language instead of speculations. This was the first step towards changing linguistics into a scientific discipline.

The Structural Approach: Stage two in the development of linguistics started during the late 19th century, with the emergence of linguists like Ferdinand de Saussure (1857-1913) in Europe and Leonard Bloomfield (1887-1947) in America. By this time, European nations had established colonies. One of the results of colonialism was a realization that there were many more languages in the world than just the languages of Europe; and that these languages were on the verge of extinction because either their speakers were wiped out by colonialists or they were forced to switch over to the colonial language. This period, therefore, saw a great effort by American linguists like Franz Boas, Edward Sapir, Leonard Bloomfield and European linguists, Ferdinand de Saussure, Benjamin Lee Whorf, Louis Hjelmslev, Nikolas S Trubetzkoy, Roman Jakobson to travel places where these languages were spoken and to learn enough about the discovery about the languages to describe them as fully as possible.

As a response against the traditionalists and also because of the discovery of new languages, linguists of this period aimed at describing each language in its terms. Each language was treated with respect, which meant not trying to force it into the grammatical framework of any other language. Similarly, ideas regarding the dominance of the classical languages, and the

written form, were rejected. The colonial notion that the languages of the native people were primitive was fought against because although many languages did not have a writing system, they were still highly complex and structured. Therefore, the importance shifted from the description of the written language to the spoken language. This resulted in treating language variety, dialects and registers as part of the language; and because the spoken form became descriptive as opposed to the prescriptive nature of traditional grammar.

The Cognitive Approach: The most recent stage in the growth of linguistics started during the late 1950s with the publication of Noam Chomsky's *Syntactic Structures*. Chomsky refused the structuralist view that the function of linguistics was simply to provide a classification and technology to concentrate on language. He further said that a linguistic theory should be able to capture the psychological aspect of the knowledge of the language. That is, the human mind is not a blank slate. Chomsky highlighted the role of the native speaker is very important in learning a target language. For him, a linguist who tries to learn and describe a language different from his own may be able to produce a good description but not the explanation that his "generative" grammar aspires for. He treats linguistics as a science, and the point about science is that it seeks to explain why things are the way they are. Chomsky believes that "the person who has acquired knowledge of the language has internalized a system of rules that relate sound and meaning in a particular way. The linguist constructing a grammar of a language is in effect proposing a hypothesis concerning this internalized system". (as quoted in Verma and Krishnaswamy 1989:148)

Linguistics today actively cooperates with a whole range of disciplines including *semiotics*, *logic*, *cybernetics*, *electronics*, *poetics*, *acoustics*, *neurophysiology*, *genetics*, *psychology*, *anthropology*, and *sociology.* Linguistics, therefore started as a branch of humanistic studies basis, determined by various philosophical systems and philosophical needs it has recent time-under the influence of Chomsky-shown an inclination to return to these traditional sources. But this time it is supported, as never before, by powerful theoretical, methodological and experimental means. The recorded details of the historical development of linguistics are given below in a tabular column:

Historical Development of Linguistics (taken from PGCTE Material, CIEFL)

Era	Traditionalists	Structuralists	Cognitivists
Names of Linguists	Plato, Aristotle, Patanjali, Katyayana, Dionysius Thrax, Protgoras, Varro, Quintillian, Donatus etc.	Saussure, Humboldt, Hjelmslev, Boas, Sapir, Bloomfield, Whorf, Greenbery, Trubetzkoy, Harris, Jocobson etc.	Chomsky and others
Period	From 5th Century BC to the late 19th century	From the late 19th century to the 1950s	From 1957 till now
Status of linguists	Linguistics was considered subordinate to logic and philosophy	Linguistics was treated as an independent science	Linguistics is a branch of cognitive psychology
Concept of Language Learning	Did not talk about language learning	Behaviourist's view of language learning	Cognitivist's view of language learning

Check your progress

1. Briefly comment on approaches to linguistics.

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2. Define and discuss the cognitive approach to linguistics.

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1.2.3 Phonetics:

Phonetics is a branch of linguistics and it deals with the medium of speech, production, transmission and reception of the sounds of human speech. Phonetics is derived from the Greek word *'phone'* which means '*sound or voice'*. Phonetics is *'the scientific study of speech sounds*.

Let us look at some more definitions given by great phoneticians and linguists who have contributed in the area of English phonetics and written extensively. Phonetics is primarily concerned with aural medium addressed to the ear. J.C.Catford (1990) defines "*phonetics as the systematic study of human speech sounds. It provides means of analyzing, classifying and describing virtually all the sounds that can be produced by human vocal tracts"*.

The study of phonetics is very much essential if we want to familiarize ourselves with the English language. It is not required to learn the phonetics of our mother tongue, as we acquire the correct pronunciation by imitating our parents and people who live around us. When it comes to target language is not the same, since we rarely get the opportunity to converse or interact with native speakers. Hence, the study of its phonetics is very much important.

Check your progress

1. What is '*Phonetics'*?

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1.2.4 Phonology:

As per online Oxford Languages and Google, '*Phonology is the system of contrastive relationships among the speech sounds that constitute the fundamental components of a language or the branch of linguistics that deals with systems of sounds including or excluding phonetics, within a language or between different languages*'.

Phonology can also be defined as *"the study of sounds in a particular language*". George Yule, in his book named, "*The Study of Language*" says that '*phonology is essentially the description of the systems and patterns of speech sounds in a language. It is, based on the theory of what every speaker of a language unconsciously knows about the sound patterns of that language. Because of this theoretical status, phonology is concerned with the abstract or mental aspect of the sounds in language rather than with the actual physical articulation of speech sounds* (p-42)'.

The most essential activity in phonology is *phonemic analysis*, in which the objective is to establish what the phonemes are and arrive at the phonemic inventory of the language. Very few phonologists have ever believed that this would be an satisfactory analysis of the sound

system of a language: it is necessary to go beyond this. One can look at *supra-segmental* phonology – the study of *stress, intonation* and *rhythm*, which has led in recent years to new approaches to phonology such as *metrical* and *auto-segmental* theory; one can go beyond the phoneme and look into the detailed characteristics of each unit in terms of *distinctive features*; how sounds can combine in a language is studied in *phonotactics* and the analysis of *syllable* structure. For some phonologists, the most important area is the relationships between the different phonemes, how they form groups, the nature of the *oppositions* between them and how those oppositions may be neutralized (Peter Roach, *English Phonetics and Phonology*, p-64).

Check your progress

1. Define the term '*Phonology*.

_____

_____

1.2.5 Morphology:

According to online Oxford Languages and Google, *Morphology* is "*the study of the forms of things or a particular form, shape, or structure*". Morphology is one of the sub-branches of linguistics that generally deals with words and how these words are formed in a given language. It focuses on the study of the distribution and form of "morphemes," taken to be the minimal combinatorial unit languages use to build words and phrases. For instance, it is a known fact regarding English morphology that information about whether a sentence is in the past tense occurs at the end of verbs. This information reduces to a generalization about the distribution of the tense morpheme in English, which is a fact about the distribution and ordering of morphemes in morphology. It is also a fact concerning English morphology that the "regular" past tense morpheme is pronounced */t/* after voiceless consonants in *kicked*, *booked*, *talked, picked, coughed, washed, briefed* and /d/ after voiced consonants and after vowels in *coined, boiled, mobb*ed, *dined*. This fact is a fact about "allomorphy" alternations in the pronunciation of morphemes.

Although the distribution of words and phrases into smaller chunks seems relatively intuitive, linguistic morphologists have repeatedly enquired basic suppositions about

morphemes. In one point of view, rather than dealing with the division and pronunciation of small pieces of language, morphology is with the form of words.

Check your progress

1. Write a brief note on '*Morphology*'.

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1.3 Learning Outcomes

Upon the completion of this unit, students are able to understand the term '*Linguistics'* and its role in learning a language. Further, they will be experienced enough to discuss and differentiate the terms '*scientific'* and '*language'* in linguistics. Students can also explain the difference between animal communication systems and human language in detail. Finally, they can describe historical developments of linguistics, understand various branches of linguistics in particular phonetics, phonology and morphology. Moreover, they can apply the knowledge of linguistics to enhance their language skills.

1.4. Glossary

- **Linguistics** is the scientific study of languages.
- **Phonetics** deals with the forms of the sounds, that is, how sounds are produced and received in a language.
- **Phonology** talks about the functions of sounds and how the sounds are ordered in a particular language.
- **Morphology** is the study of words and how they are formed in a language.
- **Syntax** deals with the formation of phrases and sentences in a given language.
- **Semantics** is concerned with the study of meaning in all its aspects.
- **Applied Linguistics** is the application of linguistic theories, methods, and findings to 'the education of language problems that have arisen in other domains

- **Computational Linguistics** is the study of language using the techniques and concepts of computer science that is especially used concerning both the history of language in the human race and child development.
- **Comparative linguistics** is when we compare languages and concentrates on the similarities and differences between the languages, it is called *comparative linguistics*.
- **Diachronic linguistics** is concerned with the historical development of the language over time.
- **Synchronic linguistics** deals with the study of language, as it exists at a particular point in time.
- **Comparative Philology** is systematically comparing different languages and tracing them to a common origin. This way of analyzing languages came to be known as '*Comparative Philology*'.

1.5. Sample Questions

1.5.1 Objective type and True/False type Questions

1. Read the sentence and choose an appropriate option:

1. Who has defined language as "*a set of finite or infinite sentences, each finite in length and constructed out of a finite set of elements*"?

a. Noam Chomsky **b. Ferdinand de Saussure**
c. Edward Sapir d. None of the above

2. Which among the following is an exception to the property of arbitrariness of language?

a. Homonyms b. Homophones
c. Onomatopoeia d. Portmanteau

3. Language is never static. It goes on changing. This property of language is called----------

a. Transference b. Recursiveness
c. Displacement **d. Dynamic**

4. ……..is the discipline where the methodological perspective of both linguistics and sociology converges.

a. Linguistics of sociology **b. Socio-linguistics**
c. Sociology of linguistics d. None of these

5. Which among the following is not a branch of linguistics?

a. Phonology b. Morphology c. Semantics **d. Philology**

B. Read the following statements. State if they are True or False

1. Language is the only means of communication.

(a) True

(b) False

2. A person who can use or speak more than two languages is known as '*Bilingual'*.

(a) True

(b) False

3. *Noam Chomsky* has introduced the concept of '*Competence and Performance'*.

(a) True

(b) False

4. '*Linguistics'* the scientific study of language.

(a) True

(b) False

5. '*Morphology*' is the formation of sounds.

(a) True

(b) False

1.5.2 Short Answer Questions

1. What is linguistics?
2. Write a brief note on the symbolic nature of language.
3. How is it possible to analyze a language scientifically?
4. Why do we need a discipline called phonology?
5. Define and describe phonetics.
6. Write a short note on '*Morphology*'.

1.5.3 Long Answer Questions

1. Describe linguistics as the '*scientific study of language*'.
2. What is the difference between animal communication system and human language? Elucidate.
3. What is language and how is it different from the study of a language? Discuss.

4. Give examples from your language to illustrate the *creativity*, *arbitrariness* and *duality of structure.*
5. Explain the differences between:
   a) Phonetics and phonology b) Diachronic and synchronic linguistics
6. Bring out the difference between phonetics and phonology.

1.6 Suggested Readings

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3. https://linguistics.ucdavis.edu/undergraduate/what-linguistics
4. https://www.sciencedirect.com/topics/medicine-and-dentistry/morphology

Unit-2: Branches of Linguistics

Structure

2.0 Introduction
2.2 Objectives
2.2. Branches of Linguistics
2.2.1 Phonetics
2.2.2 Phonology
2.2.3Morphology
2.2.4 Syntax
2.2.5 Semantics
2.2.6 Related Fields of Linguistics
2.2.6.1 Sociolinguistics

2.2.6.2 Psycholinguistics
2.2.6.3 Historical Linguistics
2.2.6.4 Applied Linguistics
2.2.6.5 Computational Linguistics
2.3 Learning Outcome
2.4 Glossary
2.5 Sample Questions
2.6 Suggested Reading

2.0 Introduction

This course has been designed to present and illustrate the general ideal about what is Linguistics and its subsequent branches.

Human language is a complex system of communication used to express needs, feelings, emotions, ideas and desires. Linguistics is the study of the structuring of this system. It deals with the process of acquisition, use, production and comprehension of messages. Linguists have continuously been struggling with questions like –

- What properties do all human languages have in common?
- How do languages differ?
- To what extent this difference follows a system or pattern?
- How do languages change?
- What is the procedure involved in the change of languages?

The categorical answer to these questions has led to divide language into various branches. In the present block we shall discuss in detail the various branches of linguistics

2.1 Objectives

The unit has been designed to fulfill the following objectives –

- To familiarize the students with the concept and function of Linguistics
- To enable the students understand the how linguistics can be studied under various heads which make the different branches of linguistics.

- To enable the students understand the difference between phonetics and phonology
- To familiarize the students with the basic idea of Morphology, Syntax and Semantics.
- To introduce to the students several interdisciplinary branches of linguistics

2.2 Branches of Linguistics

2.2.1 Phonetics:

We perceive language as a continuum of sounds that the hearer decodes and understands as meaningful utterances. The study of these speech sounds as concrete manifestations of language is thus called *Phonetics*. Right from production of speech to transmission and receipt of the speech sounds and to perception of the same, it includes all of it. Each of these three stages are sub-fields of phonetics, viz.

- Articulatory Phonetics
- Acoustic Phonetics
- Auditory Phonetics

It will be interesting to know that the production of speech sounds involves a set of organs of speech and it is not just the tongue that we knew since our early education. They are - lips, blade of the tongue, teeth, soft palate, hard palate, uvula, nasal cavity, epiglottis, vocal cords apart from the diaphragm that helps pump the air from within. We shall learn about them in detail in the module on phonetics.

Human speech which appears to be a single unit and is taken as a connected chain, can be analyzed in discrete units. The word *Exam* which appears to be a single unit can be discretely analyzed as a combination of /ɪ/, /g/, /z/, /æ/ and /m/. As each sound unit/segment can be studies separately so the breaking up is known as *segmentation*. However there are elements in phonetics (stress & intonation) that cannot be analyzed as discrete segments. They are referred to as *suprasegmentals*.

A very significant contribution from this field to the world of linguistics has been the International Phonetic Alphabet (IPA) which assigns a symbol to each of the

human sounds. These phonetic symbols denote a phoneme each. A phoneme together with a vowel sound forms a syllable. One or more syllables together make a meaningful word. These IPA symbols help us transcribe the sounds involved in the production of a word. In any standard dictionary, you will find the transcription of the word with the phonetic symbols right after the spelling of it. This helps us get the correct pronunciation of the word concerned.

2.2.2 Phonology:

A selection is made in all the human languages of the distinct sounds which it makes use of. The selection of language A may not match with the selection of language B or may exist as position variant in language C. The in depth study of these sounds in the backdrop of different languages has given room to two different areas of linguistic enquiry: p*honetics* which is simply the study of speech sounds and *phonology* which is the study of sounds of a particular language as an integrated system of features which are contrasting in nature.

Phonetics and phonology are interrelated. The primary difference between the two is that phonetics in general is applicable to all the human languages, however, phonology is specific about one particular language at a time. Thus, the study of how speech sounds form patterns in a language is phonology. For example, when we say English phonology, we are basically dealing with the sound system of only English. The fact that English phonology has 44 sounds, i.e., 20 vowel sounds and 24 consonant sounds, is not applicable to other languages. While English phonology does deal with pure vowel sounds as well as the glides, it does not take into account the nasal vowels as they are not found in English. Nasalisation despite being a redundant feature for English vowels it is indeed a distinctive for English consonants. For example, all the verbs in the progressive aspect have -ing /ɪŋ/ in English phonology. On the other hand, phonology of a language like Swahili shall certainly deal with nasal vowel.

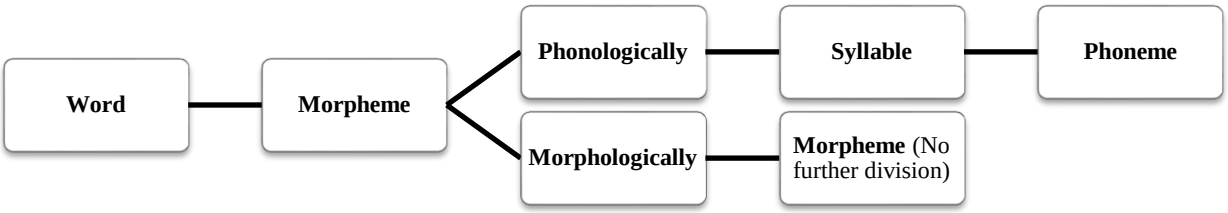
2.2.3 Morphology:

In simple terms, Morphology is the study of the structure of words. Words play a fundamental role in meaning making. Therefore, words are of prime importance in any kind of language use. Think of an imaginary sentence where each word is from a different language, or the main verb is in another language. In both the cases, it is difficult to determine the meaning unless you know

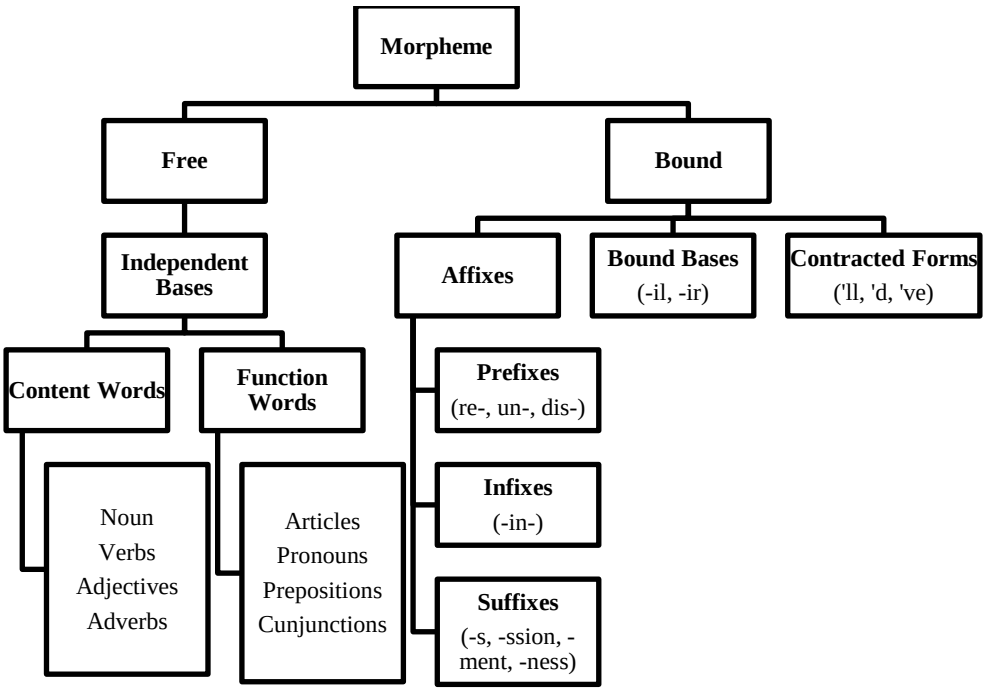
all the words. Therefore, to understand a sentence or an utterance, it is important to know the words of that language. It is due to this reason that words are called the fundamental units of linguistic structure.

Words in general can be divided as **open-class** words and **closed-class** words mostly referred to as content words and function words, respectively. Words belonging to the POS category of nouns, verbs, adjectives and adverbs are the open-class or content words. Reason behind they being called so is that in these categories unlimited number of new words can be added, and can be formed by bringing together two or more vocabulary items from the same or different categories. Thus, these four POS categories are open to welcome new entries. However, the closed-class words are the ones which do not allow/accommodate new entries. For example, we have three articles in English – one definite, and two indefinites. We do not hear of a fourth article. Similarly, number of personal pronouns too are fixed and do not evolve. As an exercise, you may count the pronouns in English followed by those in your mother-tongue and compare to learn which has more of them. Apart from the articles and the pronouns, conjunctions and prepositions too come under the closed-class of words also known as function or grammatical class. This class of words largely determines the relation between the content words. For example, in Game of Throne, 'game' and 'throne' are the content words and 'of' determines the relation between the two and thereby helps meaning construction.

At another level, words can be divided in two ways. Phonologically (i.e., based on the sound system), morphemes can be divided into syllables and phonemes, whereas, in the morphological structure, morphemes are the smallest fundamental meaningful unit which cannot be divided further. For example, the word 'bat' has only one syllable, and comprises of three phonemes - /*b*/, /*æ*/ and /*ʈ*/ at the phonological level. However, in the morphological sense, the word 'bat' is a morpheme and cannot be divided further as a meaningful unit. Nonetheless, it can be a constituent morpheme along with other morphemes like, '-s' and 'man' to form 'batsman'. Thus, morphemes are the "minimal meaningful unit" (Bloomfield, 1933).

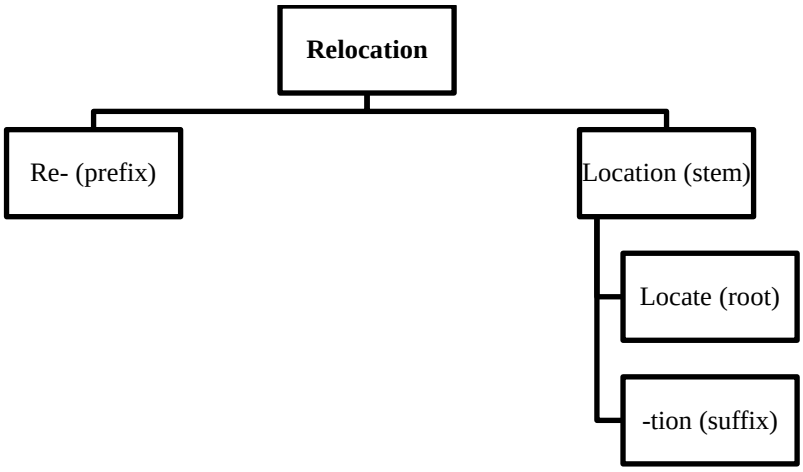


Morphemes are categorised into two classes – free morphemes and bound morphemes. Free morphemes are called so because they can exist on their own, i.e., independently. However, the bound morphemes do not exist independently, and require a host word to be attached with to modify its meaning. For instance, a polymorphic word, i.e., a word with multiple morphemes, always carries a free morpheme as a nucleus/root that contributes the most towards meaning of the morphologically complex word. For example, 'infect' is the free morpheme in the word 'disinfecting' removing which from this word leaves us with 'dis-' and '-ing' which do not have a meaning of their own. It is the morpheme 'infect' that contributes the most for the meaning of the word 'disinfecting', and the affixes, i.e., prefix 'dis-' and the suffix '-ing', qualify that meaning further. Mostly, bound morphemes are the affixes (prefixes, suffixes and infixes), bound bases and contracted forms as shown in the following diagram.



Affixes, the root and the morphological order of word-building process:

The independent morpheme which is part of a polymorphic word is its root. For example, in the word ‘relocation’, the root is ‘locate’. It is this root which the affixes get attached to, and effect a gradual change in meaning as shown in the diagram below:



The bound morphemes ‘re-‘ and ‘-tion’ modify the meaning of the root ‘locate’ at each stage as they get attached to it. The word ‘relocation’ too becomes a stem if we were to further attach a suffix ‘-al’ to it to make it ‘relocational’. These affixes are defined depending upon which side of the root they get attached to. The ones getting their place at the left of the root are called prefixes and the ones at the right of it are suffixes. Infix, on the other hand, gets its place in between the root. For example, to indicate plurality for ‘passerby’ we shall include the plural marker ‘s’ in between the word to get ‘passersby’ and the infix used here is indicated as ‘-s-‘. Thus, we have three kinds of affixes: prefix, suffix and infix. Conventionally, in morphology, a prefix is written with a dash after it, a suffix has the dash before it whereas the infix has the dash before and after it whenever written separately as you can see in the examples used in this section. A morphological entity that an affix gets attached to is called a stem. At times, the root can be the stem too. As we saw in the example of ‘relocation’, the root, i.e., locate, does function as a stem when the suffix ‘-tion’ is attached to it. Therefore, it can be said about the stem that it continues to grow as long as the last possible affix is attached to it.

Based on the affixes, we have two main types of morphological operations: inflection and derivation. The **inflectional affixes** modify a word's form without changing its meaning. For example, the plural marker '-s' for the English nouns is an inflectional suffix. Similarly, in the case of English verbs, we use '-ed' as an inflectional suffix with the present form to obtain the past form. In both the cases, it can be seen that the process of inflection modified the word form a bit, and thereby, the grammatical subclass of the word but without any change in its primary meaning. On the other hand, when the root form changes into another POS category post-addition of an affix, it is called derivation. **Derivational affixes** cause changes in the category and/or the meaning of the root form. It is therefore, called to be creating a new word. Some of the best-known derivational affixes are -al, -ise, -tion, -able, -ic, -ing, -ity, -ness, -ment, -ssion, -logy, -ics, -try, etc.

Morphological analysis of data:

We use morphological aspects as tools for analysing linguistic data of a new language and extract new and relevant information. Consider this linguistic data from Egyptian Arabic:

1. xabbar "he told"
2. xabbarak "he told you" (masc.)
3. xabbarik "he told you" (fem)
4. xabbarkum "he told you" (pl)
5. xabbarhum "he told them"

From these examples, we can infer that the suffixes like -ak, -ik, -kum and -hum exist in that language and it can be deduced that they mean 'you' (masc.), 'you' (fem), 'you' (pl) and 'them', respectively. However, it is hard to identify the equivalents for 'he' and 'told'.

2.2.4 Syntax:

We being the native speakers of our mother-tongue can form and understand any number of sentences in that language. It is not due to any marathon memory exercise where we memorised thousands of sentences. This ability in our mother-tongue is in us because of two factors – one, we know the words, and two, we are familiar with the way words are ordered in that language to provide meaning. This word ordering is significant as each language follows a linear and logical pattern to form phrases as well as sentences. Syntax basically talks about these structures of sentences and phrases in a language.

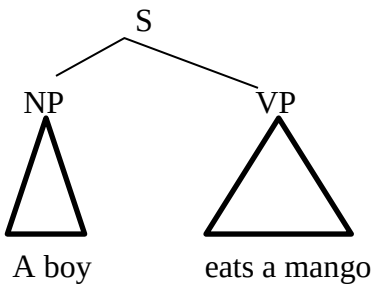
Generally, one of the first things we notice about the sentences of human languages is that the words in a sentence occur in a certain linear order. To understand this notion of syntax, think of a four/five-word sentence in your mother-tongue. Now, number each of the words from the beginning to the end of the sentence. Next, try placing the word positioned at number 2 at the beginning of the sentence. Compare your original sentence and the new one at hand. Do you notice any difference in the form of the sentence or in the meaning due to this shifting in the word order? If you do, it means that yours is a fixed word order language like English. However, if you do not notice any change, your language certainly belongs to the free-word order category of languages. Some of the languages showing freedom of word order are: Sanskrit, Latin, Russian, Japanese and many Indian languages like Hindi and Urdu.

Constituents of sentences:

What can be the building blocks of a sentence? Let us look at the constituents of a simple sentence. A simple sentence like,

(1) A boy eats a mango.
NP VP

is consisted of a noun phrase (NP) and a verb phrase (VP). In syntax, the general way of representing the constituting elements of a sentence is through a tree diagram. Using a tree diagram the example sentence (1) can be represented as following:



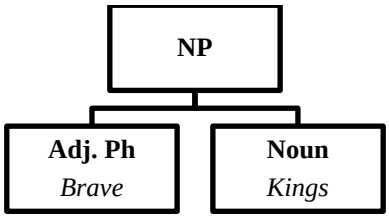
Here, the three labels you see in the diagram are called **nodes**. The S-node is the mother node and the NP and the VP are its daughter nodes. The two lines branching out of the S-node and connecting the NP and VP nodes are, thus, called the branches. With such equation in place, the NP-node and the VP-node are, therefore, called sisters.

The triangles drawn under the NP and VP nodes are indicative that these nodes can further be divided into constituents. This division is now at the phrase level. We shall now see some rules on how sentences are structured out of phrases and phrases out of words. It is generally termed as phrase structure (PS) rules.

Constituents of NP:

A noun phrase has to have a noun as its head word. This head word (a noun) may be preceded or followed by several other elements to form a meaningful noun phrase. For example, 'Akbar' is a noun and features as a head word in both of these phrases: 'the great Akbar' and 'Akbar the great'. In both the usages, it is 'Akbar' (the head word) that gets the attribute/s. Let us consider another example and understand it using a tree diagram.

(1)



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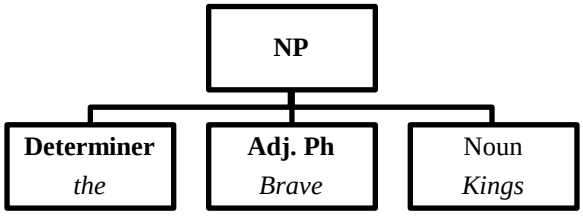

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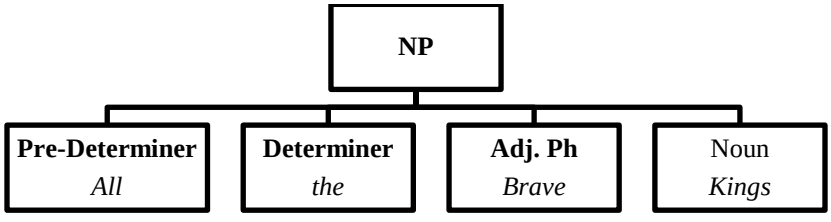

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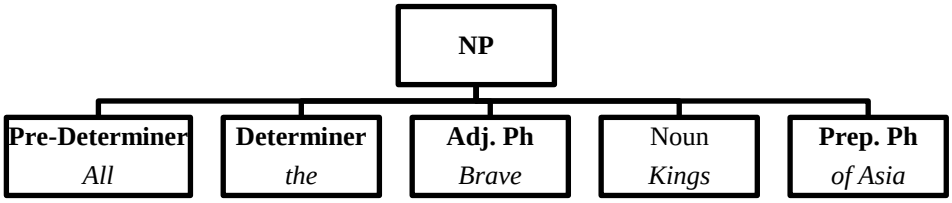
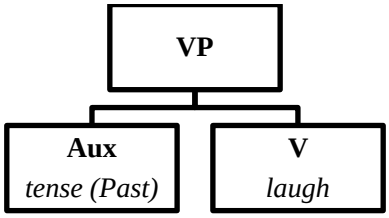


All the examples here (1 - 4) testify that a noun is the most definite part in a noun phrase, and its presence is the reason for it being called so. The qualifiers like predeterminer (Pre-det), determiner (Det), adjectival phrase (Adj P) etc. are added to the left of the head word, i.e., noun (N), and to its right, like the prepositional phrase (PP) in (4). You should notice that the PP node in (4) is further marked with a triangle which means that its constituents shall be divided further. In PP node too, noun is an obligatory constituent.

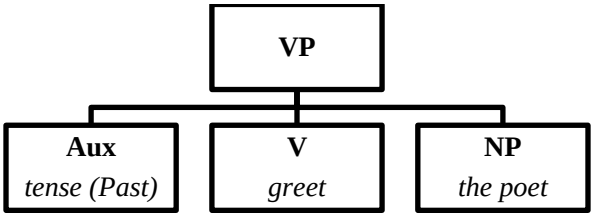
Constituents of a VP:

Like noun is an integral part of an NP, verb too is a must for a verb phrase (VP). The VP mainly consists of an auxiliary which can be a carrier of tense, modal, perfective, progressive, passive etc. and a verb. Thus, in a simple sentence like *John laughed* the VP consists of 'laughed' and carries the tense together with the verb, i.e., the action word, as shown below in (5). Very much like the noun in the NPs the verb in the VPs too may carry constituting elements to both its left and right positions as shown in example (6) *John greeted the poet* and (7) *John has welcomed the poet.*

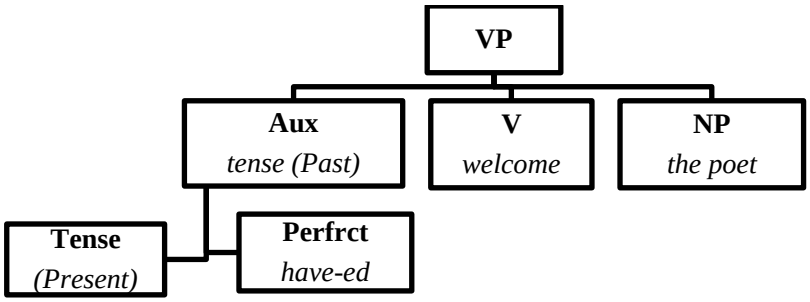
(5)



(6)



(7)



In example (7), the VP has been shown through the tree diagram and informs it to be in present tense and the aspect as perfective through its markers 'have' and the -ed form of the main verb – welcome. The VP here also comprises of the NP 'the poet' which has not been further branched out. Similarly, a VP can also comprise of a prepositional phrase (PP), an adjectival phrase (Adj P) and an adverbial phase (Adv P) which can come in place of/ together with the NP. However, the auxiliary shall always be an integral component of a VP as it carries the time reference.

As we have learnt so far that an NP must consist of a noun and a VP of a verb which are their respective head words, in the same manner a PP must comprise of a preposition, Adj P of an adjective and an Adv P of an adverb as their respective head words. It can, thereby, be summed up that for each lexical category, viz., N (noun), V (verb), Adj (adjective), Adv (adverb) and P (preposition), there is a corresponding phrasal category, viz., NP (noun phrase), VP (verb phrase), Adj P (adjectival phrase), Adv P (adverbal phrase) and PP (prepositional phrase). In other words, every phrasal category has its corresponding lexical head. Thus, the formula for this notion can be:

$$XP \rightarrow \ldots X \ldots \text{ [where, X = N/V/Adj P/ Adv P/ PP]}$$

Sentence structure: argument, thematic and anaphora:

Having understood the constituents of a sentence, let us now understand certain functions of the constituents. Certain constituents function as **arguments**. By argument, we mean a referring expression which can be a person, a thing, an entity etc. For example, in the sentence *John ate a mango*, 'John' and 'a mango' are the arguments and the verb 'ate' is the **predicate**.

The predicate conveys some relation between the referring expressions, i.e., John and a mango (the arguments). The predicate *eat* will always carry two arguments because for the action of eating to happen we need someone who will eat, and we need something that is to be eaten. This type of predicates which take two arguments are called two-place predicates. It is to be noted that the arguments of a two-place predicate are always NPs. Some examples of two-place predicates are meet, drink, watch, slap, read, write, construct, etc. and in a sentence, both of their arguments shall be the NPs. You might like to form a couple of three/four-word sentences using these two-placed predicates in order to check the truthfulness of the above generalisation.

However, not all the verbs are two-place predicates. There are some which are one-place predicates and some which are three-place predicates. Verbs like sleep, snore, smile, cough etc. take only one argument in a sentence, and therefore, are examples of one-place predicates. On the other hand, verbs like, give, put, show, etc. are called three-place predicates as they take three arguments. A predicate like 'give' requires someone to perform the action of giving (argument 1) and someone to be at the receiving end (argument 2), apart from something to be given (argument 3). In other words, 'give' requires a giver, a receiver and the thing that is to be given. For example, *Trees give us fruits*. Here, 'Trees' is argument 1, 'us' is argument 2 and 'fruits' is argument 3 to the predicate 'give'.

The predicates also assign thematic roles to their arguments. The thematic roles in short are called theta roles which is denoted as 'θ-roles'. It can best be understood through a two-place predicate. In a sentence like, *Batsman hit the ball*, of the two arguments 'Batsman' is in the role of agent as he is the doer of the action - hitting, and 'the ball' is at the receiving end, hence, its role is that of patient. So, the role of arguments can be that of **agent** and **patient**. However, this labelling does not always clearly explain the role of all the arguments, therefore, some linguists use a variety of labels like, theme, experiencer, benefactive/beneficiary, goal, source and location etc. to indicate various θ-roles. The number and the kind of θ-roles that a predicate can have is represented through a grid called theta grid.

Furthermore, the arguments as an NP can have a reflective pronoun as a constituting element. The morpheme *self* when clubbed with personal pronouns as a suffix yields the reflexive pronouns, and indicates that the agent and the patient of the predicate are linked to the same entity. Therefore, as a constituent in a sentence, it establishes a relatedness between two NPs, i.e., two arguments of a predicate. Such relation is called **morphological anaphora**, or, that

the referent and the referring constituent are in anaphorical relation. For example, in the sentence *John sees himself in the mirror*, the arguments 'John' and 'himself' are in anaphorical relation. Words like such, so, one, own, respective/ly, indicative and personal pronouns, etc. function as anaphora.

2.2.5 Semantics:

Semantics is the study of meaning in human languages. Before we deal further with the definition, let us first consider what we understand by meaning. The first source we consider to understand meaning of a word are dictionaries. The official dictionaries of a language tell us what the valid and acceptable meaning/s of a word is. However, that is not all. In the daily life conversations, you might have heard expressions like, "I did not mean that" or "do you mean to say …" and many like that. This tells us that there is a meaning that the speaker wants to convey which is extra than the sum total of the meaning of the words used. You might have also heard expressions like "I understood it as …" or "I thought you meant …". Such expressions inform us that there is a meaning based on how the hearer perceives the words used. So, we have two kinds of meanings, i.e., speaker's meaning and hearer's meaning, apart from the dictionary meaning. Then, we have meaning based on the tone and expression used during the utterance. You might have also heard of sarcastic comments. In sarcasm, the sum total of the meaning conveyed by the words used differs from the latent meaning.

Linguists, however, divide meaning at two levels – linguistic meaning and speaker meaning. An expression like 'postpone' means 'to put off the deadline for deadline for doing something'. This is linguistic meaning. On the other hand in an expression like 'the stairs which take you up take you down as well' would mean that the speaker wants the hearer to leave. Here, more than the words it is what the speaker intends makes the meaning. The levels of meaning have been illustrated in the diagram below:

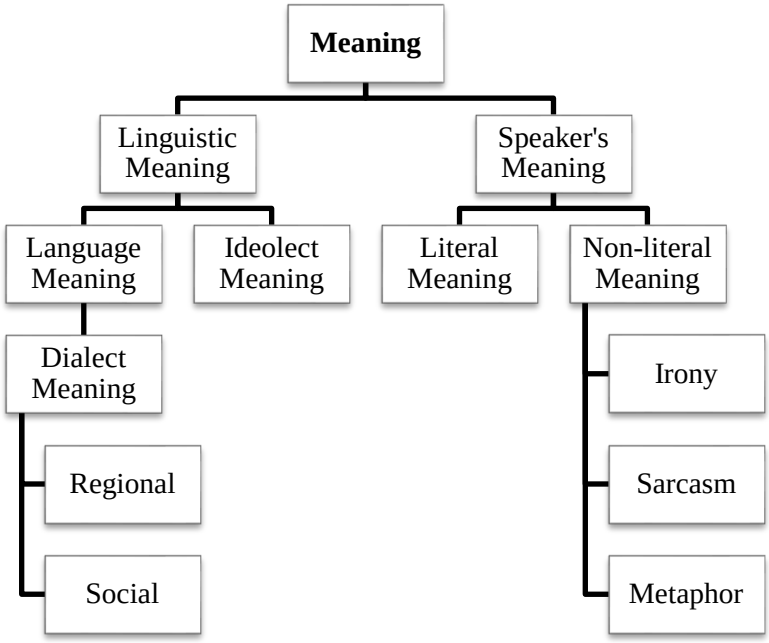


Figure 1: Levels of meaning

As seen in the figure above, the linguistic meaning and speaker meaning have further sub-divisions. Linguistic meaning is divided into language meaning and idiolect meaning. Language meaning consists of the meaning that is there in the dialect. Idiolect meaning on the other hand, is based on an individual's use of language. At this point, we can understand that idiolect meaning is individual centric and language meaning is the meaning that has been accepted by the speech community at large. Dialect meaning, thus, is fed by the regional and social meaning as the varieties of a language vary at the phonological as well as semantic levels. Speaker meaning is characterized by literal and non-literal meanings. Literal meaning is when the words convey as per their entitlement by the official dictionaries. And non-literal meaning is when the speaker uses elements like irony, metaphor or sarcasm.

Denotational and Connotational meaning:

Denotational meaning is generally the dictionary meaning which is not open to interpretations. For example, the word 'kitchen' in all its meaning and across cultures would mean that it is the place to cook food, and is definitely not the place to take bath. However, kitchen as the domain for women, let us say in the fields of gender or literary

studies, would mean much more. That is connotational meaning. Thus, denotational meaning is the literal or primary meaning of the word, whereas, the associated meanings or the suggestive meanings are connotational. Let us take another example. A window in its general concept means a physical structure in a room/house to let air and sun in. That is its denotational meaning. However, ever since the evolution of computers, Windows became a technical term and has versions. Another meaning of it can be seen in its figurative use in a sentence like, 'Open your windows to the ways of the world'. A cultural or emotional association to the meaning, thus, adds to the meaning, a defining feature of connotational meaning.

However, semantics did not enjoy a prominent role in modern linguistics. Particularly in the United States, during the period between World War I to the early 1960s it was not seen as quite respectable. The linguists of the era found it to be lacking in scientific description and felt that its principles and processes were sort of methodological impurity. And thus, there was an aversion to include semantics in the grammar of a language. Nevertheless, conventionally, language is defined as a system for communication, i.e., conveying messages. Linguistic communication is centred around the words and sentences which have certain shared meanings. Therefore, linguists agreed that to characterize this system of communication via language it is vital to describe the meanings. Thereby, semantics holds an important space in the description of grammar of a language.

2.6 Related Fields of Linguistics:

In general, linguistics is a very vast topic to enumerate. There are numerous subfields or branches of linguistics that have emerged over the past fw decades. Following are some of the interdisciplinary fields of linguistics –

a. Anthropological linguistics
b. Applied linguistics
c. Biological linguistics
d. Clinical linguistics
e. Computational linguistics
f. Educational linguistics
g. Ethnolinguistcs
h. Geographical linguistics
i. Mathematical linguistics
j. Neurolinguistics
k. Philosophical linguistics
l. Psycholinguistics

m. Sociolinguistics

n. Stastical linguistics

In the discussion to follow we shall look at some of the main interdisciplinary branches of linguistics in detail

2.6.1 Sociolinguistics:

Sociolinguistics looks into the interaction between language and society. It's scope ranges from study of dialects of a given region to how language/s differ between men and women to the socio-ethnic factors determining a language's character. A primary assumption in sociolinguistics is that language is ever changing. As a result, language is always in the state of flux, and continuously undergoes change. One way that sociolinguists study language is through dated written records. They examine both hand-written and printed documents to identify how language and society have interacted in the past. This is often referred to as historical sociolinguistics. The most common engagement of sociolinguists is with dialects as they are regional, social and ethnic variation of a language. Sociolinguists also engage in educational and governmental policies w.r.t. languages apart from standardisation of languages.

2.6.2 Psycholinguistics:

Psycholinguistics basically deals with the processes a human language goes through inside the brain. It is largely the study of the mental aspects of language and speech. It is considered as a field of cognitive science. The term psycholinguistics was coined by Jacob Kantor, an American psychologist, in his book titled, *An Objective Psychology of Grammar* (1936).

In his book, *Psychology of Language*, David Carrol talks of two important elements that comprise psycholinguistic work. One is what knowledge does a person require to use language, and the other, what cognitive processes are involved for a general use of language. By and large, this forms the framework for psycholinguistic studies as we start looking into the nitty-gritties of the processes of language like listening or speaking. It is indeed an interdisciplinary field that draws ideas from the fields of phonetics, semantics and other core fields of linguistics. Thus, William O'Grady in his book, *Contemporary Linguistics*, very aptly defines the field, "Psycholinguists study how word meaning, sentence meaning, and discourse meaning are computed and represented in in the mind".

2.6.3 Historical Linguistics:

Historical linguistics, also known as diachronic linguistics as well as philology, is the scientific study of language change over a period of time. In other words, it

studies history and development of language/s. It uses comparative method to establish relationship among languages that are oral or lack written records. Many linguists are of the opinion that the term or the field was coined in Sir William Jones' lecture *The Sanscrit Language* delivered at the Asiatic Society in 1786 where he compared and reported a common origin for Greek, Latin and Sanskrit.

You might wonder why does language change at all. Historically, language has always been in the state of flux. As society and human evolve with time so does the language. It has been reported that the causes of changes in human language/s is rooted in the physiological and cognitive configuration of human beings. The most common types of change in language one notices are articulatory simplification and borrowing from other languages due to language contact. The field of historical linguistics helps us make educated guesswork about the form of a language that once it was.

2.6.4 Applied Linguistics:

As per the Linguistic Society of America, the term 'applied linguistics' refers to a broad range of activities which involve solving language-related problem or addressing some language related concern. It started off as an independent course in the University of Michigan in 1946. In the early days, both in the US and the UK, this term was used to refer to applying the 'scientific approach' for teaching foreign languages including English to the non-native speakers. It is the branch of linguistics concerning the application of linguistic findings for the language related real-life problems. Its scope is very wide as it deals with language teaching, language learning, translation, speech therapy, lexicography, forensic linguistics, etc. as well as with larger fields of psychology, sociology and anthropology. It is interdisciplinary in a large sense as it encompasses a wide variety of fields. The primary difference between general linguistics and applied linguistics is that the former deals with the language itself, whereas, the latter addresses the practical problems related to language using the findings in linguistics. One of the main goals of applied linguistics is to ascertain workable application of linguistic theories as they evolve vis-a-vis everyday language use.

2.6.5 Computational Linguistics:

It is the branch of linguistics in which technics of computer science are applied to the theories and principles of linguistics. It is a field with many sides which concerns with computational modelling of human languages. Computational linguistics is integral to the now very famous term AI (artificial intelligence). As per Britannica, research on computational linguistics, beginning in the late 1960s, drew on approaches from work on artificial intelligence. As computers became more powerful and the world-wide-web (www) became an affair of daily life, computational linguistics developed statistical methods like tools for concordance and counting frequencies of sounds and words etc. What we see as Google Translator, voice commands, GPS enabled navigation, e-commerce, online-reservation system, online teaching or medical consultation - all have computational linguistics at the core. One of the core aspects in computational linguistics as well as AI is natural language processing (NLP).

2.3 Learning Outcome

It is expected that upon the completion of this unit, students have a good understanding of the various branches of linguistics. They are able differentiate between how different languages operate. Further, the students are expected to have also understood the importance of studying linguistics as a field of study. What the students have learnt in this unit would help them have a better understanding of the working of languages.

2.4 Glossary

Anaphora: Repetition of a word or expression at the beginning of successive phrases, clauses, sentences, or verses

Clipping: Formation of new words by shortening of existing ones in the language

Closed Class Words: The closed classes include pronouns, modal verbs, determiners, prepositions and conjunctions

Compounding: Formation of new word by joining two word to words

Connotation: An idea or feeling which a word invokes in addition to its literal or primary meaning of a word

Denotation: The literal or primary meaning of a word

Entailment: Sentence B logically follows the preceding sentence A

Inflectional Language: A language that draws heavily on the use of prefix and suffix to express grammatical features

Language: Infinite sentences that the native speaker is able to produce for the purpose of communication

Morpheme: The smallest unit of grammar that has a function and meaning

Morphology: The study of the internal structure of words and the ways of word formation

Nasalization: Sounds produced while the velum is lowered and some air escapes through the nose

Noun Phrase: A phrase that has a noun or pronoun as its head or performs the same grammatical function as a noun

Open Class Words: Content words

Phoneme: The basic sound unit of a language

Phonetic: Pertaining to the production of speech

Phonology: The functional study of the sound system of language. It deals with the function of each phoneme.

Semantics: The study of meaning

Segmentation: The process of breaking down phonetic sequences into discrete sound units

Suprasegmental: The process of study of elements in phonetics such as stress & intonation that cannot be analyzed as discrete segments

Syntax: The grammatical component that deals with the relation between the words in a sentence

Verb Phrase: A phrase consisting of a verb plus another word that further illustrates the verb tense, action, and tone.

2.5 Sample Questions

2.5.1 Objective Questions:

A. Choose the correct option to answer the following questions

1. The branch of linguistics that studies human language and the properties of sounds is called _____ .
    a. Phonetics
    b. Acoustics
    c. Articulation
    d. Phonetics
2. _____ are the abstractions of speech sounds which differ on the basis of meaning
    a. Segments
    b. Morphemes
    c. Phonemes
    d. Monopthongs
3. Which of these morphemes can almost all English verbs have added to them?
    a. -ing
    b. Un-
    c. -ly
    d. –ry
4. Semantics is _____ .
    a. the study of word formation
    b. the study of sound system of language
    c. the study of meaning of words phrases and sentences
    d. the study of the relation between language and society
5. Which sentence describes inflectional morphology?
    a. Adding a morpheme to produce a new word but the same lexeme.
    b. Adding a morpheme to produce a new word and different lexeme.
    c. Adding a morpheme to produce the same word but different lexeme.

B. State weather the following statements are True of False

1. In English language inflectional morphemes can be suffixes only
    a. True b. False
2. Words can often be divided into lexemes

a. True b. False

3. Grammar of a language is a set of rules related to how that language operates.
   a. True b. False
4. Infix is the common term used for both prefixes and suffixes.
   a. True b. False
5. The relationship between a linguistic expression and its speaker can be termed as semantics.
   a. True b. False

2.5.2 Short Answer Questions:

1. Which of these best define syntax? Give reason
   a. The study of the rules governing specifically the sounds that form words.
   b. The study of the rules governing sentence formation.
   c. The study of the rules governing word formation.
2. What do you understand by the term morphology?
3. How is morpheme different from phoneme
4. What are the main constituents of NP
5. How would you distinguish between the literal meaning and figurative meaning?

2.5.3 Long Answer Type Questions:

1. How is linguistics an autonomous discipline?
2. What is the need of dividing linguistics into several branches? Give reasons
3. How are different branches of linguistics linked to each other?

2.6 Suggested Reading

1. Crystal, D., *The Cambridge Encyclopedia of Language.* Cambridge: CUP, 1987.

2. Halliday, M.A.K., *Language as Social Semiotic.* London: Edward Arnold, 1978.

3. Katamba, F., *Morphology.* London: Macmillan, 1993.

4. Leech, G.N., *Semantics.* Harmondsworth: Penguin, 1981.

5. Reimsdijk, Henk. and Williams, E., *Introduction to the Theory of Grammar.* Massachusetts: The MIT Press, 1986.
6. Verma, S.K. and Krishnaswami, N., *Modern Linguistics- An Introduction.* New Delhi: Oxford University Press, 1989.

Unit-3: Phonetics and Phonology

Structure

3.0 Introduction
3.1 Objectives
3.2 The Speech Mechanism
- **3.2.1** Respiratory System
- **3.2.2** Phonatory System
- **3.2.3** Articulatory System
- **3.2.4** Active and Passive Articulators
- **3.2.5** Classification of Speech Sounds
  - **3.2.5.1** Consonants
  - **3.2.5.2** Place of Articulation
  - **3.2.5 3** Manner of Articulation
- **3.2.6** Vowels
  - **3.2. 6.1** Description
  - **3.2.6.2** Simple vs Complex Vowels
- **3.2.7** Phonetic Transcription
  - **3.2.7.1** Phoneme and Allophones
  - **3.2.7.2** Syllable
- **3.2.8** Word Accent, Stress and Rhythm
- **3.2.9** Intonation

3.3 Learning Outcome
3.4 Glossary
3.5 Sample Questions
3.6 Suggested Reading

3.0 Introduction

This course has been designed to present and illustrate the general theories about the speech sounds and their use in the spoken language. The theoretical concept behind the spoken aspect of any language is termed as **Phonetics and Phonology**.

We are aware that English is not our first language so the exposure to the language too is limited. This makes all the more important for the students of English Language and Literature to consciously learn the nitty-gritty of the spoken aspect of languages. In the course of study we shall deal with the following concern areas of languages–

- The Sound System
- Word Accent
- Rhythm
- Intonation

3.1 Objectives

The unit has been designed to fulfill the following objectives –

- To familiarize the students with the speech mechanism of language
- To familiarize the students with the organs of speech and their roles in the production of sounds
- To enable the learners recognize the need for learning correct pronunciation as non-native speakers of English.
- To enable the students differentiate between vowel and consonant sounds.
- To familiarize the students with the stress pattern in languages.
- To familiarize the students with the concept of intonation and the role it plays in meaning making.

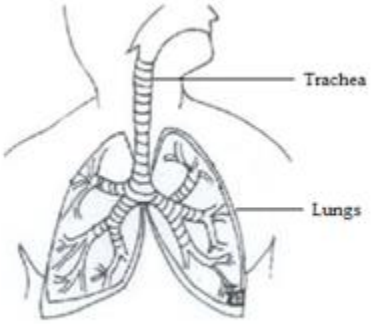
3.2 The Speech Mechanism

We are well aware that for production of any kind of sound, some disturbance in the air has to be created. For the purpose of speaking this disturbance is created by our body organs like vocal cords, lips, tongue, teeth etc. These organs are called *Organs of Speech*. These speech organs can categorically be described under the following three heads.

3.2.1 Respiratory System:

Our lung, muscles of the chest and the windpipe, which is often referred to as trachea, makes the respiratory system. We primarily breathe in and breathe out with the help of

these organs. The pressure created by the muscles of the chest helps the lungs to compress and expand which as a result takes-in and throws-out air through the trachea to let us breathe.

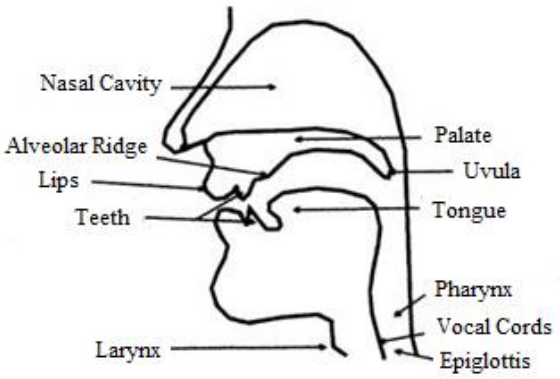


Position of Lungs and Trachea

Breathing provides the air stream, the disturbance in which results in the production of speech sound. The air stream provided by the lungs during the process of exhalation is chiefly used for speech production. This is called *pulmonic egressive air stream mechanism.* (the word *pulmonic* refers to lungs and *egressive air stream* means the air which is coming out of the lungs)

3.2.2 Phonatory System:

The stream of air which comes out of the lungs undergoes several modifications before it is finally released through the mouth or nose. These modifications start right from the *larynx* which is located at the upper end of the trachea.



Organs of Speech

Commonly known as the *Adam's apple*, larynx is the muscular structure which can prominently be felt in the males after puberty. The larynx has two finger like protrusions from its inner walls called the *vocal cords*. The vocal cords are attached in the front and free at the back end. The space between the two vocal cords is termed as *glottis.* These vocal cords can assume a number of positions. We shall here describe the three main positions which the vocal cords usually assume.

Vocal Cords drawn wide apart

Vocal Cord held closely together

Vocal Cords held tightly together

a. **Vocal Cords are drawn wide apart:** When the vocal cords are held wide part there is enough space in the glottis. In this position, the air stream doesn't disturb (vibrate) the vocal cords. This is usually the position of the vocal cords during normal breathing. Sounds produced in this position do not create any kind of buzzing/humming sound (which can otherwise be felt if one keeps his palm on the throat) hence such sounds are called *Voiceless sounds*. The first sounds of the English words 'pen' (پ), 'kettle' (ک), 'thing' (تھ), and 'shine' (ش) are some examples of voiceless sounds.
b. **Vocal Cords held loosely together:** When the vocal cords are held loosely together, the stream of air while moving out from the lungs disturbs (vibrate) the cords. Unlike the voiceless sounds, in this case the vibration of the sounds create a kind of buzzing / humming sound (which can easily be felt by keeping ones palm on the throat). Such sounds are called *Voiced sounds*. The first sounds of the English words 'little' (ل), 'brown' (ب), 'zebra' (ز) and 'well' (و) are some examples of voiced sounds.
c. **Vocal Cords are held tightly together:** When the vocal cords are held tightly together, the glottis is completely closed providing absolutely no passage for the movement of air. This position of the vocal cords is a gift of nature as it stops the food particles to enter our lungs while we eat or drink. The sudden opening

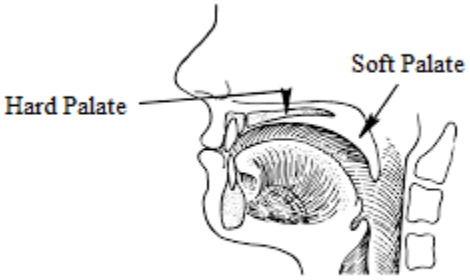
of the vocal cords (after the complete closure) providing passage to air results in a kind of explosive sound which is very similar to the coughing sound.

3.2.3 Articulatory System:

Once the stream of air passes through the larynx, before reaching the atmosphere outside, it gets further modified by the organs of speech which assume various shapes. These organs together form the articulatory system. Following are the parts of the articulatory system –

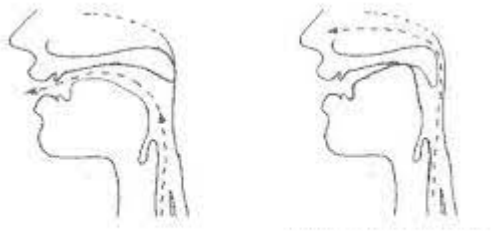
a. **The Pharynx:** Right from the upper part of the larynx to the root of the tongue lies the pharynx. The shape and size of the cavity formed by the pharynx (commonly known as the pharyngeal cavity) can be modified a great deal. The movement of the hind portion of the tongue and the position of the soft palate can also bring about modification in the pharyngeal cavity. Any such change affects the quality of the sound produced.
b. **The Lips:** The lips play an important role in the production of the speech sounds. They can be pressed together to produce consonant sounds like **p** and **b** or they are brought in contact with the teeth to produce the sounds like **f** and **v**. Lips have a crucial role in the production of the vowel sounds too. We round our lips to produce sounds like the middle one in the word **boot** (**u:)**
c. **The Teeth:** Teeth help in the production of many consonant sounds. The initial sounds of the word *through* (تھ) and *there* (د) are produced by touching the tip of the tongue with the teeth. Similarly the Hindi consonant sounds त, थ, द, ध are produces when the tip of the tongue touches the back portion of the upper teeth.
d. **The Teeth Ridge:** Immediately behind the upper teeth, the convex part of the roof of the mouth is called the teeth ridge or the alveolar ridge. It helps in the production of consonant sounds like the initial ones in the words *ten* (ٹ) and *den* (ڈ). In the same way the consonant sound स / سis pronounced when the passage of air at the teeth ridge is narrowed down with the help of the tongue.

e. **The Hard Palate:** Often referred to as the roof of the mouth, it is the bony concave structure which is just behind the teeth ridge. The initial sound of the English word *yak* (य /ى) is produced at the hard palate.



Palate

f. **The Soft Palate:** After the hard bony concave roof of the mouth is a comparatively soft part which is called the soft palate or the *velum*. It allows the air to pass through the nose and the mouth. The initial sound in the English words *kill* (/) and *green* (/) and some Urdu sounds like ڇand ڳare produced at the soft palate.



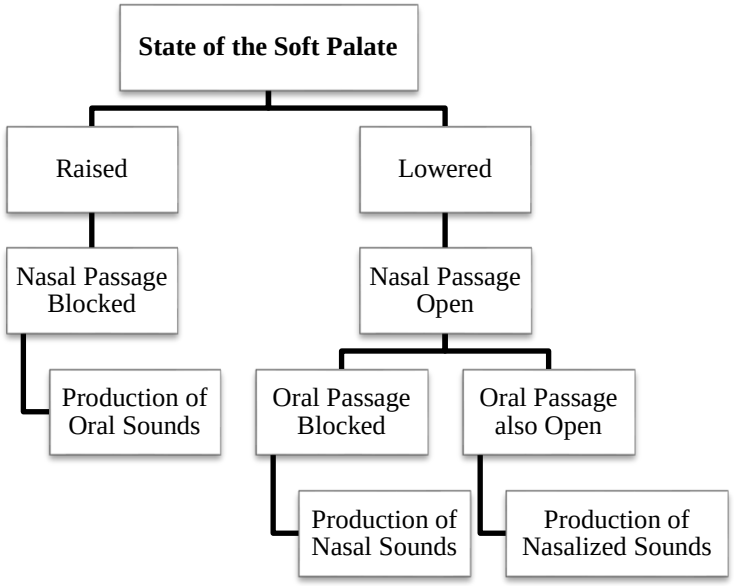
Oral Passage Nasal Passage

The soft palate helps in the production of the sounds by –

i. its articulation with or against the back of the tongue and
ii. raising itself to touch the hind part of the pharynx.

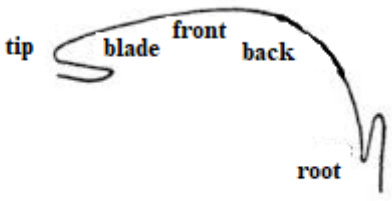
The Hindi sounds क, म, ख and घ are the examples of the same process. When the soft palate is raised, the nasal passage gets blocked and no air can escape through it. The only passage available to the air is the mouth. The sounds thus produced are called **oral sounds**. The initial sounds of the words *feather*, *tiger*, and *doctor* are some of the examples of oral sounds. Contrary to this if the

velum is lowered, the air either passes through the nose only or through nose as well as mouth. Air passing through the nose only produces **nasal sounds** like the initial sounds in the words *main* (म/م) and *nail* (न/ن). The sounds produced when the air escapes both through the nose and the mouth are called **nasalized sounds**. The middle sound in the English word *hanger* (ŋ) is an example of the same.



g. **The Uvula:** The place where the soft palate ends, there is small fleshy pendent like structure which is called *uvula*. When the back of the tongue articulates with the uvula, sound like 'क़ / ق' as in the initial position of the Urdu word 'क़रीब / قریب' is produced.

h. **The Tongue:** The tongue is considered to be the most important organ of speech. As it is a highly flexible voluntary organ of the human body, it can take various shapes for the production of speech sounds.



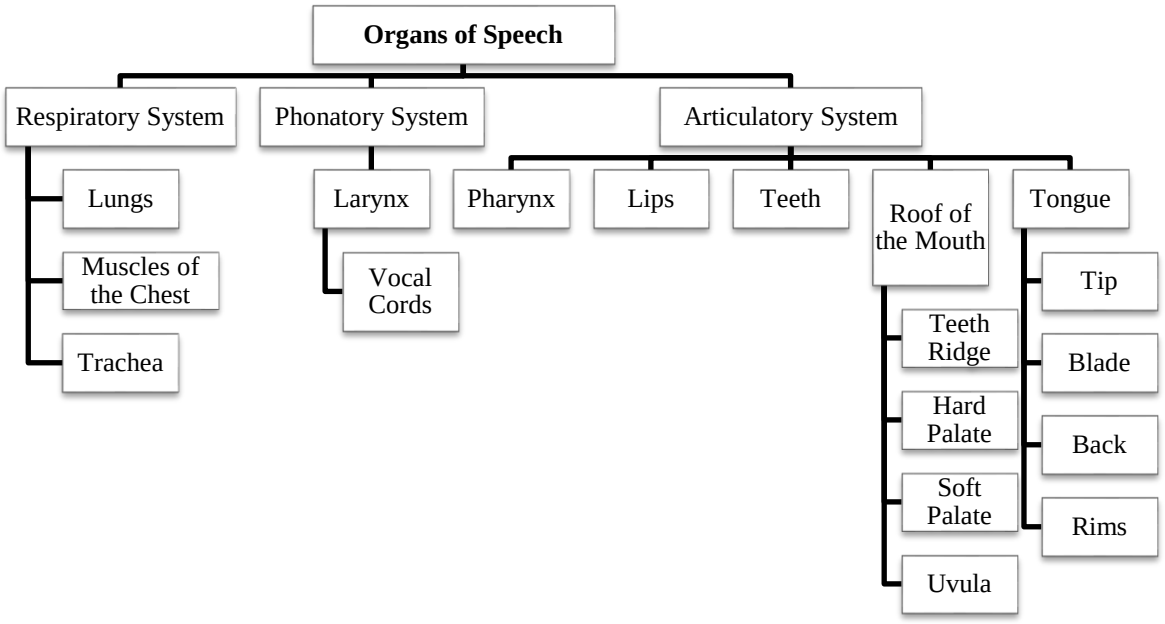
Sub-divisions of the tongue

Though there are no divisions drawn on the tongue but we divide the tongue into different imaginary parts. The part opposite to the teeth ridge is called the **blade** of the tongue. The part opposite to the hard palate is called the **front** of the tongue and in front of the velum is the **back** portion of the tongue.

3.2.4 Active and Passive Articulators:

Before going into the details of the speech sounds, we need to first understand the difference between the active and the passive articulators. *Active articulators* are those speech organs which move from their original position towards those organs which either do not or cannot move. For example in the production of the sound **f** the lower lip moves towards (and touches) the upper teeth. Hence the lower lip is the active articulator and the upper teeth are the passive articulator.

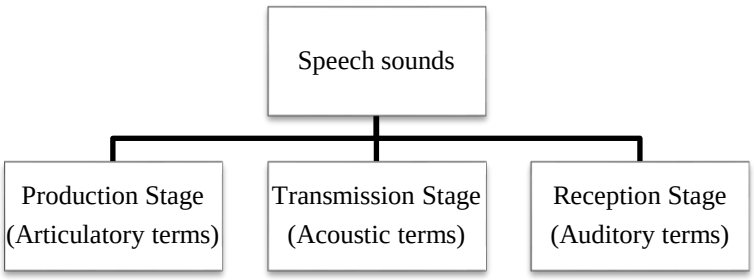
We know that that unlike the upper jaw, the lower jaw in humans is movable so most of the active articulators are in the lower jaw and the passive articulators are in the upper jaw. It is interesting to note that the soft palate is an exception to this rule. When it is raised to block the nasal passage for the production of the oral sounds, it is an active articulator. Contrary to this when the hind portion of the tongue is raised towards the soft palate (which itself remains static) for the production of the sounds like **k (क/ک)** and **g (ग/گ)**, the soft palate becomes the passive articulator.



(Sethi & Dhamija: 10)

3.2.5 Classification of Speech Sounds:

In the section to follow we shall discuss how speech sounds can be described and classified. Speech sounds can be studied at the following three stages –



In simple terms, the production stage is the process of articulation of speech organs to bring about modification in the air stream for producing a given sound. The transmission stage pertains to the physical properties of the speech sounds produced and the reception stage associates with the features of the sound as perceived by the listener. Here, we shall concentrate on the description and classifications of sounds mainly in articulatory terms and partly in auditory terms. The two categories of speech sounds, vowel and the *consonants* are described best in terms of their articulation.

3.2.5.1 Consonants:

In order to understand the articulation of the consonant sounds, we need to look for the answers to the following questions –

- Is the air stream egressive or ingressive? (if the sound is produced while air is pushed out of the lungs, the sound is egressive. Almost all the languages follow the egressive sound system)
- During the production of the sound, do the vocal cords vibrate or not? (if the vocal cord vibrate, the sound is voiced else voiceless)
- What is the position of the soft palate? (a raised soft palate will produce only the *oral* sounds whereas lowered soft palate will produce either *nasal* or *nasalized* sounds.)
- What is the place of articulation? (it is determined by the passive articulator for example during the production of the initial sound in the English word *fan* the lower lip which is the active articulator moves towards the upper teeth which is

the passive articulator; so the place of articulation for the sound **f** will be the upper teeth)

- What is the manner of articulation? (it refers to the kind of closure / narrowing of the air passage by the articulators. For the production of the initial sound in the word *pan* (प/پ) both the lips join and block the air passage. The air is then released with a sudden burst)

We shall now describe the place of articulation and manner of articulation in detail.

3.2.5.2 Place of Articulation:

The following are the main places of articulation for consonant sounds –

a. **Bilabial:** The articulators are the two lips.
   Example: the initial sound in the words *pin* (प/پ) and *bin* (ब/ب)

b. **Labio-dental:**
   Active articulator: lower lip Passive articulator: upper teeth
   Example: the initial sound in the words *fan* (फ़/ف) and *van* (व /و)

c. **Dental:**
   Active articulator: tip of the tongue Passive articulator: upper teeth
   Example: the initial sound in the words *thing* (थ/تھ) and *then* (द /د)

d. **Alveolar:**
   Active articulator: blade/tip of the tongue Passive articulator: teeth ridge
   Example: the initial sound in the words *top* (ट /ٹ), *den* (ड /ڈ), *sun* (स/س), *zero* (ज़/ز), *nest* (न/ن) and *look* (ल/ل)

e. **Post-alveolar:**
   Active articulator: tip of the tongue Passive articulator: teeth ridge
   Example: the initial sound in the word *red* (र /ر)

f. **Retroflex:**
   Active articulator: underside of the tip of the tongue
   Passive articulator: front portion of the hard palate

Example: the initial sound in the Hindi words टोपी (ٹ) and डोल (ڈ). In the production of these sounds, the tip of the tongue is curled back in such a manner that its underside touches the hard palate. English doesn't have any retroflex sounds.

g. **Palato-alveolar:**

Active articulator: blade of the tongue Passive articulator: teeth ridge

At the same time the front of the tongue is raised towards the hard palate.

Example: the initial sounds in the word *China* (च /چ), *jungle* (ज/ج), *shine* (श/ش), and the middle sound in the word *plea**s**ure* (ژ)

h. **Palatal:**

Active articulator: front of the tongue Passive articulator: hard palate

Example: the initial sound in the word *yarn* (य/ی)

i. **Velar:**

Active articulator: back of the tongue Passive articulator: soft palate

Example: the final sound in the words *pick* (क /ک) and *rug* (ग /گ)

j. **Uvular:**

Active articulator: back of the tongue Passive articulator: uvula

Example: the initial sound in the Urdu word for 'pen' قلم/ क़लम (क़ /ق) . There are no Uvular consonant sounds in English phonology.

k. **Glottal:** For the production of the glottal sounds, the two vocal cords are the articulators. The sound is produced by friction caused by obstruction / narrowing down (not by vibration) of the vocal cords.

Example: the initial sound in the word *horn* (ह/ہ)

3.2.5.3 Manner of Articulation:

As already mentioned the *manner of articulation* indicates the kind of closure or narrowing involved in the production of the speech sound. On the given basis the consonant sounds are classified into the following nine categories.

a. **Plosive:** A complete closure in the vocal tract for the passage of air builds a pressure at the site of closure. The pressure is released suddenly as the closure is removed resulting in the production of plosive sounds.

Example: the initial sounds in the English words *pan* (प / پ), *bin* (ब / ب), *take* (ट / ٹ), *day* (ड / ڈ), *king* (क /ک), *game* (ग /گ).

b. **Affricate:** The air passage is closed completely which lets the pressure of air build and then the articulators move apart slowly resulting in a gradual release of the blocked air.

Example: the initial sounds in the English words *chain* (च / چ) and *jail* (ज /ج).

c. **Nasal:** During the production of nasal sounds, the soft palate is lowered blocking the oral passage completely but the nasal passage is left open and the air passes freely through the nasal passage.

Example: the final sounds in the words *sum* (म / م), *sun* (न /ن) and *sing* (अं/سنگ)

d. **Roll:** Unlike the plosives, nasals and affricates, during the production of roll sounds there is no blockage of the air passage. What is important to note here is the *repeated taps*. The tip of the tongue (active articulator) taps repeatedly against the alveolar ridge (passive articulator).

Example: the second sound in the English word *bright* (र / ر)

e. **Flap:** As against the roll sounds when the tip of the tongue taps just once against the passive articulator, the sound produced is called a *flap*.

Example: the middle sound in the Hindi word *jo<u>r</u>na* (जोड़ना / ڑ)

In English phonology, the **<u>r</u>** sound is most of the times pronounced as a flap when it falls between two vowel sounds (boring, precarious)

f. **Lateral:** A partial closure in the mouth allowing the stream of air to pass continuously through either or both sides of the contacts results in the production of *lateral* sounds.

Example: the initial sounds in the English word *late* (ल / ل) and the Hindi word लड़ना (la<u>d</u>na).

g. **Fricatives:** Like the *lateral* sounds, in the production of the *fricatives* too there is no total obstruction of the air stream instead there is a narrowing of the passage through which the air is passes with an audible friction. This movement

of air may continue for some time and so does the fricative sound. Hence it is also termed as continuant.

Example: the initial sounds in the English words *fan* (फ़ / ف), *van* (व / و), *thank* (थ / تھ), *than* (द / د), *son* (स /س), *zero* (ज़ / ز), *shoe* (श / ش), *heat* (ह / ہ)

h. **Frictionless Continuant:** We know that if a sound is produced with an audible friction due to narrowing down of the oral passage, it is called *fricative*. But if the narrowing of the passage is not enough to cause audible friction, the sound produced is called *frictionless continuant*.

Example: the initial sounds in the Hindi word वीरता – [*veerta*] (व / و)

i. **Semi-vowel:** These are vowel sounds which function as consonants.

Example: the initial sounds in the English words *wait* (व /و), *yawn* (य / ى)

Sethi & Dhamija very aptly point out that "the English **v**-sound is a fricative, the English **w**-sound a semi-vowel, and the Hindi व [v] sound a frictionless continuant." (1989:22)

3.2.6 Vowels:

As already mentioned earlier it is the passage of air stream which distinguishes the articulation of vowels and consonants. Collins dictionary describes vowel as "a voiced speech sound whose articulation is characterized by the absence of friction causing obstruction in the vocal tract, allowing the stream of air a free passage." In other words, vowels can be said to be a tone (hum) which is produced by the vibration of the vocal cords in the glottis making it a voiced sound.

3.2.6.1 Description:

The articulation of a vowel sounds is determined by the following –

a. Whether the soft palate is raised (oral vowel sounds) or lowered (nasalized vowel sounds:- All English vowels are oral which means that in the production of the English vowel sounds, the soft palate is always raised. However there are nasalized vowels in Hindi language which are produced with lowered soft palate (example: **ईंट**)

b. The shape of the lips (spread, normal or rounded):- The lips can assume a number of shapes in the process of production of the vowel sounds.

Spread	as in the word 'egg'
Neutral	as in the word 'girl'
Open	as in the word 'star'
Open rounded	as in the word 'shot'
Close rounded	as in the word 'shoot'

c. The position (height) of the tongue:- We know that the tongue is divided into three (imaginary) parts *viz.* front, central and back. The part of the tongue which is raised in the production of the vowels define if the vowel is a *front vowel, back vowel* or a *central vowel*.

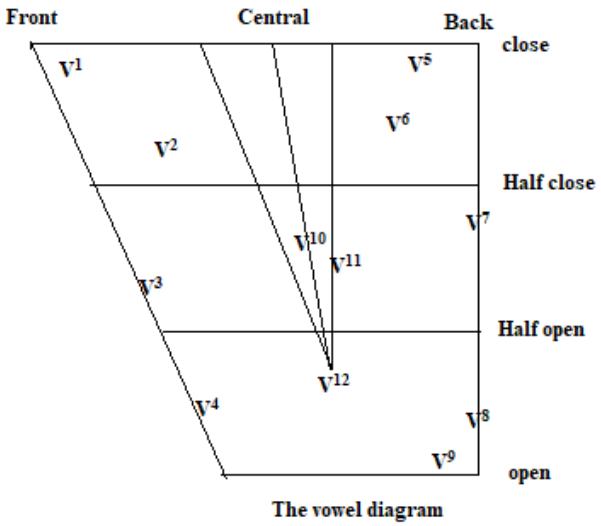
Any part of the tongue can be raised to any degree towards the palate. Let us see in detail the various possibilities.

For the production of the vowels, the tongue is raised only to the height that there is no audible friction (an audible friction would turn the sound into a consonant). Similarly the tongue is lowered only to the point that there is no audible friction. The vowel sounds produced when the tongue is raised to the highest possible point are called *close vowels*. Contrary to this when the tongue is at the lowest position, *open vowels* are produced.

Example: During the production of the vowel sounds in the English words *p**ee**l* (ɪ:/ई) and *p**oo**l* (u:/ ऊ), the front of the tongue and the back of the tongue are raised respectively to the highest point.

Between the open and close position, two more positions have been identified i.e. *half close* and *half open*. These positions are equidistant from extreme open and close positions.

Example: The pronunciation of the words *pit, peal, pet* and *pat* illustrate the production of *half close* and *half open* vowel sounds.



The vowel diagram

3.2.6.2 Simple vs Complex Vowels:

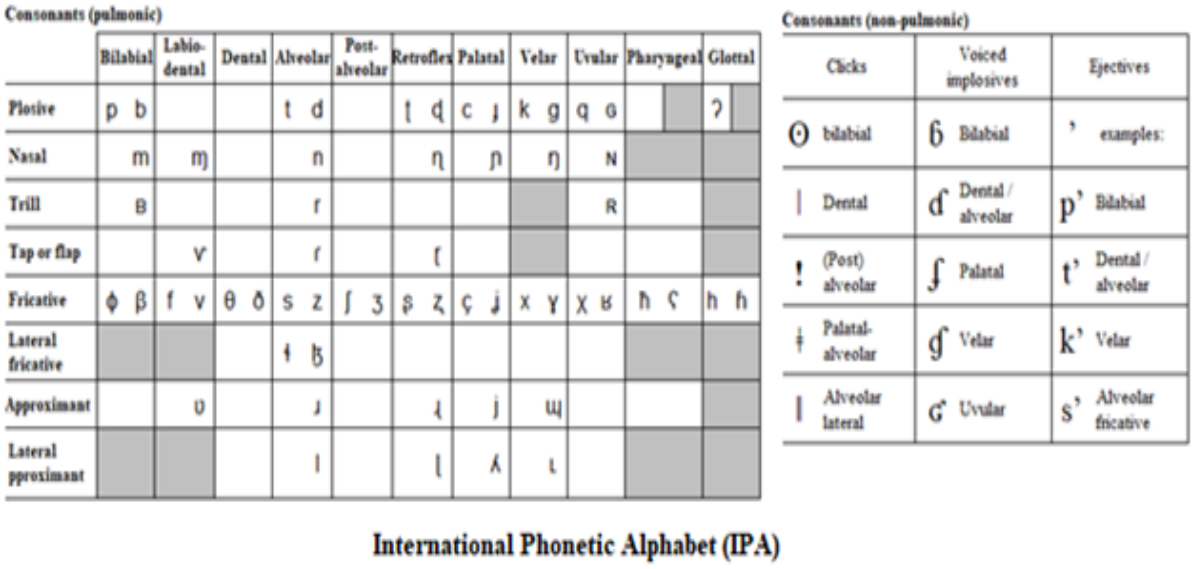
We have seen that during the production of the vowel sounds, the tongue position remains same and so does the quality of the vowel. Such vowels are called *simple / pure* vowels or **monopthongs**. However there is a possibility that the tongue might change its position during the process of the production of the vowel sound. This results in the quality of the vowel. Such vowels are called *complex* vowels or *diphthongs*. As the tongue moves smoothly from one position to the other, these vowel sounds are often termed as **glide** too. (Example: the final sound in the English word *tie* wherein the vowel sound initiates from the open position and ends at the close position)

3.2.7 Phonetic Transcription:

It was realized that to represent the speech sounds was a real challenge as in English language, most of the times the pronunciation of the word is no perfect match to how that word is spelt. It is because of this reason many a times the non-native speakers of English end up in pronouncing the word incorrectly. So it becomes obligatory for us to distinguish between letters and sounds.

Example: *Bough* (/bau/) and *Cough* (/kɒf/); In spite of same ending letters, the latter ends in /f/ sound which is a consonant whereas the first word ends in a vowel sound. Similarly the **q** being a single letter produces a combination of **k** and **w** sounds in the words *quality, queen* and likewise.

So it was strongly felt to develop a set of symbols in which any language of the world could be written. In response to this need, the International Phonetic Association devised an alphabet which was called *International Phonetic Alphabet*. Any spoken language of this world can be easily transcribed using the International Phonetic Alphabet. The 26 Roman letters used in English language were insufficient to denote all the possible speech sounds so letters from Greek language (like ɸ, β, θ) were used as well.



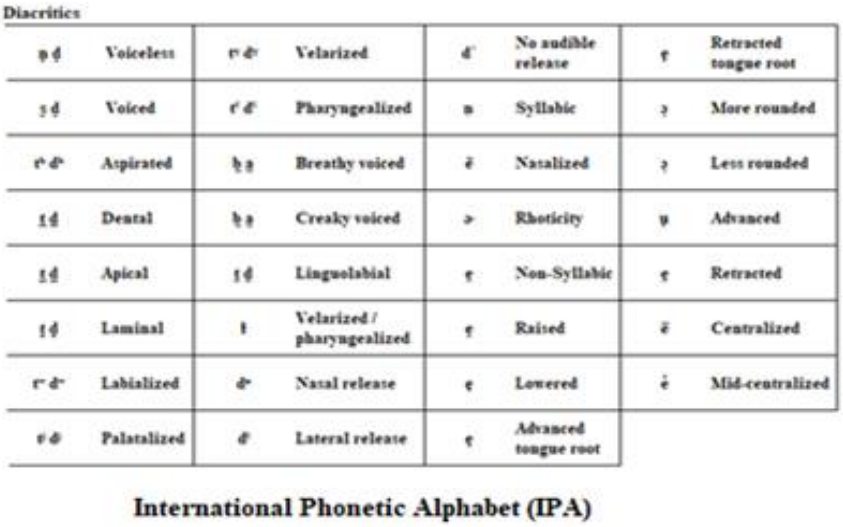
Consonants (pulmonic)

	Bilabial	Labio-dental	Dental	Alveolar	Post-alveolar	Retroflex	Palatal	Velar	Uvular	Pharyngeal	Glottal
Plosive	p b			t d		ʈ ɖ	c ɟ	k g	q ɢ		ʔ
Nasal	m	ɱ		n		ɳ	ɲ	ŋ	ɴ		
Trill	ʙ			r					ʀ		
Tap or flap		ⱱ		ɾ		ɽ					
Fricative	ɸ β	f v	θ ð	s z	ʃ ʒ	ʂ ʐ	ç ʝ	x ɣ	χ ʁ	ħ ʕ	h ɦ
Lateral fricative				ɬ ɮ							
Approximant		ʋ		ɹ		ɻ	j	ɰ			
Lateral approximant				l		ɭ	ʎ	ʟ			

Consonants (non-pulmonic)

Clicks	Voiced implosives	Ejectives
ʘ bilabial	ɓ Bilabial	’ examples:
ǀ Dental	ɗ Dental / alveolar	pʼ Bilabial
ǃ (Post) alveolar	ʄ Palatal	tʼ Dental / alveolar
ǂ Palatal-alveolar	ɠ Velar	kʼ Velar
ǁ Alveolar lateral	ʛ Uvular	sʼ Alveolar fricative

International Phonetic Alphabet (IPA)



International Phonetic Alphabet (IPA)

3.2.7.1 Phoneme and Allophones:

We know that all the spoken languages have definite number of distinctive sound units which are called *phonemes*. The term 'distinctive' has been used because these sounds are the smallest units which are used to differentiate meaning. Phonemes can easily be identified by taking into consideration *minimal pairs* (two words which differ only on one sound are called minimal pairs).

Example: *gate, rate, wait, hate, date*

These words are considered examples of minimal pairs as they differ with respect to only one sound (the initial sound). The replacement of that one initial sound (/g/, /r/, /w/, /h/, /d/) for the other would bring about a change in meaning.

The pronunciation of a phoneme may differ depending upon the position it occupies in the word of a particular language. The variants of the same phoneme are termed as its *Allophones*. Transcription using the phonemic symbols is indicated between two slant lines / / whereas transcription using the allophones is indicated between straight brackets [ ].

Example: In English language the phonemes /p/, /t/, and /k/ are pronounced as [p^h], [t^h], and [k^h] when they occur at the *initial accented* position in the word else their pronunciation remains as [p], [t], and [k].

	Phonemic Transcription	Phonetic Transcription	Remark
Pit	/pɪt/	[p^hɪt]	/p/ is in the initial accented position
Spin	/spɪn/	[spɪn]	/p/ is at the non-initial position
Tin	/tɪn/	[t^hɪn]	/t/ is in the initial accented position
Stick	/stɪk/	[stɪk]	/t/ is at the non-initial position
King	/kɪŋ/	[k^hɪŋ]	/k/ is in the initial accented position
Skit	/skɪt/	[skɪt]	/k/ is at the non-initial position

3.2.7.2 Syllable:

The next higher unit (to the smallest unit) of sound (phoneme) is called a *syllable*. A syllable is that part of the word which is pronounced in a single breath force. In terms of features, a syllable –

a. can have one or more phonemes
b. will necessarily have a vowel sound (syllabic consonants are exceptions)
c. may exist without a consonant sound
d. may exist independently in the form of a single vowel sound (example 'I' /aɪ/)

Syllable Division: We know that a syllable is a segment of speech sound which is pronounced in one breath force. On this basis the word *exam* can be divided into two syllables (eg-zam) but the word I examination will have five syllables.

Exam	/ɪg - ˈzæm/
Examination	/ɪg - ˌzæ - mɪ - ˈneɪ - ʃən/

3.2.8 Word Accent, Stress and Rhythm:

During the pronunciation of any multi-syllabic word, all the syllables are not spoken with equal prominence. For example in the word *exam*, the second syllable /zæm/ receives more breath force than the first syllable /ɪg/. The syllable which receives the prominence is said to be *accented*. Along with the accent if the pitch of sound also changes at the stressed syllable then the syllable is said to have the *primary/tonic accent*. Any other prominent syllable (other than the tonic syllable) is

said to have the *secondary accent*. Primary accent is denoted by a small vertical bar over the stressed syllable whereas the secondary stress is marked with a bar below (/ɪgˌzæmɪˈneɪʃən/).

Stress on the first syllable	Baggage	/ ˈbæ-gɪdʒ/
	Accident	/ ˈæk-sɪ-d(ə)nt/
	Calculate	/ ˈkæl-kjʊ-leɪt/
Stress on the second syllable	Because	/ bɪ-ˈkɔːz/
	Exception	/ ɪk-ˈsep-ʃ(ə)n
	Example	/ ɪg-ˈzɑːm-p(ə)l/
Stress on the third syllable	Disappear	/dɪs-ə-ˈpɪə/
	Introduce	/ ɪn-trə-ˈdjuːs/

The way one particular syllable is pronounced more prominently in disyllabic or polysyllabic words similarly at sentence level some words stand out in every utterance which has two or more words. The words (syllables in case of polysyllabic words) which are usually more prominently pronounced in utterances are called *accented*.

Examples:
1. He's ˈfound their ˈclassroom.
2. ˈCan you ˈmeet me toˈmorrow.
3. I ˈcouldn't ˈjoin the ˈparty.

On close observation, we realize that accented words in a sentence are usually the *content* or *lexical* words which carry the meaning of the sentence.

Words usually accented	**Words usually not accented**
Noun	*Articles*
Main verbs	*Auxiliary verbs*
Adjectives	*Preposition*
Adverbs	*Conjunction*
Interrogative & demonstrative pronouns	*Pronouns other than Interrogative & demonstrative*

Rhythm: A regular periodic repetition of a particular pattern of design, colour or sound is termed as *rhythm*. In music the periodic repetition of a particular beat is the rhythm of that musical piece. Similarly, in language, rhythm is the recurrence of a certain pattern of sound in the speech. The spoken languages of the world usually follow either of the following two rhythms.

Syllable-timed rhythm: In the languages following the syllable-timed rhythm the syllables (accented or unaccented) occur at equal time intervals. It means that the time taken between two accented syllables will be in proportion to the number of unaccented syllables between them. The French language follows the syllable-timed rhythm pattern.

Stress-timed rhythm: In the languages following the stress-timed rhythm, the two accented syllables usually fall at equal interval of time, irrespective of the number of unaccented syllables between them. English is one of the languages which follow the stress-timed rhythm.

3.2.9 Intonation:

During the production of *voiced sounds*, the vocal cords vibrate at varying rates. The cycles of vibration performed by the vocal cords in unit time is called *frequency of vibration* which determines the *pitch of the voice*. A close analysis makes us realize that there is hardly any language in the world which is spoken without any change in the pitch. During conversation, our pitch constantly keeps changing (keeps going up or down) and usually forms a pattern of variation which is called *tone*. This pattern of pitch variation is responsible for *intonation* of a language. The accented syllable at which there is a variation in pitch is said to be the tonic syllable. There are various ways in which the tone may change. Chief among them are the following –

a. Falling tone (change from high to low pitch)
b. Rising tone (change from low to high pitch)
c. Fall-rise tone (change from high to low and then again to high pitch)
d. Rise-fall tone (change from low to high and then again to low pitch)

It is important to note here that *intonation* is not used merely for melody purpose. It has a linguistic function too. A change in tone has the capability of bringing about change in the meaning of an utterance. Intonation usually performs the following three functions –

a. Grammatical function

b. Attitudinal function

c. Accentual function

Examples:	i.	He ˈisn't ˋcoming.	Falling tone – a declarative statement
	ii.	He ˈisn't ˏcoming.	Rising tone – statement intended to be a question
	iii.	They're ˇgood.	Fall-rise tone – statement with some reservation
	iv.	ˈHow ˆgood for him!	Rise-fall tone – sarcasm

3.3 Learning Outcomes

It is expected that upon the completion of this unit, students understand the concepts of *Phonetics* and *Phonology*. They are able differentiate between speech sounds in terms of place of articulation and manner of articulation. Further, the students are expected to have understood the importance of stress and intonation in spoken language. What they have learnt in this unit would help them improve their spoken language.

3.4 Glossary

Phonetic:	Pertaining to the production of speech
Phoneme:	The basic sound unit of a language
Trachea:	Also called the windpipe; air is breathed in and out through trachea
Pharynx:	A speech organ (it extends from the windpipe to the root of the tongue
Larynx:	Also called the voice box or glottis. It is the passageway for air between the pharynx above and the trachea below.
Vocal Cords:	A pair of finger like folds in the larynx
Palate:	The top part of the inside of the mouth

Oral Sounds: Sounds produced when the soft palate is raised and the air passes through the mouth only

Nasal Sounds: Sounds produced when the soft palate is lowered and the air passes through the nose only

Nasalized Sounds: Sounds produced when the soft palate is lowered letting the air pass through the mouth and nose

Vowel: Sounds during the production of which there is no significant obstruction of airstream

Consonants: Sounds during the production of which there is a significant obstruction of airstream

Pulmonic Egressive: Production of stream of air for speaking where in the air is forced out of the mouth

Pulmonic Ingressive: Production of stream of air for speaking where in the air is sucked in the mouth

Pharyngeal: Speech sound produced by a hindrance created in the pharynx

Cardinal vowel: A series of vowel sounds used as a standard reference point for identifying the vowels in actual languages

Diphthong: Combination of two vowel sounds pronounced together to produce one sound

Allophones: Phonemes that change their sound based on the position it occupies in a word

Phonetic Transcription: It is the representation of speech sounds with the help of allophonic symbols represented in square brackets [ ]

Phonemic Transcription: Representation of speech sounds in terms of phonemes between two slant lines / /

Syllable: A word or part of the word which has one vowel sound and is pronounced in one breath force

Stress: Degree of emphasis given to a word or syllable in speech

Rhythm: A regular periodic repetition of a particular pattern of design, colour or sound

Pitch: The relative highness or lowness of a tone which is heard

Intonation: Variation in the pitch of speech

3.5 Sample Questions

3.5.1 Objective Type Questions:

A. Choose the correct option to answer the following questions:

6. _____ produces the air required for the production of the speech sounds

   a. Articulatory system
   b. Respiratory system
   c. Phonatory system
   d. Illocutionary system

7. Nasalized sound are produced when the_____

   a. Soft palate is raised
   b. Soft palate is lowered
   c. Hard palate gets lowered
   d. Hard palate gets raised

8. During the production of diphthongs, the position of the tongue_____

   a. remains static
   b. doesn't play any role
   c. changes
   d. is a hindrance

9. Which of the following is an example of *open rounded* vowel?

   a. Pot
   b. Pool
   c. Pale
   d. Pill

10. Which of the following is usually not accented during normal speech?

a. Adverbs
b. Auxiliary verbs
c. Demonstrative pronouns
d. Main verbs

B. State weather the following statements are **True of False**

6. The vocal cords remain wide apart during normal breathing
   a. True b. False
7. Voiceless sounds cannot be heard by human ear
   a. True b. False
8. Vowel sounds are produced without the articulation of any speech organ
   a. True b. False
9. In the production of the *roll* sounds, the tongue is a passive articulator
   a. True b. False
10. In languages following the syllable-timed rhythm pattern, two accented syllables occur after equal number of unaccented syllables.
    a. True b. False

3.5.2 Short Answer Questions:

1. Give one example of each of the following –

   a. Glottal sound
   b. Fricative
   c. Affricate
   d. Pulmonic Egressive language

2. What is the role of the soft palate in the production of *nasalized* sounds?
3. Differentiate between phonetic and phonemic transcription
4. What is a semi-vowel?
5. Define (i) stress (ii) Pitch (iii) Stress-timed rhythm

3.5.3 Long Answer Type Questions

1. Write a detailed note on –
    a. Articulatory System
    b. Phonatory System
2. What do you understand by IPA? State its importance.
3. Write note on the importance and functions of Intonation

3.6 Suggested Reading

1. Abercrombie., *Elements of General Phonetics.* Edinburgh: Edinburgh University Press, 1967
2. Balasubramanian.T., *A Textbook of English Phonetics for Indian Students*. New Delhi: Macmillan, 1981.
3. Jones,D., O*utline of English Phonetics.* Cambridge: Cambridge University Press, 1975.
4. Roach, Peter., *English Phonetics and Phonology*. London: Cambridge University press, 1983.
5. Sethi, J. and Dhamija, P.V., *A Course in Phonetics and Spoken English.* New Delhi: Prentice Hall of India Private Limited, 1989.
6. Verma, S.K. and Krishnaswami, N., *Modern Linguistics- An Introduction.* New Delhi: Oxford University Press, 1989.

Unit-4: Morphology

Structure

4.0 Introduction

4.1 Objectives

4.2 Morphology

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4.0 Introduction

Words are the most easily identifiable objects in a language. Words carry meaning and show different forms when grammatical & phonological rules are applied to them. Words acquire various forms when they are used in a sentence or a context. However, the forms that a word may adopt are not random. Rather, the forms they adopt are governed by some rules. Therefore, it is important to study words. Morphology is the study of words, especially their internal structure and parts. Besides providing insights into the structure of words, morphology also informs us about the word formation processes. This chapter introduces the readers to morphology, a subfield of linguistics that focuses on the study of words, word forms and word parts. The readers will be able to notice how morphology analyses words and thereby illuminates the working of the mental lexicon. At first, this chapter offers a discussion on morphology and the relationship it shares with other subfields of linguistics. Following that, it discusses morphemes and their classification. Next follows, a discussion on the identification of morphemes and morphological processes. Then, it discusses lexemes, words and their classification from different standpoints. After that, it discusses the principal models and approaches for morphology. A discussion on morphological processes including inflexion and derivation comes in the final section.

4.1 Objectives

- To introduce the reader to basic morphology and widen their perception about the internal structures of words with illustrations from English.
- To acquaint the readers with various extant models and approaches to analyse words, word forms and word parts as building blocks of language.
- To make the readers aware of various types of affixation processes including prefixation, suffixation, infixation and circumfixation.
- To provide the readers with the skills to identify morphemes in various kinds of words and classify them from conceptual-theoretical standpoints.

- To enable the readers in understanding morphological processes including inflexion and derivation with illustrations from English.

4.2 Morphology

Human beings use language at different levels such as the following: the level of sounds and sound patterns, the level of words and word parts, the level of sentences and sentence parts, the level of paragraphs and discourses. Accordingly, the study of language also spans across different levels. Morphology is the study of words, their parts and their internal structures. Most scholars tend to give credit to Wolfgang von Goethe for inventing the term morphology in 1790. When we examine the term 'morphology' we notice that it has a Greek origin and its initial usage was in the field of Biology. The word 'morphology' is made up of two components including 'morph' that refers to shape/form and 'ology' that refers to study. Accordingly, morphology refers to the study of the shape/form of words. This study of shape/forms of words also includes word parts, especially those parts that occur in several words in the form of prefixes or suffixes. When we use language and form sentences, the words that participate adopt different shapes/forms. Our knowledge of language and grammar determines the most suitable shape/form a word should adopt when it is used. Therefore, morphology is also linked to word formation and lexicon. Let us examine the following sentences:

(a) I have a book.
(b) I have two books.

A noticeable difference between sentence (a) and sentence (b) is the addition of the plural marker 's' in the word book. These sentences indicate that the word 'book' as a noun can have two forms; book (singular) and books (plural). These sentences also indicate that 's' is a form that can serve as a word part and a plural marker for nouns. The following pairs of words further

illustrate these observations: book-books, cap-caps, blanket-blankets, lap-laps and nest-nests. On a similar pattern, let us examine some more words representing plural nouns of English.

Illustration-1: Plural formation in English nouns

Set	**Singular and plural nouns**	**Observations**
1	Cup-Cups, Cap-Caps, Book-Books, Cake-Cakes, Hut-Huts, Text-Texts and Task-Tasks.	Here, the small letter ‘s’ represents the plural marker and is pronounced /s/.
2	Car-Cars, Table-Tables, Cab-Cabs, Dog-Dogs and Bag-Bags.	Here, the small letter ‘s’ represents the plural marker and is pronounced /z/.
3	Class-Classes, Glass-Glasses, Bus-Buses, Branch-Branches, and Church-Churches.	Here, the letters ‘es’ represent the plural marker and are pronounced /iz/.
4	Ox-Oxen, Child-Children, and Brother-Brethren.	Here the letters ‘en’ represent the plural marker and are pronounced /en/.
5	Fish-Fish, Jewellery-Jewellery, Furniture-Furniture, Evidence-Evidence and Water-Water.	Here, both singular and plural forms are identical. There is no letter to represent the plural marker and no change in pronunciation.

The variegated use of words in day-to-day communication, indicates two interesting points; (a) Human beings possess a huge vocabulary in their mind that they use according to situations, and (b) Human beings are aware of rules and conditions that produce new words and different grammatical forms of the same word. Therefore, the study of words, word forms and word parts has the potential to illuminate the working of the mental lexicon possessed by human beings.

4.2.1 Morphology and Other Subfields of Linguistics:

Linguistics is an organised and systematic study of languages. It is a well-established discipline that focuses on various aspects of the human language including its sounds, sound patterns, words, word parts, sentences and sentence parts. Morphology is a subfield of Linguistics that deals with the internal structures of words and the patterns in which words develop. Morphology focuses on words and word parts, but it has logical and demonstrable connections with phonology (the subfield that deals with sound patterns), syntax (the subfield that deals with the structure of sentences) and semantics (the subfield that deals with meaning). Though morphology is considered a theoretical subfield of Linguistics it has regular interactions with applied areas of Linguistics. For instance, linguists and researchers interested in dialects and varieties of a language often consider variations at the morphological level for their analysis. The typologists utilise the ideas of morphology for demonstrating the distinctions and relatedness between languages. Speech therapists use the knowledge of morphology to diagnose the precise points and degrees of language problems in their subjects. Those interested in language acquisition employ the findings of morphology in studying the development of language in children. The findings of morphology are of immense benefit for language instructors.

The morphologists and experts in the subfields described above focus on words and word forms when they carry out their tasks. Though morphology interacts with various subfields, all morphological operations occur at the word level. It would not be wrong to say that morphology is all about ‘words’ which is such a familiar concept that everyone thinks s/he knows it. Words are the most familiar and interesting entities in a language. In what follows, let us see what words are made up of.

4.2.2 Morphemes and Their Types:

The term ‘morpheme’ refers to such units of a word that cannot be further divided into meaningful components. It is an abstract concept that is represented using curly brackets. Consider the word *impatiently* in the sentence ‘He impatiently opened the gift’. The word ‘impatiently’ here can be divided into three parts namely {im}, {patient} and {ly}. These parts are morphemes because they communicate some meaning or perform some function and cannot

be divided any further. Now, consider the word ‘impact.’ The word ‘impact’ cannot be divided as {im} and {pact} because these components would not mean anything relevant to the word impact. So, it is important to distinguish a **morph** (the phonological realisation of a morpheme) from a non-morph or pseudo-morph. Interestingly, the English lexicon has plenty of words with which one can understand the morphs and non-morphs. Not only this, but one can also understand **allomorphs** (the different phonological realisations or variants of a morpheme) and zero morphs (morphemes that have no phonetic realisation). Alternatively, different forms of morphemes offer insights into different forms of words and the richness of the vocabulary of a language. The interest in different kinds of morphemes is natural and perhaps that is why scholars have adopted different parameters for the classification of morphemes. Conventionally, morphemes are represented by curly brackets. A small dash before or after the morphemic boundary or on both sides of a morpheme indicates the direction(s) in which it would permit addition. Accordingly, the morphemes {re}, {de}, {in}, {pre} and {un} represented as re-, de-, in-, pre- and un- indicate the possibility of attachment on the right boundary. Similarly, the morphemes {ly}, {est}, {ed}, {fy} and {ful} represented as -ly, -est, -ed, -fy and -ful point to the possibility of addition to their left boundary. A morpheme {dear} written as -dear- indicates that it can take morphemes on both sides and result in a word like ‘*endearing*’. These conventions for representing a morpheme are seldom practised in day-to-day language use. However, linguists and experts of morphology use these conventions to describe the morphemes accurately. Morphemes are very important to understanding the patterns of a language. Let us examine them criterion by criterion.

On the basis of the autonomy criterion, morphemes are classified as **free morphemes** and **bound morphemes**. A free morpheme is isolatable and can occur freely as words. Consider the word ‘pen.’ This word can be isolated and can occur freely. Since {pen} cannot be further divided into smaller meaningful components it is a free morpheme. In contrast, a bound morpheme is isolatable but it cannot stand on its own like words representing free morphemes. Bound morphemes can occur as affixes but not as words. Consider the word ‘pens.’ This word can be divided into two morphemes {pen} and {s}. In this example, {pen} is a free morpheme whereas {s} is a bound morpheme.

On the basis of function criterion, words can be **monomorphemic** or **polymorphemic**. Monomorphemic words have a single morpheme. For instance, the words cat, cap, hat, book, a, an, the etc have a single morpheme in them. In contrast, polymorphemic words have more than one morpheme. For instance, the word 'mismanagements' may be divided into four morphemes (i) mis- (ii) -manage- (iii) -ment- and (iv) -s.

On the basis of grammaticality criterion, morphemes are classified as **lexical morphemes** and **grammatical morphemes**. A lexical morpheme is a that expresses lexical meaning or contributes to the meaning aspect. Consider the word 'unhappy.' This word can be divided into two morphemes {un} and {happy}. While {happy} as a lexeme contributes to the meaning of the word, {un} also contributes to the meaning of the word 'unhappy'. In contrast, a grammatical morpheme mainly provides obligatory information and appears like a bound morpheme when nouns show declension for plural numbers or verbs show declension for tense. Consider the morpheme {s} in words like kites, caps, pets, books and bikes.

On the basis of orthographic form, morphemes can be classified as continuous morphemes and discontinuous morphemes. Let us discuss empty morphemes and zero morphemes as two formally recognised types. **Empty morphemes** are morphemes that have forms but no meaning. In other words, empty morphemes have phonetic structures but no semantic content. For example, consider {cran} in the word cranberry. In contrast, **zero morphemes** are morphemes that are present even without phonetic or orthographic realisation. In other words, a zero morpheme is an invisible morpheme because it does not have a phonetic form but it modifies the meaning. For examples consider the plural of the following words *sheep*, *jewellery* and *fish*. The past tense of words such as *read*, *cut* and *hit* also serve as examples of zero morpheme.

Usually, morphemes are understood to carry only one meaning. However, **portmanteau morphemes** are morphemes that can express more than one meaning. A portmanteau morpheme

is a single morph that contains/represents two or more underlying morphemes. Portmanteau morphemes are also known as mega-morphemes and cumulative morphemes as they convey multiple meanings and represent a blend of two or more underlying words. Consider the following examples: mokumentary = mock+documentary, infotainment = information+entertainment) and ginormous = gigantic+enormous.

Clictics refer to a relatively less discussed type of bound morpheme. Clictics are phonologically conditioned morphemes that behave like a syntactic element. Clitics do not appear like free words. Rather, they appear like clipped or shortened words. In English morphology, clictics occur frequently and manifest diverse forms. Clitics are observed in all possessive markers on nouns, shortened forms of negative modals and contracted forms of auxiliary verbs. For example, consider the following:

Clitics in possessive genitive: father's name, children's school and teacher's day.

Clitics in shortened negative: can't, won't, didn't, don't and shouldn't

Clitics in contracted auxiliaries: you're, I'm, we're, they've and I'll

The preceding discussion on morphemes may help understand the different forms that words adopt when language users communicate. This discussion also highlighted some types of morphemes with which it becomes easier to understand and analyse words.

Check your progress

A. Divide the following words in free and bound morphemes: Regulatory, Openly, Running, Deforestation, Management

   Free morphemes:

Bound morphemes:

B. Identify clitics in the following sentence: I'll come to the party but I won't eat the Domino's pizza because they aren't tastier than the home-made ones.
Clictics:

4.2.3 Identification of Morphemes:

An important task in morphology is to identify the morphemes of all kinds. In this task, the principles proposed by Eugene A. Nida in 1949 are indeed very helpful. Nida proposed six principles for the identification of morphemes. Let us understand the ones that are relevant to the ongoing discussion.

Principle 1: "Forms which have a common semantic distinctiveness and an identical phonemic form in all their occurrences constitute a morpheme."

Explanation: This principle states that forms that have the same meaning and pronunciation in all their occurrences are morphemes.

Examples: -er in words like fighter, teacher, driver, builder, & helper and -s in words like books, caps, hats, claps, cats & bats. Here we notice that -er is a morpheme which when attached to verbs like fight, teach, drive & build results in a noun and -s is a morpheme which when combined with nouns like cap, hat, clap, cat & bat results in their plural forms. With this consistent behaviour, both -er and -s qualify as morphemes in English.

Principle 2: "Forms which have common semantic distinctiveness and but which differ in phonemic form may constitute a morpheme provided the distribution of formal differences is phonologically definable."

Explanation: This principle states that forms that have the same meaning and differ only in pronunciation in such a way that the difference can be explained in all their occurrences are morphemes.

Examples: -s in the words like books, hats, claps, bikes & chats and -z in words like cabs, bags, hands, cars, & dogs. Here we notice that -s and -z represented by the small letter 's' are morphemes because they occur with nouns depending upon the voicing of the word-final consonant and make them plural. In nouns having voiceless consonants in word final position the plural marker 's' is pronounced -s whereas in nouns having voiced consonants in word final position the same plural marker 's' is pronounced -z.

Principle 3: "Forms which have a common semantic distinctiveness, but which differ in phonetic form in such a way that their distribution cannot be phonologically defined constitute a single morpheme, if the forms are in complementary distribution."

Explanation: According to this principle, forms that have identical semantic content and grammatical role but they differ in pronunciation and occur in such a way that only one member of the set can be present at a time. This also explains the prevalence of allomorphs.

Examples: The plural markers in nouns such as *rats*, *bars* and *houses* have the same semantic value and grammatical role but different pronunciation. Also, the members of this set are in complementary distribution i.e., morpheme {s} is present, the morpheme {z} of bars and the morpheme {iz} of houses do not occur in the same word.

Principle 4: "An overt formal difference in a structural series constitutes a morpheme, if in any number of such series the overt formal difference and a zero structural difference are the only significant features for distinguishing a minimal unit of phonetic semantic distinctiveness."

Explanation: A morpheme can exist even without phonological realisation. Therefore, the plural marker absent in the plural form of words such as fish, furniture, jewellery, deer and evidence may be understood as zero morpheme or null morpheme (represented by a ∅ symbol).

Examples: The past tense and past participle forms of the verbs cut, put, bet, recast, reset and cost have spelling and pronunciation identical with the present form of these verbs. It would be wrong to assume that these verbs do not have past form. Rather, in these cases, a null/zero morpheme is added to the base form.

Principle 5: "Homophonous forms are identifiable as the same or different morpheme on the basis of the following conditions:

Condition-1: "Homophonous with distinctly different meanings constitute different morphemes."

Condition-2: "Homophonous forms with related meanings constitute a single morpheme if the meaning classes are paralleled by distributional differences, but then constitute multiple morphemes if the meaning classes are not paralleled by distributional difference."

Explanation: Forms that are similar in sound but different in spelling may constitute different morphemes.

Examples: *Read* (as in past tense of the verb read) and *red* (colour)

Principle 6: "A Morpheme is isolatable if it occurs under the following conditions:

Condition-1: "In isolation"

Condition-2: "In multiple combinations in at least one of which the unit with which it is combined occurs in isolation or other combinations"

Condition-3 "In a single combination, provided the element with which it is combined in isolation or in other combinations with non-unique constituents."

Explanation: Hepax or forms that occur only once in the language or have very restricted occurrence are morphemes.

Example: The instances of cran and rasp are singular in words like cranberry and raspberry.

The six principles suggested by Nida have limitations and may not be applicable for all languages, but they are exceedingly helpful for the identification of morphemes in English. They also help the language instructors and speech therapists classify language problems precisely and work on remedies.

Check your progress

A. Using Nida's principles identify any ten distinct morphemes in the following text: *I'd bought cranberries and cut them to see what's there inside. I was surprised to see that cranberries didn't have crans*.
   Morphemes:

B. Examine the plural markers in the following nouns and identify the principle that can explain them: Caps, Cars, Churches.
   Principle ……..

C. Examine the bound morpheme in the following words and identify the principle that can explain them: Cut (past verb form), Read (past verb form), Fish (plural noun form), Deer (plural noun form)
   Principle ……..

4.2.4 Morphological Processes:

It is interesting to note that words are not always used as they are known to the language users or as they are listed in the dictionary of the language. Words in their free forms are called lexemes and are the basic units of the lexicon of a language. These lexemes undergo morphological processes to become words when they are used in a sentence or a context. Therefore, it is

important to understand the morphological processes that participate in word-formation processes and convert a lexeme into a set of words. Let us first understand some key concepts related to morphological processes.

Lexeme: The term lexeme refers to the basic unit of the lexicon. It may contain a single word or a set of words. A lexeme may also be understood as a head entry in a dictionary that undergoes changes to produce various derived words. Lexemes are abstract units of morphological analysis. However, understanding a lexeme is important because it can help in understanding a group of related words or word forms. Consider the word 'teach' as an example. The lexeme 'teach' can produce the following words: teach, teaches, teaching, taught, teacher, teachers, teachable, and teachability. In this set or paradigm, it is easy to notice that 'teach' is a lexeme and all other members are related to it despite belonging to different grammatical categories. Do you notice a similar pattern for the lexeme 'learn'?

Base, root and stem: A base is a word form to which additions of morphemes and modifications take place resulting in the production of new words and word forms. A root is the smallest chunk that acts as the core of the word and does not change despite additions, modifications and productions of new word forms. A base may contain root and stem. A root can also act as a stem or base to which additions and modifications happen through morphological processes. Some common morphological processes include affixation, reduplication and modification. Among these, affixation is very common in English.

Affixes and affixation: An affix is a bound morpheme that is added to another morpheme or word and the process is known as affixation. In this process, a new word is generated. The morpheme or word to which an affix is added serves as a stem or root or root word. The affix as a bound morpheme can appear in the beginning or at the end of the free morpheme/word.

The term prefix refers to a bound morpheme that appears at the beginning of a free morpheme and produces a new word form. For example, consider the morpheme {in} in words like

incapable, inability, independent, and instability. Similarly, the morpheme {un} is a prefix in words like unimportant, untrue, unbelievable and unprepared. The process by which a prefix is added to a free morpheme or a word is called prefixation. In other words, prefixation is a process to derive new word forms by adding a prefix. In contrast, the term suffix refers to a bound morpheme that appears at the end of a free morpheme and produces a new word form. For example, consider the morpheme {ly} in words like hardly, rarely, readily, calmly and newly. Similarly, the morpheme {ment} is a suffix in words like announcement, development, achievement, excitement and appointment. The process by which a suffix is added to a free morpheme or a word is called suffixation. In other words, suffixation is a process to derive new word forms by adding a suffix. The outcome of prefixation and suffixation may be a new word of the same grammatical category or a different grammatical category. Also, depending upon the kind of affix the new word form may have similar or opposite and related or unrelated meanings.

General communications show frequent use of affixes and suffixes. Therefore, both prefixation and suffixation are highly productive morphological processes in English. The morphological processes found in other languages such as infixation and circumfixation are not very frequently occurring in English. However, it would be interesting to know them. An infix is an affix or a bound morpheme that appears within a base or root and produces a new word form. For example, consider the expression *my-bloody-self*. Here {bloody} is a bound morpheme that serves as an infix. In this expression, {bloody} is inserted within the base 'myself'. It is easy to notice that the insertion of an infix is within the base whereas the prefixes and suffixes are added to the boundaries of the base. A circumfix is yet another type of affixes that is not so frequently occurring in English. A circumfix is a bound morpheme having two parts that appear at the start and end of a base. Circumfixes may seem like a morpheme in which a prefix and suffix are clubbed. Therefore, a circumfix as an affix may be understood as a mirror image of an infix. The morphological process by which a circumfix is added to a base is known as circumfixation. For example, consider the morpheme {en} in the word 'enlighten.' Similarly, the word 'embolden' has a circumfix whose two parts are {em} and {en}. Among the various kinds of affixes, prefixes and suffixes are common.

Reduplication: Reduplication is a morphological process in which a morpheme or a word repeats to produce another word. For example, consider the following words: dilly dally, tick-tock, ping pong, hanky panky and bye-bye. From these examples, it is evident that the reduplication process involves a morpheme or word repeating itself partially or completely. Some examples of reduplication show the reduplicant part copying the base entirely. Consider the expressions knock-knock, bye-bye, ga-ga, so-so, bling-bling and blah-blah. Baby words like ta-ta, boo-boo, goody-goody, night-night, and tum-tum also show full reduplication. When the entire form is not repeated, the reduplicant or reduplicated part may echo the left edge or the right edge of the base. For example, consider the following words: pitter-patter, okey-dokey, hip-hop, nitty-gritty, zig-zag, see-saw and film-flam.

Check your progress

A. Identify prefixes and suffixes in the following words: Unrecognisable, Irresponsible, Illogical, Unreasonable, Inability.
   Prefixes:

   Suffixes:

B. Identify the root and stem in the following words: Pronunciations, Harmlessness, Festivities, Actualization, Decolonisation.
   Roots:

   Bases:

4.2.5 Words and Their Types:

Words are often understood as strings of letters that are separated by blank spaces on their boundaries. Words are also understood as minimum free forms in the sense that they can occur freely. However, in context-free environments, words are called lexemes. A lexeme is a unit that

can refer to a word or a set of related word forms. Though words mostly occur in combinations and in the surrounding of other words, sometimes a word can exist as an independent form also. When a word occurs in a sentence or situation it can move and swap positions. Since most definitions highlight morphology as a study of the internal structure of words, it is important to discuss what a word is. Word is usually defined with semanticity (the property of meaning) and isolatability (the property of separability).

Content words and Function words

In grammar, words are classified into several groups such as nouns, pronouns, verbs, adjectives, adverbs, determiners, prepositions, conjunctions etc. However, words can also be organised in two groups; content words and function words. Words that carry meaning and refer to abstract or concrete objects, actions and qualities are called content words. It is an open and infinite class in the sense that new members (words) can be added to it. The class of content words includes nouns, verbs and adjectives. In contrast, words that perform grammatical functions and act as links between content words are called function words. It is a closed and repetitive class in which new members (words) cannot be added to it. The class of function words includes pronouns, prepositions, conjunctions, question words etc. Let us examine the following sentence: She has bought a beautiful car. In this sentence, the words *bought*, *beautiful* and *car* are content words whereas *she*, *has*, and *a* are function words.

Simple words or Simplex and Complex words

Morphemes refer to words or parts of words that are smallest and indivisible and have a meaning component or a grammatical function. If a word has only one morpheme it is called a simple word or simplex. Words such as *pen*, *come*, *red*, *the*, he and *of* are simple words or simpex because they are made up of only one morpheme and cannot be further divided. In contrast, a word that has two or more morphemes is called a complex word. Words such as *writers*, *adjustments*, *annoyingly*, *pens* and *coming* are complex words because they have two or more

morphemes. The morphemes in a complex word like teachers are identified as follows: (1) teach- (2) -er-, and (3) -s.

Check your progress

A. Examine the following words and rearrange them in groups of content words and function words: do, wish, dream, house, I, to, exam, wonderful, an, what, no, fly, ask, red, clever, you

   Content words:

   Function words:

B. Examine the following words and rearrange them in groups of simple words and complex words: examination, sleeps, dehydration, sell, fine, annoying, electrification, allow, untrue, unhelpful, we, bulb, fans, virus

   Simple words:

   Complex words:

4.2.6 Models and Approaches to Morphology:

Scholars have shown interest in morphology for a long time. The earliest works on language (for instance, Panini's *ashtadhyayi*) mainly focus on morphology. Consequently, various models and approaches have emerged. Some models and approaches show similarities with each other while others are diagonally opposite to each other. According to Aronoff and Fudeman (2011), the approaches to the study of morphology can be classified into two groups; analytic approach and synthetic approach. The analytic approach focuses on logically dividing the words into smaller units for further analysis. In contrast, the synthetic approach focuses on putting together smaller pieces into a larger unit. The two approaches have been complementary to each other, however,

some scholars believe that analysis precedes synthesis. In the modern study of morphology, three distinct approaches emerged and received a lot of scholarly attention. These approaches are as follows:

Item and arrangement approach. Considering morphemes as the minimal unit of meaning, this approach focuses on the linear arrangement of morphemes. Promoted by Leonard Bloomfield and Charles F. Hockett, this approach is also known as a morpheme-based approach.

Item and process approach. Considering lexemes as the items on which rules are applied to produce word forms, this approach focuses on the isolation of lexemes and the sequence of morphemes that follows through different processes. This approach is also known as a lexeme-based approach.

Word and paradigm approach. Considering words as the minimal units, this approach focuses on paradigms. This approach argues against anything less than a word to be analysed in morphology. This approach is based on the whole word and that is why it is also known as a word-based approach.

The long interest of scholars in morphology and the structural variations in languages of the world have resulted in the development of numerous theories, ideas, models and approaches. These models and approaches have helped the research community and language instructors in understanding the structure and behaviour of words. However, no model or approach is adequate to analyse all languages or even a language completely.

Check your progress

A. Examine the following statements and state true or false.
    I. Bloomfield and Hockett are associated with word and paradigm models/approaches.
    II. Item and process is a lexeme-based model/approach.

B. Examine the following statements and state true or false.
    I. Word and paradigm model/approach considers nothing smaller than a word.
    II. Item and arrangement is based on vertical and hierarchical arrangement of morphs.

4.2.7 Inflectional Morphology and Derivational Morphology:

As discussed earlier, a morpheme is the smallest meaningful or grammatical or morphological unit of language. Also, the free morphemes can stand alone i.e., they can exist as words. The bound morphemes are added to a base or word. The bound morphemes are further classified as inflectional morphemes and derivational morphemes. Accordingly, the study of morphology is classified as inflectional morphology and derivational morphology. It is important for the students of morphology to understand the two groups.

When a lexeme is used in a sentence or context it becomes a word. This word can adopt different forms within or outside the grammatical category. Consider the word ‘play’ in the following sentences:

1. S/He plays football.
2. I/You/We/They play football.
3. S/He is playing football.
4. I am/You/We/They are playing football.
5. Who played football yesterday?
6. Why does s/he play football?

In the above sentences, the word ‘play’ has adopted various forms such as play, plays, playing, and played. It is evident that all these word forms of the lexeme ‘play’ are semantically related and belong to the same grammatical category. Therefore, the forms a lexeme or word adopts are grammatically-conditioned variants.

Inflectional morphology is a morphological process that focuses on the combination of inflectional morphemes with base forms. The term inflexion refers to the combination of bound morphemes with free morphemes or stems resulting in grammatical words. For example, consider the forms that the lexeme ‘play’ adopted in the above sentences. Bound morphemes like -s, -ing, and -ed were added to the free morpheme play resulting in grammatical and contextual variants. Accordingly, these morphemes are called inflectional morphemes. In English, the suffix -s and -es occur as markers for plural nouns, third person and singular number agreement for verbs. Similarly, the suffix -ed occurs as a past tense marker for verbs. Again, the suffix -er and -est occur as markers of comparative degree and superlative degree respectively in English. Inflexion is also known as flection and accidence. Inflexion produces word forms that are manifestations of the same word.

Derivational morphology concerns word formation. It is a morphological process that focuses on the combination of derivational morphemes with base forms. The main outcomes of this morphological process are new lexemes and words that may not share the grammatical category of the combining forms. Derivation is a very productive process for creating new words. For example, consider the following pairs of verbs and nouns: teach-teacher, drive-driver, play-player, learn-learner and write-writer. An easy observation here is that various English nouns can be obtained by adding a derivational suffix -er to the verbs. It is important to note that when derivational morphemes are attached to a base the resulting new word may be very different.

Inflection versus derivation

As a morphological process, inflexion differs from derivation in several ways. Some of these differences are given below:

1. In the sequence of affixation, derivation precedes inflexion. As a process, inflexion is final. After receiving inflection, the base form becomes an inflected word and does not allow additions. For example, the word 'happen' may receive affixes in the following order: happen → happen**ing** → **mis**happening → mishappening**s**. Notice, here the final word is an inflected form.
2. The addition of a derivational morpheme may alter the grammatical category of the stem/base. For example, the word 'fight' is a verb that can receive a derivational morpheme {**er**}and become 'fighter' which is a noun. In contrast, when the noun 'fighter' receives an inflectional morpheme {s} it becomes 'fighters' which is also a noun.
3. Numerically, derivational affixes are larger than the inflectional affixes. The set of inflectional morphemes is smaller than the set of derivational morphemes.
4. In English, the inflectional affixes mostly occur as suffixes. In contrast, the derivational affixes occur as prefixes as well as suffixes.
5. Inflectional morphemes operate within a grammatical class/category. For example, the bound morpheme {s} in plural nouns exists in the grammatical category of nouns only. On the other hand, the derivation morphemes can operate across grammatical classes/categories too.

Check your progress

A. Identify the inflectional and derivational morphemes in the following words: Happiest, Disillusioned, Remorseful, Decongestion, Unqualified
   Inflectional morphemes:

   Derivational morphemes:

B. How does inflexion differ from derivation?

4.3 Learning Outcomes

This unit introduced the readers to morphology with special reference to the structure of words in English. First, it presented the background for the study of morphology as a subfield of linguistics and as a window to understanding the mental lexicon. Then, it introduced the concept of words and lexemes. The discussion in this chapter brought understanding of approaches to morphology, morphemes, their identification and classification. This chapter also developed an understanding about various morphological processes including inflexion and derivation. Completing this unit the readers must have got acquainted with the morphological aspects of English words.

4.4 Glossary

Affixes: The bound morphemes that are attached to free morphemes or base for the production of new words or word forms.

Affixation: The morphological process through which affixes are added to a base for creating new words or word forms.

Allomorphs: Variants or different phonological realisations of a morph are called allomorphs. For instance, the morph -ed indicating a past tense marker has two allomorphs /d/ and /t/ in words like bowled and asked respectively.

Derivation: A morphological process that involves the combination of free and bound morphemes resulting in the production of new words.

Forms: The various shapes and appearances that a lexeme or word or word part may take. For instance, read is a lexeme that can take forms like read, reads, reading, reader, readable, and readability.

Inflexion: Also known as inflection, flection and accidence, inflexion is a morphological process that involves the combination of a free morpheme with bound morphemes resulting in the production of grammatically related word forms.

Lexeme: A minimum unit of lexicon or context-free word that appears as a head entry in a dictionary. It can comprise a word or set of related words. When a lexeme is used in a sentence or a context it becomes a word.

Lexicon: A collection of all words and phrases of language or of a language user.

Lexis: The set of all words of a language.

Morph: The phonological realisation of a morpheme in a language. A morpheme is an abstract entity whereas a morph is its actual realisation.

Morpheme: A morpheme is the smallest unit of language that can either carry a meaning or perform a grammatical function. A morpheme can occur either as a word or as a part of the word.

Morphology: Refers to the analysis of the internal structure of words and word parts.

Reduplication: A morphological process in which a morpheme or a word repeats to produce a new word. In this process, the repetition can be partial or total or just an echo or rhyme.

Word: A minimum free unit of meaning that can be spoken or written. Words adopt different shapes/forms and combine to form sentences.

Word forms: The physical realisations or phonological shapes a word takes to express different grammatical or semantic contexts.

Word-formation: The processes by which new words are created or derived.

4.5 Sample questions

4.5.1 Objective Questions

A. Examine the following sentences and state whether they are true or false.

1. A simplex or simple word is a word that has several formally indivisible components.
2. A word is a unit that is capable of independent use
3. Suffixes are added to the beginning of word/base forms.
4. A word is a set of lexemes that are grammatically related.

B. Fill in the blanks with suitable words

1. Derivation is a …… process.
2. A …… is a bound morpheme that is added to the beginning of a word/base.
3. The principles for the identification of morphemes were suggested by …….

C. Multiple Choice Questions

1. Inflexion is a …… process.

   (i) Phonetic (ii) Phonological

   (iii) Morphological (iv) Syntactic

2. re- in words such as revise, repeat, recognise, reach and resemble is a ……..

(i) morpheme (ii) word

(iii) inflexion (iv) derivation

3. -ly in words such as highly, simply, amply, heavily and seriously is a ……

(i) Free morpheme (ii) Bound morpheme

(iii) Allomorph (iv) Zero morph

4.5.2 Short Answer Questions

1. Write a short note on base, root and stem.
2. Write a short note on affixation.
3. Briefly discuss the concept of reduplication with examples.
4. Explain the concept of lexeme and word
5. Differentiate between free and bound morphemes

4.5.3 Long Answer Questions

1. Discuss morphology and morphological process
2. Discuss the concept of morphemes with ways to identify them
3. Differentiate between inflexion and derivation as morphological processes

4.6 Suggested Readings

Aronoff, Mark and Kristen Fudeman. 2011. *What is Morphology*? Sussex: Wiley-Blackwell.

Bauer, Laurie. 2003. Introducing Linguistic *Morphology*. Edinburg: Edinburg University Press.

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Carstairs-McCarthy, Andrew. 2002. *An Introduction to English Morphology: Words and Their Structure*. Edinburg: Edinburg University Press.

Haspelmath, Martin, and A. Sims. 2010. *Understanding morphology*. London: Hodder Education.

Katamba, Francis. 2005. *English Words*. New York: Routledge.

Katamba, Francis and John Stonham. 2006. *Morphology*. New York: Palgrave McMillan.

Lieber, Rochelle. 2009. *Introducing Morphology*. Cambridge: Cambridge University Press.

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Nida, Eugene A. 1949. *Morphology: The Descriptive Analysis of Words*. Ann Arbor: University of Michigan Press.

Unit-5: Introduction to English Phonetics

Structure

5.0 Introduction

5.1 Objectives

5.2 Introduction to English Phonetics

5.2.1 Definitions

5.2.2 Phonology

5.2.3 Different Branches in Phonetics

5.2.4 The Air-stream Mechanism

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5.2.6 Speech Mechanism

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5.3 Learning Outcomes

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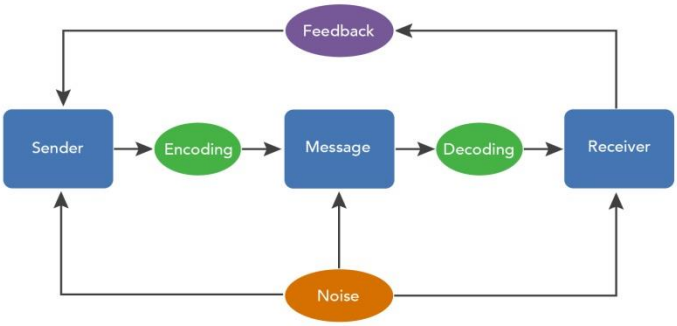
5.5 Sample Questions

5.6 Suggested Readings

5.0 Introduction

The basic function of speech is communication. It is a two-way process. communication is generally established between two people and more than two people. The speaker is the source of information in verbal communication, whereas the listener is the recipient. They are also referred to as the addresser and addressee, respectively. The speaker encrypts the message he or she conveys. He requires the message in the form of information that has to be communicated. He must encode his message, which entails converting his ideas about the information to be

transmitted into a form that can be sent, such as words. A communication channel, or the means by which the message is sent, must also be selected. Communication channels include speaking, writing, video transmission, audio transmission, and electronic transmission via emails, text messages, and faxes. The speaker must also know with whom he will be communicating. The communication must be decoded by the receiver, which requires mental interpretation. If the listener is unable to decipher the message, it will fail. Decoding failure is nearly always the result of sending a message in a foreign language that the receiver does not understand. See the communication process in the following Figure 1.



(*Figure 1: Communication process*)

There are verbal communication and non-verbal communication. The delivery of a message through spoken or written communication is known as verbal communication. Nonverbal communication refers to the process of communicating a sort of information through non-linguistic symbols. We know that human language is made up of a set of symbols (also known as lexemes) and the grammar (rules) that govern how those symbols are used. The term "language" also refers to the features that all languages have in common. The best time to learn a language is when you're a kid. The majority of the dozens of human languages employ sound or gesture patterns as symbols to communicate with others. Languages, with a few exceptions, have a number of traits.

Language and communication are two distinct things that require each other. People exchange information or messages via a variety of channels during communication. It could be done by verbal, nonverbal, graphical, and written representations such as maps, charts, drawings, and info graphics, as well as signs and signals. Language, on the other hand, is crucial to the process of communication. Language and communication are intricately intertwined, as demonstrated by the fact that individuals interact using a distinct language all over the world, which is why some people can't tell the two apart. Earth-dwelling creatures created their own

means of communicating their feelings and thoughts to other beings. On the contrary, human beings are the only ones who can use language and words to convey specific meanings. In fact, this very characteristic distinguishes humans from other animals.

In essence, communication is a complex process that encompasses factors such as situations, genres, mediums, and delivery methods. Personal, cultural, institutional, and organizational goals, on the other hand, also influence language. For linguists, there's much to understand about how social environment influences language use, as well as how culturally varied people communicate. In order to describe differences between language and communication, a more complete description is required. Language is a tool that helps two people express and transmit their feelings and thoughts. Sounds, symbols, such as written or spoken words, posture, gesture, or signs can all be used to communicate feelings and thoughts, with the receiver interprets a specific meaning. Language is the prime communication medium through which humans express or exchange feelings, opinions, viewpoints, and ideas. It offers abstract and difficult thoughts much needed structure, coherence and meaning. Persons from various communities or places communicate in different languages.

English is a language that is spoken all over the world. In India, it is taught as a second language. It is used as the Union's associate official language, as a link language between educated people who don't speak the same Indian language as them or who find English more acceptable for their requirements, and as the language of government and higher education. It has been used as an instructional medium in some schools and colleges from the beginning. Some schools introduce English in a later stage. It is extensively used as the Lingua Franca among India's educated. English has been used in most of the international communications. English is an important part of the curriculum of India's schools and institutions. Students who are bilingual or trilingual will be expected to participate in the classroom. However, in India, education will be monolingual in all aspects of receiving and generating information. With English being acquired as a second language, a tool, for its use, beauty, and power, as well as the greatness of its literature, as it is in Europe. Students seeking employment after graduation usually find themselves unable to make an impact and thrive in times of intense competition due to their lack of communication skills.

Most of the languages in the world have letter to sound co-ordination except English. In English spelling and pronunciation are two of the most challenging aspects. The contrast

between written spelling and actual pronunciation will be explained in the introduction to English phonetics part. Most of the English letters produce more than one sound. Some words are not pronounced clearly in everyday speech. For instance, many speakers pronounce the words 'button, different, probably, secretary, because' as 'butn, differ, porbly, secretary, becuz.' This creates confusion for a listener cum speaker to identify the correct articulation of sound. Therefore, the necessity of phonetics is felt in learning English pronunciation.

The word 'Phonetics' is derived from the Greek word 'phone' which means 'sound.' Phonetics deals with the study of the sounds. It is a branch of linguistics. It is concerned with two characteristics of human speech: production of human speech and perception of human speech. We know that every language has its own features. Some English sounds aren't used in other languages. Some sounds from other languages aren't available in English, so we won't use them. It is so natural to speak and listen to speech. Have you ever considered the processes that go into this? This is precisely what Phonetics aspires to do. There are numerous reasons for studying phonetics, among which we can include the following:

1. To be able to recognize the correct meaning of words based on proper pronunciation
2. To be understand the speech of other speakers and to be understood as well.
3. To produce a precise list of English terms in order to improve our English pronunciation. IPA (International Phonetic Alphabet) symbols can be used to accomplish this.

Phonetics, speech organs, and the respiratory system are discussed in this unit.

5.1 Objectives

The unit has been designed to fulfill the following objectives:

- To enable students to understand phonetics
- To make students know definitions of phonetics
- To help students to understand speech mechanism
- To make students know about organs of speech
- To enable students to understand the respiratory system

5.2 Introduction to English Phonetics

The spelling of English words has remained relatively unchanged over time, but how we pronounce them has. As a result, pronunciation becomes a serious issue for language learners. Good pronunciation, on the other hand, is more than just ‘how words and letters sound.’ Other considerations intonation (means how the tone of voice varies up or down during speech), stress (words and syllables with 'weight' in speaking), and connected speech (sounding of words differently when joined together in natural speech). These characteristics help pronunciation, although they are not to be confused with an accent. It is necessary to understand phonetics in order to accurately pronounce words.

Many educated people are assumed to have fully assimilated the excellent traditions of English speaking, to have the discipline to avoid ambiguity, jargon, and clichés, and to have shaped their personalities in such a way as to fully use the language’s possibilities. They’ll naturally use the relatively uniform pronunciation that’s becoming more popular as people’s ears get more sensitive, avoiding sounds and usages that are disagreeable or unpleasant to the vast majority of people.

In terms of pronunciation, the term “Received Standard” relates to English-educated speech. Outside of England also, there are various types of good English are spoken, such as in Edinburgh, Scotland, or Pennsylvania or New York, USA. When it comes to written language, however, we find that the more educated English users are quite united. As a result, good English must be defined in terms of what educated speakers use, rather than what they should use according to grammatical or lexical rules.

Standard English is preferred by speakers all across the world because it is not a logical dialect and has far superior qualities than any other regional dialect. Standard English’s current place among the numerous types of English speech is the result of common sense rather than speech snobbery. The ‘Reviewed Standard,’ as the speech of the best-educated Englishmen, does have a social value that benefits the speaker financially. As a result, it is constantly reproduced and cultivated for the social status it bestows on those who speak it. So ‘Received Standard’ is all the time gaining at the expense of the Modified Standard, which, having no social prestige to confer gradually becomes neglected and degenerated.

Phonetics is a branch of linguistics that studies classification of speech sounds. It is the practical application of the science to language study. Phonetics is a pure science that examines

speech processes, such as the anatomy, neurology, and pathology of speech. Of course it deals with articulation, description, classification, and perception of speech sounds.

5.2.1 Definitions:

Phonetics is concerned with the quantifiable physical features of speech sounds, such as how the mouth produces some specific sounds and the characteristics of the sound waves that arise. A few definitions are provided below to further the idea and examine the multifaceted features of phonetics.

"The central concerns in phonetics are the discovery of how speech sounds are produced, how they are used in spoken language, how we can record speech sounds with written symbols and how we hear and recognize different sounds."- Daniel Jones (2006)

"The manner in which speech sounds; especially connected sequences are articulated by individual speakers or by speakers generally." - Trask (1996)

"Pronunciation can be defined as "articulation of individual sounds and, to a lesser extent, with the stress and intonation patterns of the target language." - Pennington & Richards (1986)

"Without phonetics, we could neither observe nor record the simplest phenomena of language." -Sweet (1964)

"Phonetics provides us with a tool, a set of descriptive terms, by which we can describe, as minutely as is necessary for the task in hand, a particular physical sound and the gestures that produced it. It is a tool that is particularly useful for the pronunciation of a given sound and to teach the student to correct his pronunciation in a controlled and explicit way." -Abdulghani A. Al-Hattami (2010).

Phonetics has brought new insights to the teaching of pronunciation. Concerned with "the study of the physical properties of sounds and their place and manner of articulation in the vocal tract" said by Broughton (1980). When it comes to teaching pronunciation, phonetics is a crucial instrument. For example, spoken sounds are divided into consonants and vowels in any description of the English sound system. According to Haycraft (1978), consonants are classified based on the movements of the speech organs during articulation (bilabial, dental, alveolar, palatal, velar), the type of the airstream, the location and movement of the tongue, and whether or not the vocal cords are employed (voiced, voiceless, plosive, affricate, fricative, nasal, lateral). Vowels, on the other hand, are mostly characterized in terms of tongue position and lip rounding.

These comprehensive phonetic descriptions are not chosen at random because they are crucial in the teaching of pronunciation. He further states, “Awareness of this is useful as many mistakes made by learners are due to slight differences in sound production.”

As a result, we can conclude that learning phonetics is a requirement in the society today. It can be considered as a recent trend also. Arabic and Spanish, for example, have a coordinate spelling and pronunciation system. They speak as they write. Each letter represents a single sound that rarely varies. English is unique or different in this sense. It has many letters with two or more sounds, as well as a lot of silent letters. So, the trick while learning proper pronunciation may be to talk slowly and loudly. As a listener, one should focus on the physical aspects of pronunciation. Speaking every day can help the language learner to overcome pronunciation issues. To test the pronunciation skills, one should practice his voice and record it. He must make a recording of himself speaking to get a sense of how he sounds and to check for mistakes in his pronunciation.

Reading will improve pronunciation skills. One must read a page from a book or newspaper, or have a regular English chat with a friend or family member. The leaner must spend some time for listening and make a habit of speaking regularly. He has to take a note of the speed, with which he speaks, as well as the intonation and general tone of his voice. The learner can improve good pronunciation skills by repeating and reading aloud. Singing English songs, for example, is not only calming and enjoyable, but it also aids in the recognition of English rhythm and stress patterns. When you learn phonetics, it helps you in recognizing both familiar and unfamiliar sounds, improves pronunciation skills, and develops autonomy in words and sound recognition.

Check your progress

1. Define the term ‘Communication’.

_____

_____

2. What are the characteristics of human speech?

_____

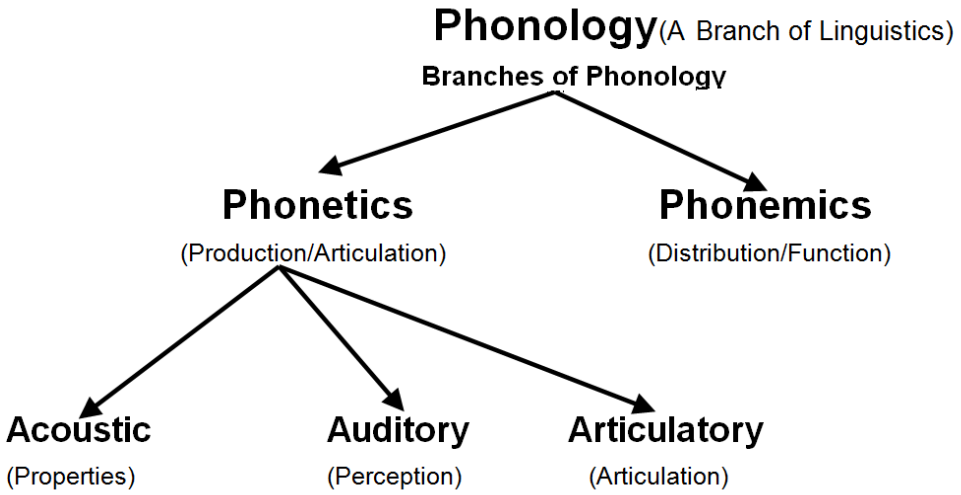
_____

5.2.2 Phonology:

Phonology, a branch of linguistics; is concerned with the selection and organization of speech sounds in a language. Speech sounds are generally known as *phonemes* which are basic units of a language. A *phoneme* is a class of sounds realized in a different way in any given position, by its representative of the allophone. It is the smallest contrastive linguistic unit which brings about a change of meaning as in minimal pairs. It is minimal because it cannot be divided into any further segments. Adetugbo (1992) says: "phonology takes phonetic facts…but goes further to study speech sounds as constituting a system in any language." Only a small percentage of the sounds that humans are capable of producing can be combined to produce meaningful utterances in a language. According to Atolagbe (2000), phonology is "the sound system of a language, the speech sounds that are combined into meaningful and acceptable patterns for communication purposes, in a specific language."

Diachronic (historical) phonology studies and develops theories about how speech sounds and sound systems have changed over time. It is concerned in how the English words "sea" and "see" which used to be pronounced differently (as shown by the spelling), have developed to be pronounced similarly now. Synchronic (descriptive) phonology is the study of sounds at a certain time in the evolution of a language to see what sound patterns can arise. For example, the letters '*nt*' and '*dm*' may appear at the end of or within the words in English ("rent," "admit"). They do not appear at the start.

The far more fundamental action in phonology is 'phonemic analysis,' which seeks to figure out what the phonemes are and create a 'phonemic inventory.' A few phonologists agree that this is an appropriate study of a language's sound system; more research is required. Consider 'suprasegmental' phonology, which studies stress, rhythm, and intonation. Beyond the phoneme, one can examine each unit's precise qualities in terms of "distinctive features.' The study of 'phonotactics' and syllable structure examines how sounds might join in a language. For some phonologists, the most important problem is how the different phonemes interact—how they form groups, the nature of the contrasts between them, and how such oppositions can be neutralized. For others, the most important effort is to "express these rules as economically as possible" by discovering the rules that affect the phonemes of the language and how they are created (Jones 2006). To understand the difference between phonetics and phonology, see the following figure 2.



(Figure 2: Phonology)

5.2.3 Different Branches of Phonetics:

We understand that vowels and consonants are used in sentences like "He is travelling to Delhi" and "They are playing cricket." But how do these sounds come across? What distinguishes the sounds from one another? How do they work in a language? Phonetics, which is the study of the production, transmission, and reception of sounds in human speech, provides answers to such issues. There are three branches in phonetics. They are:

1. Articulatory Phonetics is concerned with the description of speech organs as well as the production of sounds. It's about how we produce sounds and prosodic phenomena, as well as our voice-producing system. Breathing, phonation (voice production), articulation, and the mental processes required in understanding the phonetic system are all studied in depth. The lungs, bronchi, and trachea are all involved in the production of articulated sound, as are phonation organs (larynx, vocal cords resonators) and articulation organs (lips, teeth, tongue, palate and glottis).

2. Acoustic Phonetics is concerned with the physical qualities of sounds produced and their propagation in the air, such as pitch, loudness, and frequency. A classification of sounds can be established depending on the description of the various organs involved in the phonation process.

- If the air does not face any impediments on its way out, it produces a vocal or non-vowel sound.
- If the air finds impediments on its way out, it makes a consonant or non-consonant sound.
- Dull sound, if the vocal cords do not vibrate.

- Nasal sound, if air exits through the nasal passage.
- If air escapes the mouth cavity, there will be an oral sound.
- Compact / spread sound
- Interrupt / nonstop sound
- Serious / acute sound

3. Auditory phonetics explores the perception of sounds, or how sounds are produced, while articulatory phonetics studies how speech sounds are created. As a result, while articulatory phonetics focuses on the speaker, auditory phonetics focuses on the listener, who is also an important participant in verbal communication. It is, of course, a branch of linguistic study that is highly reliant on biology, particularly anatomy and physiology. We are dealing with two distinct operations in auditory phonetics: firstly, there is audition proper, which is the perception of sounds by our auditory system, as well as the conversion of that information into a neural sign and transmission to the brain; on the contrary, there is computer analysis of that information. However, as a novice, getting a basic understanding of how our auditory system and the general hearing process work will suffice.

To put it another way, every sound that comes from any source, whether it's a door slamming or someone speaking to you, travels as a sound wave, causing the molecules along the route to gather together and move apart, or to vibrate. When these vibrating air molecules reach your ear, they make the eardrum in your middle ear to vibrate as well, and this vibration is then transmitted from the eardrum to the three small bones in your ear: **mallet**, **incus**, and **stirrup**.

5.2.4 The Air-stream Mechanism:

There are three main types of air-stream mechanisms. They are used in human speech. Each mechanism has a different initiator. The airstream mechanism is the method that creates airflow in the vocal tract. It is one of two essential characteristics of sound creation, along with phonation; without them, no spoken sound can be produced.

1. Pulmonic Airstream: The pulmonic air-stream on its way into or out from the lungs must pass through the windpipe or trachea. The voice cords run from back to front inside the larynx.

The vocal cords are two folds of ligament and elastic tissue which may be brought together or parted. The glottis is the passageway between the voice chords, which can cause a variety of glottis states depending on how they are used. It is enough at this point to distinguish four states:

a) Open glottis (breath / no voice state)
b) Vibrations in glottis (voice state)
c) Closed glottis (a glottal stop is created in this state)
d) Narrowed glottis (state of whisper)

The respiratory muscles move the air in the lungs. A pulmonic airstream process is used to create the bulk of sounds. An egressive, or outward-moving, pulmonic airstream is used to make a halt. The plosive sounds are: /p/, /b/, /t/, /d/, /k/, /g/.

2. **Glottalic Airstream:** The air stream from the lungs is momentarily blocked in the glottis. The larynx itself is the initiator with the glottis firmly closed. A glottalic airstream technique is used to create ejectives and implosives.

a) Ejective: An egressive glottalic airstream is used to come to a complete stop. It's written as an apostrophe after a symbol, such as /k/. Ejectives come in a variety of shapes and sizes, and they can be found in American Indian languages, African languages, and Caucasian languages. MIT's linguistics website has a trick for making ejectives: "Start by holding your breath to learn how to make an ejective sound. Try to make a "*k*" sound while still holding your breath; make it as loud as you can so that someone sitting next to you can hear it. Relax and take a few more deep breaths now. Congratulations! You've just uttered an ejective *k*."

b) Implosive: An ingressive glottalic airstream is used to make a stop. It's written as a little hook on top of a conventional sign, such as /b/. The down-moving larynx is frequently not entirely closed when producing implosives. Air continues to be pushed out of the lungs, and some of it passes between the vocal folds, keeping them moving and allowing the sound to be made. Implosives contrast with plosives in several languages, including an Indo-Aryan language Sindhi (spoken in India and Pakistan) and a number of African and other languages. Implosives are essentially varieties (allophones) of voiced plosives in some languages (for example, Vietnamese). Implosives, such as absolutely billions and billions, can emerge as allophones in emphatic articulations of bilabial stops in English.

c) Velaric Airstream: Its initiator is the back part of the tongue which can be lifted up so that it comes firmly into contact with the velum (soft palate). The velaric is an important air-stream

mechanism for ‘smoking’ because it is used for extracting the smoke from the cigarette as ingressive and then for expelling it (as egressive). To make you understand the airstream mechanism, we have given a table for you. Observe the following figure.

Name	Initiator	Egressive	Ingressive
Pulmonic	Lungs	Most speech sounds	
Glottalic / Pharyngeal	Closed glottis	Ejectives	Voiceless implosives
Velaric / Oral	Velar closure		Clicks
Velaric + Pulmonic			Voiced clicks
Pulmonic + Glottalic			Voiced Implosives

(Figure 3: Air Stream Mechanism)

Check your progress:

1. What is ‘Articulatory Phonetics?’

_____

_____

2. Define ‘Acoustic Phonetics.’

_____

_____

5.2.5 Articulatory Phonetics

The structure of the vocal tract (pharyngeal, oral, and nasal cavities, larynx) as a result of the positioning of the vocal tract's mobile organs (such as tongue) in relation to other sections of the vocal tract that may be rigid (e.g., hard palate) is referred to as articulation. This arrangement alters an airstream to make speech sounds. The tongue, upper lip, lower lip, upper teeth, upper gum ridge (alveolar ridge), hard palate, velum (soft palate), uvula (free-hanging end of soft palate), pharyngeal wall, and glottis (gap between the voice cords) are the principal articulators, as we say. Articulatory phonetics deals with the organs of speech and how they are used by the speaker to produce speech sounds. The following section gives you a detailed explanation of organs of speech. (Figure 4: Speech organs)

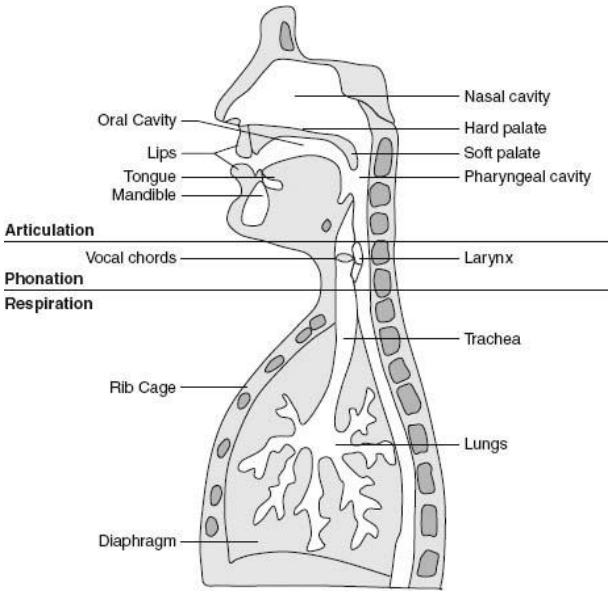


Figure 4: Speech Organs (*Source: SAGE Reference, sagepub.com*)

5.2.5.1 Organs of Speech:

The sounds of a language are produced by speech organs or articulators. Lips, teeth, alveolar ridge, hard palate, velum (soft palate), uvula, glottis, and numerous sections of the tongue are all used for speaking. Active articulators and passive articulators are the two types of articulators.

Active articulators are speech organs that move from their resting position to articulate against other speech organs that do not move. The tongue is the most essential active articulator and plays vital role in the production of a majority of sounds. The lower lip is another active articulator. The latter are called passive articulators. The tip and blade of the tongue, for example, move from their resting position to articulate against the teeth ridge when making the sounds **t, d, n**, and **s.** The upper lip, teeth, alveolar ridge, hard palate, soft palate, uvula, and pharyngeal wall are all passive articulators.

The lower lip is the active articulator in the production of the **f** sound, as in the English word '**fan'** while the upper teeth are the passive articulator. Because the lower jaw moves while the upper jaw does not, the active articulators are largely in the lower jaw and the passive articulators are in the upper jaw. The soft palate, on the other hand, is a unique articulator in that it is both active and passive. It's an active articulator since it may be elevated to close the nasal passage of air, allowing oral sounds to be produced. In comparison to the back of the tongue

(active articulator), which articulates against it to produce sounds like the initial consonants in English words come and depart, it is a passive articulator. It is an active articulator and a passive articulator at the same time in the creation of these oral sounds.

The descriptions and functions of the organ of speech that follow will assist you in correctly producing consonants and vowels.

5.5.2.2 Description of Organs of Speech:

1. The Vocal Cords:

Two tiny bands of elastic tissues can be found in the larynx. The vocal cords are what they're called. The epiglottis is the aperture between the voice chords. The glottis is open as we breathe in or out. This is the position in which voiceless sounds are produced. The sounds /f/, /s/, and /h/, for example, are known as voiceless sounds. Voiced noises are the sounds made when the glottis joins together. As a result, the vocal chords' primary job is to create both voiced and silent sounds. See vocal cords in the following figure 5.

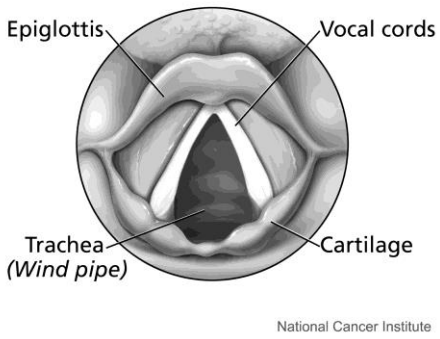
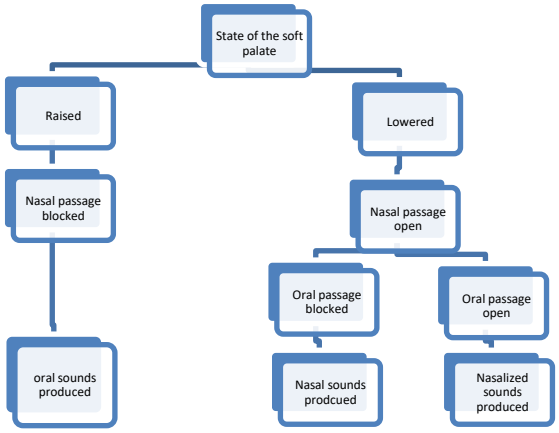


Figure 5: Vocal Cords. *(Source: Wikimedia Commons)*

2. The Soft Palate:

Velum is the term for the soft palate. The roof of the mouth is what it is called. It separates the mouth cavity from the nasal cavity. The uvula is the last section of the soft palate. Nasal sounds are created when it is lowered. When it is lifted, air escapes via the mouth cavity, resulting in the production of oral sounds (/p, t, k, s).



(Figure 6: State of the soft palate)

3. The Hard Palate:

It is the front, bony part of the roof of the mouth. Observe the following figure 'oral cavity'

4. The Tongue:

The tongue is the most flexible organ of speech. It has the ability to take on a variety of shapes and orientations, most of which are significant from the point of view of speech production. To describe these shapes and positions, it is customary to divide the tongue into different imaginary parts: the tip, the blade, the front and the back. The tongue aids in the production of vowel sounds. The tip of the tongue aids in the production of /t, d, z, and so on/. The tongue's blade aids in the production of /t,,/. The front of the tongue aids in the production of /j/ sounds, whereas the back of the tongue aids in the production of /k, g/ sounds.

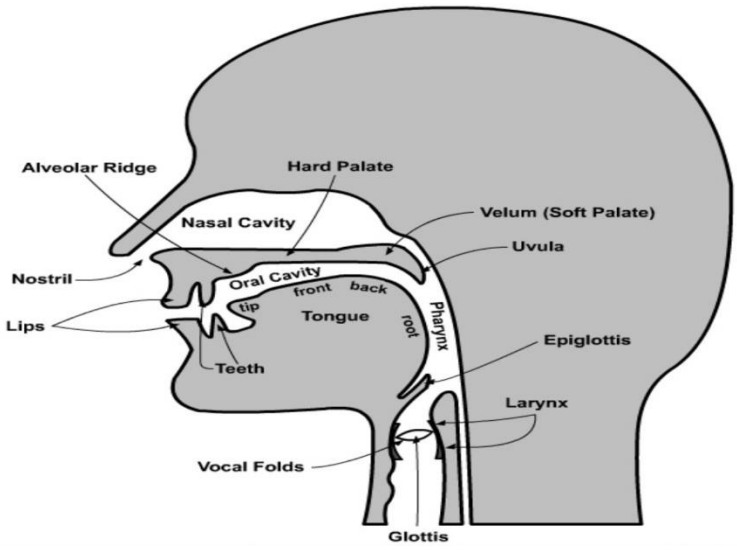


Figure 7: The tip, blade, front and back of the tongue *(Source: madbeppo.com)*

5. The Lips:

The two lips—the upper lip and lower lip assist to produce bilabial sounds /p, b, m/. The lips are touched when the sounds /p/ and /b/ are produced. Two lip positions 'rounded' and 'unrounded' are important for description of vowel sounds.

6. The Teeth:

Consonant sounds are produced with the help of the teeth. To make speech sounds, only the upper teeth are used. The lower teeth aren't engaged in sound generation. The sound produced by the upper teeth is referred to as dental sound.

7. The Alveolar Ridge:

Between the top teeth and the hard palate lies the alveolar ridge. Alveolar sounds, such as /s/, /t/, /d/, and so on, are produced when the tongue touches the alveolar ridge. Producing different speech sounds depends on the movement of speech organs.

The airstream can be influenced and shaped in a variety of ways by the articulators in the articulatory system. The airstream, for example, can be entirely blocked, causing pressure to build up behind the blocking. This is what happens when two articulators, such as the tip of the tongue and the alveolar ridge, come into touch. The air burst out with a popping sound after the contact is released, which is why this type of sound is called a plosive. Turbulence is created when two articulators, such as the lower lip and upper teeth, are forced together but do not completely stop the airstream, resulting in a hissing sound. Fricatives are the sounds that are produced in this way. An affricate is the sound generated when two forms of articulation are merged, with a blocking phase followed by a friction phase. A trilled sound is produced when the tip of the tongue makes repeated and fast contact with the alveolar ridge. A tap is the sound made by the tip of the tongue contacting the alveolar ridge only once. The airstream is thus shaped by the articulatory system both before and after it passes through the open glottis, causing the vocal folds to vibrate. This shape is caused by the resonance formed by the cavities, as well as the location or movements of the articulators. The narrowing or constriction of the vocal tract caused by the movement of an active articulator towards a passive articulator is referred to as articulation. The articulators can restrict the airstream by making contact or create friction by driving the airstream through a small gap between them, among other things.

Check your progress:

1. What are the 'Active articulators' and 'passive articulators'?

_____

_____

2. Explain the soft palate.

_____

_____

5.2.6 Speech Mechanism:

The process of converting thoughts into speech is known as speech production. This comprises word selection, structuring of pertinent grammatical structures, and sound articulation. Speech production can be spontaneous, such as when a person generates dialogue words, reactive, such as when a person names an image or reads aloud a written word, or imitative, such as when a person repeats a phrase. Language may be formed mechanically using signs, whereas speech cannot.

The organs of speech, as well as their speech functions, can be divided into three categories. They are the respiratory, phonological, and articulatory systems. Let's discuss these three systems here. (*See figure 8)*

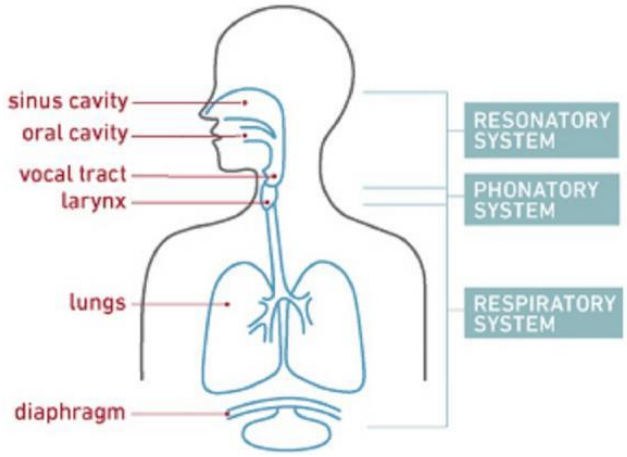


Figure 8: Speech mechanism (*Source: templehealth.org*)

5.2.6.1 The Respiratory System:

The respiratory system is made up of a complicated combination of organs and tissues that assist us in breathing. It includes the airways, lungs, and blood vessels. The muscles that propel our lungs are also part of the respiratory system. These parts work together to deliver oxygen throughout the body while also removing waste gases like carbon dioxide.

5.2.6.2 Functions of respiratory system

The respiratory system performs a variety of tasks. In addition to assisting with intake (breathing in) and expiration (breathing out) (breathing out):

- It gives us the ability to communicate as well as smell.
- It warms and moisturizes the air to the appropriate humidity level for our bodies.
- It is responsible for delivering oxygen to our body's cells.
- When we exhale, waste gases such as carbon dioxide are removed from our body, and our lungs are protected from irritants and hazardous substances.

5.2.6.3 Parts of the respiratory system

The respiratory system is made up of a number of different components that work together to allow humans to breathe. Each group of parts contains a large number of individual components. Air is delivered to our lungs through our airways. Our airways are a complicated system made up of the following elements:

- **Mouth and nose**: Air enters our respiratory system through these openings.
- **Sinuses**: Hollow areas in our head between the bones that help regulate the temperature and humidity of the air that we breathe.
- **Pharynx (throat)**: A tube that connects our mouth and nose to our trachea (windpipe).
- **Trachea**: This is the tube that connects our throat to our lungs.
- **Bronchial tubes:** Tubes that link the bottom of our windpipe to each lung.
- **Lungs**: Lungs are two organs that extract oxygen from the air and transport it into our bloodstream.

These organs regulate the breathing system and help us in breathing and in producing different types of speech sounds.

Check your progress:

1. What is the respiratory system?

_____

_____

2. Write some parts of the respiratory system.

_____

_____

5.3 Learning Outcomes

It will be extremely impossible to master phonology without first learning phonetics, as phonetics provides the basic raw materials or building blocks on which phonology is built. Humans create a wide range of sounds, including non-linguistic sounds (belching, grunting, and hissing) as well as linguistic sounds (consonants and vowels). Some of the sounds made aren't linguistically relevant. As a result, phonetics is concerned with the production of both important and irrelevant sounds in languages. These phonetic sounds are ubiquitous and do not belong to any single language. Phonetics is a branch of linguistics that deals with all of the sounds that humans may make, both useful and useless. Humans have the ability to produce sounds that no one has ever heard or generated before. The basic material for phonology is made up of these phonetic and non-phonetic segments, which are universal sounds. It is expected that upon the completion of this unit, students are able to define the term "phonetics". Students can explain what phonetics is in detail and the speech process and body mechanisms involved in the production of speech. The energy for the production of English sounds comes from the lungs. We discussed soft palate, hard palate, alveolar ridge, and respiratory system in detail.

5.4 Glossary

Alveolar ridge: The bony ridge behind the upper teeth that helps with alveolar consonant articulation.

Articulation: The utilisation of the supra laryngeal vocal tract's speech organs to make speech sounds.

Acoustic: Pertaining to sounds, especially speech sounds.

Glottal: Pertaining to the glottis.

Larynx: Voice box

Palate: The hard bony structure directly behind the alveolar ridge at the top of the roof of the mouth.

Palatal: Pertaining to the palate, articulated with some part of the tongue (usually the front) raised towards the palate.

Pharyngeal: Pertaining to the pharynx.

Pharynx: The junction of the oral cavity, the nasal cavity, and the route above the larynx, located in the rear of the mouth.

Trachea: (also windpipe) The cartilaginous channel connecting the lungs to the larynx, through which air passes in breathing and speaking.

Uvula: The back of the velum has a little flap of muscle tissue dangling from it.

5.5 Sample Questions

5.5.1 Objective Questions:

A. Read the sentence and choose an appropriate option:

1. Phonetics deals with _____.
   a) Letters
   b) Sounds
   c) Letters and sounds
   d) None of them
2. Basic unit of a language
   a) Phonetics
   b) Articulatory phonetics
   c) Phoneme
   d) None of the above
3. Physical qualities of sounds produced and their propagation in the air, such as pitch, loudness, and frequency is called _____.
   a) Acoustic Phonetics
   b) Articulatory Phonetics
   c) auditory phonetics
   d) None of them
4. Which of the following has the lungs and the respiratory muscles?
   a) Glottalic
   b) Velaric
   c) Pulmonic
   d) None of the above

5. The opening between the vocal cords is called _____.

a) Glottis
b) Prime glottis
c) Post glottis
d) Epiglottis

B. Read the following statements. State if they are True or False

1. The glottis is open as we breathe in or out. This is the position in which voiceless sounds are produced.

a) True
b) False

2. It is the front, bony part of the roof of the mouth is called soft palate.

a) True
b) False

3. The alveolar ridge is the part between the upper teeth and the hard palate.

a) True
b) False

4. Trachea is the tube that connects our throat to our lungs.

a) True
b) False

5. The main function of the vocal cords is to produce voiced sounds only.

a) True
b) False

5.7.2 Short Answer Questions:

1. How are sounds produced?
2. What is the state of the glottis in the production of voiced sounds?
3. Explain the glottis in vibration.
4. What are the vocal cords?
5. Name the air-stream mechanism used for producing English sounds.

5.7.3 Long Answer Questions:

1. Describe the organs responsible for speech.

2. Write a note on Speech Mechanism.
3. Discuss air-stream mechanisms

5.6 Suggested Readings

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Unit-6: Description of Speech Sounds

Structure

6.0 Introduction
6.1 Objectives
6.2 IPA Symbols
- **6.2.1** Description of Vowels
- **6.2.2** Pure Vowels
- **6.2.3** Diphthongs
- **6.2.4** Triphthongs
- **6.2.5** Consonants
- **6.2.6** Place of Articulation
- **6.2.7** Manner of Articulation
- **6.2.8** Voicing
- **6.2.9** Description of Consonant Sounds
  - **6.2.9.1** English Plosives
  - **6.2.9.2** Affricates
  - **6.2.9.3** Fricatives
  - **6.2.9.4** Nasals and other Consonants
  - **6.2.9.5** Three Term Label of Consonants

6.3 Learning Outcomes
6.4 Glossary
6.5 Sample Questions
6.6 Suggested Readings

6.0 Introduction

Speech sounds are produced for it to be transmitted as well as perceived. As a result, an ideal description of speech sounds would include details on their production, transmission, and reception (hearing). Speech can be described and classified in three ways: articulatory, acoustic, and auditory. Phonetics, known as the study of speech sounds, is concerned with the analysis and description of speech sounds. We know that speech sounds are called phonemes. A phoneme is the smallest unit of speech that has a distinct meaning. A phoneme differs from a letter. English is not a phonic language. It means that nobody knows exactly how to pronounce a word by

spelling. Since English is a language with multiple sources, there is no co-relation between sound and letter, and hence all English letters don't produce sound. Some letters are silent, while others have several sounds. Different letters produce same sound. For instance, the letters 'c' and 'k' produce the sound /k/ such as in '**c**ar' and '**k**ettle' and there are same letters that produce different sounds, for example the letter 'c' produce different sounds as in '**c**ar, **ch**urch, and **c**ell,' as /k/, /tʃ/, and /s/, respectively.

Speech sounds are broadly divided into two categories; namely, vowels and consonants. The English word "bee" is made up of two sounds, one represented by the letter "b" and the other by the letters "ee." When we articulate the sound 'b,' the lips are touched. When the mouth opens, air escapes and sound comes outside freely. Thus the sound that is represented by the letter 'b' in the word 'bee' is a consonant sound and the sound represented by the letters 'ee' in the word 'bee' is a vowel sound. This unit deals with the classification of vowel sounds and consonant sounds.

6.1 Objectives

The unit has been designed to fulfill the following objectives

- To help students to understand IPA Symbols
- To enable students to understand the difference between vowels and consonants
- To make students know the classification of vowel sounds
- To help students to understand diphthongs
- To make students to know about consonants

6.2 IPA Symbols

The phonetic transcription is a useful device for indicating how words of a language are spoken. As a single symbol symbolizes a single sound only, the letters '*ch*' in words like *church, character, school,* and *machine* will all have various symbols because the letter "*ch"* is pronounced in a different way in each of the terms mentioned. Consider the words *cell* and *car,* both of which begin with the letter ***c***. Similarly, the pronunciation for the letter "***c****"* is different in each of the two words, as you can see from the transliteration. Furthermore, if the same sound is

represented by distinct phonetic symbols in different words, the sound will be denoted by the identical phonetic symbol in its phonetic transcription. This feature of phonetic transcription, namely, "one sound, one symbol," allows us to convey "the pronunciation of words unambiguously in writing", allowing pronunciation to be provided in dictionaries. In this unit, we will go through the symbols that are used to transcribe English. We'll use the symbols of the International Phonetic Association, where various notations are available. These symbols are known as the International Phonetic Alphabet (IPA), an alphabetic phonetic notation system based primarily on the Latin letters. The IPA symbols can be used to transcribe the sounds of any language. This helps in improving English pronunciation and gaining confidence when speaking the language.

6.2.1 Description of Vowels:

All English learners will need to know how to pronounce English vowels and consonants. Strong phonics skills enhance reading and writing abilities. This chapter has been prepared to help you in mastering vowels and consonants by providing step-by-step instructions. You may learn how to pronounce a word by looking at the vowels and where they are in the word. When two vowels are combined in English, the first vowel is usually spoken the most. For example, the word 'real' has a long '*e*' sound, but 'gain' is pronounced with the '*a*' making the most sound. Most of the students used to learn to read by "sight reading" many years ago. Because they had not mastered the sounds of the consonants and vowels, the students were typically poor spellers. Let's see the detailed explanation of vowels and consonants.

A vowel is a sound produced by a letter that is not a consonant. The vowel letters are 'a, e, i, o, u' while the consonant letters are the other twenty-one. Although vowels are extremely important in the English, we make several typical and invisible mistakes with them in our daily lives, such as when we speak in workplaces or meetings. This is because, when speaking, we are often unaware of the pronunciation because we are focused on the spelling only; as a result, some words beginning with the vowel letters 'a, e, i, o, u' are not followed by 'an,' and some words that do not begin with vowels but are sounded as should be followed by 'an.' Consonant and vowel sounds distinct. The word "potato," for example, has three consonant and three vowel sounds. Similarly, vowel and consonant sounds are found in all of the words. Read the following words and you can find vowel sounds in each. E.g.: Pencil, college, university, father, and examination.

Vowel sounds are typically voiced. Air flows freely through the vocal tract during the production of vowel sounds. According to Daniel Jones, a vowel “as a voiced sound in forming which the air issues in a continuous stream through the pharynx and mouth, there being no obstruction and no narrowing such as would cause audible friction.” The lips, tongue, and jaw are used to form the air as it leaves the mouth. It is critical for learners to recognize the various positions and sounds. Many students import vowels from their native tongues, resulting in three to four words sounding same in English. Mastering vowels involves many factors such as correct positioning of the mouth, sound selection and use of stress. In the production of vowels, the lips can be rounded or unrounded. The pure vowels and symbols are explained in detail.

6.2.2 Pure Vowels:

There are twelve pure vowel sounds in English. They are called monophthongs. A dictionary definition of a pure vowel is, "a vowel uttered with more or less uniform quality and without any glide."

Sl. No	Vowel Phonemes	Initial	Medial	Final
1	/iː/	eager	read	See
2	/ɪ/	Is	Live	Many
3	/e/	End	red	It does not occur finally
4	/æ/	as	mat	It does not occur finally
5	/ɑː/	Arm	part	Car
6	/ɒ/	on	pot	It does not occur finally
7	/ɔː/	all	call	draw
8	/ʊ/	Urdu	Good	To
9	/uː/	Ooze	Cool	zoo
10	/ʌ/	Up	Cut	It does not occur finally
11	/ɜː/	earn	World	myrrh
12	/ə/	ago	forget	letter

(Figure 1: Vowel Phonemes or Symbols)

Monophthongs can be divided into two classes:

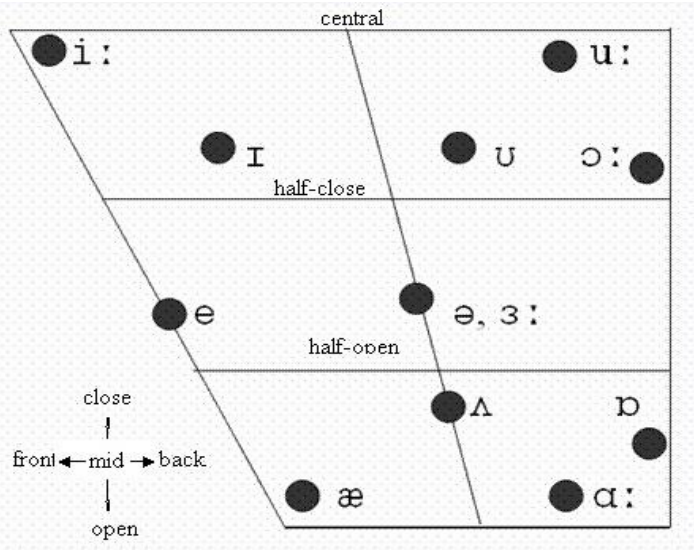
1. Long vowels

2. Short vowels

There are five long vowels: /iː/, /uː/, /ɑː/, /ɔː/, /ɜː/

There are seven short vowels: /ɪ/, /e/, /æ/, /ɒ/, /ʌ/, /ʊ/, /ə/

The complete diagram of English vowels is:



(Figure 2: Vowel Diagram)

Among the twelve pure vowels, there are 4 front vowels (/iː/, /ɪ/**,** /e/, /æ/); 5 back vowels (/ɑː/, /ɒ/, /ɔː/, /ʊ/, /uː/); and 3 central vowels (/ʌ/, /ɜː/, /ə/). These are:

Front vowels (/iː/, /ɪ/**,** /e/, /æ/) are those in which the front of the tongue is raised toward the hard palate during production. E.g. The vowels in the words are: *meat, sit, net* and *fat.*

Back vowels (/ɑː/, /ɒ/, /ɔː/, /ʊ/, /uː/) are those in which the back of the tongue is raised toward the soft palate during production. E.g. The vowels in the words *full, fool, god, caught,* and *art.*

Central vowels (/ʌ/, /ɜː/, /ə/): During the generation of central vowels, the tongue's centre is lifted in the direction of the meeting point of the hard and soft palates. For example, the vowels in the terms: *aloud* (initial syllable), *bird,* and *money* (first syllable). Consequently, we may divide vowels into three groups based on the region of the tongue that is lifted. *(Figure 2: Vowel Diagram)*

Height of the tongue:

Vowel classification based on the part of the tongue lifted is insufficient. We need to categorise vowels even further. Only a little portion of the tongue can be elevated to produce

vowels. The gap between the roof of the mouth and the tongue is too tiny beyond that point for air to escape without friction. As a result, the vowels will be classified based on the height of the tongue when articulating them:

1. Close Vowels: These are the vowels in whose production a part of the tongue raised remains close to the roof of the mouth.

2. Open Vowels: These are the vowels in whose production the tongue is far away from the roof of the mouth.

Taking the height of the tongue into account, we can divide vowels into four categories:

(a) Front close vowel: "The front of the tongue is raised and it is close to the hard palate."

(b) Front open vowel: "The front of the tongue is raised and it is far away from the roof of the mouth."

(c) Half close vowel: "The tongue is between close and open, but it is closer to close than open."

(d) Half open: "The tongue is halfway open, but it is closer to open than close."

Position of lips:

The position of the lips is a third requirement for vowel categorization. To articulate a vowel, the lips can be rounded or unrounded/spread. As a result, a vowel is described as follows:

a) Raised part of the tongue (i.e. front, back and centre)

b) The length of time the tongue is lifted (open, close, half open, half close)

b) Lips in a certain position

Front Vowels:

1. /iː**/ as in 'neat' /ni:t/**

It is a front close long unrounded vowel. While producing the sound, lips are spread. The tongue is tense. The front of the tongue is lifted in the direction of the hard palate. This vowel may come at initial, medial and final positions in terms such as 'eat' /i:t/, 'peak' /pi:k/, 'see' /si:/ respectively. It is spelt: '*ee*' as in f**ee**l, s**ea**t; 'ea' as in dr**ea**m, **ea**ch, l**ea**d; 'ie' as in ch**ie**f, f**ie**ld, p**ie**ce; 'ei' as in dec**ei**ve, rec**ei**ve, s**ei**ze.

2. /ɪ/ or /i/ as in 'silk' /silk/

It is a front just above the half-close short unrounded vowel. It is very common vowel. Lips are spread while articulating this sound. The tongue's front is lifted in the direction of the

hard palate. The tongue is comparatively lax. This vowel may occur initially, medially and finally in words like ‘it’ /it/, ‘sit’ /sit/, ‘city’ /siti/ respectively. This sound is spelt: ‘i’ as in b**i**t, cl**i**ff, r**i**ch, th**i**ck; ‘e’ as in b**e**gin, bigg**e**st, carel**e**ss; ‘y’ as in s**y**ntax, m**y**ster**y**, s**y**stem.

3. /e/ as in ‘Pen’ /pen/

It is a front vowel which occurs between half-open and half-close. The vowel is short and unrounded. Observe its pronunciation. While producing this sound, lips are loosely spread. The front of the tongue is lifted to a height between half-close and half-open in the direction of the hard palate. The vowel may come in initial and medial positions in words as in ‘any’ /eni/ and ‘bed’ /bed/. It usually may not come in the final position. The vowel is spelt: ‘e’ as in b**e**d, l**e**ft, n**e**st, r**e**st; ‘ea’ as in d**ea**d, h**ea**d, m**ea**sure, ready; ‘a’ as in **a**ny, m**a**ny.

4. /æ/ as in ‘fan’ /fæn/

It is a front vowel which is unrounded and short. It occurs between open and half open positions. While articulating this sound, the lips are neutral. Front of the tongue is slightly below the half open position. This vowel may come at initial and medial positions in words as in ‘act’ /ækt/ and ‘rat’ /ræt/. It does not occur finally. It is spelt: ‘a’ as in h**a**t, m**a**t, r**a**t, t**a**x.

Back Vowels:

In English, there are **five** back vowel phonemes.

1. /ɑː/ as in ‘last’ /lɑːst/

It is a back long open unrounded vowel. While articulating this sound, the lips are neutral. It is produced with mouth wide open. /ɑː/ may come at initial, medial and final positions in words as in ‘art’ /ɑːt/, ‘dart’ /dɑːt/ and ‘car’ /kɑːʳ/ respectively. It is generally spelt by the letter ‘a’ after that a silent ‘r’ in syllable as in b**ar**, c**ar**d, f**ar**m, h**ar**d, l**ar**ge, p**ar**t; It is often followed by a silent letter ‘l’ in words as in c**al**m, p**al**m, b**al**m; at times ‘f’ or ‘ff’ can succeed: st**a**ff, **a**fter; Sometimes ‘ss’ can follow: p**a**ss, cl**a**ss.

2. /ɒ/or /o/ as in ‘hot’ /hɒt/

It is a back vowel which is rounded and short. It occurs just above the open position. While articulating this sound, the lips are slightly rounded. The tongue’s back is just above the fully open position. /ɒ/ may come at initial and medial positions in words as in ‘ox’ /ɒks/ and ‘box’ /bɒks/. The vowel is spelt ‘o’ as in **o**dd, b**o**ttle, d**o**g, f**o**nd, h**o**t, n**o**t; ‘ou’ as in c**ou**gh.

3. /ɔː/ as in ‘fall’ /fɔːl/

It is a back vowel which is rounded and long. It occurs between half open and half close position while lips are rounded during its articulation. In the direction of the soft palate, the back of the tongue is lifted. It possible that /ɔː/ may come at initial, medial or final position in words as in 'ought' /ɔːt/, 'bought' /bɔːt/ and 'law' /lɔː/ respectively. It is generally spelt "au" or "aw": t**au**ght, dr**aw**n, dr**au**ght.

4. /ʊ/ as in 'book' /bʊk/

It is a back vowel which is rounded and short. It occurs just above half close position. While pronouncing it, lips are rounded, the tongue is lax. In the direction of the soft palate, the back of the tongue is lifted. /ʊ/ may not come at initial position in a word but may come at medial and final position in words as in 'put' /pʊt/ and 'to' /tʊ/. The sound is spelt: 'u' as in p**u**sh c**u**shion, p**u**ll, p**u**t; 'oo' as in l**oo**k, b**oo**k, f**oo**t, s**oo**t, w**oo**d, st**oo**d, w**oo**l, r**oo**m.

5. /uː**/ as in 'tube' /tju**ː**b/**

It is a back vowel which is rounded and long. It occurs at the close position. While pronouncing the sound, the tongue is tensed, In the direction of the soft palate, the back of the tongue is lifted. /uː/ may come at initial, medial and final position in words as in 'ooze' /uːz/, 'root' /ruːt/ and 'zoo' /zuː/ respectively. The sound is usually spelt: "u' or 'oo" as in r**u**le, r**oo**t and tab**oo**. The letter 'o' is as in r**o**ute, thr**o**ugh, r**o**utine, s**o**up. The palatal /j/ is frequently preceded by the sound, which is optionally included in terms like s**u**it, fr**u**it, m**u**sic, m**u**tiny, d**u**ty, p**u**pil, r**u**de, **u**nion.

Central Vowels:

In English, there are three **central vowel** phonemes. They are:

1. /ʌ/ as in 'bus' /bʌs/

It is a central unrounded short vowel. It occurs just above the open position. When pronouncing this sound, the centre of the tongue is elevated towards between hard palate and soft palate. /ʌ/ can occur initially and medially in words such as 'up' /ʌp/ and 'cut' /kʌt/. It may not come at final position in a word. It is usually spelt: "u" as in b**u**t, **u**nder; "o" as in fr**o**nt, c**o**me, and h**o**ney. 'ou' and 'oo' are as in c**ou**rage, s**ou**thern, r**ou**gh, t**ou**gh, bl**oo**d, fl**oo**d.

2. /ɜː**/ as in 'earn' /ɜ**ː**n/**

It is a central vowel which is unrounded and long. It occurs between half close and half open, and only in accented syllables. While articulating the sound, lips are neutral. The tongue is

tensed, and the centre of the tongue is lifted towards between hard palate and soft palate. /ɜː/ may come in initial, medial and final positions in words as in ‘earn’ /ɜːn/, ‘learn’ /lɜːn/ and ‘fur’ /ɜː/ respectively. It is spelt: The letters ‘it’ ‘ur’ ‘er’ ‘ar’ ‘yr’ succeeded by a consonant sound as in b**ur**n, b**ir**d, f**er**n, le**ar**n, m**yr**tle, e**ar**ly, jo**ur**nal, jo**ur**ney.

3. /ə/ as in ‘aside’ /əˈsʌɪd/

It is a central vowel which unrounded and short. It is the most frequent vowel in English. It occurs between half close and half open position. While producing this sound, the tongue’s centre is lifted towards between hard palate and soft palate. /ə/ may come at initial, medial and final positions in words as in ‘alas’ /əlæs/, ‘forgive’ /fəgiv/ and ‘master’ /mɑːstə/ respectively. The sound is spelt: The letters ‘a’ and ‘e’ as in **a**side, c**o**llide, rath**e**r.

Language students are perplexed by vowel symbols. Symbols and spellings are not interchangeable. It appears to be fairly difficult to learn English vowels because Indian languages don’t have some of these sounds. However, one should try to practise phonetic symbols twice on paper and remember the following three terms for vowel labels.

Three Term Label of Vowels:

1. **/i**ː/ - It is a front close long unrounded vowel.
2. **/ɪ/ or /i**̭**/** - It is a front just above the half-close short unrounded vowel.
3. **/e/** - It is a front between half-close and half-open short unrounded vowel.
4. **/æ/** - It is a front unrounded short vowel and occurs between open and half open positions.
5. **/ɑ**ː/ - It is a back long open unrounded vowel.
6. **/ɒ/or /o/** - It is a back rounded short vowel.
7. **/ɔ**ː/ - It is a back rounded long vowel.
8. **/ʊ/** - It is a back rounded short vowel.
9. **/u**ː/ - It is a back rounded long vowel.
10. **/ʌ/** - It is a central unrounded short vowel.
11. **/ɜ**ː/ - It is a central unrounded long vowel.
12. **/ə/** - It is a central unrounded short vowel.

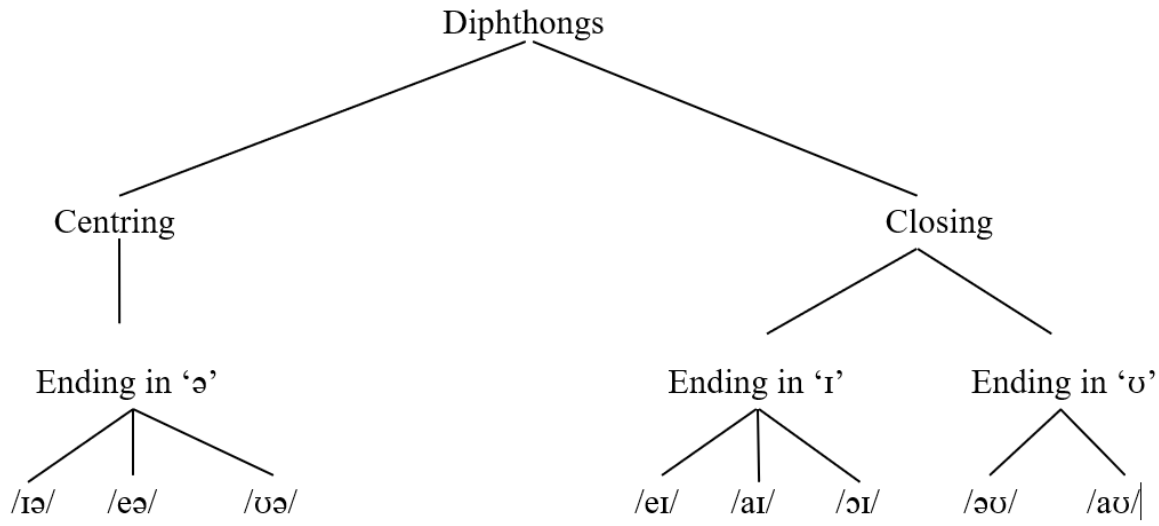
6.2.3 Diphthongs:

Diphthongs are vowel sounds that are made up of two separate vowel sounds. When we say them out loud, we can hear how one vowel sound transforms into another. The two vowel sounds of the diphthongs can be heard if we say the words slowly. For instance, the word ‘eye’ has a diphthong /**ə**/ and /ɪ/. It's important to remember that the first half of every diphthong is much longer and stronger than the second. The sounds of a diphthong change from beginning to end, they are transcribed in IPA.

Sl No	**Vowel Phonemes**	**Words**
1	/eɪ/	Pay, case, game, face, may, day,
2	/aɪ/	Right, fight, cry, lie, dry, might, high
3	/ɔɪ/	Boil, joy, choice, boil, toil, coin, point
4	/əʊ/	Gold, road, show, cold, go, no
5	/aʊ/	Allow, mouth, town, brown, allow
6	/ɪə/	Idea, fear, near, dear, tear, ear
7	/eə/	Dare, scare, chair, fair
8	/ʊə/	Cure, tour, poor, jury, sure

(Figure 3: Diphthongs Symbols)

Diphthongs can be divided into two types. We have given a simple diphthongs diagram below. Observe the following diagram. You can understand the classification of diphthongs.



(Figure 4: Diphthongs Classification)

Diphthongs are two types. They are centring diphthongs and closing diphthongs.

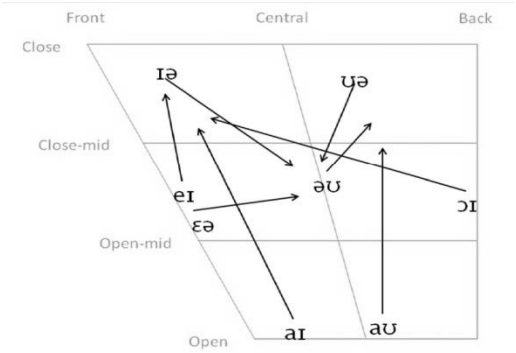
Centring diphthongs end in ‘ə’ -/ɪə/, /eə/, and /ʊə/

Closing diphthongs are two types. They end in ‘ɪ’ and ‘ʊ’.

Diphthongs that end in ‘ɪ’ -/eɪ/, /aɪ/, and /ɔɪ/

Diphthongs that end in ‘ʊ’ -/əʊ/, and /aʊ/

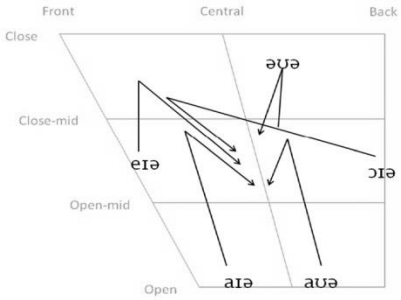
The given diagram indicates diphthongs in RP sound. The depicted arrows show the direction of the glide between two vowels.



(Figure 5: Diphthongs)

6.2.4 Triphthongs:

Triphthongs are the most complicated vowel sounds in English. They can be difficult to pronounce and even harder to recognise. Three vowels (sometimes letters or sounds) uttered in a single syllable (as in ‘vowel’/vaʊəl/). Triphthongs /aʊə/ is represented by the letters ‘ow.’ A triphthong, often known as /a-ʊ-ə/, is a transition from one vowel to the next and then to the third. The given diagram indicates the diphthongs in RP sound. The depicted arrows show the direction of the glide between three vowels.



(Figure 6: Triphthongs with glides)

Look at the words given below. There are five diphthongs at the end of the word, with the sound ‘ə’ coming as and ending sound.

Triphthongs				
eɪ + ə = eɪə	aɪ + ə = aɪə	ɔɪ + ə = ɔɪə	əʊ + ə = əuə	aʊ + ə = auə
layer	Lire	employer	Lower	power
player	Fire	Royal	slower	hour

(Figure 7: Triphthongs)

The fact that the vowel movement is so little is the main source of difficulties for Indian students. The fact that the extent of vowel movement in modern English is so small is the main source of difficulties for Indian learners. As a result, the middle of the triphthong's three vowel characteristics is hardly audible, and the ensuing sound is hard to differentiate from long vowels and diphthongs. If we observe, the middle /i/ and /u/ in /aiə, auə/ are rather weak. E.g.:

Word	**Transcription**	**Word**	**Transcription**
tyre	/taiə/	tower	/tauə/
trial	/traiəl/	tired	/taiəd/
quiet	/kwaiət/	bower	/bauə/
buyer	/baiə/	powerful	/pauəfl/
flyer	/flaiə/	flower	/flauə/

(Figure 8: Triphthongs and Words)

The lesser popular sequences are /eiə, əuə, ɔiə/. These sequences must be pronounced with the regular diphthong effortlessly succeeded by /ə/. But here /i/ and /u/ are not faded. A few examples are given below:

Word	**Transcription**	**Word**	**Transcription**
greyer	/greiə/	employer	/implɔiə/
grower	/greuə/	thrower	/rəuə/
player	/pleiə/	betrayal	/bitreiəl/
royal	/rɔiəl/	lawyers	/lɔiəz/

(Figure 9: Triphthongs and Transcription)

Check your progress

1. What are diphthongs?

_____

_____

2. Explain diphthongs ending in ‘ə’.

_____

_____

6.2.5 Consonants:

A consonant is a speech sound produced by closing the vocal tract completely or partially. There are twenty-one consonant letters in English but the sounds are twenty-four in number. The consonant symbols are given here:

Sl. No	**Vowel Phonemes**	**Words**
1	/p/	pair, cup, pen,
2	/b/	bad, crab, ribbon
3	/t/	tall, hit, table, batter
4	/d/	day, dog, mad, filled
5	/k/	key, clock, school, kite, cat
6	/g/	god, ghost, gun, guest
7	/tʃ/	match, church, nature
8	/dʒ /	marriage, judge, jump
9	/f/	fat, coffee, fun
10	/v/	van, view, move
11	/θ/	thing, author, path
12	/ð/	thus, other, these
13	/s/	soon, sun, sister
14	/z/	zero, music, buzz
15	/ʃ/	sure, ship, nation
16	/ʒ/	pleasure, vision, leisure
17	/h/	hot, house, hotel, high
18	/m/	mat, more, money, mango
19	/n/	nap, nice, know, night
20	/ŋ/	ring, sing, think, king
21	/l/	feel, light, lamp, lean

22	/r/	run, right, sorry, right
23	/j/	use, yet, few
24	/w/	wet, when, queen

(Figure 10: Consonant Symbols)

The twenty-four consonant sounds in English are described by three major parameters. They are the place of articulation, the manner of articulation, and voicing.

6.2.6 Place of Articulation:

Consonant sounds are produced when the vocal tract (pharynx, mouth cavity, and nasal cavities) is constricted. The place of articulation is the location of the constriction. There are numerous other points of articulation; we will list them.

Firstly, the airflow is altered by a constriction generated between the upper lips and lower lips in bilabial sounds. The first sound in the words '**p**en, **b**all, **t**ell, **d**og, **k**ite, **g**un' are some of the examples.

Secondly, labiodental sounds relate to sounds that have a constriction between the upper teeth and lower lip. The first of the words '***f****an* and ***v****an*' are some of the good examples.

Thirdly, dental noises are sounds that have a constriction between the tip of the tongue and the upper teeth. The first sound in thin and thus is an example. We need to distinguish between different parts of the tongue i.e. tip, blade, front, and back for the understanding places of articulation correctly. Let's look at the numerous points along the upper part of the mouth as well: the hard palate i.e. bony part of the roof, the palato-alveolar a.k.a post-alveolar i.e. the region between the hard palate and alveolar ridge, and the velum a.k.a soft palate i.e. soft part at the back of the roof. **Alveolar sounds** are those that have a constriction between the alveolar ridge and the tongue's tip. An example is the first sound in *sin*.

Palato-alveolar sounds are those that have a constriction between the palato-alveolar region and the tongue's tip. The first sound in *ship* is an example.

Palatal sounds are those that have a constriction between the front of the tongue and the hard palate. The first sound in "yes" is an example.

Velar sounds are those with a constriction between the back of the tongue and the velum. An example is the first sound in *cool*.

Look at the following table and observe the classification of consonant sounds.

Classification	Articulators	Examples
Bilabial	Upper lip and lower lip	/p/, /b/, /m/, /w/
Labio-dental	Lower lip and upper teeth	/f/, /v/
Dental	Teeth and tip of tongue	/θ/, /ð/
Alveolar	alveolar (teeth) ridge and tip and blade of tongue	/t/, /d/, /s/, /z/, /n/, /l/
Post-alveolar	Hard palate and tip of tongue	/r/
Palato-alveolar	Hard palate—alveolar and tip, blade and front of tongue	/tʃ/, /dʒ/, /ʃ/, /ʒ/
Palatal	Hard palate and front of tongue	/j/
Velar	Soft palate and back of tongue	/k/, /g/, /ŋ/
Glottal	Glottis (vocal cords)	/h/

(Figure 11: Place of Articulation)

6.2.7 Manner of Articulation:

Different degrees of constriction in the vocal tract produce consonant sounds. The **manner of articulation** describes the different degrees of constriction.

Classification	Manner of articulation	Examples
Plosive	complete closure	/p/, /b/, /t/, /d/, /k/, /g/
Affricate	complete closure and slow release	/ʧ/, /ʤ/
Fricative	close approximation	/f/, /v/, /θ/, /ð/, /s/, /z/, /ʃ/, /ʒ/, /h/
Nasal	complete oral closure	/m/, /n/, /ɳ/
Lateral	complete closure in the centre of the vocal tract and the air passes along the side(s) of the tongue	/l/
Frictionless continuant	open approximation	/w/, /r/, /j/

(Figure 12: Manner of Articulation)

6.2.8 Voicing:

When we pronounce a sound, if we feel a vibration at the throat then it is a voiced sound otherwise it is a voiceless sound. Voicing is very important in pronouncing different words. For instance, the pronunciation of words 'bet' and 'pet' look same. The close observation gives us that in pronouncing 'bet' (/bet/) we could feel that the /b/ sound is voiced. Similarly, in 'pet' (/pet/) the /p/ sound is voiceless. Look at the following sounds and you understand the voiceless and voiced sounds.

- The voiceless consonant sounds:

  /p/, /t/, /k/, /f/, /s/, /θ/, /ʃ/, /ʧ/, /h/

- The voiced consonant sounds:

  /b/, /d/, /g/, /v/, /z/, /ð/, /ʒ/, /dʒ/, /n/, /m/, /ŋ/, /l/, /w/, /r/, /j/

6.2.9 Description of Consonant Sounds:

In this section, we shall discuss different consonant sounds such as plosives, fricatives, nasals, laterals, etc.

6.2.9.1 English Plosives

- In English, there are six plosive consonants:

  /p/, /t/, /k/, /b/, /d/, /g/

- English consonants are unvoiced and voiced. Examples of voiceless sounds are /p/, /t/ and /k/ whereas /b/, /d/ and /g/ are voiced sounds.
- /p/ and /b/ are bilabial sounds. The lips are pressed together.
- /t/ and /d/ are alveolar sounds. The tongue is pressed against the alveolar ridge.
- /k/ and /g/ are velars. The back of the tongue is pressed against an intermediate area between the soft and the hard palate.

Place of articulation			
	bilabial	alveolar	Velar
Voiceless	/p/	/t/	/k/
Voiced	/b/	/d/	/g/

(Figure 13: Place of Articulation: Plosives)

6.2.9.2 Affricates

Affricate is a consonant sound that starts with a stop (full obstruction of the breath stream) and ends with a fricative (sound with incomplete closure and a sound of friction). Affricates are called semi-plosives. /ʧ/ and /dʒ/ are the affricates. /tʃ/ is a voiceless sound. /dʒ/ is a voiced sound.

6.2.9.3 Fricatives

Fricatives give a "hissing" sound when we pronounce them. There are nine fricatives. They are:

/f/, /v/, /θ/, /ð/, /s/, /z/, /ʃ/, /ʒ/, /h/

They are produced by the air escaping through a small passage in the mouth. The first sound in *fan* is produced by bringing the lower lip close to the upper teeth in a close approximation constriction. A voiceless labio-dental fricative (transcribed as /f/). The consonant in *van* is the voiced counterpart (the voiced labiodentals fricative, written as /v/). The first sound in *theatre* is produced by putting the tongue's tip into close contact with the upper teeth. It is a voiceless dental fricative, which is represented by the letters /θ/. The voiced dental fricative (/ð/) is the initial sound in the word for some speakers.

The initial sound in *sea* is made by pressing the tongue's tip against the alveolar ridge. This /s/ sound is a voiceless alveolar fricative. The consonant in *zoo* is the voiced alveolar fricative (/z/). The first sound in the word *shine* is made by moving the tongue blade into close proximity to the palato-alveolar area. This /ʃ/ is a voiceless palato-alveolar fricative. The word pleasure has the voiced sound /ʒ/. The glottal fricative /h/, like in the first sound in *hight*, is a third option. The sound is generated by drawing the vocal cords together in a constriction of

close approximation, causing friction. We will assume this is a voiceless sound because the vocal cords are not vibrating.

	Place of articulation				
	Labio-dental	Dental	alveolar	Palato-alveolar	Glottal
Voiceless	f	θ	s	ʃ	-
Voiced	v	ð	z	ʒ	h

(Figure 14: Place of Articulation: Fricatives)

6.2.9.4 Nasals and other Consonants

Nasals: In phonetics, a nasal speaking sound occurs when the velum at the rear of the mouth is lowered, allowing air to enter into the nose. The mouth is occluded at some point by the lips or tongue in the case of nasal consonants. For example, English *m*, *n*, and *ng* /ŋ/ (the final sound in "sing"). In producing these sounds, the airstream is totally discharged through the nose. Nasalized sounds are those that are partially released via the nose and partially through the mouth. Nasalized vowels are frequent in French, Portuguese, and a variety of other languages (e.g., vin “wine,” bien “good,” and enfant “child”).

Lateral: A lateral consonant sound is produced by lifting the tongue’s tip against the roof of the mouth, allowing air to flow past one or both sides of the tongue. Laterals are the /l/ sounds in English, and other languages.

Approximants (Frictionless Continuant):

The first sound in ***yes*** is an approximant. The tongue’s front is brought near to the hard palate to generate it. Despite the fact that the sides of the tongue are completely closed against the upper gums, air escapes via a central groove where the tongue’s front is not close enough to the hard palate to cause friction. This is a voiced palatal approximant, which is written as /j/. We won’t address any voiceless analogues for these sounds because approximates are usually voiced.

The initial sound in many English speakers’ pronunciation of rope, rip, rat, among many other examples is an approximant. The tongue blade is constricted into an open approximation with the alveolar ridge to form it. An alveolar approximant is an approximant that is transcribed as /r/. For the moment, let’s focus on a different type of sound: the sound at the beginning of

weather. The lips form an open approximation constriction to make this sound: no friction is produced. However, it is more difficult to articulate than /j/, the palatal approximant, because it also demands extra articulation between the velum and the tongue's rear. As a result, we'll call it a voiced labial-velar approximant, and it is written /w/. Consonants are easy to say and remember, whereas vowels require more concentration because the same letter might have multiple pronunciations. If you want to excel at English consonants, it's a good idea to see which consonant sounds in your native tongue are equivalent. This will give confidence in you while also saving you time. The last thing is to practice the sounds regularly.

6.2.9.5 Three Term Label of Consonants:

1. /p/ - voiceless bilabial plosive
2. /b/ - voiced bilabial plosive
3. /t/ - voiceless alveolar plosive
4. /d/ - voiced alveolar plosive
5. /k/ - voiceless velar plosive
6. /g/ - voiced velar plosive
7. /f/ - voiceless labio-dental fricative
8. /v/ - voiced labio-dental fricative
9. /Θ/ - voiceless dental fricative
10. /ð/ - voiced dental fricative
11. /s/ - voiceless alveolar fricative
12. /z/ voiced alveolar fricative
13. /ʃ/ - voiceless palate-alveolar fricative
14. /ʒ/ - voiced palato-alveolar fricative
15. /h/ - voiceless glottal fricative
16. /tʃ/ - voiceless palato -alveolar affricate
17. /dʒ/ - voiced palato -alveolar affricate
18. /m/ - voiced bi-labial nasal
19. /n/ - voiced alveolar nasal
20. /ŋ/ - voiced velar nasal
21. /j/ - voiced palatal semi-vowel
22. /w/ - voiced bi-labial semi-vowel
23. /r / - voiced post-alveolar frictionless continuant
24. /l/ -voiced alveolar lateral

6.3 Learning Outcomes

In this unit, we drew your attention towards English speech sounds. Spelling and pronunciation do not have a one-to-one correlation. The pronunciation of the same letters of the alphabet might vary. As a result, we need a method for transcribing English sounds where each sound is represented by a single symbol. For such transcription, the IPA system is commonly used. Some popular dictionaries have additionally included the various transcription schemes

they used. We recommend sticking to one set of symbols and practicing transcribing English words and sentences because dictionaries differ in their use of specific symbols.

You may have observed that the five long vowels differ not only in length but also in quality from the seven short vowels. When we compare short and long vowel pairs that are similar such as /u/ with /u:/ and /i/ with /i:/, we can discern clear variances in quality due to differences in shape as well as position of the tongue, and position and length of lip. As a result, all long vowels have distinct symbols from short vowels. There are 20 vowels in the RP of the English language. There are 12 monophthongs (pure vowels) and eight diphthongs among them. There are 4 front vowels, 5 back vowels, and 3 central vowels. There are eight diphthongs, of which three glide towards /i/: /ei, ai, i/, three towards /i, e, u/ and two towards /u/: /au, u/. Thus it is expected that upon the completion of this unit, students are able to define the speech sounds. Students can explain the difference between vowel sounds and consonant sounds. The unit has given to the students three label of vowels and consonants. Students can explain pure vowels, diphthongs, triphthongs, consonant sounds and its place and manner of articulation in detail.

6.4 Glossary

Alveolar ridge: The bony ridge behind the upper teeth, important in the articulation of alveolar consonants.

Bilabial: Articulated with both lips.

Dental: Pertaining to the teeth.

Glottal: Pertaining to the glottis.

Labiodentals: The major stricture involving the lower lip and upper teeth.

Larynx: Voice box

Nasal cavity: The broad cavity that connects the nostrils to the pharynx and is located above the oral cavity.

Oral cavity: The portion of the vocal tract between the pharynx and the lips that contains the tongue and teeth and is bounded on top by the alveolar ridge, palate, and velum.

Palatal: Pertaining to the palate.

Pharyngeal: Pertaining to the pharynx.

Pharynx: The gap between the oral cavity, the nasal cavity, and the route above the larynx at the rear of the mouth.

Syllable: A unit of pronunciation having one vowel sound

Vocal Cords: The vocal ligaments and the vocalis muscle, with a mucous membrane covering, form a symmetrical pair of tissues in the larynx.

6.5 Sample Questions

6.5.1 Objective Questions:

A. Read the sentence and choose an appropriate option:

1. How many diphthongs are there in English?
   a) 12
   b) 20
   c) 08
   d) 24
2. Identify the word among the following which has the sound/**ɑ**ː/
   a) get
   b) come
   c) ask
   d) clock
3. Find out the front unrounded short vowel.
   a) /ɒ/
   b) /ʌ/
   c) /ʊ/
   d) /æ/
4. Observe the following and find the back rounded short vowel.
   a) /uː/
   b) /ɑː/
   c) /ɒ/
   d) /ʌ/
5. _____ is voiceless consonant sound.
   a) /r/
   b) /j/
   c) /ŋ/

d) /dʒ/

B. Read the following statements. State if they are True or False

1. The word ‘rat’ has the sound **/æ/**
   a) True
   b) False
2. / ʃ / voiced alveolar fricative
   a) True
   b) False
3. /d/ - voiced alveolar plosive
   a) True
   b) False
4. /iː/ is a back long open unrounded vowel.
   a) True
   b) False
5. /ɔː/ is a central unrounded short vowel.
   a) True
   b) False

6.5.2 Short Answer Questions:

1. How the vowels in English are classified?
2. Discuss front vowels in detail.
3. Give the phonetic descriptions for the sounds /p/ /b/, /t/ /d/, /k/ and /g/?
4. What are the fricatives? Discuss.
5. Distinguish between Laterals and fricatives.

6.5.3 Long Answer Questions:

1. Distinguish between voiceless consonants and voiced consonants.
2. Write a note on diphthongs. Give examples from English.
3. How many back vowels in English? Indicate their tongue positions

6.6 Suggested Readings

1. Balasubramanian, T. *A Textbook of English Phonetics for Indian Students*. Delhi: Macmillan Limited, 1981.
2. Bansal, R.K. *Spoken English: A Manual of Speech and Phonetics*. Hyderabad: Orient Blackswan, 2013.
3. Carr, Philip. *English Phonetics and Phonology*. Oxford: Basil Blackwell, 1999.
4. Catford, J.C. *A Practical Introduction to Phonetics*. Oxford: OUP, 2001.
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Unit 7: Phonemes, Phones, Allophones, and Minimal Pairs

Structure

7.0. Introduction
7.1. Objectives
7.2. Phoneme
    7.2.1 English Phoneme Inventory: Consonants
    7.2.2 English Phoneme Inventory: Vowels
    7.2.3 Minimal Pairs
    7.2.4 Allophones
    7.2.5 Complementary Distribution
    7.2.6 Phonetic Similarity
    7.2.7 Phonological Rules
    7.2.8 Phone
    7.2.9 Phonemicization
7.3. Learning Outcomes
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7.5. Sample Questions
7.6. Suggested Reading

7.0 Introduction

The linguistic study of any language often starts with the analysis of speech sounds that are present in the language. Out of all the speech sounds human beings can produce, languages make a selection of sounds called phonemes that are distinct in terms of articulation. These sound differences serve to distinguish between words. Apart from phonemes, speakers of a language also produce certain sounds that are phonetically different from the phonemes. They are called allophones, and they occur in limited positions in a word. In this chapter, we shall learn how these two types of sounds are different. In addition to learning the phonemes present in the English language, we shall also discuss how to identify allophonic variations by looking at their

distribution. Later in the chapter, we shall look into the techniques that linguists use to establish phoneme inventories of languages.

7.1. Objectives

The learning objectives of this unit are:

- To understand the concepts of phonemes, allophones, phones, and minimal pairs
- To explore the phoneme inventory of the English language
- To be able to explore the concepts of phonemes and allophones and draw distinctions between these two categories
- To get acquainted with the techniques through which the *phoneme inventories* of languages are examined and established

7.2 Phonemes

Human languages consist of speech sounds that are produced using parts of our vocal apparatus in different manners. These speech sounds differ in terms of several criteria. At this point, we understand that different vowel sounds result from tongue-height, lip-rounding, and backness differences involving the body of the tongue. For consonants, differences in voicing (± voice), the place of articulation, and the manner of articulation lead to the production and distinctions of various consonants. Thus a language can have a wide range of different sounds. Please note that the human vocal tract is capable of producing an infinite number of audibly distinct sounds. Out of all the sounds that a human being can produce (for example, the sounds present in the IPA), a particular language selects only a subset that constitutes the **sound system** or the **phoneme inventory** of that language.

These sounds serve as units that form words with varying meanings. The purpose of sound segments in any human language is to build different words that encode meanings. Therefore, phonological studies of a language often start with identifying these basic units of sounds present in the language. These minimal distinctive units of speech sounds are called

phonemes. For example, the sounds /b/ , /ɪ/, /t/ are combined together to form the word [bɪt]. If one replaces just one sound of this word, for instance, from /b/ to /p/, the resulting word [pɪt] will have a different meaning.

Similarly, changing only the vowel from /ɪ / to /ɛ/ will give us two words with two completely different meanings, [bɪt] and [bɛt]. Please bear in mind that any pair of phonemes, as in /b/ and /p/ as shown above, are contrastive- their primary function is to separate entities. Thus, two phonemically distinct words are different, as in [bɪt] and [pɪt].

Phonemes, therefore, are the **units** of sound since they are discrete in nature. We cannot use just one part of a phoneme in any word. It always appears as a whole unit. Phonemes are **distinctive** or **contrastive,** as the replacement of one phoneme by another leads to a change in meaning. They are considered to be the fundamental phonological categories in the linguistic knowledge shared by a speech community. To be qualified as a phoneme, a speech sound has to cause a '*change of meaning*' of the words it is a part of. While transcribing, phonemes are written in between two slashes.

Languages around the world have a different number of phonemes in their phonemic inventories. The lowest number of phonemes so far has been recorded in the East Papuan language *Rotokas*. They only have 11 phonemes. On the other hand, the *Khosian* language of Namibia named *!Xóõ* has the highest number of phonemes-160.

English (The Received Pronunciation variety) has a total of forty-four phonemes in its inventory. These include twenty-four consonants, twelve pure vowels, and eight diphthongs.

At this point, we must examine and explore how the distribution of phones is used to establish the phonemic contrast and form the phoneme inventory of a language. In this regard, we shall now examine the phoneme inventory of English (language).

7.2.1 English Phoneme Inventory: Consonants

Production of **consonants** involves some **sort of constrictions** in the vocal tract. Constrictions here refer to the restrictions of the air stream, either partially or entirely, at some point in the space between the larynx and the lips during the production of a consonant sound. They are usually quieter than vowels, and consonants can be both voiced and voiceless. You have already learned that the distinct quality of a consonant is the result of a number of factors- 1. the state of

the vocal folds determines whether the consonant is voiced or voiceless, 2. involvement of different places of articulation leads to the production of different consonants, and 3. how the active articulator comes into contact with the passive articulator also plays a role in the phonetic identity of the consonant. Like any other language, English too hosts several consonants that can be distinguished in terms of voicing (state of the glottis), place of articulation, and manner of articulation features. In total, there are 24 consonants in English.

The English consonant inventory includes six plosives, three of which are voiced and three voiceless; two affricates (one voiced, one voiceless), three nasals (all voiced), nine fricatives (out of the nine, five are voiceless and four are voiced), one lateral approximant (voiced), and three central approximants (all voiced). If you observe the table given below, you will notice that not all of the places of articulation are utilized. While fricatives involve more places of articulation, giving us more number of fricative phonemes, only palatoalveolar affricates are present in the language. This shows that English has selected a limited set as its phoneme inventory out of all the sounds that human beings, in general, are capable of producing. This holds true for any other human language as well.

The following table (Table 7.1) shows the articulatory features of all the consonant phonemes present in English. An example word is cited along with each consonant. The target consonant sound in the example word is marked for readers' understanding.

		Bilabial	**Labio dental**	**Dental**	**Alveolar**	**Palatoalveolar**	**Palatal**	**Velar**	**Glottal**
Stops	voiceless	/p/ **p**in			/t/ **t**in			/k/ **k**in	
	voiced	/b/ **b**in			/d/ **d**in			/g/ **g**un	
Affricates	voiceless					/ʧ/ **ch**in			
	voiced					/dʒ/ **g**in			
Fricatives	voiceless		/f/ **f**in	/θ/ **th**in	/s/ **s**in	/ʃ/ **sh**in			/h/ **h**ymn
	voiced		/v/ **v**im	/ð/ **th**is	/z/ **z**ip	/ʒ/ vi**s**ion			
Nasals		/m/ **m**itt			/n/ **n**ip			/ŋ/ si**ng**	
Approximants	lateral				/l/ **L**ynn				
	central	/w/ **w**in			/ɹ/ **r**im			/j/ **y**in	

Table 7.1: Consonant inventory of English. Source: *Introductory phonology* (1st ed., p.21), by B. Hayes, Blackwell Publishing.

As mentioned previously, the most efficient way of identifying sounds as phonemes is by examining whether they form minimal pairs or not. A minimal pair can be defined as two expressions (words or morphemes) of a particular language with distinct meanings that are distinguished by only one phoneme ([**p**ɪn] vs. [**b**ɪn]). In other words, two words that differ in meaning when only one sound is changed are referred to as '*minimal set*' or '*minimal pair*.' The following charts show that all the phonemes present in table 7.1 can form minimal word pairs. Pair of sounds here replace one another, giving us words with entirely unrelated or different meanings. Thus, all of these sounds qualify to be a phoneme in the English language. They are discrete units of sounds that are distinct from one another.

Plosives	voiceless	voiced	Word-initial	Word-final
Bilabial	/p/	/b/	pin [**p**ɪn] - bin [**b**ɪn]	cap [kæ**p**] - cab [kæ**b**]
Alveolar	/t/	/d/	tin [**t**ɪn] - din [**d**ɪn]	cat [kæ**t**] - cad [kæ**d**]
Velar	/k/	/g/	calorie [**k**ælərɪ]- gallery [**g**ælərɪ]	back[bæ**k**] - bag[bæ**g**]

Table 7.2: There are six plosives in English- two bilabials [±voice], two alveolars [±voice], and two velars [±voice]. The examples cited in this table display the contrastive distributions of all the plosives present in English.

Fricative	Voiceless	Voiced	Word-initial	Word-final
Labio-dental	/f/	/v/	fan [**f**æn] - van [**v**æn]	safe[sæ**f**]- save[sæ**v**]
Dental	/θ/	/ð/	thigh [**θ**aɪ] – thy [**ð**aɪ]	sooth [su:**θ**] - soothe [su:**ð**]
Alveolar	/s/	/z/	sip [**s**ɪp] – zip [**z**ɪp]	face [fæ**s**]- phase [fæ**z**]
Palato-alveolar	/ʃ/	/ʒ/	shell [**ʃ**ɛl]- gel [**ʒ**el]	bush [bu**ʃ**]- booze[bu**ʒ**]

Table 7.3: English hosts eight fricatives- two labio-dentals [±voice], two dentals [±voice], two alveolars [±voice], and two palate-alveolars [±voice]. The examples cited in this table display the contrastive distributions of all the fricatives present in English.

Affricates	Voiceless	Voiced	Word -initial	Word-final
Palato-alveolar	/tʃ/	/dʒ/	chin [**tʃ**ɪn]- gin [**dʒ**ɪn]	etch [ɛ**tʃ**] - edge [ɛ**dʒ**]

Table 7.4: There are two palate-alveolar affricates [±voice] observed in English. The examples cited in this table display the contrastive distributions of both the affricates present in English.

Nasals	Bilabial	Alveolar	Velar	Word-initial	Word-final
(voiced)	/m/	/n/	/ŋ/	meat [**m**it] – neat [**n**it] (/ŋ/ does not occur word initially in English)	sim [sɪ**m**] - sin [sɪ**n**] - sing [sɪ**ŋ**]

Table 7.5: There are three nasal consonants (all voiced) present in English- one bilabial, one alveolar, and one velar. The examples cited in this table display the contrastive distributions of all the nasals present in English.

Approximants	Lateral	Central	Word Initial	Word- Final
Bilabial	/l/	/w/	lit [**l**ɪt] – wit [**w**ɪt]	ball [bɔ**l**]- bow [bɔ**w**]
Alveolar		/ɹ/	lot [**l**ɔt] – rot [**r**ɔt]	real [riə**l**] – rear [riə**r**]
Velar		/j/	let [**l**ɛt] – yet [**y**ɛt]	

Table 7.6: There are three approximants (all voiced)- one bilabial, one alveolar, and one velar. English also hosts one alveolar lateral (voice) in its phoneme inventory. The examples cited in this table display the contrastive distributions of all the approximants and the only lateral present in English.

7.2.2. English Phoneme Inventory: Vowels

As we have learned in the previous units, speech sounds can be divided into two primary categories- consonant and vowel. A **vowel** is a highly **sonorous** sound that generally requires **an open-air passage** in the mouth. The air passage is modified by manipulating the shape of the mouth (widening (= low) or closing (= high), leading to different heights), varying the positions of the tongue (tip = front, blade = central and back = back vowels), and lips positions (rounded or unrounded). Vowels are usually voiced; i.e., the vocal cords continue to vibrate during the production of a vowel sound. Vowels are the nucleus of a syllable; i.e., you cannot form a syllable without a vowel. In that sense, every language must have (at least a) vowel sound to be able to distinguish lexical (word) meaning. English too hosts a number of vowel phonemes that are different from one another in terms of the (tongue) height, the location of the tongue, and the shape of the lips.

In English, there are twenty vowel sounds- twelve monophthongs and eight diphthongs. Diphthongs are produced by combining two monophthongs. These vowels are produced using different vocal tract modifications, with differences in *openness*, *tongue positions*, and *lip*

rounding. It also shows the diphthongs present in the language. Following O'Connor (first edition 1973), we have listed the vowels in English (Table 7.7).

	Front Unrounded	*Central Unrounded*	*Back*		*Diphthongs*
			Unrounded	*Rounded*	
Upper High	/iː/ b**ea**t,			/uː/ **boo**t	/aɪ/, /ɑʊ/, /ɔɪ/ b**i**te, b**ou**t, b**oy**
Lower High	/ɪ/ b**i**t			/ʊ/ **foo**t	/eɪ/, /ʊə/, b**ai**t, p**u**re
Upper Mid	/e/ s**e**t	/ə/ **a**lone ɜː b**ea**rd			/ɛə/, /əʊ/, /ɪə/ f**ai**r, g**o**, h**e**re
Lower mid	/æ/ b**a**t, p**a**t		/ʌ/ b**u**t	/ɔː/ b**ou**ght	
Low			/ɑː/ f**a**ther	/ɒ/ n**o**t	

Table 7.6: Vowel inventory of English. Source: *Introductory phonology* (1st ed., p.22), by B. Hayes, Blackwell Publishing.

Now, let us look at how these vowel phonemes participate in the formation of minimal pairs. Just like the consonants, some examples of minimal pairs for several English vowels are shown in the tables given below:

	Upper High	Lower High	Word initial	Word-medial
Front vowels	/iː/	/ɪ/	eat [**iː**t] - it [**ɪ**t]	seat [s**iː**t] – sit [s**ɪ**t]
	Lower mid	Low		
	/ɛ/	/æ/	at [**ɛ**t] – ate [**æ**t]	bet [b**ɛ**t] – bat [b**æ**t]

Table 7.7: There are four front vowels in English that are distinguishable in terms of their height variations. The examples cited in this table show the contrastive distribution of the front vowels of English.

Back Vowels	Upper High	Lower High	Word-Medial
	/u/	/ʊ/	pool [p**u**l] – pull [p**ʊ**l]
	Lower mid	Low	Word-Medial
	/ʌ/	/ɑ:/	fur [f**ʌ**r] – far [f**ɑ:**r]
	/ɔ:/	/ɒ/	balks [bɔ:ks] - box [bɒks]

Table 7.8: There are six back vowels in English that are distinguishable in terms of their height variations and lip-rounding. The examples cited in this table show the contrastive distribution of the back vowels of English.

Central Vowels	Upper Mid	Lower Mid	Word-Medial
	/ə/	/ɜ:/	cos [k**ə**z] – curs [k**ɜ**:z] forward [ˈfɔ:.w**ə**d] – foreword [ˈfɔ:.w**ɜ**:d]

Table 7.9: There are two central vowels in English that are distinguishable in terms of their height variations. The examples cited in this table show the contrastive distribution of the back vowels of English.

		Word initial	Word medial	Word final
Diphthongs	/eɪ/-/aɪ/ -/ɔɪ/	ail [**eɪ**l] – isle [**aɪ**l]- oil [**ɔɪ**l]	tail [t**eɪ**l] - tile [t**aɪ**l]- toil [t**ɔɪ**l]	Bay [b**eɪ**] – bye [b**aɪ**]- boi [b**ɔɪ**]
	/ʊə/ - /ɛə/ - /ɪə/	you're [**ʊə**r] - air [**ɛə**r] ear [**ɪə**r]	boor [b**ʊə**r] – bear [b**ɛə**r] – beer [b**ɪə**r]	--
	/ɑʊ/-/əʊ/	oat [**ɑʊ**t] – out [**əʊ**t]	bout [b**ɑʊ**t] - boat [b**əʊ**t]	now [n**ɑʊ**] - know[n**əʊ**]

Table 7.10: There are eight diphthongs present in English. The examples cited in this table show the contrastive distribution of the diphthongs present in English.

Check your progress:

I. Fill in the blanks:

1. Phonemes are_____of sound because they are _____ in nature.
2. English has _____ phonemes, _____of those are consonants and _____are pure vowels
3. The lowest number of phonemes is recorded in the language called_____

II. 'To be qualified as a phoneme, a speech sound has to cause a '*change of meaning*' of the words of which it is a part'- do you agree? Cite examples to justify your answer.

III. Illustrate the English Phoneme contrasts for the phoneme sets given below using their contrastive distribution.

	Initial position	final position
1. /θ, ð/		
2. /p, f/		
3. /t, θ/		

4. /d, ð/

5. /h, w/

6. /u, au/

7. /ɪ, ɛ/

7.2.3 Minimal Pairs:

Consider the following two words [bit] and [pit] carefully. You will notice that they differ only in terms of the initial segment /b/ and /p/. Apart from that, the two words are almost identical. Yet, the differences in their meaning identify /b/ and /p/ as contrastive phonemes. A pair of words that differ in terms of sounds in only one location effectively shows that two sounds are distinctive phonemes. These pairs are called **minimal pairs**.

Examples:

big [**b**ɪg] pig [**p**ɪg]

meat [**m**it] neat [**n**it]

but [bʌ**t**] bud [bʌ**d**]

bag [bɛg] big [bɪg]

geese [giz] goose [guz]

The presence of minimal pairs shows that phonemes are always in contrastive distribution. They can appear in identical environments, while they posit a contrast by replacement of one by another.

Bin [bɪn]

Din [dɪn]

Gin [zin]

Chin [tʃɪn]

Fin [fɪn]

Thin [θɪn]

Sin [sɪn]

Win [wɪn]

As shown above, for many phonemes, the notion of minimal pairs can further be expanded. There can be larger minimal sets ranging from minimal triplets (ex: 'time' [**t**aɪm], 'dime' [**d**aɪm], and 'lime' [**l**aɪm]), quadruplets to 13-tuplets.

Check your progress:

1. Define minimal pairs with examples.

7.2.4 Allophones:

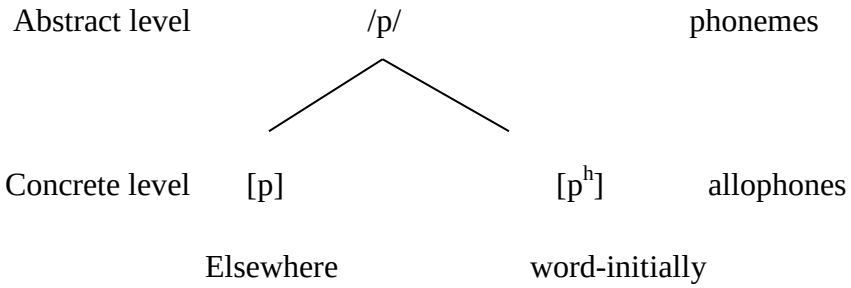
If two sounds differ (from one another) in terms of their pronunciation, but one never replaces the other, they are called allophones. For example, in English, the voiceless bilabial plosive sound [p] becomes aspirated [p^h] when it occurs at the beginning of a word. Consider the following instances, police [**p**$^{\mathbf{h}}$ulis], pin [**p**$^{\mathbf{h}}$in], picture [**p**$^{\mathbf{h}}$iktʃər], etc. However, it is unaspirated when it occurs in other positions, e.g., help [hæl**p**], laptop [lɛ**p**tɔ**p**], etc. It shows that the presence of the two sounds is conditioned by their positions in words. In such a case, [p] and [p^h] will be considered to be **allophones of the same phoneme** [**p**].

7.2.5 Complementary Distribution:

The most striking characteristic of allophones is that their distribution is predictable. They always occur only in specific positions within a word. Here, voiceless the aspirated bilabial plosive [p] occurs only in word-initial positions, while its unaspirated counterpart occurs in any other position in a word. They cannot replace one another because the context or environment dictates which one should occur. Another way to put this is that both sounds are in **complementary distribution**; one occurs in positions where the other cannot occur. Differences

in their pronunciations are the results of their positioning. These differences do not involve any change in meanings. Therefore these two are just two variants of the same phoneme.

The phonemic pattern of the two allophonic variations will be:

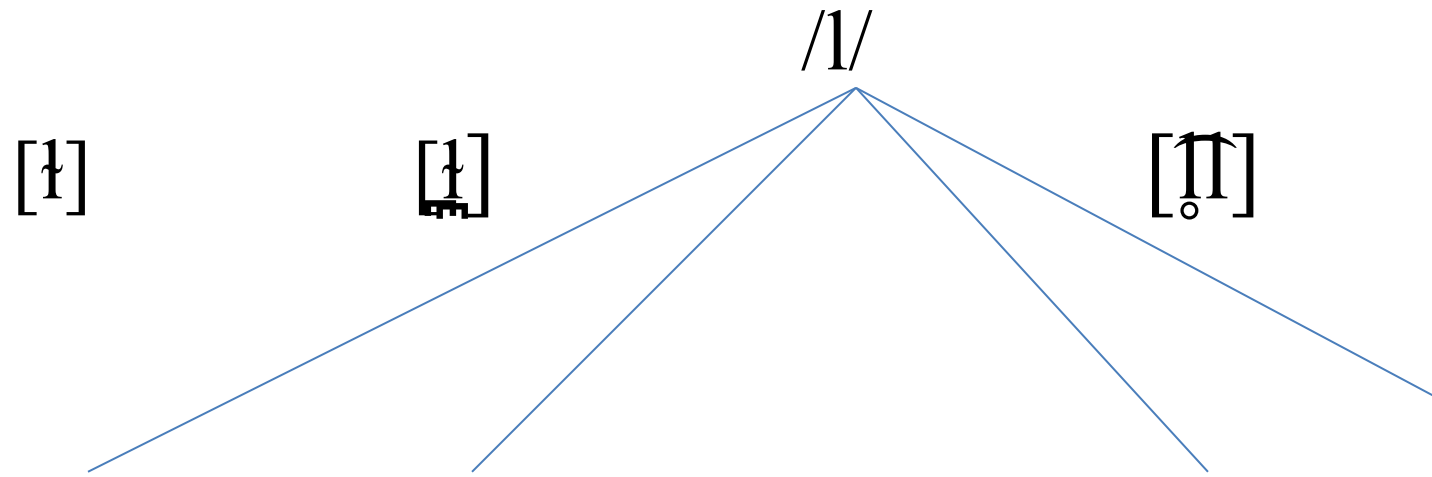


As suggested by this diagram, phoneme categories are abstractions. They represent the knowledge speakers have about how to pronounce a sound. Allophones, on the other hand, are the concrete forms of sounds, the form they take when they are physically pronounced by means of movements of speech organs. Most of the time, speakers do not intentionally produce these allophones. Thus, allophones with occurrences in limited environments are by-products of the articulatory process.

The lateral approximant [l] phoneme has four allophonic variations that occur in four different phonetic environments in English. These allophones are- velarized [ɬ], which is pronounced with a raised tongue towards the back of the mouth, dental velarized [ɬ̪] where the place of articulation is the upper front teeth, and [l̥l͡] which starts as voiceless but ends as voiced throughout its utterance.

[ɬ]	[l̥l͡]	[ɬ̪]	[l]
Tile [tɑɪɬ]	plight [pl̥l͡ɑɪt]	health [hɛɬ̪θ]	lesson [lɛsən]
cool[kuɬ]	slight [sl̥l͡ɑɪt]	wealth [wɛɬ̪θ]	lot [lɔt]
Feel [fiɬ]	complete [kɔmpl̥l͡ɪt]	filthy [fɪɬ̪θi]	below [bilɔw]
All [ɔɬ]	cling [kl̥l͡ɪŋ]	tilth[tɪɬ̪θ]	blend [blɛnd]

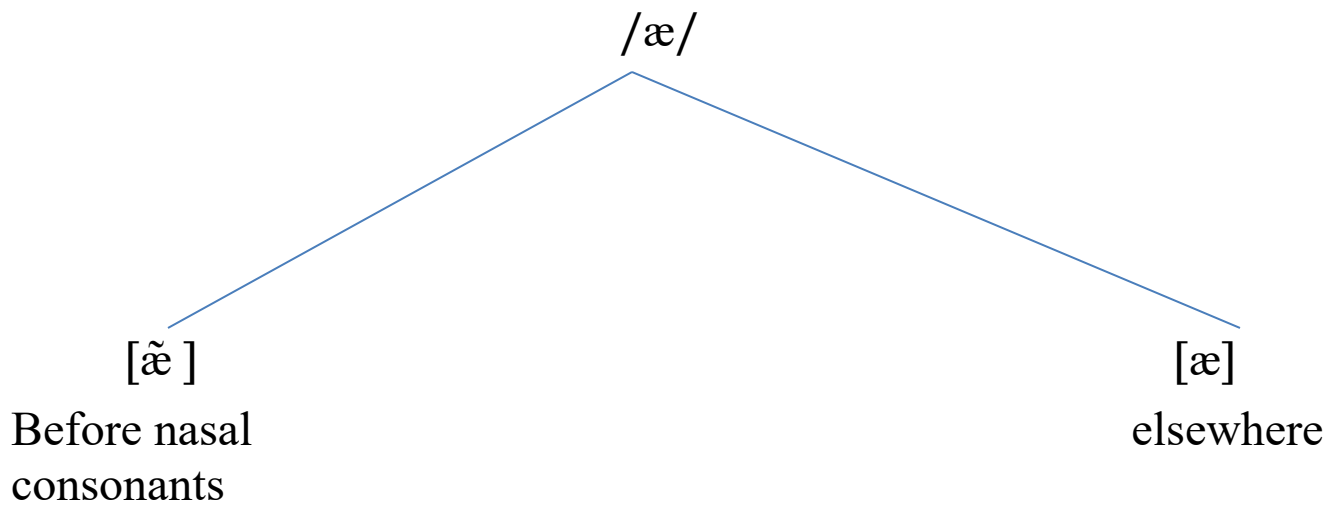
The pattern of distribution of these four allophones are:



Another example of allophones in English involves nasalized vowels. Vowels are nasalized when they occur before nasal consonant sounds.

æ		ã̈	
cat	[kæt]	can	[kæ̃t]
ant	[ænt]	sang	[sæ̃ŋ]
sad	[sæd]	camera	[kæ̃mərə]

The phonemic pattern of the two sounds are:



7.2.6 Phonetic Similarity:

To be considered allophones, sounds that exist in complementary distribution have to be phonetically similar to be considered allophones. They share certain phonetic features rather than being totally dissimilar in terms of their articulation. It's highly unlikely that sounds that exist further apart from one another in the IPA chart are allophones. Therefore, even if two sounds like /p/ and /k/ are in complementary distribution, they cannot be called allophones of the same phoneme. Let's look at all the examples presented in the chapter. We will see that allophones of a particular phoneme share considerable phonetic features while being different in terms of minor differences in articulation. For instance, [p] and [p^h] are different only in terms of aspiration; the allophones of /l/ are all lateral sounds.

From a cognitive point of view, speakers of a language consider all allophonic variations of a phoneme to be parts of one single category. This is the reason why native speakers may not be aware of the different pronunciations they are making. They intuitively recognize both [p] and [p^h] as the same sound.

It is possible to have allophones of one language as phonemes in another language. In Arabic, the voiceless bilabial plosive [p] and its voiced counterpart [b] are in complementary distribution. In this language, the two sounds [p] and [d] are allophones, while in a language like English, the same sounds are phonemes that occur in contrastive distribution.

In preliminary phonological studies of a language, to determine whether two sounds are phonemes or allophones, one observes whether they can form minimal pairs or stand in complementary distribution.

***Check Your Progress*:**

Please observe the following data (listed below). The data shows the distribution of two allophones, the alveolar nasal [n] and the dental nasal [n̪]. What will be their phonemic pattern?

[n] ~ [n̪]

nail	[neɪl]	ninth	[naɪn̪θ]
begin	[bigin]	panther	[pɛn̪θɚ]
hunter	[hʌntɚ]	synthetic	[sɪn̪θɛtɪk]

7.2.7 Phonological Rules:

Phonological rules are generalizations about the environmental requirements of an allophone. It is a formal notation that describes in which positions an allophonic variation of a phoneme will. These rules are preferred over descriptions in prose because of clarity and precision. Phonological rules are made up of two parts-

1. Formalism expressing the environment:

We have already seen that allophones occur in specific contexts. There is a formal way of showing the environment in which an allophone can occur. In phonology, the **slash** / indicates this environment. For allophone [l̥l̥͡], which we know to appear before [θ], the environment will be shown as,

/____θ

Here, the dash represents the position of the allophone.

Similarly, for the allophone [p^h] that occurs word-initially, the environment will be,

/#_____

the symbol # represents word boundary

The entire class is represented in the rule if the environment involves a whole class of sounds, like vowels, consonants, voiced, voiceless, rather than stating one phoneme. For instance, the allophone nasalized vowel [æ̃] occurs before nasal consonants, so its environment will be represented as follows:

/_____ $\begin{pmatrix} +\text{consonant} \\ +\text{nasal} \end{pmatrix}$

Other such notations frequently used in formulating rules are,

C: Consonants

V: Vowels

$: Syllable Boundary

2. Expression of the change from underlying representations to derivations

This part of phonological rules characterizes allophones as different versions of one abstract phoneme. The abstract phoneme is sometimes referred to as **underlying Representation** or **base form.** When pronounced in different contexts, this abstract form changes into different physical forms called allophones. In the context of rules, they are called **derivations**. This change is shown using the notation /x/ ⟶ [y]/a_____b

Taking the previous example, we will have a rule as following

/l/ dentalization

/l/ ⟶ [l̪]/_____θ

7.2.8 Phones:

Phone refers to any concrete sound produced using some articulatory gestures regardless of their identity as phoneme or allophone in the phonology of the language. Phones are never abstract. In that sense, phones are the **smallest** unit of speech sound. They always have physical forms that result from the different configurations of our speech organs. It is essential to comprehend that a

sound (phone) can essentially be a *phoneme* only when it is produced and perceived within the context of a particular language. To make it clear, one must understand that not all the sounds produced by a native speaker of a given language can be considered a phoneme.

On the contrary, all the phonemes are definitely part of the *phoneme inventory* of that particular language. Moreover, one must also remember that a particular phoneme of a given language may or may not be considered a phoneme in another language. It means that every individual language hosts its exclusive phoneme inventory that is different from other languages.

Regardless of whether they are in contrastive or complementary distribution, as long as sounds have concrete forms with phonetic features, they are considered phones. Therefore, all the allophones we have discussed can be identified as phones. David Crystal defines phones as the smallest perceptible discrete segment of sound in a stream of speech. From a segmental phonological perspective, phones are the concrete realization of phonemes. Therefore all the phonic varieties of a single phoneme are referred to as allophones.

7.2.9 Phonemicization:

As we have learned at the beginning of this chapter, the linguistic study of any language often starts with identifying and organizing sounds present in the language. The process of establishing sounds as phonemes in any language is called *phonemization*. Linguists use several standard techniques to determine whether a sound is a distinct *phoneme* or an *allophonic variation*. It is one of the tasks in a linguistic study that potentially take up a lot of time because it requires the linguist to have excellent experience recognizing minute differences in the articulation of sounds. Moreover, not all phonemes in a language are equally productive. Some of them may appear in a minimal number of words discovered only when one has access to an extensive vocabulary. In this regard, the linguists, by and large, rely on the 'minimal pair' test or at least the 'near minimal pair' test to establish the phoneme inventory of a particular language.

Minimal pair test:

As the starting point for the phonological description of a language, linguists often look for minimal pairs or sets containing the sounds in question. Sets of words that are different in terms of sounds present in that word in only one position serve as the most reliant way of establishing sounds as phonemes. The words ‘bin’ [**b**ɪn], ‘din’ [**d**ɪn], ‘gin’ [**z**in], chin [**tʃ**ɪn] constitute such a

set which gives out the information that /b/, /d/, /z/, /tʃ/ are four different phonemes English. However, it is possible for some sounds not to have such minimal pairs or sets. This does not immediately imply that such sounds are not phonemes. To confirm whether they are phonemes or not, a linguist will resort to other techniques.

Near minimal pair test:

Linguists then look for near minimal pairs if the minimal pair is not found for a pair of sounds or some sounds. When a language has a large number of phonemes and/or longer words, it is not always possible to encounter minimal pairs for all the phonemes. Yet, a lack of minimal pairs cannot prove an allophone sound if its distribution shows no consistent patterns. In such cases, near minimal pairs are put to use. In these pairs, the sounds that occur immediately before and after the concerned sounds are identical. The other sounds of the words can be different. The following data shows near minimal pairs for /ð/ and /ʒ/,

Tether	[tɛðɚ]	measure	[mɛʒɚ]
Neither	[niðɚ]	seizure	[siʒɚ]
Leather	[læðɚ]	azure	[æʒɚ]

Since the local environment shows no consistent, contextual requirement pattern, these two are not allophones but are distinct phonemes.

Looking for complementary distribution:

To examine if two phonetically similar sounds are allophones of the same phoneme, linguists take a set of vocabulary and look at the local environments in which the sounds occur. If they happen to be in complementary distribution, they are marked as allophones. The following data is from Italian with words containing the sounds /n/ and /ŋ/:

[tinta] ‘dye’	[tɛŋgo] 'I keep'
[tiŋgo] 'I dye'	[nero] 'black'
[d͡ʒɛnte] 'people'	[fuŋgo] 'mushroom'

[aŋke] 'also'	[bjaŋka] 'white'
[sapone] 'soap'	[tɛnda] 'tent'
[dansa] 'dance'	[faŋgo] 'mud'

Let us look at the local environments of /n/ and /ŋ/ in all the words:

/n/	/ ŋ/
i_t	i_g
ɛ_t	a_k
o_e	ɛ_g
a_s	u_g
#_e	a_k
ɛ_d	a_g

The sound [ŋ] always occurs before velar plosives, while [n] occurs elsewhere. Both are thus in complementary distribution. Therefore they indeed are two different allophones of the same phoneme.

7. 3 Learning Outcomes

Upon the completion of this chapter, the students are expected to know the concepts of phonemes, allophones, phones, and minimal pairs. They will be able to identify which sounds are phonemes and which sounds allophones by analyzing the nature of their distribution. The students shall also be able to express the patterns of allophonic variations of any phoneme in terms of phonological rules using the formal notations. Students will further be acquainted with the process of establishing phoneme inventory through standard techniques often adopted by most linguists.

7.4 Glossary

Allophone: A phonetic variant of the same phoneme, their occurrence being conditioned by their environment. For example, the voiceless plosive in English has two allophones- aspirated voiceless plosive and unaspirated voiceless plosive; the former occurs in word-initial positions, the latter elsewhere.

Complementary distribution: Complementary distribution is a condition in which a pair of sounds occur in mutually exclusive environments; one sound cannot replace the other since its occurrence depends on their context

Contrastive distribution: Contrastive distribution refers to a relationship between two sounds that can occur in identical environments by one replacing the other. When this replacement happens, we get words with a different meaning. For instance, the words' bit' and 'pit' are different from each other in terms of the initial consonants [b] and [p], respectively. If we change the initial consonant /b/ to /p/, the resulting word [pit] will have a different meaning.

Derivation: when pronounced in different contexts, the abstract form changes into different physical forms called allophones. In the context of rules, they are called derivations.

Environment: Environment refers to the sounds surrounding the concerned sound which play a role in determining its phonetic qualities. For example, the allophone dental velarized lateral occurs before the dental fricative.

Minimal pair: Minimal pair refers to a standard technique adopted by linguists to determine whether two sounds are distinct phonemes or allophones. It involves a pair of words that are different only in terms of a single sound. Example: [bɪt] and [bɛt].

Near Minimal Pair: word pairs in which the sounds that occur immediately before and after the concerned sounds are identical. The other sounds of the words can be different.

Phone: any concrete sound produced using some articulatory gestures regardless of their identity as phoneme or allophone in the phonology of the language.

Phoneme Inventory: the list of phonemes a language uses to form different words

Phoneme: minimal meaningful unit of sound

Phonemicization: The process of establishing sounds as phonemes in any language is called phonemization. Linguists use several standard techniques to determine whether a sound is a distinct phoneme or an allophonic variation.

Underlying Representation: the notion of a phoneme is abstract in nature; it refers to the information about a sound possessed by the speakers. When physically pronounced, it may change in terms of its phonetic features, giving rise to multiple allophones. This abstract phoneme is termed as underlying Representation in the context of phonological rules.

7.5 Sample Questions

7.5.1. Objective Questions:

A. Fill in the blanks:

1.Phonemes are _____or_____**,** as replacement of one phoneme by another leads to change in meaning.

2. If two sounds differ from one another in terms of their pronunciation, but one never replaces the other, they are called _____

3. The abstract phoneme is sometimes referred to as _____or_____**.**

4. Cognitively, speakers of a language consider all allophonic variations of a phoneme to be_____.

5. Allophones with occurrences in limited environments are by-products of the _____.

B. State *true* or *false*

1. Abstract phonemes are considered to be **phones**.

2. The rhotacized upper mid-central unrounded vowel is part of the English Phoneme inventory.

3. Two phonetically very dissimilar sounds can be allophones of a single phoneme.

7.5.2. Short Answer Questions:

1. What is complementary distribution?

2. What are the two parts of a phonological rule?

3**.** Discuss the concept of minimal pair.4. How is phonetic similarity relevant to the identification of allophones?

5. What are the allophonic variations of the lateral approximant sound [l]. Discuss their environments.

7.5.3. Long Answer Questions:

1. Discuss the standard techniques used by linguists to identify phonemes and allophones in a language.

2. What are phonological rules? What is the formal notation used for phonological rules? Illustrate with examples.

3. Consider the following English words containing the phoneme /g/.

[ləg^{w}un]	[g^{w}oʊt]	[gloʊ]	[g^{w}us]
[bræg]	[g̟æf]	[g̟is]	[g̟eɪt]
[igər]	[frɑg]	[æŋgər]	[gʌɾər]
[gɑn]	[gaʊn]	[g^{w}ɔɪɾər]	[greɪd]

a. List the allophones of /g/.

b. state in words the environment in which each allophone is found.

c. Write a phonemic rule for /g/, listing one allophone as "elsewhere."

4. Consider the following English words containing the phoneme /r/.

[f̟̊i]	[hæm̩]	[əraɪz]	[dreɪn]
[t̟̊raɪ]	[r^{w}oʊd]	[rʌn̩]	[sɔr^{w}oʊ]

[mɛri]	[bɔrdr̩]	[r^{w}ut]	[fɪlr̩]
[rʌf]	[pir]	[pɑrt]	
[ər^{w}oʊz]	[pr̥əfɛsr̩]	[braɪd]	

a. List the allophones of /k/.

b. state in words the environment in which each allophone is found.

c.Write a phonemic rule for /k/, listing one allophone as "elsewhere."

5. Korean allophones

[mul] ‘water’	[mal] ‘horse’
[mulkama] 'place for water'	[malkama] 'place for horse'
[mure] 'at the water'	[mare] 'at the horse'
[pal] ‘foot’	[ratio] ‘radio’
[pari] ‘of the foot’	[ilkop] ‘seven’
[rupi] 'ruby'	

a. The sounds [l] and [r] are in complementary distribution in Korean. Describe the difference between the contexts where they are found; how is their distribution predictable from their context?

b. Do you think that [r] or [l] is the basic Korean phoneme? Explain your choice

7.6 Suggested Readings

1. Ashby, M &Maidment, J. *Introducing Phonetic Science*. Cambridge: Cambridge University Press.

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6. Ladefoged, P. &Maddieson, I. 1996. *The Sounds of the World's Languages*. Oxford: Blackwell.

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Unit 8: Stress, Rhythm, and Intonation

Structure

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8.1. Objectives
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8.0. Introduction

The study of phonology is not limited to descriptions of sound segments alone. Larger units of speech-like syllables, words, phrases, and clauses have certain crucial features in any human language. Such features are called **suprasegmental** or **prosodic features**. This chapter will discuss three major suprasegmental features- stress, rhythm, and intonation. We will look into how they are organized and their roles in human languages, particularly in English.

8.1 Objectives

In this chapter, you will be learning about:

- Stress in speech, its types, and the various degrees of stress
- Division of languages into 'stress-timed and 'syllable-timed based on their rhythmic qualities
- The nature of rhythm in English
- The forms and functions of intonation

8.2. Stress

When speakers of a language produce utterances, they put different degrees of emphasis on different words or syllables. Words in English may have one or multiple syllables. When producing words with more than one syllable, speakers make certain syllables more prominent than others. For example, the word /prɔfɪt/ has two syllables, /prɔ/ and /fɪt/, and when being pronounced, the first syllable is made more prominent than the second syllable. In the polysyllabic word /vɔkæbulæry/, the second syllable /kæ/ is more prominent than the rest. Such syllables with relatively more prominence are called stressed syllables. Stress thus is a suprasegmental property, i.e., it is a feature associated with speech units that are larger than a single phoneme, namely the syllable. Stress can involve changes in pitch, duration, and loudness

or a combination thereof. This means stressed syllables may have a higher pitch, longer duration, or higher intensity.

Pitch is the auditory correlate of the acoustic feature called fundamental frequency (f0). It is the rate at which the speaker's vocal folds vibrate in a given amount of time. The more number of times they vibrate, the higher the f0 will be. Duration is the total amount of time taken to produce a particular unit of speech like a phoneme, syllable, or a phoneme. The acoustic correlate of loudness is intensity, which is the amount of energy used to produce a sound or a larger unit.

Experiments show that pitch plays the most efficacious role in lending prominence to syllables in English, while loudness is least associated with stress among the three.

8.2.1. Syllable Weight:

In many languages, the assignment of stress depends on a criterion called syllable weight. Based on their internal structures, syllables can be classified as **heavy-syllable** or**light-syllable**. Heavy syllables are the ones that have -

i. Either one or more consonants on coda position
   /**blast**/, /ɛ**dɔpt**/, ˈ/glɪmpst/, /læps/, /wəɹld/ etc.
ii. or have a diphthong or a long vowel.
   /baund/, /krai/,/bɔy/, /fiːd/, /ruːt/, /siː/ etc.

Light syllables end with a short vowel and are open syllables without a coda.
Based on their inherent property of having longer vowels, diphthongs, and/or coda consonant(s), heavy syllables are more likely to be stressed when compared to light syllables.

8.2.2. Word stress:

In several languages, stress is consistently located on syllables in particular positions. It is therefore called **fixed stress** or **predictable stress**. In such languages, stress is easily predictable, and it performs a delimitative function. Stress here helps in segmenting the stretch of speech into regular units. Spanish, Polish, and Welsh always put stress on the penultimate syllables in words. In Hungarian, Czech and Finnish, stress is located on the initial syllable. Some languages with stress on the final syllable include Turkish and French.

Unlike languages with predictable stress placement, many languages, including English, are not found to have stress with a delimitative function. They are called languages with **free stress**. Here, the location of the stress is not straightforward; it is instead decided through the application of a number of rules. Stress in these languages marks lexical meaning or grammatical class of the words. Ex: Insight /ˈɪnsaɪt/ vs. Incite /ɪnˈsaɪt/

Absent (Adj.) /ˈæbsɛnt/ vs. Absent (V) /æbˈsɛnt/

Extract (N)/ˈækstrɛkt / vs. /ækˈstrɛkt/extract (V)

Object (N)/ˈɔbzɛkt/ vs. Object (V) /ɔbˈzɛkt/

Increase (N)/ˈɪnkriz/ vs. Increase (V) /ɪnˈkriz/

Attribute (N)/ˈætribjut/ vs. attribute (V)/æˈtribjut/ (the diacritic ˈ indicates primary stress)

Rules for word-stress in English:

A set of stress placement rules determines the location of stress to a certain extent. However, there are words in the language that stand as an exception to these rules.

Stress placement rules for **stems**-

1. Verbs and adjectives
    - If the final syllable of a word is an open syllable with a short vowel or has only one consonant as the coda, stress will be placed on the penultimate syllable

Examples: ˈpolish, exˈplicit, ˈrainy, iˈconic, ˈgraphic, ˈrigid, ˈpurple, asˈtonish,

- In other cases, the final syllable will always be stressed

Examples: deˈcide, reˈlax, diˈrect, mainˈtain, deˈfend, seˈvere

2. Nouns
    - If the last syllable of the word has a short vowel, the penultimate syllable will be stressed

Examples: nuˈtrition, hyperˈtension, reveˈlation, ˈelephant, teleˈvision, ˈmoment

- Stress will be on the final syllables when they have long vowels

Examples: dis′pute, dis′tance, po′lice, ba′loon, i′dea, can′teen, ma′chine

3. For words that have more than two syllables and a long vowel on the final syllable, the antepenultimate syllable will be stressed

Examples: 'bachelor, 'afterwards, ac'celerate, cal'culation, 'organize, com'parative

When it comes to suffixes, they fall under three groups:

- Suffixes that do not affect the stress placement of the stem will have stress based on the rules mentioned above. Some of such suffixes are:
  -ment:
  ful'fil/ful'filment, 'govern/'government, a'ppoint/ a'ppointment
  -er:
  'speak/'speaker, co'mmand/ co'mmander,
  -or :
  di'rect/di'rector, 'act/'actor, in'vent/ in'ventor
  -able :
  re'ly/re'liable, 'comfort/'comfortable, 'laugh/'laughable
  -ance:
  dis'turb/dis'turbance, per'form/per'formance
  -ly:
  'happy/'happily, 'mother/'motherly, 'clever/'cleverly

The inflectional suffixes in English typically fall under this category. Past tense and past perfect aspect marker suffix –ed, progressive aspect marking suffix –ing, and plural marker -s do not affect the stress pattern of the stems.

-ed:
′polish/ ′polished
de′cide/ de′cided
main′tain/main′tained
-ing:
′polish/′polishing

de′fend/de′fending

re′lax/re′laxing

-s

′elephant/′elephants

can′teen/can′teens

ma′chine/ma′chines

- Suffixes that attract stress, these suffixes carry the stressed syllables in the word

  -ese:

  ′China/ Chi′nese

  ′Burma/ Bur′mese

  ′Assam/ Assa′mese

  -esque:

  ′picture/pictur′esque

-ee:

em′ploy/employ′ee

′Address/Address′ee

- Suffixes that induce shift on the location of stress on the stem. Even though they are not stressed themselves, their addition causes stress to move within the stem

  -ity:

  com′patible/compati′bility

  ′moral/mo′rality

  o′riginal/origi′nality

  -ion:

  i′magine/imagi′nation

  ′exam/exami'nation

  ′oppose/oppo′sition

  -ian:

  ′physics/phy′sician

ˈmagic/ maˈgician

ˈlibrary/liˈbrarian

-ic:

ˈicon/iˈconic

aˈcademy/acaˈdemic

-cal:

ˈtechnique/techˈnical

ˈgrammar/graˈmmatical

Apart from these, there are many words made up of more than one stem morpheme. In such compound words, the first element is typically stressed.

Examples: 'football, 'breakfast, 'seafood, 'matchbox

8.2.3. Degrees of Stress:

In words with more than two syllables, all the syllables have varying degrees of stress. The rules stated above determine only the primary stress. Among syllables without primary stress, some will still be more stressed than others. For instance, in words like *exaˌmiˈnation*, and *resˌponsiˈbility* - the syllables marked by the diacritic [ˈ] indicates the most prominent or stressed syllable, while the lowercase diacritic [ˌ] marks a prominence that is lesser than the main stressed syllable, yet greater than others.

The degree of stress is examined in terms of pitch rate, intensity, duration, and vowel quality. Primary stress is deemed to be distinctly louder and longer. It carries the highest pitch, and the nucleus of the syllable has full vowel quality. Primary stress is marked with a vertical line [ˈ] placed right before the syllable above the line.

Secondary stress is weaker than primary stress, mainly in terms of pitch. It is a heavy syllable with full vowel quality but is perceived to be weaker than the primary stress. It is marked with a vertical line on the bottom, [ˌ] right before the syllable.

E.g.- ˌphone'tician, ˌsympa'thetic, exaˌmi'nation

Tertiary stress is located on syllables that are less prominent than primary and secondary stressed syllables, yet more stressed than unstressed syllables. They are not indicated by any mark.

Unstressed syllables, on the other hand, have the lowest pitch, intensity, and duration. They are weak syllables and often have reduced vowel quality. They, too, are left unmarked.

Varying degrees of stress are more evident when we consider stretches of speech that are longer than words. When produced in isolation, words have their own stress pattern, each carrying a primary stressed syllable. When they are combined to form phrases or sentences, not all of them will be produced with the original word-level stress. Only some of the words will carry stressed syllables to maintain the rhythmic pattern. Such stressed syllables are referred to as sentence stress. Again, among these syllables, only one will carry the primary stress. Such **sentence stress** is usually located on words that contain most of the semantic content. This is why grammatical words like articles and determiners are usually unstressed. Similarly, personal pronouns, conjunctions, and auxiliary verbs do not carry stressed syllables. The stress syllables are located primarily on content words like nouns, main verbs, adjectives, and adverbs.

Check Your Progress

A. Fill in the blanks:

1. Based on their internal structures, syllables can be classified as _____or _____.
2. sentence stress is usually located on words that contain _____.
3. Secondary stress is marked with _____.
4. grammatical words like articles and determiners are usually _____.
5. Experiments show that _____ plays the most efficacious role in lending prominence to syllables in English, while _____ is least associated with stress.

B. Do you think that *syllable weight* determines the properties of *stress* in a word? Give justification to your answer.

C. Discuss in brief the role of *stress* in determining the *category* of a word in English. Cite examples.

8.2.4 Rhythm:

Just like walking and breathing, speaking is also rhythmic in nature. Speech in all languages seems to be regularly aligned to some kind of beat. This beat or rhythm, however, differs from

language to language. Rhythm in language thus involves the occurrence of a particular feature at regular intervals.

According to Pike, languages of the world fall into two categories based on their rhythmic qualities- (i) **syllable-timed languages** and (ii) **Stress-timed language**s. In syllable-timed languages, syllables occur at regular intervals, which entails that all the syllables are equal in terms of duration. A few languages like French, Spanish, Turkish, Italian, Yoruba, and Korean fall under this class. On the other hand, stress-timed languages have stressed syllables occurring at regular intervals, i.e., there is always the same amount of time from one stressed syllable to the one that follows. The number and length of syllables that occur between stresses may vary.

Ex: *I 'need you to 'stay with me on 'monday.*

English is thus one of the stress-timed languages that have isochrony based on stress.

We already know that grammatical words in English are unstressed by default. Moreover, in polysyllabic words, there are a number of syllables without stress. These often undergo vowel reduction to maintain the exact timing between two stressed syllables. This further leads to complex syllable structure with consonant clusters on onset and coda positions.

8.2.5. Foot and Rhythm:

Rhythm in English is organized by means of a prosodic constituent called the **foot**. Prototypically, a foot is a unit consisting of one stressed syllable (Strong, S) and an unstressed syllable (Weak, W). Feet in which the stressed syllable occurs on the right are called **iambic** feet (W-S.) **Trochaic** feet are the ones with stressed syllables on the left (S-W.) Each foot comprises one stressed syllable and all the unstressed syllables that fall between the previous and following stressed syllables. English utterances follow the rhythm of a foot. This can be represented using slashes as follows:

I /'need you to /'stay with me on/ 'monday./

Like all syllables being of equal length in syllable-timed languages, all feet ideally have equal duration in English. We may therefore say, feet in English are isochronus. Even when feet carry a different number of syllables, their duration remains the same. This entails that if a foot has three syllables and another has one, the speaker will stretch the latter to maintain the exact timing. This is evident in feet with several unstressed syllables produced with reduced duration, resulting in a few phonological processes like *vowel reduction, assimilation,* and/or *deletion.*

Example:

a. */ 'Mike/ 'sleeps/*
b. */'Mike would have/' slept/*

Here, both (a) and (b) have two feet, despite having a varying number of syllables in the first feet. Since (b) has more syllables in its first foot, the stressed 'mike' will be made shorter to make time for the unstressed 'would' and 'have,' which are again pronounced with reduced vowels.

It is important to note that natural speech does not always strictly follow these regular patterns of rhythm. Pre-planned and organized speech tends to be more isochronous than spontaneous conversations. This is the reason why reading is more rhythmic than natural conversations that may be filled with hesitations, repetitions, speech errors, or false starts. Within literary texts, poetry is more rhythmic in comparison to writings in prose.

8.2.6 Rhythmic Alteration:

In addition to stress timing and isochrony, rhythm in English is governed by another principle called rhythmic alteration. It is the appearance of stressed and unstressed syllables in alternating order.

However, it is quite clear that most of the time, utterances do not regularly carry alternating stressed and unstressed words. We may encounter several content words occurring together which originally carry stressed syllables. Similarly, a string of originally unstressed words may also be present in utterances. In these cases, where rhythmic alteration is violated, specific rhythm rules are applied to ensure such ideal alteration of stressed and unstressed syllables.

1. When a sequence of content words occurs together, the stress of these words is dropped, making them unstressed.

Example:

In a sentence like - *'Jim's 'mother 'wants to 'visit 'Mike 'before 'Sunday*, where each word has word stress by being content words, some of the stresses are removed to have a more rhythmic utterance with alternating stressed and unstressed syllables. Therefore, the final production of this sentence will be- *'Jim's mother 'wants to visit 'Mike before 'Sunday.*

2. If a series of function words appear together, some of them are assigned stress to attain a regular rhythm.

Example:

She would have been of 'great 'help- this sentence has many function words in quick succession. These words originally do not have any word stress. However, stress is added in specific locations to achieve a natural rhythm in the speech. The sentence, therefore, will be produced with the following stress pattern; *'She would have 'been of great 'help.*

3. When two stressed syllables occur next to one another, the first one is moved to the preceding syllable from its original location to avoid a clash of stressed syllables.

Example:

The phrase *after'noon 'tea* becomes *'afternoon 'tea* to avoid clashing of stress. The same happens with, Canto'nese 'student-> 'Cantonese 'student

Check Your Progress

A. State True or false. Give reasons for your answer.

1. English is one of the stress-timed languages that have isochrony based on stress.
2. **Trochaic** feet are the ones with stressed syllables on the right.
3. Pre-planned and organized speech tends to be less isochronous than spontaneous conversations

B. How is an *iambic foot* different from a *trochaic foot*? Give examples.

C. Discuss in brief how a *stressed-timed language* is different from *syllable-timed language*?

D. Discuss in brief the rules that are required to apply to address the issue of *rhythmic alteration*. Cite example.

8.2.6 Intonation:

One of the significant suprasegmental properties of speech in most of the world's languages is intonation. When a person speaks, prosodic features like pitch, duration, and intensity do not remain the same throughout the utterances. Due to the changes in these properties, the melodies in different sentences tend to be different. For instance, the tune one

uses while asking questions is often different from that of a simple statement. Intonation refers to such melodies that stretch over utterances. It involves changes in suprasegmental features and accommodation of pauses within utterances. These suprasegmental variations are important because they may indicate sentence types or speech acts. This means we can identify whether an utterance is a question, a request, or an order. Which part of an utterance carries more prominent information can also be figured out from intonational properties. Intonation also gives out paralinguistic information like the attitude and emotion of the speaker. The meanings that are encoded in intonation are thus post-lexical, i.e., they are about the entire utterance rather than single words. Intonation can be defined in two ways: the broader definitions consider features like duration and intensity along with changes in pitch.

In contrast, narrow definitions of the term generally refer to pitch variations only. Languages that make use of pitch variations to encode linguistic meanings at the utterance level are called **Intonation Languages**. While there are languages where pitch changes may change the meanings of words, these are called **Tone Languages**. English falls under the former category of languages.

8.2.7. Forms of Intonation:

Ladd (1996) defines intonation as the "use of suprasegmental phonetic features to convey post-lexical pragmatic meanings in a **linguistically structured** way." This suggests that intonation, like any other linguistic property, consists of categorical units. The phonological study of intonation thus involves identifying what constitutes these units and how they are combined to convey different meanings. For example, a question sentence in English is made up of a nuclear accent on the pre-final syllable and a rising tone at the right boundary of the sentence.

The idea that there are intonational units present in speeches has been pervasive throughout various phonological studies on intonation. The pauses that divide longer utterances often support this assumption. When speakers produce continuous utterances, they tend to divide the streams of speech into chunks. These chunks often correspond with syntactic phrases and can be consistently marked with certain phonetic cues within the language. These are called **intonation groups**, **tone groups,** or **breath groups**. Cruttendan (1986) divides these criteria for

identifying tone groups into two types: **External criteria**, cues present at boundaries of tone groups, and **Internal Criteria**, cues that are internal to the group.

External criteria: The most apparent external marker of a tone group is **pause** or **juncture**. Instead of producing an entire stretch of speech in a single breath, speakers put varying degrees of pauses within tone groups. Pauses can be of two kinds-**unfilled pauses**, i.e., silence with no sound produced; and **filled pause**s. A filled pause in English generally involves the production of the sounds [ə] and [m]. Speakers tend to make these sounds in between pieces of speech. Such pauses can occur before words that have high semantic or lexical content. Speakers may also pause after producing the first word in an intonation group. However, junctures that are considered to be indications of an intonation group are the ones that occur at major constituent boundaries (like noun phrases or verb phrases)

The president of India/ is visiting Canada tomorrow.

Last time I came to London/and met my friends/ in our favorite restaurant.

Not all pauses hint at the presence of intonation groups. Pauses may also indicate hesitation or repetition, which makes it a less reliable cue. This makes it necessary to consider additional markers. **Anacrusis** and **final syllable lengthening** are two other external markers.

English speakers tend to produce unstressed syllables occurring at the beginning of an intonation group with a faster speed than other unstressed syllables. Such syllables are what we call 'anacrusis.'

There's a *'protest going on in our university.*

Here, *there's*, and *a* are unstressed and are occurring at the beginning of the utterance. Hence they can be reduced to the extent that they become one syllable, and the vowel of the first syllable may be dropped as well:[ðzə]. The presence of anacrusis can be taken as cues for intonation groups.

I met 'Ron yesterday/ and he was 'just having 'lunch.

In the second intonation group, the first stress falls on *just*, and the previous syllables are produced with accelerated speed. Such enhanced speed from *and* will identify them as anacrustic and further mark the beginning of a new intonation group.

The final syllable of an intonation group is sometimes lengthened. Functional explanations of such lengthening include revising the already produced intonation group and planning motor

movements for the next. Lengthening may also be a by-product of the final pitch movement carried by the last syllable.

Internal Criteria: The two internal criteria that need to be fulfilled for an utterance piece to be considered an intonation group are- the presence of at least one stressed syllable in it and pitch movement taking place at least on one of the stressed syllables in the group.

Stressed syllables on which the pitch changes its level (for example, from high to low) or direction (for example: falling or rising) are called **pitch accents**. When combined, all the pitch accents present in a tone group constitute its **whole Tune**. The most prominent pitch accent within a tone group is called the **nucleus,** the one carrying the primary stress**.** In the majority of the cases, **the last pitch accent in a tone group is the nucleus in English**.

He should have asked ˈhim first.

Here the large dots indicate all the stressed syllables in the sentence. Only the syllable /him/ qualifies to be a pitch accent since it involves a falling movement of the pitch.

However, in cases where a word is supposed to be made prominent because it contains an answer to a question asked or introduces new information, or contradicts previously stated utterance, it will carry the nucleus even if it is not sentence-final.

In most languages, including English, the most important part of the post-lexical meaning is carried by the nucleus and the pitch accents that follow. Together they constitute what is called the **nuclear tone**. This part of the melody is grammaticalized, i.e., a particular nuclear tone is consistently produced by the speakers to convey a particular meaning.

8.2.9 Functions of intonation:

Grammatical Functions: In English, intonation plays a significant role in offering pragmatic information about utterances made by its speakers. The final pitch contours in particular often carry important pragmatic information. The rising contour occurring at the sentence-final position is primarily interpreted as a marker of openness or non-finality, wherein falling contours encode certainty or closure. The recurrent pattern of falling contours at the boundary of statement utterances further justifies such interpretations. Consider the following examples-

I have an exam next ˋmonth.
She said she could notˋcome

Similarly, interrogatives in English have a rising contour at the sentence's final positions.
Are you going aˇway?
What have you ˇeaten?

Properties of intonation may also provide cues for phrase structure. Intonation groups frequently correspond to syntactic constituent units like clause, Verb phrase, Noun Phrase, etc. Most commonly, intonation groups align to clauses which can be either simple statements or parts of complex sentences. Consider the following examples-

/I'm very ˋhungry./
In ˇwinters/ when the weather is ˇgloomy/ people sit in the sun ˋtogether/

By looking at criteria like pauses, presence of pitch accents, and boundary tones, one can identify the intonation groups and syntactic phrases or clauses subsequently.

Apart from that, the intonation group may also align to syntactic units that are smaller than a clause. These can be long noun phrases or topicalized constituents.

Information structure: Speakers use various morphological, syntactic, or intonational strategies to package information in the utterances they are producing. The speaker may try attracting listeners' attention to a particular part of the utterance by making it prosodically more prominent. Similarly, whether the information present in the sentences is novel or they are already introduced in the discourse can be identified through intonational cues. Such focusing through intonation involves the placement of the nucleus on the part that is meant to be in focus. When no part of an intonation group is notably more prominent, it is said to be in **broad focus**. In this case, the nucleus falls on the last content word of the intonation group.

Roy went all the way to the 'station

The dance was really 'fascinating.

I will wait for the girl to 'come

On the other hand, utterances can contain parts with a **narrow focus,** which need to be more prominent than the other parts due to the nature of the information it carries. For example, when a person answers a content (wh) question, the answer involves new information to the discourse. In that case, the part in the answer that corresponds to the question word will be in focus. It will therefore carry the nucleus, the most prominent pitch accent in the sentence.

A.: What have you eaten?

: I have eaten an 'apple.

B.: When is she coming?

: She is coming 'tomorrow

C: Why did they go?

: They had to go because their 'boss was also coming.

If the focused constituent is a phrase rather than a single word, the stress falls on the stressed syllable of the last lexical word.

: What did the girl buy in our shop?

: she bought an expensive 'sweater.

Likewise, when a speaker is offering information that stands in contrast to something previously stated in the conversation, they will make it more prominent than the rest of the utterance. This is called the **contrastive focus**.

: I thought Bill got the job.

: Bill did horribly in the interview, so they gave it to 'John.

The contrast encoded by the focused element can be an implied one as well.

She 'said she would do it herself. (but she did not)

Mom will go by 'train to Mumbai. (not bus or flight)

Attitudinal Meanings: Intonation serves as a clue to the speakers' emotions, moods, and attitudes. The intonation of utterances informs the listeners whether the speaker is angry, sad, or happy. Moreover, information about attitude is also carried by intonation; for example, whether the speaker is sarcastic, condescending, or welcoming can be understood through the intonational patterns present in their speech.

a.The girl is pretty.

b. the girl is pretty

When produced with a falling intonation (a), the same sentence indicates a mere statement of a fact. But, when it is produced with a falling, rising contour, it implies that the speaker has some kind of reservation in his/her opinion. The girl is pretty, but she has other qualities that the speaker does not entirely entertain.

Are you going aˆway?

Are you going aˇway?

Here, the one with a falling tone has serious or more business-like overtones, while the rising one suggests a more casual or friendly disposition on the part of the speaker.
However, unlike grammatical meanings of intonation, identification attitudinal information in the intonation of speeches is not highly reliable. The rate of diversity in intonation patterns for different emotions and attitudes across speakers is very high.

Local meanings of intonation contours: Nuclear tones can be made up of different types of pitch movements. Certain interpretations are often associated with these pitch contours. Some of the intonational meanings of these pitch movements are as follows:

- Falls [ˆ]:

Low fall involves a step down of pitch from the pre-nuclear stressed syllable. A step up takes place right before the nuclear syllable for a high fall to be realized on the nucleus. The fall then is initiated on the nucleus, resulting in a steeper falling contour.

She waited here for two ^hours

She waited here for two ^hours

Both kinds of falls are associated with senses like 'finality, 'completeness,' and definiteness. This is why they are more recurring in the boundaries of the sentence-final intonation group than non-final ones (where rises are more common.)

The doctor visits the clinic on ˆMondays.

I will do it for ˆyou.

However, high falls indicate more interest, enthusiasm, and excitement on the part of the speaker.

Another pitch movement that belongs to the falling group is 'rising-falling.' A rising pitch movement takes place in the pre-nuclear space for this kind of fall to arise. Two meanings are mostly related to rising-falling nuclear tones. One is 'impressed,' another being a gossip.

*(He got a job) ˆDid he!/ A month after ˆgraduation! (*impressed*)*

Have you heard about Joy and ˆElle? /They are ˆengaged. (gossip)

- Rises:

Just like falls, rising pitch movements too fall into three types- low-rise, high rise, and falling-rising. As mentioned earlier, non-final intonation groups usually have rising boundary tones. Therefore, Noun-phrases in subject positions, coordinating and subordinating clauses, and adverbial phrases will have rising contours on their right boundaries.

The big black ˇcat /suddenly went ˆmissing.
ˇUsually,/ the doctor visits on ˆMondays.
I am feeling a little ˇsad/ because I did not get to ˆsee her.

Low rises in the non-final tone group indicate greater oratory quality, suggesting reading in a formal manner. While high-rises are found in more casual and spontaneous utterances:

Rises are typically associated with interrogative utterances.

Can you ˇhelp me?
Are you visiting the ˇchurch tomorrow?
She's ˆcoming, ˇisn't she?
Do you like ˆ tea or ˇcoffee?

Low-rise almost always occurs in echo questions. These are also called 'pardon questions' as well.

(When are you going to call him?) When am I going to call ˇhim?
(Please try to reach my office by eleven) Byˇeleven?
(I am cooking pasta for dinner)cookingˇwhat?
ˇhuh?
ˇpardon?

High rises, on the other hand, communicate two kinds of meanings. One is contradiction or reservation:

She ↘said she would do it ˇherself. (but she did not)

The other one is self-justification and warning.

I ↘thought he was ˇmarried. (and he was)

Be ↘careful you may ˇfall.

Check your Progress

A. Fill in the blanks:

1. When no part of an intonation group is notably more prominent, it is said to be in **_____.**
2. The most apparent external marker of a tone group is **_____.**
3. The _____ in particular often carry important pragmatic information.

4. a question sentence in English is made up of _____ and a _____ at the right boundary of the sentence.

B. Discuss in brief how the usage of *intonation* dictates the *pragmatic* meaning in English. Cite examples.

C. 'Intonation serves as a clue to the speakers' emotions'- can you justify this statement with suitable example(s).?

8.3. Learning Outcomes

After completion of this chapter, students will be able to determine which syllables in a word should be stressed

- They will also know how to apply the rules of rhythm to the utterances they produce
- They will know about the formal organization of intonational properties
- Students will be acquainted with the different interpretations associated with different intonation patterns in English

8.4. Glossary

Anacrusis: unstressed syllables occurring at the beginning of an intonation group that are produced with a faster speed than other unstressed syllables

Ex: *There's* a *'protest going on in our university.*

Foot: A foot is a prosodic constituent that allows a rhythmic organization of speech units. Prototypically, a foot is a unit consisting of one stressed syllable (Strong, S) and an unstressed syllable (Weak, W). Each foot comprises one stressed syllable and all the unstressed syllables that fall between the previous and following stressed syllables.

Fundamental frequency: a term frequently used in Acoustic Phonetics. It refers to the rate at which the vocal fold vibrates in a given amount of time. It is measured in Hertz (Hz.) Also written as f0. F0 depends on several criteria, such as breath force and the size of the vocal folds.

Iambic Feet: Feets in which the stressed syllable occurs on the right are called **iambic** feet (W-S.)

Nucleus: The most prominent pitch accent within a tone group; the one carrying the primary stress

Pitch Accent: Stressed syllables on which the pitch changes its level (for example, from high to low) or direction (for example: falling or rising) are called **pitch accents**.

Rhythm: refers to the occurrence of a particular feature at regular intervals in stretches of speech. These features can be stress, syllables, or pitch.

Sentence stress: When words are combined to form phrases or sentences, not all of them will be produced with the original word-level stress. Only some of the words will carry stressed syllables to maintain the rhythmic pattern. Such stressed syllables are referred to as sentence stress. Sentence stress is usually located on words that contain most of the semantic content.

Stress timed language: languages that have stressed syllables occurring at regular intervals, i.e., there is always the same amount of time from one stressed syllable to the one that follows

Stress: Stress refers to the relative prominence of syllables. In other words, some syllables are more prominent than others. These are called stressed syllables. This superior prominence can result from the higher pith, longer duration, increased loudness, or a combination thereof.

Suprasegmentals: Refers to phonetic features that extend over speech units larger than sound segments. These include features like pitch, stress, and junctures that are relevant to units like syllables, words, phrases, and utterances.

Syllable timed language: Languages in which syllables occur at regular intervals. In such languages, all the syllables are equal in terms of duration. Ex: French, Spanish, Turkish, Italian, Yoruba, and Korean

Trochaic: Trochaic feet are the ones with stressed syllables on the left (S-W.)

Whole Tune: a combination of all the pitch accents present in a tone group

8.5. Sample Questions

8.5.1.Objective Questions:

(A) Fill in the blanks

1. Stress can involve changes in _____, _____ and _____ or a combination thereof

2. Pitch is the auditory correlate of the acoustic feature called _____

3. Feet in which the stressed syllable occurs on the right are called _____feet

4. In majority of the cases, the _____ is the nucleus in English.

5. The rising final contour is mostly interpreted as a marker of _____, wherein falling contours encode _____.

State whether the following statements are true or false. Justify your answer with descriptions.

1. In stress-timed languages, syllables occur at regular intervals, which entails that all the syllables are equal in terms of duration.
2. **Trochaic** feet are the ones with stressed syllables on the left.
3. Intonation groups frequently correspond to syntactic constituent units like clause, Verb phrase, Noun Phrase, etc.
4. Anacrusis is an internal marker of intonation.
5. French is a syllable-timed language.

8.5.2. Short Answer Questions:

1. Distinguish between fixed stress and free stress. Cite examples to justify your answer.
2. What is anacrusis?
3. What is syllable weight? How is it determined?
4. How are tone languages different from intonation-only languages?
5. What is Rhythmic Alteration?
6. Define broad focus and narrow focus.
7. What are the local meanings associated with falling contours?
8. What is syllable lengthening?
9. Define *rhythm*. How is *rhythm* different from *stress*?

8.5.3. Long Answer Questions:

1. List the rules for word stress observed in the English language.
2. What are the rhythm rules in English that are applied to ensure rhythmic alteration in speech? Illustrate with examples.

3. Discuss the various internal and external criteria that are required to be fulfilled for a piece of utterance to be called an intonation group.

4. Discuss in detail the functions of intonation. Cite examples.

5. What are the local meanings associated with various types of intonation contours?

8.6. Suggested Readings

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Unit 9:Word-formation, Morphemes and Allomorphs

Structure

9.0 Introduction

9.1 Objectives

9.2 Words, word forms andword-formation

9.2.1Word-formation throughinflexion

9.2.2Word-formation through derivation

9.2.3Word-formation through compounding

9.2.4Word-formation through lexical constructions

9.2.5Word-formation and semantic change

9.2.6 Morphemes and word parts

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9.3 Learning Outcomes

9.4 Glossary

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9.6 Suggested Readings

9.0 Introduction

'Words' are familiar and fascinating constituents of a language. Words adopt different forms when humans string them in sentences. The proficient users of a language are not only aware of words and their meanings but also the forms that words can adopt in different contexts. The forms that words adopt to meet the textual and contextual requirements are products of an interesting process called 'word-formation.' This process involves the creation of new words through inflexions and derivations as well as other strategies available in the languages. This chapter introduces 'word-formation' as a set of lexical and morphological processes and offers illustrations from modern English. At first, it discusses the concept of 'word' from different perspectives that make it a topic of academic relevance. Next, this chapter offers insights on word-formation in which a set of lexical and morphological processes are discussed with examples from English. The discussion on lexical processes under word-formation includes compounding and various other processes. The discussion on morphological processes under word-formation includes inflexional and derivational processes. Further, it discusses the concepts of morphemes and allomorphs from the standpoint of word-formation.

9.1 Objectives

- To introduce the readers to the concepts of the word, word-formation, word forms and word parts.
- To enable the readers to understand the word-formation and its subtypes with illustrations from English.
- To explain various word-formation processes and distinguish between seemingly identical ones through English examples.
- To acquaint the readers with the concept of morphemes and allomorphs using references from English.
- To make the readers aware of the sources and mechanisms of new words and help them to classify new words under different categories of word formation.

9.2 Words, word forms and word-formation

Languages are all about words. Proficiency in a language cannot be imagined without the knowledge of words & word forms and the processes by which new words & word forms are created. The words and word forms are created through a diverse process called the word-formation process. However, it is important to know what words are before understanding where they come from.

Words and word forms:

Words are wonderful objects of study. Scholars interested in languages have always been fascinated by words. Language scholars, linguists, grammarians and lexicographers have treated words as an important topic for study. A reason that makes words interesting and relevant for the study is that they are recognizable as constituents of a language. The study of morphology in recent decades has also moved from morpheme-based analysis and lexeme-based analysis to word-based analysis. The findings of language scholars, linguists and lexicographers have unravelled some universal properties of words and

gave new dimensions to the understanding of words.Since the word-formation process involves operations on words and results in new words, it is important to understand the concept of 'word' from different standpoints.

Words are conventional and combinatorial: Words are not mere strings of sounds and letters. The sounds/letters that combine to form a word follow the phonological rules of the concerned language. Words also combine with other words to express the meaning.

Words are familiar and isolatable entities: Words occur so frequently in language use that the speakers do not bother knowing them through definitions and theories. The native speakers of a language can easily identify words belonging to their language. They can identify the existing, and possible candidates from a set of words and also isolate the impossible candidates from the set of words and non-words.

Words are meaningful and contextual:Words carry meanings and content that can be referred to. Some words do not have an apparent meaning but they contribute to the meaning of an expression by performing grammatical roles. It is important to note that words without contexts are lexemes. The addition of inflexional affixes, derivational morphemes and other compounding lexemes results in a lexeme becoming a word.

Words are classifiable and uncountable: Words can be classified through various criteria such as grammatical category, number of morphemes, meaning, referent, function etc. Numerous classifications exist for words. Words can be simple or complex. A simple word or a simplex is a word that has only one lexeme. In contrast, a complex word is a combination of a simplex and one or more affixes. Also, it is possible to count the total number of words in a written or oral text. It is also possible to make a list of existing words in a language. However, considering the creation of new words through derivation and compounding, it is not possible to know how many words a language can have. The word-formation process renders a language the provision to have an infinite number of words. Therefore, words are treated as uncountable entities.

Words have recognizable and predictable patterns: Words permit inflexion, derivation and compounding according to the existing rules of the language. The use of words in a sentence or context also follows the grammatical rules of the language. When words occur in contexts it is possible to guess the other accompanying words. It can be said that words show valence and expectancy for other words that can combine them. For instance, consider the words *sleep*, *eat*, and *request* in the following sentences. (i) We sleep at 8 PM. (ii) We eat chocolates. (iii) We request pens from teachers.In sentence (i) the word 'sleep' is intransitive and it does not expect any other word. In sentence (ii) the word 'eat' is

transitive and it expects another word (here *chocolates*). In sentence (iii) the word 'request' is ditransitive and it expects two other words (here *pens* and *teachers*). Based on transitivity, the language users can predict words that are likely to follow in a situation.

Identifying words and word forms:

Words are building blocks of language that convey shared meanings or perform grammatical functions. Though words are highly familiar, it is not always easy to define them or even recognize or isolate them in spoken communications. In written texts, words are usually separated by white spaces and punctuation marks. Spaces and punctuation may helpful for identifying words in languages like Urdu, Arabic and Persian but for languages such as English, French and Spanish that use the Roman script white spaces and punctuation are helpful in identifying words. On the contrary, the words are difficult to identify in spoken conversation as the boundaries are unclear. When the sound at the boundary of a word is influenced by the sound at the boundary of a neighbouring word it becomes difficult to identify the intended words. In such a conversation, the hearer is able to identify the intended word by matching the context and by comparing it with the other known words. The patterns of stress, intonation and pause may be helpful in identifying spoken words.

Lexemes and word forms:

The term 'lexeme' refers to the most fundamental shape of a word from which new forms emerge through inflexional and derivational processes. Conventionally, lexemes are expressed through capital letters.The term 'word form' refers to a particular shape a lexeme or word acquires when it is used in a context. Word forms are physical realizations of a lexeme as they have phonological and orthographic shapes. For example, READ is a lexeme that can have the following word forms: *read* (verb present), *read* (verb past), *read* (verb past participle), *reads*, *reader*, *reading*, *readings*, *readership* etc. The lexeme is an abstract notion that helps us know the set of related word forms which are physically manifested. One of the manifestations from this set is identical with the lexeme and that word form is called the citation form. If word forms such as read, reads, reading, reader, readership, etc. constitute a paradigm, the form read that is used for citation is the lexeme. The lexeme may be understood as a headword in a dictionary entry. For discussion and analysis, it is written in capital letters.

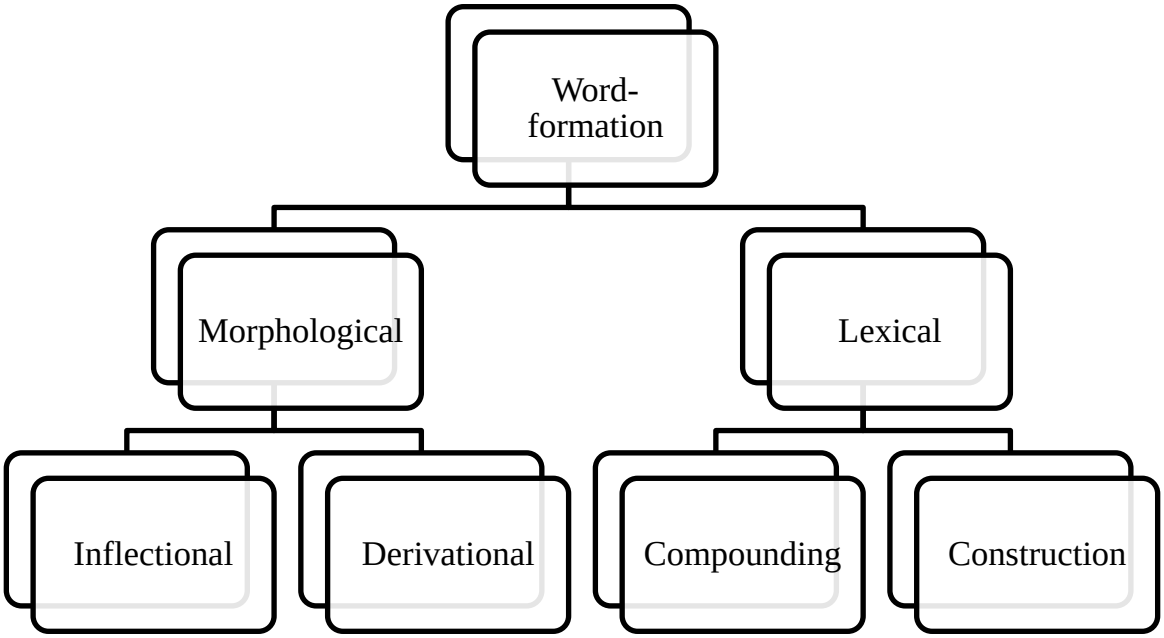
All words and word forms of a language put together constitutes the **lexis** of the language. Lexis is an abstract set of all words of a language. **Lexicon** is also an abstract concept that refers to the knowledge by which humans use words. On average proficient speakers of a language are assumed to possess about fifty thousand words. The knowledge of these words and their usages is stored in the mind.

This mental store is known as the mental lexicon or simply the lexicon. Occasionally, dictionaries, especially the electronically available ones are also called lexicons. However, dictionaries are no match to the mental lexicon. The term **lexicalization** refers to the process by which words expressing different concepts evolve in a language. The pattern in which this process works is known as the **lexicalization pattern**. As a result, English has lexical items for the concept of brother but not for elder brother. In Hindi-Urdu, the word *bhaai* refers to brother and the word *bhaiyaa* or *bhaaijaan* refers to elder brother. Similarly, English has lexical terms for the concept of sister but not for elder sister. In Hindi-Urdu, the word *bahin* refers to sister and the word *didi* or *baaji* or *aapi* refers to elder sister. Evidently, English has lexicalised the concepts of brother and sister but not elder brother and elder sister. It is important to note here that the concept may exist even without being lexicalised. Concepts that are not lexicalised are expressed using compound words or multi-word expressions.

Word-formation:

Words exhibit a host of interesting patterns that can be studied systematically. The students of language and linguistics would be naturally inclined to explore how words behave. Words are familiar entities though their technical classifications may require expert knowledge. Words and word forms are products of an interesting intellectual process that comes naturally to proficient language users. This process is called the word-formation process. Thus, the term ‘word-formation’ refers to the creation/development of new words.It is an interesting process that shows recognizable patterns and follows linguistic rules. This process utilises the existing word forms and morphological rules. Broadly, the word-formation process can be classified as morphological word-formation and non-morphological (lexical)word-formation. Technically, word-formation can refer to either creation of new words/lexemes or the creation of derivatives of existing words/lexemes. Based on this, all morphological processes including inflexion and derivation would qualify as word-formation processes. Besides lexical processes such as compounding and construction are recognized processes of word-formation. The list of the processes remains non-exhaustive. Therefore, classifying them into logical sets is helpful in understanding.

Illustration-1: Classification of word-formationprocesses



Considering word-formation several processes exist in natural languages. Some of these processes are universal while others are exclusive to some languages. The word-formations are of the following types: Word-formation through inflexions, word-formation through derivation, word-formation through compounding, word-formation through processes such as coining, blending, acronyms, abbreviation, back-formation, conversion etc. Let us examine some commonly prevalent word-formation processes.

9.2.1Word-formation through inflexion:

Word-formation through inflexions is a very common process. This process is applied when a lexeme is used in sentential context and becomes a word. In the process, the lexeme also acquires different permissible word forms that have the status of words. Accordingly, a host of words and word forms are possible through the inflexional process in a single lexeme. For example, consider the lexeme SERVE. This lexeme can produce the following words through inflexion: *serve*, *serves*, *serving* and *served*. Though the words produced are related they would be treated as words/word forms as they contain information and contribute to the understanding of the meaning of an expression. Words formation through inflexion would use a base form that can occur freely and a bound morpheme that expresses information relevant to tense, aspect, gender, number, mood etc.

9.2.2Word-formation through derivation:

The derivation is a productive word-formation process that involves the addition of derivational morphemes or affixes to a base form to produce a new word. When derivational morphemes or affixes are added to a base, a new word is created whose meaning and function may be different from the base. For example, consider the following sets:

Set-1: New words derived by adding -able

Prefer	-able	Preferable
Wash	-able	Washable
East	-able	Eatable
Love	-able	Lovable
Fashion	-able	Fashionable

Set-2: New words derived by adding –ment

Develop	-ment	Development
Encourage	-ment	Encouragement
Excite	-ment	Excitement
Catch	-ment	Catchment
Refine	-ment	Refinement

Set-3: Similarly new words can be derived by adding –ive, -ion, -ance, -ster and -ful

Act	-ive	Active
Confuse	-ion	Confusion
Resist	-ance	Resistance
Young	-ster	Youngster
Fear	-ful	Fearful

Set-4: Similarly new words can be derived by adding Be–, En-, Em-, A- and Dis- to existing lexemes/words.

Be-	Friend	Befriend
En-	Dear	Endear
Em-	Power	Empower
A-	Sleep	Asleep
Dis-	Appear	Disappear

The above sets of English words demonstrate how derivational morphemes as affixes provide new words.

9.2.3Word-formation through compounding:

Compounding is a word-formation process that involves combining two words/lexemes and producing new words/lexemes called compounds.The result of this process is a new word that has one accepted

meaning. For example, consider the following words: *handshake, long-term* and *solar light*. Orthographically, compound words can appear in the following three forms:

- As single words: For example, keyboard, playground, classroom, football and railroad are compounds that are written as single words.
- As hyphenated words: For example, day-to-day, in-laws, check-in, short-term, and part-time are compounds written with a hyphen.
- As multiple words: room boy, science fiction, star wars, school teacher and shopping mall are compounds written with space between the combining words/lexemes.

Based on the orthographic criteria, compounds can be classified as closed compounds, hyphenated compounds and open compounds. Closed compounds are written as single words, hyphenated compounds use a hyphen between the joining lexemes and open compounds have space between the joining parts. The conventions for writing compounds as closed, hyphenated and open forms are tricky. Knowing the orthographical convention for compounds can help in preventing ambiguities and misinterpretations in written texts. Still, some compounds are written in two ways and both may be correct. As a historical process, compounds are first written as open compounds. With the passage of time, they are written as hyphenated compounds. Finally, they start appearing as closed compounds or single words.

The preceding paragraphs explained 'compounds' as words that are products of two or more words/lexemes coming together and forming new words. The compounds thus created may or may not be related to the combining lexemes/words. Compounds allow inflexions and show headedness. This means compounds allow agreement for number person and gender and also allow the addition of lexemes/words. Though compounds have two or more lexemes, one of the lexemes is the head. In English, the head of the compound is usually the lexeme on the right-hand side. For example, the word 'email id' is a compound whose head is *id*, 'social media profile' is a compound whose head is the word *profile*, and 'luxury car designer association' is a compound whose head is the word *association*. Let us understand this development of a compound through the following example:

{Electronic}+{mail}= Email. The word email is a compound that is used as a singular noun. It can become plural by adding a bound morpheme {s}. Accordingly, {email}+{s} = emails. Similarly, the compound email is used as a verb and allows various declensions by adding bound morphemes such as {s}, {ing} and {ed} to produce words like emails, emailing and emailed. Now, the words 'email' and 'tracking' can combine to produce the compound email tracking. Similarly, {email}+{tracking}+{service} would produce the compound email tracking service.

Compounding is a productive type of word-formation process that has diverse manifestations. Classifying them in different groups helps in understanding their vast occurrences. One way to classify compounds is by examining the head of the compound which can be either within the compound or outside it. Based on the semantic head or headedness, compounds can be endocentric or exocentric or copulative. When the semantic head is inside the compound, it is known as an **endocentric compound**. Further, an endocentric compound has one headword and other dependent words. The endocentric compounds behave according to the headwords inside them. For example, *handbag, classroom, textbook, elder sister* and *pillow cover* are endocentric compounds. When the semantic head of a compound is outside the compound it is known as an **exocentric compound**. Exocentric compounds are also known as headless compounds. The semantic and grammatical behaviour of exocentric compounds does not correlate with their parts. For example,*breakfast, pickpocket, flyover, spoilsport* and *makeover* are exocentric compounds. When the headedness of a compound is not obvious and equally divided between two or more words it is said to be a **copulative compound**. The copulative compounds can be represented through hyphenated forms (also known as appositional compounds) or coordinated copulative forms (also known as coordinative compounds). For example, *sex ratio*s sleepwalk, and *bittersweet* are examples of copulative compounds that are appositional. However, *actor-producer*, *producer-director* and *Marxist-Leninist* are examples of copulative compounds of coordinative nature.

Compounding and derivation are two very productive word-formation processes that produce new lexemes. The nature of compounding is lexical as it involves coming together of two lexemes to produce a new lexeme. The nature of derivation is morphological as it involves combining a lexeme and an affix to produce a new lexeme. Compounding produces a compound lexeme that can be split into two stems/roots while derivation can occur even within compounds. The new lexeme produced through compounding and derivation may belong to the grammatical category of the combining stems or may belong to a different grammatical category.

9.2.4Word-formation through lexical constructions:

The most recognised process for word-formation is lexical construction that refers to the creation of new words through a host of processes such as conversions, abbreviations, acronyms, clipping, blends, borrowing etc. Let us examine some of the common ones.

Abbreviation: A type of word-formation that involves taking a letter from several base forms. The outcome of this process is spelt out letter-by-letter. The term ‘abbreviation’ refers to the shortened form of a word or expression. For example, the abbreviation WHO stands for the World Health Organization. Abbreviations are also known as Alphabetism and initialism.

Acronyms: A type of word-formation in which the letters of independent words/lexemes are put together like a word of the concerned language. Acronyms are new words and the process resembles abbreviations. However,in abbreviation, the letters are spelt out individually whereas in acronyms they are spelt collectively as words. For example, LASER, UNICEF and SAARC are acronyms. The acronym LASER stands for *Light Amplification by Stimulated Emission of Radiation*. Similarly, the acronym UNICEF stands for *United Nations International Children's Emergency Funds*. And, the acronym SAARC stands for *South Asian Association for Regional Cooperation*. Evidently, LASER, UNICEF and SAARC have letters of the alphabet that can be read as words.

Back-formation: A type of word-formation that involves the removal of a bound morpheme (suffix or prefix) from an existing word. For example, the word 'act' is formed from the word*actor*, 'edit' is formed from the word *editor*, 'abduct' is formed from the word*abduction*, 'advisor' is formed from the word *advisory* and 'televise' is formed from the word *television*.

Blends: A type of word-formation that involves parts of two or more words coming together and creating a new word. For example, consider the following: 'smog' is a combination of parts of *smoke* and *fog*, 'brunch' is a combination of parts of *breakfast* and *lunch*, and 'infotainment' is a combination of parts of *information* and *entertainment*. Blends resemble the process of compounds to some extent. The difference between blends and compounds is that blends are single lexemes produced from parts of two words/lexemes whereas compounds are new lexemes created from the combination of two words/lexemes.

Borrowing: A type of word-formation that involves loaning or adoption of words from other languages. When a word is borrowed from one language to another it is called a loanword and the language which adopts it is called the host language. Technological developments, cultural artefacts and knowledge systems are exchanged when contact between people speaking different languages happens. English has benefitted a lot from this process as it has borrowed words from several languages of the world. For example consider the following: the word 'algebra' is an Arabic borrowing, the word 'junta' is a Dutch borrowing, the word 'debut' is a French borrowing, the word 'mafia' is an Italian borrowing and the word 'banana' is a Spanish borrowing.

Clipping: A type of word-formation process that involves truncation, shortening or cutting off a part of an existing word. Clipping is also known as truncation. For example, consider the following: 'demo' is a truncated form of *demonstration*, 'lab' is a shortened form for *laboratory* and 'Joe' for *Joseph*.

Coining: A type of word-formation process that involves the creation or invention of new words. Such words never existed before. As a process, coining adds new words to the lexicon. The act of coining is known as coinage and depends on various socio-cultural and linguistic factors. Sometimes, creative writers and literary scholars invent and introduce new words that become part of the lexicon.

Conversion: The term conversion refers to a word-formation process that involves the change of grammatical category of an existing word. This process causes an existing word to change its class. For example, consider the following sentences in set 1 & set 2:

Set-1

i. Let us *walk* slowly.

ii. Let us go for a *walk*.

In set-1, the word walk serves as a verb in the sentence (i) and as a noun in the sentence (ii).

Set-2

i. I want to *download* a song.

ii. Please inform me when your *download* is over.

In set-2, the word download serves as a verb in sentence (i) and as a noun in sentence (ii). Verbs becoming nouns and vice versa are instances of conversion. Conversion is a common word-formation process and is also known as zero-suffixation and transposition.

Eponyms: Eponyms are words whose etymology is linked to the name of a famous person or place. Eponymy is the creation or derivation of names and words from real or fictitious persons and famous personalities. It is aword-formation process that involves the creation of words from proper names. Often brand names and technological components acquire the form and behaviour of regular words. Eponyms function as conceptual words and have generic descriptions. For example, consider the following: the word ‘watt’ referring to a unit of power is derived from James Watt, the place name ‘Washington DC’ is derived from George Washington, the word ‘Disneyland’ is derived from Walt Disney, the name ‘Eiffel Tower’ is named after Gustavo Eiffel and the word ‘diesel’ is named after Rudolph Diesel.

9.2.5Word-formation and semantic change:

Words can have multiple meanings and usages. Also, the shades of meaning or variations in usage of words can change with time. Sometimes words acquire new meanings and features. Sometimes words also lose a shade of meaning or a feature. As a result, the phonological form including spelling and pronunciation remains intact but the semantic value or function changes. Besides, addition or deletion of a shade, the change in the meaning of words can be ameliorative or pejorative.**Amelioration** refers to a historical process by which the existing meaning of a word undergoes a positive change. For example, consider the word 'nice.' Initially the word 'nice' referred to foolish, simple, ignorant and absurd persons. As a result of amelioration (also known as melioration or elevation), the word 'nice' underwent a positive change and started to mean kind and friendly persons. Amelioration causes elevation and positive change in the meaning of words. In contrast, **pejoration** refers to a historical process by which the existing meaning of a word undergoes a negative change. For example, consider the word 'silly.' In past, the word 'silly' referred to a happy and lucky thing or person. As a result of pejoration, now the word 'silly' refers to foolish person.Besides amelioration and pejoration, semantic change can also occur in the form of metaphorisation, metonymisation and generalisation. Metaphorisation refers to the creation of such words whose first occurrence is metaphoric in nature and due to repeated usage the metaphor becomes a word in the language. Similarly, metonymisation is a process by which words are created due to reoccurring use of a metonym. Generalisation also refers to such instances when part or member or aspect or a feature of an entity or phenomenon is used to refer to the entire object or phenomenon. The regular use of language involves figures of speech including similes, metaphors and metonymies. However, when such instances of regular language use become highly prevalent and canonised words undergo semantic change new words are created. Accordingly, metonymisationis a semantic change that makes part of an object or an aspect of a thing suitable for referring to the whole object or thing. A point to note here is that metonymisation as a process of semantic change uses the part-whole relationship of words.

When words undergo semantic changes and the phonological forms remain intact, it becomes difficult to decide whether new words are created or old words have acquired new meanings. Accordingly, it becomes difficult to choose whether semantic change is also a type of wordformation.

Check your progress

1. Earlier, the word 'terrific' referred to an unpleasant person or situation that caused terror or inspired fear. Now, 'terrific' refers to an impressive person or situation. What kind of semantic change did happen to the word 'terrific'?

   (a) Amelioration (b) Metonymization

   (c) Pejoration (d) Metaphorization

2. Initially, the word ‘awful’ meant *full of awe*. Now, the word awful refers to bad and unpleasant. What kind of semantic change did happen to the word ‘awful’?

   (a) Amelioration (b) Metonymization

   (c) Pejoration (d) Metaphorization

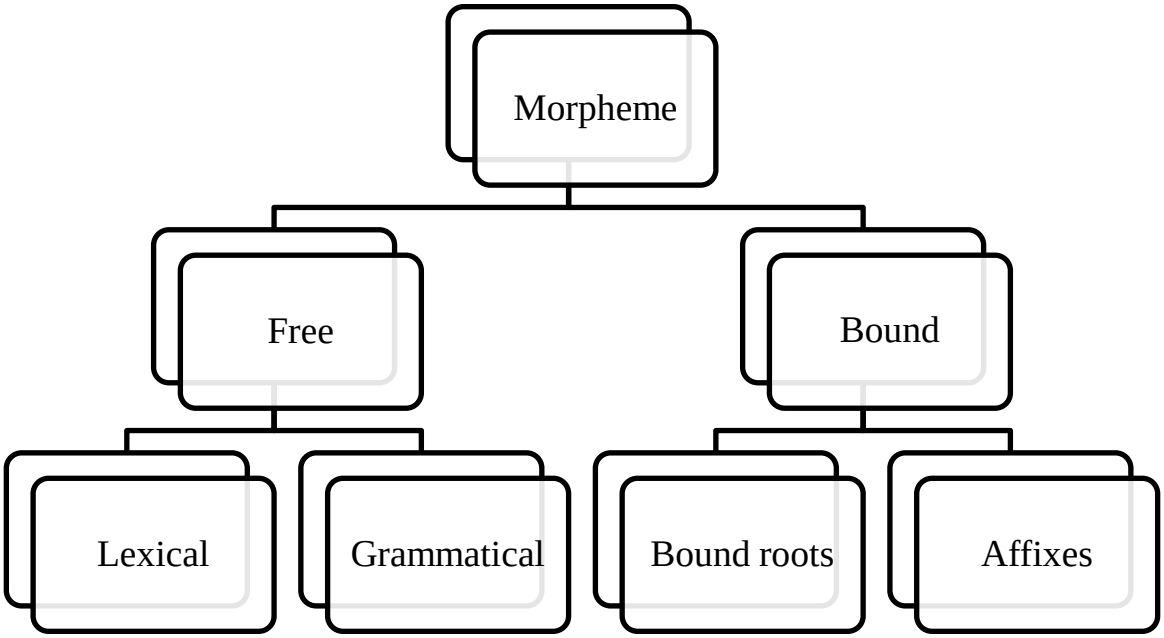
The academic interest in words is not new. Scholars have taken interest in words for as long as they have taken interest in language. The evidence of scholarly interest in words dates far back. Panini’s monumental works provide word-formation rules for Sanskrit and feature among the oldest discussions on word-formation.

Though word-formation refers to a process by which new words are created. The list of processes usually referred to as word-formation processes may not exhaustively cover all processes by which words are created. Some processes producing words may still remain outside the corpus of recognised word-formation processes.

9.2.6 Morphemes and word parts:

Morphemes are abstract units that are considered indivisible and isolatable. Morphemes carry semantic meanings or perform grammatical functions. Morphemes may also be perceived as words or word parts that are represented through curly brackets. A morpheme is also represented through a hyphen placed on its boundary. The placement of a hyphen on the left side or right side or both sides indicates the likeliness of addition on that side or both sides. A word form such as indivisibility has the following morphemes: {in} {divide} {sible} {ity}. The morphemes of this word form can also be represented as in-, -divide-, -sible, and –ity. The hyphen in these morphemes indicates the side on which the addition of morphemes is possible. The morpheme-based analysis of languages is an age-old technique that offers insights into the structure of words and word-formation processes.Morphemes are isolatable and classifiable on the basis of the structure they have in the word, the meaning they add, and the grammatical function they perform. Based on the role, morphemes are classified as free morphemes and bound morphemes.

Illustration 2: Classification of morphemes



Free morphemes are morphemes that can occur independently as word forms whereas bound morphemes are morphemes that cannot occur freely as word forms. For example, consider the word ‘reappearances’ as a combination of several morphemes. Reappearances can be analysed as a combination of {re}+{appear}+{ance}+{s} where {appear} is a free morpheme and the other three are bound morphemes. The free morphemes can occur as words whereas bound morphemes can occur as affixes and word parts. Based on content and function, the free morphemes can be further classified as lexical morphemes and grammatical morphemes. The bound morphemes can occur in combination with free morphemes as affixes.Based on shape and function, the bound morphemes can be further classified into bound roots and affixes. Free morphemes can stand alone as words, whereas bound morphemes can occur as word parts only.Free morphemes can occur independently as meaningful or grammatical words. For example, consider the following: *go, call, she, in, read* and *good.* Free morphemes are of the following two types; lexical morphemes and grammatical morphemes.

Lexical morphemes: are free morphemes that carry semantic contents or meanings. All monomorphemic nouns, verbs adverbs and adjectives would qualify as free lexical morphemes. The set of lexical morphemes is an open and ever-growing set that comprises all content words. For example, consider the following: *call, write, bell, night, good,* and *heavy*.

Grammatical morphemes: are free morphemes that may not have semantic contents but contribute to meaning and perform grammatical functions. All monomorphemic function words including pronouns, prepositions, determiners, etc. would qualify as free grammatical morphemes. The set of grammatical morphemes is a closed and finite set. For example, consider the following: *you, we, in, for, the,* and *an*.

Bound morphemes: are morphemes that cannot occur independently. Bound morphemes always occur as word parts because they are attached to free morphemes. For example, consider the comparative degree marker {er} in the following adjectives: *higher, tighter, bigger, heavier* and *lower*. Bound morphemes are of two types; bound roots and affixes.

Bound roots: are morphemes that are dependent on free morphemes to become relevant and meaningful. Bound roots can precede or follow other morphemes/affixes. For example, consider the morpheme {en} in the words such as *enable, encourage, endangered, enslave* and *enlist*.The instances of bound roots are not so common except in loanwords from Latin and Greek, however, they are highly productive in the word-formation process. For example, {socio} in the words like *sociology, sociolinguistics, socio-economic*, etc is a bound root.The term **affixes** refers to a set of bound morphemes that occur as prefixes, suffixes, infixes and circumfixes. Prefixes are added before words or roots to produce new words. For example, {in} in the word *inconsistent*, {dis} in the word *disappear*, {un} in the word *unfortunate*, {de} in the word *derecognise*, and {re} in the word *resurface* are prefixes. In contrast, suffixes are added after the word or roots to produce new words. For example, {less} in the word *fearless*, {full} in the word *beautiful*, {ity} in the word *severity*, {ly} in the word *simply* and {ise} in the word *privatise* are suffixes. Infixes are bound morphemes that are inserted within the word/roots whereas circumfixes are are affixes that appear on either side of words/roots.It is observed that the instances of prefixes and suffixes are common in English morphology whereas the instances of infixes and circumfixes are rare. The process of adding an affix to an existing word or root for creating new words is called **affixation**.

9.2.7Allomorphs:

Morphemes are the smallest units of a morphological analysis. These units are conditioned by phonological, semantic and grammatical factors. Morphemes are abstract in nature and their physical realisations are known as morphs. Sometimes a morpheme can have two or more physical realisations known as allomorphs. For example, consider the plural marker in the following word forms: *tests, walls,* and *benches*. In these word forms, the plural markers –s and –es in these word forms represent the plural morphs {s}, {z} and {iz} respectively. These morphs are different phonological and orthographical

realisations of a single morpheme. They have different shapes, but an identical semantic value or grammatical function. Therefore, these forms are called allomorphs. The term **Allomorphy** refers to the phenomenon or condition when a morpheme has two or more phonetic realizations. Again, consider the past tense markers in the following word forms: *asked, bowled*, and *bolted*. In these word forms, the past tense marker –ed represents the morphs {t}, {d} and {tid} that have different shapes but an identical semantic value or grammatical function. Again, these morphs are different phonological and orthographical realisations of a single morpheme. The phonetic realizations in such conditions are called allomorphs and the phenomenon is called a **Zero allomorph**: In morphemic analysis, a zero allomorph or null allomorph refers to a morphological condition when the phonetic realization of a morpheme is null in its place and is conditioned by some rules.

Check your progress:

1. Consider the definite article 'the' and the indefinite articles 'a' and 'an' of English. The articles have an identical function but different phonological realizations. Therefore, the articles 'a', 'an' and 'the' of English are ……

(a) Morphs (b) Morphemes

(c) Allomorph (d) Words

2. Differentiate between the term allomorph and allomorphy.

9.3 Learning Outcomes

This unit introduced the readers to word-formation, morphemes and allomorphs, three very important topics of morphology. In this unit, the readers got acquainted with the concept of words and word-formation from different standpoints. Following the discussion on words and word-formation processes, the unit discussed the concept of morphemes and allomorphs with suitable illustrations from

English. Completing this unit the reader must have understood where words come from. The readers must have also understood the concept of words and word forms as well as different types of word-formation processes including inflexion, derivation, compounding and other lexical processes.

9.4 Glossary

Affixes: Bound morphemes that are added to free stems for the creation of new words.

Allomorphs: Allomorphs are two or more phonetic realizations of a morpheme. Variants or different phonological realisations of a morph are called allomorphs. For instance, the morph -ed indicating a past tense marker has two allomorphs /d/ and /t/ in words like bowled and asked respectively.

Allomorphy: A phenomenon in which two or more phonetic realisations are available for a given morpheme.

Compounding: A word-formation process that involves the combination of two or more simple words/lexemes.

Derivation: A morphological process in which free morphemes combine with bound morphemes and produce new words.

Inflexion: Also known as inflection, flection and accidence, inflexion is a morphological process that involves the combination of a free morpheme with bound morphemes resulting in the production of grammatically related word forms.

Lexicon: An average speaker knows about 50 thousand words. The knowledge of words and their usages is stored in themind. This storage is known as the (mental) lexicon.

Morpheme: A minimum unit of meaning or grammar that can be isolated and analysed.

Morphology:Refers to the scientific analysis of the internal structure of words and word parts.

Word: The term word refers to a string of letters or sounds that can occur freely and convey meaning or perform a grammatical function in a sentence.

Word-formation process: A set of processes that create or derive new words.

9.5 Sample Questions

9.5.1 Objective Questions:

A. Examine the following sentences and state whether they are true of false.

1. Words are mere strings of sounds and letters.
2. Compounding is a word-formation process that involves creation of a new lexeme by combining two lexemes.
3. Bound morphemes can stand alone as words.
4. Semantic change cannot be treated as a word-formation process
5. Zero allomorphs have phonological realizations but no semantic value or grammatical function.

B. Fill in the blanks with suitable words.

1. Blending is a …….. process.
2. The word screw driver is an example of …… compound.
3. Compounds are classified as endocentric, exocentric and …….
4. A ……. becomes a word when used in a sentential context.
5. The addition of a ……. morpheme may change the grammatical category of the word/base.

C. Multiple Choice Questions

1. The word NATO stands for North Atlantic Treaty Organization. This kind of word-formation is an example of ……

   (a) Abbreviations (b) Acronyms

   (c) Blends (d) Compounds

2. The word ‘resentment’ is created by combining the morphemes resent and –ment. This kind of word formation process is called

   (a) Inflexion (b) Derivation

(c) Compounding (d) Allomorphy

3. I have brought Harry Potter for you (referring to the book/movie). This kind of word formation process is an example of

(a) Conversion (b) Clipping

(c) Back formation (d)Eponymy

9.5.2 Short Answer Questions:

1. Write a short note on morphemes and its types.
2. Briefly explain the concept of allomorphs.
3. Differentiate between abbreviations and acronyms.
4. Discuss derivation as a word-formation process.
5. Differentiate between amelioration and pejoration.

9.5.3 Long Answer Questions:

1. Discuss 'words' and 'word forms' from lexical and morphological standpoints.
2. Discuss word-formation processes with suitable examples.
3. Explain the concept of compounding with relevant examples.

9.6 Suggested Readings

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Unit-10: Free and Bound Morphemes

Structure

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10.2 Types of Morphemes

- **10.2.1** Free Morpheme
- **10.2.2** Open Class
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10.0 Introduction

The previous Unit shows that morpheme is the meaningful unit of a word.

"A morpheme is classically defined as the smallest meaningful unit of morphological analysis." Bauer & Lieber

The adjective *national* can be divided into two parts *nation* and *–al. Nation* is an independent morpheme representing noun, and *–al* is a morpheme that cannot be present alone like other word categories, i.e. noun, pronoun. The morpheme *–al* has changed the root noun into an adjective in the above example- *National*. This process may not always be the same. For example, in the *proposal,* the root is the verb category- *propose* and by adding the morpheme *–al,* it turns into *proposal,* which is a noun. Some morphemes, e.g. *Azharuddin,*

Sachin, pen, fan, mobile, phone, can stand alone, and some morphemes cannot stand alone, e.g. *-ism, -ity, -ly, -ing*.

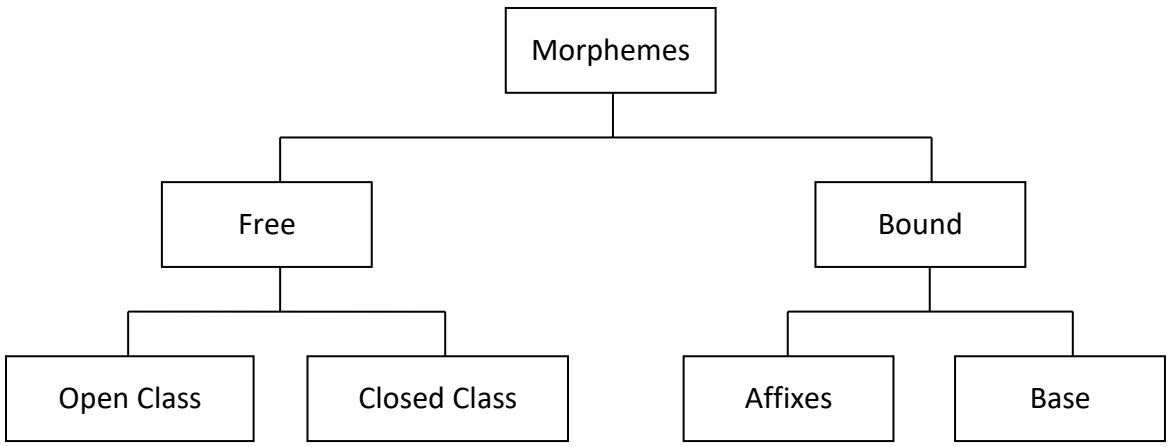
10.1 Objectives

This Unit is designed to fulfill the following objectives:

- To discuss different types of morphemes in brief
- To inform about the concept of free morphemes
- To inform about the concept of bound morphemes
- To enable the student to analyses the morphemes

10.2 Types of Morphemes

Traditionally, morphemes can be divided into two groups based on their autonomy: free and bound morphemes.



The concept of free and bound morpheme can be understood from the task: Segment the words below into minimal meaningful units (try yourself first)

1)

a. ***Cricketer, player***
b. ***Balling, fielding***
c. ***Government, engagement***
d. ***Wanted, gifted***
e. ***Disestablishment, dishonesty***

It is clear that in (1), words can be classified into different categories, and their construction is different. The best way to identify the morpheme is to consult an etymological dictionary, as suggested by Katamba (1993, p. 21), which provides information about the origin and history of words. One such dictionary can be accessed through the link - https://www.etymonline.com/. The above words can be analyzed as follows:

a. cricket-er, play-er
b. ball-ing, field-ing
c. govern-ment, engage-ment
d. want-ed, gift-ed
e. dis-establish-ment, dis-honest-y

The above-cited examples, *cricket*, *ball*, *field*, *govern*, *engage*, *want*, *gift*, *establish*, cannot be segmented further or divided into more meaningful units. Also, these morphemes can

occur alone and can be classified as words. These are called free morphemes. In contrast, morphemes like *-er*, *-ing*, *-ment, -ed, dis-*, and *-y* are not meaningful on their own but must be attached to another morpheme to be meaningful. The morphemes that cannot express meaning independently are called bound morphemes.

Check your progress

1. How many types of morphemes are there? Name them with examples.

_____

_____

2. What is the best way to identify morpheme?

_____

_____

10.2.1 Free Morphemes

As discussed above, free morphemes can occur alone and have the meaning of a word. Based on the structural properties, words can be classified into two types- open-class and closed-class words. Consider the sentences below:

2)

a. I am an Indian citizen.

b. I study at the Maulana Azad National University

c. My home is in Hyderabad

d. You may be familiar with the Hyderabad

Task-

a. List out the words in the sentences above

b. Organise the words according to their part of speech

The analyses of the above sentences can be as follows:

Azad, citizen, Hyderabad, I, Indian, Maulana, My, National, University, You, am, an, be, familiar, home, in, is, May, study, the, with.

Word Categories:

Article : *an, the*

Preposition : *with, in*

Pronoun : *I, my, you*

Noun : *Maulana Azad National University, home, Hyderabad, citizen*

Verb : *study, am, may, is*

Adjective : *familiar, Indian*

From the above example (2), we could observe that some words provided content to the sentence, and others meaningfully connected them in a grammatical sentence. The words which represent nouns, verbs, and adjectives are called Open class words or content words. The terms "open class words" or "content words" refer to the words that represent nouns, verbs, and adjectives. Words that express the grammatical function are called closed-class words or functional words. Linguists identify these forms by studying their morphological structure and their syntactic position in a sentence.

10.2.2 Open Class

New words can be added by borrowing and coining primarily in the following four grammatical categories- Noun, Verb, Adjective and Adverb. For example, in October 2021, a few entirely new headwords appeared in the Oxford English Dictionary. For example-

Degrowth, n.- "The action of spoiling or destroying something."

Cogeneration, n.- "The Generation of electricity and useful heat jointly; esp. the utilisation of the steam left over from the electricity generation for heating."

As these word categories are open to including new entries, they are known as open-class categories. Check the following examples in Table 1:

Open Class Words	Example
Noun	*Pen, paper, Kabadi*
Verb	*Talk, sacrifice, give*
Adjective	*Peaceful, nice, good*
Adverb	*Carefully, energetically, skillfully*

*(Table 1: Open Class words in English***)**

These words *pen, talk, good, skillfully* have meaning of their own are known as lexical morphemes or content words. These word categories represent the sentence's meaning compared to the other categories (a/an, to/into) of words.

Task: Try to find a few new word entries in Oxford English Dictionary online and check their categories. Can check- www.oced.com.

Nouns:

A noun is a term that refers to a person, place, or thing by its name. In morphology and syntax, we classify words according to their behavior and role in a sentence, not by their meaning in isolation. As a result, we must ask: What inflectional morphemes does a noun possess? Additionally, what is a noun's syntactic distribution?

Many nouns add the suffix /-s or -z/ to the noun to form the plural. Like in example 3

3a)

a. *orange – oranges*
b. *pen – pens*
c. *song songs*

On the other hand, if the singular noun ends with *–-ch, -s, ss, -sh, -x, or –z,* the suffix /-*es/* is added to form plurals like in example 3b :

3b)

a. *dress – dresses*
b. *fox – foxes*
c. *bench – benches*
d. *dish – dishes*

In syntax, a noun—whether singular, plural, or mass—can occur in a phrase referred to as a noun phrase; for instance,

4)

a. *the ball, the balls*
b. *the bat, the bats*
c. *the wonderful innings*
d. *the air*
e. *the fresh air*
f. *the water*
g. *The blue water*

Verbs

A verb is commonly defined as a word that describes an action, state, or occurrence. It is also defined as the main predicate of a sentence. In the English language, a verb form may vary as per the noun or agent whose action, state or occurrence it describes. For example

a. *I eat rice*
b. *He eats rice*

Moreover, verbs represent the tense and aspect of sentences. Tense can be understood from the past tense morpheme and the progressive morpheme represents one of the aspects. For example, look at the following table below:

bare form	**past tense form**	**progressive form**
draw	drew	drawing
talk	talked	talking
cook	cooked	cooking
agree	agreed	agreeing
pull	pulled	pulling
visit	visited	visiting

(Table 2: Verb forms in English)

In certain circumstances, the past tense form of the verb is spelt and pronounced identically to the bare form, which is also the present tense form, such as hit, hurt, cut, and put. Additionally, the forms of some words are irregular, for example, *fly-flew, tear-tore, sleep-slept.*

One of the essential grammatical functions a verb and verb phrase can perform is that of the predicate in a clause. A clause consists of a subject and a predicate. In example **5** below:

5) I *am studying* linguistics.

The phrase *'am studying'* is the predicate of the sentence. It also occupies the medial position in the sentence as in Subject Verb Object. Thus, syntactically the verb in English occupies the sentence medial position. Moreover, the verb may take past tense or progressive aspect markers.

Adjectives

An adjective is commonly defined as a word that tells us more about a noun. It "describes" or "modifies" a noun. Syntactically adjectives in English appear between the word determiner- *the* and a noun, such as in example 5 below:

6)

a. the *black* cat
b. the *talented* singer
c. *important* book

Another form in which adjectives appear is when it follows the verb, such as in example (7)

a. That cat is black.
b. The signer is talented.
c. This book is important.

The intensity of many adjectives can be specified with *very, less* or *more*. Many adjectives also have comparative and superlative forms (example 8).

8)

a. very talented

b. less important

c. more important

9)

a. red – redder – reddest

b. smart – smarter – smartest

Adverbs:

An Adverb is a word that presents information about or describes a verb (*he runs quickly*), an adjective (*very attractive*) or another adverb (*finished so early*). Adverbs can also modify an entire sentence (*Hopefully, I will finish it*). Adverbs can be intensified with *very* or *more* such as in example 10:

a. very cleverly
b. more importantly

Additionally, the preceding examples demonstrate how numerous adverbs can be produced by prefixing an adjective with *-ly.* However, not all words ending with *–ly* are adverbs, for example, *wonderfully, lonely.* The syntactic distribution of adverbs is not always the same. An adverb may precede a verb (examples 10c. and 10d.)or follow a verb (examples 10a, 10b and 10e).

10)

a. ViratKohli batted *beautifully*.
b. KailashKher performed *wonderfully* among the large crowd
c. The rain has *just* stopped
d. Messi was *poorly* fouled.
e. The parcel will reach *tomorrow.*

Adverbs can also be used in front of adjectives or other adverbs to offer information about the adjective/adverb, like in examples 12:

a. The biryani was *surprisingly* good.
b. He was playing with an *extremely* expensive bat.
c. India had finished the innings *quickly*.

Adverbs can be more challenging to identify than other open class words due to their more varied behavior in the sentence.

10.2.3 Closed Class

Apart from the aforementioned open class terms, there are several subcategories known as closed class terms. Since new terms cannot be added to these categories, they are referred to as closed classes or fixed classes. In comparison to the thousands of open-class words, the closed-class categories are fewer in number. They are the non-lexical categories or function words that perform numerous grammatical functions in a phrase but do not necessarily have apparent semantic substance.

Closed Class Words	Example
determiners	a, an, the
demonstratives	this, that, these, those
Quantifiers	many, much, a few, a bit, a little
possessive pronouns	your, mine, their
prepositions	in, to, on, upon
conjunctions	and, or, because, since,
Complementiser	unless, because, weather, if

(Table 3: Closed Class words in English)

Determiners are very few; however, they appear very frequently in the English language. *A*, *an* and *the* are often used along with nouns. For example-

13)

a. *a* girl

b. *an* apple

c. *the* peacock

d. *the* Royal Bengal Tiger

Demonstratives are those words that are used “to refer to a class of items whose function is to point to an entity in the situation or elsewhere in a sentence.” (Crystal 1980, page 135)

14)

a. *those* girls

b. *these* apples

c. *that* peacock

d. *this* Royal Bengal Tiger

Quantifiers and numerals also behave like determiners. They are used to refer to the quantity of the objects referred to by nouns.

15)

a. *a few people*

b. *three monkeys*

c. *many animals*

d. *some fruits*

Here, we need to look into possessive pronouns, which can be used without nouns, e.g. *his, her, ours, yours, mine*. On the other hand, an adjectival possessive pronoun is followed by a noun as in the following example-

16)

a. *my sister*

b. *your idea*

c. *their car*

Preposition indicates a relationship between words in a sentence. Usually, they are used before nouns or pronouns to locate a place, time and direction. Examples are the following:

17)

a. *inside* MANNU
b. *On* the desk
c. *At* 5.00 PM
d. *Towards* Hyberabad
e. *around* the school building
f. *Inside* the bag
g. *near* campus
h. *after* class

The conjunction is another significant closed-class classification. The conjunct words' function is to connect two words or phrases that belong to the same category. For instance:

18)

- Parveen and Diya
- Sachin and Sahakrukh
- Veg or non-veg
- Playing or studying
- Short height but powerful
- Strict but caring

Complementisers are function words that introduce a clause, which is a sentence contained within a longer sentence:

19)

- Babita said *that* his brother is crazy about football
- We hope *that* India will reach in World Cup final

- Tariq asked Riya *if* she was aware of frostbite.
- She could not come to the wedding *because* she went to visit Delhi
- *Although* he was good at English, he failed the end-semester exam.
- Vijay called his friend *while* watching TV.
- Thomas was uncertain whether her friend would come

Check your progress

1. What are the open class and Closed Class words?

_____

_____

2. Do you think free morphemes can change the grammatical category of open classed or content words?

_____

_____

10.2.4 Bound Morphemes

Bound morphemes are those that cannot occur alone. They are always parts of words that are attached to other morphemes. There are two types of bound morphemes in English affixes and bound bases. Consider the examples below

1. flowers : flower-> free morpheme
   -s -> bound morpheme
2. unwanted : want-> free morpheme
   -un-> affix
   -ed -> bound base

Just like in *cats*, we find that the word *flower* is attached to a grammatical marker *-s* to express plurality. In the case of *unwanted*, we find that there are two bound morphemes *-un* to express the notion negation and *-ed* as a past tense marker bound morpheme.

10.2.5 Affixes

An affix is a bound morpheme. It is typically joined to a root or stem to create a new word or a variant of an existing word. Affixes in the English language are classified principally into two types. Prefixes come before the root or stem, for example, re-cover. Suffixes are added after the root or base, for example, *drive-er.* There is another type of affixes known as infix that occurs in between two words. Circumfix is another bound morpheme attached to root or base both initially and finally. However, infix and circumfix are unproductive and rare in the English language. Can you find an example of infix and circumfix in the English language?

Prefixes

There are several prefixes in the English language. Some of them are commonly used or more productive compared to others. In the following table, examples of prefixes are provided:

Prefix	**Meaning**	**Example**
anti-	Against, opposite of	antiseptic
bi-	two, twice	biannual
co-	joint, together	co-actor
de-	undo	deform
dis-	Not, opposite of	disqualify
ex-	out, away	excommunicate
Hyper	super	hypersensitive
in-	negate	incomplete

mis-	wrongly	mismatch
non-	negate	nonstick
pre-	before	preindustrial
pro-	For	propagate
re-	again, repeat	rewrite
sub-	under, below	Substitute
trans-	across	transgender
un-	Not	unused

*(Table: 4 Common prefixes in English***)**

Suffixes

Suffixes are added after the root or base word. Examples are given below:

Suffix	**Meaning**	**Example**
-al	Pertaining to	personal
-able	to have the ability or quality	edible
-dom	Place	kingdom
-er	a person who performs an action	footballer
-en	Become	strengthen
-ful	having the quality of, full of	hopeful
-ish	Quality	feverish
-ify,-fy	make or become	glorify
-ly	in the manner of	hardly
-less	Negate	fruitless

-ment	Condition of	containment
-ous	having the quality of	glorious
-tion	to carry out	education

(Table 5: Common suffixes in English)

Check your progress

1. Do you think English affixes are bound morpheme? If so, Why?

_____

_____

2. Apart from the above-mentioned prefix and suffix, find out a fewmore.

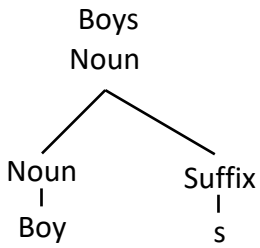
_____

_____

Inflectional and Derivational Morphemes:

Inflectional Morphemes:

The bound morpheme can also be classified as inflectional and derivational morphemes. Inflectional morphemes form a new word but do not change meaning as a whole. Inflectional morphemes create new grammatical forms of the same word. Inflectional morphemes reflect grammatical information about a word, e.g. number, verb, degree. For example:boy+s= boys.



In the above example, *boy* is the root word, and –s is the suffix. The new word *boys* is the plural form of *boy*. In English, the number of inflectional morphemes is limited, and all inflectional morphemes are suffixes. There are only eight inflectional suffixes. All these suffixes are limited to expressing one of the following inflectional feature values or grammatical functions.

Suffix	**Meaning**	**Example**
-s	plural	tigers
-'s	possession	Sahid's
-s	third person singular verbal inflection	sings
-ed	past tense	walked
-en	past participle	spoken
-ing	progressive verbal inflection	hearing
-er	comparative	mightier
-est	superlative	mightiest

*(Table 6: Inflectional suffixes in English***)**

Let us take the example of *Sahid's Pen, Navin's book, Tony's guitar;* -'s a possessive suffix used to express whose pen, book, and guitar it is.

In the example *sings*, *-s* represents a third person verbal inflectional suffix. Usually, there is a three-way contrast found in many languages: first person (speaker), second Person (addressee), and third Person (neither speaker nor addressee). In English, only the third person singular is expressed morphologically, as in the example *sings* above with the suffix *-s* on the verb.

The inflectional suffix *–ed,* as in walk-*ed,* is the most commonly used to form past tense in English. Its function is to place the event expressed by the verb in the temporal past. Some verbs like *sing* and *go* do not take the regular past form -ed but use stem alteration for irregular past forms as sang and went. Apart from these, *-en* is an inflectional suffix used in English to form past participle form as in spok-*en*. The verb *speak* in "he has *spoken*" is the past participle form of *speak.*

The inflectional suffix *–ing* is used to express a current action, an action in progress, or an unfinished action, like in the following sentence- The children are *sleeping* right now. It is often used for descriptions, as in Polly is *wearing* nice shoes today. It also allows us to express a future action or an intention, mainly with the expression *to be going to*, such as in We are *going* to count the votes this afternoon. It can also be used with modal auxiliary verbs: *They should be sleeping by now*.

In the example "The pen is *mightier* than the sword*"*, -er represents the comparative form of the adjective mighty. The function is done by the –est suffix, e.g- strong*est*, *loudest.* These inflectional suffixes, *-er,-est*, express the intensity of the adjective.

Check your progress

1. What is an inflectional morpheme? Write with examples.

_____

_____

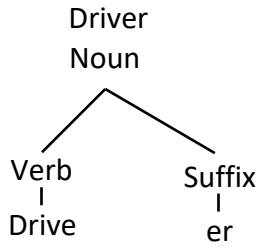
2. How many inflectional suffixes are there in the English Language? Note down a few words with each type.

_____

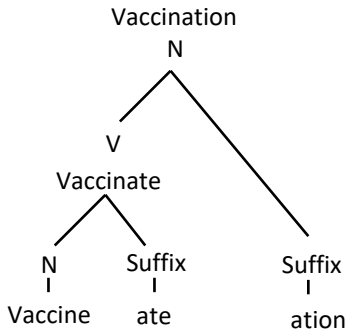
_____

Derivational Morphemes:

Another categorization of bound morphemes is derivational morphemes. Derivational morphemes are the affixes that change the meaning or the grammatical category of the word. In the following example- *driver*



Here *drive* is the root word, and *–er* is the suffix. The suffix *–er* change the verb *drive* into a noun *driver*. Similarly, the morphological structure of the word *vaccination* is below:



The above example shows that from the word *vaccine,* the verb vaccinate is derived. Moreover, the word vaccination (N) is derived from the derived verb by adding *–ation* suffix.

Adjective formation:

Adjectives in English can be formed from nouns, verbs, and other adjectives by using derivational suffixes.

Adjectives from Nouns

Adjectives from Nouns can be formed by using *-ly, -ish, and -ic*.

Suffix	Noun (example)	Adjective
-ly	body	bodily
	time	timely
	Woman	womanly
-ish	Child	childish
	boy	boyish
	Book	Bookish
-ic	athlete	athletic
	Artist	artistic

(Table 7: Derivational suffixes in English)

Adjectives from Verbs:

Suffixes like *'-y', '-able', '-ous', '-al', '-ful', '-ic', '-less', '-ing' and '-ive'* can be added to verbs to form adjectives.

Suffix	Verb	Adjective
-y	speed	speedy
-able	read	readable
	enjoy	enjoyable

	watch	watchable
	laugh	laughable
-ous	continue	continuous
-ful	hate	hateful
	help	helpful
	forget	forgetful
-ic	see	scenic
-less	care	careless
-ive	reflect	reflective
	talk	talkative
-ing	annoy	annoying
	amuse	amusing

*(Table 8: Adjective forming suffixes in English***)**

The - *y* suffix can be added with a noun to form the adjective *food*+*y*= *foody*. It is also important to remember that the same word can be used as a different grammatical category; *speed* can be noun and verb. A word may be a noun or a verb depending on its usage in a particular sentence.

Adjectives from Other Adjectives:

An adjective is formed from another adjective by adding a suffix like *'-ly', '-ive', '-al', 'and-ish,--ier,-est'*.

Suffix	Adjective	Adjective
-ly	weak	Weakly
-ive	correct	Corrective
-al	comic	Comical
-ish	Green	Greenish
	red	Reddish
-ier	easy	Easier
	funny	funnier
-est	fine	finest

(Table 9: Adjective forming suffixes in English)

Verb Forming Suffixes

Some of the verb forming suffixes are *-en, -ate, -ize,-ify*

Suffixes	Examples	Meaning
-en	redden, whiten, blacken	to become
-ate	acerate, create, incinerate	to bring about a state
-ise	empathise, cannibalise, metabolise	to do something, to become
-ify	deify, terrify, amplify	to make something, to become

(Table 10: verbal suffixes in English)

Noun Formation

Agent Nouns can be formed by using the following suffixes -er, -or, and -ar.

Suffixes	Verb	Noun
-er	bake	baker
-or	administrate	administrator
-ar	beg	beggar

(Table 11: Noun forming suffixes in English)

In the above discussion, we must have observed that *–er is* used as both a derivational and inflectional morpheme as well. Phonologically both forms are the same. In the example driver, -er worked as a derivational suffix as -er changed the verb *drive* to a noun, i.e. driver. On the other hand, -er can be an inflectional morpheme also. For example, -er is attached to the adjective *nice* and forms a different word *nicer* to express the degree of the adjective in *nicer.*

Check your progress

1. Do you think inflectional and derivational morphemes are the same? Explain.

_____

_____

2. What is the difference between inflection and derivational morphemes?

_____

10.3 Learning Outcomes

After the compilation of this Unit, it is expected that the students will be able to classify morphemes in different categories. They will be able to identify free and bound morphemes of English. Within free morphemes, they are expected to distinguish between closed class and open class words.Students will have an idea about the English affixes. The students will be able to differentiate inflectional and derivational morphemes.

10.4 Glossary

Free Morpheme: a morpheme that can stand alone and have meaning on its own.

Bound Morpheme: a morpheme that is dependent on another morpheme.

Open Class or Content word: categories of words in which new words can be added.

Closed class or Grammatical or Functional word: categories of words to which new words cannot be added.

Prefix: Prefix is a letter or group of letters added before a word or another prefix to modify the meaning.

Suffix: Suffix is added after a word or a suffix to make a new word.

Inflectional morpheme: a morpheme that represents grammatical information and does not change the word category even after adding with the root

Derivational morpheme: a morpheme that creates a new word category.

10.5 Sample Questions

1.5.1 Objective Questions:

A. **Read the sentence and choose an appropriate option**:

1 Free morpheme can

(a) Stand alone

(b) Depended on another morpheme

(c) Limited in number

(d)

2. What is the root of the dishonesty

(a) dis

(b) honest

(c) -ty

(d) dishonesty

3. What is an example of a free morpheme

(a) un

(b) ish

(c) ness

(d) fun

4. What is applicable for the English language

(a) The number of inflectional morphemes is limited

(b) Number of inflectional morpheme in unlimited

(c) *Toy* is a bound morpheme

(d) Number bound morpheme is more than free morpheme

5. How many morphemes are there in the following word *noninstitutional*

(a) 2

(b) 3

(c) 4

(d) 5

B. Read the following statements. State if they are True or False

1. The noun *footballers* constitute 3 morphemes.
    (a) True
    (b) False
2. *Less* can be free morpheme and bound morpheme also.
    (a) True
    (b) False
3. *–ed*is an inflectional free morpheme.
    (a) True
    (b) False
4. A free morpheme is dependent on a bound morpheme.
    (a) True
    (b) False
5. All the inflectional bound morphemes are suffixes.
    (a) True
    (b) False

1.5.2 Short Answer Questions:

1. What is a prefix?
2. What is a suffix?
3. What is an inflectional morpheme?
4. What is a derivational morpheme?
5. Write five words with – *ity* morpheme.

1.5.3 Long Answer Questions:

1. What is a morpheme? What are the types of morphemes? Write with examples

2. Draw the morphological tree of- *demonetisation, vaccination*. Identify the free morpheme and bound morphemes with an explanation.
3. –*ing* can be both inflectional and derivational morpheme. Explain with examples.

10.6 Suggested Readings

1. Aronoff, Mark &Fudeman, Kristen. *What is Morphology?* (2nd Edition). Wiley-Blackwell, 2010.
2. Bauer, Laurie, Lieber, Rochelle &Plag, Ingo. *The Oxford Guide to Morphology (Oxford Linguistics)*. Oxford University Press, 2015.
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S

Unit-11: Lexical Morphemes

Structure

11.0 Introduction

11.1 Objectives

11.2 Towards understanding Word

- 11.2.1 Phonological and Orthographic words
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- 11.2.3 Word-form
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- 11.2.6 Word Formation
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- 11.2.9 Conversion
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11.3 Learning Outcomes

11.4 Glossary

11.5 Sample Questions

11.6 Suggested Readings

11.0 Introduction

It is primarily agreed and at the same time contested that human life is organized by language and, in the present times, languages.The scientific study of languages is the endeavour of linguistics.Languages are studied from several perspectives (linguistic, sociological, psychological, historical, etc.), and for the exploration,various units are formed to facilitate analysis and theorization.One such unit is ‘word’ for linguists.Lexis is the technical term used to

refer to words or vocabulary of languages.Morphology is the study of the internal structure of words.Let's quickly see what it all means.

When we attempt to study 'lexical morphemes',we first need to understand this compound noun.It is made of two words – 'lexis' and 'morpheme'.We have already noted that 'lexis' refers to words.'Morpheme' is not such a straightforward concept.It essentially means a part of the word that cannot be further divided.To understand this; let's take a look at the following sets of words:

Table	tabled	tabling
Work	worked	working
Begin	began	beginning

The words in the first column can be called the root words, whereas words in columns two and three are different.The difference lies in the fact that they can be divided into additional units.For example, the words – 'tabled' and 'worked' in the second column take the suffix (we will see what it means later) '-ed' or 'd' indicating past tense.The third word 'began' can be seen changing its structure, again indicating past tense.So, the entries in the second and the third column can be divided to reach the root words (words in the first column), or they are derived from the words in the first column.The words in the first column can be called 'morphemes'.The study of this internal structure of words is called 'morphology'.Morphologists attempt to understand and explain the different forms of the same word (see words listed above) or the internal structure of words.To illustrate the 'internal structure' words, let's take the example of 'unbreakable' or 'indefinitely'.

The word 'unbreakable' is made of three units -

'un'+ 'break'+ 'able'

And 'indefinitely' can be divided into

'in' + 'definite'+'ly'

In these examples, 'un' and 'in' (prefixes, we will see them later) show antonymic meaning, and 'able' and 'ly' add extra meaning to the words 'break' and 'definite'.

Activity 1

Consider the following words for deriving the root word:

Measurement	intransitively	incompatible
Dissatisfaction	instability	noncommittal

11.1 Objectives

- Explore the concept of WORD and understand its special status in human languages
- Understand the notion of 'morpheme' and different types of morphemes
- Understand word-formation in English

11.2 Towards understanding Word

Words are those entities that receive intense attention parallel to grammar in any language-pedagogic conversation and discourse.We as human beings just take the existence words for granted.We believe that there should be words to describe or define things.They are often called the building blocks for conceiving and formulating meaningful utterances.There exist several definitions of 'word'.Let's take a look at a few of them.

- Oxford Learners' Dictionaries (online) define 'word' as "a single unit of language that means something and can be spoken or written" (2021).
- Collins Cobuild English Dictionary (online) defines it as "a single unit of language that can be represented in writing or speech.In English, a word has a space on either side of it when it is written.
- Merriam Webster's Dictionary (online) says that a word is "a sound or combination of sounds that has a meaning and is spoken or written".

From the above definitions, we can deduce that a word is:

- A countable unit
- A meaningful unit
- Either spoken or written

- Written sign with space on either side

The advance dictionaries shed more light on this entity 'word'.Let's see a few of them.

- Oxford English Dictionary notes that a word is "a combination of vocal sounds, or one such sound, used in a language to express an idea (e.g. to denote a thing, attribute, or relation), and constituting an ultimate minimal element of speech having a meaning as such" (1989).
- Collins English Dictionary defines it as "One of the units of speech or writing that native speakers of a language usually regard as the smallest isolable meaningful element of the language, although linguists would analyze these further into morphemes.' (1986)

Now, if we attempt an analysis of the content of these definitions, we notice the following points:

- Sound is something inherent to words.Words can be realized as sound or a string of sounds.For example, the term 'we' is one sound /wi:/ or in Devnagri script, the sound can be represented as / वी /.For a string of sounds, we can take 'class' which has three different sounds /kla:s/ or in Devnagri /क्लास/
- Any word is a part of speech and hence a unit of speech.For instance, the sentence "Where is the chair?" has four words.
- The definition by Collins English Dictionary indicates that words are not always "smallest isolable meaningful" units.In other words, they can be further divided into 'morphemes'.Take the following sentence as an example:

  Where are you going? The visual clue (spaces on either side) says the sentence comprises four words. But for linguists; it is a sentence with five morphemes.

  Where *are* *you* *go* -ing
- All the definitions suggest that words contain some meaning.
- Words can have visible shapes, i.e. written forms.

Activity 2

Identify the number of words in the following sentences/utterances.

a. This is my pen, and I am not going to give it away.
b. It is not my headache.

c. The orthographic representation of a phonological word is never straightforward.

Let's go further to explore what else is there to make sense of words.Take two examples:

'You're'

'Handmade'

Can we call these words one word or two words?Along the same lines, examples such as 'work' and 'works', 'sing' and 'sang', 'eat' and 'ate' also present us with a challenge of identification as one/similar word or different words.We know that words are meaningful units but not always the smallest isolable units. Thelinguists extensively study this aspect of words and have tried to identify and label elements/aspects of words.What follows now is the overview of these labels.Going by the discussion in the previous section, we can observe that there is actually more than one kind of 'word'.

11.2.1Phonological and Orthographic words:

If we conceptualise a word as a sound or a string of sounds, it can be called a 'phonological word'.It can be represented by phonetic transcription.For example,

Word → /w3:(r)d/

Bird → / b3:(r)d/

Chair →/tʃeə(r)/

Concept →/ˈkɒnsept/

When these words are written in a combination of letters (which actually represent phonological elements), we have the 'orthographic word'.It must be noted that the orthographic (written) form of 'phonological word' is never straightforward or linear.For instance, the word 'read' in orthographic form can represent two phonological words:

Read (present tense) /ri:d/ and read (past tense)/red/

'Bear' (endure) and 'bear' (animal)

'Close' (connected) and 'close' (end)

'Fair' (reasonable) and 'fair (appearance)

In linguistics, such a phenomenon is called 'homographs'.It is also possible that one phonological word can manifest in two or more orthographic forms.

'Meet' and 'meat'

'Coarse' and 'course'

'Dual' and 'duel'

'I' and 'eye.'

'Caret' and 'carrot'

'New' and 'knew'

'Mail' and 'male'

To conclude, when we perceive words in their physical forms (either sound or written), any slight change in form results in two or more different terms.For instance,

Run	runs	ran	running
Walk	walks	walked	walking
Eat	eats	ate	eaten

But the mystery of the word doesn't end here.We noted earlier that the words in columns 2, 3 and 4 are derived from words in column 1, called root words.

11.2.2Lexeme:

In linguistic terminology, 'lexeme' stands for root words.It is a free form without inflexions of number, tense, gender, etc.In simple terms, 'tiger' and 'tigers' are the inflected forms of 'tiger'.Oxford Bibliographies (online) note that "a lexeme is a theoretical construct that stands for the unitary meaning and shared syntactic properties of a group of word forms".In other words, 'lexemes' are abstract entities.For example, take the word 'bamboozled'.To know its meaning, we refer to the dictionary and start looking for 'bamboozle' and not 'bamboozled' or

'bamboozling' because we know that these are different manifestations of the word 'bamboozle'.In morphology, the term 'lexeme' refers to this abstract (sense) vocabulary item.Usually, lexemes' are the vocabulary items listed in the dictionary.

Activity 3

Which ones of the following words belong to the same lexeme?

Tall	thin	clear	jump
Jumped	thinner	taller	clearest
Tallest	thinnest	jumping	clearer
Seen	saw	seeing	see

11.2.3 Word-form:

We use the term 'word' to indicate or refer to a particular manifestation of 'lexeme' in our language use.Let's quickly revisit the set we saw before to understand the notion of 'word form'.

Run	runs	ran	running	
Walk	walks	walked		walking
Eat	eats	ate	eating	

Here we can say that 'walk', 'walks', 'walked' and 'walking' are different 'word forms' obtained from the lexeme 'walk'.

Activity 4

What are the different word forms of the following lexemes?

Table	sleep	keep	drink
Put	draw	stand	rest

11.2.4 Grammatical word:

Words can be conceptualized or understood as a representation of lexemes associated with grammatical categories such as noun, adjective, verb, adverb, number, gender etc.The grammatical word occurs in the grammatical paradigm.To illustrate the point, let's consider the following sets of words.

Play plays playing played

Each of these words has distinct phonological and orthographic properties.But they indicate grammatical categories. 'plays' corresponds to 'third-person singular', 'playing' refers to 'present participle form' and 'played' past or past participle.So, a grammatical word represents the grammatical function or properties of the word.The term 'playing' in 'present participle form' has specific properties that dictate its use in sentences different from the properties of 'play', 'plays' and 'played'.

11.2.5 Morphology:

Morphology can be defined as a scientific study of the internal structure of words.The issue of the internal structure becomes noteworthy in the case of words with complicated internal structure.And yes; there are plenty of words with a complex internal structure (we often fail to notice)!

11.2.5.1 Morphemes:

Some words are straightforward, such as animal, milk, sing, digest, thousand, and so on, which cannot be further divided.For instance, we have no clue what 'and' stands for in 'thousand'.But as said above, words like 'misunderstand', 'complicatedly', or 'pen-s', 'un-necessary' are not straightforward.In the case of 'pen-s', 's' indicates pluralization phenomenon, and in 'un-necessary' ', un' indicates the antonymic meaning.The word 'misunderstand' has two units 'mis' and 'understand', and 'complicatedly' has three units 'complicate', 'ed', and 'ly'. These units are the smallest indivisible parts, called 'morphemes' in linguistics.

Activity 5

Can you try dividing the following words into morphemes?

Antidisestablishmentarianism

Photographically

Anticolonialism

Postcolonialism

The morpheme is the smallest unit of the word with a meaning.The words can be analyzed into morphemes by isolating ‘morphs’.

11.2.5.2 Morphs:

Now the question in your mind could be ‘what is this morph’.Well, it is the phonological realization (or you may wish to call it manifestation) of morpheme.So, it has a physical form, i.e. sound or strings of sound.In other words, we can call it word segments.For example, let’s look at the word ‘disinvestment’ has three morphs (or segments):

Dis – invest – ment

Morpheme and morphs:

‘Morphs’ are the constituent elements of ‘morphemes’. For example,

Morpheme	morph
Bird	bird
Is	be
Had	have

Allomorphs:

An ‘allomorph’ can be defined as a ‘morph’ with distinct grammatical and lexical features.For example, morph ‘en’ is used to make a plural of the child, brother, ox, etc., or ‘ed’ helps makethe past tense of regular verbs such as ‘work’, ‘realize’, ‘rush’ etc.To illustrate the concept further, in English, the past tense morpheme is realized by three different morphs – /t/, /d/, and /id/.These three morphs are phonologically conditioned as the sound of the word determines the realization of /t/, /d/ and /id/.

Realization as /t/

Kick /kik/

Kicked /kikt/

Realization as /d/

Clean /kl:n/

Cleaned /kl:nd/

Realization as /id/

Part /pa:rt/

Parted /pa:rtid

11.2.6 Word Formation:

Word formation is an exciting area of study as it involves capturing meaning or idea in a communicable label or sign popularly known as words.Word-formation is a process of combining morphemes to make meaningful units.To understand the process of word formation, we need to reconsider the notion of morphemes.For example, consider the following words:

Employee is made of 'employ' and 'ee.'

Unhappy - 'un' and happy.'

Promise – 'promise'

Write – 'write'

In the case of 'employee' and 'unhappy', we can divide the word, but the remaining two words, 'promise' and 'write', cannot be further divided.This leads us to consider the concepts 'bound morpheme' and 'free morpheme'. The morphemes 'ee' (an employee) and 'un' (in unhappy) are bound morphemes.But 'employ', and 'happy' are independently meaningful and hence called 'free morphemes'.The 'bound morphemes' can either follow the root word or meaningful unit or precede it.For example,

Weekly – 'week' + 'ly'

The morpheme ‘ly’ can only follow the root word.

Disinfect – ‘dis’ + ‘infect’

The morpheme ‘dis’ can only precede the root word.

These examples must have offered some clue to the functioning of certain morphemes in English.The morpheme ‘un’ and ‘dis’ suggest negative meanings. The morpheme ‘ly’ indicate adverb function. What follows now is a quick overview of the word-building process in English.

Activity 6

Identify the free and bound morpheme in the following words

Immaterial

Democratically

Classes

Institutionalization

Sheep

Formed

Prefix

Instance

11.2.7 Affixation:

The term ‘affix’ refers to something fixed to the root word either at the beginning (preceding the root) or at the end (following the root) of the word.What is ‘affixed’ is, in essence, a morpheme.The process of affixation is realized in two forms:

- Prefix: As the term indicates, the morpheme is attached before/at the beginning of the root word.The examples are:
  ‘Dis’ – disembark, disband, dislocate
  ‘UN’ – unhappy, untie, untangle
  ‘Ir’ – irregular, irrespective, irresponsible
  ‘il’ – illogical

- Suffix: This is a form of affixation after or at the end of the root word.The examples are:

'Ness' – kindness, childishness

'ly' – kindly, markedly

'er' – smarter, cleaner

11.2.8 Compounding:

We combine two root words or root morphemes in this form of word-building.Some words combine root words, and a few examples exist where one base is in affixed form.

Root 1	Root 2	Compound
Black	Board	blackboard
Week	end	weekend
Dinner	table	Dinner table
Bed	room	bedroom
Class	room	classroom
Book	store	bookstore
Note	book	notebook

11.2.9 Conversion:

In English and few Indian languages, certain words have the same pronunciation (phonetic form) but perform different functions.For example, notice the word 'table' in the following sentences:

There is a *table* in the room.

Table the bill in the house.

In the first sentence, 'table' is a physical object, whereas 'table' in the second sentence denotes 'present'.

11.2.10 Clipping, blends and acronyms:

In clipping, the words are shortened without affecting the meaning or grammatical category. According to sociolinguists, it is one of the most familiar processes in contemporary times.The popular examples are intro (introduction), promo (promotion), *insta* (Instagram), phone

(telephone), bro (brother), sis (sister), ad (advertisement), mic (microphone) etc. The other examples are:

Mathematics - math

Binoculars – binocs

Photograph – photo

Higher technology – high-tech

Internet – net

The other way of word-building is blending; wherein two words are merged.

Clap - crash – clash

Documentary – drama – docudrama

Electricity – execute – electrocute

Biography – picture – biopic

Motor- hotel – motel

Work – alcoholic – workaholic

Another familiar way of word-formation is forming acronyms.It involves using the first letters of phrase (collection of words) and using it as a word.

UGC – University Grants Commission

WHO – World Health Organisation

UNO – United Nations Organisation

11.2.11 Suppletion:

It involves the combination of two or more phonetically distinct roots for different forms of the same word.In other words, it means the replacement of one stem or root word with another altogether different root word.The following examples illustrate the point.

Good	better
Bad	worse
Go	went

11.2.12 Reduplication:

This process of word-formation is well-known in the Indian languages.There are plenty of examples frequently used in daily conversations.In essence, it is a process in which affix is realized by phonological material borrowed from the root word.The two words show a rhyming tendency.

Brain-drain	sing-song
Wishy-washy	okey-dokey
Pitter-patter	blah-blah

Now notice the examples from the Hindi:

Rote- girte (रोते – गिरते)

Rona-dhona (रोना – धेना)

Pani-vani (पानि – वानि)

Chai-vaay (चाय – वाय)

Khate-pite(खाते – पिते)

To summarise, in this unit, we began byexploring the concept of words.We looked at the role and place of the word in language in general, definition of the word, and classification of the word, the notion of morpheme, morph, allomorph, and word-formation process.

11.3 Learning Outcomes

By the end of this unit you will be able to:

- Explain the structure of words considering all nuances
- Explore the constituent elements of words
- Use words in informed way considering the word-formation processes

11.4 Glossary/Key Words

Word: In essence it is considered as the linguistic unit to be deployed in forming and formulating utterances.

Morpheme: A morpheme is the smallest unit of language that has its own meaning, either a word or a part of a word.

Morph: It is the smallest meaningful unit and it is constituted of a sound or a string of sounds. It cannot be further divided.

Allomorph: It refers to a morph (smallest unit realized as a sound or a string of sounds) that has unique set of grammatical or lexical features.

Affixation: It is a process of word-formation where a morph is added to word either at the front or at the end of the word to form other words.

11. 5 Sample Question

11.5.1 Objective Question:

1. ‘Lexis’ is a technical term for ….
   a. Lexicography
   b. Vocabulary

c. Word-grammar
d. Grammar

2. Which of the following is not a feature of ‘word’?
   a. Having a physical realization, either phonological or orthographic
   b. Having independent meaning or function
   c. Being beyond grammar
   d. Composed of morphemes

3. Which of the following is a correct observation about words?
   a. Orthographic word exactly represents a phonologic word.
   b. Orthographic words have no relation with the phonologic word.
   c. Orthographic words and phonologic words are similar.
   d. An orthographic word may have two phonological realizations.

4. Identify the lexeme from the following set.
   a. Formation
   b. Formed
   c. Form
   d. Format
5. ‘Unexamined’, ‘examined’ and‘re-examined’ are word forms of the lexeme...
   a. Examination
   b. Examine
   c. Exam
   d. Example

6. Identify the morph of ‘been.’
   a. Is
   b. Are
   c. Be
   d. Been

7. Identify the bound morpheme in the word – ‘Marxism.’
    a. Marx
    b. -ism
    c. -sm
    d. Marxism
8. Identify the free morpheme – biocentrism
    a. Bio
    b. Centre
    c. Bio and centre
    d. -ism
9. Which of the following words operates on the principle of conversion?
    a. Promise
    b. Remove
    c. Chair
    d. Remark
10. ‘am’, ‘is’, ‘are’ ‘was’ are the examples of…
    a. Affixation
    b. Reduplication
    c. Conversion
    d. Suppletion

11.5.2 Short Answer Questions:

1. Write at least six words from your language and ten words from English and divide them into smaller units.
2. What is a grammatical word?
3. What is the difference between ‘morpheme’ and ‘morph’?
4. Identify the morphemes in the following sentences.
    a. She was parking her car near the banyan tree.
    b. The guests have arrived.
    c. We parked the cars in the open ground.
    d. There is no point in studying words.

e. India won the match by six wickets.

5. Identify the past tense morphemes in the following words.
    a. Booked
    b. Read
    c. Banished
    d. Abandoned
    e. Tabled
    f. Cried
    g. Smiled
6. What is affixation in word-formation?

11.5.3 Long Answer Questions

1. What is a word? What are the properties of a word? Discuss with appropriate examples. You may wish to use examples from your language.
2. What is a morpheme? Discuss.
3. Write a detailed note on the word-formation process.

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11. 6 Suggested Reading

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UNIT-12: INFLECTIONAL MORPHEMES

Structure

12.0. Introduction
12.1. Objectives
12.2. Inflectional Morphemes
- **12.2.1** What is inflection?
- **12.2.2** Differences between Inflectional and Derivational Morphemes
- **12.2.3** Inflection in English and its classification
- **12.2.4** Regular Inflection
- **12.2.5** Irregular Inflectional

12.3 Learning Outcomes
12.4 Glossary
12.5 Sample Questions
12.6 Suggested Readings

12.0 Introduction

Morphology is the study of the structure of words, majorly categorized into free and bound morpheme. A morpheme is the minimal meaningful and grammatical unit of a word. For example, **re-enter-ed,** here the stem **enter** is the free morpheme because it can stand on its own but the affixes {re-} and {-ed} are bound morphemes, as they require a free morpheme to be attached.

In English language, the affixes which are generally found are prefixes and suffixes. These bound morphemes are categorized as derivational and inflectional morphemes. In this unit we will concentrate on the inflectional morphemes.

12.1 Objectives

- To enable learners to understand inflection in English language.
- To acquaint learners with the features and functions of inflectional morphemes.
- To introduce the regular and irregular inflectional morphemes to the learners.
- To introduce to the learners the 8 inflectional morphemes found in English language.

12.2. Inflectional Morphemes

Inflection in languages has often been described by various linguists. Inflectional morphemes are highly significant in any language as they carry grammatical functions. Let us see few definitions:

Oxford Learners Dictionary defines Inflectional Morpheme as, "a change in the form of a word, especially the ending according to its grammatical functions in a sentence"

According to George Yule in 'The Study of Language' … inflectional morphemes are, "set of bound morphemes which are not used to produce new words in the language, but rather to indicate aspects of the grammatical function of a word. Inflectional morphemes are used to show if a word is plural or singular, if it has past tense or not, and if it is a comparative or possessive form".

Peter Robinson states that, "inflectional morphemes are bound morphemes which are used to serve grammatical purpose. As opposed to derivational morphemes, the attachment of the inflectional morphemes does not create a new word. Therefore, an inflected word always stays in the same lexical category as the original one."

With the above definitions we can conclude few things; firstly, that inflectional morphemes are bound morphemes which are only suffixes; secondly, it does not produce new words but retains the same lexical form ; and thirdly, it indicates at the aspects or modifies its grammatical functions to convey the change in sense. All these points will be discussed in details in the following sections.

12.2.1What is inflection?

Let’s observe these sentences,

The ship that **transports** the goods is on time. (1)

The ship that **transported** the goods was on time. (2)

The ship that is **transporting** the goods is on time. (3)

The **transportation** of goods with the ship is smooth. (4)

Few things which are noticeable here,

i. The words transports, transported, transporting and transportation have the same root word which is transport.

ii. However, transports, transported and transporting in sentences 1, 2 and 3 respectively, belong to the same grammatical class which is a verb.

iii. The word transportation in sentence (4) belongs to the different word class i.e., noun.

iv. In sentences 1, 2, and 3, the word formation process is inflection.

v. Inflection does not change the grammatical category of the word but definitely it indicates at the sense of meaning.

vi. The suffix **-s** is added to the root ‘transport’ because the subject **the ship** is third person singular. So we can say that the inflectional morphemes carry the syntactical meaning.

vii. Similarly in sentence 2 and 3, the suffixes **-ed** and **-ing** are used to indicate the past tense and the present progressive. It indicates the relationship between the word forms of the same lexeme.

viii. In sentence 4, the word formation is derivational.

ix. The derivational morpheme {**-tion}** is added to the root word to form a new word by changing the word class (parts of speech) i.e., noun.

To put everything together, it can be said that Inflectional morphemes are bound morphemes attached to the stem. Inflectional morphemes are significantly suffixes in English language. They are often called closed class as they resist any addition of new forms in its existing category.

Unlike lexical or derivational morpheme, inflectional morpheme does not change the form or grammatical class of the lexeme but it slightly alters the form of the lexeme to indicate its grammatical properties.

12.2.2 Differences between Inflectional and Derivational Morphemes:

After studying Inflection in isolation, let's understand it further by comparing it with Derivational Morphemes.

(i) Inflectional morphemes suggest the relationship between the word forms of the same lexeme. For example, proposes, proposed, proposing. Whereas, Derivational morphemes is about the relationship between the lexeme of the word family. For example, proposal.

Propose, proposes, and proposed, proposing are verbs but they slightly differ in in its grammatical function but the word proposal suggests different meaning and different word class.

(ii) Inflectional Morphemes suggests and indicates the grammatical distinctions in tense, number, possession and comparison. In English language there are only 8 inflectional suffixes. They are, **-s/-es; -'s/s'; -ed; -en; -er; -est**; and **-ing**. We will discuss this in detail in the nest section. It does not create new words but slightly changes the form of the word so that the word could be identified at its various grammatical functions. Derivational morphemes change the meaning of the lexeme, forms new lexeme. Inflection suggests grammatical meaning whereas derivation lexical meaning.

(iii) Inflectional morphemes are always suffixes. For example, **{-er}** in shorter; **{-est}** in shortest; **{-en}** in oxen.

Whereas derivation affixes in English are both prefixes and suffixes.

Un-happy-ly

The word unhappily has the prefix **un-** and the suffix **-ly**.

(iv) If derivational suffix is added to a lexeme it would certainly follow the inflectional suffix.

Sing-er-s

The word singer has two suffixes; the derivation suffix **-er** (it is different from the inflection suffix **-er**, which is a comparative case) and the inflectional suffix **-s** which is a plural marker. The root word sing is a verb when added with the derivation suffix **–er** becomes singer which is a noun. Here we notice the change in meaning and change in grammatical category. After inflection suffix no more affixation in possible. That is why derivation is significantly known as open class as it open to form new words from the same lexeme; and inflection is known as closed class.

(v) Inflection has syntactical function and is determines by syntax. For example.

She opens the door. (5)

They open the door. (6)

Rose is a beautiful flower. (7)

Roses are beautiful flowers. (8)

The above all sentences, follow the subject verb agreement. The singular subject takes singular verb and plural subject takes the plural verb.

There is no such obligation with derivations. They are not determined by syntactic functions.

12.2.3. Inflection in English and its classification:

As we have discussed briefly above that English has only 8 inflectional suffixes which is comparatively less than other languages. The grammatical meaning which is constantly repeated above include information about tense (past, present, future); persons (first, second and third); number (singular, plural) and other distinctions.

Morphemes	Marked on	Suffixes	Examples
Plural	Noun	-s/-es	girls/copies
Possessive	Noun	-'s/-s'	Girl's/girls'
Comparative	Adjective	-er	Taller
Superlative	Adjective	-est	tallest
3rdPerson Singular Present Tense	Verb	-s	shows
Past Tense	Verb	-ed	showed
Past Participle	Verb	-en	Swollen, broken
Present Participle or Progressive	Verb	-ing	Showing, walking

The above table illustrates the 8 inflections in English with examples. The table does not necessarily show the regular and irregular inflection on Noun Plurals, Past participle and Past tense. For example, the irregular plural for **sheep, fish, goose** are **sheep, fish, geese** respectively. In all these the typical plural form is not used but the internal morphology of these words suggests their plurality. Similarly, the regular and irregular inflection can be seen in past tense and past participle.

Let us discuss each inflection mention above in detail.

i. Noun Inflectional Morphemes- Number {-s}

The nouns (mostly countable) in English are marked as singular or plural for number. In inflection, any lexeme has two grammatical forms; a singular number and a plural number. For example,

Boy	{boy}	(singular)	1 morpheme
Boys	{boy} + {s} (plural marker)		2 morphemes

Likewise,

Sheep	{sheep}	(singular)	1 morpheme
Sheep	{sheep} + Pl		1 morpheme

Although for sheep, there is no plural **{-s}** attached to the word but morphologically it is internally constructed. For all the countable nouns the plural -s is attached but few exceptions are there like sheep. There is another notable case where the words which generally end in **-s** are not necessarily plural like mathematics, news. Sometimes, there is an internal change in the vowels of the allomorphs for the plural of a morpheme. For example,

Man	{man}+Pl	men
Tooth	{tooth}+Pl	teeth

These types of irregularity in nouns which are present in English are generally the nouns which still follow the old pattern of Old English derived from Latin and Greek.

This is undeniable that majorly the countable nouns are pluralized in English by adding the suffix **-s** to the stem. For English plurals, we have **{s}** morpheme and the sounds [s], [z], [ɪz] individually which are the morphs, collectively are the allomorphs of the plural morpheme {s}.

For example,

Cats’	/kæts/
Dogs’	/dɒgz/
Buses	/bʌsɪz/

ii. Noun Inflectional Possessives {-’s}

The possession is remarkably marked by using -'s. This not only suggests the possession and ownership but also the introduction and invention. For example, Grimm's Law, Darwin's Theory.

The nouns that take the possessive {-'s} are generally people, animals, time and collective nouns.

Singular possessive	mother's	child's
Plural possessive	mothers'	children's
	eggs'	

The singular possessives take **{-'s}** to the base form and for plurals, the morpheme **{s'}** is used.

iii. Adjective Inflectional Morphemes- Comparative Degree {-er}

Just as nouns and verbs take inflectional morphemes, similarly, adjectives and adverbs also take the morphemes **{-er}** and **{est}** for the comparative and superlative degree. Comparative degree signifies the comparison between any two things or persons. For example,

Smart	{smart}+ {-er} =	smarter
Tall	{tall}+ {-er} =	taller
Short	{short}+ {-er}=	shorter

The comparative morpheme **{-er}** is added to the base morpheme to indicate the comparisons. This comparisons with the **{-er}** morphemes only takes place in monosyllabic words and if the word has three or more than three syllables then the word 'more' is added. For example,

That boy is smarter than me. (9)

He is more intelligent than you. (10)

In the above sentences, the base morpheme {smart} is monosyllabic, so it takes **{-er}** to indicate comparison. Whereas, the base morpheme {intelligent} has four syllables so it takes 'more' to indicate the comparison.

The words with two syllables to form comparative, generally end in **y** change the **y** to **i** and add the suffix **'-er'** to indicate comparison. For example, holy becomes holier.

The comparative also has the irregular forms, like bad- worse; much- more.

iv. Adjective Inflectional Morphemes- Superlative Degree {-est}

Adjectives and adverbs take the morpheme **{-est}** to signify the superlative degree. A superlative degree is also a comparison but unlike comparative degree, it is the comparison of more than two things or person. For example,

That boy is smartest of all. (11)

The number of syllables also plays an important role in defining the superlative degree. If the length of the base is monosyllabic then the morpheme **{-est}** would be added to the base but if the length of the base has three or more than three syllables then the word **'most'** is used to indicate the comparison. For example,

She is the most beautiful girl in the family. (12)

Adjectives with two syllables, ending in 'y' change to 'i' and the suffix '-est' is added to indicate plurality. For example, holy becomes hol**iest**; dirty becomes dirt**iest**.

The Superlatives in English also have irregular inflections, they are, bad- worst; much- most, respectively.

v. Verb Inflectional Morphemes- Present Tense {-s}

Number is only marked in the 3rd Person Present tense. For past and future tenses there is no agreement between subject and verb. The morpheme **{-s}** in the verb signifies the singular subject. The verbs in English only inflect in present and past tense along with the present participle and past participle.

3rd Person singular Present Tense	He jumps.
Present tense plural	They jump.
Past tense	He jumped.
Progressive (present participle)	He is (be form) jumping.
Past Participle	He had jumped.

The above mentioned auxiliaries in the table are and had are the aspectual distinctions of the verb inflection.

The **{-s}** morpheme is added to the base only in Present tense form. If the subject of the verb is 3rd person he/she/it (singular), then the morpheme **{-s}** is added to the verb.

vi. Verb Inflectional Morphemes- Past Tense {-ed}

The past tense in the verb is generally indicated by adding **{-ed}** to the base. For example,

He walked on the silent road. (13)

She listened to the music.
(14)

That person showed his genuine concern. (15)

Apart from these regular forms, there are few irregular forms, as in ate, drove etc.

vii. Verb Inflection- Present Participle {-ing}

The present participle is also known as progressives and it takes the morpheme **{-ing}** to be added to the base. This **-ing** is used along with the Be form as auxiliaries. For example,

She was sleeping when I left. (16)

They are roaming in the city. (17)

viii. Verb Inflection- Past Participle {-en}

The past participle takes **{-en}** morpheme to be added to the base. With this past participle morpheme the auxiliary 'had/have' is also used. For example,

Had broken, have swollen, had driven, have stolen etc.

Inflections appear in English Pronouns as well. Let us check the inflection in pronouns. The inflection in pronouns differs from that of nouns. So, it is justifiable to treat inflection in pronouns separate with nouns. The inflection is marked of cases, gender, number and person. Unlike nouns, pronouns have a very finite and limited set plurality. The below table illustrates the paradigm of pronouns.

Person	**Number**	**Gender**	**Case**			
First	Singular		Nom.	Obj.	1st Poss./Pl	2nd Poss./P
			I	Me	My	Mine
	Plural		We	Us	Our	Ours
Second			You		Your	Yours
Third	Singular	Masculine	He	Him	His	His
		Feminine	She	Her	Her	Hers
		Neuter	It			Its
	Plural		They	Them	Their	Theirs

Source: *egyankosh- Inflectional Morphology in English*

The above tabular representation illustrates the Inflection in Pronouns on the stated grammatical aspects such as person, number, gender and case. The representation is on the

personal pronouns of English but there are other pronouns such as somebody, someone, everything, everyone etc. The suffixes for these pronouns are present such as somebody's, someone's. The suffixation in these pronouns is recognizable but the inflections on the personal pronouns are not externally recognizable. The personal pronouns go through internal morphological change to show inflection.

12.2.4. Regular Inflection:

In above all the sections, we have discussed about the regular and irregular inflections. Let us now understand these in detail with examples.

Inflection indicates the grammatical function of a word. English for regular inflections takes only suffixes but it is not same with irregular inflection. In irregular inflection, the word undergoes the internal morphological change. It follows a consistent pattern of rules which makes it a regular inflection. For example, plurality of Nouns is indicated by adding the morpheme **{-s}** to the stem (cats, trees, windows). Similarly, to indicate past tense in Verbs, the morpheme **{-ed}** is added to the stem (stumbled, checked, walked). Let us now see these regular inflections in the below cases:

i. Regular Inflection in Noun Plurals

The plural in nouns are generally indicated by the morpheme {-s}. This we have discussed earlier, but there are few words which end in **y, f, x, s, ch** etc, all the cases take **-es** and **-ies** to indicate the plurality. Well, these cases are considered to be consistent so they fall under the plural morpheme **{-s}**. Let us see few examples,

Car	Cars
Book	Books
Ball	Balls
Box	Boxes
Lady	Ladies
Knife	Knives

Beach	Beaches
Toy	Toys

The word ‘toy’ is an exception, it does not take **{-ies}** to become ‘toies’ but it takes the suffix **-s** to form toys.

ii. Regular Inflection in Comparative form

The Comparatives in English takes the morpheme **{-er}** to be added to the base. There are few rules that govern in the creation of these comparatives. They are:

- The comparative suffix **-er** is added to the base and the new word is formed. If the base adjective is of one syllable and the last consonant is preceded by one vowel then that last consonant of the base will be doubled. For example,

  Big {big}+ {-er} bigger

  Here the word big is of only one syllable and the last consonant is preceded by only one vowel which results in the doubling of the consonant ‘g’ in the word ‘bigger’.
- The second rule states that if the word is of one syllable; and the final letter of the base adjective is not doubled; also there are two vowels preceding the last letter or there are two different consonants in the last then the final word would be the **base + {-er}**. For example,

  Plump {plump}+ {-er} Plumper

  Short {short}+ {-er} shorter

  Clean {clean}+ {-er} cleaner

  The word **plump** and **short** both are monosyllabic, both end with two different consonant sounds. The word **clean** is also monosyllabic but instead of ending in two different consonants, the last consonant is preceded by two vowels.
- The third rule is that if the adjective ends in ‘y’ then the morpheme **{-er}** would reflect as the suffix **-ier** in the final word. For example,

Lazy	{lazy}+ {-er}	lazier
Angry	{angry}+ {-er}	angrier

- The fourth rule states that if the word is monosyllabic then the suffix **-er** would be added (big becomes bigger); if the word is disyllabic (mostly ends in **y**) then the suffix **-ier** is added (happy becomes happier); and if there are three or more than three syllables then 'more' is used before the base adjective (beautiful becomes more beautiful).

iii. Regular inflection in Superlatives

The regular inflection of superlatives in English follows the same rule as the comparatives. The only difference lies in the morpheme. The morpheme **{-est}** is added to the base adjective.

- The superlative suffix **-est** is added to the base and the new word is formed. If the base adjective is of one syllable and the last consonant is preceded by one vowel then that last consonant of the base will be doubled. For example,

Big	{big}+ {-est}	biggest

- The second rule states that if the word is of one syllable; and the final letter of the base adjective is not doubled; also there are two vowels preceding the last letter or there are two different consonants in the last then the final word would be the **base + {-est}**. for example,

Short	{short}+ {-est}	shortest
Clean	{clean}+ {-est}	cleanest

- The third rule is that if the adjective ends in **y** then the morpheme **{-er}** would reflect as the suffix **-iest** in the final word. For example,

Lazy	{lazy}+ {-est}	laziest
Angry	{angry}+ {-est}	angriest

- The fourth rule states that if the word is monosyllabic then the suffix **-est** would be added (big becomes biggest); if the word is disyllabic (mostly ends in **y**) then **y** is replaced with **-i** and the suffix **-est** is added (happy becomes happiest); and if there are three or more than

three syllables then ‘more’ is used before the base adjective (beautiful becomes most beautiful).

iv. Regular Inflection in Verbs

The verbs in English takes the morpheme **{-ed}** to denote the past tense and the past participle. For example,

Word	Past Tense	Past Participle
Walk	Walked	Walked
Slap	Slapped	Slapped
Return	Returned	Returned
Climb	Climbed	Climbed
Like	Liked	Liked

There are few regular past tense suffixes that are added to the base verb which are default endings. These are new verbs which are added in the English language. Like **Google** becomes **goggled**; **whatsapp** becomes **whatsapped** (these words are nouns but are often used as verbs).

12.2.5. Irregular Inflection:

The irregular forms are generally formed by internal morphological changes which are known as ablaut and umlaut. The irregular noun and past tense forms are closed cases because there is a fixed list of those words and no new forms can be added. These irregular forms are the remnants of the Old English which was derived from various languages. These remnants show the rule of umlaut which was present during those times. Thus, the irregular inflection does not follow the same conventions of English to form new words.

i. Irregular Inflection in Noun Plurals

The irregular noun plurals reject the conventional **{-s}** to be added to the base. The word undergoes the internal morphological change. Few examples are listed below:

Foot	Feet
Ox	oxen
Person	people
Child	children
Man	men
Datum	data
Woman	women

ii. Irregular Inflection in Comparatives

The irregular inflections also follow in comparatives. For example,

Bad	worse
Good	better

iii. Irregular Inflection in Superlatives

The superlatives also defy the convention of regular inflection. Few examples are,

Bad	worst
Good	best

iv. Irregular Inflection in Past Tense and Past Participle (Verbs)

The irregular verbs in past tense and past participle are not governed by any rule. The very usage of that word in its past tense form is only to be memorized. Some of those are listed below,

Verb	Past Tense	Past Participle
Eat	Ate	Eaten

Sing	Sang	Sung
Sit	Sat	Sat
See	Saw	Seen
Write	Wrote	Written
Ride	Rode	Ridden
Grow	Grew	Grown
Swing	Swung	Swung

The ‘be’ form of the verb in past tense and past participle also show variety of irregular inflection. The illustration is provided with the help of table.

Singular	**Plural**	**Past Participle**
I was	We were	been
You were	You were	been
He/she/it was	They were	Been

The **be** form of verb also show irregularity in present tense as well.

Singular	**Plural**	**Present Participle**

I am	We are	Being
You are	You are	Being
He/she/it is	They are	Being

The above both the tables show that the **be** for of verb alone is highly irregular in its inflection and has many forms.

The irregular inflections in English are not governed by any rule rather they are unpredictable. It is difficult to understand the formation of their inflected forms.

12.3. Learning Outcomes

At the completion of this unit, learners are expected to develop the understanding of meaning of inflection, the process of inflection in English. They are also expected to recognize the eight inflectional morphemes in English and their functions. They shall try to apply the theoretical knowledge in identifying different inflectional morphemes in their language.

12.4. Glossary

Ablaut: It is a systematic vowel variation whose quality of length determined by linguistic distinctions.

Affix: An addition to the stem or base of a word in order to modify its meaning or create a new word.

Allomorph: It is the representation of a morpheme. A morpheme can have two or more allomorphs.

Aspect: It is a verb form (or category) that suggests characteristics that are related to time, such as the duration, completion or repetition of an action.

Auxiliary Verb: A verb used to form tenses, moods, and voices of the main verbs. It is often called as helping verbs. The primary auxiliary verbs in English are *be*, *do*, and *have* ; the modal auxiliaries are *can*, *could*, *may*, *might*, *must*, *shall*, *should*, *will*, and *would*.

Base: A word form that other morphemes can attach to.

Bound Morpheme: It is a morpheme that cannot stand on its own but requires a free morpheme.

Comparative: It is an adjective that in comparison to indicate the differences between any two objects they modify.

Disyllable: A word with two syllables.

Free Morpheme: A morpheme that can stand alone and has meaning of its own.

Lexeme: A lexeme is a minimal lexical unit of a language that underlies a set of words that are in relation with each other through inflection.

Lexical: A lexical form is an abstract unit. It represents a set of words that differs only in inflection and not in core meaning.

Monosyllable: Words with only one syllable.

Morpheme: It is the smallest meaningful grammatical unit of a language.

Syllable: It is a sound which is uttered with a single breath. It must have a vowel sound.

Syntax: It studies the structure of phrases, sentences of a language.

Umlaut: A symbol or mark that is over vowels in German language.

12.5. Sample Questions

12.5.1 Multiple Choice Questions:

1. Which these morphemes do not have a grammatical function of inflectional morphemes.

(a) Singer

(b) Mice

(c) Oxen

(d) Chairman's

2. In a sentence, *The Children are playing in Smith's garden*; identify the number of inflectional morphemes in it.

(a) 3

(b) 2

(c) 4

(d) 5

3. Inflection is,

i. The formation of new forms of the same grammatical category.

ii. Does not change the class

iii. Open ended and allows the addition of other morphemes.

iv. It is prefix and suffix.

(a) All are correct

(b) Only (i) & (ii) are correct

(c) All are false

(d) Only (i) & (iv) are correct

4. To mark possessives on plural noun morphemes, it often takes the suffix,

(a) {-s'}

(b) {-'s}

(c) Internal morphological change

(d) All are true

5. In English, Inflectional morphemes are often,

(a) Prefix

(b) Suffix

(c) Infix

(d) Affix

6. The adjective morpheme takes {-er} as the suffix, then which is not the comparative form of the Adjective inflection?

(a) Bigger

(b) Larges

(c) Funnier

(d) Waiter

7. The word 'climbing' has which inflectional morpheme?

(a) 3rd Person Singular Present Tense

(b) Possessives

(c) Progressives

(d) Plural

8. The Past Participle in verb takes {-en} as suffix. Identify which is not one.

(a) Bitten

(b) Forgotten

(c) Given

(d) Oxen

9. What is the way of forming regular superlatives?

(a) By adding the suffix **-est**

(b) By adding the suffix **-er**

(c) By adding the **most** before the adjective

(d) By adding the suffix **-ly**

10. The morphemes {-s'}, {-s} indicate,

(i) Possession, plural nouns and singular verbs

(ii) Possession, present tense in verb and plural nouns

(iii) Present tense in verbs, possession and singular verbs.

(a) All are false

(b) Only (i) is true

(c) Only (ii) is true

(d) Only (iii) is true

12.5.2 Short Answer Questions:

1. When do you use 'es' instead of 's' to indicate plurality in Nouns? Give examples.
2. How do you describe inflection in your words?
3. 'Woman' as a countable noun follow irregular paradigm. Provide its plural form with explanation.
4. Syllable of a word defines the comparative and superlative forms of adjectives. Explain with examples.
5. Explain regular and irregular verb inflections in English.
6. Explain with examples the Noun Inflectional Possessive.

7. State how Inflectional morphemes are distinctive from Derivational morphemes.

8. Trace out at least three inflectional morphemes in your language and their functions.

12.5.3 Long Answer Questions:

1. Describe the rule that governs in the following adjectives in the formation of comparatives and superlatives:

Dirty	Dirtier	Dirtiest
Beautiful	more beautiful	most beautiful
Clever	cleverer	cleverest

2. Provide a description of the following pronouns with respect to its number, case, gender and person.

(a) This is **her** pen.

(b) **She** is as beautiful as **me**.

(c) Talk to **him**.

3. State differences in Regular and Irregular Plural Noun Inflections with explanation and appropriate. Examples.

4. Distinguish inflectional and Derivational morphemes from the following words and provide explanations.

Holier operator's climber unregulated unfollow

5. Describe the eight inflectional morphemes in English language in your own words. Explain their functions with examples.

12.6. Suggested Readings

1. Haspelmath, M., & Sims, A. (2010). *Understanding morphology* (2nd edition). Hodder Education.
2. Lieber, Rochelle. (2009). *Introducing Morphology*. Cambridge University Press.

Unit - 13: Introduction to English Syntax

Structure

13.0Introduction

13.1 Objectives

13.2 The Science of Syntax

- 13.2.1 Universal Grammar
- 13.2.2 Grammaticality and Acceptability in English
- 13.2.3 Syntactic Categories in English
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13.3 Learning Outcomes

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13.5Sample Questions

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13.0 Introduction

Modern linguistics has paved the way to look at languages in a more different and more scientific way. Human languages have been an intriguing field of investigation for ages. Earlier, languages were looked at as an individual entity. It is after the famous book titled *Syntactic Structure* by Noam Chomsky in 1957. The whole perspective of looking at languages changed completely after it came into existence. The main aim of the book was 'construction of a formalized general theory of linguistic structures'. As a result of the book, the theoretical aspect of English language also underwent a change. The theory of English language was also looked at from a new generative transformational grammar perspective. Every language has few core levels which include phonology, morphology, syntax and semantics. Syntax deals with the study of sentence structure. So, English syntax deals with structure of English sentences. One of the most important structures that English syntax deals with is the word order in a sentence. According to syntacticians, words are not arranged randomly in sentences. They follow certain rules. Some of these rules are called 'principles' which are common to all languages and some rules are called 'parameters' which are language specific. Syntax studies these rules and patterns in detail. So, the syntax of English focuses on different types English sentence structures such as simple sentences, order of words, phrases, clauses etc.

13.1 Objectives

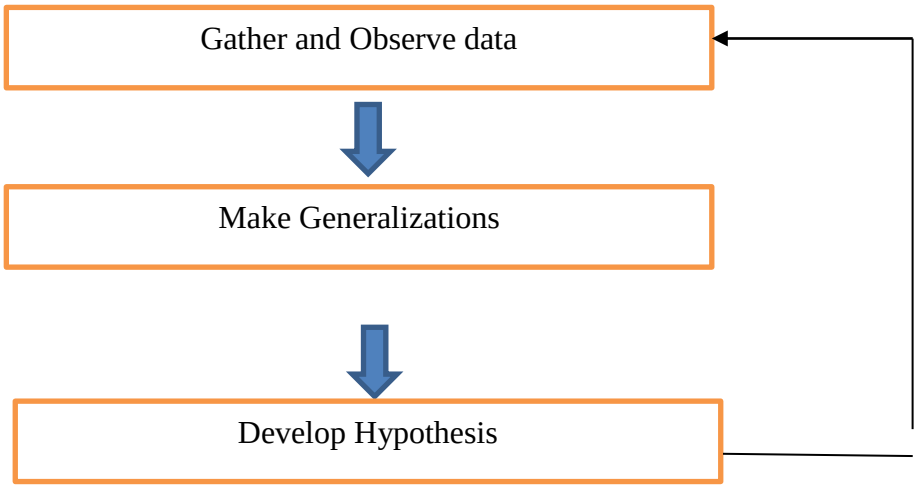
The unit has been designed to fulfill the following objectives:

- To familiarise students with importance of linguistic theory at the level of syntax.
- To be able to understand the concept of universal grammar.
- To enable students to understand the difference between grammaticality and acceptability.
- To get familiar with different syntactic categories in English and their definitions.
- To acquaint students with various word classes.

13.2 The Science of Syntax

Syntax is the scientific study of sentence structure. Scientific syntactic theories have taken many names throughout its development such as transformational grammar, transformational generative grammar, government and binding theory, standard theory, extended standard theory, principles and parameters and minimalism. All these theories come under an umbrella term called *Generative Grammar*. The main concept of the generative grammar is that an indefinite number of sentences are produced from a set of definite rules. The generative grammar basically focuses on what the human mind is capable of.

The domain of linguistics focuses on languages in a more scientific way and this is called as the formal aspect of the language. The method used to get the scientific data from a language is shown in the figure below:



(Figure: 1 Carnie's method to get scientific data)

There are two ways of writing grammar of any language. The first way of writing a grammar is based on *prescriptive rules* where certain rules are predefined and imposed on speakers how they should speak. An example of English prescriptive rule is 'never start a sentence with a conjunction like *and or but'*. The second way of writing grammar is by using *descriptive rules*. This rule focuses on what the speakers actually speak. This approach is known as descriptive approach to linguistics or descriptive linguistics.

13.2.1 Universal Grammar

In the mid of twentieth century, American linguist Noam Chomsky proposed a theory that our mind is hard wired with a mental template for learning grammar. It is otherwise known as "Mental Grammar". Human beings rely on this innate grammar module to acquire language. His theory of universal grammar defines a set of rules applicable to all languages. Universal grammar basically acts as a hidden unit that underlies the vast surface diversity of 7000 languages of the world including English. It was a reforming break from the more informal approach towards languages. A universal grammar is an abstract notion which contains some characteristics that are true for all languages across the world. This came into existence because of similarities among languages. These are generally known as principles.

Chomsky discussed all the aspects and complexities involved in a competent native speaker of a language. He claimed that everyday language used by human beings behaves like a mathematically based commuter language. He said that natural languages are nothing but a wonder, full of science. All the natural languages are rule-governed. According to Chomsky, there is a universal grammar which is innate in nature and is an art of human mind. It has deep biological underpinnings. The concept of universal grammar underwent a major change in the 1980s. The new theory says that *a particular language A will have the property B along with the parameters that governs A*. These principles are exhibited themselves differently in all languages of the world which are linked with society and culture to bring out parametric variations that exists today. The same is also applicable to English language.

Check your Progress

1. Define how syntax is a science.

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2. What is Universal Grammar?

13.2.2 Grammaticality and Acceptability in English

Let us now discuss the notions of 'grammaticality and acceptability'. Grammaticality is a theoretical notion and acceptability is a native speaker's intuition. A sentence is grammatical in

English if it is formed according to the rules of the English grammar formulated by linguists. Utterances systematically used by a set of native speakers are grammatical.

For example:

1. A girl is playing tennis.
2. The boy is going home.

The sentences in 1 and 2 are said to be grammatical because it conforms to the rules of English grammar.

Acceptability, on the other hand, is always about the native speaker's intuition about the linguistic data. So there may be cases where a sentence is perfectly grammatical in English but not acceptable by its native speakers.

The famous example, *'colourless green ideas sleep furiously',* composed by Noam Chomsky (1957) is a perfect grammatical sentence but has no meaning. This sentence is not acceptable by native speakers of English. A native speaker's judgement about acceptability cannot decide on the grammaticality. The speaker has only intuition about the acceptability. It is the job of an English linguist/grammarian to check the ungrammaticality of a sentence and find out the cause.

The society decides on which form is accepted and which is not. It's a matter of acceptance by society. Grammaticality and acceptability are two different notions but they are related to each other. A construction is grammatical if it is formulated by the grammarians. The correctness of a sentence depends on the speaker. Grammaticality does not ensure acceptability. The famous English example by Chomsky is a case of grammaticality which does not ensure grammaticality. Acceptability is somewhat related to appropriateness.

Check your Progress

1. What is grammaticality?

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2. What is acceptability?

13.2.3 Syntactic Categories in English

Words matter a lot to syntax because sentences are made up of words. Parts of speech which are otherwise known as syntactic categories play a very important role when it comes to words. The most common parts of speech are nouns, verbs, adjectives, adverbs and prepositions. These words are combined together to frame phrases which in turn combine sentences. A particular word class appears in a particular position in a sentence. A noun will appear in its designated position in a sentence and the same is true for all word classes.

13.2.4 Types of Parts of Speech

The most common syntactic categories of English as mentioned above are nouns, verbs, adjectives, adverbs, preposition, conjunctions etc. The definitions or all these word classes are available in school grammar books. So a traditional definition of noun would 'be a name of person, place or thing and verb would be names of action or states'. These types of definitions are based on semantic criteria. Examples of different word classes are given below in table 1.

Names of the word class	Examples
Noun	Dog, Sincerity, Death, King, Information
Verbs	walk, sing, run, plan, help
Adjectives	beautiful, careless, very, helpful, biggest
Adverbs	loudly, badly, very, slightly
Prepositions	in, on, at, around, with, through
Determiner	the, a, an, some, few, any
Conjunction	and, or, but, that, if, because, although

Table 1: Different parts of speech in English with examples

Parts of speech are important in syntactic theory because we can determine the parts of speech from its occurrence in a sentence and make some scientific generalizations about it.

Check your Progress

1. What are the major syntactic categories in English?

   ---

2. What is the traditional definition of a noun?

13.2.5 Criteria for Parts of Speech

There are some serious problems in the traditional definition of parts of speech. The problem lies in the over simplicity of these definitions and are inadequate for serious investigation of English. These definitions are not scientific in nature. For example:

3. Meditation brings good health to us.

The meaning of *meditation* is not a place, person or thing. If we follow the traditional semantic definition then it would be a verb. But any native speaker of English would identify it as a noun. It won't take much time to identify a similar kind of situation with other parts of speech. Thus, it seems inadequate to define parts of speech solely based on semantic criteria. Another most important thing to be noted here is; the native speaker of English identifies *meditation* as a noun because it appears in a certain position in the sentence where a noun occurs normally. There are even instances in English where a word changes its parts of speech based on its position of occurrence.

4. *Mother* is the most beautiful word in this world.
5. The villagers *mother* him a lot.

In the sentence 4, *mother* is a noun whereas in sentence 5 the same word *mother* is a verb. So the definition of parts of speech should be based on its distributional criteria rather than its meaning. Scientifically, there can be two types of distribution:

i. Morphological distribution

ii. Syntactic distribution

Morphological distribution is based on affixes and other types of morphology that appear on a word. There can be two types of affixes. They are derivational affixes and inflectional affixes. Derivational affixes change the category of the word. For example, if the derivational suffix –(t)ion is added to the verb *destruct* then it becomes a noun *destruction*. So we can say that –(t)ion affix creates nouns. Similarly, if we look at inflectional affixes, we can observe that they are attached to few categories. For example, -ed is attached to verbs to make past tense. These affixes cannot be used to change the syntactic category of a word. It can be said that inflectional affixes help us in identifying a few syntactic categories.

The other kind of distribution that helps us in identifying parts of speech is syntactic distribution. It gives us information about the environment of a word. For example, what are the word classes that can appear before and after a noun?

Check your Progress

1. What is morphological distribution?

   ---

2. What is syntactic distribution?

13.2.6 Redefining Major parts of Speech

Based on the discussion in the previous section (see 1.5.2), we can now redefine the parts of speech in English.

i. Noun: A noun is something which takes noun position in a sentence and noun affixes. Let us now have a look at the morphological and syntactic distribution of nouns in English.

Morphological Distribution	Syntactic Distribution

Derivational Suffixes	Inflectional Suffixes	
-ment (basement), -ness (friendliness), -ity (sincerity), -ty (certainty), -(t)ion (devotion), -ation (expectation), -ist (specialist), -ant (attendant), -ery (shrubbery), -ee (employee), -ship (hardship), -aire (billionaire), -acy (advocacy) , -let (piglet), -ling (underling), -hood (neighborhood), -ism (socialism), -ing (fencing)	-s (cats), -es (glasses), -en (oxen), -ren (children), -i (cacti), -a (addenda)	➢ After the determiner ➢ After the adjectives ➢ Follows reposition ➢ Can be negated by *no* etc.

Table 2: Distributions of Noun in English

Note- The list in table 2 has been taken from Carnie (2006: 40)

All the suffixes mentioned under morphological distribution in table 2 can be named as noun suffixes in English. Similarly, all the positions mentioned under syntactic distribution in table 2 are the positions of a noun and no other parts of speech can occur in that position.

ii. Verbs: A verb is something which takes verb position in a sentence and verb affixes. Let us now have a look at the morphological and syntactic distribution of verbs in English.

Morphological Distribution Derivational Suffixes	Inflectional Suffixes	Syntactic Distribution

-ate (dissipate), and -ize/-ise (regularize)	-ed and –t for past tense (worked) -s for third person singular (Shilpa walks) -ing in aspectual constructions (She was walking) -en and –ed suffix for passivization (the rice was eaten)	➢ Follows auxiliaries and modals ➢ Follows infinitive marker ➢ Follows subjects and adverbs as well ➢ Can be negated with *not* etc.

Table 3: Distributions of Verbs in English

Note- The list in table 3 has been taken from Carnie (2006: 41)

All the suffixes mentioned under morphological distribution in table 3 can be named as verb suffixes in English. Similarly, all the positions mentioned under syntactic distribution in table 3 are the positions of a verb and no other parts of speech can occur in that position.

iii. Adjectives: An adjective is something which takes adjective position in a sentence and adjective affixes. Let us now have a look at the morphological and syntactic distribution of adjectives in English.

Morphological Distribution		Syntactic Distribution
Derivational Suffixes	Inflectional Suffixes	

-ing (the dancing cat), -ive (indicative), -able (readable), -al (traditional), -ate (intimate), -ish (childish), -some (tiresome), -(i)an (reptilian), -ful (wishful), -less (selfless), -ly (friendly)	-er (comparative form) -est (superlative form) Negated by using prefix -un	➢ Appear in between determiner and noun ➢ Can follow an auxiliary ➢ Can be modified by adverbs

Table 4: Distributions of Adjectives in English

Note- The list in table 4 has been taken from Carnie (2006: 41)

All the suffixes mentioned under morphological distribution in table 4 can be named as adjective suffixes in English. Similarly, all the positions mentioned under syntactic distribution in table 4 are the positions of an adjective and no other parts of speech can occur in that position.

iv. Adverbs: An adverb is something which takes adverb position in a sentence and adverb affixes. Let us now have a look at the morphological and syntactic distribution of adverbs in English.

Morphological Distribution		Syntactic Distribution
Derivational Suffixes	Inflectional Suffixes	

-ly: quickly, frequently, slowly	Do not take any inflectional suffixes generally	➢ Can't appear in between determiner and noun ➢ Can't appear after the be verb ➢ They can appear pretty much anywhere else

Table 5: Distributions of Adverbs in English

Note- The list in table 5 has been taken from Carnie (2006: 42)

All the suffixes mentioned under morphological distribution in table 5 can be named as adverb suffixes in English. Similarly, all the positions mentioned under syntactic distribution in table 5 are the positions of an adverb and no other parts of speech can occur in that position.

Check your Progress

1. What is the new definition of a noun?

   ---

2. What are some derivational suffixes of English verbs?

13.2.7 Open vs. Closed Word Classes

Some word classes allow new words to their categories. These kinds of word classes are called open word classes. For example, *chutney* which is a native word in many Indian languages is now part of an English noun. The dictionary meaning of it is a spice condiment made of chopped fruits or vegetables cooed in vinegar and sugar. In fact, *chutnified* has been derived from *chutney*. In the open class, a new word can be coined or added at any point of time.

Closed classes are those classes where coining or adding new words are next to impossible. They do not allow new forms. For example, coining or adding a new preposition to English is not allowed. So, we can say that prepositions belong to the closed word class. The same is true for conjunction. A new conjunction is highly unlikely in English or any language or that matter.

13.2.8 Lexical vs. Functional Categories

Lexical words are otherwise known as content words. Content words in English include nouns, verbs, adjectives and adverbs. Functional categories are otherwise known as grammatical categories. They refer to grammatical information in a sentence. Determiners, auxiliary verbs, modals, prepositions, complementizers, conjunctions and negation are examples of functional categories. Open and closed classes may look similar to lexical and functional categories respectively but they are not identical in their function.

Check your Progress

1. What is the difference between open and closed word classes?

   ---

2. How is lexical category different from functional categories?

_____

_____

13.2.9. Structure of an English Sentence

A sentence is defined as a grammatically complete idea. A sentence must have some required components. The required components are basically the parts of speech and they have to be ordered in a particular way failing which the sentence will not have its designated meaning and the result will be a grammatically ill-formed sentence. For example:

6. Shawn likes to have cold drinks every day.
7. * Shawn cold drinks every day to have likes.

Sentence 7 is clearly an ungrammatical sentence because it doesn't follow the word order rule of English. The grammatical and acceptable word order in English is Subject, Verb and Object i.e. SVO. Sentence 6 follows the SVO word order whereas sentence 7 doesn't.

13.2.10 Components of a Sentence

Sentences are not collections of random words. Sometimes, we may have pretty long sentences and sometimes, we may have a word like 'come' or 'go' which is a sentence in itself. Sometimes, we have sentences with tense and sometimes tense-less or infinite sentences/clauses. What we find very common among all these sentences is the verb. Everything revolves around the verb. So, we may understand that if there is no verb then there is no sentence. The components (mainly lexical items) of the sentences have different types of relationships between them and functional categories actually play a very significant role in establishing the relationships among them.

The grammatical components of a sentence are: 'subject', which is a noun phrase, and 'predicate', which is a verb phrase. These components need to be in the right order to make a sentence grammatical. When we are talking about the right order, it is not only the order of verbs but also of the other components which are important. English is a verb medial language because verbs are placed in between the subject and object in a sentence. We can say that the verb must precede the object or the object must follow the verb. So, the relationships among these components such as 'between a subject and a verb', 'verb' and 'object' and the role of predicate are very crucial for a sentence to be grammatical.

13.2.10.1 What is a Subject?

Subject is the most complex grammatical function in a sentence. Subject is one of the constituents of a sentence which tells us who performs the action denoted by the verb and who or what the sentence is about. For example,

8. Kolkata Knight Riders beat Delhi Daredevils yesterday.
9. Delhi Daredevils beat Kolkata Knight Riders yesterday.

Sentence 8 is more concerned in giving information about *Kolkata Knight Riders* whereas sentence 9 gives us more on *Delhi Daredevils*. So, if we ask the question who carried out the action denoted by the verb or what is this sentence about, the answer that we get is the subject. Another important characteristic of a subject is that it agrees with the verb. For example,

10. The rabbits eat carrots.
11. The rabbit eats carrots.

In sentence 10, the subject *the rabbits* agrees with the verb *eat* by taking a pluralized form whereas in sentence 11, the subject *the rabbit* agrees with the verb *eats* by taking a singular form.

The definition of subject mentioned above gets into a problem when you have *it/there* in the subject position.

12. It is very hot here.
13. There is some milk in the fridge.

The subjects in sentence 12 and 13 are non-referent subjects. They do not refer to anything concrete or abstract and are meaningless subjects. The *it* in sentence 12 is called non-referential subject whereas *there* in sentence 13 is called existential *there* as it has got something to do with existence. Subject in a sentence can also be identified by asking a tag question. For example,

14. Shelly is a very affectionate person. Isn't she?
15. Dictators have always exercised power. Haven't they?
16. We should know the history of our country. Shouldn't we?

The answers of all the tag questions from 14 to 16 are subjects of respective sentences. So, tag questions can also be used as a test to identify a subject in a sentence.

13.2.10.2 What is a predicate?

The grammatical function which tells about the work of the subject is called predicate. In a layman's term, we can say that predicate is sentence minus subject. Subject-minus everything in a sentence is called predicate. The implication of this definition is that the subject is not part of the predicate. A sentence is basically divided into two parts i.e. subject and predicate. So a predicate definitely has a verb. Let us have a look at a predicate:

17. [The mother] [fed the child].

Subject Predicate

18. [Mohan] [ate pizza at the Dominos].

Subject Predicate

In sentences 17 and 18, we can see that everything else apart from the subject is known as predicate. The verb inside a predicate is also called as a predicator. The feeding or eating activities in 17 and 18 are predicated of their respective subjects of these sentences, which specifies who were engaged in the feeding and eating activities.

13.2.10.3 What is an Object?

The presence of an object in a sentence is dependent on the verb. To understand an object, we need to know the nature of the verb. There are different types of verbs, namely intransitive, transitive and ditransitive. Verbs like *come, go, sit, dance* etc. are intransitive verbs as they do not require an object. Verbs like *eat, see, beat, love* etc. are called transitive verbs because they need an object. Ditransitive verbs are those verbs which require two objects such as *give, keep, send, wish* etc. Let us see few examples:

19. I went.
20. I ate a banana.
21. I gave him a book.

In sentence 19, the sentence is complete and makes sense even if we don't have an object that follows the verb. It means a verb like *went* do not need an object to complete the sentence. The same is not true with sentence 20. The verb *ate* requires an object to make the sentence complete and in the absence of an object, the sentence will not make complete sense. There will always be a question: *I ate what or what did you eat?* Now a verb like *give* requires two objects obligatorily. In sentence 21, the two objects are *him* and *a book.* There is a diagnostic test that can be applied to determine whether a verb needs an object or not. If the object position can be questioned by 'what' then it requires an object. In sentence 19, can we ask the question *I went what* or *what did you go?* NO, we cannot ask this question and this is an indication that *go* is an intransitive verb. But in the case of sentences 20 and 21, we can ask the question 'what' to the object. In 21, the 'what' question is applicable to the object *a book.* This diagnostic test of 'what' may not be a foolproof test however it is one of the better ways to test the transitivity of a taste.

There are two types of objects. One is called a 'direct object' and the other one is called an 'indirect object'. Let us discuss the direct object first. Direct objects are mostly nouns/noun phrases and they come immediately after the main verb. In sentence 21, *a book* is the direct

object and fulfills our criteria to become a direct verb. It is a noun phrase and comes immediately after the main verb *give.* In sentence 20, *banana* is the direct object. So, we can say that a verb that requires a direct object is called a transitive verb. Direct objects can become the subject of a passive sentence. An Indirect object mainly is a goal or receiver or a beneficiary. Verbs that take both a direct object and an indirect object are called ditransitive verbs. Indirect objects are often noun phrases. They cannot occur without an indirect object.

22. *I gave a book.

If we do not have a direct object as in sentence 22, the sentence becomes ungrammatical. Indirect object always comes before the direct object but it can be reversed by adding 'to'.

23. I gave a book to him.

Indirect objects can also be the subjects of passive sentences.

13.2.10.4 Phrase Structure

The words and constituents of a sentence are arranged in a hierarchical way and this arrangement is called phrase structure. Generalizations about structures are represented by rules. These rules are called phrase structure rules since their purpose is to show internal structure of a phrase. There are different types of phrases in a sentence. They are Noun Phrases (NP), Verb Phrases (VP), Prepositional Phrases (PP), Adjective Phrases and Adverb Phrases (AP).

A noun phrase generally contains a determiner, an adjective, a noun, and a prepositional phrase.

24. A beautiful girl with long hair

In sentence 24, *a is* a determiner/article, *beautiful* is an adjective, *girl* is a noun, *with long hair* is a PP.

So the rule for NP can be written like:

25. NP → (D) (Adj P+) N (PP+)

The bracket in the rule mentioned in 25 indicates optionality. It means, we can have a noun phrase without them also. The + symbols indicate that, we can have multiple no. of AdjP and PP. For example:

26. a. girl

    b. the girl

    c. the beautiful girl

    d. the long green table (two Adj Ps)

    e. the green table with chair

    f. The island of Andaman with coconut trees (two PPs)

In the same way, we can write the rules of other phrases as well.

27. VP → (AdvP+) V (NP) ({NP/CP}) (AdvP+) (PP+) (AdvP+)

CP stands for complementizer phrase. The curly bracket in the VP rule gives us the information of either this or that which means a VP will either have a NP or a CP in the same position. Complemetizer phrases normally start with *that.*

28. John said *that he will decorate the hall*.

The italicised part in sentence 28 is the CP and is taking the object position of the sentence.

29. PP → P (NP)

30. a. with a knife

    b. on the table

A prepositional phrase will have a preposition and an optional noun phrase

31. AdjP → (AdvP) Adj

32. very big

An adjective phrase will have an adjective and an optional adverb phrase

33. AdvP → (AdvP) Adv

An adverb phrase will have an adverb and an optional adverb phrase

34. very slowly

So far, we have seen the phrase structure rules for four major phrases in an English sentence. These rules account for a good number of English sentences if not all. More advanced rules have been formulated for more complex data. These are the first phase of phrase structure rules under generative grammar.

13.3 Learning Outcomes

It is expected that upon the completion of this unit, students will be able to define the term 'syntax'. They will be able to justify why syntax is a science. Students can explain what universal grammar is. They will be able to identify grammatical and acceptable sentences in English language. They can redefine the parts of speech based on the morphological and syntactic distribution. They will be in a position to tell the components of an English sentence. They will have an understanding of phrase structure in English.

13.4 Glossary

Syntax: The scientific study of a structure of a language is called syntax.

Language: The cognitive ability of humans to communicate with each other. English, French, Hindi, Telugu are individual languages.

Generative Grammar: A modern grammar theory proposed by Noam Chomsky which tries to formalize the grammar of all the languages of the world in one framework.

Scientific Method: In this context, gather data, analyze them which will be followed by hypotheses. The hypothesis can be tested.

Prescriptive grammar: The grammatical rule of a language is given by the grammarians who prescribe how to talk.

Descriptive Grammar: A grammar that describes the way language exists.

Universal Grammar: The grammar that is inside a human mind which is innate in nature.

Grammaticality: A sentence/clause that follows the grammatical rule of a language.

Acceptability: It is the native speaker's intuition whether a sentence is acceptable by native speaker or not.

Parts of Speech: It is a word class or syntactic categories like noun, verb, adjective, adverb, preposition etc.

Open Class: These are those word classes which can add new words every time.

Closed Class: Word classes, which cannot add new words

Lexical Category: A category that gives information on the content of the sentence.

Functional Category: A category that gives grammatical information in a sentence.

Subject: It is a complex grammatical function without which a sentence remains ungrammatical in English.

Predicate: Sentence minus subject is called predicate.

Intransitive Verb: A verb that requires no object.

Transitive Verb: A verb that requires only one object.

Ditransitive Verb: A verb that requires two objects.

Direct Object: It is often a noun phrase which occurs after the main verb.

Indirect Object: Semantically, it is a goal/receiver/beneficiary.

Phrase Structure: It talks about the structure of a phrase and what it contains.

13.5. Sample Questions

13.5.1 Objective Questions

1. What is defined as 'the study of sentence structure'?
   (a) Morphology
   (b) Semantics
   (c) Phonology
   (d) Syntax
2. Which of the following is an example of a tag question?
   (a) Who do you plan on seeing this afternoon?
   (b) Why did he do that?
   (c) Is it really raining outside?
   (d) It is hot, isn't it?
3. In the sentence 'I went to the market', 'to' is a/an:
   (a) Infinitival
   (b) Preposition
   (c) Adverb
   (d) Interjection
4. In the sentence, 'I felt that he was a fool' , 'that' is a:
   (a) Coordinating Conjunction
   (b) Preposition
   (c) Vocative
   (d) Complementizer
5. A sentence cannot stand without a _____
   (a) Noun
   (b) Verb
   (c) Adjective
   (d) Adverb
6. Which of these sentences is an intransitive sentence?

(a) The man chased the dog.

(b) The old man laughed.

(c) The tall and foolish man put the book on the table.

(d) The man in the dark dress ate the apple in the garden.

7. Who introduced the concept of Universal Grammar in linguistics?

   (a) Noam Chomsky

   (b) Ferdinand de Saussure

   (c) Charles Sanders Pierce

   (d) Edward Sapir

8. The man with the blue cap is my friend.

   Identify the ***Subject*** of the sentence.

   (a) The man

   (b) blue cap

   (c) The man with the blue cap

   (d) my friend

9. What is the word order in English?

   (a) SOV

   (b) VSO

   (c) SVO

   (d) None of the above

10. Which one is not a component of a sentence in English?

    (a) Indirect Object

    (b) Subject

    (c) Syllable

    (d) Verb

11. Which of the following words belong to a closed class?

    (a) Tree

    (b) Destruction

    (c) Through

    (d) Walk

12. Grammaticality is decided based on the native speaker's intuition.

(a) True

(b) False

13. What is not an example of a lexical category?

(a) Noun

(b) Pronoun

(c) Verb

(d) Adverb

14. An inflectional morpheme changes ----------

(a) Changes parts of speech

(b) Doesn’t change meaning

(c) Makes noun from verb

(d) Smallest part of the word

15. A suffix will never appear at the end of the word.

(a) True

(b) False

16. In the sentence ‘the young boy ate burger at KFC’, what is the verb phrase?

(a) Ate

(b) The young boy

(c) Boy ate

(d) Ate burger at KFC

17. What is the most important word in an NP?

(a) Preposition

(b) Noun

(c) Adjective

(d) Determiner

18. When did Chomsky write the book *Syntactic Structure?*

(a) 1956

(b) 1965

(c) 1972

(d) 1957

19. The cricket team ---------- not playing well.

(a) Is

(b) Are

20. Which parts of speech the bracketed word is in the sentence *That car is [Shelly's]*

(a) Noun

(b) Adjective

(c) Noun phrase

(d) Verb phrase

13.5.2 Short Answer Questions

1. Identify the parts of speech in the following sentences.
   a. The old friend came all of a sudden in front of me.
   b. Shilpa and Sameera have just gone to the Charminar market in a bus.
   c. He is well behaved in his community.
   d. The Hyderabadi biryani was truly delicious.
   e. I'll carefully clean the museum.
   f. I am reading a novel by Khuswant Singh.
   g. Everyone in the class thinks that Azhar should run for the student union president.
2. How is grammaticality different from acceptability?
3. What are open and closed classes in English? Give examples.
4. What is a predicate? What are the elements it contains?
5. Discuss the structure of a verb phrase (VP) in English.

13.5.3 Long Answer Questions:

1. Write an essay on Universal grammar with special attention to innateness.
2. What are the major syntactic categories in English? Elaborate.
3. Describe the components of a sentence with adequate examples.
4. What evidences will you give to describe syntax as a science?
5. What is phrase structure? Explain different phrases with examples.
6. Do you think prescriptive rules are as important as descriptive rules? Explain.

13.6 Suggested readings

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Unit-14: Deep Structure and Surface Structure

Structure

14. 0 Introduction
14.1Objectives
14.2Immediate Constituent Analysis
- 14.2.1 Transformational Grammar
- 14.2.2 Deep Structure and Surface Structure
- 14.2.3 The Auxiliary Verbs in English

14.2.4 Types of Transformation in English
- 14.2.4.1 Affix Hopping
- 14.2.4.2 Question Transformation
- 14.2.4.3 Passive Transformation

14.2.4.4 *Do* Support
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14.4Glossary
14.5Sample Questions
14.6Suggested Readings

14.0 Introduction

Deep structures and surface structures can be best understood through transformational grammar. The phrase structure grammar is responsible for determining the order of words and phrases. It has certain limitations too.

1. We sold the vegetables.
2. The vegetables, we sold.

The meaning of both the sentences 1 and 2 are the same but they do not follow a similar word order. Phrase structure grammar does not account for sentence 2. Transformational grammar comes into picture to solve this problem; however, it doesn't do away with the phrase structure rules. It brings out the concept of original structure of a sentence. Transformational grammar says that a sentence has an original structure. The sentence takes different shapes or structures with the same meaning when transformations are applied to it. We can see that in sentence 2. The meanings of sentence 1 and 2 are same but the structures are different. A transformation called 'movement' i.e. direct object movement to the front has been applied to sentence 1 that results in sentence 2. So, a transformational grammar has two levels of syntactic structures.

i. Deep structure (original structure)
ii. Surface structure (transformational structure)

The deep structure and surface structure have been dealt with in section 1.4 in detail.

14.1 Objectives

The unit has been designed to fulfill the following objectives:

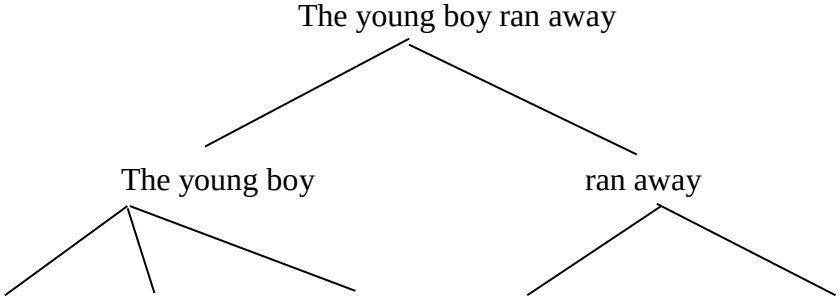
- To familiarise students with transformational grammar.
- To be able to understand the concept of phrase structure grammar.
- To be able to have a conceptual understanding of deep structure and surface structure.
- To enable students to understand the difference between deep and surface structure.
- To get familiar with different types of transformations in English.
- To acquaint students with the ordering of the transformations.

14.2 Immediate Constituent Analysis

Immediate constituent analysis, which is shortly known as IC analysis, is one of the syntactic methods used to analyze a sentence. The analysis mainly focuses on the constituents and their relationship with one another. The constituents are words and morphemes, when put together in a particular order to form sentences. The analysis of these constituents is known as immediate constituent analysis. Morphemes or words are the ultimate constituents of a sentence as it can't be analyzed further at the syntactic level. In the given sentence,

3. The young boy ran away.

There are two immediate constituents in sentence 3. The first one is *the young boy* and *ran away* is the second one. These constituents can further be analyzed at the next level. *the young boy* is divided into *the*, *young*, and *boy* and *ran away* into *ran*, *away* are in the second group. The term immediate constituent analysis was given by Bloomfield in 1939. The IC analysis of sentence 3 can be represented in the following diagram:



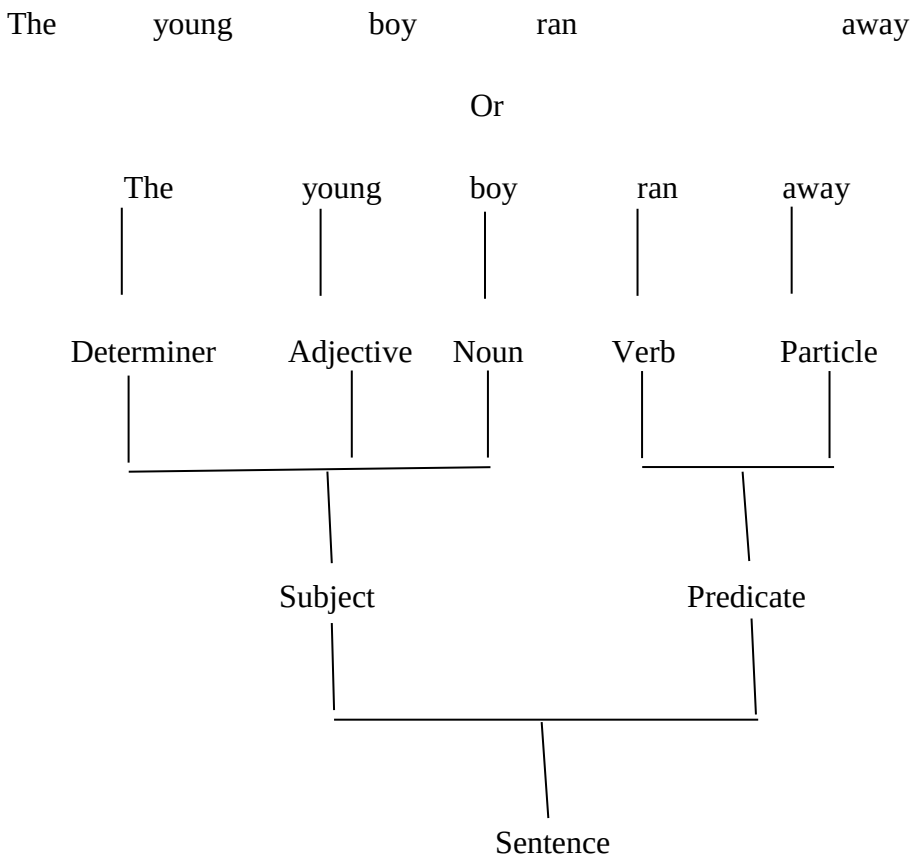


Figure 1: Representation of Immediate Constituents in different tree diagrams

The constituents of the sentence can be represented by using any one of the tree diagrams showed in figured 2. The IC analysis tries to divide the constituents into sub-parts. The analysis is called 'immediate' as there are no interrupting elements between the constituents. Let us analyze one more sentence.

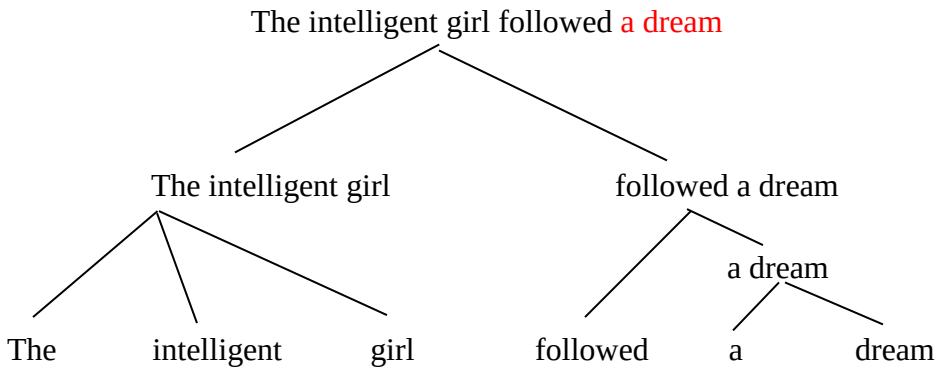


Figure 2: Representation of Immediate Constituents in tree diagram

There are three immediate constituents in this sentence. The first one is *the intelligent girl*, second is *followed* and third one is *a dream.*

14.2.1 Transformational Grammar

Transformational grammar deals with the relationship among different elements of a sentence. Noam Chomsky came up with the idea of transformational grammar in 1957. According to him, phrase structure rules only dealt with a few varieties of sentences and it was not adequate enough to address all possible sentences of a language. For example, transformational grammar connects the active sentence with its respective passive sentence.

4. Mary read this book.
5. The book was read by Mary.

A transformational grammar discusses the underlying structure of a sentence. It gives us the information that sentence 4 and 5 may look different on the surface but deep down, they are very similar. Transformational grammar tries to manifest the relationship between such sentences through the concept of deep and surface structure. A transformation is an exercise that transforms one sentence into another. Chomsky came up with a name called 'kernel sentences' for active sentences and passive sentences are transformed sentences. These kernel sentences are not necessarily basic sentences from the perspective of immediate constituent analysis. It can be any sentence which has not gone through any transformation.

His work countered the previous works of structuralism. He rejected the concept that every language is unique. Structuralist framework concentrated on the procedures to discover the structure of language. Chomsky said that the grammars produced by using structuralist rules do not have predictive power. It is very limited in scope. According to Chomsky, grammatical theory should be predictive in nature and it should generate all the grammatical strings not the ungrammatical ones. The goal of this grammatical theory is to:

i. Be able to distinguish between competence and performance of a speaker.
ii. Provide an infinite number of sentences from a finite number of rules.
iii. Establish the relationship between sound and meaning.

iv. Represent all the linguistic levels of the language etc.

In his book *Syntactic Structure,* Chomsky said a grammatical theory should have three components.

a. Phrase Structure component
b. Transformational component
c. Morphophonemic component

A phrase structure component generates the rules for phrases as well as sentences. For example:

S → NP Aux VP

A sentence will have three components: NP the subject of the sentence, Aux which is optional and a VP. In the transformational component, a sentence can be in any form apart from the kernel sentence. This component contains the rules which can change the kernel sentences in various ways. The morphophonemic component converts the transformed sentence into a phonemic transcription.

Components	English Sentences
Phrase structure	Deepika has closed the window
↓	NP aux VP
Transformation (ex: negative insertion)	Deepika has not closed the window
↓	
Morphophonemic (Pronunciation of the sentence)	deepika ˈhæz nɒt kləʊzd ðə ˈwɪndəʊ

Transformational grammar is still very essential today because it has been the pioneering point in the study of modern linguistics.

Check your Progress

3. What is IC analysis?

---

4. Define transformational grammar.

14.2.2 Deep Structure and Surface Structure

Deep structure and surface structure play a significant role in understanding and analyzing the structure of a sentence.

Deep Structure: The structure of a sentence before any transformation is applied to it. It is also known as D-structure. Deep structure deals with the semantic interpretation.

Surface Structure: The structure that we get after all the necessary transformation which we apply to a sentence. The sentence that we hear is the surface structure. It is also known as S-structure. Surface structure deals with phonetic interpretation.

American linguist Noam Chomsky developed the concept of deep structure and surface structure. According to him, deep structure is an abstract structure. A native speaker knows the meaning of a deep structure. On the other hand, the surface structure is an uttered or written sentence. The deep structure tells us the meaning intended by the native speaker whereas the surface structure shows us how the speaker uses it in communication. Deep structure is the underlying syntactic structure of a sentence and is generated by phrase structure rules. A series of necessary transformation rules are applied to deep structure to get the surface structure.

The important components of a sentence like 'subject' and 'object' are defined at deep structure. Transformational rule actually connects the deep structure and surface structure. There can be many surface structures of a particular deep structure.

For example:

6. I purchased beautiful clothes.

The surface structure, in sentence 6, talks about an elaborate and detailed experience. The deep structure will have more details in it. It will give information on types of clothes, colour of the clothes, location of the cloth store, experience of buying clothes, the cost of the clothes etc. All this information is with the speaker and is deleted in the process of transformation from deep

to surface structure. The final syntactic representation of a structure can be the surface structure. The following figure represents the relationship between deep and surface structure:

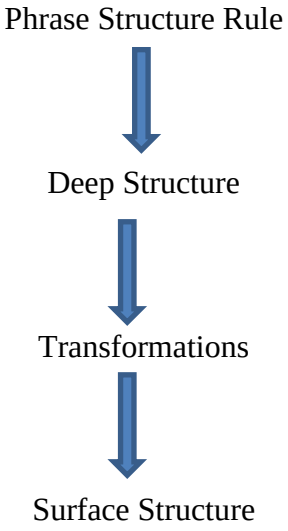


Figure 1: The Deep Structure and Surface Structure

Transformation is a process that generates the deep structure into a more perplexed surface structure of a sentence. Deep structure and surface structure can better be understood through transformation.

Check your Progress

1. What is deep structure?

   ---

2. What is surface structure?

14.2.3 The Auxiliary Verbs in English

It is very important to know about the auxiliary verbs in English to understand transformation. Auxiliary verbs are different from main verbs. The auxiliary verbs are shifted to the front part of the sentence to ask questions, not the main verbs. For example:

Declarative Sentence	Question
7. They are running a show.	Are they…?
8. She has built a house.	Has she…?
9. Asif can read Japanese.	Can Asif…? / can he…?
10. I have passed all the exams.	Have I…?
11. Sameera is fond of music.	Is Sameera…? / is she…?
12. It wasn't interested.	Wasn't it…?

In the above sentences, the auxiliary verbs come to the front to form a question not the main verbs. From the above examples, we can see that there are different class of auxiliary verbs.

i. Be- verb (forms include is, am, are, was, were)

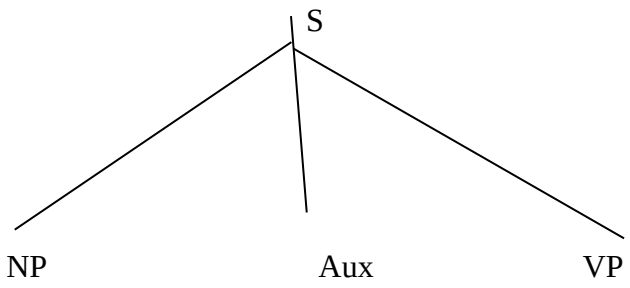
ii. Have- verb (forms include have, has, had)

iii. Modal auxiliaries (forms include can, could, may, might, will, would, shall, should, must, etc.)

The first rule of transformational grammar or a sentence can be proposed based on the examples we have seen so far.

13. S → NP Aux VP

A sentence is basically divided into three basic elements. They are: NP, which is the subject, an auxiliary verb and a VP. The auxiliary verb and VP normally constitute a predicate. There are compound and complex sentences in English. Other types of sentences, apart from simple sentence, have complicated phenomena and more advanced theories available for them. Our focus here is only on simple sentences. The structure of the sentence can be shown in a tree diagram as follows:



I am going

Figure 3: Sentence diagram in phrase structure rule

Let us now see, what would be the order of auxiliaries in a sentence. We will have a look at a few examples to determine the order:

14. He **will** come to the party.
15. Jack **has** a valid visa.
16. I **may** be dancing tomorrow.
17. The university **may have been** thinking about this matter.
18. * The university **have been may** thinking on this matter.

Sentences 14 and 15 tell us that there is a particular order that needs to be followed by auxiliary verbs to appear in a sentence. Modal always comes first followed by 'have' and 'be'. So, we can formulate a rule for auxiliaries now:

19. Aux → (Modal) (Have) (Be)

The auxiliaries are written in brackets because it indicates optionality. We have seen in sentences 14 to 16 that the presence of all auxiliaries is not compulsory in a sentence.

Check your Progress

1. What is an auxiliary verb in English?

   ---

2. What is the order of occurrence of auxiliary verbs?

14.2.4 Types of Transformation in English

There are different types of transformation which are applied to deep structure in English. Transformation is a type of syntactic rule that moves elements from one position to another. The

transformation in English happens by inserting, deleting or moving elements in a sentence. The types of transformation in English include:

i. Affix Hopping
ii. Question Transformation
iii. Passive Transformation
iv. *Do* Support
v. Negative Insertion
vi. *There* Insertion
vii. Reflexivization
viii. Dative Transformation

Let us see each transformation in detail in the following sections.

14.2.4..1 Affix Hopping

Affix hopping is an internal transformation where every affix immediately followed by a verb is shifted to the right of that verb which becomes a part of it. Affix hopping is applied after every transformation. For example:

20. You would be happy to have been chased out of the class.

Deep Structure: You *past* will be happy to *present* have *en pas*t be chase out of the class.

Affix Hopping: You will *past* be happy to have *presen*t be*en* chase *past* out of the class.

Surface structure: You would be happy to have been chased out of the class.

At the deep structure level, affixes are actually positioned to the left of the verb. So during affix hopping, they just hopp to the right of the verb which will eventually take its grammatical form. *Will+past = would, chase+past= chased* etc. Affix hopping is an obligatory transformation.

14.2.4.2 Question Transformation

The focus of question transformation here is on 'yes/no' question only. We first need a declarative sentence as an input to form a yes/no question. The rule for the yes/no question transformation would be:

Take a declarative sentence and move the first auxiliary to the front or left of the subject NP followed by affix hopping.

21. Sentence: Binay will go.

    Deep Structure – Binay present will go.

    Yes/no Question Transformation- Present will Binay go.

    Affix Hopping – Will Binay go?

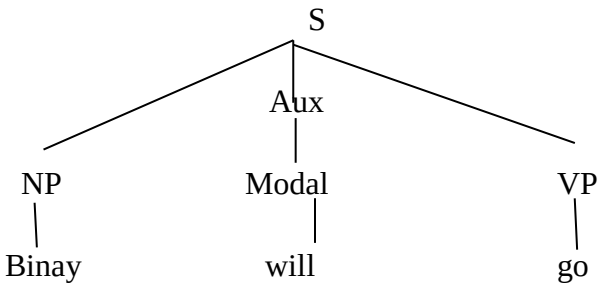


Figure 4: Deep structure of the sentence

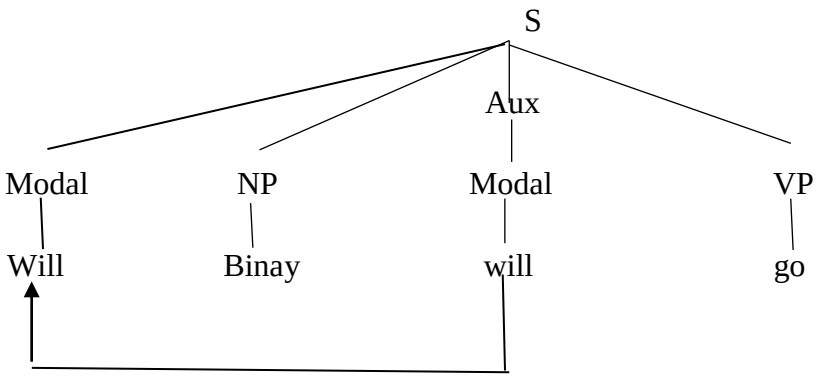


Figure 5: One of the surface structures of the sentence in figure 4

The sentence in figure 4 is generated by applying phrase structure rules (PS rules) which is also one of the surface structures of the same deep structure. We can assume that no transformation is used to get a declarative sentence as a surface structure. To get the yes/no question sentence in figure 5, yes/no transformation rule (17) has been applied. The first auxiliary of the sentence which is *will* has been moved to the left of the subject NP. The deep and surface structure of the sentence *Binaya will be going* is given below.

Deep Structure **Surface Structures**

Binaya present will go. Binaya will go.

Will Binaya go?

14.2.4.3 Passive Transformation

It is not only a yes/no question but there are many constructions in English that show the need for transformational rules. One of such constructions is passive construction. The rule for a passive transformation would be:

When we have an active sentence,

Step 1 - Interchange the subject and object position of the active sentence.

Step 2 – Insert *by* before the new object.

Step 3 – Insert *be en* after all members of the auxiliaries, which will then be followed by affix hopping.

Let us demonstrate this rule in the following examples:

22. Active sentence: The tiger beat the lion.
    Dee Structure- The lion past beat the lion
    Step 1 – The lion past beat the tiger.
    Step 2 – The lion past beat by the tiger
    Step 3 – The lion past be en beat by the tiger.
    Affix Hopping – The lion be past beat en by the tiger

After step 3, the sentence will take its grammatical form and will become

Surface Structure - The lion was beaten by the tiger.

Let us see one more example with passive transformation.

23. Sentence: The baby has eaten the cake
    Deep Structure- The baby present have en eat cake.
    Step 1 – The cake present have en eat the baby.
    Step 2 – The cake present have en eat by the baby.
    Step 3 - The cake present have be en en eat by the baby.

Affix Hopping – The cake have present be en eat en by the baby.

After step 3, the sentence will take its grammatical form and will become

Surface structure - The cake has been eaten by the baby.

Passive constructions are mostly applied to transitive verbs since it requires an object in the sentence. If we take an intransitive verb and try to apply the passive construction rule, it will be impossible to do. For example,

24. Rina went to Hyderabad.
25. * Hyderabad was gone to Rina.

Sentence 25 is not possible and is a syntactically ill-formed sentence. The auxiliary verb *be* cannot be inserted to a sentence with an intransitive verb.

Check your Progress

1. What is affix hopping?

---

2. What is transformation in English syntax?

14.2.4.4 *Do* Support

Do support or *do* insertion is the insertion of the auxiliary *do*. *Do* is considered as an auxiliary in English.

Rule: *Do* Support: Insert *do* to the left of the tense which is not attached to any verb.

Let us see a few examples of do support below.

26. Active sentence: Imran went to New York.
    Deep Structure: Imran past go to New York.

Do Support: Imran do past go to New York.

Affix Hopping – Imran past do go to New York.

Surface Structure: Imran did go to New York / Imran went to New York.

Do support plays an important role when we ask yes/no questions if a *do* auxiliary is part of the sentence.

27. Active Sentence: Misha danced in the party yesterday.

    Deep Structure: Misha past dance in the part yesterday.

    Yes/no Transformation – past Misha dance in the party

    Affix Hopping – past Misha dance in the party

    Do Support: do past Misha dance in the party yesterday.

    Surface Structure: Did Misha dance in the party yesterday.

Do support transformation always comes at the end, just before the surface structure.

14.2.4.5 Negative Insertion

Negative insertion rule says insert the word *not* immediately after the first auxiliary verb. Let us see some examples of negative insertion.

28. Active sentence: Suhani has eaten all the amul chocolates

    Deep Structure – Suhani present have en eat all Amul chocolates.

    Negative Insertion – Suhani present have not en eat all Amul chocolates.

    Affix Hopping - Suhani have present not eat en all Amul chocolates.

    Surface Structure: Suhani has not eaten all the Amul chocolates.

When there is only one auxiliary in the form of tense, application of *do* support is needed otherwise insertion of a negative will block affix hopping.

29. Active sentence: Chris saw Carita yesterday.

    Deep Structure – Chris past see Carita yesterday

    Negative Insertion – Chris past not see Carita yesterday

    Do Support - Chris do past not see Carita yesterday.

    Affix Hopping - Chris past do not see Carita yesterday.

    Surface Structure: Chris did not see Carita yesterday.

1. What is *do* support?

---

2. What is negative insertion?

14.2.4.6. *There*- Insertion

It says, insert *there* in the position of the subject and take the old subject to a position after the verb. We have two types of *there*.

i. Existential *there*

Existential *there* occurs only as the subject of a sentence but it cannot be the subject of just any sentence. It occurs only with the auxiliary verb *be.* In existential *there,* the NP after *be* must not refer to a specific, unique individual. Existential *there* may occur only if the NP is indefinite.

Example:

30. **There** is a girl on the stage.

ii. Locative *there*

The other type of there is called locative *there*. It talks about direction, place etc.

Example:

31. I want to go **there.**

In the *there* insertion, we are referring to existential *there*. Let us see an example of *there* insertion.

32. Active sentence: Students are in the class.

Deep Structure - Students present be in the class.

There Insertion – There present be students in the class.

Affix Hopping – There be present students in the class.

Surface structure: There are students in the class.

14.2.4.7 Reflexivization

Reflexivization is a transformation of agreement between elements in a sentence. This transformation is different from others because it changes the syntactic feature of a particular element. There are certain groups of words in English called reflexive pronouns. For example,

33. Myself, yourself, themselves, yourselves, himself, herself etc.

Reflexive pronouns can never occur in a subject position in a sentence. If a reflexive pronoun is occurring in a sentence then it must agree with the subject.

34. I like myself.
35. *I like yourself.

In sentence 34, *myself* is agreeing with the subject *I* whereas in 35, it is not. Rule of reflexivization is proposed to maintain the distribution of agreement. It says that if the subject of the sentence is the same as some other NP within the sentence, then the NP which is in the right-most will be converted into a reflexive form.

36. Deep structure: You Present praise you

    Reflexivization: You present praise yourself.

    Affix Hopping – You praise present yourself.

    Surface Structure: You praise yourself.

14.2.4.8 Dative Transformation

In dative transformation / movement, one type of structure changes into another, but not the vice-versa. The rule of dative movement says that the indirect object is moved to the position immediately following the verb and deletes the preposition of the indirect object and the indirect object becomes the new direct object.

37. The man gave a book to the girl.

    Deep Structure: the man past give a book to the girl.

    Dative movement – the man past give the girl a book.

Affix Hopping - The man give past the girl a book.

Surface structure – The man gave the girl a book.

The indirect object *the girl* is said to be dative case marked. *To* in the sentence 37 is to be the dative case markers. Case is a grammatical element in a sentence that established relationship between clauses.

1. What is *there* insertion?

   ---

2. What is reflexive pronoun?

   ---

3. What is dative movement?

14.2.4.9 The Ordering of Transformation in English

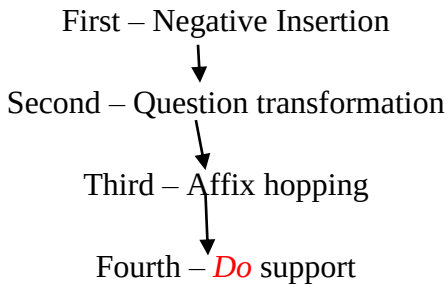
Let us see the ordered list of transformations we have discussed so far. The order of the transformation is mentioned below:

Sl. No	Order of the Transformation	Nature of Transformation
1	Dative movement	Optional
2	Passive transformation	Optional
3	Reflexivization	Obligatory
4	*There* insertion	Optional

5	Negative insertion	Obligatory
6	Question transformation	Obligatory
7	Affix hopping	Obligatory
8	*Do* support	Obligatory

Table 1: Order of the transformation

If the transformation needs to be applied it has to be in the order mentioned in table 1. If a particular sentence needs negative insertion, question transformation and *do* support, then the order of the transformation would be:



The nature of transformation gives us the information on optionality and obligatory nature of the transformation. For example, dative transformation is completely an optional transformation whereas reflexivization is needed then it has to happen. So it becomes an obligatory transformation otherwise sentence will be ungrammatical.

14.3 Learning Outcomes

It is expected that upon the completion of this unit, students will be able to define the term 'transformational grammar'. They will be able to understand the concept of deep and surface structure. Students can explain what transformation is. They will be able to name a few of the transformations in English. They can define the transformation. They will be in a position

to demonstrate the transformation from deep structure to surface structure. They will have an understanding of the ordering of transformation.

14.4 Glossary

IC Analysis: An analysis that divides sentences into different constituents of syntactic level. It is a method for sentence analysis that was first mentioned by Leonard Bloomfield.

Transformational Grammar: It is a theory of grammar that accounts for different types of Linguistics structures and their transformation. It was proposed by Noam Chomsky.

Phrase Structure Rule: It is a type of rewrite rule.

Deep Structure: The underlying structure of a sentence representing its meaning.

Surface Structure: A structure that we get after the transformation is applied. It is a form of a sentence that is uttered. It represents the phonetic interpretation.

Affix Hopping: It is an internal transformation rule where all the affixes are shifted to the right of their immediate verbs.

Question Transformation: A rule where the first auxiliary is shifted to the left of the subject in a declarative sentence.

Passive Transformation: A process which turns an active sentence into a passive sentence.

Do **Support**: It is a transformation where the auxiliary verb *do* is inserted to the left of the verb.

Negative Insertion: It says insert the negative word *not* immediately after the first auxiliary verb.

There **Insertion**: In this transformation, an existential *there* is inserted in the subject position and the old subject is moved to a position immediately after the verb.

Reflexivization: It is a transformation where a noun/pronoun transforms into a reflexive pronoun.

Dative Transformation: A movement where an indirect object of a ditransitive verb is moved to the direct object position.

Case: It is a form of a noun. It depends on the position a noun takes in a sentence.

14.5 Sample Questions

14.5.1 Objective Questions

21. Underlying representation of a sentence is known as
    (a) Syntax
    (b) Deep structure
    (c) Universal Grammar
    (d) Surface structure
22. IC analysis stands for
    (a) Internal constituent
    (b) Immediate content
    (c) Immediate constituent
    (d) Insertion case
23. Something that can be heard or uttered is known as
    (a) Deep structure
    (b) Phonemic structure
    (c) Surface Structure
    (d) Semantic Structure
24. Deep structure represents
    (a) words
    (b) Sounds
    (c) Meaning
    (d) Morphemes
25. Who introduced the concept of IC analysis?
    (a) Noam Chomsky
    (b) Ferdinand de Saussure

(c) Leonard Bloomfield

(d) Edward Sapir

26. ---------- they see her yesterday.

(e) Do

(f) have

(g) did

(h) has

27. How long ---------- it take you to go to office?

(e) do

(f) does

(g) has

(h) was

28. have + present in the third person context is ----------.

(e) have

(f) has

(g) had

(h) has had

29. She ---------- passed her exam easily.

(e) Could have

(f) Might have

(g) Must have

(h) Would have

30. The transformation where the subject and object positions are interchanges is called …….

(e) Question transformation

(f) Dative movement

(g) Passive transformation

(h) All of the above

14.5.2 Short Answer questions

6. Identify the constituents in the following sentences.

h. The old friend came all of a sudden in front of me.

i. Shilpa and Sameera have just gone to the Charminar market in a bus.

j. He is well behaved in his community.

k. The Hyderabadi biryani was truly delicious.

l. I'll carefully clean the museum.

m. I am reading a novel by Khuswant Singh.

n. Everyone in the class thinks that Azhar should run for the student union president.

7. How is affix hopping different from other transformations?
8. Why do we need to order transformation?
9. Explain the steps of passive transformation with examples.
10. What is auxiliary verb in English?

14.5.3 Long Answer Questions

1. Write an essay on transformational grammar.

2. What is the difference between deep and surface structure? Elaborate.

3. Provide complete transformation of the following sentence.

   a. There were very few people at the shopping mall.

   b. She has not abided by the covid-19 protocol.

   C. You will drink your juice.

   d. They punished all the culprits.

   e. The bus did not come on time.

   f. The food has been cooked by a famous chef.

   g. The professor was not invited to the meeting.

   h. The book seems to be interesting.

   k. The man was taken to the hospital.

l. The house was not abandoned by us.

14.6 Suggested Readings

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Unit-15: Structural Ambiguity

Structure

15.0 Introduction

15.1 Objectives

15.2 Structural Ambiguity

- **15.2.1** Ambiguity of Structure and Meaning
- **15.2.2** Different types of Structural Ambiguity
- **15.2.3** Combination of Lexical and Structural Ambiguity
- **15.2.4** Some major types of Structural Ambiguity

15.3 Learning Outcomes

15.4 Glossary

15.5 Sample Questions

15.6 Suggested Readings

15.0 Introduction

Sometimes sentences have more than one meaning or sense. Consider the following examples:

(1) John saw the girl with the binoculars

Sentence (1) can imply either of the two meanings:

(2) John was the person who saw the girl and the girl had the binoculars with her.

(3) John was the person who saw the girl through the binoculars which he used to see her.

This is a common example where (2) and (3) meaning comprehensions are resulting out of sentence (1). Consider example (4) where two meanings emerge again.

(4) John shot the elephant in his pyjamas.

In sentence (4), the possibility the different kinds of meaning or sense arise from the fact that either the pyjamas can be understood to have been worn by John or by the elephant itself. If you notice carefully, this sense variation, that happens within a single sentence itself, is not due to any double meaning in a word (e.g. the word 'bank' meaning either the 'river side' or a 'financial' institution; book meaning either a 'reading material' or the 'activity of reserving some ticket etc.,').

Meanings (2) and (3) can be said to be the two unambiguous paraphrases of sentence (1) such that neither (2) nor (3) is ambiguous.

According to Hurtford (2007), "A word or sentence is AMBIGUOUS when it has more than one sense". If the ambiguity is at the level of the word, it is called 'lexical ambiguity' and when it is at the level of the sentence structure, it is called 'structural ambiguity'.

Check your progress

Try to frame two paraphrases for the following ambiguous sentences:

(1) The chicken is ready to eat.

.....

.....

(2) Visiting relatives can be boring.

.....

.....…

15.1 Objectives

The unit has been designed to fulfill the following objectives:

- To familiarize students with different aspects and issues in structural ambiguity.

• To make students notice the role of different grammatical categories containing the structural ambiguity.

• To provide clarity about local ambiguity, global ambiguity and disambiguation point.

• To enable students to understand certain issues in processing of structural ambiguity.

• To acquaint students with some ways to solve the ambiguity.

15.2 Ambiguity of Structure and Meaning

Structural analysis of a sentence represents the relationship between words in a sequence that forms a sentence. This representation relates to the form of the linguistic units that occur beside each other. Consider the following sentence:

(5) John hit the boy with a stick.

In the following illustration of the tree diagram we can represent the two emerging interpretations as follows (using the Transformational Generative Grammar approach):

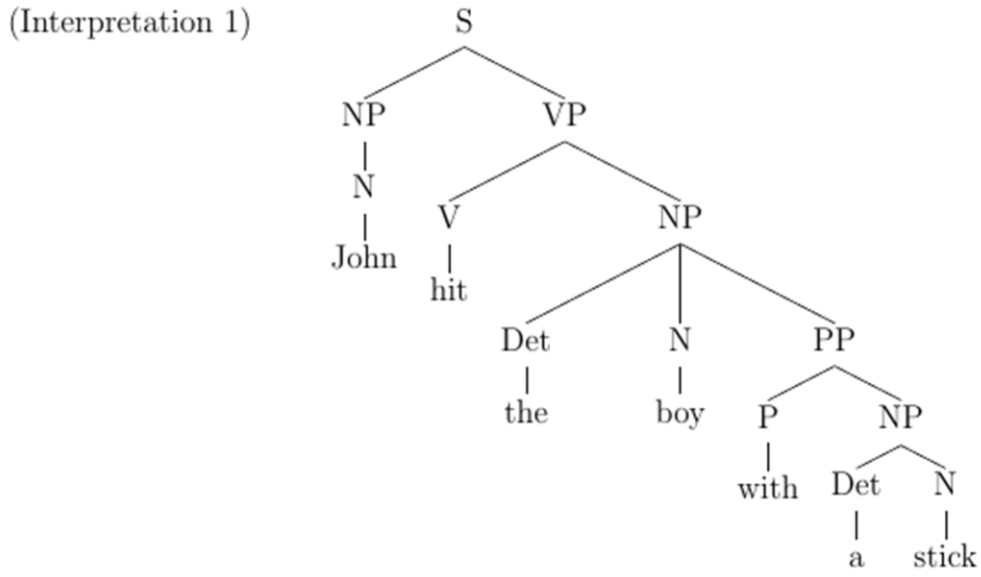


Figure 1 (a)

In the first tree, the interpretation represents a sense that the Prepositional Phrase with a stick is attached to NP suggesting that this PP is closely related to the NP and not anything outside it. Therefore at the structural level, this interpretation can be shown to represent only one of the two senses in the ambiguous sentence.

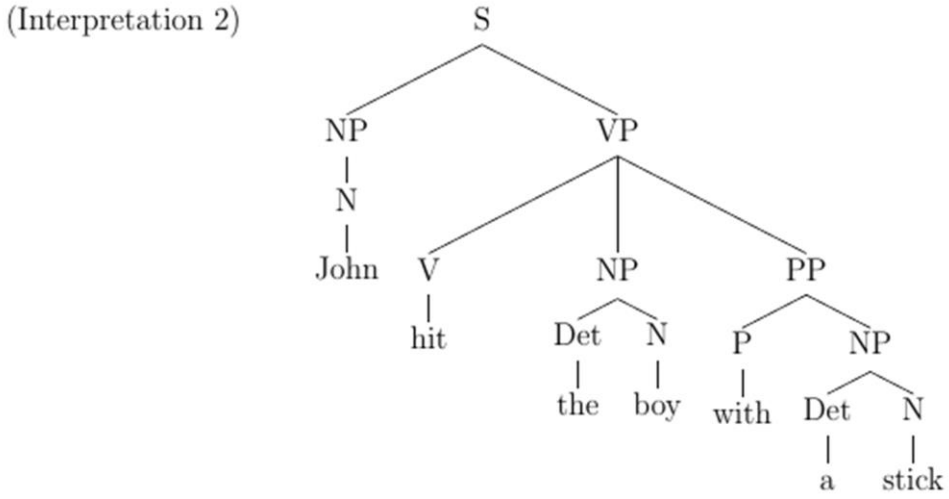


Figure 1 (b)

Second tree for sentence (5) shows the interpretation that John used the stick to hit the boy. According to this structure, the PP with a stick is linked with the VP and not the NP, therefore implying the sense that the stick was used as an instrument of hit and does not describe the preceding NP the boy.

Check your progress

1. What do you mean by structural ambiguity? Explain with an appropriate example.
2. Try to find out and explain in your own words, how the following sentences are ambiguous:

(6) I saw someone on the hill with a telescope.

(7) The thief threatened the woman with a knife.

(8) This is my father's painting.

(9) I saw a horse sitting in the corridor.

(10) The teacher said on Monday he would give an exam.

(11) Flying airplanes are dangerous.

(12) Visiting relatives can be boring.

15.2.1 Different types of Structural Ambiguity

(a) Global Ambiguity: Global ambiguity is a situation where the ambiguity is not resolved by any cue within that ambiguous sentence. In sentence (6), the answer to the question, who may have been holding the 'telescope', is not available within the sentence. Similar unresolved situations occur in sentences (7) to (12) where the ambiguity is not resolved within the sentence and both the meanings are possible.

(b) Local Ambiguity: In sentences (13) to (17) some ambiguity seem to be existing in the initial area of the sentence and after the reader has gone through the whole sentence, s/he finds that the whole sentence has to be completely reinterpreted for a clear comprehension.

(13) Fat guys eat harms health.

(14) The court houses salaried and underpaid lawyers.

(15) The young man the machine.

(16) Time flies like an arrow; fruit flies like a banana.

(17) The horse raced past the barn fell.

If we observe the structural representation of some of these sentences, it becomes clear. In sentence (13) the first interpretation tends to compel the analysis to analyse Fat guys together as an NP.

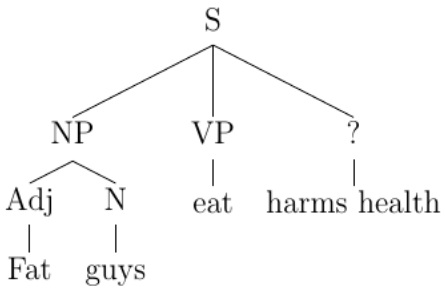


Figure 2: Initial tendency of analysis

This creates a problem for the parser when it encounters 'harms' health at the later part of the sentence. Initially the reader, or listener of that sentence, tends to make the first analysis. But by the end of the sentence, 'harms health' reveals that the first analysis is incompatible with the sentence. Therefore only through a reanalysis, the second analysis is done where 'guys eat' is now reanalyzed as a relative clause that 'guys eat' which is actually a description of the noun

'fat'. As English drops relative clause complementizer that very frequently, such ambiguities are common. Therefore 'harms health' is analyzed as the new VP where 'harms' is the main verb of the matrix clause, where as 'eat' is now a verb inside the embedded relative clause as shown in figure 3.

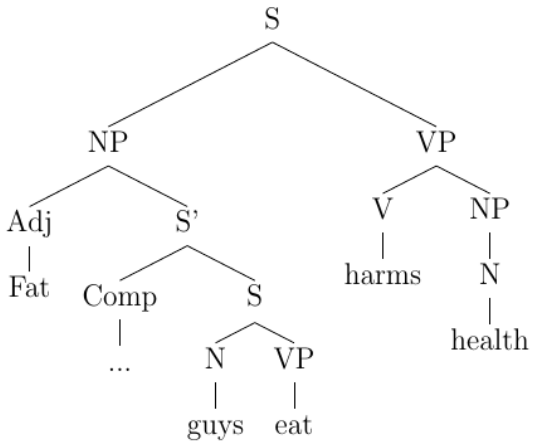


Figure 3: Final parse from reanalysis

Therefore the ambiguity is whether the speaker is talking about some 'Fat guys…' or 'Fat' that 'guys eat…' Likewise, in sentence (15) the question remains as to whether the speaker is talking about 'The young man' or 'The young' who 'man the machine' and initial interpretation tends to give a reading that is incompatible with the later part of the sentence. Therefore, the reader or listener has to reanalyze the sentence and retrieve the second analysis of the sentence to get a coherent comprehension from it. Such sentences can be so ambiguous that often times, after reading such sentences, even native English speakers are completely unable to recover any sense from out of them. Sometimes such a revealing location in the sentence, where the comprehension mechanism suddenly realizes that the initial parse or assumptions were wrong, and has to reanalyze the complete structure, is called a disambiguation point. The important fact in such sentences is that, the information processing mechanism is able to detect both the possibilities of senses, but there is a preference to predict just one of them in the beginning, without waiting for the completion of the sentence. This biased prediction is the main responsible reason in the reader's ambiguity, though the whole sentence is not actually ambiguous. The ambiguity arises due to the crucial reason that the sentence processing mechanism predicts one structure by default.

15.2.2 Combination of lexical and structural ambiguity

We observe, some sentences have only structural ambiguity where as some do have traces of lexical ambiguity. e.g., in sentence (15), at the level of lexical ambiguity, the word 'man' can have meanings both indicating a verb as well a noun category, indicating a lexical ambiguity. If 'man' is identified as a noun and 'young' is identified as an adjective, then the interpretations according to figure 4 can be derived, both of which result in incomprehensible and implausible sense.

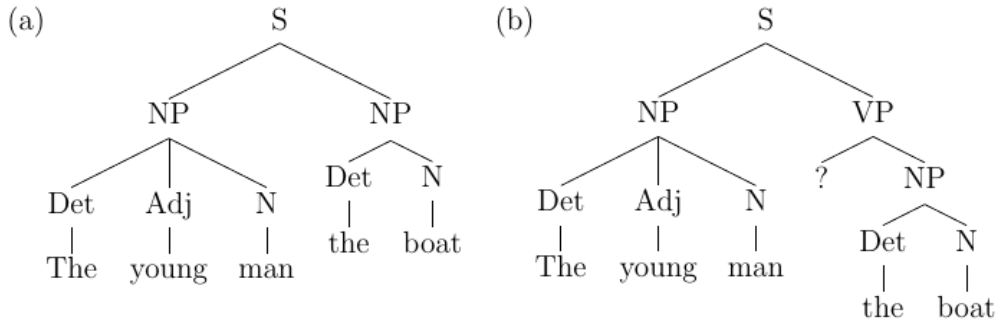


Figure 4: Implausible interpretations

So, once a reanalysis is initiated with 'young' reanalyzed as a noun and 'man' reanalyzed as a verb, the parser can come up with a proper structural analysis as shown in figure 5.

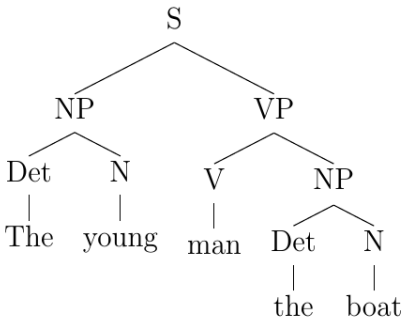


Figure 5: Correct parse

The ambiguity can be detected in 'The young man' at the level of both structural as well as lexical ambiguity as shown below. The structural ambiguity is also tied up with whether 'man' is a part of the subject NP or the verb in the sentence and whether or not 'young' is an adjective or a noun.

15.2.3 Some major types of structural ambiguity

Cruse (1986) classifies non-lexical ambiguity into four major categories:

a) Pure syntactic ambiguity

This kind of ambiguity can be seen in sentences and phrases having no lexical ambiguity. The ambiguity arising here is due to the order of the words and not from the independent meaning or sense of the words.

(17) Old men and women

In sentence (17) the ambiguity is that, either both the 'men' and 'women' are being described as 'old' (figure 6.a) or only the 'men' are described as old (figure 6.b). The following structural analysis explains the same.

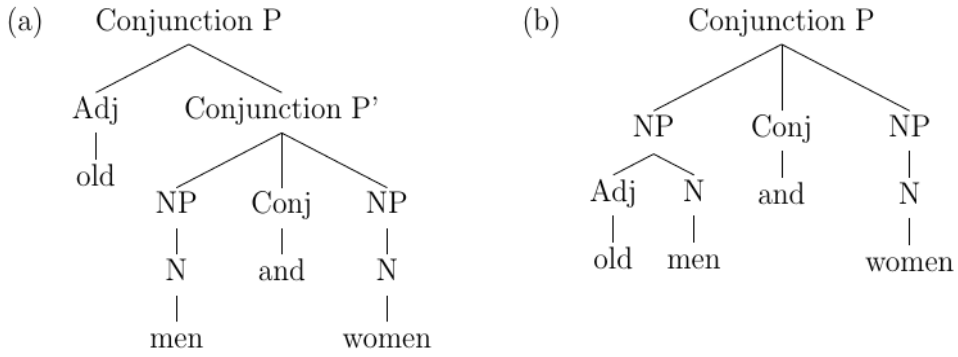


Figure 6: Ambiguity between either only the 'men' or both are 'old'

(18) Indian cotton shirts

In sentence (18) the ambiguity is that either the 'cotton' is of 'Indian' origin or the 'cotton shirts' are of any 'Indian' design, manufactured anywhere in the world.

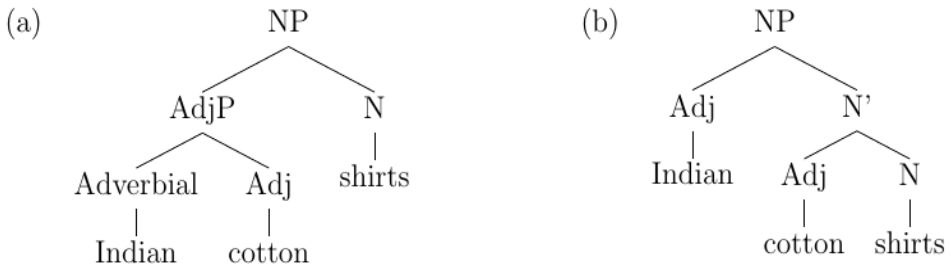


Figure 7: Two interpretations of (18)

Sentences (6) to (10) have the same kind of ambiguity.

b) Quasi-syntactic ambiguity

In some sentences, there may be only one structure that can be interpreted and only one meaning in the words, but there is still a possibility of interpreting two senses out of the sentence.

(19) The astronaut entered the atmosphere again.

In sentence (19), one sense indicates that the astronaut may have entered the atmosphere earlier as well. The other sense can indicate that the astronaut, who had just flew out of the atmosphere, has come back to the atmosphere again. Though the second interpretation is sometimes not thought of, such an interpretation is always possible.

(20) A red pen.

In sentence (20), the ambiguity is between whether the 'pen' is painted in red colour or whether it writes in red colour.

(c) Lexico-syntactic ambiguity

As discussed in 1.2.1, sentence (15) shows both lexical as well as syntactic ambiguity.

(d) Pure lexical ambiguity

Pure lexical ambiguity comprises of ambiguity solely at the word level, involving no structural or other source of double meaning. The word 'bank' can mean both river side as well as a financial institution irrespective of any usage in a sentence. It is the context of the sentence that is able to provide a clarity and disambiguation about the actual sense of that word.

15.3 Learning Outcomes

It is expected that upon the completion of this unit, students are able to define the term "ambiguity". They are able to justify the significance of structure and the lexical properties of the words and identify structural ambiguity accordingly. Students can explain the central differences

in detail in the lines of theoretical postulations of syntactic configurations. They can also describe various types of ambiguity in several languages known to them. Moreover, they can apply with such knowledge to enhance their communication skills.

15.4 Glossary / Keywords

Ambiguity: A property in a linguistic unit of having more than one sense.

Local Ambiguity: The property of having ambiguity temporarily till a certain word in a phrase or sentence after which there is no ambiguity due to its resolution in later word(s).

Global Ambiguity: The property of having an ambiguity in a sentence without any possible resolution as to the exact choice of meaning in it.

Structural Ambiguity: The ambiguity that is a result of more than one possible structural relationship between the words or phrases in the sentence. There is no necessary ambiguity at the lexical level in such cases.

Lexical Ambiguity: The ambiguity that is a result of more than one sense in a word in that sentence.

Disambiguation point: It is a word or phrase in a locally ambiguous sentence that is able to resolve the ambiguity of the sense somewhere later in the sentence.

15.5 Sample Questions

15.5.1 Objective Questions

A. Choose an appropriate option for the following:

1. What is the meaning of structural ambiguity?

(a) More than one sentence for a single meaning

(b) More than one meaning for a single word

(c) More than one structure for a single sentence

(d) More than one sound for a single word

2. What is the difference between lexical and structural ambiguity?

(a) One is ambiguity within a word and the other is ambiguity in pronunciation

(b) One is ambiguity within a word and the other is ambiguity in the phrase

(c) One is ambiguity at a surface level and the other is ambiguity at a deep level

(d) One is ambiguity of pronunciation and the other is ambiguity of communication.

3. Identify the structurally ambiguous sentence.

(a) John was looking at the bank.

(b) Meena saw a bat hidden inside the bush.

(c) Visiting relatives are annoying.

(d) The pilot was walking on the planes.

4. What is the structurally ambiguous part of the following sentence?

'I wanted to watch the joker perform in my pajamas'

(a) 'I wanted'

(b) 'perform in my pajamas'

(c) 'watch the joker perform in my pajamas'

(d) 'I wanted to watch the joker perform'

5. Which one of the sentences has global structural ambiguity?

(a) The dog that I had really loved bones.

(b) Until the actors perform the scenes continue with this group.

(c) The horse raced past the barn fell.

(d) All of the above sentences

B. Fill up the blanks

1. The main difference between pure lexical ambiguity and syntactic ambiguity between the levels of _____.

(a) Word and Pronunciation

(b) Speech and Writing

(c) Lexicon and Structure

(d) Meaning and Sense

2. In 'We painted the wall with cracks', there is _____ ambiguity.

(a) Global

(b) Quasi-syntactic

(c) Local

(d) All the above

3. The sentence 'Time flies in the garden.' has _____ ambiguity.

(a) Lexical

(b) Pure lexical

(c) Pure syntactic

(d) Lexico-syntactic

4. In the locally ambiguous sentence, 'The old man the boat', an ambiguity between verb and noun can be found in _____.

(a) old

(b) man

(c) boat

(d) All of the above choices

5. A disambiguation point cannot be located in the ambiguous sentence '_____'.

(a) The raft floated down the river sank

(b) I shot the elephant in my pajamas

(c) When Sameer eats food gets thrown

(d) All of the above options

C. Try to disambiguate the following locally ambiguous sentences by creatively adding one or two words in an appropriate position in the sentence. Example: The ambiguous sentence 'I convinced her children are noisy' can be disambiguated as 'I convinced her (that) children are noisy'.

1 He told me a fairy tale about the king and queen will be able to charm the kids.

2 Siri gave the girl the cat scratched a bandaid.

3 Fat guys eat harms health.

4 The musician who composes tunes flutes.

5 We cleaned the house with stains.

15.5.2 Short Answer Questions

A. Explain the structural ambiguity in the following sentences in your own words also showing what type of ambiguity each sentence has.

1. The musician who composes tunes flutes.
2. Time flies in the garden.
3. Meena saw a bat hidden inside the bush.
4. He looked at the monkey with one eye.
5. The chicken is ready to eat.

B. Briefly answer the following questions

1. Distinguish between lexical and structural ambiguity.

2 Explain in your own words how the structure of a sentence can vary even with the same sequence of words, with an example of your own.

3 What is Pure Syntactic Ambiguity? Discuss with an example.

4 What is Global Ambiguity? Discuss with an example.

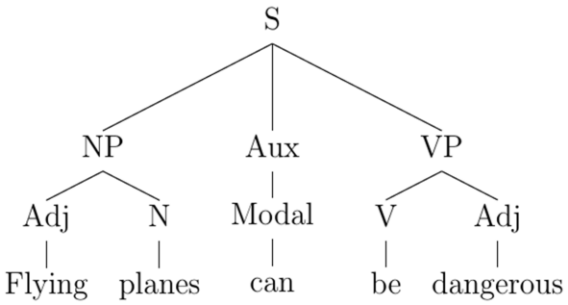
5 With a suitable example what is the role of a disambiguation point in sentences having local ambiguity?

15.5.3 Long Answer Questions

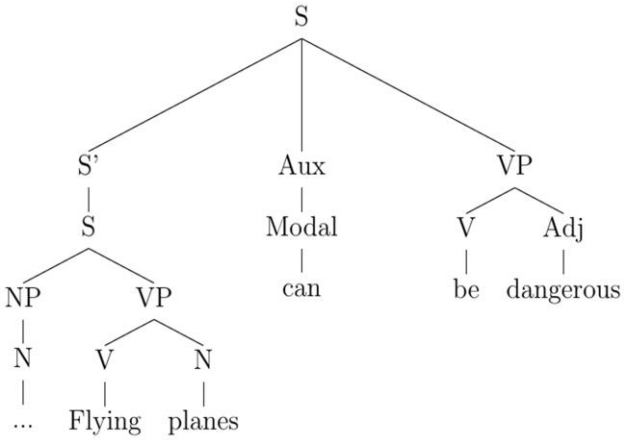
1. Explain with suitable examples, the four types of ambiguity according to Cruse (1986).
2. Elaborate with one example the basic difference between a global and local ambiguity.
3. Give the two interpretations of the following sentences using tree diagrams.
    (a) The man saw the shepherd with the binoculars.
    (b) Visiting relatives can be dangerous.
    (c) Father saw a monkey sitting in the corridor.
    (d) The chicken is ready to eat.
    (e) The sports trainer said on Friday he would give a test.
    (f) They are baking soda.
    (e) Mary dislikes scratching dogs.
    (f) The poor servants have broken utensils at home.
    (g) I wore light jacket, dark blue shirt and jeans.
    (h) The police stopped drinking at midnight.

4. Discuss and explain the ambiguity in the tree diagrams (a) and (b) and (c) shown in pairs.

(a) Flying planes are dangerous

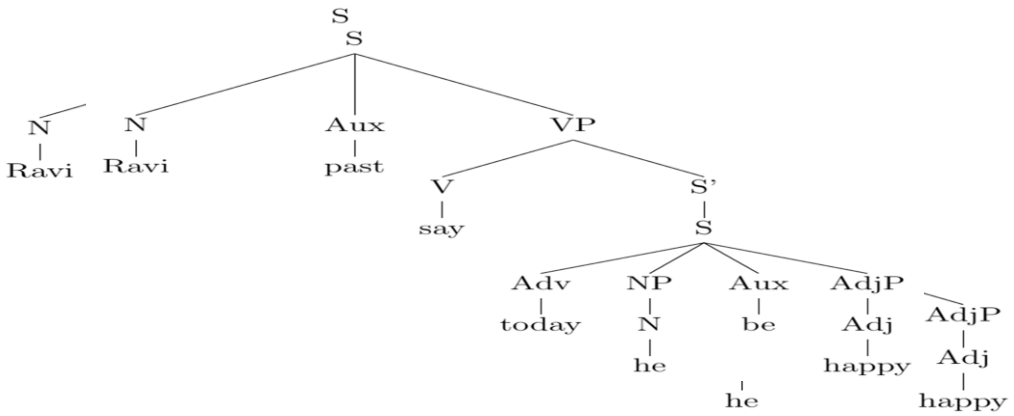


Structure (i)



Structure (ii)

(b) Ravi said today he is happy.



Structure (ii)

Structure (i)

15.6 Suggested Readings

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1. Brown, E. (2006). Encyclopedia of language and linguistics. Amsterdam: Elsevier.
2. Cruse, D., (1986). Lexical semantics. 1st ed. Great Britain: Cambridge University Press.
3. Haegeman, L. (1994). Introduction to government and binding theory. Oxford, UK: B. Blackwell.
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6. Saeed, J., (2009). Semantics. 3rd ed. Wiley Blackwell.
7.

Unit-16: Tree Diagrams

Structure

16.0 Introduction
16.1 Objectives
16.2 Tree Diagrams
- 16.2.1 Bracketed Parsing and Tree Diagrams
- 16.2.2 Nodes of trees and their relations
- 16.2.3 Evolution of structural representation of language
- 16.2.4 Representing the Head in different phrases
- 16.2.5 Recursivity in language
- 16.2.6 Representation of some structural relationships between nodes

16.3 Learning Outcomes
16.4 Glossary
16.5 Sample Questions
16.6 Suggested Readings

16.0 Introduction

Structural analysis of phrases, clauses and sentences can be written in different kinds of visual representation. Some of them are bracketing and some are tree diagrams. In this chapter we shall understand the roots concepts which are represented by tree diagrams and the need to visually represent them in this manner.

16.1 Objectives

The unit has been designed to fulfill the following objectives:

To familiarize students with different approaches of structural representation.

To make students appreciate the importance of graphical representation of sentence structure

To enable students to understand the process of analyzing sentences and phrases.

To acquaint students with some popular models syntactic analysis and parsing.

To enable students to comprehend the basic principles behind major grammatical analysis and comparative studies of languages.

16.2 Tree Diagram

16.2.1 Bracketed Parsing and Tree Diagrams

Initial methods of Bloomfield were to achieve Immediate Constituent Analysis, where the primary goals are to analyse phrases or sentences into groups of word(s) into constituents. For example, the sentence 'I love ice-cream' can be first analysed as $[_{SENT}\ [_{NP}\ [_{N}\ I]][_{VP}$ love ice-cream]] at a higher level with the main sentence constituent 'S' having two immediate constituents, NP and VP. The constituent NP can be analyzed as including a single constituent, N inside it where as in the lower levels the VP can also be analyzed as having two constituents $[_{VP}\ [_{V}$ love$][_{N}$ ice-cream]]. In the sentence, the subject NP and the predicate VP are the immediate constituents that together form the sentence. Again the V and N are the immediate constituents of the VP. These are simply an exercise of finding constituents that are related to each other through Immediate Constituent analysis (cf., Bloomfield's IC Analysis). The same analysis, however, can be represented as a diagram in terms of nodes and branches that connect together as a tree.

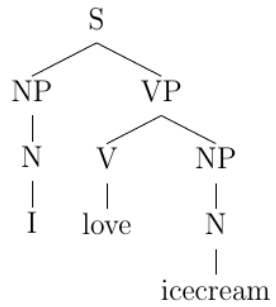

Figure 1: A Tree Diagram

The above tree clearly represents the parse of the sentence in a diagram format. The edges of the trees such as NP, VP, V and N are the nodes and the grouping can be observed in the branching source. E.g., the node VP can be said to branch into V and N. Tree diagrams can be used to utilize the two dimensional space to also simplify the representation of intricate relationships between nodes such as domination, immediate domination, branching, c-command, m-command, argument position, theta position, clausal embedding, specifier, head, complement, adjunct and so on. The following is a general discussion on how the two dimensional tree diagrams are most suitable for the above purposes.

16.2.2 Nodes of trees and their relations

(a) *Branching node*: If two constituents B and C are combined together to represent a constituent A, then A is a branching node for B and C. For example, S is a branching node for NP and VP whereas VP is again a branching node for V and NP.

Figure 2: Branching Node

Examples of simple branching nodes:

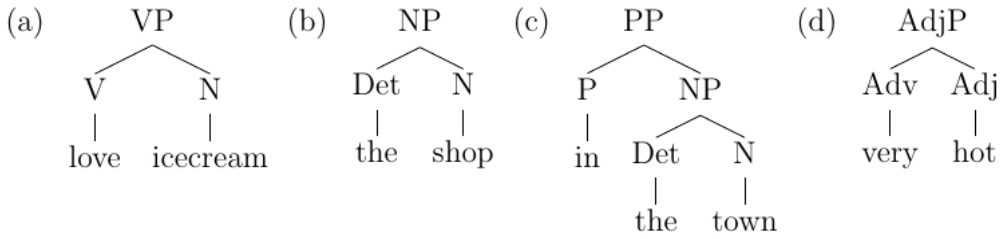

Figure 3: Branching Nodes: Verb Phrase, Noun Phrase, Preposition Phrase, Adjective Phrase

In Figure 3, the topmost nodes are visual representations of a higher level that is shown to contain other nodes inside it in the lower level, in a kind of visual top-down hierarchy. So the higher levels show the bigger constituents and the lower levels show its constituents. Likewise even in PP, it is shown that the immediate constituents of PP are the preposition 'in' and the NP 'the town'. Also the immediate constituents of NP are shown as the determiner 'the' and the noun 'town'. The preposition 'in' is the sense points to the location in the NP 'the town' as a whole. As such, these relations are adequately represented in such tree diagrams. The branching node is often referred to as the mother node and the ones just next in level are referred to as daughter nodes of that branching node. The daughter nodes are also related as sister nodes.

16.2.3 Evolution of structural representation of language

Transformational Generative Grammar (TGG) has been evolved through Chomsky's theory of the grammatical representation of language, which also goes by the popular tag, Mainstream Generative Grammar. It has also evolved through several phases to achieve a very systematic representation in terms X-bar Schema. However, we shall try to understand the basic starting

point in TGG. In this approach, a branching node could be analyzed into any required number of nodes.

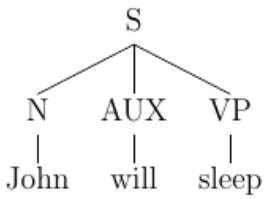

Figure 4: Multiple nodes branching out

In this representation, it is visible that there are only three words and therefore three branches could be formed in the approach. However, in some sentences, there may be more than one possibility of branching.

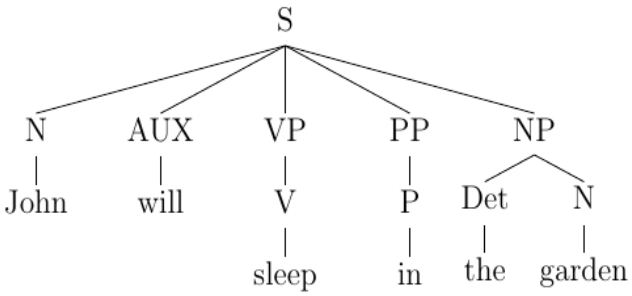

Figure 5: Multiple Branching of Phrases

The tree for the sentence could have different possibilities including that of Figure 5. In figure 6 another branching possibility is explored as follows:

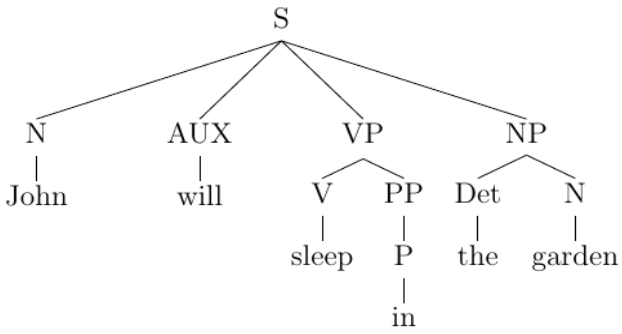

Figure 6: Alternate to Figure 5

Another alternative, however, is also visible in Figure 7 showing that there can be multiple branching possibilities showing different sense interpretations of the same sentence at structural level

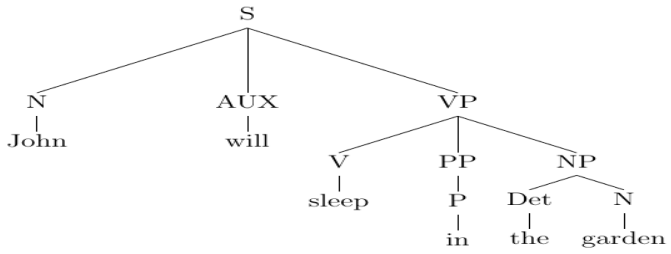

Figure 7: Alternate to Figure 6

However, a series of Immediate Constituent analysis will prove that only Figure 8 is the most appropriate parse.

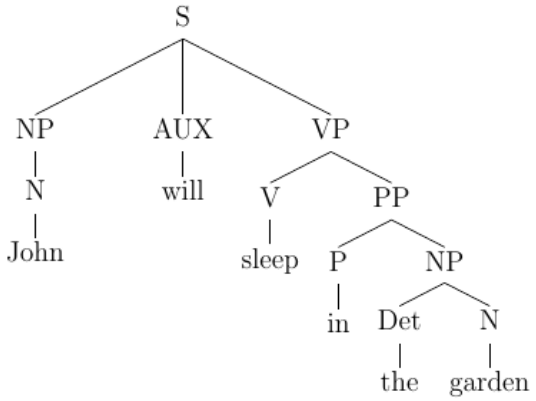

Figure 8: Best parse according to IC Analysis

As it is observed in Figure 8, the phrase VP has two major constituents, the verb 'sleep' and the prepositional phrase 'in the garden' which can be related to the verb as the location or position where that activity took place. As such, selection of the best parse for a phrase or a sentence can rely completely on the results of certain tests listed down in the IC Analysis methods.

Phrase structure rules are a major guide to how the trees are drawn. For example, the Phrase Structure Rule for all the phrases in Figure 3 can be listed as follows:

VP → V N

NP → Det N

PP → P NP

AdjP → Adv Adj

V → love

N → ice-cream, shop, town

Det → the

P → in

Adv → very

Adj → hot

These, however, are random Phrase Structure Rules for different phrases listed together but even a sentence such as in Figure 8 can be rewritten as Phrase Structure Rules as follows:

S → NP Aux VP

VP → V PP

PP → P NP

NP → (Det) N

N → John, garden

Det → the

Aux → will

V → sleep

P → in

Notice *Det* is now in braces. Any guess from the tree diagram why it is so? You may have guessed it right. There are two NP's in this tree diagram and only one of them has a Determiner 'the' before the noun. Therefore in the PSR the *Det* is represented as optional and not obligatory. However for a better representation of the relationships between the integral lexical units inside a structure, newer representation schema was developed. One of them is X-bar schema, also written as, X, X' or X^1, the writing convention of which is completely tolerant to the convenience to the typing feasibility. According to this schema the following components are significant.

The Head of a phrase, X^0, bears the center of the meaning of that phrase. It is the word that determines the syntactic type of a phrase. This approach satisfies an endocentric level identification of a phrasal constituent such that the constituent will project its properties till the phrase level through which the combination of that phrase with other phrases and words are possible in a grammatical way. Heads are the always terminal nodes in a phrase below which the lexical insertion takes place. As seen in figure 9, the head of 'hot tea' is 'tea', a noun, and the phrase is categorized as a noun phrase. The adjective 'hot' however is an adjective and does not categorize the phrase as an adjective phrase. Nouns, verbs, prepositions, Adjectives and Infl etc can be heads.

Figure 9: An identifiable head in both trees

Likewise, many trees can be drawn for different types of phrases and clauses as follows:

16.2.4 Representing the Head in different phrases

There are different kinds of phrases such as VP, NP, AP, PP and so on. Each of these has their unique lexical and structural environments where head is represented along with its complement, specifier and adjunct constituents. Let us take the Verb Phrase and explore some possible configurations without going deep into the X-schema approach.

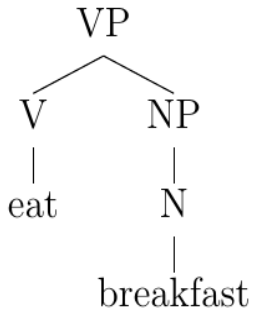

Figure 10: A typical Verb Phrase

However, when we have a preposition, there is a challenge as to what can be the best representation in a tree diagram when there more than one phrases under (or inside) a VP.

Consider the VP in the sentence 'John will give flowers to her'.

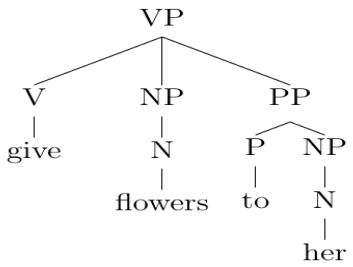

Figure 11: VP with both NP and PP

In figure 11, the sense of ‘flowers’ has been kept separate from the PP such that it can be directly associated as the object of ‘give’ and the PP answers to the probable question, ‘Who is given or gifted with the flowers?’, therefore also associating PP directly to the verb ‘give’. The VP may also have a different version of structure if the sequence is ‘give her flowers’ even if the sense remains the same in ‘John will give her flowers’.

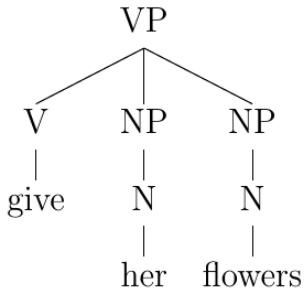

Figure 12: VP with two NP’s

Figure 11 and 12 are instances of ditransitive verb where two objects of verb must be present inside VP where one is direct NP and the other is indirect NP. In figure 11, the indirect object is postulated inside a PP after the direct object whereas in figure 12, it is postulated immediately after the verb. There may be other cases where adverbs can also be attached in the phrase as follows

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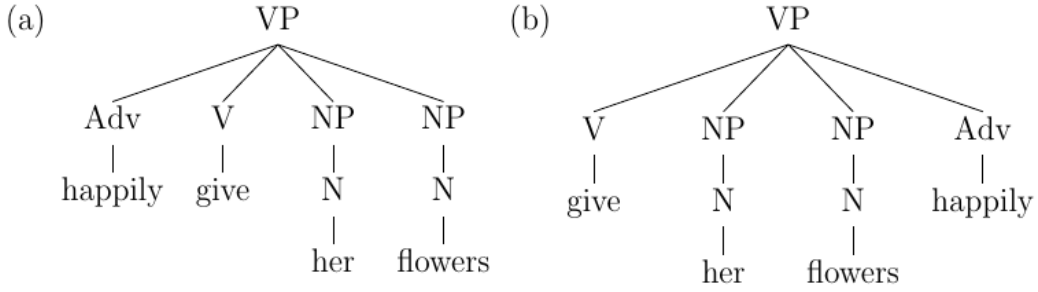


Figure 13: VP with an Adverb

Notice

the two

options (a) and (b) where the adverb can be located here. Many times there can be more than one sentence clause within a single sentence. The tree structure can therefore tend to get more complex and requires embedding as shown in the tree diagram below:

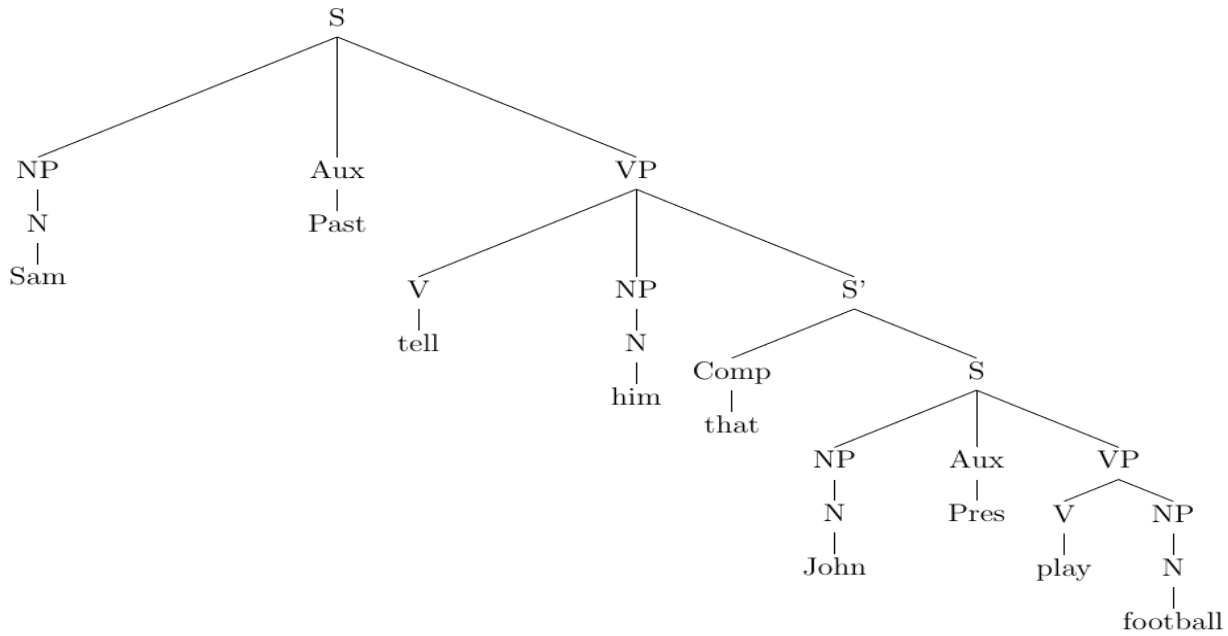


Figure 14: Complex sentence having an embedded clause

In figure 14, there are two sentential clauses. One indicates the action of tell in 'Sam told him…' The other indicating what was told in '… that John plays football'.The tree diagram is able to adequately show how a dependent clause is posited under the main clause (for detailed understanding see 'Government and Binding theory' by Chomsky).

16.2.5 Recursivity in language

Human languages have a recursive property when it comes to reusing sentence structures either repetitively across different sentences or within sentences. Figure 14 shows an example where a sentence structure S' is embedded as a subordinate clause within matrix clause S which is the main clause. In the theory the word 'that' has been identified as a complementizer which allows S to take a complement sentence inside it. There are also phrases such as VP, PP or even the main clause S which can take an NP within it. We can utter sentences like 'John chased the boy who hit the dog that chased the cat that chased the rat that ran into the hole which …' and so on.

Such a feature in languages is also known as *Recursivity*. Syntactic trees are equipped to represent such systematic Recursivity which is one of the most important resources available to human speech for creative representation of world knowledge and communication. Therefore in order to represent such a complex phenomenon in terms of a visual tree diagram, elaborate relationships between the nodes of the tree have to be exhaustively studied. Some of the accepted structural terms are discussed in (16.2.6) below:

16.2.6 Representation of some structural relationships between nodes

As discussed in the beginning, tree diagrams are excellent tools for representing various structural relationships. Following are some adequate illustrations:

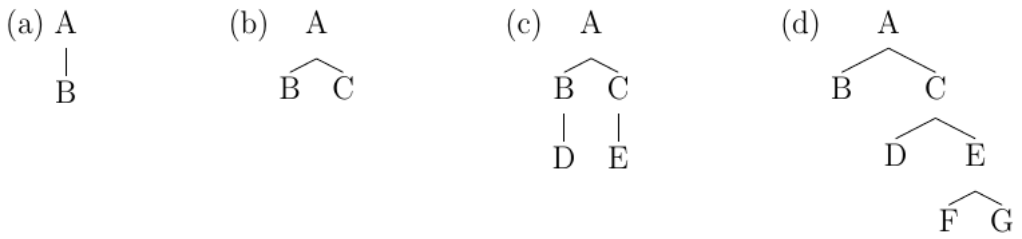


Figure 15: Comparing Domination & Immediate domination

- In figure 15, the following relationships node domination can be listed.
- In figure 15.a, *A* directly dominates *B* and *B* does not dominate *A*.
- In figure 15.b, *A* directly dominates both *B* and *C* while neither *B* nor *C* dominate A. A is the branching node for both *B* and *C*.
- In figure 15.c, *A* directly dominates *B* and *C* but it indirectly dominates *D* and *E*. *B* directly dominates *D*. *C* directly dominates *E*. *B* does not dominate *E*. *C* does not dominate *D*. A is also the first branching node for *B*, *C*, *D* and E.
- In figure 15.d, *A* directly dominates both *B* and *C* and indirectly dominates *D*, *E*, *F and G*. *C* directly dominates *D* and *E* and indirectly dominates *F* and *G*. *E* directly dominates *F* and *G*. Nothing else dominates any other node. *A* is the first branching node for *B* and *C* and no other node. *C* is the first branching node for *D* and *E* and no other node. *E* is the first branching node for *F* and *G* and no other node.

The above discussion has been provided to target some of the accepted and well utilized relationships between nodes, suitable for identifying and defining several structural relations

between heads, specifiers, complements and adjuncts in Government and Binding theory and also Minimalism, later.

16.3 Learning Outcomes

It is expected that upon the completion of this unit, students are able to draw tree diagrams and understand the important basics of the approaches behind this method of representing linguistic units. They are able to justify the significance of hierarchy and grouping of phrases in the structure. Students can explain the correct and incorrect tree diagrams in detail. They can describe various theories of syntax such as Government and Binding, Principles and Parameters as well as Minimalist Program using the tree diagrams as an efficient aid to visualizing and comprehending the theory. Moreover, students can apply the knowledge of the tree diagrams to independently observe and analyze sentences and phrases from their own language(s) as well.

16.4 Glossary

Tree diagrams: A visual representation of the structure of phrases, clauses and sentences in a language using the approach of hierarchy and connecting the linguistic units as nodes.

Phrase: A set of words that can be grouped together as a unit having a unique function among the other words and phrases that it combines with. Phrases can be identified through IC analysis.

Node: A location in the hierarchy of the tree diagram that can represent a constituent. This constituent may or may not include other constituents within it. It is important to notice the level of a node in concern and locate other nodes at a similar level to identify any structural relationship between them.

Dominate: Be on top of a node.

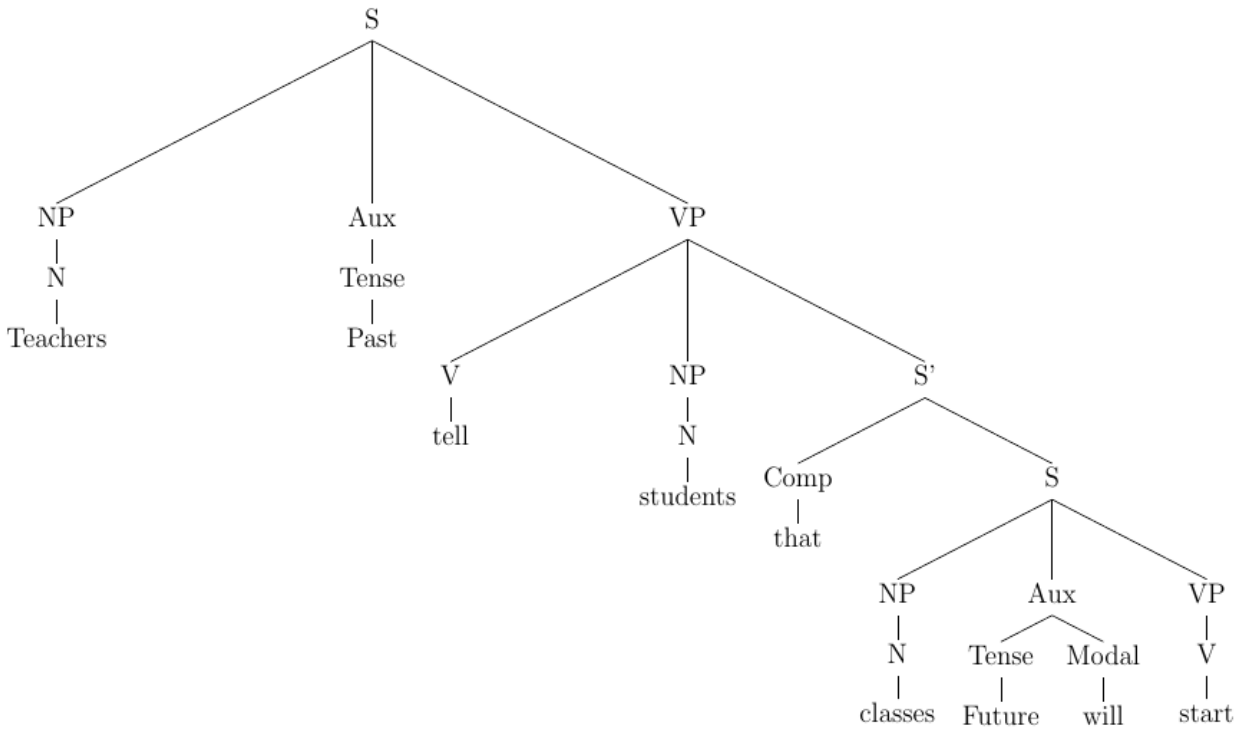
Branching Node: A node that branches out into two or more nodes below it in the tree diagram.

Phrase Structure Rules: A set of grammatical rules that contain a systematic representation of rewrite rules where it is shown in which ways a phrase can be re-written as its immediate constituents that it includes.

Terminal Node: The node under which lexical insertion happens and words are inserted. These were also initially known as delta nodes.

16.0 Sample Questions

16.5.1 Objective Questions



A. Study the tree diagram and answer the 5 questions below:

1. 'Comp' (Complementizer) node is not dominated by the second NP.

    (a) True

    (b) False

2. _____ is the first branching node dominating V.

3. There is/are _____ clause(s) and _____ phrases in the tree.

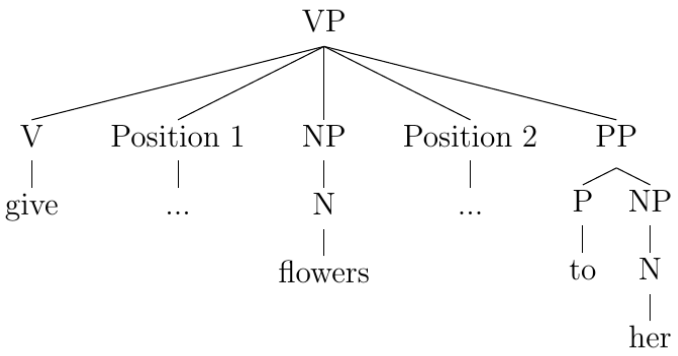
4. The NP's in the tree have _____ constituent(s).

5. The above sentence is a compound sentence.

    (a) True

    (b) False

B. For the tree structure shown below answer the following questions.



1. Mention the proper location(s) for the adverb ‘happily’:
    (a) Only Position 1
    (b) Only Position 2
    (c) All the positions.
    (d) None of the positions.
2. _____ is the indirect object of the di-transitive verb ‘give’.
3. The first branching node dominating ‘P’ is _____.
4. The node ‘NP’ is immediately dominated in two places by _____ and _____.
5. An adverb can occur at a position between a verb and its direct object.
    (a) True
    (b) False

16.2.5 Short Answer Questions

Try to draw a tree diagram for the following sentences.

(1) John will eat lunch.

(2) Mary bought a toy for her daughter.

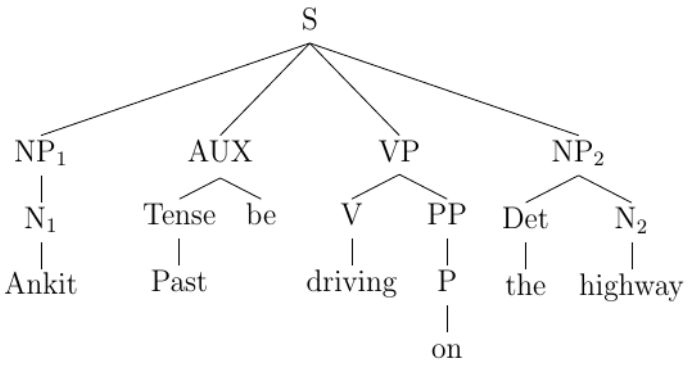
(3) Amir danced on the stage happily.

(4) Ravi quickly went to the market.

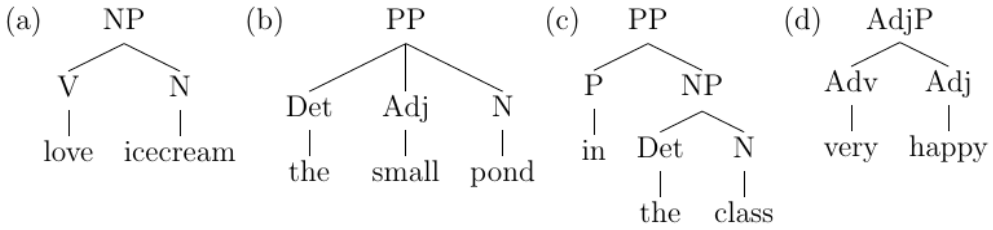
(5) The computer is gradually becoming very slow.

16.5.3 Long Answer Questions

1. In the following tree, explain in your own words why you think that the positions of NP_2 and PP may not be suitable and draw a tree having appropriate locations for the phrases.



2. Draw a tree for the following sentences.
    a) The driving instructor told that the driving course will be easy.
    b) The students found the book in the shelf at the library.
3. From the choices below, identify and validate the good tree diagrams and try to explain why the others are not appropriate according to you.



16.6 Suggested Readings

1. Black, C. (1999). A step by step introduction to the Government and Binding theory of syntax (1st ed.). Summer Institute of Linguistics. Retrieved from http://www.sil.org/americas/ mexico/ling/ E002IntroGB.pdf

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