LINGUISTICS I

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SYLLABUS

Linguistics I

Course Objectives:

- To introduce the student to the tools, branches, and history of Linguistics
- To improve and enhance student's pronunciation and language skills
- To improve the proficiency of the student in the correct usage of English Vocabulary.

Sr. No.	Content
1	Introduction to Linguistics: Its Aspects, Linguistics: Branches and Tools, Brief History of the Growth of Modern Linguistics: Bloomfield and Chomsky
2	Phonetics: Speech Mechanism, Places and Manners of Articulation; Classification of Speech Sounds: Vowels, Consonants- General Introduction
3	Consonants and its Phonetic Transcription, Vowels and its Phonetic Transcription, Diptholongs and its Phonetic Transcription
4	Clusters and Syllables, Phoneme: Detailed Study, Allophones: Allophonic variation in English Speech: Difference between Monoptholong and Diptholong Glides; Transcription of English Speech Sounds: From words to sentences, Syllables : Mono-syllabic, Bi- syllabic and stress in English
5	Branches in Linguistics: Socio-Linguistics, Psycho-Linguistics, Educational Linguistics

CONTENTS

Notes

Unit 1: Introduction to Linguistics: Its Aspects

CONTENTS

Objectives

After studying this Unit students will be able to:

- Understand Linguistic and its Aspects.
- Discuss the Scope of Linguistics.

Introduction

The word 'Linguistics' has been derived from Latin *lingua* (tongue) and **istics** (knowledge or science). Etymologically, therefore, linguistics is the scientific study of language. But it is the study not of one particular language but of human language in general. It studies language as a universal and recognizable part of human behaviour. It attempts to describe and analyze language. The field of linguistics comprises understanding of the place of language in human life, the ways in which it is organized to fulfil the needs it serves, and the functions it performs.

So linguistics is that science which studies the origin, organisation, nature and development of language descriptively, historically, comparatively and explicitly, and formulates the general rules related to language. **Diachronic (historical) linguistics** studies the development of language through history, through time, for example, the way in which French and Italian have evolved from Latin. **Synchronic linguistics** investigates how the people speak and use language in a given speech community at a given time. In **Comparative linguistics** one is concerned with comparing two or more different languages.

Linguistics, therefore, is the science that describes and classifies languages. The linguist identifies and describes the units and patterns of the sound system, the words and morphemes, and the phrases and sentences, that is the structure of language, as completely, accurately, and economically as possible.

1.1 Is Linguistics a Science?

Linguistics is the scientific study of language. Like all other sciences linguistics has a well-defined subject matter, viz. natural languages, living or dead; it employs careful methods to observe, record and analyse the various phenomena related to its subject matter and hopes to present unprejudiced, objective and verifiable descriptions. The approach and methodology of linguistics is scientific. It is as inductive as a science could be, and is based on observations, formation of

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hypothesis, testing, verification, tentativeness and predictiveness. Like a scientist a linguist observes his data. Some of his methods of observation include simple listening, phonetic transcription, and the use of various instruments, such as oscillograph, sounds pectograph, kymograph, chromograph, mingograph, laryngoscope, endoscope, sonograph, autophonoscope, breathing flask, strobolaryngoscope, electric vocal tract, pitchmeter, intensity meter, speech stretcher, formant graphing machine, etc. Records and cassettes made in these ways help in various kinds of objective description. A linguist has his language laboratory too.

Again, like a scientist a linguist develops hypotheses, makes generalized statements and teststhem against the fact of languages. When a linguist or a phonetician makes a statement about languages, he makes it on the basis of observation. First he observes linguistic events. He finds some similarities and contrasts on the basis of which he makes sound generalizations. On the basis of these generalizations hypotheses are formulated to account for the events. These are tested by further observations, and out of them is constructed a theory of how language works. From the theory are derived methods for making statements about linguistic events. The statements link the theory to the events it is set up to account for, and they can now be evaluated by reference both to the theory and to the events: the best statements are those which make maximum use of the theory to account most fully for the facts.

The linguist also hopes to be in position to make prediction about unobserved linguistic data on the basis of those observed, and build a general theory which would explain and relate all the facts to be found in individual languages. Predictions about grammars and dictionaries can be made by him. And finally like a true scientist, he is constantly engaged in discovering more about languages, in refining his methods of investigation, and in constructing better theories. He also tries to find out linguistic universals.

Like any scientific discipline, linguistics too is not static. Viewpoints and theoretical methods in the field, change even in fundamental ways from time to time, and different aspects come to receive primary focus at different times. Linguistics has more than its share of unresolved controversies and unsolved questions, which is a part of its fascination and challenge.

Finally, the closeness of Linguistics with other natural sciences like mathematics, physics, physiology, biology, zoology, etc., is another proof of its scientific nature. 'It touches on physics through acoustics, on physiology through the structure of the human vocal organs, on zoology through the comparative study of the communicative systems of living beings.' A glance on any book on transformational-generative grammar would convince any objective onlooker how linguistics is becoming more and more scientific. Furthermore, as mentioned by R. H. Robins, linguistics in its operations and statements is guided by three canons of science:

(1) exhaustiveness, the adequate treatment of all the relevent material; (2) consistency, the absence of contradiction between different parts of the total statement, and within the limits imposed by the two preceding principles; and (3) economy, whereby, other things being equal, a shorter statement or analysis employing fewer terms is to be preferred to one that is longer or more involved. Consequently, linguistics is getting more and more technical and sophisticated every day. Yet it is not a pure science. Its position, says R. A. Hall, is between the natural and social sciences, like that of geology. To Robins it is an 'empirical science', and within the empirical sciences it is 'one of the social sciences', because its subject matter concerns human beings, and is very much different from that of natural sciences.

Nevertheless, linguistics is the scientific study of language. It may be inductive or deductive; it is, however, objective, precise, tentative and systematic; it is concerned with reportable facts, methods, and principles; it works by means of observations, hypotheses, experiments and tests, postulates, and inferences; it makes generalization and predictions; it formulates theories; its products are descriptive, verbal or algebraic statements about language.

1.2 The Scope of Linguistics

We have discussed the definition and nature of linguistics. The question that arises immediately now is: what areas and what aspects of language study is the linguist interested in? In a broad

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way language is the expression of human thought, and all thought is expressed through language, hence all knowledge of the universe may fall within the scope of linguistics, and the scope may be a complex mess.

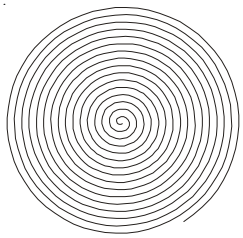

Figure 1.1

Yet linguistics being a science, has got to be a systematic discipline. So the questions: what kind of behaviour does the linguist want to investigate? or what is the scope of linguistics?—need to be answered. A linguist has to study and describe language which is an enormously complex phenomenon. He, therefore, concentrates at any one time on one of the many different, though interrelated, aspects of his subject matter. His subject matter, broadly speaking, is the data of language, or the facts of language as it is spoken and written.

A full understanding of the various components of language and their relations with the rest of the world outside language, thus, would constitute the right scope of linguistics, which can roughly be represented by the figure 1.2 borrowed from Jean Aitchison:

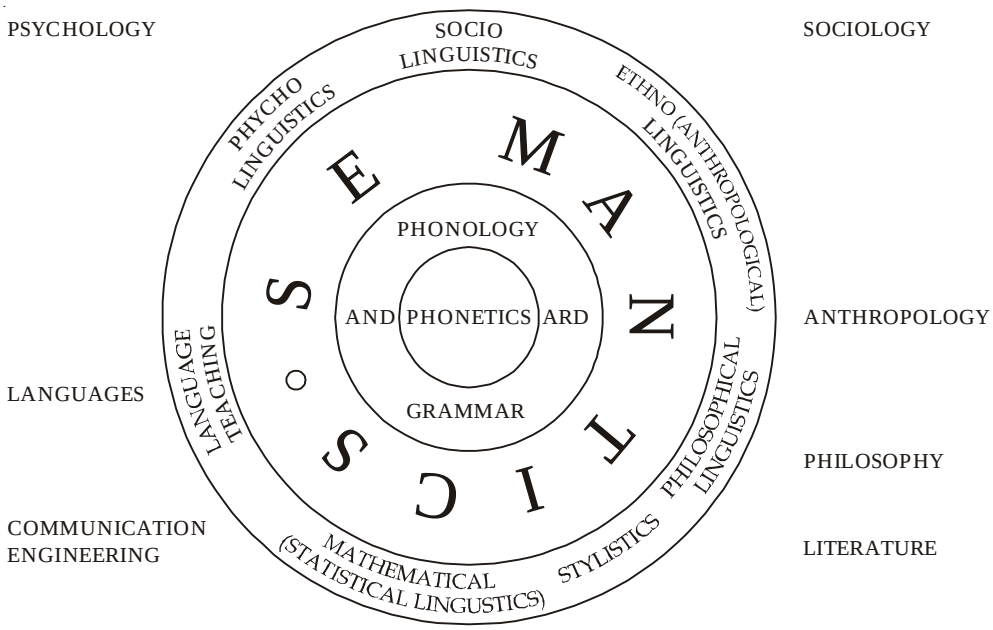

Figure 1.2

Thus general linguistics covers a wide range of topics and its boundaries are difficult to define. In the centre is **phonetics**, the study of human speech sounds. A phonetician is concerned with the

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actual physical sounds, the raw material out of which language is made. He studies the position of the tongue, teeth and vocal cords during the production of sounds, and records and analyses sound waves. Around the central core are various branches of linguistics which are being rapidly developed at the present time: such as psycholinguistics, sociolinguistics, mathematical linguistics, philosophical linguistics, anthropological linguistics, stylistics and language teaching.

Did u know? **Phonology** (sound patterning), **grammar** and **semantics,** (meaning) are the bread and butter of linguistics. They are the core of linguistics.

1.3 Linguistic Levels

By 'linguistic levels' is meant the levels of language structure. There is a considerable difference among the linguisticians about the number and terminology of linguistic levels. Robert Hall (1969: 32) recommends three levels-**phonology** (phonemics—phoentics), **morphology** and **syntax**. R. H. Robins (1971: 11) mentions **phonology, grammar** and **semantics**. Hockett (1973: 137-138) advocates the following five levels which he calls 'subsystems':

1. **The grammatical system**: a stock of morphomes, and the arrangements in which they occur;
2. **The phonological system**: a stock of phonemes, and the assignments in which they occur;
3. **The morphophonemic system**: the code which ties together the grammatical and the phonological system;
4. **The semantic system**: which associates various morphemes, and arrangements in which morphemes can be put, with things and situations, or kinds of things and situations;
5. **The phonemic system**: the ways in which sequences of phonemes are converted into sound waves by the articulation of a speaker, and are decoded from the speech signal by a hearer.

Hockett calls the first three of the above "central" subsystems, and the last two "peripheral" subsystems.

Such a labelling of names, however, should not lead one to confusion. There are no basic differences about the structure of language. Such a classification is done by the linguist for the sake of convenience in the study of the subject-matter, i.e. language which is a complex phenomenon. All these levels are **inter-related aspects** of his subject-matter, quite often over-lapping. Any separation or classification should not be treated as rigid or opaque. A linguist has to describe human language, and human beings do not use just one level of it at a time. For our purpose, we shall follow the 1.3 figure 1.3.

Broadly speaking, there are three aspects of language activity, or three types of pattern in language, the material, the structural and the environmental leading to three separate linguistic levels—Substance, Form and Context. "The substance is the raw material of language: auditory (Phonic substance) or visual (Graphic substance). The form is the organization, the internal structure, it is grammar + lexis. The context is the relationship between form and situation, which we call meaning (Semantics). The linguistic science has to explain language at all these levels. These levels are explained below:

1. **Phonetics**: Phonetics is the study of speech processes including the anatomy, neurology and pathology of speech, the articulation, classification and perception of speech sounds. Phonetics is a pure science and need not be studied in relation to a particular language, but it has many practical applications, e.g. in phonetic transcription, language teaching, speech therapy, communications engineering. Some phoneticians consider phonetics to be outside the central core of linguistics proper, but most would include it under the heading 'linguistic science'. The linguistic aspects of phonetics, i.e., the study of sound systems of particular languages, is part, of phonology.

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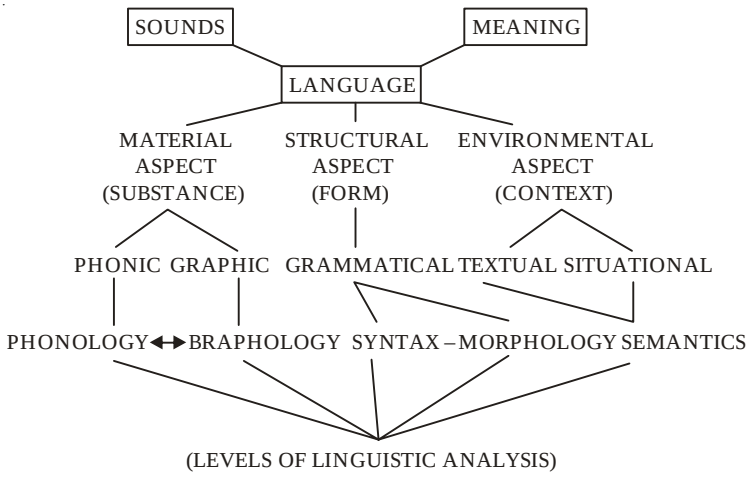

Figure 1.3

The study of phonetics can be divided into three main branches, Articulatory Phonetics, the study of the movement of the speech organs in the articulation of speech, Acoustic Phonetics, the study of the physical properties of speech sounds such as frequency and amplitude in their transmission, and Auditory Phonetics, the study of hearing and the perception of speech sounds.

Laboratory Phonetics—experimental phonetics or instrumental phonetics are general terms for phonetic studies which involve the use of mechanical and electronic apparatus. Several sophisticated instruments are used in modern times for this purpose.

Phonetic Substance—Phonetic substance, as opposed to the visual or graphic material of written language, refers to the auditory aspects or sound features of spoken language, as studied by articulatory, acoustic and auditory phonetics.

Phonology—Phonology is the study of speech sounds of a given language and their function within the sound system of that language. It covers both **phonemics** (synchronic phonology) and **diachronic phonology** (sound changes in the history of a given language). So phonology is the functional phonetics of a particular language, and is of great help in the learning of that language.

2. **Grammatical Level—**Grammatical level comprises of (*a*) Syntax, and (*b*) Morphology.

1.4 Some Major Linguistic Concepts

1.4.1 Synchrony and Diachrony

Synchrony is the study of a language in a given time, **diachrony** through time. **Synchronic** or **descriptive linguistics** studies a language at one period in time; it investigates the way people speak in a given speech community at a given point in time. **Diachronic** or **historical (or temporal) linguistics** studies the development of languages through time: for example, the way in which French and Italian have evolved from Latin, or Hindi from Sanskrit; it also investigates language changes. Saussure says: "synchronic linguistics will be concerned with the logical and psychological relations that bind together co-existing terms and form a system in the collective mind of speakers. Diachronic linguistics on the contrary, will study relations that bind together successive terms not perceived by the collective mind but substituted for each other without forming a system." Synchronic linguistics deals with systems, diachronic with units. These two approches have to be kept clearly apart and pursued separately. Saussure considered synchronic linguistics to be more important: "the first thing that strikes us when we study the facts of language is that their succession in time does not exist in so far as the speaker is concerned. He is confronted with a state. That is why the linguist who wishes to understand a state, must discard all knowledge of everything that produced it and ignore diachrony."

Notes

The difference between descriptive (synchronic) and historical (diachronic) linguistics can be illustrated by the following diagram of Ferdinand de Saussure, who was the first person to stress the necessity of distinguishing between the two approaches:

In the diagram, (figure 1.4), axis AB is the synchronic, static axis. It can intersect at any point with XY, the moving, diachronic axis.

What do you mean by Synchronic and Diachronic?

Throughout the nineteenth century linguistic research was very strongly historical in character. One of the principal aims of the subject was to group languages into families on the basis of their independent developments from a common source, or to study language change. The description of particular languages was made subsidiary to this general aim, and there was little interest in the study of the language of a given community without reference to historical considerations. Saussure's distinction between the diachronic and synchronic investigation of the language is a distinction between these two opposing viewpoints. Nevertheless, valid diachronic work has to be based on good synchronic work, because no valid statements about linguistic change can be made unless good descriptions of a language do exist. Similarly a synchronic statement may well reflect certain historical developments, for example, two vowels of **reel** and **real** are described as being basically different because the historical facts show different sources of the **ee** and the **ea**.

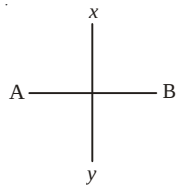

Figure 1.4

1.4.2 Language and Parole

Ferdinand de Sassure made a sharp distinction between three main terms—**le langage, la langue,** and **la parole,** and then concentrated on two of them. He envisaged **le langage** (human speech as a whole) to be composed of two aspects, which he called **langue** (the language system) and **parole** (the act of speaking).

Le langage

Le langage has no exact equivalent in English, it embraces the faculty of language in all its various forms and manifestations.

Le langage is the faculty of human speech present in all normal human beings due to heredity, but which requires the correct environmental stimuli for proper development. It is our faculty to talk to each other. Taken as a whole it is many-sided and heterogeneous; straddling several areas simultaneously—physical, physiological and psychological—it belongs to the individual and to society; we cannot put it into any category of human facts for we cannot discover its unity. **Langage,** thus is a universal behaviour trait—more of interest to the anthropologist or biologist than to the linguist, who commences his study with **langues** and **paroles**. To quote Saussure **'La langue est pour nous le langage moins la parole"—** Language is for us **le langage** less speech.

La Langue

Langue, according to Saussure, is the totality (the 'collective fact') of a language, deducible from an examination of the memories of all the language users. It is a storehouse, 'the sum of word-

Notes

images in the minds of individuals. It is not to be confused with human speech **(language)** of which it is only a definite part, though certainly an essential one.' It is both a social product of the faculty of speech and a collection of necessary conventions that have been adopted by a social body to permit individuals to exercise that faculty. **Langue,** therefore, is a corporate, social phenomenon. It is homogeneous whereas **language** is heterogenous. It is concrete and we can study it. It is a system of linguistic signs which are not abstract but real entities, tangible to be reduced to conventional, written symbols. Putting it loosely **langue** is grammar+vocabulary+pronunciation, system of a community. As stated by Hjelmslev, the term **langue** as used by Saussure, includes three different concepts:

1. (the language **scheme** (the pure language form defined independently of its social realization and physical manifestations);
2. the language **norm** (the material form defined by its social realization but independent of particular manifestations);
3. the language **custom** (a set of customs accepted by a particular society and defined by observable manifestations).

Ultimately, **langue** has to be related to **parole** which is the actual usage of individuals, which a community manifests in its everyday speech, the actual, concrete act of speaking on the part of an individual, the controlled or controllable psycho-physical activity. **Parole** is the set of all utterances that have actually been produced, while **langue** is the set of all possible grammatical sentences in the language. From this it follows that parole is a 'personal, dynamic, social activity, which exists at a particular time and place and in a particular situation as opposed to **langue** which, exists apart from any particular manifestation in speech.'

La Parole

Parole is the only object available for direct observation to the linguist. Utterances are instances of parole. The underlying structure in terms of which we produce them as speakers and understand them as hearers, is the **langue** in question (Hindi, Persian, Sanskrit, Chinese, etc.) and is independent of the physcial medium (or **substance**) in which it is realized. A **langue,** on the other hand, is not spoken by anybody, but is a composite body of linguistic phenomena derived as it were from the personal dialects (paroles) of all native speakers. The langue is in essence a social phenomenon, having reality only as a social institution, it is, therefore, constant, supra-individualistic, and generalized; the individual speaker can neither create it nor modify it easily and ordinarily, Ullmann has tabulated the main differences between language and parole in the following manner:

Langue (language)	**Parole** (speech)
Code	Encoding of a message
Potential	Actualized
Social	Individual
Fixed	Free
Slow-moving	Ephemeral
Psychological	Psycho-Physical

1.4.3 Competence and Performance

Noam Chomsky's concept of competence and performance is some what similar to Saussure's concept of language and parole. Competence, according to Chomsky, is the native speaker's knowledge of his language, the system of rules he has mastered, his ability to produce and understand a vast number of new sentences. Competence is the study of the system of rules, performance is the study of actual sentences themselves, of the actual use of the language in real-life situation. So the speaker's knowledge of the structure of a language is his linguistic competence and the way in which he uses it, is his linguistic performance.

Notes

Competence is, then, an underlying mental system, it underlies actual behaviour, linguistic ability to analyse language, detecting ambiguities, ignoring mistakes, understanding new sentences, producing entirely new sentences. Whereas competence is a set of Principles which a speaker masters, performance is what a speaker does. The former is a kind of code, the latter is an act of encoding or decoding. Competence concerns the kind of structures the person has succeeded in mastering and internalizing, whether or not he utilizes them, in practice, without interference from many of the factors that play a role in actual behaviour. "For any one concerned with intellectual processes, or with any question that goes beyond mere date arranging, it is the question of competence that is fundamental. Obviously one can find out about competence only by studying performance; but this study must be carried out in devious and clever ways, if any serious result is to be obtained." In this way, the abstract, internal grammar which enables a speaker to utter and understand an infinite number of potential utterances is a speaker's competence.

This competence is free from the interference of memory span, characteristic errors, lapses of attention, etc. "The speaker has represented in his brain a grammar that gives an ideal account of the structure of the sentences of his language, but, when actually faced with the task of speaking or understanding many other factors, acts upon his underlying linguistic competence to produce actual performance. He may be confused or have several things in mind, change his plans in midstream, etc. Since this is obviously the condition of most actual linguistic performance, a direct record—an actual corpus—is almost useless as it stands, for linguistic analysis of any but the most superficial kind."

Competence in any sphere can be identified with capacity or ability, as opposed to actual performance. Competence in linguistics is the 'linguistic ability—the ability to produce and understand indefinitely many novel sentences; it refers to the native speaker's innate creativity and productivity implicit in the normal use of language.

This distinction has caused a lot of argument in current-day linguistics. Some socio-linguists regard it as an unreal distinction which ignores the importance of studying language in its social setting. They say that many of today's grammars are based on unjustified assumptions concerning a speaker's competence rather on his performance. But the division is a useful one, if not carried to extremes. In an ideal situation, the two approaches should complement each other. Any statement concerning a speaker's competence must ultimately be based on data collected while studying his performance.

Although Chomsky's competence / performance dichotomy closely resembles Saussure's **langue/ parole,** yet the main difference is that Saussure stressed the sociological implications of **langue,** while Chomsky stresses the psychological implications of competence. These distinctions are also parallel to a distinction made between **code** and **message** in communications engineering. **A code** is the pre-arranged signalling system. **A message** is an actual message sent through that system.

1.4.4 Substance and Form

Language symbols are Janus-like, they face two ways. In the Saussurean terminology, they have an external facet, the 'significant,' and a semantic facet, the 'signific' This fundamental duality has been called by some linguists 'form' and 'meaning'—or 'expression' and 'content'.

When a carpenter tries to make a table or chair out of wood, he is trying to change raw material into finished goods. In other words, he is trying to change substance into form. Thus wood is the substance, and furniture the form. Similarly cotton is the substance, cloth the form. Likewise in language we have both substances and form. All distinct sounds produced by human speech organs and scripts produced by human hands to communicate are substances of human language. The oral substance is called the **phonic substance** and the visual substance is known as the **graphic substance**. It is with these substances that we form languages.—The organization of language is its form which is grammar + lexis.

Notes

From the points of view of expression, **The bachelor gave birth to a baby,** (a nonsense sentence), is a well-formed utterance. The content plane deals with semantics, the study of meaning. The study of expression-level is less complex than the study of content level. So the expression plane of a language is usually analysed before the content plane.

On the content level substance means the whole mass of thoughts, emotions, feelings, ideas, concept without reference to language or languages people use; and form means the abstract structure of relationships which a particular language imposes on that underlying substance. Language has, as stated above, two forms spoken and written. The substance of the spoken form of language is sounds produced by human organs of speech. Since the spoken form of language comes before its written form of language, the sounds are transferred into the shape of the visual marks on paper, or wood, or stone, or metal, and these visible marks or graphs are the substance of the written form of language. The former is the primary substance of language; the latter the secondary substance.


Notes

Substance and form can be analysed on two planes: content plane and expression plane. On the expression plane, linguistics deals with the form or shape of linguistic elements without necessarily taking their meaning into account.

The form and substance distinction is the distinction between the system and the actual data, between the theory and the actual utterance. By form we mean the various components of language such as phonology, grammar, morphology and syntax. By substance we mean the elements that fill these components, the elements such as phonemes, morphemes, graphemes. More explicitly, for example, if nouns, phonemes, and imperatives and so on are the substances;

boy, John, /p/, /t/,/k/ and **Get up** are the instances of form. In other words, units of a language are its form; systems of a language are substance.

'Any meaningful utterance carried by a single intonation contour is termed a linguistic form.' The form is a network of the associations between sound and meaning. In its broadest sense, linguistic form can refer to any meaningful sequence of phonemes, from the shortest prefix or suffix to the longest sentence. The 'substance' of the content-plane is the whole mass of thoughts and emotions common to mankind independently of the language they speak. It is a kind of vague conceptual medium out of which meanings are formed in particular languages by convention.

1.4.5 Syntagmatic and Paradigmatic

The structure of a language, according to Saussure, can be segmented into two kinds of relationships—the syntagmatic and the paradigmatic. "Combinations supported by linearity are syntagms". Words become a sentence because they are chained together. So syntagmatic relationship is the combinatorial or chain relationship. For example, **We can come tomorrow** is a sentence because in this linear arrangement of words we is correlated with **can, can** with **come** and so on. The relationship is that of Pronoun + Auxiliary Verb + Main Verb + Temporal Adverb. This relationship is restricted to certain orders. That is why **come can tomorrow we** is not a sentence. "In the syntagm a term acquires its value because it stands in opposition to everything that precedes or follows it, or to both.". In the sentence cited above **we** is not what **can** is, **can** is not what **come** is, and **come** is not what **tomorrow** is. Each of these words differ from all others.

The paradigmatic relationships are contrastive or choice relationships. Words that have something in common, are associated in the memory, resulting in groups marked by diverse relations. For example, the English word **learning** will unconsciously call to mind a host of other words—**study,**

Notes

knowledge, discipline, etc. All these words are related in some way. This kind of relationship is called associative or paradigmatic relationship. Here the co-ordinations are outside discourse, and are not supported by linearity. They are relations in absentia, and are vertical type relations. Their seat is in the brain; they are a part of the inner storehouse that makes up language of each speaker."

"Whereas a syntagm immediately suggests an order of succession and fixed number of elements, terms in associative family occur neither in fixed numbers nor in a definite order. If we associate **painful, delightful, fruitful,** etc. we are unable to predict the number of words that the memory will suggest or the order in which they will appear. A particular word is like the centre of constellation; it is the point of convergence of an indefinite number of co-ordinated terms." In a word, the paradigmatic relationship is vertical in absentia; it is a choice relationship, it operates in phonemes, words, morphemes. The syntagmatic relationship, on the other hand, is horizontal, in presentia. The dichotomy between the two can be illustrated in the following manner:

We	can	come	tomorrow	Syntagmatic relationship
He	may	go	next	PARADIGMATIC ↓
She	will	ask	soon	
You	could	sleep	now	
I	would	eat	....	
They	should	write	....	
Boys	....	....	....	
Girls	....	....	....	

Self-Assessment

1. Choose the correct option:

(*i*) Grammatical System is a ..... .

(*a*) stock of morphomes (*b*) a stock of phonemes

(*c*) stock of rules (*d*) None of these

(*ii*) Phonological system is a ..... .

(*a*) stock of rules (*b*) stock of phonemes

(*c*) stock of tones (*d*) None of these

(*iii*) The study of phonetics can be divided into ..... parts.

(*a*) two (*b*) three

(*c*) four (*d*) five

(*iv*) Phonology is the study of ..... .

(*a*) grammar (*b*) accent

(*c*) speech sounds (*d*) None of these

1.5 Summary

- Linguistics, therefore, is the science that describes and classifies languages. The linguist identifies and describes the units and patterns of the sound system, the words and morphemes, and the phrases and sentences, that is the structure of language, as completely, accurately, and economically as possible.

Notes

- The approach and methodology of linguistics is scientific. It is as inductive as a science could be, and is based on observations, formation of hypothesis, testing, verification, tentativeness and predictiveness. Like a scientist a linguist observes his data. Some of his methods of observation include simple listening, phonetic transcription, and the use of various instruments, such as oscillograph, soundspectograph, kymograph, chromograph, mingograph, laryngoscope, endoscope, sonograph, autophonoscope, breathing flask, strobolaryngoscope, electric vocal tract, pitchmeter, intensitymeter, speech stretcher, formant graphing machine, etc. Records and cassettes made in these ways help in various kinds of objective description.
- The linguist also hopes to be in position to make prediction about unobserved linguistic data on the basis of those observed, and build a general theory which would explain and relate all the facts to be found in individual languages. Predictions about grammars and dictionaries can be made by him. And finally like a true scientist, he is constantly engaged in discovering more about languages, in refining his methods of investigation, and in constructing better theories. He also tries to find out linguistic universals.
- Like any scientific discipline, linguistics too is not static. Viewpoints and theoretical methods in the field, change even in fundamental ways from time to time, and different aspects come to receive primary focus at different times. Linguistics has more than its share of unresolved controversies and unsolved questions, which is a part of its fascination and challenge.
- Finally, the closeness of Linguistics with other natural sciences like mathematics, physics, physiology, biology, zoology, etc., is another proof of its scientific nature. 'It touches on physics through acoustics, on physiology through the structure of the human vocal organs, on zoology through the comparative study of the communicative systems of living beings.' A glance on any book on transformational-generative grammar would convince any objective onlooker how linguistics is becoming more and more scientific. Furthermore, as mentioned by R. H. Robins, linguistics in its operations and statements is guided by three canons of science:
- (1) exhaustiveness, the adequate treatment of all the relevent material; (2) consistency, the absence of contradiction between different parts of the total statement, and within the limits imposed by the two preceding principles; and (3) economy, whereby, other things being equal, a shorter statement or analysis employing fewer terms is to be preferred to one that is longer or more involved. Consequently, linguistics is getting more and more technical and sophisticated every day. Yet it is not a pure science. Its position, says R. A. Hall, is between the natural and social sciences, like that of geology. To Robins it is an 'empirical science', and within the empirical sciences it is 'one of the social sciences', because its subject matter concerns human beings, and is very much different from that of natural sciences.
- Nevertheless, linguistics is the scientific study of language. It may be inductive or deductive; it is, however, objective, precise, tentative and systematic; it is concerned with reportable facts, methods, and principles; it works by means of observations, hypotheses, experiments and tests, postulates, and inferences; it makes generalization and predictions; it formulates theories; its products are descriptive, verbal or algebraic statements about language.

1.6 Key-Words

1. Synchrony : It is the study of a language in a given time.
2. Diachrony : It studies the development of languages through time.

1.7 Review Questions

1. Explain the dichotomy between
   (*i*) **Synchrony** and **Diachrony.** (*ii*) **Langue** and **Parole**.
   (*iii*) **Competence** and **Performance**. (*iv*) **Substance** and **Form**.
   (*iv*) **Syntagmatic** and **Paradigmatic Relationships**.

Notes

2. Comment on linguistic analysis and native speaker's intuition.
3. "Language is form, not substance." Discuss giving examples from English.
4. A linguist is concerned primarily with Form or Structure and only casually with the meaning. Critically examine this statement.
5. What is the Scope of Linguistics?
6. Discuss the Linguistic Levels.

Answers: Self-Assessment

1. (*i*) (*a*) (*ii*) (*b*) (*iii*) (*b*) (*iv*) (*c*)

1.8 Further Readings

1. Verma, S.K., V.N. Krishnaswamy. Modern Linguistics: An Introduction.
2. An Introduction to Linguistics, John Lyon.
3. Peter Roach: English Phonetics and Phonology. Cambridge University Press.
4. Encyclopedia of Linguistic Science Edited By V. Prakasam, Allied Pub., New Delhi.

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Unit 2: Linguistics: Branches and Tools

CONTENTS

Objectives

After studying this Unit students will be able to:

- Know Linguistics and its Other Branches.
- Discuss Types of Linguistics.

Introduction

Linguistics is the scientific study of human language. Linguistics can be broadly broken into three categories or subfields of study: language form, language meaning, and language in context. The earliest known activities in descriptive linguistics have been attributed to Panini around 500 BC, with his analysis of Sanskrit in *Ashtadhyayi*.

The first subfield of linguistics is the study of language structure, or grammar. This focuses on the system of rules followed by the users of a language. It includes the study of morphology (the formation and composition of words), syntax (the formation and composition of phrases and sentences from these words), and phonology (sound systems). Phonetics is a related branch of linguistics concerned with the actual properties of speech sounds and nonspeech sounds, and how they are produced and perceived.

The study of language meaning is concerned with how languages employ logical structures and real-world references to convey, process, and assign meaning, as well as to manage and resolve ambiguity. This category includes the study of semantics (how meaning is inferred from words and concepts) and pragmatics (how meaning is inferred from context).

Linguistics also looks at the broader context in which language is influenced by social, cultural, historical and political factors. This includes the study of evolutionary linguistics, which investigates into questions related to the origins and growth of languages; historical linguistics, which explores language change; sociolinguistics, which looks at the relation between linguistic variation and social structures; psycholinguistics, which explores the representation and function of language in the mind; neurolinguistics, which looks at language processing in the brain; language acquisition, on how children or adults acquire language; and discourse analysis, which involves the structure of texts and conversations.

Although linguistics is the scientific study of language, a number of other intellectual disciplines are relevant to language and intersect with it. Semiotics, for example, is the general study of signs and symbols both within language and without. Literary theorists study the use of language in

Notes

literature. Linguistics additionally draws on and informs work from such diverse fields as acoustics, anthropology, biology, computer science, human anatomy, informatics, neuroscience, philosophy, psychology, sociology, and speech-language patholog

2.1 Branches of Linguistics

Historical Linguistics

Historical linguists study the history of specific languages as well as general characteristics of language change. One aim of historical linguistics is to classify languages in language families descending from a common ancestor, an enterprise that relies primarily on the comparative method. This involves comparison of elements in different languages to detect possible cognates in order to be able to reconstruct how different languages have changed over time. Some historical linguists, along with non-linguists interested in language change, have also employed such tools as computational phylogenetics. The study of language change is also referred to as "diachronic linguistics", which can be distinguished from "synchronic linguistics", the study of a given language at a given moment in time without regard to its previous stages. Historical linguistics was among the first linguistic disciplines to emerge and was the most widely practised form of linguistics in the late 19th century. However, a shift in focus to the synchronic perspective began in the early twentieth century with Saussure and became predominant in western linguistics through the work of Noam Chomsky.

Semiotics

Semiotics is the study of sign processes (semiosis), or signification and communication, signs, and symbols, both individually and grouped into sign systems, including the study of how meaning is constructed and understood. Nonetheless, semiotic disciplines closely related to linguistics are literary studies, discourse analysis, text linguistics, and philosophy of language. Semiotics, within the linguistics paradigm, is the study of the relationship between language and culture. Historically, Edward Sapir and Ferdinand De Saussure's structuralist theories influenced the study of signs extensively until the late part of the 20th century, but later, post-modern and post-structural thought, through language philosophers including Jacques Derrida, Mikhail Bakhtin, Michel Foucault, and others, have also been a considerable influence on the discipline in the late part of the 20th century and early 21st century. These theories emphasise the role of language variation, and the idea of subjective usage, depending on external elements like social and cultural factors, rather than merely on the interplay of formal elements.

Semioticians often do not restrict themselves to linguistic communication when studying the use of signs but extend the meaning of "sign" to cover all kinds of cultural symbols.

Language Documentation

Since the inception of the discipline of linguistics, linguists have been concerned with describing and analysing previously undocumented languages. Starting with Franz Boas in the early 1900s, this became the main focus of American linguistics until the rise of formal structural linguistics in the mid-20th century. This focus on language documentation was partly motivated by a concern to document the rapidly disappearing languages of indigenous peoples. The ethnographic dimension of the Boasian approach to language description played a role in the development of disciplines such as sociolinguistics, anthropological linguistics, and linguistic anthropology, which investigate the relations between language, culture, and society.

The emphasis on linguistic description and documentation has also gained prominence outside North America, with the documentation of rapidly dying indigenous languages becoming a primary

Notes

focus in many university programs in linguistics. Language description is a work-intensive endeavour, usually requiring years of field work in the language concerned, so as to equip the linguist to write a sufficiently accurate reference grammar. Further, the task of documentation requires the linguist to collect a substantial corpus in the language in question, consisting of texts and recordings, both sound and video, which can be stored in an accessible format within open repositories, and used for further research.

Applied Linguistics

Linguists are largely concerned with finding and describing the generalities and varieties both within particular languages and among all languages. Applied linguistics takes the results of those findings and "applies" them to other areas. Linguistic research is commonly applied to areas such as language education, lexicography, and translation. "Applied linguistics" has been argued to be something of a misnomer[who?] since applied linguists focus on making sense of and engineering solutions for real-world linguistic problems, not simply "applying" existing technical knowledge from linguistics; moreover, they commonly apply technical knowledge from multiple sources, such as sociology (e.g., conversation analysis) and anthropology.

Today, computers are widely used in many areas of applied linguistics. Speech synthesis and speech recognition use phonetic and phonemic knowledge to provide voice interfaces to computers. Applications of computational linguistics in machine translation, computer-assisted translation, and natural language processing are areas of applied linguistics that have come to the forefront. Their influence has had an effect on theories of syntax and semantics, as modeling syntactic and semantic theories on computers constraints.

Linguistic analysis is a sub-discipline of applied linguistics used by many governments to verify the claimed nationality of people seeking asylum who do not hold the necessary documentation to prove their claim. This often takes the form of an interview by personnel in an immigration department. Depending on the country, this interview is conducted either in the asylum seeker's native language through an interpreter or in an international lingua franca like English. Australia uses the former method, while Germany employs the latter; the Netherlands uses either method depending on the languages involved. Tape recordings of the interview then undergo language analysis, which can be done either by private contractors or within a department of the government. In this analysis, linguistic features of the asylum seeker are used by analysts to make a determination about the speaker's nationality. The reported findings of the linguistic analysis can play a critical role in the government's decision on the refugee status of the asylum seeker.

Translation

The sub-field of translation includes the translation of written and spoken texts across mediums, from digital to print and spoken. To translate literally means to transmute the meaning from one language into another. Translators are often employed by organisations, such as travel agencies as well as governmental embassies to facilitate communication between two speakers who do not know each other's language. Translators are also employed to work within computational linguistics setups like Google Translate for example, which is an automated, programmed facility to translate words and phrases between any two or more given languages. Translation is also conducted by publishing houses, who convert works of writing from one language to another in order to reach varied audiences.

Description and Prescription

Linguistics is descriptive; linguists describe and explain features of language without making subjective judgments on whether a particular feature is "right" or "wrong". This is analogous to practice in other sciences: A zoologist studies the animal kingdom without making subjective judgments on whether a particular animal is better or worse than another.

Prescription, on the other hand, is an attempt to promote particular linguistic usages over others, often favouring a particular dialect or "acrolect". This may have the aim of establishing a linguistic standard, which can aid communication over large geographical areas. It may also, however, be

Notes

an attempt by speakers of one language or dialect to exert influence over speakers of other languages or dialects (see Linguistic imperialism). An extreme version of prescriptivism can be found among censors, who attempt to eradicate words and structures that they consider to be destructive to society.

Speech and Writing

Most contemporary linguists work under the assumption that spoken language is more fundamental than written language. This is because:

- Speech appears to be universal to all human beings capable of producing and hearing it, while there have been many cultures and speech communities that lack written communication
- Speech evolved before human beings invented writing
- People learn to speak and process spoken language more easily and much earlier than writing.

Nonetheless, linguists agree that the study of written language can be worthwhile and valuable. For research that relies on corpus linguistics and computational linguistics, written language is often much more convenient for processing large amounts of linguistic data. Large corpora of spoken language are difficult to create and hard to find, and are typically transcribed and written. In addition, linguists have turned to text-based discourse occurring in various formats of computer-mediated communication as a viable site for linguistic inquiry. The study of writing systems themselves is, in any case, considered a branch of linguistics.

2.2 Linguistics and Related Fields of Study

2.2.1 Linguistics and Anthropology

Broadly speaking, anthropology is the study of mankind and of culture. Its main subdivisions are physical anthropology and cultural anthropology. Linguistics is a branch of cultural anthropology. The chief contribution of cultural anthropology, as a whole, to the study of language has been the broadening of linguists' outlooks so that their horizons include, not only languages, but culture of many different types. It has helped in removing the misconception that one language is superior to the other, in accepting a generalization that all languages are complex and are adequate to the needs of the respective communities, and in establishing certain linguistic universals. It has also made clear to the linguist the fact that languages are not 'primitive,' although cultures may be primitive. Furthermore, a language is a language even if it has no writing system.

Modern linguistics, particularly in its early phases in the United States, received a great impetus from the attempts of anthropologists who studied the culture of "primitive" peoples. Linguists had to devise new ways and techniques of linguistic analysis to study the languages of these primitive races and tribes. As a result their methodologies and theories were enriched. They also stood benefited by the similarities and contrasts between those hitherto unknown languages and the known European languages. Another positive contribution of cultural anthropology to linguistics lies in the furnishing of data for the interpretation of meanings, on both the grammatical and the lexical levels.

On another level, linguistics has made a very valuable contribution to the methodology of social sciences, through the concept of the functional unit and the distinctive feature of behaviour, etc. Anthropology has benefited from linguistics in the field of individual and social group, learning process, correlation between heredity and linguistic structure, etc. The fact that man's dialect is the mirror of his culture, has also been beneficial to anthropologists and sociologists.

Now-a-days, the relationship between linguistics and anthroplogy is less close. But at the same time a new discipline called Sociolinguistics is expanding rapidly, meaning thereby that sociology and linguistics are getting closer.

2.2.2 Linguistics and Philosophy

The association between philosophy and language and linguistics and has indeed been historically very long. In fact, it were the philosophers who first of all speculated on language. Plato's *Dialogues*

Notes

have explicit reference to language, and so have the *Vedas* and the *Upanishadas* of the ancient Indians. In the field of semantics, philosophy has provided tremendous insight to the linguists. The structural linguistics ignored meaning because they thought it to be a subject of philosophy.

One of the major concerns of the Greek and Roman philosophers was to determine the nature of being and the categories into which it fell. Aristotle established three main "categories of predication," things or "substances", qualities, and actions. And the traditional concepts of parts of speech seem to have originated from there.

On the other level, metaphysical systems can only be communicated to others by the use of words in sentences constructed in language known to the philosopher and his readers or listeners. Philosophers had to coin numerous terms to communicate their metaphysical and mystical experience. Sanskrit philosophers went to the extent of equating the word with 'Brahma' (God). Some of the major features of systems of logic and metaphysics are partly determined by certain predominant features of the structure of the language used in the philosopher's community.

Yet there are deep-rooted differences between philosophy and linguistics. The philosopher's concern is with 'the uses of language for certain purposes that are common to many communities'; he is not interested in the detailed differences between languages. The linguist's concern is with 'the details of each language for its own sake', and he evolves and evaluates theories primarily to deal with particular languages. The linguist is particularly interested in the formal structuring of the sentences of a language; the philosopher is interested in the logical structure and the inferential possibilities of the propositions they express irrespective of the grammar of any particular language. Hence both these disciplines are getting remote from each other these days.

2.2.3 Linguistics and Psychology

Linguistics studies human language. Whether language is behaviour or a cognitive process or both, is still a controversial issue; yet it is well accepted that psychology is the study of human behaviour and human mind. Hence both linguistics and psychology are closely related.

Investigations and attempts to find out answers to certain fundamental questions like the following ones are likely to provide invaluable clues to the linguist: What is the principle of learning? How is language learned by a child? Does the learning of the mother or native tongue involve the same processes as the learning of a second or a foreign language? Is language-learning a result of stimulus-response, imitation, repetition and reinforcement, or of exposure? Can a child whose brain is injured in an accident, relearn a language? Does the loss of linguistic skills affect his other skills? What roles do memory, motivation, age and aptitude play in language learning? Surely the answers to such questions would help both the linguist and the scientist.

2.2.4 Linguistics and Geography

Linguistics and geography are also inter-related disciplines. The growth of a new discipline or branch called 'linguistic geography' stands as a valid evidence to prove our proposition. Geographical conditions, trees, plants, birds, animals, planes, mountains, rivers, deserts, etc. have a bearing on language. The language of the people of a thick forest with a rich store of animals may be richer in the names of trees and animals than the language of the people living in the desert. If there is little interaction between one community and another community, for example in the hilly areas, because of the obstacles created by hills and rivers, the cases of language change would be less frequent. Oceans and seas also bring a sea-change in language. The languages of India are different from the languages across the Himalayas are different from those below the Atlantics; and so are the language of other countries isolated by the oceans. The languages across the Himalayas. Languages of North India have few similarities with those of South India.

The study of the names of persons, places, temples, rivers, mountains, etc. has helped the comparative linguists in the 19th century in establishing the family-history of languages. Languages also have affected geography. Most of the states in India are framed on linguistic basis. Secession of Bangla Desh from Pakistan took place partly because of the linguistic differences. Thus, geography has been changing because of languages. All such facts are of great importance for the linguist. They help him in supporting or rejecting his hunches and in describing languages in a better way.

Notes

2.2.5 Linguistics and Literature

The relationship between linguistics and literature is like that of the hammer and the anvil. If a linguist wants to study a language like Sanskrit, he has no other source of his data but the literature of the Sanskrit language. Literary criticism and literary scholarship, together with philosophical studies, constituted a part of linguistics of Western Europe. Grammatical rules and systems of grammar were drawn up on the basis of literary works and the types of sentence structures and word forms found therein. The linguist has taken over the concepts of metres, rhymes, rhythms, stresses and intonations from literature.

As linguistics progresses in the analysis of features like stress and length, and many concomitant characteristics of utterances as yet not fully investigated or understood, in the comparison from different points of the syllable structure of language and of their words structures, and in the statement of their grammatical and colloquial patterns, linguists may expect to be able to penetrate more deeply and more delicately in making explicit the many components of language that great authors and generations of composers of oral literature have unconsciously seized on and moulded into works of literary art.

Linguists are concerned with literature because it is their business to discover wherein literary discourse differs from everyday non-literary discourse, and to investigate the role of the functors in determining the effect of literary style. A language like Sanskrit, which does not have any system of articles, is of course incapable of the particular literary effects made possible in English by the presence of the article: on the other hand, its special structural characteristics make possible its own peculiar literary effects which, say, English cannot attain. The recurrence and frequency of nasal and glottal sounds in the end positions of words in Sanskrit gives it a musical effect which is different from that of English.

The nature of language is of vital concern to the students of literature, because language is the medium in which literature is written. A creative writer is never wholly free from linguistic and cultural considerations or limitations howsoever unconscious of these he may be literally. He has to choose his structures and sounds according to the kind of aesthetic effect he wants to create. His creation is determined by the structure of the language. The structure determines what can and cannot be said in the language, just as his cultural background determines the semantic content of his work. All linguistic levels exert an influence on his creativity and on what he creates. All these factors influence his style. Word-formation can often be used as a source of particular literary effects. The Elizabethan writers were especially fond of transferring words from one form class to another, and used **happy, malice** or **foot** as verbs. It is linguistics which can scientifically explain the difficulties of translating a literary text, especially a poem. In return, it is the literary artist who enriches a language enormously, and refines it. It is he who also sets the direction of language-change by his distinct use and coinages and word-formations. Applying linguistics to the study of poetry and other forms of literature under the name of "Stylistics" is another testimony of the closeness between linguistics and literature. Among other fine arts, music is much closer to linguistics than any other branch of fine arts.

2.2.6 Linguistics and the Natural Sciences

Linguistics touches the natural sciences such as physics, physiology and zoology. Acoustics brings linguistics near physics, the structure of the human vocal organs near physiology, and the communicative systems of living beings and their comparison near zoology. A fairly detailed knowledge offered by these sciences about how soundwaves are framed, transmitted and received, what are the organs and articulatory processes involved in the production of speech, are of immense help to the linguist. On the basis of such information he classifies sounds, and determines their characteristics. Physiology provides him knowledge about brain and the central nervous system.

A general connection between biology and zoology and linguistics lies in the relation of human language to the communicative systems of animals. Such comparative studies have helped linguists

Notes

in finding out the history of human language. Is man an ape that can do a little better? Is there any difference between human communication system and animal communication? If there is any difference, what is the nature of this difference? Do animals have brain? Answer to questions like these can be found out through collaboration between the biologist and the linguist.

Language is speech uttered out of mouth. Hence the answers to questions like—how are sounds produced? How does the wind come out of the lungs through the windpipe to the vocal cords to pass through the mouth or nasal passage? How do various speech organs such as vocal cords, soft palate, tongue, teeth, lips, etc. affect the sound?—are of primary interest and investigation for the linguist. He can find out answers to such questions from the biologist.

Science has contributed a great deal to the methodology of linguistics. It has formalized it; it has made it much more rigorous, objective and scientific. It has helped the linguist to describe language too. Yet in its methodology, linguistics is 'intermediate' between the natural and social sciences. This is because of the subject matter of linguistics which is complicated and full of many variables. Predictions of the linguist are not exactly like those of the natural scientist. Linguistics may, therefore, be compared with geology rather than with chemistry or physics in matter of approach and methodology.

2.2.7 Linguistics and Logic and Mathematics

Like philosophers, mathematicians and logicians are also interested in finding out what the fundamental entities of language are, what operations are performed, what relations exist between such entities in a proposition, what the rules of formation and transformation of these propositions are, and how universal the validity of these proposition is. Answers to such questions and the logical structure of the sentences of a language have also been a matter of interest and investigation for linguists. Transformational-Generative grammar of Chomsky is a chemical mixture of linguistics, logic, mathematics and psychology.

Whereas logic is mainly interpretative and explanatory, linguistics is mainly descriptive. Yet mere descriptions do not help the linguist; he needs explanatory adequacy too. This he can get from logic. Similarly logic is also indebted to linguistics. It is carried on with the help of language, hence it has to keep a sharp scientific eye on the use of words and sentences.

2.2.8 Linguistics and Communications Engineering

Linguistics can help the communications engineer in understanding the linguistic nature of his material to be transmitted. The linguist can also help us to estimate the value of the different phonetic components in the sound wave which result from successive speech articulations, and their localization into different band of frequencies.

Communications Engineering is concerned with the transmission of speech as such by wire and radio waves, and conversion of linguistic signals into written message.

Mechanical analysis of speech by instruments such as spectograph, taperecorder, gramophone, radio, television, telephone may help a linguist a great deal. For example, Charles Fries studied American living usage by bugging telephones. All these are the gifts of communications engineering.

Invention of 'machine translation' is the work of the linguist-engineer. Further linguistic analysis, semantic, collocational, and grammatical that is involved in the process of translation, may make this machine more useful and applicable than it is in its present form.

Linguistics is a developing science these days. It is achieving a significant position in various ways. Further linguistic researches may open new avenues for the application of linguists. The speech therapist, the language teacher, the literary artist, the psychologist, the neurologist, the historian, the anthropologist, the sociologist, the geographer, the palaeographist, the missionary,

Notes

the philosopher, the communications engineer have professional need to know something about language as opposed to simply being able to use it. For all these people, and for others who apply linguistics to their field of activity, the knowledge of linguistics is a means, but for a group of specialists, knowing about language it is an end in itself.

2.3 Types of Linguistics

Linguistics and Other Branches of Knowledge

Keeping in view the interdisciplinary relationship between Linguistics and other branches of knowledge with which it is associated, David Crystal has explained various types of linguistics, each type named after the branch of knowledge with which it is connected or on whose method and concepts it bases its conclusions. These types, as enumerated by Crystal (in his monumental work *The Cambridge Encyclopaedia of Language*, The Camb. Univ. Press, 1987.) are as follows:

1. **Apthropological Linguistics:** The study of language variation and use in relation to the cultural patterns and beliefs of the human race, as investigated using the theories and methods of anthropology.
2. **Applied Linguistics**: The application of linguistic theories, methods, and findings to the elucidation of language problems that have arisen in other domains. The term is especially used with reference to the field of foreign language learning and teaching, but it applies equally to several other fields, such as stylistics, lexicography, translation, and language planning, as well as to the clinical and educational fields below.
3. **Biological Linguistics:** The study of the biological conditions for language development and use in human beings, with reference both to the history of language in the human race and to child development.
4. **Clinical Linguistics:** The application of linguistic theories and methods to the analysis of disorders of spoken, written, or signed language.
5. **Computational Linguistics:** The study of language using the techniques and concepts of computer science, especially with reference to the problems posed by the fields of machine translation, information retrieval, and artificial intelligence.
6. **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.
7. **Ethnolinguistics**: The study of language in relation to ethnic types and behaviours, especially with reference to the way social interaction proceeds.
8. **Geographical Linguistics**: The study of the regional distribution of languages and dialects, seen in relation to geographical factors in the environment.
9. **Mathematical Linguistics:** The study of the mathematical properties of language, using concepts from such fields as algebra, computer science, and statistics.
10. **Neurolinguistics**: The study of the neurological basis of language development and use in human beings, especially of the brains control over the processes of speech and understanding.
11. **Philosophical Linguistics:** The study of the role of language in the elucidation of philosophical concepts, and of the philosophical status of linguistic theories, methods, and observations.
12. **Psycholinguistics**: The study of the relationship between linguistics behaviour and the psychological processes, (e.g. memory, attention) thought to underline it.
13. **Sociolinguistics**: The study of the interaction between language and the structure and functioning of society.
14. **Statistical Linguistics**: The study of the statistical or quantitative properties of language.
15. **Theolinguistics:** The study of the languages used by biblical scholars, theologians, and others involved in the theory and practice of religious belief.

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2.4 Descriptive, Historical and Comparative Linguistics

General linguistics includes a number of related subjects involved in the study of language as understood in the preceding paragraphs. General linguistics can broadly be divided into three sub-divisions **descriptive linguistics, historical linguistics** and **comparative linguistics.**

1. **Descriptive linguistics** is concerned with the description and analysis of the ways in which a language operates and is used by a given set of speakers at a given time. The time may be present. The time may equally well be the past, where adequate written records are available. Nor is the descriptive study of a particular language concerned with the description of other languages at the same time. Descriptive linguistics is often regarded as the major part of general linguistics, and certainly the fundamental aspect of the study of language.
2. **Historical linguistics** is the study of developments in languages in the course of time. It is the diachronic study of the language. It studies language change, and the causes and results of such changes as have occurred from time to time.
3. **Comparative linguistics** is concerned with comparing from one or more points of view two or more different languages. Comparative linguistics traces the evolution of language and, by comparing one with another, establishes the relationships between them. This comparison is generally done between the languages which are genetically related, that is, those that have developed from some common source.

Comparative and historical linguistics may be said to have begun in 1786, the date when Sir William Jones made the famous statement pointing out that Greek, Latin, Sanskrit, Celtic and Germanic appeared to have sprung from a common source. The old name for the subject was **Comparative Philology**.

Self-Assessment

1. Choose the correct options:

(*i*) Linguistic have been attributed to Panini around ..... .

(*a*) 500 B.C. (*b*) 400 B.C. (*c*) 450 B.C. (*d*) none of these

(*ii*) Ethnolinguistics is the study of language relating to ..... .

(*a*) ethnic types and behaviour (*b*) geographical factors

(*c*) language development (*d*) none of these

(*iii*) Theolinguistics is the study of language deals with ..... .

(*a*) speech sounds (*b*) social interactions (*c*) religious beliefs (*d*) none of these

(*iv*) Comparative and historical linguistics may be said to have begun in ..... .

(*a*) 1785 (*b*) 1786 (*c*) 1790 (*d*) 1760

2.5 Summary

- Linguistics also looks at the broader context in which language is influenced by social, cultural, historical and political factors. This includes the study of evolutionary linguistics, which investigates into questions related to the origins and growth of languages; historical linguistics, which explores language change; sociolinguistics, which looks at the relation between linguistic variation and social structures; psycholinguistics, which explores the representation and function of language in the mind; neurolinguistics, which looks at language processing in the brain; language acquisition, on how children or adults acquire language; and discourse analysis, which involves the structure of texts and conversations.
- Although linguistics is the scientific study of language, a number of other intellectual disciplines are relevant to language and intersect with it. Semiotics, for example, is the

Notes

general study of signs and symbols both within language and without. Literary theorists study the use of language in literature. Linguistics additionally draws on and informs work from such diverse fields as acoustics, anthropology, biology, computer science, human anatomy, informatics, neuroscience, philosophy, psychology, sociology, and speech-language patholog

- Historical linguists study the history of specific languages as well as general characteristics of language change. One aim of historical linguistics is to classify languages in language families descending from a common ancestor, an enterprise that relies primarily on the comparative method.
- Semiotics is the study of sign processes (semiosis), or signification and communication, signs, and symbols, both individually and grouped into sign systems, including the study of how meaning is constructed and understood.
- Since the inception of the discipline of linguistics, linguists have been concerned with describing and analysing previously undocumented languages. Starting with Franz Boas in the early 1900s, this became the main focus of American linguistics until the rise of formal structural linguistics in the mid-20th century. This focus on language documentation was partly motivated by a concern to document the rapidly disappearing languages of indigenous peoples.
- Linguists are largely concerned with finding and describing the generalities and varieties both within particular languages and among all languages. Applied linguistics takes the results of those findings and "applies" them to other areas. Linguistic research is commonly applied to areas such as language education, lexicography, and translation.
- Broadly speaking, anthropology is the study of mankind and of culture. Its main subdivisions are physical anthropology and cultural anthropology. Linguistics is a branch of cultural anthropology. The chief contribution of cultural anthropology, as a whole, to the study of language has been the broadening of linguists' outlooks so that their horizons include, not only languages, but culture of many different types.
- The association between philosophy and language and linguistics and has indeed been historically very long. In fact, it were the philosophers who first of all speculated on language. Plato's *Dialogues* have explicit reference to language, and so have the *Vedas* and the *Upanishadas* of the ancient Indians. In the field of semantics, philosophy has provided tremendous insight to the linguists.
- Linguistics studies human language. Whether language is behaviour or a cognitive process or both, is still a controversial issue; yet it is well accepted that psychology is the study of human behaviour and human mind. Hence both linguistics and psychology are closely related.
- Linguistics and geography are also inter-related disciplines. The growth of a new discipline or branch called 'linguistic geography' stands as a valid evidence to prove our proposition. Geographical conditions, trees, plants, birds, animals, planes, mountains, rivers, deserts, etc. have a bearing on language.

2.6 Key-Words

1. Clinical Linguistics	:	The application of linguistic theories and methods to the analysis of disorders of spoken, written, or signed language.
2. Computational Linguistics	:	The study of language using the techniques and concepts of computer science, especially with reference to the problems posed by the fields of machine translation, information retrieval, and artificial intelligence.
3. 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.

Notes

2.7 Review Questions

1. What is linguistics?
2. Comment on the scope of linguistics.
3. What do you understand by the structure of language?
4. What are the main aspects of linguistics?
5. In what ways has linguistics benefited from the insights offered by scholars in other disciplines?
6. What kind of challenges and opportunities does the linguist find in carrying on his work in India?
7. What do you understand by the following:
   (*i*) Phonology (*ii*) Morphology
   (*iii*) Syntax (*iv*) Semantics
8. Describe how exposure to linguistics helps an anthropologist, a psychologist, a philosopher, a sociologist and a logician.

Answers: Self-Assessment

1. (*i*) (*a*) (*ii*) (*a*) (*iii*) (*c*) (*iv*) (*b*)

2.8 Further Readings

1. Verma, S.K., V.N. Krishnaswamy. Modern Linguistics: An Introduction.
2. An Introduction to Linguistics, John Lyon.
3. Peter Roach: English Phonetics and Phonology. Cambridge University Press.
4. Encyclopedia of Linguistic Science Edited By V. Prakasam, Allied Pub., New Delhi.

Notes

Unit 3: Brief History of the Growth of Modern Linguistics: Bloomfield to Chomsky

CONTENTS

Objectives

After studying this Unit students will be able to:

- Know the History of the Growth of Linguistics.
- Discuss Linguistics from Bloomfield to Chomsky.

Introduction

Linguistics is the study of language, sometimes called the science of language. {1} The subject has become a very technical, splitting into separate fields: sound (phonetics and phonology), sentence structure (syntax, structuralism, deep grammar), meaning (semantics), practical psychology (psycholinguistics) and contexts of language choice (pragmatics). {2} But originally, as practised in the nineteenth century, linguistics was philology: the history of words. {3} Philologists tried to understand how words had changed and by what principle. Why had the proto-European consonants changed in the Germanic branch: Grimm's Law? Voiceless stops went to voiceless fricatives, voiced stops to voiceless stops, and voiced aspirates to voiced stops. What social phenomenon was responsible? None could be found. Worse, such changes were not general. Lines of descent could be constructed, but words did not evolve in any Darwinian sense of simple to elaborate. One could group languages as isolating (words had a single, unchanging root), agglutinizing (root adds affixes but remains clear) and inflecting (word cannot be split into recurring

Notes

units), but attempts to show how one group developed into another broke down in hopeless disagreement.

Ferdinand de Saussure (1857-1913)

So linguistics might have ended: documenting random changes in random directions. But that was hardly a science, only a taxonomy. When therefore Ferdinand de Saussure tentatively suggested that language be seen as a game of chess, where the history of past moves is irrelevant to the players, a way though the impasse was quickly recognized. Saussure sketched some possibilities. If the word high-handed falls out of use, then synonyms like arrogant and presumptuous will extend their uses. If we drop the final f or v the results in English are not momentous (we might still recognize belie as belief from the context), but not if the final s is dropped (we should then have to find some new way of indicating plurals).

Saussure's suggestion was very notional: his ideas were put together by students from lecture notes and published posthumously in 1915. But they did prove immensely fruitful, even in such concepts as langue (the whole language which no one speaker entirely masters) and parole (an individual's use of language). Words are signs, and in linguistics we are studying the science of signs: semiology. And signs took on a value depending on words adjacent in use or meaning. English has sheep and mutton but French has only mouton for both uses. Above all (extending the picture of a chess game) we should understand that language was a totality of linguistic possibilities, where the "move" of each word depended on the possible moves of others.

A word (sign) was a fusion of concept (signified) and sound-image (signifier) the two being somehow linked as meaning in the mind. Both signifieds and signifiers independently played on their own chess board of possibilities — i.e. they took up positions with regard to other pieces, indeed owed their existence to them. Though championed by the Structuralists, this theory of semantics was a disastrous one, raising the problems recognized by linguistic philosophy. But that was not Saussure's fault. He was not a philosopher, but a philologist, one whose simple idea, though much anticipated by Michel Breal and perhaps Franz Boas, largely recast linguistics in its present form.

Saussure had a theory of meaning. He envisaged language as a series of contiguous subdivisions marked off on the indefinite planes of ideas and sounds.

3.1 Traditional Grammar

The Greeks and the Indians are the first to have started speculations about language and contributed tremendously to linguistic studies. In the words of John Lyons, "Traditional grammar, like so many other of our academic traditions, goes back to Greece of the fifth century before Christ. For the Greeks 'grammar' was from the first a part of 'Philosophy'. That is to say, it was a part of their general inquiry into the nature of the world around them and of their own social institutions" (*Introduction to Theoretical Linguistics*,). Bloomfield has also said that linguistics derives from the speculations of ancient and medieval philosophers.

3.1.1 'Naturalists' and 'Conventionalists'

A beginning of what is known now as 'traditional grammar' was made by the Greeks with discussions on the origin of language. The Greek philosophers debated whether language was governed by 'nature' or 'convention'.

The naturalists like Plato believed that there was by nature a correct name for everything. They pointed out that a number of words had the quality onomatopoeia, and the others had a 'natural' connection with their meaning, by reference to one or more of their constituent sounds. They maintained that every word contained a sound which was 'naturally' appropriate to its meaning.

Notes

The conventionalists refuted this theory. They asserted that the names of things were due purely to convention and had no deep appropriateness.

This dispute is discussed at length in Plato's *Cratylus*. The importance of this controversy is that it gave rise to 'etymological' investigations. It was Plato again who first of all began grammatical analysis and distinguished between nouns and verbs.

3.1.2 'Analogists' and 'Anomalists'

The early debate between the 'naturalists' and 'conventionalists' with exclusive reference to the Greek language merged later in a more far-reaching controversy between the 'analogist' and 'anomalist' theories of language, to some extent championed respectively by Aristotle and Stoic philosophical schools. Those who maintained that language was essentially systematic and regular are generally called 'analogists', and those who took the contrary view, are referred to as 'anomalists'. The analogists emphasized the regularities of grammatical structures and word forms, and the parallels between grammatical forms, word meanings, as constituting the essence of language and the direction in which standards of correctness should be sought, and tended to take up a 'conventional' attitude towards language itself. The anomalists stressed the numerous irregular forms in grammatical paradigms, and 'anomalous' associations of plural number with singular entities, genders divorced from any sex reference, and the like, and leaned more towards the naturalist 'view of language, accepting its anomalies as they stood.' The anomalists were of the opinion that the relationship between the form of a word and its meaning was frequently 'anamalous'. The anomalists also said that language, a product of 'nature', was only partly susceptible to description in terms of analogical patterns of formation and that due attention had to be given to 'usage'.

The controversy contributed to the study of language by drawing attention to the analogies and anomalies, regularities and irregularities of the language. Both the theories contributed to the systematization of grammar. It was in the course of this controversy that the patterns of Greek grammar were first worked out and codified, subsequently to be taken over and applied to Latin by the Latin grammarians, and thence to form the basis of traditional grammatical theory and language teaching throughout Europe.

3.1.3 Alexandrian Period

The manuscripts of the authors of the past, especially of the Homeric period were edited and re-edited. While deciding between genuine and spurious works, and publishing commentaries on the texts and grammatical treatises, the scholars at Alexandria produced competent grammars of Greek in which tense, mood, case, gender and other traditional categories were fully dealt with. The most famous is the grammar of Dionysius Thrax, written in the second century B.C. Most traditional grammars of Greek are the contributions of the Alexandrian scholars.

At the beginning of the third century B.C. in the Hellenistic era, Alexandria in the Greek colony became the centre of intense literary and immense linguistic study, because a great library was established there.

3.1.4 Greek Grammar

Grammarians dealt with many of the topics that fall within the linguistic study of language today, though they concerned themselves almost exclusively with their own language, and within it, with the dialects used in literature, particularly Homeric and Attic Greek. Phonetics, grammar and the analysis of meaning were all treated, but by far the greatest attention was paid to grammar'.

Notes

Some groundwork on Greek phonology was done: phonetic observations were made on the pronunciation values of the letters of the Greek alphabet and on the accent signs, and some theory of the syllable as the structural unit was developed. But no very penetrating observations in the field of phonetics were made.

The period between 3rd century B.C. and 2nd century A.D. is the golden period of Greek Grammar.

Within grammar morphology held a place of pride, and word-classes (parts of speech) were established in great detail. The number went up to eight (noun, verb, pronoun, participle, adverb, preposition, conjunction, article) in the Greek grammar of Dionysius Thrax which is regarded by the scholars as the best grammar of Greek. The work of the grammatical description of Greek was carried out some three centuries later, less systematically however, by Apollonius Dyscolus (second century A. D.).

3.1.5 The Roman Period

In linguistic studies, the Romans were content largely to model themselves on Greek patterns. They copied the Greeks slavishly in all aspects of the linguistic scholarship. Grammars of Latin were fitted in a Greek framework. In dealing with the 'parts of speech' the Latin grammarians made only such minor modifications as the differences between Greek and Latin forced to their attention. They, however, encouraged the view that the parts of speech, case, number, tense, etc. were universals and necessary categories of language.

The most famous Latin grammars are those by Donatus (c. 440 A.D.) and Priscian (c. 500 A.D.) which were used as standard text books as late as the Middle Ages. The period of Latin grammatical scholarship, like the Alexandrian period, was an age of classicism. The grammars of Donatus and Priscian set out to describe not the language of their own day, but that of the 'best writers', especially Cicero and Virgil, and thus perpetuated what is called the 'classical' fallacy in the approach to linguistic description. The Roman grammars like their ancestors, the Greek Grammars, cherished the misconception that only the language of the best writers was the best language, and that the purity of the language must be maintained at all costs.

Priscian grammar is comprehensive and runs in eighteen volumes. Priscian models himself on Thrax and Apollonius.

3.1.6 The Medieval Period

Since Latin occupied an important place in the educational system during the Medieval period throughout Europe, Latin grammars went on influencing the total infrastructure of thought. Latin was not only the medium of education but also the language of diplomacy, scholarship, church, and culture. Consequently a large number of manuals were written on Latin grammar to help the foreign learners in acquiring a fairly masterly knowledge of Latin. Most of these were based on Priscian and Donatus.

In the Middle Ages, a number of scholars known collectively as the **Modistate** or **speculative grammarians**, made the most notable contribution to the study of language. Latin grammar was integrated into a comprehensive scholastic theory of language, itself forming part of a scholastic philosophical system. The grammarians of this age, inspired by the scholastic ideals of science as a search for universal and invariant causes, deliberately attempted to derive the categories of grammar from the categories of logic, epistemology and metaphysics; or rather, to derive the categories of all the four sciences from the same general principles.

The name 'Modistae' was attached to them as they produced numerous works entitled *De Modis Significandi* 'concerning the ways of signifying'. Their other name, the speculative grammarians, is from the Latin word **Speculum** 'mirror'. It arose from the assumption that language in some way

Notes

reflects a reality which underlies the physical world of objects. Their prime concern was to find out the nature of the relationship between words and this reality. Such a belief prompted them to the search for universals in grammar, on the assumption that all grammars are basically the same and only differ superficially. (This view has been revived recently, especially by Chomsky and is one of the most controversial topics in the study of linguistics now-a-days). The speculative grammarians held that all languages have words for the same concepts and all languages manifest the same parts of speech and other general grammatical categories.

3.1.7 The Renaissance and After

The era of discovery and exploration brought new knowledge about the languages of the world. Travellers and missionaries wrote grammars and dictionaries of languages they found in America, Africa and other parts of the world. Latin, Greek, Hebrew and Arabic, however, formed the main body of interest. The Renaissance scholars thought that they were making a radical break with the scholastic tradition of the Middle Ages. Scholars like Petrarch ridiculed the language of the schoolmen for its 'barbarism', and made Cicero their model and ideal in usage, style and humanism, holding that humanism was identical to 'civilization' as opposed to 'Barbarism'. Believing that the literature of classical antiquity was the source of all civilized values, they concentrated their energies upon the collection and publication of the texts of the classical authors. Once again grammar became an aid to understanding of literature and to the writing of 'good' Latin. Erasmus himself (in 1513) published a work on Latin syntax based on Donatus. The vernacular languages of Europe also attracted the attention of the scholars. There were grammars of Irish, Icelandic, Provencal and French in the field. Yet the classical tradition continued to dominate the scene. Language still meant the language of literature.

3.1.8 The 17th Century

The ideals of 'speculative' grammar were revived in France in the seventeenth century by the teachers of Port Royal. A celebrated French grammar *Grammair general et raisonne* written by C. Lancelot and A. Arnauld—popularly known as the Port Royal Grammar—was published in the year 1660. 'Lancelot and Arnauld seem to have anticipated some of the trends we notice in the writings of the transformational-generative school of Noam Chomsky. The Port-Royal grammarians are logicians who examined the structure of language. Their writings emphasize the universal nature of the (logical) form of sentences, of linguistic capabilities and of grammatical categories.'

Through the Renaissance, grammar continued to uphold the classical tradition. It remained the art of speaking and writing correctly; its object was to discover the relations existing between the elements of language, whether the relations be 'natural' or 'conventional;' the grammarian's task was to describe 'good usage' and prescribe rules: it was a prescriptive and authoritative grammar.

3.1.9 The 18th Century

The eighteenth century was a period of grammars in the classical tradition and of dictionaries. All linguistic attempts were imitative, authoritarian and prescriptive (although original work was being initiated in comparative linguistics). The major works of this period are Dr. Johnson's Dictionary, James Harris's A *Philosophical Enquiry Concerning Universal Grammar* (1751), Joseph Priestley's *The Rudiments of English Grammar* (1761), Robert Lowth's *A Short Introduction to English Grammar* (1762), Lindley Murray's *English Grammar* (1795).

3.1.10 The 19th and 20th Centuries

At the end of the eighteenth century a new and highly important stream entered European linguistic scholarship. It was from India in two forms: (1) the discovery of Sanskrit, and (2) its indisputable relationship with the major language groups of Europe. It was a period of comparative and historical linguistics. Its great contribution was to the development of articulatory phonetics. In Europe general linguistics of the modern period largely grew out of the nineteenth century comparative and historical studies, especially those dealing with American-Indian communities. Britain contributed immensely in the field of phonetics, the British tradition being reinforced by the Indian tradition. At the end of the nineteenth century A.D. and the first half of the twentieth

Notes

century, Sweet and Jones were among the pioneers of modern phonetics, and the latter contributed to a great extent to the development of the phoneme theory Among others, we must mention Saussure, Trubetzkoy, and Meillet in Europe, Sapir.Bloomfield, Harris, and Chomsky in America, and Firth and Halliday in Britain. Linguistics now has become inter-disciplinary, extremely wide and complex and kaleidoscopic in character.

3.2 The Geneva School

The leader and pioneer of this school was Saussurre who will be discussed below. In general, the supporters of this school have tried to remain whole-heartedly loyal to the teaching and spirit of Saussure. For a long time the leaders were Charles Bally and A. Sechehaye, who had assumed the responsibility of publishing the *Course*. Bally, who tackled the difficult problem of the relationship between thought and its linguistic expression, renewed the study of stylistics by defining it as the study of the effective elements of language and by devoting his attention to the deviations that individual usage (parole) imposes on the system (langue). His work is remarkable for strict logic and care. Schehaye applied himself to constructing a grammatical method (the psychological analysis of thought) that would introduce Saussurian concept effectively into the field of teaching. Henri Frei is known as the promotor of functional linguistics.

The major concern of the linguistics of this school was the classification and interpretation of the principles of the *Course*.

3.2.1 Ferdinand de Saussure

The credit for bringing a revolution in the field of linguistics goes to the Swiss scholar Ferdinand de Saussure. At the age of twenty, while still a student at Leipzig, he left his linguistic imprint by publishing his monumental treatise on the Proto-Indo-European vocalic system. He studied under the neogrammarians Orthoff and Leiskien, yet refuted their atomistic approach to linguistics. He attempted to frame a coherent theory of linguistic science. In his work he was influenced by Brugmann, naturalistic philologist Schleicher, Geo-linguist Gillen, Whitney, and the Kazaan school of linguistics, etc.

Saussure is the founder of modern linguistics, the father of Structural Linguistics which came to be called descriptive linguistics also.

Sassure knew many languages—Sanskrit, Greek, Latin, Swiss, French, Old German, etc. At Paris, where he taught Sanskrit for ten years from 1881 to 1891 and served as secretary of the Linguistic Society of Paris, his influence on the development of linguistics was decisive. Later on he accepted the Chair of Linguistics at the University of Geneva where he taught linguistics between 1906 and 1911.

His Course de linguistique generate, (hereafter the *Course*) was published in 1916, three years after his death, from his lecture notes by his two students—Charles Bally (1865-1947) and Albert Sechehaye (1870-1946). Although, Saussure has about 600 pages on linguistics to his credit, yet his main work is the *Course*. It is this book that marks the beginning of modern linguistics and tries to study language synchronically for its own sake.

Saussure introduced the following notions in linguistics:

1. Synchronic and diachronic
2. Language, Langue and Parole
3. Linguistic Sign
4. Linguistic Value
5. Syntagmatic and Paradigmatic.

Notes

Saussure's Theory of Linguistic Sign

Saussure mentions, "Some people regard language, when reduced to its elements, as a naming-process only—a list of words, each corresponding to the thing that it names". This conception assumes that "ready-made ideas exist before words..., it does not tell us whether a name is vocal or psychological in nature..., finally, it lets us assume that the linking of a name and a thing is a very simple operation—an assumption that is anything but true." It is this assumption that makes him regard language as "a system of sign in which the only essential thing is the union of meanings and sound images and in which both parts of the sign are psychological".

Saussure's sign is a two-sided psychological entity whose components are concept and sound image. In other words a 'sign' is a union of **signified** (concept) and **signifier** (sound-image). To speak more neatly, a sign is a wedding union of content and expression. The linguistic sign to Saussure is the basic unit of communication; a unit within the **langue** of the community. Being a relationship, and part of **langue**, it is thus a mental construct, a 'concrete entity'. Concepts, according to him, could not exist prior to words.

The linguistic sign has two primordial characteristics—**arbitrariness** and **immunity**. For example, the signified (the concept of a dog) has different signifiers (sound-images) in different languages—'**dog**' in English, 'kutta' in Hindi, 'swan' in Sanskrit 'nai' in Kannada, 'kukka' in Telugu, 'kukkar' in Bengali, etc.

This signifier is handed over to us by convention or custom. Hence it is unchangeable or immutable. The signs are multiple in numbers; their system is quite complex and can be grasped only through reflection.

It is on the basis of the linguistic sign that Saussure recalls the study of language 'semiology' (from Greek **Semeion** 'sign'). He says, "A science that studies the life of signs within society is conceivable; it would be a part of social psychology and consequently of general psychology...Linguistics is only a part of the general science of seminology..."

Though the signs are the concrete entities of linguistics, yet they exist "only through the associating of the signifier with the signified...considered independently. Concepts like "house", "white", "see", etc. belong to psychology. They became linguistic entities only when associated with sound images; in language, a concept is a quality of its phonic substance just as a particular slice of sound is a quality of the concept'. Linguistics then works in the borderline where the elements of sound and thought combine; their combination produces a form, not a substance.

Saussure's Theory of Associative Value

Saussure attributed to each linguistic sign a 'value' which is determined by its relationship within the total vocabulary in a language. For example, in French only one word **mouton** signifies two concepts—one that of the four legged animal sheep and the other that of the cooked meat. But English has two different signs for these two: **sheep** and **mutton**. Hence the French word, **mouton**, though having the same signification as English **sheep**, has a different value. It can signify two concepts, whereas the English word signifies only one concept.

The value of each word, according to Saussure, is determined by its opposition to other words. Values in writing function only through reciprocal opposition within a fixed system which consists of a set number of letters. It is this interdependence among the values of words which transform them all into a uniform language system, and that which pertains to the content of words, pertains to their form as well. "It is not sound in themselves which give words their meaning, but phonetic differences enabling us to distinguish a given word from all others—for it is with these phonetic differences that meaning is connected."

Saussure applied his principle of values not only to the conceptual but also the material aspects of language. Just as the conceptual value of the sign is determined by its relation to all the other signs in the language, that is, by its environment, so are the sounds characterized, not, as one might think, by their own positive quality but simply by the fact that they are distinct. Language, according to Saussure, is simply the functioning of linguistic oppositions; these oppositions yield a pattern of relationships the study of which constitutes linguistics.

Notes

Each one of the units of a system is thus defined by **relations** which it maintains with the other units and by the oppositions into which it enters. Thus the idea that the data of a language have value in themselves and are objective "facts", absolute entities susceptible of being considered in isolation, was abandoned. In reality, linguistic entities can be determined only within the system that organizes and governs them, and in terms, of each other. They have no value except as elements in a structure. It is first the system which has to be isolated and described. Thus a theory of language as a system of signs and as arrangement of units in a hierarchy was worked out by Saussure, replacing the positivist notion of the linguistic **fact** by that of **relationship**.

Saussure's Contribution

Saussure's contribution in the field of linguistics is of great significance. His name is revered and respected along with the names of Panini, Bloomfield and Chomsky. He revolutionized linguistics, made it descriptive and structural, gave it a methodology and objectivity and brought it out of the rut it had fallen in. He is, indeed, one of the greatest theoreticians of the new era of linguistics. It was he who first of all emphasized repeatedly the importance of viewing language as a living phenomenon (as against the historical view) of studying speech (as opposed to written texts), of analysing the underlying system of a language in order to demonstrate an integral structure (in place of isolated phonetic tendencies and occasional grammatical comparisons), and in placing language firmly in its social milieu (as opposed to seeing it solely as a set of physical features). The tradition of study which has grown up around Saussure, has been to extract various theoretical dichotomies from his work and to concentrate on the clarification of these.

Saussure's great service to the study of language lies in a series of rigorous distinctions and definitions which he made concerning the nature of language. Though a historical linguist in the beginning, he detached himself from the tradition of linguistics as a purely historical study.

Following Saussure, linguists discovered that language forms a system: that it is a systematic arrangement of parts; and that it is made up of formal elements put together in variable combinations, according to certain principles of structure. It was the Saussurean emphasis on syntagmatic relationship in structure which was taken as the keynote of a number of theories of language thereafter, and which underlines many other linguistic approaches to language today, though their terminology sometimes differs considerably from that found in Saussure. His *Course* established language on the plane of universal terminology. The Saussurian distinction between **langue** and **parole** was the first germ of what has developed into a new branch of linguistics, phonology, the theory of the distinctive functions of phonemes and of the structure of their relationships. When they found it, N. Trubetzkoy and R. Jakobson expressly recognized Saussure (as well as Baudovin de Courtenay) as their precursor. Even Chomsky's notion of competence and performance owes a great deal to Saussure's notion of langue and parole.

Influence of Saussure

The structuralist trend which emerged in 1928, and which was soon to assume major importance, owes its origin to Saussure. Bloomfield gave a very laudatory review of the *Course*, and said that Saussure "has given us the theoretical basis for a science of human speech." A. Meillet and M. Grammout were profoundly influenced by him. Meillet regretted Saussure's untimely passing away without finishing the work he had begun, and said: "After more than thirty years, the ideas expressed by Ferdinand de Saussure in his early work have not exhausted their vitality" (quoted by Beneveniste). Louis Hjelmslev's 'glossematics' is often reminiscent of Saussure's system.

Influenced partly by Saussure and partly by Lady Welby's campaign to improve language, Ogden and Richards published a survey of opinions about meaning, called *The Meaning of Meaning* in 1923.

Saussure's studies of values were later expanded into techniques for determining not only the limit that set off a given signification, but were equally helpful in structuring the entire vocabulary into semantic units. His proposals have been found useful in present day information theory too. Linguistic-field theory was also influenced by Saussure. The Linguistic Circle of Geneva produced a considerable amount of work, particularly on the more 'social' aspects of Saussure's thinking.

Notes

Other 'schools' based on the linguistic circles of Copenhagen and Prague in particular went in different directions, but owed much to Saussure's original ideas. British linguistics was also influenced by Saussurean notions, although less directly. And it is largely on account of Saussure that the idea of **structuralism** achieved the status which was to make it the major linguistic theme of the next thirty years. As mentioned by Waterman, "Saussure's influence upon subsequent linguistic theory has understandably been of major importance. Indeed, in the Western world at any rate, all hues of structuralism have come under his influence.'

Saussure's fountain principle is his notion of double entity. It is the core of his doctrines. It is from this principal notion that all other notions and distinctions of the *Course* and other works of linguistics emerge. Saussure succinctly considers human speech always in terms of double entity, formed of two parts of which the one has no value without the other. Everything in the language can be defined in double terms: bears the imprint and seal of an opposing duality:

— the articulatory and the acoustical duality;

— the duality of sound and sense;

— the duality of the individual and the society;

— the duality of langue and parole;

— the duality of the material and the immaterial;

— the duality of the syntagmatic and the paradigmatic;

— the duality of sameness and opposition;

— the duality of the synchronic and the diachronic, etc., etc.

Lastly the following two statements from Benvensite will reflect Saussure's contribution:

A forerunner in doctrines which in the past fifty years have transformed the theory of language, he has opened up unforgettable vistas on the highest and most mysterious faculty of man. At the same time, in placing on the horizon of science and philosophy the notion or "sign" as a bilateral unit, he has contributed to the advent of formal thought in the sciences of society and culture and to the founding of a general semiology.

and again there is no linguist today who does not owe him something. There is not a single general theory which does not mention his name.

3.3 The Copenhagen School

The greatest contribution of this school is GLOSSEMATICS, which is often described as the study that is "de Saussure taken to his logical conclusions" since it takes seriously the dictum that language is a form, not a substance. It is an approach to language developed by L. Hjelmslev (died in 1965) and associates at the linguistic circle of Copenhagen in the mid thirties. The linguists of this school wanted to develop a theory of language applicable to all languages.

Glossematics, which aims at making linguistic science fully independent of subjective appraisal, seeks to establish a kind of algebra of language, i.e. a net work of definitions forming a system that can serve as a model for the description of particular languages.

Sidney Lamb's Stratificational grammar is written under the influence of glossematics. Chomsky too seems to have been influenced by some of the theoretical assumptions of Hjelmslev.

3.4 The Prague School (Czechoslovakia)

The Prague School of linguistics is one of the major schools of structural linguistics. This was the name given to group of scholars working in or around Prague in the late twenties and early thirties. The Linguistics Circle of Prague was founded in 1926, and published an important journal (*Travaux du Cercle Linguistique de Prague*). Much of the inspiration for his work came from Saussure, but two of its most important scholars, Roman Jakobson and Nikola Trubetzkoy, were Russians.

Notes

The Austrian psychologist Karl Buhler also was very influential. Many specifically linguistic features of their work are thus not to be found in Saussure at all.

This school stressed the necessity of studying the observable and varifiable form of language—the phonetic form of utterance; that is, a study of SOUND as it functions in language. Linguists like Trubetzkoy and Jakobson, among others, contributed to the study of sound in language. Trubetzkoy's *Principles of Phonology* (1939) and Jakobson's theory of distinctive features as the basis for analysis of sounds are the most memorable contributions of the Prague School. The theory of distinctive features, i.e. the principles of establishing meaningful contrasts between sounds, led the Polish linguist Bondonin de Courtenay to propose a new unit, the phoneme, in linguistic analysis. The Prague school developed between the two world wars. Its main interests were phonology, stylistics, language planning and historical linguistics.

The scholars of the Prague school (in particular, Vilem Mathsius) developed an approach to syntactic analysis using the Saussurean notion of functionally contrastive constituent of sentences (it is known as the theory of functional sentence perspective), and this is currently being developed in Prague (by Josef Vachek, Jan Firbas, and other scholars) as the work of 'neo' Prague school. A convenient collection of articles is *A Prague School Reader in Linguistics*, edited by J. Vachek in 1964.

Roman Jakobson, an original member of the Prague School, later moved to America, where he further developed notions of the various functions of language, and of diachronic linguistics, and played an influential role in the development of generative phonology.

The concept of **functional** approach to linguistic analysis has also attracted the attention of Andre Martinet in France. His *Elements of General Linguistics arid a Functional View of Language* shows the clear influence of the Prague scholarship. But he applies the idea of language as a system of function of elements more to syntax than was the practice so far.

3.5 The British Tradition of Linguistics

Until the late nineteenth century, the British tradition of linguistics was by and large imitative and was Greek and Latin oriented. For over a hundred years, until Henry Sweet's *A New English Grammar* in 1891, Bishop Loweth dominated linguistic discussion in England. Popularization of his grammar by such copyists as Lindley Murray and Samuel Kirham led to his work being sold in millions. As a result of the popularity of such grammars, 'the nineteeth' century has been termed 'the midsummer madness of grammar'. Sweet's method was analytical rather than dogmatic or prescriptive. Then appeared the famous work of Otto Jesperson. All these attempts, however, were on traditional lines, yet they were full of fresh insights.

The greatest contribution of England, however has been in the field of phonetics. Modern linguistics in Britain has been influenced by the European comparative historical studies of the nineteenth century and the American anthropological studies of the twentieth century.But both these currents were supplemented by the strong British interest in phonetics which was the gift of English scholars who had worked on the phonetics of Sanskrit. At the end of the nineteenth and in the first half of the twentieth centuries Sweet and Jones were among the pioneers of modern phonetics, and the latter contributed to a considerable extent to the development of phoneme theory. In the field of phonetics, the work of Prof. Gimson and Prof Abercrombie is also of great significance.

Then we have the Firthian school of linguistics. In fact the term 'Firthian' refers to the followers of the linguistic principles of J. R. Firth, Professor of General Linguistics in the University of London (1945-56). These principles, as subsequently developed, were largely in the field of phonology (where his views of 'prosodic phonology' were in opposition to traditional American phonemics), and in the study of meaning, where he developed a complex view of all levels of linguistic structure simultaneously contributing to total statement of the meaning of an utterance. The 'neo-Firthain' approach to linguistics is that which is primarily associated with the work of Michael

Halliday who developed **scale and category grammar** in the early sixties. To describe language structure his theory postulates four major theoretical categories, and relates them to various scales of abstraction. The categories comprise **class** (covering concepts such as 'verb' and noun'), **unit**

Notes

(covering concepts such as 'sentence' and 'clause'), **structure** (covering concepts such as 'subject' and 'predicate'), and **system** (covering such concepts as the set of 'personal pronouns' or 'tenses'). Scales were the model constructs which related these categories, and the linguistic features subsumed under them, to each other. For example, one scale was the means of relating the 'units'. The various units recognized (sentence, clause, group, word, and morpheme) were thought to be arranged hiearchically on a **rank** scale, and each unit was conceived of as consisting of one or more of the units below it—a sentence was considered as consisting of one or more clauses, a clause as consisting of one or more groups, a group of one or more words, and a word as one or more morphemes. Halliday latter modified this theory and his modified model of grammar is known as **systemic grammar**.

3.6 The American School of Linguistics

3.6.1 William Dwight Whitney

The tradition of American linguistics may be said to have begun with William Dwight Whitney (1827-1894) who was Professor of Sanskrit at Yale College. His principal works *Language and the Study of Language* (1867) and *The Life and Growth of Language* (1874) have had wide influence both in America and in Europe. His work belongs to the comparative method of linguistics.

3.6.2 Franz Boas

It remained for European-trained Franz Boas of Columbia University to set the stage for the development of a modern linguistic science in America. *His Handbook of American Indian Languages* (1911) contains a magnificent introduction which is still regarded as a remarkably acute discussion of the problems of descriptive linguistics.

Boas was an anthropologist who had studied physical sciences and geography. He concluded that culture must be studied in relation to language and literature. He worked out his own scheme for the orderly description of languages. He called for three basic divisions in the description of languages: (1) phonetics, (2) meaning, and (3) grammatical processes of communication and modification by which these meanings must be expressed. He mentioned that "the natural unit of expression is the sentence." He defined 'word' as a "phonetic group, which, because of its permanence of form, clearness and significance and phonetic independence, is readily separable from the whole sentence." The weakest part of his definition of 'word' was the 'phonetic'. He considered the study of the grammatical categories peculiar to each language.

It was Boas who emphasized the need for the linguist to 'go into the field', to get an accurate, detailed description of the human behaviour involved.

3.6.3 Edward Sapir

In 1922 in the preface to Language Sapir made it clear that he intended to communicate some new sights into the nature of language. He defined language as "a purely human and non-instinctive method of communicating ideas, emotions and desires by means of a system of voluntarily produced symbols." He thus opened the way to sound-meating relationship. Yet he maintained that language is 'primarily an auditory system of symbols,' and that it is possible to discuss 'thought without language'. He set out to study the relations between language and culture. He regarded language as a 'prepared groove' for our experiences and as a 'garment wrapped about our thought' when we try to communicate our thoughts.

3.6.4 Leonard Bloomfield

It is Bloomfield who is rightly considered to be the father of modern American linguistics. What Saussure did for Europe, Bloomfield did for America in a lesser degree. He should be credited for making linguistics an autonomous and scientific discipline. He introduced a precise and restricted 'technical vocabulary for linguistic description and initiated immediate constituent analysis.' He also provided techniques for the survey of a wide variety of linguistic problems, both synchronic and diachronic. Whereas his predecessors in America had been social scientists, he was a true

Notes

behaviourist scientist of language. The Yale School of American linguistics (Bernard Bloch, Robert A. Hall, Jr. Z.S. Harris and others) is influenced by Bloomfield. His *Language* (1933), which was a revision of an earlier work, *Introduction to the Study of Language* (1914), has been termed "the Bible of American Linguistics."

3.6.5 Noam Chomsky

A mathematician, psychologist, sociologist, philosopher, linguist, Noam Chomsky is the most dynamic, influential and revolutionary linguist of today. He is the Panini of modern era. Like Panini he too has provided a new shape and new brevity in the description of linguistic phenomena, has brought a revolution, and like Panini he too has brought linguistics and philosophy together. He is a linguist amongst mathematicians and a philosopher among the linguists. His 'most original, and probably his most enduring contribution to linguistics is the mathematical rigour and precision with which he formalized the properties of alternative system of grammatical description (*Lyons, Chomsky*,). He has become one of the greatest masters of human thought in our age. He is now not an individual merely but a whole school of linguistics. His transformational-generative grammar has transformed the whole concept of grammar, and generated new currents of thoughtful water—hot and cold. He has suggested means of correcting weaknesses of both the traditional and descriptive grammars.

Chomsky's notion of the grammar of a language is a refreshing departure from the tradition. His proposal is "attractive, reasonable and clearly stated." He rejects and replaces many of the assumptions that were so popular in structuralism.

His contribution is two fold: (1) he has questioned the accepted goals towards which linguistic theory was oriented, and redefined the aims and functions of a grammar; (2) he has specified the forms this new type of grammar should take. In the 1950's linguistics was in the doldrums, particularly in America. The whole linguistic movement has become a narrow and introverted. There had been no major change of direction in linguistics for more than twenty years. When Chomsky arrived on the scene, linguistics was ready for a revolution.

Between 1933 and 1957, linguistics had set itself to the task of perfecting "discovery procedures": that is, finding out a set of principles which would enable a linguist to 'discover' or extract a grammar from a mass of data collected from an informant. Grammar had come to mean an inventory or catalogue of linguistic data. At that time grammar was a perfect, objective description of a language, and the ultimate goal of linguistics was to find rules which led to such grammars. But Chomsky rejected such notions:

A grammar of particular language is, in effect, an hypothesis about the principles of sentence formation in this language. It represents a factual claim concerning the rules that underline the data that have been collected. We judge the truth or falsity of this hypothesis by considering how well the grammar succeeds in organizing the data, how satisfying an explanation it provides for a wealth of empirical observations, how far-reaching are its generalizations, how successfully it accomodates new data.

And therefore a theory of linguistic structure is an hypothesis about linguistic universals. It asserts that the grammars of all human languages are constructed on such-and-such a specified plan. Such a theory should explicitly characterize the form of grammars (the scheme for grammatical description) and should provide a method for selecting among alternative grammars.

His generative grammar thus is 'not a large collection of neatly organized examples, supplemented with comments about these examples and hints as to how to construct similar ones. Nor is it a discussion of efficient and compact notations (e.g. inventories of phonemes, morphemes), categories or construction types ... A generative grammar is a system of explicit rules that assign to each sequence of phones ... a structural description that contains all information about how this sequence

Notes

of phones is represented on each of the several linguistic levels (phonological, lexcical, syntactical and semantic). Further, this grammar is a device to generate all and the only grammatical sentences of a language, is not only explicit but also precise, and is full of observational, descriptive and explanatory adequacies. It does not rely on imagination, intelligence or intuition of the speakers, but is verifiable. It is the ability of the native speaker to use, produce and understand a natural language, the ability to distinguish between grammatical and ungrammatical, between grammatical and less grammatical string, the ability to perceive ambiguity in a grammatical string, the ability to perceive when two or more strings are synonymous. It is an innate system, and may be regarded as 'a proposal concerning certain fundamental and specific skills that the child brings to language learning.' It has the following types of data with it: (a) phonemic transcription, judgements of conformity of utterance tokens, (b) judgments of well-formedness, (c) ambiguity that can be traced to structural origin, (d) judgements of sameness or difference of sentence types, (e) judgements concerning the propriety of particular classification or segmentation.

Chomsky's basic assumptions and ideas may be summarized in the following way:

1. The speaker of a language should be the source of all linguistic study.
2. A fundamental distinction should be made between competence and performance.
3. Linguistic theory should be mentalistic.
4. By grammar is meant a finite grammar which generates an infinite number of sentences.
5. The grammar of a language is not a classification of some examples, nor an inventory of various units or items. If it were to be a model of the natural processes that go on in the mind of the speaker and the hearer, it must explain the cognitive process. This can be done only by establishing relationships between sentences and parts of sentences.
6. A grammatical theory should state linguistic goals clearly and explicitly; it should have observational, descriptive and explanatory adequacy. At the same time it should establish linguistic universals too. 'The statements in the grammars of earlier linguists amounted to more or less observations and hints about scattered phenomenon. Chomsky's grammar, on the other hand, has a method and a goal, and is explicit. It is a unified, coherent, constituent system related to other systems and in this sense, is revolutionary. It is more than a notational gimmick; it is a philosophy.'
7. Linguistics, psychology and philosophy are interrelated.
8. There are linguistic universals and linguists should ascertain the universals and essential properties of languages.
9. There must be a universal grammar of all natural languages, and all languages must be described in terms of these similar principles.
10. Human beings are born with an innate capacity to learn language and man is unique among all animals in possession of speech. Successive generations seem to acquire it without special training from parents. In this sense, language exists, and what really 'happens' is only the external manifestation of the innate capacity.
11. Human beings possess an innate system that generates infinite utterances. This system enables them to accept some sentences as grammatically acceptable and reject some as grammatically unacceptable.
12. The sentence, rather than sound, is the natural and proper place to begin work on grammar, and that language, however, is a relationship between sound and meaning,

3.6.6 Others

Now-a-days America is farther ahead than any other country in the world in the field of linguistics. Among the structuralists, the works of Harris, Bloch, Trager, Smith, Wells, Hockett, etc. deserve a special mention. Among the transformational generative grammarians the work of Katz and Fodor and that of Fillmore is becoming the centre of attraction and attention now-a-days.

Notes

3.7 Recognition of Indian Contribution by the West

'It was in India', says Bloomfield, 'that arose a baby of knowledge which was destined to revolutionize European ideas about language.' It was the Indian grammar that 'presented to European eyes, for the first time, a complete and accurate description of a language, based not upon theory but open observation.' Indian linguistic studies are the oldest and most valuable. Whereas the ancient Greek and Roman linguistic studies were speculative and philosophical, the Indians were the first to have initiated descriptive and analytic studies of language based on observation. What Bloomfield, Chomsky, Fillmore, Firth and Halliday have suggested in the twentieth century, had been suggested by Panini, Patanjali, Katayana and Bharthari many centuries ago in India. During 2500 years history of human thought, none have excelled the Indians in the field of linguistic study.

Indians were the first to classify the sounds, to emphasize and establish the role of vocal organs in the production of speech, to say that the sentence was the basic unit of language, to remark that language without meaning was like the dry wood which needed fire to burn, and to establish and specify linguistic universals. It were the Indians again who gave a philosophical basis to grammar, and said that language existed in a speech community, in culture. Our theories of semantics and our advances in the field of etymology and morphology are the best in the world, and everyone in the east and the west owes to us something or the other in the field of phonetics. Our ancestors established the excellent standards of economy and precision in the description of linguistic phenomenon. As stated by Bloomfield again, we were the first in the history of human thought who 'worked out a systematic arrangement of grammar and lexicon.'

In a sense, modern linguistics began in 1786 with the discovery of Sanskrit by William Jones who declared:

The Sanskrit language, whatever be its antiquity, is of wonderful structure, more perfect than Greek, more copious than Latin, and more completely refined than either.

No one can deny the truth that Comparative Philology was born the day when Sanskrit was opened to the eyes of the Western world. The enthusiasm that stirred the hearts of those first pioneers into the realm of India's sacred language and India's ancient lore still throbs in the veins of their followers today and will quicken the pulse-beat of inspired workers for generations to come.

J.R. Firth, a distinguished linguist of England, has aptly said: Without the Indian grammarians and phoneticians whom he (Sir William Jones) introduced and recommended to us, it is difficult to imagine our nineteenth century school of phonetics.

Similarly W. S. Allen remarks:

In their recognition of the voicing process, the Indian phoneticians make one of their greatest single contributions.

and

Only in the latter part of the nineteenth century, under the influence of Indian teaching, does the recognition of the voicing process make headway.

In the words of R. H. Robins,

The Indian tradition of linguistic scholarship, devoted to the Sanskrit language, was of a very high order, and its influence on Western linguistics was profound, and is by no means over. Unlike the Greek and Latin grammarians and their medievel successors, Indian linguists exhibited great interest and masterly competence in the phonetic analysis and descriptions of their speech; and the development of the phonetic and phonological levels of linguistic analysis in the last hundred years or so owes a great deal to their work.

Robins further observes:

The work of the Indian linguistic scholars is distinguished historically by two features, the excellence of their phonetic description of Sanskrit, both as regards its accuracy and the systematic terms in which they stated it, and their ability to carry formal analysis below the word in terms corresponding to the modern morpheme.

Notes

3.8 The Vedas, Brahmins and Aranayakas

Sanskrit linguistics formally must have begun the day the Indian 'rishis' and 'munis' began to understand and interpret clearly the Vedic speech. The ancient Indians first turned to the study of their language for religious reasons to ensure that no corruption or modification should creep into the sacred texts of the Vedas when they were sung or recited.

The germs of this interest may be traced in the *Rigveda*, which dedicates two entire hymns to speech (X. 71 and X.125). It mentions three stages in the development of language: (1) inarticulate speech, (2) primitive articulate speech, and (3) language proper. The inarticulate speech was the hissing of serpents, or the humming of insects, the notes of birds, and the sounds made by other animals. The primitive articulations of speech were first employed by men in imparting names to objects, thus leading to the third stage, that is, language proper, which "was created by the wise, as men cleanse cornflour in a cribble" (X. 17,1.). There is another well-known hymn in the *Rigveda* (IV, 58,3) in which speech, according to Patanjali's interpretation (cf. the introduction to his *Mahabhasya*), is compared to a bull the sounds of which are attributed to three human organs—'the lungs, the throat, and the head.'

Aitareya Brahmana attributes speech to Indra, and compares it to the ocean, on account of its inexhaustible nature. Enough evidence in the Vedic literature is available to prove that the study of linguistics and phonetics had reached a considerably advanced stage between 1000 and 800 B.C. The taste grew during the period of the *Aitareya, Arnayaka*, which describes various sounds in terms of different objects in nature. It compares the consonants to the nights, and vowels to the days (II, 2,1), presumably owing to the superior perceptibility of the latter in normal speech. Furthermore, the consonants are compared to the body, the voice to the soul, and fricatives to the breath (II, 2, 1). At another place in the *Aitareya Arnayaka*, the plosives are said to be a form of the earth, the fricatives of the atmosphere, and the vowels of the firmament (III, 2, 5). Yet in another passage, the fricatives are compared to breath, plosives to the bones, vowels to the marrow, and semi-vowels to flesh and blood.

'Samhita' was interpreted as the interval between two syllables, the interval by which the accent or the quantity of two syllables was distinguished. The Samhita-text of the Vedic hymns was reduced to the *Pada*-form. In this period of the study of the *pada*-text rules of phonetic combination (*sandhi*), of accent, and of the formations of compounds, samasa were studied elaborately. The father of *Pada*-text was Shakalya. In the *Pada*-text, *mantras* were divided into *pada* and *shabdas*.

3.9 The Pratisakhyas

The *Pratisakhyas* are the first treatises on phonetics and formal grammar. They provide a scientific classification of Sanskrit sounds and the *ganas* (the lists of words remarkable for grammaticality in any way). These *Pratisakhyas* are: the *Rig Pratisakhya* on the *Rigveda*, the *Tetariya Pratisakhya* on the *Krishna-Yajurveda*, the *Vijasney-Pratisakhya* on the *Shukla-Yajurveda*, the *Rig-Tantra-Vyakarnha* on the *Sam-Veda*, and the *Atharva-Partisakhya* on the *Atharva-Veda*.

'Siksha' implied "general phonetics" while 'Pratisakhya' signified "applied phonetics." It was the grammatical form of words which constituted the basis for the phonetic observations of the *Rig Pratisakhya*. The object of the treatise is to describe the characteristic features of the four parts of speech—the noun, the verb, the affix, and the particle. One main feautre of the *Pratisakhya* was their treatment not of a language of 'priests who had to be drilled into a proper recital of the sacred texts' (as supposed by some Western scholars), but of a living language used and spoken by the people those days.

No definite historical dates of these *Pratisakhyas* are available. By and large, scholars say that they belong to 800-500 B.C., some others put them between 500 and 150 B.C. Nevertheless, they seem to be older than Panini.

Notes

3.10 Yaska's Nirukta

The oldest linguistic treatise preserved in India is the *Nirukta* (Explanation) of Yaska (fifth century B.C.). It offers brief explanations of the Rigvedic words which had already become obscure. Though the writers of the Brahamans had already established themselves as etymologists, yet Yaska was the first methodical and scientifically minded etymologist. He hinted at the idea to be developed by later grammarians that words were ultimately to be traced to a limited number of roots. He considered the words listed in the Nighantu.

3.11 Panini

Panini in his work has mentioned the names of some grammarians. They were Aipishali, Kashyap, Gargya, Chakravarman, Galav, Shaktayan, Senak, Sphotyan and Bhardwaj. They were his predecessors and contemporaries. But it was Panini who struck out a new and original path. The whole of his work depends on the Sivasutras where the *Praytacharas* (the terminology he is going to adopt) are set forth. By his masterly analysis he arrived at the fundamental conception of roots—which are a set of monosyllabic constants, each a concept, and each expressing an action (*kriya*). He divided the parts of speech into three (*suvanta, tingat* and *avyaya*), and recognized the sentences as the basic unit of language. His *Asthadhayi* is the first formal grammar in the history of letters. It is not speculative or philosophical like the grammars of the Greeks and the Romans. It is descriptive and analytic, and treats phonology and morphology in great detail. It makes very brief statements about linguistic phenomena; most of them are designated by arbitrary sounds or complexes of sounds used as code-words. The underlying philosophy of the Paniniya system are the assumptions such as *dhatu* ('base', literally 'constituent'), *krit* (primary, 'demonstrative' literally 'making'), and *taddhita* ('secondary determinitive' literally 'put to that'), etc.

Panini is the best known of the Indian linguists. His date is not certain, but around 500 B.C. or later has been suggested in the light of the evidence available. His grammar has been called by Bloomfield 'One of the greatest monuments of human intelligence.' Its main characteristic is its startling economy and brevity. It avoids repetition. It describes, with the minutest detail, every inflection, derivation, and composition, and every syntactic usage of Sanskrit. 'Panini is also to be credited with the device of zero in linguistic description, by which part of an apparently irregular set of morphological forms can, by posting an analytic entity without actual exponents as an element of their structure, be brought into line with the regular forms.

The influence of Panini's grammar upon Sanskrit was immense and long-lived. First of all *Astadhayi* was a great and historical achievement of a great analysing mind, unparalleled and unique in the history of mankind, and, as such, it deserved great recognition. Secondly, whatever was analysed by him had already in his own days acquired a peculiarly sacred character in the minds of the people. Thus a religious authority was added to Panini to determine what was 'right' and what was 'wrong'. So besides being an analytic and descriptive account of the Sanskrit language, Panini's grammar became prescriptive too.

3.12 Katyayana

In the post-Panini era the first name that strikes the historian of linguistics, is that of Katyayana. There is a controversy about his time. Some scholars regard him as the senior of Panini. He was the leader of the Aindra school of Sanskrit grammar. The name 'Aindra grammarians' seems to imply that school was of a later date than Panini. But the terminology and the methods of this school are decidedly of a more primitive and less developed type than those of Panini. But at the same time it should not be forgotten that we find many of the technical terms of Panini even as early as in the works of Yaska. Perhaps 'the Aindra school is post-Paninian in date though pre-Paninian in substance.'

As the language had changed by the time of Katyayana, he felt the necessity of changing the grammar too. He set about amending Panini and took only those *sutras* which he thought required

Notes

such treatment. He wrote *Virttikas*, and his grammar is full of descriptive adequacy and is also remarkable for its explanatory value.

3.13 Patanjali

In the words of Gray, 'With Patanjali (2nd Century B.C.) Indian linguistic science reached its definite form, for all later Indian treatises on the subject are little more than further commentaries on his work. The system thus established is extremely detailed as to phonology (including accent) and morphology; syntax it scarcely touches; etymologies are very frequent, in obvious words usually with success, but in obscure words frequently almost ludicrous; and these etymological attempts naturally lead to semantic explanations.' It is believed that his work *Mahabhasya* should have been written in 2nd Century B.C. His is a work written in defence of Panini, and it interprets elaborately the sutras of Panini. He also attacks Katyayana rather severely. But the main contribution of Patanjali lies in the treatment of the principles of grammar enunciated by him.

3.14 After Patanjali

After Patanjali the tradition of Sanskrit linguistics declines. No greater name than those of Panini, Katyayana and Patanjali, who are 'the trinity of Sanskrit grammar', appear on the scene. After them emerge the interpreters such as Jayaditya and Vaman (7th century A.D.). Bharthari's *Vakyapadiya*, however, is more important as it tries to interpret language from a philosophical point of view. It is a comprehensive syntactical study. Jayaditya and Vaman are only the commentators on Panini's work. The work known as *Vrittisutra* and popularly called the *Kasika* is the joint work of Jayaditya of Kashmir and Vaman. It is a running commentary on the *Astadhyayi* in a lucid style with a great deal of examples. It also supplies the names of many other writers now forgotten.

By this time Sanskrit had become a 'classic', practically a 'dead', language and had ceased to be popular idiom. Furthermore, the Moslem invasions put an end to learning and promotion of thought in India. And after that no significant work of great magnitude is available except that of Hemchandra (A.D. 1088-1172).

Kaiyyata's *Pradipa* on the *Manabhasya* marks the end of an epoch in the history of Paniniya grammar.

Hemchandra was a holy Jain monk, and his grammar *Sabdanusasana*, with the object of saying, "in the shortest possible manner not only all that his predecessors had said upon the subject, but everything that could be said," could not be very successful as it had a sectarian basis. Nevertheless, his grammar deals exclusively with the Prakritas of his day and should be remembered as a work of a great writer whose fame and religious sanctity was of high order.

Grammar during the Middle Ages in India was studied under various *Sampradayas* (schools) such as Chandre-sampradaya, Jainendra-sampradaya, Shaktayan-sampradaysa, Hem-sampradaya, Katantra-sampradaya, Sarswat-sampradaya, Vopdeva and his sampradaya, Kramdishwar and Jaunar sampradaya, Saupadya sampradaya, and so on.

Self-Assessment

1. Choose the correct options:

(*i*) The golden period of Greek grammar is ..... .

(*a*) between 3rd century B.C. and 2nd century A.D.

(*b*) between 4th century B.C. and 3rd century A.D.

(*c*) between 1st and 2nd century B.C. (*d*) None of these

Notes

(*ii*) The most famous latin grammars, which were used as standard textbook as late as Middle Ages, written by ..... .

(*a*) Donatus (*b*) Priscian

(*c*) Virgil (*d*) Both (*a*) and (*b*)

(*iii*) The linguistic circle of Prague was founded in ..... .

(*a*) 1915 (*b*) 1920

(*c*) 1926 (*d*) None of these

(*iv*) The tradition of American linguistic may be said to have begun with ..... .

(*a*) Franz Beas (*b*) William Dwight Whitey

(*c*) Edward Sapir (*d*) None of these.

3.15 Summary

- Linguistics is the study of language, sometimes called the science of language. {1} The subject has become a very technical, splitting into separate fields: sound (phonetics and phonology), sentence structure (syntax, structuralism, deep grammar), meaning (semantics), practical psychology (psycholinguistics) and contexts of language choice (pragmatics). {2} But originally, as practised in the nineteenth century, linguistics was philology: the history of words. {3} Philologists tried to understand how words had changed and by what principle. Why had the proto-European consonants changed in the Germanic branch: Grimm's Law? Voiceless stops went to voiceless fricatives, voiced stops to voiceless stops, and voiced aspirates to voiced stops.
- The Greeks and the Indians are the first to have started speculations about language and contributed tremendously to linguistic studies. In the words of John Lyons, "Traditional grammar, like so many other of our academic traditions, goes back to Greece of the fifth century before Christ. For the Greeks 'grammar' was from the first a part of 'Philosophy'.
- A beginning of what is known now as 'traditional grammar' was made by the Greeks with discussions on the origin of language. The Greek philosophers debated whether language was governed by 'nature' or 'convention'.
- At the beginning of the third century B.C. in the Hellenistic era, Alexandria in the Greek colony became the centre of intense literary and immense linguistic study, because a great library was established there. The manuscripts of the authors of the past, especially of the Homeric period were edited and re-edited.
- In linguistic studies, the Romans were content largely to model themselves on Greek patterns. They copied the Greeks slavishly in all aspects of the linguistic scholarship. Grammars of Latin were fitted in a Greek framework. In dealing with the 'parts of speech' the Latin grammarians made only such minor modifications as the differences between Greek and Latin forced to their attention. They, however, encouraged the view that the parts of speech, case, number, tense, etc. were universals and necessary categories of language.
- The leader and pioneer of this school was Saussurre who will be discussed below. In general, the supporters of this school have tried to remain whole-heartedly loyal to the teaching and spirit of Saussure. For a long time the leaders were Charles Bally and A. Sechehaye, who had assumed the responsibility of publishing the *Course.*
- A mathematician, psychologist, sociologist, philosopher, linguist, Noam Chomsky is the most dynamic, influential and revolutionary linguist of today. He is the Panini of modern

Notes

era. Like Panini he too has provided a new shape and new brevity in the description of linguistic phenomena, has brought a revolution, and like Panini he too has brought linguistics and philosophy together. He is a linguist amongst mathematicians and a philosopher among the linguists.

- The *Pratisakhyas* are the first treatises on phonetics and formal grammar. They provide a scientific classification of Sanskrit sounds and the *ganas* (the lists of words remarkable for grammaticality in any way). These *Pratisakhyas* are: the *Rig Pratisakhya* on the *Rigveda*, the *Tetariya Pratisakhya* on the *Krishna-Yajurveda*, the *Vijasney-Pratisakhya* on the *Shukla-Yajurveda*, the *Rig-Tantra-Vyakarnha* on the *Sam-Veda*, and the *Atharva-Partisakhya* on the *Atharva-Veda*.
- The oldest linguistic treatise preserved in India is the *Nirukta* (Explanation) of Yaska (fifth century B.C.).
- Panini in his work has mentioned the names of some grammarians. They were Aipishali, Kashyap, Gargya, Chakravarman, Galav, Shaktayan, Senak, Sphotyan and Bhardwaj. They were his predecessors and contemporaries.
- After Patanjali the tradition of Sanskrit linguistics declines. No greater name than those of Panini, Katyayana and Patanjali, who are 'the trinity of Sanskrit grammar', appear on the scene. After them emerge the interpreters such as Jayaditya and Vaman (7th century A.D.). Bharthari's *Vakyapadiya*, however, is more important as it tries to interpret language from a philosophical point of view. It is a comprehensive syntactical study.

3.16 Key-Words

1. Semantics : Semantics is the branch of linguistics that deals with the meanings of words and sentences.
2. Word-classes : A word-classes is a group of words that have the same basic behaviour, for example nouns, adjectives or verbs (Parts of speech).

3.17 Review Questions

1. Write briefly about the study of linguistics in ancient India.
2. Is Chomsky's grammar a revival of Panini in that it attempts to say in the minimum of *sutras* (formulae) the maximum about language?
3. Comment briefly on the contribution of Panini, Katyayana and Patanjali to linguistic studies.
4. Summarise the views of some western linguistics about linguistic studies in India.

Answers: Self-Assessment

1. (*i*) (*a*) (*ii*) (*d*) (*iii*) (*c*) (*iv*) (*b*)

3.18 Further Readings

1. Verma, S.K., V.N. Krishnaswamy. Modern Linguistics: An Introduction.
2. An Introduction to Linguistics, John Lyon.
3. Peter Roach: English phonetics and phonology. Cambridge University Press.
4. Encyclopedia of Linguistic Science Edited By V. Prakasam, Allied Pub., New Delhi.

Notes

Unit 4: Phonetics: Speech Mechanisms-Places and Manners of Articulation

CONTENTS

Objectives

After studying this Unit students will be able to:

- Understand Speech Mechanisms.
- Know Places and Manners of Articulation.

Introduction

Phonetics is a branch of linguistics that comprises the study of the sounds of human speech, or—in the case of sign languages—the equivalent aspects of sign. It is concerned with the physical properties of speech sounds or signs (phones): their physiological production, acoustic properties, auditory perception, and neurophysiological status. Phonology, on the other hand, is concerned with the abstract, grammatical characterization of systems of sounds or signs.

The field of phonetics is a multiple layered subject of linguistics that focuses on speech. In the case of oral languages there are three basic areas of study:

Articulatory phonetics: the study of the production of speech sounds by the articulatory and vocal tract by the speaker Acoustic phonetics: the study of the physical transmission of speech sounds from the speaker to the listener

Auditory phonetics: the study of the reception and perception of speech sounds by the listener

These areas are inter-connected through the common mechanism of sound, such as wavelength (pitch), amplitude, and harmonics.

4.1 Definition of Phonetics

Phonetics is the scientific study of the production, transmission and reception of speech sounds. It studies the medium of spoken language. Touching upon physiology and physics, phonetics is now a pure science that studies speech processes, including the anatomy, neurology and pathology of speech, as well as the articulation, description, classification, production and perception of speech sounds. It looks at speech from three distinct but interdependent viewpoints: it studies the speech organs, which produce sounds of language; it studies waves, the physical form in which sounds are transmitted through the air from one person to another; and it studies the way in which human beings perceive sounds through the medium of the ear.

Notes

Phonetics studies the defining characteristics of all human vocal noise, and concentrates its attention on those sounds which occur in the languages of the world. In other words, phoneticians try to study how the various organs of speech—the lungs, the larynx, the soft palate, the tongue and the lip—function in the production of speech. They also attempt to offer articulatory descriptions of various sounds by describing the air-stream-mechanism and the phonatory and articulatory processes involved. Acoustic phoneticians examine the physical nature of sounds and analyse the speech waves with the help of various instruments.

4.2 History of Phonetics

The ancient Hindu Rishis who composed the *Vedas*, must have been in the know of phonetics. The *Vedas* were to be chanted and pronounced very accurately. To mispronounce a Vedic **mantra** or **richa** was regarded as a sin of the first order. Even the classification and arrangement of sounds and their formation in **varnas** in Sanskrit give an evidence of a sound phonetic base of this language. In the works of Panini (400 B.C.?), Patanjali (2nd Century A.D.), etc., we can have some concrete and outstanding evidence of the ancient phonetics of India. At about the same time the Greeks and the Romans had also made language and speech the subject of serious study.

Early Studies

Besides the Indians, the Greeks, the Romans, the Egyptians, and the Arabs also took interest in speech around the seventh century A.D.

The Sixteenth Century

Some of the first writers whose work was concerned with the relation between the sounds of English and those of another language were John Palgrave (*Lesclarcissement de la langue Francoyse*, 1530), William Salesbury (*Dictionary in English and Welshe*, 1547), Thomas Smith (*De rectaet emendata linguae anglicae scriptone* 1568), John Hart (*Orthogaphie*, 1569), John Wallis (*Grammatical Linguae Anglicane*, 1563). Special mention must be made of Hart and Wallis. Besides making out his case for spelling reform and proposing a revised system, Hart took a keen interest in the description of the organs of speech, defined vowels and consonants and noted the aspiration of voiceless plosives. Wallis intended his *Grammar* to help foreigners to learn English more easily and also to enable his countrymen to understand more thoroughly the true nature of their language. A work of wider scope than Wallis' is Bishop John Wilkins' work who wrote *Essay toward a Real Character and a Philosophical Language* (1668). Wilkins also describes the functions of the speech organs, and offers a general classification of the sounds articulated by them. He offers suggestions for a phonetic alphabet.

The Seventeenth Century

Among the seventeenth-century phoneticians, the most important name is that of Christopher Cooper. His work on English pronunciation was first published in 1685 *Grammatica linguae Anicanae*, with an English edition apearing in 1687 (*The English Teacher*, or *The Discovery of the Art of Teaching and Learning the English Tongue*). Cooper wanted to describe, and prescribe rules for, the pronunciation of English for 'Gentlemen, Ladies, Merchants, Tradesmen, Schools and Strangers'. His aim was to describe English as it existed and not to reform its spelling.

The Eighteenth Century

The work done in the seventeenth century was continued in the eighteenth, but it lost its original spirit. The Eighteenth-century writers were deeply interested in the production of dictionaries to stabilize and standardize the language. The Dictionaries of Samuel Johnson (1755), Thomas Sheridan (1780), and John Walker (1791), are noteworthy contributions of this age. Some of the scholars in this age confused phonetics with rhetoric. And it was not until the nineteenth century that a clear distinction was made between the aesthetic judgments and the phonetic analysis.

Notes

The Nineteenth Century

Since the Renaissance the elocutionists, language teachers, spelling reformers, shorthand inventors, auxiliary language enthusiasts, and missionaries have taken interest in phonetics. But it was at the beginning of the nineteenth century that phonetics recieved a real boost with the discovery of the ancient Indian phoneticians mentioned in the preceding paragraphs. In 1867 Alexander Melvile Bell set out to classify all the sounds capable of being articulated by the human speech organs and to allot a systematic and related series of symbols to the sounds. By the end of the nineteenth century the developments in physiology and acoustics, and the accompanying progress in instrumentation (as demonstrated by Alexander Bell's system of *Visible Speech*), had stimulated a considerable amount of experimental research into all branches of phonetics. Also in the late nin-teenth century scholars like Henry Sweet attempted at producing a phonetic alphabet; and the international phonetic Alphabet, which is still the system in general use, came to be formulated in 1889.

In England Alexander J. Ellis (1814-90) presented to English children as well as to foreigners, an alphabet (*Phonotype*, 1847). He also developed other types of alphabet notably *Glossic* and *Palaeotype*.

The Twentieth Century

In the present century phonetics has developed immensely into various branches and is mature enough to claim an independent status as a discipline. Already some linguists have talked about **linguistic** sciences— by which they mean phonetics and linguistics, the former dealing with the general properties of human sound making the latter with those properties which are of importance in the system of a particular language. The focus of interest in this century has been to find out accurate and precise ways of the modern age. Spectographs, oscillographs, sound-monitoring machines, tape-recorders, and a number of other electronic **devices** developed by communications engineering have been greatly helpful in studying sounds. The aim of phonetics now-a-days is not to provide a notation: it is to analyse speech into its basic units, which may thereafter be transcribed in some way. Hence the phonetic description is primary: a notation secondary. The contribution of Daniel Jones, Abercrombie, Gimson in Britain and of Roman Jakobson, Morris Halle, Chomsky, Trager and Smith in the United States, besides a host of European and Russian scholars, to the study of speech-sounds is of considerable significance.

4.3 Branches of Phonetics

The study of phonetics can be divided into three main branches: Acoustic, Auditory and Articulatory.

4.3.1 Acoustic Phonetics

Acoustic phoneticians analyse the speech waves with the help of instruments; they attempt to describe the physical properties of the stream of sound that issues forth from the mouth of a speaker.

It is in the field of acoustic phonetics that the most striking developments have taken place since the Second World War. Complex sound waves produced in speech can be analysed into their component frequencies and relative amplitudes. Considerable progress has also been made in *speech-synthesis*. Acoustic analysis has confirmed (if confirmation was needed) that speech is not made up of a sequence of discrete sounds. The articulatory features of rounding of voice, of nasality, of obstruction and of friction can also be identified acoustically. Acoustic phonetics has achieved a good deal of success in matters of the study of the sound of vowels, but regarding consonants it has not reached final conclusions.

Notes


Notes

Acoustic phonetics is the study of the physical properties of speech sounds such as frequency and amplitude in their transmission.

4.3.2 Auditory Phonetics

Auditory phonetics is the study of hearing and the perception of speech sounds. It studies different auditory impressions of quality, pitch and loudness of sounds. The auditory classification of speech-sounds has not yet been carried to a decisive phase. At the present time, phonetics can be regarded as being made up of two main branches: articulatory and acoustic phonetics.

In a book like this, it would not be of any significant use to go into the details of acoustic and auditory phonetics. The results of acoustic and auditory phonetics need very minute observations and great scientific and technical expertise, and are often puzzling. These branches use instruments which cannot be used easily outside a laboratory, and cannot be transported successfully from one place to another. Hence the easiest approach to observations about speech is the traditional and most common approach of articulatory phonetics, and we shall be dealing with it in great detail.

4.3.3 Articulatory Phonetics

Articulatory phonetics recognizes that speech is produced by some kind of sound-making apparatus inside the human body, and that specific sounds may be related to specific movement of the apparatus. Hence it is the study of movement of the speech organs in the articulation of speech. Speech is produced by the movements of the organs of speech— lungs, larynx, soft palate, tongue, teeth and lips. The knowledge of the organs of speech, their relation to each other, and the way in which they are used while speaking, provides a sound basis for the classification of sounds of human languages.

4.4 Speech Mechanisms

4.4.1 A Speech Operation

The transmission in sound of the simplest concept in the mind is the result of a complicated chain of events. Any speech operation depends on a chain of speech acts. An effective act of speech is an exceedingly complex operation involving a number of operations. The first stage is psychological, the second is physiological and the third is physical. First of all a concept is formulated in the speaker's brain, and human nervous system transmits this linguistic message to the so-called organs of speech, articulatory or physiological. The organs of speech are thus activated and their movements create disturbances in the air; and these sound waves are received by the listener's ears. And at the listener's end, first of all the ears receive the linguistic codification; his nervous system passes this linguistic message to the brain, where the linguistic interpretation of the message takes place.

The linguistic message conveyed to the organs of speech by the nervous system activates the lungs, larynx and the cavities above in such a way that they perform a series of movements to produce a particular pattern of sound. For the production of speech we need an *air-stream mechanism*. (For the sounds of English we make use of an egressive pulmonic air-stream, that is, the air pushed out of the lungs through the mouth or nose or both. Generally all speech-sounds are made by an egressive pulmonic air stream of outgoing breath, although in a few languages (such as Hottenetot), there are speech-sounds, often called "clicks" which are made on ingressive (in going) air.

In this way the speech-sound is produced by the articulatory movements in the chest, throat, mouth and nose. The articulatory apparatus as shown in **Figure No. 4.1** (see next page), has four areas: (1) the larynx containing the vocal cords, (2) the oral cavity (mouth), (3) the pharyngeal cavity (throat): and, (4) the nasal cavity (nose). The airstream coming from the lungs may be

Notes

modified in any of these areas in a variety of ways. Such modification results from some kind of interference with the movement of the air stream. The most important roles are played by the vocal cords, soft palate, tongue, lips, teeth and nose.

Now we shall discuss the role of each speech organ in the production of speech:

1. **The Diaphragm and Lungs**: The diaphragm is situated in the human body below the lungs and controls the expansion and contraction of the lungs in breathing. It is involved in the production of chest-pulses on which the division of syllables is based. The lungs serve as a source for air, which passes upward through the wind-pipe and larynx consisting of the vocal cords on the mouth or both, and comes outwards. The source of energy for the production of speech is generally the air-stream coming out of the lungs. It is certainly so in the case of all sounds used in Punjabi, Hindi, and English.

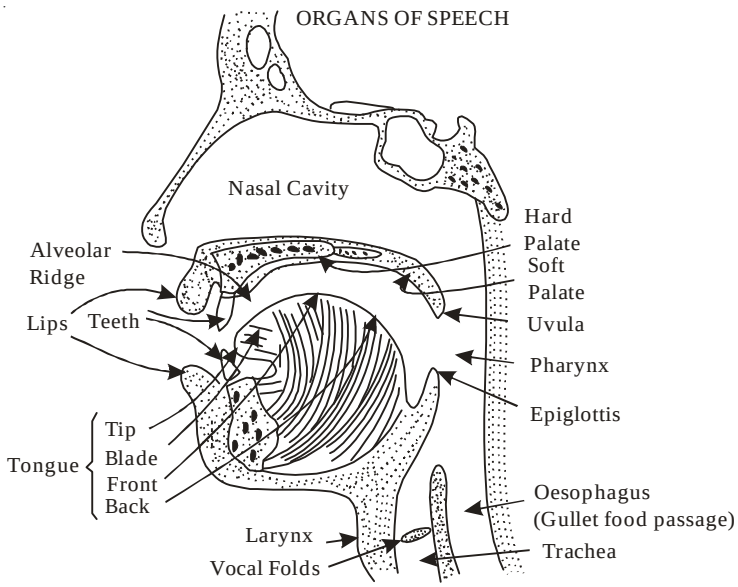

Figure 4.1

2. **The Larynx and Vocal Cords**: The larynx is the little box that is popularly called the Adam's apple. It is a casing, formed of cartilage and muscle, a bony box like structure in the front of the throat, situated in the upper part of the wind-pipe or the trachea, containing a valve like opening consisting of two memberanous tissues, the **vocal cords.** The vocal cords are **like** a pair of lips placed horizontally from front to back. They are joined in the front, but can be separated at the back, and the opening between them is called glottis. When we breathe in and out, the glottis is open. This is the position of production of the breathed or voiceless sounds. For example /f, θ ,*s*,*h*/ as in the English words /**fan, think,** *sell, hell.*

   The glottis may be held tightly closed to produce a glottal *stop or glottal catch* (such as the speakers of English make between the two *oh's* of "oh-oh" when said in surprise or reproof). The glottis may be held open in such a way that, when the air is passed through with sufficient energy, there is audible glottal friction as in /*h*/.

   The major role of the vocal cords is that of a vibrator in the production of *voice*, or *phonation*. If the vocal cords are held loosely together, the pressure of the air coming from the lungs makes them vibrate: that is, they open and close regularly many times a second. This vibration of the vocal cords produces a musical note called *voice*, and sounds produced in this way are called *voiced-sounds*. For example, all vowel sounds and the consonants /*v*,*z*,*m*,*n*,/ as in English words *valley*, *zero*, *mad*, *nail* are voiced.

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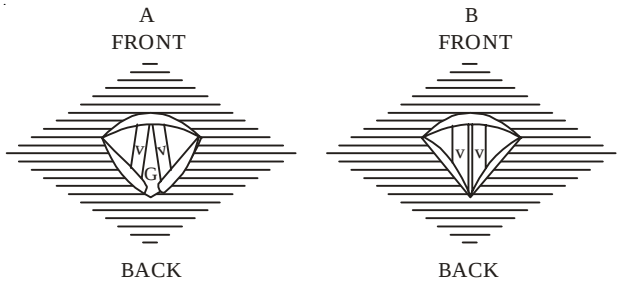

Figure 4.2
The vocal cords are open
G = Glottis
V = Vocal cords

Figure 4.3
The vocal cords are closed

The number of times the vocal cords open and close in one second is known as the *frequency* of vibration, and this determines the pitch of the voice. Whereas tension of the vocal cords determines the *pitch*, the force with which air is passed out from the lungs, determines the *volume* of a sound.

3. **The Soft Palate**: The roof of the mouth, as shown in Figure 4.1 has three parts: the hard convex surface just behind the upper front teeth called the alveolar or teeth ridge; the hard concave surface behind it called the hard palate; and the soft palate at the back, with the uvula at its end.

   The soft palate, also called the volume, can be moved up to block the passage into the nose. The air from the lung then has to come out through the mouth only, and / the sounds produced / in this way are called *oral* sounds. All English sounds except / *m*,*n*,ŋ / are oral sounds. If the soft palate is lowered and the passage through the mouth is closed, the air from the lungs comes out through the nose only. Sounds produced in this manner are called **nasal** sounds. For Example. / *m*,*n*,ŋ / in English words **man, nun,** and **song.**

4. **The Tongue**: Of all the movable organs within the mouth, the tongue is by far the most fleecy, and is capable of assuming a great variety of positions in the articulation of both vowels and consonants. The tongue, for the convenience of description (as shown in figure 4.1) has four parts: the tip, the blade, the front and the back. It is the position of the tongue which is largely responsible for the difference in the sounds of various vowels. The extreme end of the tongue is called the **tip.** The part of the tongue opposite the alveolar ridge is called the blade, the part opposite the hard palate is called the front, and the part opposite the volume is called the **back.**

5. **The Lips**: The position of lips affects very considerably the shape of the total cavity. They may be shut or held apart in various ways. When they are held lightly shut, they form a complete obstruction to produce bilabial stops, *e.g.* / *p*,*b* / . If the lips are held apart, the positions they may assume can be summarized in the following manner:

   (*i*) held sufficiently so close together as to allow friction in sound; भ sounds, for example, / the initial consonant / in Hindi words **bhagwan, bhai, bhanja.**

   (*ii*) held sufficiently far apart so that no friction is heard, yet in **a spread position**, as in the vowel in **see.**

   (*iii*) held in a **neutral position,** that is, a relaxed position with a medium lowering of the lower jaw as in the vowel of **get.**

   (*iv*) held in an **open position**: that is, a position in which lips are held relatively wide apart without any marked rounding, as in the vowel in **car, part.**

   (*v*) held in a close **rounded position** as in the vowel of **do.**

   (*vi*) held in an **open rounded position** as in the vowel of **got.**

Notes

4.4.2 The Active and the Passive Articulators

In the production of speech sounds we make use of two kinds of articulators, the active articulators and the passive articulators. The active articulators are the lower lip and the tongue; these are articulators that make contacts with the passive articulators. The passive articulators are the upper lip, the upper teeth, the roof of the mouth (divisible for the sake of convenience into the teeth-ridge, the hard-palate and the soft palate), and the back wall of the throat or pharynx. The passive articulators are called passive because they do not move to touch other articulators. On the other hand, the active articulators are called active because they remain active and come in contact with the passive articulators in the production of speech-sounds.

Self-Assessment

1. Fill in the blanks:

(*i*) Among the seventeenth century phoneticians, the most important name is that of ..... .

(*ii*) Alexander J. Ellis developed other types of alphabet notably glossic and ..... .

(*iii*) The study of phonetics can be divided into acoustic, auditory and ..... .

(*iv*) The larynx is the little box that is popularly called the ..... .

4.5 Summary

- Phonetics is a branch of linguistics that comprises the study of the sounds of human speech, or—in the case of sign languages—the equivalent aspects of sign. It is concerned with the physical properties of speech sounds or signs (phones): their physiological production, acoustic properties, auditory perception, and neurophysiological status. Phonology, on the other hand, is concerned with the abstract, grammatical characterization of systems of sounds or signs.
- Phonetics is the scientific study of the production, transmission and reception of speech sounds. It studies the medium of spoken language. Touching upon physiology and physics, phonetics is now a pure science that studies speech processes, including the anatomy, neurology and pathology of speech, as well as the articulation, description, classification, production and perception of speech sounds. It looks at speech from three distinct but interdependent viewpoints: it studies the speech organs, which produce sounds of language; it studies waves, the physical form in which sounds are transmitted through the air from one person to another; and it studies the way in which human beings perceive sounds through the medium of the ear.
- The ancient Hindu Rishis who composed the *Vedas*, must have been in the know of phonetics. The *Vedas* were to be chanted and pronounced very accurately. To mispronounce a Vedic **mantra** or **richa** was regarded as a sin of the first order. Even the classification and arrangement of sounds and their formation in **varnas** in Sanskrit give an evidence of a sound phonetic base of this language. In the works of Panini (400 B.C.?), Patanjali (2nd Century A.D.), etc., we can have some concrete and outstanding evidence of the ancient phonetics of India. At about the same time the Greeks and the Romans had also made language and speech the subject of serious study.
- The transmission in sound of the simplest concept in the mind is the result of a complicated chain of events. Any speech operation depends on a chain of speech acts. An effective act of speech is an exceedingly complex operation involving a number of operations. The first stage is psychological, the second is physiological and the third is physical. First of all a concept is formulated in the speaker's brain, and human nervous system transmits this linguistic message to the so-called organs of speech, articulatory or physiological. The organs of speech are thus activated and their movements create disturbances in the air; and these sound waves are received by the listener's ears. And at the listener's end, first of all the ears receive the linguistic codification; his nervous system passes this linguistic message to the brain, where the linguistic interpretation of the message takes place.

Notes

4.6 Key-Words

1. Articulatory phonetics : The study of the production of speech sounds by the articulatory and vocal tract by the speaker.
2. Acoustic phonetics : The study of the physical transmission of speech sounds from the speaker to the listener.
3. Auditory phonetics : The study of the reception and perception of speech sounds by the listener. These areas are inter connected through the common mechanism of sound, such as wavelength (pitch), amplitude, and harmonics.

4.7 Review Questions

1. Define Phonetics.
2. Discuss the history of Phonetics.
3. What do you mean by speech mechanisms? Discuss various types of speech mechanisms.

Answers: Self-Assessment

1. (*i*) Christopher Copper (*ii*) Palaeotype (*iii*) Articulatory (*iv*) Adam's apple

4.8 Further Readings

1. Verma, S.K., V.N. Krishnaswamy. Modern Linguistics: An Introduction.
2. An Introduction to Linguistics, John Lyon.
3. Peter Roach: English phonetics and phonology. Cambridge University Press.
4. Encyclopedia of Linguistic Science Edited By V. Prakasam, Allied Pub., New Delhi.

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Notes

Unit 5: Classification of Speech Sounds: Vowels, Consonants-General Introduction

CONTENTS

Objectives

After studying this Unit students will be able to:

- Understand Classification of Speech Sounds.
- Discuss Vowels and Consonants.

Introduction

An ideal description of speech sounds should include information concerning the production, transmission, and reception stages of sounds, i.e., it should describe a sound in terms of the movements of the organs of speech, the nature of the sound which is produced and the features perceived by a listener. But such a description would be lengthy, complex and cumbersome, and may provide information much of which may be irrelevant to particular purpose. In an introductory unit like this, no acoustic information about speech sounds is included. The approach here is based on the articulatory or auditory criteria, or combination of both. Whereas sounds known as 'consonants' are described mainly in terms of their articulation, but in the description of 'vowel'-sounds the auditory impressions will dominate. Furthermore, in our phonetic analysis the syllable has been considered the basic unit, the theory being that each movement of the respiratory muscles, called a chest-pulse, produces a syllable, and "nothing less than a syllable can be produced."

5.1 Vowel and Consonant

The words vowel and consonant are very familiar ones, but when we study the sounds of speech scientifically we find that it is not easy to define exactly what they mean. The most common view is that vowels are sounds in which there is no obstruction to the flow of air as it passes from the larynx to the lips. A doctor who wants to look at the back of a patient's mouth often asks them to say "ah"; making this vowel sound is the best way of presenting an unobstructed view. But if we make a sound like s, d it can be clearly felt that we are making it difficult or impossible for the air to pass through the mouth. Most people would have no doubt that sounds like s, d should be called consonants. However, there are many cases where the decision is not so easy to make. One problem is that some English sounds that we think of as consonants, such as the sounds at the beginning of the words 'hay' and 'way', do not really obstruct the flow of air more than some

Notes

vowels do. Another problem is that different languages have different ways of dividing their sounds into vowels and consonants; for example, the usual sound produced at the beginning of the word 'red' is felt to be a consonant by most English speakers, but in some other languages (e.g. Mandarin Chinese) the same sound is treated as one of the vowels.

5.1.1 Syllable, Vowel and Consonant

The units or sections into which words are divided while pronouncing them, are called syllables. The **Syllable** is a unit of pronunciation consisting of a vowel alone or of a vowel with one or more consonants. A vowel is the **nucleus** and consonant a **marginal element** in the syllable, that is, a consonant either at the beginning or at the end of a syllable. A consonant at the end of a syllable is called an **arresting** consonant, and at the beginning of a syllable is called **releasing** consonant. The marginal elements are not obligatory. These may occur either before the nucleus or after the nucleus, or some before and after the nucleus. The word **pick** consists of one syllable which consists of two marginal elements /p/ a releasing consonant and /k/an arresting consonant and of a nucleus /i/, which is a vowel. It is also possible to have a cluster of two or three consonants before and/or after the nucleus. For example, in **school**/ sku: l/, we have the cluster of two consonants/s/ and /k/ which is the first marginal element. Some syllables are made up of the nucleus alone e.g. 'eye' or T /ai/. Usually it is a vowel, for example /i:/ in seat/si:t/, which forms a nucleus in a syllable; but in words of more than one syllable in English the nucleus can also be a consonant, e.g./n/ and/l/ in the second syllable of **button and apple.**

It is also possible to explain the syllable in terms of the pulmonic air-stream mechanism. In the production of speech, the air from the lungs does not come out in a continuous stream at a constant pressure. The muscles of the chest push the air out in small puffs at the rate of approximately five times a second, and each puff of air produces a syllable. Each movement of the muscles of the chest is known as a chest-pulse. In order to produce a stressed syllable a re-inforced chest-pulse is used. The English words **president** has three syllables /prez-i-dent/, and the first syllable is stressed. And it is on the arrangement of stressed and unstressed syllables and the way they follow one another that the rhythm of a language depends.

The structure of a syllable can be represented by the formula CVC, C standing for consonant and V for vowel. Examples of some common structures of syllables used in English are cited below:

The **Structure** of the **Syllable**	The **Exemplification** of the **Structure**	The **Nucleus**
V	I or eye/ai/	/ai/
CVC	pack, back, lack, sack, that	/ æ /
CV	die/dye/dai/	/ai/
VC	in/in/	/i/
	eat/i: t /	/i:/
	add/æd/	/ æ /
VCC	ink/iŋk/	/i/
	eagle/i : gl/	/i:/
CVCC	fox foks/	/ɔ/
CCVC	school/sku : 1/	/u:/
CCCVC	street/stri : t/	i/
	straight/streti/	/ei/
CCVCC	crisp/krisp/	/i/
CVCCC	masks/ma:sks/	/a:/

Notes

It is on the basis of the number of syllables that the words are classified into monosyllabic, disyllabic and polysyllabic words. We have also seen that English permit initial consonant clusters of more than one C element in words such as **sky**/skai/ (CCV), and of three consonants in words such as **script**/skript (CCCVCC). English also permits consonant clusters in the final position. **Looks**/luks/CVCC) has a cluster of two consonants; **sixth**/siks θs / (CVCCC) has a consonant cluster of three consonants, and **sixths**/siks θs / (CVCCCC) has a cluster of four consonants in the final position. In the monosyllabic word **comb**—koum/, the structure of the syllable is CVC, because the final /**b**/ is silent and therefore it does not exist in the structure of the syllable. Sometimes two syllables in a word may be fused into one by suppressing a vowel sound in pronunciation, e.g. wa—t (e) ry, lit (e) ral. This process is known as **Elison or Slurring**.

5.1.2 Consonants

Definition: The word consonant has been derived from the Greek word **consonautem** which means the sound produced with the help of some other sound (vowel). Both the ancient Greeks and Indians defined the consonant as a sound produced with the help of a vowel. But such a definition is faulty and incomplete. First, there are sibilant consonants such as /s, ʃ,z, dz / and some laterals and nasals which can be pronounced without the help of any vowel. Secondly, there are some languages which have words without any vowel. For example, an African language Ibo has words as / η / and /g η /. Similarly, **strc prst skrz krk** ('Don't put a finger in your mouth') is a sentence in the Czech language which has no vowel at all. Hence a consonant has been defined by most modern phoneticians and linguists as a sound which is produced by a stoppage or partial stoppage of the breath, that is to say, in the production of a consonant the movement of air from the lungs is partially or fully obstructed as a result of narrowing or a complete closure of the air passage.

5.1.3 Contoids and Vocoids

The classification of sounds into vowels and consonants is customary irrespective of phonetic, phonological, or orthographic references. The current classification following Pike divides the sounds into **vocoids** (vowel sounds), **contoids** (consonant sounds), and **semi-vocoids** or **semi-contoids** (for example /w/ and /j/ in English). The terms contoids and vocoids refer to **phonetic form** only, without any reference to phonological function. **A vocoid**, according to Pike, is a segment formed with an open approximation of the articulators, with or without a velic closure, and with central passage or air stream. All other segments are **contoids**. The terms **vowel** and **consonant** are then reserved for phonological function./w/ and /j/ are vocoids phonetically, that is, they are produced as the vocoids (vowel sounds) are produced, but they do not form the nucleus of a syllable in English; hence their function is like that of other consonants. In other words, these are the sounds which in form are like vowels but in their function they are like consonants. Hence these are called **nonsyllabic vocoids**. /n/ and /l/ are phonetically contoids (since in the production of /n/ there is a stricture of complete oral closure and in the production of /l/ there is a stricture of complete closure in the centre and the air passes through the sides only), but when they form syllabic nuclei, they are called **syllabic contoids**, e.g. **in bottle** and **button**.

Two Kinds of Contoids and Vocoids

In English, there can be syllabic vocoids, non-syllabic vocoids, syllabic contoids and non-syllabic contoids. **Syllabic vocoids** are all vowel sounds; they function as syllable nuclei. Phonetically the vocoids are vowels and their phonological function is that of a syllabic vocoid. The first-segment in the word **inn**/in/is a syllabic vocoid. **Non-syllabic vocoids** are the sounds which are phonetically vocoids (are produced like vowels), but phonologically are contoids (function like ordinary contoids and do not form a nucleus in a syllable, and represent the C element in the syllable.) The first segment in **wet**/wet,/is a non-syllabic vocoids. So is the first segment in /**yet**/**jet**/a non-syllabic

Notes

vocoid. **Syllabic contoids** are the sounds which are phonetically contoids (are produced like consonants), but their phonological function is that of syllabic nucleus, that is, they represent the V element in the structure of a syllable. /l/ in **apple** and **battle** and /n/ in **button** are syllabic contoids. **Non-syllabic contoids** (also called consonants) are the sounds that phonetically are contoids and phonologically represent the C (marginal) element in the structure of a syllable.

5.1.4 Description of Consonants

A description of consonantal sounds, according to A.C. Gimson, must provide answers to the following questions:

1. Is the air-stream set in motion by the lungs or by some other means? (pulmonic or non-pulmonic).
2. Is the air-stream forced outwards or sucked inwards? (egressive or ingressive)
3. Do the vocal cords vibrate or not? (voiced or voiceless).
4. Is the soft palate raised or lowered? Or, does the air pass through the oral cavity (mouth) or the nasal cavity (nose)?
5. At what point or points and between what organs does the closure or narrowing take place? (Place of articulation).
6. What is the type of closure or narrowing at the point of articulation? (Manner of articulation).

Thus the description of a consonant will include five kinds of information: (1) the nature of the air-stream mechanism; (2) the state of the glottis; (3) the position of soft palate (velum); (4) the articulators involved; and (5) the nature of the 'stricture'.

1. **The Nature of the Air-stream Mechanism:** Most speech sounds and all normal English sounds are made with an egressive pulmonic air-stream, e.g., the air pushed out of the lungs.
2. **The State of Glottis:** A consonant may be voiced or voice-less, depending upon whether the vocal cords remain wide apart (voice-less) or in a state of vibration (voiced).
3. **The Position of the Soft Palate:** While describing consonants we have to mention whether they are oral sounds (produced with soft palate raised, thus blocking the nasal passage of air) or nasal sounds (produced with the soft palate lowered).
4. **The Articulators Involved:** In the description of consonants, we have also to discuss the various articulators involved. The articulators are active (the lower lip and the tongue) and passive (the upper lip, the upper teeth, the roof of the mouth divided into the teeth-ridge, the hard palate, and the soft palate, and the back wall of the throat pharynx). In the production of a consonant the active articulator is moved towards the passive articulator. The chief points of articulation are bilabial, labiodental, dental, alveolar, post-alveolar, palato-alveolar, retroflex, palatal, velar, uvular, and glottal. In the case of some consonantal sounds, there can be a secondary place of articulation in addition to the primary. Thus, in the so-called **dark** /l/, in addition to the partial alveolar contact, there is an essential raising of the back of the tongue towards the velum (velarization); or, again some post-alveolar articulator of 'r' (r) as in **red** are accompanied by slight lip-rounding (labialization). We can classify consonants according to the place of articulation.
5. **The Nature of Stricture:** By the nature of stricture we mean the manner of articulation. This stricture of obstruction made by the organs may be total, intermittent, partial, or may merely constitute a narrowing sufficient to cause friction.

When the stricture is that of a complete closure, the active and passive articulators make a firm contact with each other, and prevent the passage of air between them. For instance, in the production of /p/ as in **pin** and /b/ as in **bin**, the lips make a total closure.

Notes

The stricture may be such that air passes between the active and passive articulators intermittently. Such a stricture is called intermittent closure, and involves the vibration of the active articulator against the passive. The Scottish /r/ as in **rat** is an example. The intermittent closure may be of such a short duration that the active articulator strikes against the passive articulator once only. The English /r/ in the word **very** is an example; the tip of the tongue (active articulator) makes one tap against the teeth-ridge (passive articulator).

In the partial stricture, the air passes between the active and passive articulators continuously, but with some difficulty. The sounds thus produced are clear /l/ and dark /l/ in **late**, and **hill**, the **clear** and the **dark** 'l' respectively.

And lastly, the stricture may be such that the air, while passing between the active and passive articulators, produces audible friction. /f,v, θ, ð, s, z, ʃ, ʒ, h/ in English are examples of this kind of stricture. Or the air may pass without friction. Examples are/w/in **wet**, /j/in **yes** and flap /r/ as in **butter**. A stricture which involves audible friction, can be called a stricture of close approximation, whereas one which involves no such friction can be called a stricture of open approximation.

If we are to describe some of the consonant sounds in terms of the points discussed in the preceding paragraphs, we shall do that in the following manner (we shall not make any reference to the air-stream mechanism since we have already mentioned that all English sounds are made with a pulmonic egressive air-stream):

1. /p/ in the English word **pack**.
   - (*i*) The vocal cords are held apart and the sound is voiceless.
   - (*ii*) The soft palate is raised and the nasal passage is closed.
   - (*iii*) The active articulator is the lower lip.
   - (*iv*) The passive articulator is the upper lip.
   - (*v*) There is a stricture of complete closure.
2. /b/ in the English word **back**.
   - (*i*) The vocal cords vibrate, and the sound produced is voiced.
   - (*ii*) The soft palate is raised and the nasal passage is closed.
   - (*iii*) The active articulator is the lower lip.
   - (*iv*) The passive articulator is the upper lip.
   - (*v*) There is a stricture of complete closure.
3. /g/ in the English word **god**.
   - (*i*) The vocal cords vibrate, and the sound produced is voiced.
   - (*ii*) The soft palate is raised and the nasal passive is closed.
   - (*iii*) The active articulator is the back of the tongue.
   - (*iv*) The passive articulator is the soft palate.
   - (*v*) There is a stricture of complete closure; the back of the tongue makes a complete closure with the soft palate.
4. /t/ in the English words **cat**.
   - (*i*) The vocal cords are wide apart, and the sound is voiceless.
   - (*ii*) The soft palate is raised and the nasal passage is closed.
   - (*iii*) The active articulator is the tip of the tongue.
   - (*iv*) The passive articulator is the teeth ridge.
   - (*v*) There is a stricture of complete closure. The tip of the tongue makes a firm contact with the teeth ridge.

Notes

5. /m/ in the English word **man**.
   (*i*) The vocal cords vibrate and the sound is voiced.
   (*ii*) The soft palate is lowered and the air passes through the nose.
   (*iii*) The active articulator is the lower lip.
   (*iv*) The passive articulator is the upper lip.
   (*v*) There is a stricture of complete oral closure.
6. /v/ in the English word **van**.
   (*i*) The vocal cords vibrate and the sound is voiced.
   (*ii*) The soft palate is raised and the nasal passage is closed.
   (*iii*) The active articulator is the lower lip.
   (*iv*) The passive articulators are the upper front teeth.
   (*v*) The stricture is one of close approximation. (The lower lip is brought very near the upper front teeth. The air passes between them with audible friction.)
7. /j/ in the English word **yet**.
   (*i*) The vocal cords vibrate and the sound is voiced.
   (*ii*) The soft palate is raised.
   (*iii*) The active articulator is the front of the tongue.
   (*iv*) The passive articulator is the hard palate.
   (*v*) There is a stricture of open approximation. The front of the tongue is brought near the hard palate but the space between them is sufficient for the air to pass without any audible friction.

Hence the kind of stricture involved in the articulation of various sounds is as follows:

1. plosive: complete closure,
2. affricate: complete closure and slow release,
3. nasal: complete oral closure,
4. fricate: close approximation,
5. lateral: complete closure in the centre of the vocal tract and the air passes along the side (s) of the tongue,
6. vowel: open approximation,
7. semi-vowel: open approximation,
8. frictionless continuant: open approximation.

5.1.5 Classification of Consonants

Consonantal sounds are classified on the basis of (i) voicing, (ii) place of articulation, and (iii) manner of articulation.

1. **Voicing:** On the basis of voicing, sound can be classified into voiced and voiceless sounds. The voiced sounds in English are /b, d, g, v, ð , z, dz, m, n, ŋ , l, r, w, j/. The voiced sounds in Hindi are/ग, घ, ज, झ, ड, ढ, द, धा, ब, भ, य, र, ल, व, म, न, and other nasalized consonants and all vowels.

   All the vocoids and semi-vowels are voiced sounds, whereas among the consonants some are voiced and some voiceless. If the vocal cards vibrate when a sound is produced, it is said to be voiceless.

2. **The Place of Articulation:** Consonants are divided as given in the following table on the basis of the articulatory points at which the articulators actually touch, or are at their closest.

Notes

5.1.6 The Classification of English Consonants according to the Place of Articulation

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

This table includes the classification of all the consonants of English. To exemplify the classification of the consonants in Hindi we can present this table in the following way:

5.1.7 The Classification of Hindi Consonants according to the Place of Articulation

	Articulators	Examples from Hindi
Velar	Soft palate and back of tongue	{क ख ग घ ङ}
Palatal	Hard palate and tip and front of tongue	{च छ ज झ ञ अ य ज्ञ}
Retroflex (Cerebral or cacuminal)	Hard palate and tip of tongue curled back	{ट ठ ड ढ़ ण र}
Dental	Teeth and tip of tongue	{त थ द धा न}
Labio-dental	Lower lip and upper teeth	{व}
Bilabial	Two lips	{प फ ब भ म}
Alveolar	Alveolar ridge and lip and blade of tongue	{र ल स}
Glottal (laryngeal)	Glottis (vocal cords)	{ह}
Uvular	Uvula and root of	{क, ख, ग,}

Notes

5.1.8 The Manner of Articulation

According to the manner of articulation, which describes the type of obstruction caused by the narrowing or closure of the articulators, the consonants can be divided into stops, affricates, fricatives, nasals, rolls, laterals, and semi-vowels or frictionless continuants. We shall discuss these one by one.

1. **Stop:** In the production of a stop, the oral and nasal passages are closed simultaneouly. The active and passive articulators come in contact with each other forming a stricture of complete closure and preventing the air from escaping through the mouth. The soft palate is raised and thus the nasal passage is also blocked. (This is also known as velic closure). The air behind the oral closure is compressed, and when the active articulator is removed from contact with passive one, the air escapes with an explosion. Stops are also known as mutes, explosives, plosives or occlusives, /p/ in **pat** and /b/ in **bat** are the examples of stops.
2. **Affricate:** If the stop is not held for any appreciable time and released slowly, we get an affricate rather than a plosive, e.g./t ʃ / in **chair** and /dz/ in **jail**.
3. **Nasal:** In a nasal contoid, the breath stream is interrupted at some point in the oral cavity or at the lips, while being allowed to enter the nose and create resonance there. Thus a nasal is produced by a stricture of complete oral closure. The soft palate is lowered and the air passes through the nose. All nasal sounds are voiced. Examples /m, n, v/ in English.
4. **Trill (or Rolled Consonants):** In the production of a trill, the active articulator taps several times against the passive articulator. The stricture involved can be called a stricture of intermittent closure. Scottish /r/, for example in **red**, in which the tip of the tongue strikes against the teeth ridge a number of times, is called a trilled consonant. In Hindi words like **Ram**/ ra: m/ and **rath** /r ə θ / we have this variety of /r/.
5. **Flap:** For a flap the active articulator strikes the passive articulation once only. For example the /r/ in the English word **very**, in which the tip of the tongue strikes against teeth ridge only once.
6. **Lateral:** Laterals are produced by a stricture of complete closure in the centre of the vocal tract, but the air passes out every one or both side of the tongue. For example, /1/ in **late**.
7. **Fricative:** In the production of a fricative consonant the stricture is one of close approximation. The active articulator and the passive articulator are so close to each other that passage between them is very narrow and the air passes through it with audible friction. Examples are /f/ in **face**, /v/ in **vain** / θ /in **think**, / ð / in **them**, /s/ in **sail**, /z/ in **zero**, / ʃ / in **ship**, / ʒ / in **measure**, /h/ in **hat.**
8. **Frictionless Continuant:** In the production of a frictionless continuant the stricture is that of open approximation. For example in the production of /r/ in **red**, **read**, **real**, **ready**, the active articulator (tip of the tongue) is brought just behind the passive articulator (alveolar ridge) so that there is plenty of space between the two articulators, and the air passes between them without friction; and hence the term "frictionless continuant." Hindi "v" as in **vah** is a frictionless continuant. Gimson includes the English /r/ in words like **red** and **read** among the frictionless continuants, but the English (r) also occurs as a fricative as in **try, cry, ray, pray, grow, very, sorry**. Jones includes it in the list of fricatives and Gimson in the list of frictionless continuants.
9. **Semi-vowel:** A semi-vowel is a vowel glide functioning as a consonant i.e., as the C element in syllable structure. In terms of articulation semi-vowels are like vowels, but they don't behave like vowels. Semi-vowels are never stable; they can never be pronounced by themselves. They are sounds in transition. Examples are /j/ in **yet** and /w/ in **wet**. These are also called semiconsonants too.
10. **Fortis and Lenis:** When we have voiceless/voiced pair, the two sounds are also distinguished by the degree of breath force and muscular effort involved in the articulations, e.g.s is comparatively strong or **fortis**, and z is comparatively weaker **lenis**.

We summarize the classfication of the consonants in English on the basis of the manner of articulation in the following table.

Notes

Name of the Class	Structure Involved	Examples
Stop	Complete closure	/p b t d k g/
Affricate	Closure, then slow separation	/t ʃ d ʒ /
fricative	Narrowing, resulting audible friction	/f v θð s z / ʃ 3/
Nasal	Complete clsoure in mouth, air escapes through nose	/m n ŋ /
Rolled	Rapid intermittent closure	/r/
Lateral	Closure in the centre of mouth, air escapes over the sides of tongue	/l/
Frictionless Continuant	Slight narrowing, not enough to cause friction	/r/
Semi-vowels/ Semi-consonants	Slight narrowing, not enough to cause friction.	/wj/

Given on the next page are some figures (from Gleason's book) showing the manner of articulation of some English consonant sounds.

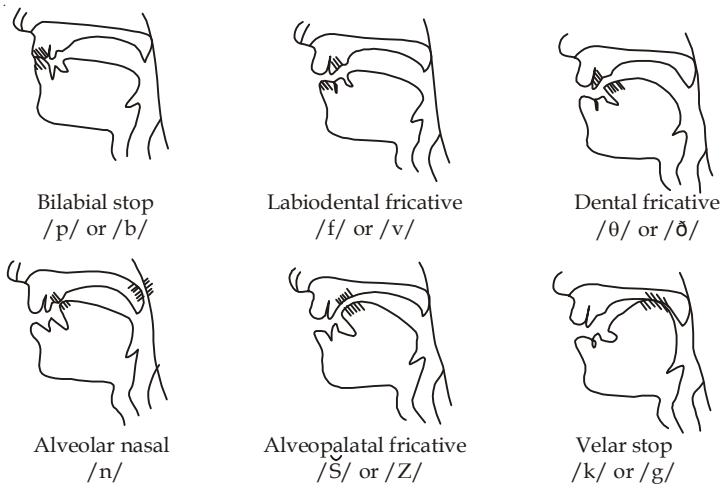
5.1.9 Identification of Consonants

We can describe and identify a consonant briefly by using a three-term label, indicating (i) whether the sound is voiceless or voiced, (ii) the place of articulation; and (iii) the manner of articulation. For example, /p/ in **pant** can be described as a voiceless, bilabial stop (or plosive), /b/ in **bet** as a voiced, bilabial stop, /m/ in **mango** as voiced bilabial nasal, / ŋ / in **hand** as a voiced velar nasal, /z/ in **zoo** as a voiced alveolar fricative, /t ʃ /in **chair** as a voiceless palate-alveolar affricate; /f/ in **fan** as a voiceless labio-dental fricative, and so on so forth. We should have described the consonants of English in these terms while dealing with the phonology of English, but we list them below to facilitate study:

The consonants are represented on a two-dimensional grid. The grid takes account of three features of each sound; (i) whether the sound is **voiced** or **voiceless**; (ii) **the point of articulation;** and (iii) **the manner of articulation.** In the grid of points of articulation are set out horizontally and the types of manner of articulation are arranged vertically.

	LOWER ARTICULATOR	UPPER ARTICULATOR
Bilabial	(lower) lip	upper lip
Labiodental	(lower) lip	(upper) teeth
Dental	tip of tongue	(upper) teeth
Alveolar	tip of tongue	upper gums
Alveopalatal	front of tongue	far front of palate
Velar	back of tongue	velum (soft palate)
Glottal	the two vocal cords	

Notes



ENGLISH ARTICULATIONS

5.2 Vowels

Vowels may be defined with an open approximation without any obstruction, partial or complete, in the air passage. They are referred to as vocoids in phonetics. They can be described in terms of three variables:

1. height of tongue
2. part of the tongue which is raised or lowered
3. lip-rounding.

		BILABIAL	LABIO-DENTAL	DENTAL	ALVEOLAR	ALVEO-PALATAL	VELAR	GLOTTAL
CONSONANTS	STOPS : VOICELESS	P					K	
	STOPS : VOICED	b					ɡ	
	AFFRICATES : VOICELESS					tʃ		
	AFFRICATES : VOICED					d_3		
	FRICATIVES : VOICELESS		f	θ	S			h
	FRICATIVES : VOICED		V	ð	Z			
	LATERAL : VOICED				l			
	NASAL : VOICED	m			ɳ		ŋ	
	SEMIVOWELS : VOICED	w			r	J		

CLASSIFICATION OF ENGLISH CONSONANTS

Notes

So vocoids are normally classified according to these three criteria: tongue-height (**high, mid, low, or close, half-open** and **open**); tongue advancement (**front, central, back**); and lip-rounding (**rounded and unrounded**).

In order to describe the vowels, we usually draw three points in the horizontal axes: front, central and back, referring to the part of the tongue which is the highest. So we have

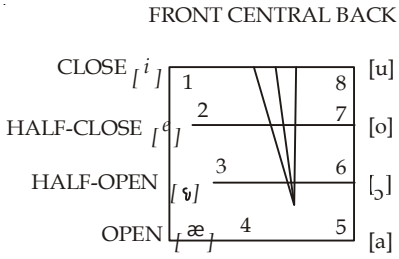
1. **front vowels,** during the production of which the front of the tongue is raised towards the hard palate. For example, /i, i:, e:, a/ in Hindi, and /i, i:, e, æ / in English as in **sit, seat, set**, and **sat** respectively.
2. **back vowels,** during the production of which the back of the tongue is raised towards the soft palate. For example /o:,u, u:/ in Hindi, and/ a:, ɔ,ɔ:, u, u:/ in English as in **cart, cot, caught, book** and **tool** respectively.
3. **central vowels,** during the production of which the central part of the tongue (the part between the front and the back) is raised. For example, /ə/ in Hindi, and/ə,ə:, ʌ/ in English as in **about, earth** and **but** respectively.

On the vertical axis we usually draw four points: close, half-close, half-open, and open. They are also referred to as high, high mid, mid (middle), low mid, and low by some phoneticians, especially the American phoneticians. On the basis of the vertical axes we have the following types of the vowels.

A close vowel is one for which the tongue is as close to the roof of mouth as possible. For example, /i:/ in **sea** and /u:/in **zoo**.

An **open** vowel is one which is produced with the tongue as low as possible and the jaws are wide open. For example, /a:/ in **card** and /ɔ/in **hot**.

The two intermediate points—half-close and half-open—are obtained by dividing the distance between the two extreme positions into three equal points. These are customarily represented in the following manner.



THE PRIMARY CARDINAL VOWELS

Figure 5.1

The above figure represents the Primary Cardinal Vowels on the horizontal and vertical lines suggested by Daniel Jones. These cardinal vowels do not exist in any language in this form, but are phonetic hypotheses meant to facilitate the description of vowels.

As regards lip-rounding, in British R.P., ... front and central vowels are automatically unrounded and back vowels (except /a:/) are automatically rounded. So this distinction is omitted by some phoneticians, but some others still maintain it.

We can describe a vowel by using a three-term label, indicating the height, the direction (advancement) of the tongue, and the position of the lips. For example.

1. /a:/ in the English word **arm**, back, open, unrounded vowel.
2. /ɔ/ in the English word **hot**, back open, rounded vowel.
3. /i:/ in the English word **need**, front, close, unrounded vowel.
4. /u/ in the English word, **tooth**, back, close, rounded vowel.

Notes

To describe the vowel sound we mention whether it is open or close, half-close or half-open, front or back or central long or short, whether the tongue is tense or lax while the vowel is being pronounced, and whether lips are spread, neutral, open rounded, or close rounded. All English vowels are voiced. So, for every vowel, we must state that it is voiced.

5.3 Diphthongs

From the point of view of their quality, vowel sounds are of two types: monophthong and diphthong. Monophthongs are pure vowels and diphthongs are gliding vowels. 'A vowel that does not change in quality' may be called a monophthong; and a vowel sound with a continually changing quality may be called a diphthong.

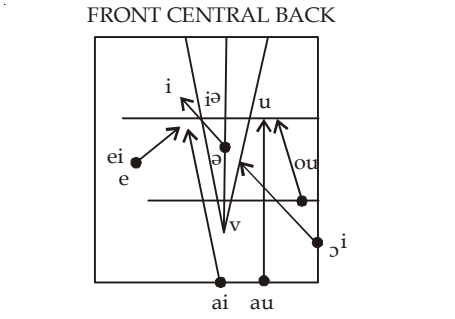
A pure vowel is one for which the organs of speech remain in a given position for an appreciable period of time. A diphthong is a vowel sound consisting of a **deliberate**, i.e. **intentional glide**, the organs of speech starting in the position of one vowel and immediately moving in the direction of another vowel. A diphthong, moreover, consists of a single syllable—that is, the vowel-glide must be performed **with a single impulse of the breath**; if there is more than one impulse of breath, the ear perceives two separate syllables.

A diphthong, thus, always occupies one syllable. If two adjacent vowels form the nuclei of two successive syllables, they are not a diphthong. For example the vowels in **bay, boy**, and **buy** are diphthongs, but the vowels in **doing** are two different vowels since they belong to two different syllables.

One end of the diphthong is generally more prominent than the other. Diphthongs are termed 'decrescendo' of FALLING if the first element is louder or more prominent than the second, and 'crescendo' or RISING if the second element is louder or more prominent than the first. All the English diphthongs are falling diphthongs, because in them the first element is louder or more prominent than the second element.

Diphthongs are represented in phonetic transcription by a sequence of two letters, the first showing the position of the organs of speech at the beginning of the glide, the second their position at the end. In the case of the 'closing' diphthongs the second letter indicates the point **toward which** glide (movement) is made.

In English, for example, there are two kinds of diphthongs: the closing diphthongs and the centring diphthongs. The closing diphthongs in English are:



(THE CLOSING DIPHTHONGS IN ENGLISH)

Figure 5.2

/ei/as in/bei/(bay)

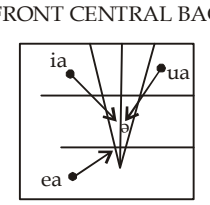
/ou/as in/bout (boat)

/ai/as in/bai (buy)

/au/as in/bau/(bough)

/ɔi/as in/bɔi (boy)

Notes



(THE CENTRING DIPHTHONGS IN ENGLISH)

Figure 5.3

The centring diphthongs in English are:

/iə/as in/piə/(pear)

/eə/as in/peə/(pair)

/uə/as in/puɔ/(poor)

5.3.1 Description of Diphthongs

Diphthongs are described by indicating the position of the tongue and the lips in the beginning and at the end of the glide. For example, /ai/ in the English word **buy** can be described as a glide or movement from front, open, unrounded to front, half-close, unrounded. The descriptions of the diphthongs of R.P. are given below:

/ou/as in **boat** : closing diphthong, beginning at a central position below half-close and moving in the direction of /u/. The lips are neutral in the beginning and rounded towards the end.

/ei/as in **pay** : closing diphthong, beginning at a slightly below half-close position and moving towards R.P. /i/. The lips are spread.

/ai/as in **buy** : closing diphthong glides from the front open position towards /i/. The lips change from a neutral to a loosely spread position.

/ɔi/as in **boy** : closing diphthong, the glide begins near the back half-open position and moves in the direction of /i/. The lips are open-rounded at the beginning and neutral at the end.

/au/as in **how** : closing diphthong, glides from /a/ towards /u/. The lips are neutral in the beginning and weakly rounded in the end.

/i/as in **peer** : centring diphthong, the glide begins at /i/ and moves towards /ə/. The lips are neutral.

/eə/ as in **air** : centring diphthong, the glide begins between half-close and half-open position and moves towards /ə/. The lips are neutral.

/uə/ as in **poor** : the centring diphthong, the glide begins at /u/ and moves to /e/. The lips are weakly rounded at the beginning and neutral at the end.

To summarise the description of vowel sound should include information about the position of the soft palate, the position of the lips, the part of the tongue raised and the degree of raising. It is difficult to judge the exact tongue position for a vowel.

A system of eight primary cardinal vowels enables us to describe any vowel sound in relation to them. These cardinal vowels are represented by the symbols [i, e, ɛ, a ,æ, ɔ, o, u,]. Some languages have nasalized vowels also. Some vowels are relatively 'pure'; others have glides and are called diphthongs. Vowels are classified according to the part of the tongue raised into front, central, and back vowels. Vowels are classified into close, half close, half-open vowels according to the height of the tongue.

5.4 Phonetic Transcription

Phonetic transcription is a device in which we use several symbols in such a way that one symbol always represents one sound. It is also known as phonetic notation, it is an 'attempt on paper, a

Notes

record of the sounds that speak ers make.' By looking at an English word in its written form one cannot be sure of its pronunciation, whereas by looking at it in phonetic transcription one can be. Most of our phonetic transcriptions are **phonemic** transcriptions, that is, each symbol represents a phoneme, a distinct sound unit in language. A pair of square brackets [ ] indicates a phonetic transcription. Phonemic transcriptions are enclosed within slant bars/ /.

5.4.1 The Narrow and Broad Transcription

A broad phonetic transcription, that is the phonemic transcription is the transcription of the phonemes of a language, e.g., the English words **peak** and **speak** can be transcribed as /pi: k/ and/spi: k/ respectively, although there occurs the aspirated **variety** of phoneme /p/ in the first word (**peak**) and the unaspirated variety in the second. But the narrow transcription, also called **the allophonic transcription**, indicates the precise phonetic quality of each segment. In this type of transcription the aspirated variety of /p/ as in the word **peak** can be indicated by transcribing the words [p^h i: k]

5.4.2 The Usefulness of the International Phonetic Alphabet

the I P A gives us a uniform international medium of studying and transcribing the sounds of all the languages of the world. Many languages in the world have no orthographic (written) form at all. It has been made possible to study such languages with this alphabet. In other words, the I P A is 'a precise and universal' means (i.e. valid for all languages) of writing down the spoken forms of utterances as they are spoken without reference to their orthographic representation, grammatical status, or meaning.

As regards English, the I P A helps us in establishing and maintaining international intelligibility and uniformity in the pronunciation of English. With the help of the IPA we can easily teach the pronunciation of English or of any other language. The IPA has contributed a lot in the teaching and description of language. The teachers and learners of English can improve, and standardize their pronunciation and can overcome the confusion created by the spellings with the help of the international phonetic alphabet.

		Bilabial	**Labiodental**	**Dental, Alveolar, or Post-alveolar**	**Retroflex**
CONSONANTS (pulmonic air-stream mechanism)	Nasal	m	ɱ	n	ɳ
	Plosive	p b		t d	ʈ ɖ
	(Median) Fricative	ɸ β	f v	θ ð s z	ʂ ʐ
	(Median) Approximant		ʋ	ɹ	ɻ
	Lateral Fricative			ɬ ɮ	
	Lateral (Approximant)			l	ɭ
	Trill			r	
	Top or Flap			ɾ	ɽ
	Ejective	pʼ		tʼ	
	Implosive	ɓ		ɗ	
(non-pulmonic air-stream)	(Median) Click	ʘ		ǀ	ǃ
	Lateral Click			ǁ	

DIACRITICS

◦	Voiceless n̥ d̥	ɻ or .	Raised e ɻ (e̝ , ẹ)	ɕ .	z Alveolo-palatal
ˬ	Voiced s̬ t̬	‘or ,	Lowered e̞ (e̞ , ẹ˕)		fricatives ʃ ,
ʰ	Aspirated tʰ	+	Advanced u+ (u̟)		ʒ Palatalized ʃ , ʒ
..	Breathy-voiced b̤ a̤	-or -	Retracted e̠ (e̠ , i- t̠)	ɾ	Alveolar fricative
n	Dental t̪	..	Centralized ë		trill
-	Labialized t̼	~	Nasalized ɑ̃	ɺ	Alveolar lateral flap
ʲ	Palatalized tʲ	ˌɻ , ʁ	r-coloured ɑ˞	ɧ	Simultaneous ʃ and x
ˠ	Velarized or Pharyn-	:	Long ɑː	ʃˢ	Variety of ʃ resembling
~	gealized ɬ	.	Half-long ɑˑ		% etc.
ˈ	Syllabic n̩ l̩	ˋ	Non-syllabic u̯	I	= ʃ
or	Simultaneous sf (but see also under the heading Affricates)	ˌ	More rounded ɔ̹	ʊ	= o
		ˌ	Less rounded y̜	ʒ	= Variety of ə
				ə	= r-coloured ə

OTHER SYMBOLS

Notes

Palato-alveolar	Palatal	Velar	Uvular	Labial-Palatal	Labial-Velar	Pharyngeal	Glottal
	ʄ	ɠ	N				
	c ɟ	k g	q G		k͡p g͡b		ʔ
ʃ ʒ	ɕ ʑ j	x ɣ ɰ	χ ʁ	ɥ	ʍ w	ħ ʕ	h ɦ
ʏ							
			R R				
	k′ ɡ						

Front	Back	VOWELS	Front	Back
i ɨ ɯ ɪ		Close	y ʉ u ʏ θ	
e ə	ɤ	Half-close	Ø θ	o
ɛ	ʌ	Half-open	œ	ɔ
æ ɐ a	ɑ	open	œ	ɒ
Unrounded			Rounded	

Notes

STRESS, TONE (PITCH)

ˈ stress, placed at beginning of stressed syllable:

ˌ secondary stress: high level pitch, high tone:

- low level: ˈhigh rising:

, low rising: ˈhigh falling:

` low falling: rise-fall:

fall-rise.

AFFRICATES can be written as digraphs, as ligatures, or with slur marks; thus ts, tʃ, dʒ : ts tʃ dʒ : t͡s t͡ʃ d͡ʒ.

c, ɟ may occasionally be used for tʃ, dʒ

A number of phonetic transcriptions have been evolved. But the most well-known are (1) Daniel Jones' system, (2) A.C. Gimson's system, (3) George L. Trager and Henry Lee Smith's system, and (4) Charles C. Fries and Kenneth L. Pike's system. The difference between Jones' and Gimson's system is not great. In the representation of consonants, Gimson and Jones do not make any difference at all. It is only in the case of certain vowel sounds that they use different symbols.

We have followed in this book Daneil Jones' system because of its simplicity and facility in printing it. But we strongly feel that Gimson's system is more sound and comprehensive than that of Jones. Another reason of our preference to Jones is community of our Indian learners and teachers who have been using text-books, dictionaries (e.g. *The Advanced Learner's Dictionary of Current English; Everyman's English Pronouncing Dictionary*) etc. which follow Jones' system of phonetic transcription using the IPA symbols, although the latest editions of these dictionaries have been revised and follow Gimson. Jones and Gimson are British phoneticians. Trager and Smith and Fries are American scholars and are followed in most American books on linguistics and phonetics. Nevertheless, we recommend to our readers to follow Gimson's system of phonetic transcription, and hence reproduce below Gimson's list of phonetic symbols and signs from his book, *Introduction to the Pronunciation of English.* (By courtesy Prof. Gimson)

LIST OF PHONETIC SYMBOLS AND SIGNS

a Cardinal Vowel no. 4 (approximately as in French *patte*); used for first element of Eng. dipththong [ai]

æ front vowel between open and half-open (Eng. vowel in *cat*).

ɑ Cardinal Vowel no. 5 (approximately as in French *pas*); used for first element of Eng. diphthong [ɑʃ], and for Eng [ɑ:] in *car*

ɒ open rounded Cardinal Vowel no. 5 (Eng. vowel in *dog*)

b voiced bilabial plosive (Eng. *b* in *labour*)

ɓ voiced ingressive bilabial plosive

β voiced bilabial fricative

c voiceless palatal plosive

ç voiceless palatal fricative

ɔ Cardinal Vowel no. 6 (approximately as in German *Sonne*); used for Eng. [ɔ:] in *saw*, and first element of diphthong [ɔi]

d voiced alveolar plosive (Eng. *d* in *lady*)

ɗ voiced ingressive alveolar plosive

ð voiced dental fricative (Eng. *th* in *other*)

Notes

e Cardinal Vowel no. 2 (approximately as in French *the*); used for Eng. [e] in *bed*, and first element of diphthong [ei]

ə unrounded central vowel (Eng. initial and final vowels in *another*)

ɚ retroflexed central vowel (American *er* in *water*)

ɛ Cardinal Vowel no. 3 (approximately as in French *pere*); used for first element of diphthong [ɛ ə]

3 unrounded central vowel (Eng. vowel in *bird*)

f voiceless labio-dental fricative (Eng. *f* in *four*)

ɟ voiced palatal plosive

g voiced velar plosive (Eng. *g* in *eager*)

ɠ voiced ingressive velar plosive.

h voiceless glottal fricative (Eng. *h* in *house*)

ɦ voiced glottal fricative (sometimes Eng. *h* in *behind*)

i Cardinal Vowel no. 1 (approximately as in French *si*); used for Eng [i:] in *see*

ɨ unrounded central close vowel

1 centralized unrounded half-close vowel. (Eng. vowel in *sit*)

j palatal unrounded semi-vowel (Eng. *y* in *you*)

r linguo-alveolar tap (sometimes *r* in Eng. *very*)

k voiceless velar plosive (Eng. *c* in *car*)

1 voiced alveolar lateral continuant (Eng. *l* in *lay*)

ɬ voiced alveolar lateral continuant with velarization (Eng. *ll* in *ill*)

ɸ voiceless alveolar lateral fricative (Welsh *ll*)

m voiced bilabial nasal (Eng. *m* in *me*)

ɱ voiced labio-dental nasal (Eng. *m* in *comfort*)

ɯ unrounded Cardinal Vowel no. 8

n voiced alveolar nasal (Eng. *n* in *no*)

ŋ voiced velar nasal (Eng. *ng* in *sing*)

ɲ voiced palatal nasal (French *gn* in *vigne*)

o Cardinal Vowel no. 7 (approximately as in French *eau*)

ø rounded Cardinal Vowel no. 2 (approximately as in French *peu*)

œ open rounded Cardinal Vowel no. 3 (approximately as in French *peur*)

θ voiceless dental fricative (Eng. *th* in *thing*)

p voiceless bilabial plosive (Eng. *p* in *pea*)

r linguo-alveolar roll (Scottish, Italian *r*); also used for Eng. *r* in *red* voiced post-alveolar frictionless continuant (Eng. *r* in *red*)

ɻ voiced retroflex frictionless continuant

R voiced uvular roll

ʁ voiced uvular fricative or frictionless continuant

S voiceless alveolar fricative (Eng. *s* in *see*)

ʃ voiceless palato-alveolar fricative (Eng. *sh* in *she*)

Notes

t	voiceless alveolar plosive (Eng. *t* in *tea*)
ʇ	voiceless alveolar click
u	Cardinal Vowel no. 8 (approximately as in French *doux*); used for Eng.
[u:]	in do
ʉ	central rounded close vowel
ʃ	centralized rounded half-close vowel (Eng. *u* in *put*)
v	voiced labio-dental fricative (Eng. *v* in *ever*)
ʌ	unrounded Cardinal Vowel no. 6; used for Engl, vowel in *cup*
ʋ	labio-dental frictionless continuant
w	labio-velar semi-vowel (Eng. *w* in *we*)
ʍ	voiceless labio-velar fricative (sometimes Eng. *wh* in *why*)
x	voiceless velar fricative (Scottish *ch* in *loch*)
y	rounded Cardinal Vowel no. 1 (approximately as in French *du*)
ʎ	voiced palatal lateral continuant (Italian *gl* in *egli*)
ʏ	unrounded Cardinal Vowel no. 7
Y	voiced velar fricative
z	voiced alveolar fricative (Eng. *z* in *lazy*)
ʒ	voiced palato-alveolar fricative (Eng. *s* in *measure*)
ɸ	voiceless bilabial fricative
ʖ	voiceless alveolar lateral click
?	glottal plosive (stop)
:	indicates full length of preceding vowel
.	indicates half length of preceding vowel
!	main accentual stress or pitch prominence on following syllable
;	secondary accentural stress on following syllable
ˋ	high unaccented pre-neuclear syllable
	high falling pitch
ˋ,	low falling pitch
	falling-rising pitch
˘	rising-falling pitch
	high rising pitch
,ˋ	low rising pitch
ˌ	syllable carrying secondary accent
•	syllable, immediately following nucleus, carrying secondary accent based on quality/quantity
ˈ	syllable carrying primary (nuclear) accent
.	unaccented syllable
-	naslization, e.g. [õ]
	centralization, e.g. [ö]
•	more open quality, e.g. [o]
.	closer quality, e.g. [o̝]

Notes

° devoiced lenis consonant, e.g. [z])(above in the case of [ŋ°, ʒ̥ , g̊])

| syllabic consonant, e.g. [n̩] (above in the case of [ŋ])

‿ dental articulation, e.g. [t̪]

[ ] phonetic transcription

/ / phonemic transcription

Self-Assessment

1. Choose the correct options:

(*i*) **Ear Training Test**

Which word is it? Tick the correct answer (or write in phonemic transcription the following pairs):

(*a*)	bead	bid	(*b*)	bone	born
(*c*)	callous	careless	(*d*)	car	cur
(*e*)	caught	cot	(*f*)	foot	put
(*g*)	gate	get	(*h*)	lock	luck
(*i*)	seat	sheet	(*j*)	vest	west

(*ii*) Which part of the tongue is raised in the production of the vowel sounds in the following words:

(*a*) *knee* (*b*) *food* (*c*) *tin* (*d*) *bat*.

(*iii*) Which part of the tongue is raised in the production of the vowel sounds in the following English words?

beam, big, bid, bag, drop, too.

(*iv*) Say whether the vowel sounds in the following English words are close or open: *key, art, pot, moon*,

(*v*) Say whether the lips are rounded or unrounded in the production of the vowel sounds in the following English words:

sea, give, pass, bed, who, hot, come, foot, pack, cut, teach, moon.

(*vi*) Supply the phonetic symbols for the consonant sounds italicised in the following words:

(*a*)	pleasure	(*b*)	tou*ch*	(*c*)	*th*ere	(*d*)	*th*ink
(*e*)	*sh*ort.	(*f*)	lo*ng*	(*g*)	q*u*ality	(*h*)	*c*ar
(*i*)	please	(*j*)	*j*ug				

5.5 Summary

- All the sounds we make when we speak are the result of muscles contracting. The muscles in the chest that we use for breathing produce the flow of air that is needed for almost all speech sounds; muscles in the larynx produce many different modifications in the flow of air from the chest to the mouth. After passing through the larynx, the air goes through what we call the vocal tract, which ends at the mouth and nostrils; we call the part comprising the mouth the oral cavity and the part that leads to the nostrils the nasal cavity. Here the air from the lungs escapes into the atmosphere. We have a large and complex set of muscles that can produce change in the shape of the vocal tract, and in order to learn how the sounds of speech are produced it is necessary to become familiar with the different parts of the vocal tract. These different parts are called articulators, and the study of them is called articularoty phonetics.

Notes

- You will need to look at it carefully as the articulators are described, and you will find it useful to have a mirror and a good light placed so that you can look at the inside of your mouth.

  (*i*) The pharynx is a tube which begins just above the larynx. It is about 7 cm long in women and about 8 cm in men, and at its top end it is divided into two, one part being the back of the oral cavity and the other being the beginning of the way through the nasal cavity. If you look in your mirror with your mouth open, you can see the back of the pharynx.

  (*ii*) The soft palate or velum is seen in the diagram in a position that allows air to pass through the nose and through the mouth. Yours is probably in that the nose. The other important thing about the soft palate is that it is one of the articulators that can be touched by the tongue. When we make the sounds k, g the tongue is in contact with the lower side of the soft palate, and we call these velar consonants.

  (*iii*) The hard palate is often called the "roof of the mouth". You can feel its smooth curved surface with your tongue. A consonant made with the tongue close to the hard palate is called palatal. The sound j in 'yes' is palatal.

  (*iv*) The alveolar ridge is between the top front teeth and the hard palate. You can feel its shape with your tongue. Its surface is really much rougher than it feels, and is covered with little ridges. You can only see these if you have a mirror small enough to go inside vour mouth, such as those used by dentists.

  (*v*) The lips are important in speech. They can be pressed together (when we produce the sound p, b), brought into contact with the teeth (as in f,v), or rounded to produce the lip-shape for vowels like u:. Sounds in which the lips are in contact with each other are called bilabial, while those with lip-to-teeth contact are called labiodental.

  The articulators described above are the main ones used in speech, but there are a few other things to remember. Firstly, the larynx could also be described as an articularor—a very complex and independent one. Secondly, the jaws are sometimes called articulars; certainly we move the lower jaw a lot in speaking. But the jaws are not articulators in the same way as the others, because they cannot themselves make contact with other articulators. Finally, although there is practically nothing active that we can do with the nose and the nasal cavity when speaking, they are a very important part of our equipment for making sounds (which is sometimes called our vocal apparatus), particularly nasal consonants such as m, n. Again, we cannot really describe the nose and the nasal cavity as articulators in the same sense as (*i*) to (*v*) above.

- What we are doing here is looking at the different contexts and positions in which particular sounds can occur; this is the study of the distribution of the sounds, and is of great importance in phonology. Study of the sounds found at the beginning and end of English words has shown that two groups of sounds with quite different patterns of distribution can be identified, and these two groups are those of vowel and consonant. If we look at the vowel-consonant distinction in this way, we must say that the most important different distributions. It is important to remember that the distribution of vowels and consonants is different for each language.

  We begin the study of English sounds in this course by looking at vowels, and it is necessary to say something about vowels in general before turning to the vowels of English. We need to know in what ways vowels differ from each other. The first matter to consider is the shape and position of the tongue. It is usual to simplify the very complex possibilities by describing just two things: firstly, the vertical distance between the upper surface of the tongue and the palate and, secondly, the part of the tongue, between front and back, which is raised highest.

Notes

Let us look at some examples:

(*i*) Make a vowel like the i: in the English word 'see' and look in a mirror; if you tilt your head back slightly you will be able to see that the tongue is held up close to the roof of the mouth. Now make an æ vowel (as in the word 'cat') and notice how the distance between the surface of the tongue and the roof of the mouth is now much greater. The difference between i: and æ is a difference of tongue height, and we would describe i: as a relatively close vowel and æ as a relatively open vowel. Tongue height can be changed by moving the tongue up or down, or moving the lower jaw up or down. Usually we use some combination of the two sorts of movement.

(*ii*) In making the two vowels described above, it is the front part of the tongue that is raised. We cold therefore describe i: and æ as comparatively front vowels. By changing the shape of the tongue we can produce vowels in which a different part of the tongue is the highest point. A vowel in which the back of the tongue is the highest point is called a back vowel. If you make the vowel in the word 'calm', which we write phonetically as a:, you can see that the back of the tongue is raised. Compare this with æ in front of a mirror; æ is a front vowel and a: is a back vowel. The vowel in 'too' (u:) is also a comparatively back vowel, but compared with a: it is close.

- Show now we have seen how four vowels differ from each other; we can show this in a simple diagram.

	Front	Back
Close	i:	u:
Open	æ	a:

However, this diagram is rather inaccurate. Phoneticians need a very accurate way of classifying vowels, and have developed a set of vowels which are arranged in a close-open, front-back diagram similar to the one above but which are not the vowels of any particular language. These cardinal vowels are a standard reference system, and people being trained in phonetics at an advanced level have to learn to make them accurately and recognise them correctly. If you learn the cardinal vowels, you are not learning to make English sounds, but you are learning about the range of vowels that the human vocal apparatus can make, and also learning a useful way of describing, classifying and comparing vowels.

The exact shape is not really important - a square would do quite well but we will use the traditional shape. The vowels so-called primary cardinal vowels; these are the vowels that are most familiar to the speakers of most European languages, and there are other cardinal vowels are printed within square brackets [] to distinguish them clearly from English vowel sounds.

5.6 Key-Words

1. Affricate : If the stop is not held for any appreciable time and released slowly, we get an affricate rather than a plosive, e.g./tʃ / in **chair** and /dz/ in **jail**.

2. Nasal : In a nasal contoid, the breath stream is interrupted at some point in the oral cavity or at the lips, while being allowed to enter the nose and create resonance there. Thus a nasal is produced by a stricture of complete oral closure. The soft palate is lowered and the air passes through the nose. All nasal sounds are voiced. Examples /m,n,v/ in English.

Notes

3. Trill (or Rolled Consonants) : In the production of a trill, the active articulator taps several times against the passive articulator. The stricture involved can be called a stricture of intermittent closure. Scottish /r/, for example in **red**, in which the tip of the tongue strikes against the teeth ridge a number of times, is called a trilled consonant. In Hindi words like **Ram**/ ra: m/ and **rath** /r ə̆ θ / we have this variety of /r/.

5.7 Review Questions

1. Describe the kind of stricture involved in the articulation of: (a) a lateral consonant, (b) a plosive consonant, (c) a nasal, (d) an affricate, (e) a vowel, (f) a semi-vowel, (g) a frictionless continuant.

   Or

   Consonant sounds can be pronounced either by a 'complete closure made by the lips or by the tongue' or by 'a narrowing which causes friction'. The closure and the narrowing can be made either with the tongue or the lips. Pronounce the following words carefully and put the consonant sounds in the black letters into the correct places in the table.

   sin, shin, fin, kin, pin, din, lin, bin, begin thin then, vent, men, sin, sins, song, measure.

Complete closure	Narrowing
Tongue	
Lips	

2. Divide the following words into syllables and mark the structure of each syllable. (Do not be misled by spelling)

   e.g. phonetics/f o -ne-tiks/

   cv-cv-cvcc

   (*i*) cigarette (*ii*) linguistics (*iii*) morphology (*iv*) syntax
   (*v*) grammar (*vi*) butter (*vii*) button (*viii*) suddenly
   (*ix*) responsibility (*x*) college (*xi*) student (*xii*) remarkable
   (*xiii*) calendar (*xi*) translation (*xv*) director.

3. Give the phonetic symbols for:
   (*i*) a voiceless dental plosive,
   (*ii*) a voiced velar nasal,
   (*iii*) a voiced palato-alveolar fricative

4. What is meant by (a) a front vowel and (b) a back vowel, and (c) a central vowel? Give examples from English and from your own native language.
5. What is meant by (a) a close vowel and (b) an open vowel? Give examples from English and your mother tongue.
6. Describe the vowel sounds in the following English words according, to the R.P. of England and General Indian English:

   beat, bit, gate, bed, bad, cut, cart, cot, court, all, horse, force, home, book, cool, bird, about.

Notes

7. What are diphthongs? Give a list of R.P. diphthongs and one example of each sound in a word.
8. What is the difference between a pure vowel and a diphthong?
9. Which English vowels do not occur finally?
10. Which English consonants do not occur initially?

5.8 Further Readings

Books

1. Verma, S.K., V.N. Krishnaswamy. Modern Linguistics: An Introduction.
2. An Introduction to Linguistics, John Lyon.
3. Peter Roach: English phonetics and phonology. Cambridge University Press.
4. Encyclopedia of Linguistic Science Edited By V. Prakasam, Allied Pub., New Delhi.

Notes

Unit 6: Consonants and Its Phonetic Transcription

CONTENTS

Objectives

After reading this Unit students will be able to:

- Understand Consonants and its Phonetic Transcription.

Introduction

There are two kinds of language sounds: consonants and vowels. Consonants involve interrupting the air that comes out of your mouth; vowels are made by opening the mouth and letting air come out freely. Consonants are relatively stable and invariable; vowels are extremely variable and are more difficult to transcribe. We'll start with consonants. You must refer to your handout giving the phonetic transcription symbols, as these symbols are not reproduced on this web page.

There are two basic ways of making consonants: voiced and unvoiced. Voiced consonants involve a vibration of the vocal cords that you can feel when you place your hand on your throat. Unvoiced consonants involve no vibration of the vocal cords.

There are five types of consonants: stops, fricatives, nasals, affricates, and semivowels. Nasals and semivowels are always voiced; stops, fricatives and affricates can be voiced or unvoiced.

Stops are the simplest kind of consonant; you simply stop the air coming out of your mouth. You cannot "hold" a stop consonant; you simply block and then release the air. The stop consonants are distinguished by what part of your mouth you use to block the air.

Stopping the air with both lips together produces a bilabial (two-lip) stop. If voiced, the bilabial stop is the initial consonant of *bill*. If unvoiced, it's the initial consonant of *pill*.

Further back in the mouth, we pronounce alveolar stops. These are made by placing your tongue against the alveolar ridge--the hard ridge in the top of your mouth, behind your teeth--and stopping the air there. The voiced alveolar stop is the initial consonant of *dill*. The unvoiced alveolar stop is the initial consonant of *till*.

Still further back are the velar stops. The back of your tongue stops the air at the back of your hard palate. The voiced velar stop is the initial consonant of *gill*. The unvoiced velar stop is the initial consonant of *kill*.

Furthest back is the glottal stop, which does not (yet, anyway) distinguish one word from another in English, but is increasingly replacing the intervocalic alveolar stop in British English, and is heard in many American dialects in various places. The glottal stop is unvoiced in English. If you say "Iowa apples" you will hear it before each of the initial vowels in those words.

Notes

Fricatives involve letting the air slide through a narrow opening in the mouth. They can be prolonged for some time. The air is not completely blocked.

If you make the narrow opening with your bottom lip against your top teeth, you are producing a labiodental (lip-tooth) fricative. The voiced labiodental fricative is the initial consonant of *veer*. The unvoiced labiodental fricative is the initial consonant of *fear*.

If you make that opening with your tongue against your top teeth, you produce a dental fricative. The voiced dental fricative is the initial consonant of *though*. The unvoiced dental fricative is the initial consonant of *think*.

There are voiced and unvoiced alveolar fricatives, just as there are alveolar stops (above). The voiced alveolar fricative is the initial consonant of *zoo*; the unvoiced alveolar fricative is the initial consonant of *sue*.

Postalveolar fricatives are made with the tongue constricting the air behind the alveolar ridge, almost at the top of the roof of the mouth. The voiced postalveolar fricative is the initial sound of the second syllable of *version*. The unvoiced postalveolar fricative is the initial sound of the second syllable of *motion*.

The unvoiced velar fricative is not now used in English except in some Scots dialects; it is like the consonant sound in German *ich*. A voiced velar fricative is heard sometimes as the initial consonant in Spanish *llame*. I include these sounds here because the unvoiced velar fricative is perhaps the sound that was heard after a front vowel (see below in Middle English words like *knight* and *bright*.

Modern English has an unvoiced glottal fricative, the initial consonant in *home* (at least for American speakers). Another, slightly "rougher" glottal fricative is heard at the end of Scots *loch* or German *Nacht*, and may have been the sound heard after a back vowel (see below) in Middle English words like *brought* and *caught*.

Nasals involve blocking the mouth completely, holding the blockage (instead of releasing it as in a stop consonant), and letting the air come out of your nose. All nasals are voiced. You can hold and hum them.

The bilabial nasal is the initial consonant of *might*.

The alveolar nasal is the initial consonant of *night*.

The velar nasal is never initial in English. It is the final consonant of *sing*.

The affricates are represented in phonetic transcription (usually) by double symbols. They begin as stops and slide into fricatives, and hence are represented as a stop followed by a fricative. Only two affricates are used in most dialects of English: a voiced affricate that is the initial consonant in *jeer* and an unvoiced affricate that is the initial consonant in *cheer*.

When we make semivowels, we only partially obstruct the flow of air. Each semivowel is unique; all are voiced. Rounding the lips and then opening them straight up and down gives the initial consonant of *weir*. Flattening and extending the lips and cheeks--almost as if smiling--gives the initial consonant of *year*. Flapping the tongue toward the front and top of the mouth, while letting air go around its sides, gives the initial consonant of *leer*. Rounding the lips and then opening them sideways gives the initial consonant of *rear*. /l/and /r/ are sometimes called "laterals" because of the sideways motion involved in producing them./w/ and /y/ are sometimes called "glides" or "liquids"; they often occur along with vowels--if before, as "on-glides," if after, as "off-glides." /l/ and /r/ also sound quite different depending on whether they come before or after a vowel.

6.1 Nasals

The basic characteristic of a nasal consonant is that the air escapes through the nose. For this to happen, the soft palate must be lowered; in the case of all the other consonants and vowels of English, the soft palate is raised and air cannot pass through the nose. In nasal consonants, however, air does not pass through the mouth; it is prevented by a complete closure in the mouth at some point. If you produce a long sequence dndndndndn without moving your tongue from the position for alveolar closure, you will feel your soft palate moving up and down. The three types of closure are: bilabial

Notes

(lips), alveolar (tongue blade against alveolar ridge) and velar (back of tongue against the palate). This set of places produces three nasal consonants - m, n, ŋ — which correspond to the three places of articulation for the pairs of plosives p b, t d, k g.

The consonants m, n are simple and straightforward with distributions quite similar to those of the plosives. There is in fact little to describe. However, ŋ is a different matter. It is a sound that gives considerable problems to foreign learners, and one that is so unusual in its phonological aspect that some people argue that it is not one of the phonemes of English at all. The place of articulation of ŋ is the same as that of k, g; it is a useful exercise to practise making a continuous ŋ sound. If you do this, it is very important not to produce a k or g at the end - pronounce the ŋ like m or n.

We will now look at some ways in which the distribution of ŋ is unusual.

1. In initial position we find m, n occurring freely, but ŋ never occurs in this position. With the possible exception of ʒ, this makes ŋ the only English consonant that does not occur initially.
2. Medially, ŋ occurs quite frequently, but there is in the BBC accent a rather complex and quite interesting rule concerning the question of when ŋ may be pronounced without a following plosive. When we find the letters 'nk' in the middle of a word in its orthographic form, a k will always be pronounced; however, some words with orthographic 'ng' in the middle will have a pronunciation containing ŋg and others will have ŋ without g. For example, in BBC pronunciation we find the following:

A	B
'finger' fɪŋgə	**'singer'** sɪŋə
'anger' æŋgə	**'hanger'** hæŋə

In the words of column A the ŋ is followed by g, while the words of column B have no g. What is the difference between A and B? The important difference is in the way the words are constructed - their **morphology**. The words of column B can be divided into two grammatical pieces: 'sing' + '- er', 'hang' + '- er'. These pieces are called **morphemes**, and we say that column B words are morphologically different from column A words, since these *cannot* be divided into two morphemes. 'Finger' and 'anger' consist of just one morpheme each.

We can summarise the position so far by saying that (within a word containing the letters 'ng' in the spelling) ŋ occurs without a following g if it occurs at the end of a morpheme; if it occurs in the middle of a morpheme it has a following g.

Let us now look at the ends of words *ending* orthographically with 'ng'. We find that these always end with ŋ; this ŋ is never followed by a g. Thus we find that the words 'sing' and 'hang' are pronounced as sɪŋ and hæŋ; to give a few more examples, 'song' is sɒŋ, 'bang' is bæŋ and 'long' is lɒŋ. We do not need a separate explanation for this: the rule given above, that no g is pronounced after ŋ at the end of a morpheme, works in these cases too, since the end of a word must also be the end of a morpheme. (If this point seems difficult, think of the comparable case of sentences and words: a sound or letter that comes at the end of a sentence must necessarily also come at the end of a word, so that the final k of the sentence 'This is a book' is also the final k of the word 'book'.)

Unfortunately, rules often have exceptions. The main exception to the above morpheme-based rule concerns the comparative and superlative suffixes '-er' and '-est'. According to the rule given above, the adjective 'long' will be pronounced lɒŋ, which is correct. It would also predict correctly that if we add another morpheme to 'long', such as the suffix '-ish', the pronunciation of ŋ would again be without a following g. However, it would additionally predict that the comparative and superlative forms 'longer' and 'longest' would be pronounced with no g following the ŋ , while in fact the correct pronunciation of the words is:

'longer' lɒŋgə **'longest'** lɒŋgəst

Notes

As a result of this, the rule must be modified: it must state that comparative and superlative forms of adjectives are to be treated as single-morpheme words for the purposes of this rule. It is important to remember that English speakers in general (apart from those trained in phonetics) are quite ignorant of this rule, and yet if a foreigner uses the wrong pronunciation (i.e. pronounces ŋg where ŋ should occur, or ŋ where ŋg should be used), they notice that a mispronunciation has occurred.

(iii) A third way in which the distribution of ŋ is unusual is the small number of vowels it is found to follow. It rarely occurs after a diphthong or long vowel, so only the short vowels ɪ, e, æ, ʌ, ɒ, ʃ, ə are regularly found preceding this consonant.

The velar nasal consonant ŋ is, in summary, phonetically simple (it is no more difficult to produce than m or n) but phonologically complex (it is, as we have seen, not easy to describe the contexts in which it occurs).

6.2 The Consonant *l*

The l phoneme (as in 'long' lɒŋ, 'hill' hɪl) is a **lateral approximant.** This is a consonant in which the passage of air through the mouth does not go in the usual way along the centre of the tongue; instead, there is complete closure between the centre of the tongue and the part of the roof of the mouth where contact is to be made (the alveolar ridge in the case of l). Because of this complete closure along the centre, the only way for the air to escape is along the sides of the tongue. The lateral approximant is therefore somewhat different from other approximants, in which there is usually much less contact between the articulators. If you make a long l sound you may be able to feel that the sides of your tongue are pulled in and down while the centre is raised, but it is not easy to become consciously aware of this; what is more revealing (if you can do it) is to produce a long sequence of alternations between d and l without any intervening vowel. If you produce dldldldldl without moving the middle of the tongue, you will be able to feel the movement of the sides of the tongue that is necessary for the production of a lateral. It is also possible to see this movement in a mirror if you open your lips wide as you produce it. Finally, it is also helpful to see if you can feel the movement of air past the sides of the tongue; this is not really possible in a voiced sound (the obstruction caused by the vibrating vocal folds reduces the airflow), but if you try to make a very loud whispered l, you should be able to feel the air rushing along the sides of your tongue.

We find l initially, medially and finally, and its distribution is therefore not particularly limited. In BBC pronunciation, the consonant has one unusual characteristic: the realisation of l found before vowels sounds quite different from that found in other contexts. For example, the realisation of l in the word 'lea' liː is quite different from that in 'eel' iːl.The sound in 'eel' is what we call a "dark l"; it has a quality rather similar to an [u] vowel, with the back of the tongue raised. The phonetic symbol for this sound is ɫ. The sound in 'lea' is what is called a "clear l"; it resembles an [i] vowel, with the front of the tongue raised (we do not normally use a special phonetic symbol, different from l, to indicate this sound). The "dark l" is also found when it precedes a consonant, as in 'eels' iːlz. We can therefore predict which realisation of l (clear or dark) will occur in a particular context: clear l will never occur before consonants or before a pause, but only before vowels; dark l never occurs before vowels. We can say, using terminology introduced, that clear *l* and dark 1 are allophones of the phoneme l in complementary distribution. Most English speakers do not consciously know about the difference between clear and dark l, yet they are quick to detect the difference when they hear English speakers with different accents, or when they hear foreign learners who have not learned the correct pronunciation. You might be able to observe that most American and lowland Scottish speakers use a "dark l" in all positions, and don't have a "clear l" in their pronunciation, while most Welsh and Irish speakers have "clear l" in all positions.

Another allophone of l is found when it follows p, k at the beginning of a stressed syllable. The l is then devoiced (i.e. produced without the voicing found in most realisations of this phoneme) and pronounced as a fricative. The situation is similar to the aspiration found when a vowel follows p, t, k in a stressed syllable: the first part of the vowel is devoiced.

Notes

6.3 The Consonant *r*

This consonant is important in that considerable differences in its articulation and its distribution are found in different accents of English. As far as the articulation of the sound is concerned, there is really only one pronunciation that can be recommended to the foreign learner, and that is what is called a post-alveolar approximant. An **approximant,** as a type of consonant, is rather difficult to describe; informally, we can say that it is an articulation in which the articulators approach each other but do not get sufficiently close to each other to produce a "complete" consonant such as a plosive, nasal or fricative. The difficulty with this explanation is that articulators are always in *some* positional relationship with each other, and any vowel articulation could also be classed as an approximant - but the term "approximant" is usually used only for consonants.

The important thing about the articulation of r is that the tip of the tongue approaches the alveolar area in approximately the way it would for a t or d, but never actually makes contact with any part of the roof of the mouth. You should be able to make a long r sound and feel that no part of the tongue is in contact with the roof of the mouth at any time. This is, of course, very different from the "r-sounds" of many other languages where some kind of tongue-palate contact is made. The tongue is in fact usually slightly curled backwards with the tip raised; consonants with this tongue shape are usually called **retroflex.** If you pronounce an alternating sequence of d and r (drdrdrdrdr) while looking in a mirror you should be able to see more of the underside of the tongue in the r than in the d, where the tongue tip is not raised and the tongue is not curled back. The "curling-back" process usually carries the tip of the tongue to a position slightly further back in the mouth than that for alveolar consonants such as t, d, which is why this approximant is called "post-alveolar". A rather different r sound is found at the beginning of a syllable if it is preceded by p, t, k; it is then voiceless and fricative. This pronunciation is found in words such as press', 'tress', 'cress'.

One final characteristic of the articulation of r is that it is usual for the lips to be slightly rounded; learners should do this but should be careful not to exaggerate it. If the lip-rounding is too strong the consonant will sound too much like w, which is the sound that most English children produce until they have learned to pronounce r in the adult way.

The distributional peculiarity of r in the BBC accent is very easy to state: this phoneme only occurs before vowels. No one has any difficulty in remembering this rule, but foreign learners (most of whom, quite reasonably, expect that if there is a letter 'r' in the spelling then r should be pronounced) find it difficult to apply the rule to their own pronunciation. There is no problem with words like the following:

1. 'red' red ' arrive' əraɪv 'hearing' hɪərɪŋ

   In these words r is followed by a vowel. But in the following words there is no r in the pronunciation:

2. 'car' kɑː 'ever' evə 'here' hɪə
3. 'hard' hɜɑːd 'verse' v3ːs 'cares' keəz

Many accents of English do pronounce r in words like those of (ii) and (iii) (e.g. most American, Scots and West of England accents). Those accents which have r in final position (before a pause) and before a consonant are called **rhotic** accents, while accents in which r only occurs before vowels (such as BBC) are called **non-rhotic.**

6.4 The Consonants j and w

These are the consonants found at the beginning of words such as 'yet' and 'wet'. They are known as approximants. The most important thing to remember about these phonemes is that they are phonetically like vowels but phonologically like consonants (in earlier works on phonology they were known as "semivowels"). From the phonetic point of view the articulation of j is practically the same as that of a front close vowel such as [i], but is very short. In the same way w is closely similar to [u]. If you make the initial sound of'yet' or 'wet' very long, you will be able to hear this. But despite this vowel-like character, we use them like consonants. For example, they only occur before vowel

Notes

phonemes; this is a typically consonantal distribution. We can show that a word beginning with w or j is treated as beginning with a consonant in the following way: the indefinite article is 'a' before a consonant (as in 'a cat', 'a dog'), and 'an' before a vowel (as in 'an apple', 'an orange'). If a word beginning with w or j is preceded by the indefinite article, it is the 'a' form that is found (as in 'a way', 'a year'). Another example is that of the definite article. Here the rule is that 'the' is pronounced as ðə before consonants (as in 'the dog' ðə dɒg, 'the cat' ðə kæt) and as ði before vowels (as in 'the apple' ði æpl, 'the orange' ði ɒrɪnʤ .This evidence illustrates why it is said that j, w are phonologically consonants. However, it is important to remember that to pronounce them as fricatives (as many foreign learners do), or as affricates, is a mispronunciation. Only in special contexts do we hear friction noise in j or w; this is when they are preceded by p, t, k at the beginning of a syllable, as in these words:

'pure' pjʃə (no English words begin with pw)

'tune' t juːn 'twin' twɪn

'queue' kjuː 'quit' kwɪt

When p, t, k come at the beginning of a syllable and are followed by a vowel, they are aspirated, as was explained in Chapter 4. This means that the beginning of a vowel is voiceless in this context. However, when p, t, k are followed not by a vowel but by one of l, r, j, w, these voiced continuant consonants undergo a similar process, as has been mentioned earlier in this chapter: they lose their voicing and become fricative. So words like 'play' plew, 'tray' trew, 'quick' kwɪk, 'cue' kjuː contain devoiced and fricative l, r, w, j whereas 'lay', 'ray', 'wick', 'you' contain voiced l, r, w, j. Consequently, if for example 'tray' were to be pronounced without devoicing of the r (i.e. with fully voiced r) English speakers would be likely to hear the word 'dray'.

This completes our examination of the consonant phonemes of English. It is useful to place them on a consonant chart, and this is done in Table 6.1. On this chart, the different places of articulation are arranged from left to right and the manners of articulation are arranged from top to bottom. When there is a pair of phonemes with the same place and manner of articulation but differing in whether they are fortis or lenis (voiceless or voiced), the symbol for the fortis consonant is placed to the left of the symbol for the lenis consonant.

Self-Assessment

1. When the vocal tract is in its resting position for normal breathing, the soft palate is usually lowered. Describe what movements are carried out by the soft palate in the pronunciation of the following words:

   (*i*) banner (*ii*) mid (*iii*) angle

6.5 Summary

- The notes for this chapter are devoted to giving further detail on a particularly difficult theoretical problem. The argument that ŋ is an allophone of n, not a phoneme in its own right, is so widely accepted by contemporary phonological theorists that few seem to feel it worthwhile to explain it fully. Since the velar nasal is introduced in this chapter, I have chosen to attempt this here. However, it is a rather complex theoretical matter, and you may prefer to leave consideration of it until after the discussion of problems of phonemic analysis in Chapter 13.
- There are brief discussions of the phonemic status of ŋ in Chomsky and Halle (1968: 85) and Ladefoged (2006); for a fuller treatment, see Wells (1982: 60-4) and Giegerich (1992: 297-301). Everyone agrees that English has at least two contrasting nasal phonemes, m and n. However, there is disagreement about whether there is a third nasal phoneme ŋ. In favour of accepting ŋ as a phoneme is the fact that traditional phoneme theory more or less demands its acceptance despite the usual preference for making phoneme inventories as small as possible. Consider **minimal pairs** (pairs of words in which a difference in

Notes

Table 6.1: Chart of English consonant phonemes

		PLACE OF ARTICULATION							
		Bilabial	Labiodental	Dental	Alveolar	Post-alveolar	Palatal	Velar	Glottal
MANNER OF ARTICULATION	Plosive	p b			t d			k g	
	Fricative		f v	θ ð	s z	ʃ ʒ			h
	Affricate					t ʃ d ʒ			
	Nasal	m			n			ŋ	
	Lateral				l				
	approximant								
	Approximant	w				r	j		

- Meaning depends on the difference of just one phoneme) like these: 'sin' sɪn - 'sing' sɪŋ; 'sinner' sɪns - 'singer' sɪŋə.
- There are three main arguments against accepting ŋ as a phoneme:
  (*i*) In some English accents it can easily be shown that ŋ is an allophone of n, which suggests that something similar might be true of BBC pronunciation too.
  (*ii*) If ŋ is a phoneme, its distribution is very different from that of m and n, being restricted to syllable-final position (phonologically), and to morpheme-final position (morphologically) unless it is followed by k or g.
  (*iii*) English speakers with no phonetic training are said to feel that ŋ is not a 'single sound' like m, n. Sapir (1925) said that "no native speaker of English could be made to feel in his bones" that ŋ formed part of a series with m, n. This is, of course, very hard to establish, although that does not mean that Sapir was wrong.
- We need to look at point (i) in more detail and go on to see how this leads to the argument against having ŋ as a phoneme. Please note that I am not trying to argue that this proposal must be correct; my aim is just to explain the argument. The whole question may seem of little or no practical consequence, but we ought to be interested in any phonological problem if it appears that conventional phoneme theory is not able to deal satisfactorily with it.
- In some English accents, particularly those of the Midlands, ŋ is only found with k or g following. For example:
  'sink' sɪŋk 'singer' sɪŋgə
  'sing' sɪŋg 'singing' sɪŋgɪŋg
- This was my own pronunciation as a boy, living in the West Midlands, but I now usually have the BBC pronunciation sɪŋk, sɪŋ, sɪŋə, sɪŋɪŋ. In the case of an accent like this, it can be shown that within the morpheme the only nasal that occurs before k, g is ŋ. Neither m nor n can occur in this environment. Thus within the morpheme ŋ is in complementary distribution with m, n. Since m, n are already established as distinct English phonemes in other contexts (mæp, næp, etc.), it is clear that for such non-BBC accents ŋ must be an allophone of one of the other nasal consonant phonemes. We choose n because when a morpheme-final n is followed by a morpheme-initial k, g it is usual for that n to change to ŋ; however, a morpheme-final m followed by a morpheme-initial k, g usually doesn't change to ŋ. Thus:
  'raincoat' reɪŋkəʊt *but* 'tramcar' træmkɑː

Notes

- So in an analysis which contains no ŋ phoneme, we would transcribe 'raincoat' phonemically as rewnk əʃ t and 'sing', 'singer', 'singing' as sɪng, sɪngə, sɪngɪng. The phonetic realisation of the n phoneme as a velar nasal will be accounted for by a general rule that we will call

  Rule 1:

  (*i*) **Rule 1:** n is realised as ŋ when it occurs in an environment in which it precedes either k or g.

  Let us now look at BBC pronunciation. The crucial difference between 'singer' sɪŋə and 'finger' fɪŋgə is that 'finger' is a single, indivisible morpheme whereas 'singer' is composed of two morphemes 'sing' and '- er'. When ŋ occurs without a following k or g it is always immediately before a morpheme boundary. Consequently, the sound ŋ and the sequence ŋg are in complementary distribution. But within the morpheme there is no contrast between the sequence ŋg and the sequence ng, which makes it possible to say that ŋ is also in complementary distribution with the sequence ng.

  After establishing these "background facts", we can go on to state the argument as follows:

  (*a*) English has only m, n as nasal phonemes.

  (*b*) The sound ŋ is an allophone of the phoneme n.

  (*c*) The words 'finger', 'sing', 'singer', 'singing' should be represented phonemically as fɪngə, sɪng, sɪngə, sɪngɪng.

  (*d*) Rule 1 (above) applies to all these phonemic representations to give these phonetic forms: fɪŋgə, sɪŋg, sɪŋgə, sɪŋgɪŋg

  (*e*) A further rule (Rule 2) must now be introduced:

  (*ii*) **Rule 1:** n is realised as ŋ when it occurs in an environment in which it precedes either k or g.

  Rule 2: g is deleted when it occurs after ŋ and before a morpheme boundary.

  It should be clear that Rule 2 will not apply to 'finger' because the ŋ is not immediately followed by a morpheme boundary. However, the rule does apply to all the others, hence the final phonetic forms: fɪŋgə, sɪŋ, sɪŋə, sɪŋɪŋ.

  (*f*) Finally, it is necessary to remember the exception we have seen in the case of comparatives and superlatives.

- The argument against treating ŋ as a phoneme may not appeal to you very much. The important point, however, is that if one is prepared to use the kind of complexity and abstractness illustrated above, one can produce quite far-reaching changes in the phonemic analysis of a language.
- The other consonants – 1, r, w, j – do not, I think, need further explanation, except to mention that the question of whether j, w are consonants or vowels is examined on distributional grounds in O'Connor and Trim (1953).

6.6 Key-Words

1. The pharynx : The pharynx is the part of the neck and throat situated immediately posterior to (behind) the mouth and nasal cavity, and cranial, or superior, to the esophagus, larynx, and trachea. The pharynx's muscles can modify the pharyngeal cavity to a great extent. These modification affects the quality of sound produced.
2. The lips : The lips play an important part in the production of sounds like/p/ and /b/ which are produced by attaching both the lips and releasing it abruptly to let pass the stream of air behind it. When both the lips are attached and the air is blown out from nose, it leads to the production of consonant sound /m/. Though, vowel sounds do not need any articulators but their quality depends upon the movement of lips.

Notes

3. The teeth : Some consonant sounds are produced with the help of teeth, for example, both version of /th/ sound in words like 'think' and 'that' ate produced by the quick movement of tip of tongue between the upper and lower teeth.
4. The teeth ridge : The teeth ridge is also known as the alveolar ridge. It is convex in shape, lying between upper teeth and hard palate. It also helps in production of consonant sounds like /t/ and /d/.

6.7 Review Questions

1. List all the consonant phonemes of the BBC accent, grouped according to manner of articulation.
2. Transcribe the following words phonemically:

(*i*) sofa	(*ii*) steering	(*iii*) verse	(*iv*) breadcrumb
(*v*) square	(*vi*) bought	(*vii*) anger	(*viii*) nineteen

Answers-Self Assessment

1. The soft palate is raised for the b plosive and remains raised for æ. It is lowered for n, then raised again for the final ə.
2. The soft palate remains lowered during the articulation of m, and is then raised for the rest of the syllable.
3. The soft palate is raised for the æ vowel, then lowered for ŋ. It is then raised for the l plosive and remains raised for the l.

6.8 Further Readings

Books

1. Verma, S.K., V.N. Krishnaswamy. Modern Linguistics: An Introduction.
2. An Introduction to Linguistics, John Lyon.
3. Peter Roach: English phonetics and phonology. Cambridge University Press.
4. Encyclopedia of Linguistic Science Edited By V. Prakasam, Allied Pub., New Delhi.

Notes

Unit 7: Vowels and Its Phonetic Transcription

CONTENTS

Objectives

After reading this Unit students will be able to Aristotle

- Understand Vowels and Its Phonetic Transcription
- Discuss Vowes versus Consonants.

Introduction

Vowels are made by opening your mouth and letting air come out while your vocal cords vibrate. They're voiced by definition. They are the sounds that you sing; listen particularly to opera singers and you will notice that they just suggest consonants while moving from one vowel (one note) to another.

We classify vowels according to a grid of two characteristics: whether the lips are more nearly close or open, and whether the tongue is more nearly front, central, or back in the mouth as the vowel is being produced.

The front vowels are, going from close to open, the vowels in *lead* (as in "a horse"), *lid*, *laid*, *lead* (as in pencil), *lad*, and *lod* (if that were a word ... it would rhyme with how most Americans pronounce *prod*, *sod*, *God*).

The central vowels, both of which are middle vowels, are the second vowel of *bullet* and the first vowel of *Luddite*. The second vowel of *bullet*, the mid-central vowel, is often "reduced," and the symbol for it is called schwa. The first vowel of *Luddite* is more heavily stressed.

The back vowels, again going from close to open, are the vowels of *lewd*, *look*, *load*, *laud*, and *Lawd* (as pronounced in a rich stage dialect). The vowel of *Lawd* is close to what your doctor makes you say to get a look at the back of your throat, because to make that sound you open your mouth and depress your tongue as far as possible.

Many vowel sounds in English are diphthongs, vowels that begin in one vowel position and move toward another as the vowel is articulated. The vowel in *laid* is actually a diphthong, beginning with the "long a" sound and ending a bit closer. Starting with the vowel of *prod* and going up much closer gives the diphthong in *lied*. Starting with the back vowel of *laud* and then moving front and near-close yields the diphthong in *Lloyd*. Starting way back and open and moving up to a back near-close sound gives the diphthong of *loud*. The English "long" vowels are usually pronounced as diphthongs: the vowels of *lead*, *load*, and *lewd* are actually pure vowels followed by a semivowel "off-glide."

Note, however, that the distinction between "long" and "short" vowels, so often made in elementary teaching, is really not a distinction between long and short versions of the same sound. For instance,

Notes

we think of the vowel in *bad* as being a "short a" and the vowel in *bathe* as being a "long a." But the two sounds are quite different and articulated in different parts of the mouth. *Bathe* has a "long" sound because it is a diphthong, not because it has the sound of *bad* lengthened. We call both of these vowels "a" sounds just because of an accident of spelling.

Historical Example

Here's an example of what I mean by the stability of consonants and the variability of vowels, both across time and across the English-speaking world at a given time.

The Old English words *stan*, *ham*, *bat*, and *rad* correspond to the Modern English words *stone*, *home*, *boat* and *road*. The Old English words were pronounced with an open back vowel; the standard modern American pronunciation of those words has the diphthong /ow/. Yet the consonants of the Old English words are substantially identical to the consonants of the modern American words. The consonants have remained stable for 1,500 years while the vowels have changed a great deal.

At the present moment, the consonants in *stone*, *home*, *boat* and *road* are pretty much stable in all English dialects, except that the majority of British speakers have no initial consonant in *home* and may also substitute a glottal stop for the final /t/ in *boat*. So there's great stability in this age-old consonant pattern at the present moment.

But there's enormous variability world-wide in the vowels of these words. This variability is the basic manifestation of what we call "accents" or dialectal differences in pronunciation. The OE vowel has disappeared from these words, leaving a host of regional variants.

The Standard American vowel in *stone* is, as I noted, the /ow/ "off-glide" diphthong. The British RP vowel is also a diphthong, one that starts with the vowel of *met* and ends with that of *put*. It's like the diphthong in some East Coast US dialects (South Jersey / Philadelphia/ Maryland), which starts with the vowel of *bathe* and ends with that of *put*.

Another British diphthong, that of Southeastern or "Estuary" speakers, starts with the front vowel of *bat* and ends ups back and central. Make that a bit longer and you have the distinctive Australian diphthong in *stone*, which makes sense because Australian dialects are relatively recent developments from London English.

By contrast, some English dialects have a short pure vowel /o/--notably South African dialects and some West Indian dialects. A longer /o/ is a feature of some Irish dialects, but there are Irish speakers who have a high long pure vowel, almost that of American *boot*, in *stone*. If you start with /o/ and glide into a central vowel, you have the Canadian and Minnesota version of stone, and if you make the initial /o/ of that diphthong longer, you have the Scottish diphthong--again, Canadian speech owes a great deal to Scottish English. Finally, if you use a short vowel like that of *put* in *stone*, you have an approximation of the vowel in some Indian dialects.

7.1 Vowels versus Consonants

Several examples in the last chapter involved vowels: for instance, we found that there is free variation for some speakers between [i] and [ɛ] in *economic*, but that these two vowels nonetheless contrast, as shown by minimal pairs like *pet- peat*, or *hell - heal*. We also saw that the usual contrast of /eɪ/, /ɛ/ and /æ/, is neutralised before /r/ for many General American speakers, who pronounce *Mary*, *merry* and *marry* homo-phonously. It follows that the central ideas of phonemic contrast, with minimal pairs determining the members of the phoneme system, and rules showing allophonic variation in different contexts, apply equally to vowels and to consonants; free variation, phonetic similarity and neutralisation affect both classes of sounds too.

However, when we turn to the physical description of actual vowel sounds, it is not possible simply to reuse the parameters and features already introduced for consonants. Of course, vowels and consonants are all speech sounds; and in English at least, they are all produced using the same pulmonic egressive airstream. In almost all other respects, however, the features which allow us to classify and understand consonants are less than helpful in distinguishing between vowels.

Notes

To describe a consonant in articulatory terms, we needed to know the airstream mechanism involved; the state of the glottis, deter-mining whether the sound is voiced or voiceless; the position of the velum, which either allows or stops airflow through the nose, making the consonant nasal or oral; the manner of articulation, namely stop, affricate, fricative or approximant; whether airflow is central or lateral; and finally, the place of articulation, and consequently the identity and position of the active and passive articulators.

Unfortunately, almost none of these helps us in classifying vowels. All vowels, universally, are produced on a pulmonic egressive airstream, with central airflow: there is no contrast between central and lateral vowels. It is possible, but rare, for vowels to be voiceless or nasal; in English, however, all vowel phonemes are voiced and oral, and voiceless and nasal allophones appear only in very specific circumstances, as we shall see later. Vowels are all continuants: that is, airflow through the oral tract is not significantly obstructed during their production, so they are all approximants on the consonant manner classification: there are no stop, fricative or affricate vowels. Finally, although we shall distinguish between vowels in terms of place of articulation, the range of options is much more restricted than for consonants, where places from labial to glottal are distinguished in English alone. All vowels are produced in a very limited 'vowel space' in the centre of the oral tract, roughly between palatal and velar in consonantal terms; and the place of articulation will also be much more difficult to ascertain from self-observation, since the tongue never moves close enough to the roof of the mouth in vowel production to make its position easy to feel.

It follows that an adequate vowel classification requires new features and descriptive parameters which are better designed to capture the ways in which vowels *do* vary. This kind of situation, where two classes of objects or concepts share some essential unity, but need different descriptors, is not unique to vowels and consonants. For instance, plants and animals are both categories of living things; they both populate the world widely, and are mutually necessary in terms of their complementary roles in gas exchange, for instance. They both require the same basic nutrients, operate according to the same chemical principles, and have common structures, including identical cell types. However, there is just as little point in classifying plants according to whether or not they are mammals, or have feathers, or are carnivores or herbivores, as there is in categorising animals as being evergreen or dropping their leaves, bearing cones or flowers, or producing fruit or not. At that lower classificatory level, it is simply necessary to recognise the divergence of the two categories by using different distinguishing features. Equally, vowels and consonants are both speech sounds, and are both necessary for language, since they play complementary roles in structuring syllables and words. Both are formed by modifications of a moving airstream, carried out by the actions of the vocal folds and articulatory organs. However, below this very general, common level, consonants and vowels operate as different sets, and to allow us to produce as precise and insightful a classification of each set as possible, they must be described in different terms.

7.2 The Anatomy of a Vowel

In classifying vowels, we need not indicate airstream mechanism, since it will always be pulmonic egressive, and we can generally assume that vowels are all voiced and oral. To describe vowels adequately and accurately, we then need to consider three different parameters, all of which can be seen as modifications of the place or manner of articulation continua for consonants: as we shall see, these are height, frontness and rounding. Additionally, vowels may be long or short (long ones are marked with a following ː below), and monophthongs or diphthongs. The examples in the sections below will be from Standard Southern British English (sometimes called RP, or Received Pronunciation), and General American, the most widely spoken variety of English in the United States, excluding the southern states, and the eastern seaboard, especially Boston, New England and New York City. SSBE and GA are generally thought of by English and American speakers respectively as not having any strong regional marking, and both are varieties highly likely to be heard in broadcasting, for instance in reading the television or radio news.

The front-back dimension

Front vowels are produced with the front of the tongue raised towards the hard palate (although not raised enough, remember, to obstruct the airflow and cause local friction; vowels are approximants).

Notes

The vowels in (1) are front. These could, in principle, equally be described as palatal, and this might be helpful in making phonological rules transparent. The rule palatalising velar /k ɡ/ before front vowels in *kitchen*, *key*, *give*, *geese* looked rather perplexing as the relationship between palatal and front was not obvious. However, calling front vowels palatal would be misleading, since frontness covers a larger area than [palatal], as we shall see below; and it contrasts with completely different alternatives, namely central and back, rather than labial, alveolar, dental, velar and so on.

1. Front vowels

	SSBE	GA
kit	ɪ	ɪ
dress	ɛ	ɛ
trap	a	æ
fleece	iː	iː
face	eɪ	eɪ

Conversely, back vowels have the back of the tongue raised, towards the soft palate or velum. The vowels in (2) are back.

2. Back vowels

	SSBE	GA
lot	ɒ	ɑː
foot	ʊ	ʊ
palm	ɑː	ɑː
thought	ɔː	ɔː
goat	o ʊ	oː
goose	uː	uː

There is also a class of vowels between front and back: these are known as central vowels, and involve a raising of the body of the tongue towards the area where the hard and soft palate join. Central vowels are exemplified in (3). The most common of these in English, [ə], is known as schwa, and only appears in unstressed syllables.

3. Central vowels

	SSBE	GA
about	ə	ə
nurse	ɜː	ɜr
strut	ʃ	ʃ

The high-low dimension

High vowels have the tongue raised most towards the roof of the mouth; if the raising was significantly greater, then friction would be produced, making a fricative consonant, not a vowel. The high vowels from the last section are in (4).

4. High vowels

	SSBE	GA
kit	ɪ	ɪ
fleece	iː	iː
foot	ʊ	ʊ
goose	uː	uː

Notes

Low vowels are those where the tongue is not raised at all, but rather lowered from its resting position: when you produce a low vowel, you will be able to feel your mouth opening and your jaw dropping, even if it is not very easy to figure out quite what your tongue is doing. Low vowels are given in (5).

5. Low vowels

	SSBE	GA
trap	a	æ
lot		ɑː
palm	ɑː	ɑː

Again, there is a further class intermediate between high and low, namely the mid vowels, shown in (6). These can if necessary be further subclassified as high mid (like the *face* and *goat* vowels) or low mid (like the *dress*, *thought*, *strut* vowels) depending on whether they are nearer the high end of the scale, or nearer the low end.

6. Mid vowels

	SSBE	GA
face	eɪ	eɪ
goat	oʃ	oː
dress	ɛ	ɛ
lot	ɒ	
thought	ɔː	ɔː
a̲bout	ə	ə
nurse	ɜː	ɜr
strut	ʃ	ʃ

Lip position

In the high back [uː] vowel of *goose*, there is tongue raising in the region of the soft palate; but in addition, the lips are rounded. Vowels in any of the previous categories may be either rounded, where the lips are protruded forwards, or unrounded, where the lips may be either in a neutral position, or sometimes slightly spread (as for a high front vowel, like [iː] *fleece*). However, it is overwhelmingly more common cross-linguistically for back vowels to be rounded than for front ones, and for high vowels to be rounded than low ones; this is borne out in English, as you can see in (7).

7. Rounded vowels

	SSBE	GA
lot	ɒ	
foot	ʃ	ʃ
thought	ɔː	ɔː
goat	oʃ	oː
goose	uː	uː

Length

Using these three dimensions of frontness, height and rounding, we can now define the vowel in *fleece* as high, front and unrounded; that in *goose* as high, back and rounded; and the unstressed vowel of *a̲bout*, schwa, as mid, central and unrounded. However, our elementary descriptions would class the *kit* vowel as high, front and unrounded, and the *foot* vowel as high, back and rounded; these labels make them indistinguishable from the clearly different vowels of *fleece* and *goose* respectively. SSBE and GA speakers very readily perceive the *fleece* and *kit* vowels, and the *goose* and *foot* vowels, as different; and there are plenty of minimal pairs to support a phoneme distinction, as in *peat-pit*,

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leap- lip, Luke-look, fool -full. This distinction is usually made in terms of vowel length: in SSBE and GA, the vowels in (8) are consistently produced as longer than those in (9).

8. Long vowels

	SSBE	GA
fleece	iː	iː
goose	uː	uː
goat		oː
thought	ɔː	ɔː
palm	ɑː	ɑː
lot		ɑː
nurse	ɜː	ɜr

9. Short vowels

	SSBE	GA
kit	ɪ	ɪ
dress	ɛ	ɛ
trap	a	æ
lot	ɒ	
foot	ʃ	ʃ
about	ə	ə
strut	ʃ	ʃ

This is not to say, however, that the *only* difference between [iː] and [ɪ], or [uː] and [ʃ], is one of length: the quantity difference goes along with a difference in quality, [iː] is higher and fronter than [ɪ]; [uː] is higher and backer than [ʃ]; and similarly, [ɑː] in *palm* is lower and backer than the corresponding short [a] in *trap*. In general, long vowels in English are more peripheral, or articulated in a more extreme and definite way, than their short counterparts. Some phonologists use a feature [± tense] rather than length to express this difference, with the long, more peripheral vowels being [+tense], and the short, more centralised ones being [− tense], or lax.

Monophthongs and diphthongs

Most of the vowels we have considered so far have been monophthongs, in which the quality of the vowel stays fairly consistent from the beginning of its production to the end. However, there are also several diphthongs in English. Diphthongs change in quality during their production, and are typically transcribed with one starting point, and a quite different end point; as might be expected from this description, diphthongs are typically long vowels. In English, all diphthongs have the first element as longer and more prominent than the second, and are known as falling diphthongs. Three diphthongs are found very generally in accents of English, and are shown in (10).

10. Diphthongs (i)

	SSBE	GA
price	aɪ	aɪ
mouth	aʃ	aʃ
choice	ɔɪ	ɔɪ

The long high-mid front and back vowels in *face* and *goat* are also characteristically diphthongal in SSBE and GA, as shown in (11).

11. Diphthongs (ii)

	SSBE	GA
face	eɪ	eɪ
goat	oʃ	oː

Notes

Finally, SSBE has a third set of diphthongs, which are known as the centring diphthongs as they all have the mid central vowel schwa as the second element. These centring diphthongs developed historically before /r/, which was then lost following vowels in the ancestor of SSBE; they consequently appear mainly where there is an <r> in the spelling, although they have now been generalised to some other words, like *idea*.

GA speakers have a diphthong in *idea*, but still pronounce the historical [ɹ] in *near*, *square*, *force*, *cure* and therefore lack centring diphthongs in these words.

12. Centring diphthongs

	SSBE	GA
near	ɪə	ir
square	ɛə	ɛr
force	ɔə/ɔː	oːr
cure	ʃ ə	ʃ r

7.3 Vowel Classification

The labels outlined in the previous section are helpful, but may leave questions unresolved when used in comparisons between different languages or different accents of the same language. Thus, French [uː] in *rouge* is very close in quality to English [u+] in *goose*, but not identical; the French vowel is a little more peripheral, slightly higher and more back. Similarly, [oː] in *rose* for a GA speaker is slightly lower and more centralised than 'the same' vowel for a speaker of Scottish English. None of the descriptors introduced so far would allow us to make these distinctions clear, since in the systems of the languages or accents concerned, these pairs of vowels would quite appropriately be described as long, high, back and rounded, or long, high-mid, back and rounded respectively.

Furthermore, a classification of this sort, based essentially on articulation, is arguably less appropriate for vowels than for consonants. In uttering a vowel, the important thing is to produce a particular sort of auditory impression, so that someone listening understands which vowel in the system you are aiming at; but it does not especially matter which articulatory strategies you use to convey that auditory impression. If you were asked to produce an [uː], but not allowed to round your lips, then with a certain amount of practice you could make at least something very similar; and yet it would not be a rounded vowel in the articulatory sense, although you would have modified the shape of your vocal tract to make it sound like one. This is not possible with most consonants, where the auditory impression depends on the particular articulators used, and how close they get, not just the overall shape of the vocal tract and the effect that has on a passing airstream. It is true that the whole oral tract is a continuum, but it is easier to see the places for consonants as definite 'stopping off places' along that continuum, helped by the fact that most consonants are obstruents, and we can feel what articulators are involved.

One possible solution is to abandon an articulatory approach to vowel classification altogether, and turn instead to an analysis of the speech wave itself: but acoustic phonetics is beyond the scope of this book. In any case, it is true that most speakers of particular accents or even languages will produce certain vowels in an articulatorily similar fashion. For comparative purposes, what we need is an approach which allows vowel qualities to be expressed as relative rather than absolute values.

We can achieve this comparative perspective by plotting vowels on a diagram rather than simply defining them in isolation. The diagram conventionally used for this purpose is known as the Vowel Quadrilateral, and is an idealised representation of the vowel space, roughly between palatal and velar, where vowels can be produced in the vocal tract. The left edge corresponds to the palatal area, and hence to front vowels, and the right edge to the velar area, and back vowels. The top line extends slightly further than the bottom one because there is physically more space along the roof of the mouth than along the base. Finally, the chart is conventionally divided into six sectors, allowing high, high-mid, low-mid and low vowels to be plotted, as well as front, central and back ones. There is no way of reading information on rounding directly from the vowel quadrilateral, so that vowels are typically plotted using an IPA symbol rather than a dot; it is essential to learn these IPA symbols to see which refer to rounded, and which to unrounded vowels. The SSBE and GA monophthongs

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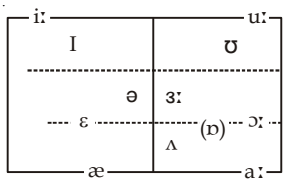
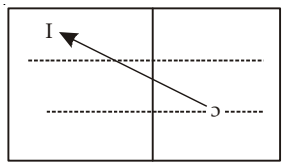
discussed earlier are plotted in (13); the monophthongs of the two accents are similar enough to include on a single chart, although the [ɒ] vowel is bracketed, since it occurs in SSBE but not in GA, where words like *lot* have low [ɑː] instead.

13. SSBE and GA monophthongs



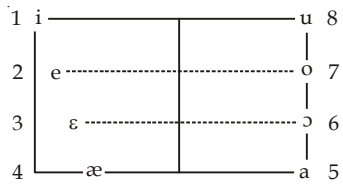
Diphthongs are not really well suited to description in terms of the labels introduced above, since they are essentially trajectories of articulation starting at one point and moving to another; in this respect, they are parallel to affricate consonants. Saying that [ɔɪ] in *noise*, for instance, is a low-mid back rounded vowel followed by a high front unrounded vowel would not distinguish it from a sequence of vowels in different syllables or even different words; but the diphthong in *noise* is clearly different from the sequence of independent vowels in *law is*. Using the vowel quadrilateral, we can plot the changes in pronunciation involved in the production of a diphthong using arrows, as in (14). Plotting several diphthongs in this way can lead to a very messy chart, but it is nonetheless helpful in clarifying exactly how a particular diphthong is composed, and what its starting and stopping points are; and the notation reminds us that a symbolic representation like [ɔɪ] is actually short-hand for a gradual articulatory and auditory movement.

14.



However, plotting vowels on the quadrilateral is only reliable if the person doing the plotting is quite confident about the quality she is hearing, and this can be difficult to judge without a good deal of experience, especially if a non-native accent or language is being described. To provide a universal frame of reference for such situations, phoneticians often work with an idealised set of vowels known as the Cardinal Vowels. For our purposes, we need introduce only the primary cardinals, which are conventionally numbered 1-8. Cardinal Vowel 1 is produced by raising and fronting the tongue as much as possible; any further, and a palatal fricative would result. This vowel is like a very extreme form of English [iː] in fleece. Its opposite, in a sense, is Cardinal Vowel 5, the lowest, backest vowel that can be produced without turning into a fricative; this is like a lower, backer version of SSBE [ɑː] in *palm*. Between these two fixed points, organised equidistantly around the very edges of the vowel quadrilateral, are the other six primary cardinal vowels, as shown in (15). Cardinal 8 is like English [uː] in *goose*, but again higher and backer; similarly, Cardinals 3, 4 and 6 can be compared with the vowels of English *dress*, *trap* and *thought*, albeit more extreme in articulation. Finally, Cardinals 2 and 7 are, as we shall see in Chapters 7 and 8, like the monophthongal pronunciations of a Scottish English speaker in words like *day*, *go*. The steps between Cardinals 1-4 and 5-8 should be articulatorily and acoustically equidistant, and lip rounding also increases from Cardinals 6, through 7, to 8.

15. The Primary Cardinal Vowels



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In truth, the only way of learning the Cardinal Vowels properly, and ensuring that they can act as a fixed set of reference points as they were designed to do, is to learn them from someone who already knows the system, and do a considerable amount of practice (various tapes and videos are available if you wish to do this). For the moment, what matters is to have an idea of what the Cardinal Vowels are, and what the theoretical justification for such a system is, in terms of describing the vowels of an unfamiliar language, or giving a principled account of the differences between the vowels of English and some other language, or different accents of English. We turn to such differences, as well as a more detailed outline of English vowel phonemes and allophones, in the next two chapters.

Self-Assessment

1. Using the 'phonetic' definitions of 'vowels' and 'consonant' say how many vowels and how many consonants there are in the following English words.

(*i*) Call	(*ii*) Know	(*iii*) Thumb	(*iv*) Hasses
(*v*) Blessed	(*vi*) Leaves	(*vii*) Wish	(*viii*) Language
(*ix*) Photo	(*x*) Cunning.		

7.4 Summary

- We classify vowels according to a grid of two characteristics: whether the lips are more nearly close or open, and whether the tongue is more nearly front, central, or back in the mouth as the vowel is being produced.
- The front vowels are, going from close to open, the vowels in *lead* (as in "a horse"), *lid*, *laid*, *lead* (as in pencil), *lad*, and *lod* (if that were a word ... it would rhyme with how most Americans pronounce *prod*, *sod*, *God*).
- The central vowels, both of which are middle vowels, are the second vowel of *bullet* and the first vowel of *Luddite*. The second vowel of *bullet*, the mid-central vowel, is often "reduced," and the symbol for it is called schwa. The first vowel of *Luddite* is more heavily stressed.
- The back vowels, again going from close to open, are the vowels of *lewd*, *look*, *load*, *laud*, and *Lawd* (as pronounced in a rich stage dialect). The vowel of *Lawd* is close to what your doctor makes you say to get a look at the back of your throat, because to make that sound you open your mouth and depress your tongue as far as possible.
- Many vowel sounds in English are diphthongs, vowels that begin in one vowel position and move toward another as the vowel is articulated. The vowel in *laid* is actually a diphthong, beginning with the "long a" sound and ending a bit closer. Starting with the vowel of *prod* and going up much closer gives the diphthong in *lied*. Starting with the back vowel of *laud* and then moving front and near-close yields the diphthong in *Lloyd*. Starting way back and open and moving up to a back near-close sound gives the diphthong of *loud*. The English "long" vowels are usually pronounced as diphthongs: the vowels of *lead*, *load*, and *lewd* are actually pure vowels followed by a semivowel "off-glide."
- Note, however, that the distinction between "long" and "short" vowels, so often made in elementary teaching, is really not a distinction between long and short versions of the same sound. For instance, we think of the vowel in *bad* as being a "short a" and the vowel in *bathe* as being a "long a." But the two sounds are quite different and articulated in different parts of the mouth. *Bathe* has a "long" sound because it is a diphthong, not because it has the sound of *bad* lengthened. We call both of these vowels "a" sounds just because of an accident of spelling.
- At the present moment, the consonants in *stone*, *home*, *boat* and *road* are pretty much stable in all English dialects, except that the majority of British speakers have no initial consonant in *home* and may also substitute a glottal stop for the final /t/ in *boat*. So there's great stability in this age-old consonant pattern at the present moment.
- But there's enormous variability world-wide in the vowels of these words. This variability is the basic manifestation of what we call "accents" or dialectal differences in pronunciation. The OE vowel has disappeared from these words, leaving a host of regional variants.

Notes

- The Standard American vowel in *stone* is, as I noted, the /ow/ "off-glide" diphthong. The British RP vowel is also a diphthong, one that starts with the vowel of *met* and ends with that of *put*. It's like the diphthong in some East Coast US dialects (South Jersey / Philadelphia/ Maryland), which starts with the vowel of *bathe* and ends with that of *put*.
- Another British diphthong, that of Southeastern or "Estuary" speakers, starts with the front vowel of *bat* and ends ups back and central. Make that a bit longer and you have the distinctive Australian diphthong in *stone*, which makes sense because Australian dialects are relatively recent developments from London English.
- By contrast, some English dialects have a short pure vowel /o/--notably South African dialects and some West Indian dialects. A longer /o/ is a feature of some Irish dialects, but there are Irish speakers who have a high long pure vowel, almost that of American *boot*, in *stone*. If you start with /o/ and glide into a central vowel, you have the Canadian and Minnesota version of stone, and if you make the initial /o/ of that diphthong longer, you have the Scottish diphthong--again, Canadian speech owes a great deal to Scottish English. Finally, if you use a short vowel like that of *put* in *stone*, you have an approximation of the vowel in some Indian dialects.

7.5 Key-Words

1. The hard palate : The hard palate is the upper part of the mouth after alveolar ridge towards the throat. It can be felt with tongue. With the help of hard palate some sounds are produced like initial sounds in 'yes'.
2. The soft palate : After hard palate towards the throat, if we roll our tongue we will find a portion of soft skin. This portion is called soft palate or velum. Velum functions in two ways to produce sounds: (*i*) It makes contact with the back of the tongue to complete the closure and (*ii*) It gets raised and makes contact with the back wall of phrynx to complete the closure. The first type of closure is called Velar clusure and the second type of closure is called velic closure. Sound in words like flat, board, spray, etc. are produced during a velic closure.
3. The uvula : The uvula is a small tongue like organ at the end of the soft palate.
4. The tongue : Tongue is the most important and flexible articulator in the speech apparatus. It moves to make contact with different articulators to produce different sounds. Many sounds are produced with the help of tongue. For example, when tongue is suspended in the mid of the mouth slightly curved sound /sh/ produced.

7.6 Review Questions

1. (*i*) Which of the following words contains a rounded vowel?
   put seek hook grew grey hoe hold
   (*ii*) Which of the following words contains a front vowel?
   see seat met tap throw tape through
   (*iii*) Which of the following words contains a high vowel?
   see seat steak throw list lost through
   (*iv*) Which of the following words contains a central vowel?
   about put luck hit purse father kept
   (*v*) Which of the following words contains a high back vowel?
   put love hit heat luck look food
2. (*i*) What do the vowels in these words have in common?
   bet hair rose post love purse mate
   (*ii*) What do the vowels in these words have in common?
   see leap weird pit fiend miss crypt

Notes

(*iii*) What do the vowels in these words have in common?

height boy try noise loud crowd fine

(*iv*) What do the vowels in these words have in common?

flea rude piece flu stew leave sees

3. Make vowel quadrilateral diagrams for all the diphthongs of SSBE, showing the position of the first and second elements and drawing lines and arrows connecting them.
4. Give as detailed a description as you can of the vowels in the following words:

father leaving hear thoroughly fast haste look alike sausage ooze

Answers: Self-Assessment

1. Cell : One vowel represented by the letter a
   Two consonants represented by the letter c and ll.
2. Know : One vowel represented by the letters ow
   One consonant represented by the letters kn.
3. Thumb : One vowel represented by the letter u
   Two consonants represented by the letters th and mb.
4. Hasses : Two vowels represented by the letters o(r) and e
   Three consonants represented by the letters h, s and s.
5. Blessed : One vowel represented by the letter e
   Four consonants represented by the letters, b, l, ss, and ed.
6. Leaves : One vowel represented by the letters ea
   Three consonants represented by the letters, *i*, v, and es.
7. Wish : One vowel represented by the letter *i*
   Two consonants represented by the letters - w and sh.
8. Language : Two vowels represented by the letters *a* and *a*. Five consonants represented by the letters, l, n, g, u, ge.
9. Photo : Two vowels represented by the letters o and o.
   Two consonants represented by the letters ph and t.
10. Cunning : Two vowels represented by the letters u and i
    Three consonants represented by the letters c, n and ng.

7.7 Further Readings

1. Verma, S.K., V.N. Krishnaswamy. Modern Linguistics: An Introduction.
2. An Introduction to Linguistics, John Lyon.
3. Peter Roach: English phonetics and phonology. Cambridge University Press.
4. Encyclopedia of Linguistic Science Edited By V. Prakasam, Allied Pub., New Delhi.

Notes

Unit 8: Diphthongs and Its Phonetic Transcription

CONTENTS

Objectives

After reading this Unit students will be able to:

- Learn about Diphthongs and its Phonetic Transcription.
- Discuss Types of Diphthongs.

Introduction

A **diphthong** (literally "two sounds" or "two tones"), also known as a **gliding vowel**, refers to two adjacent vowel sounds occurring within the same syllable. Technically, a diphthong is a vowel with two different targets: That is, the tongue moves during the pronunciation of the vowel. In most dialects of English, the words *eye*, *hay*, *boy*, *low*, and *cow* contain diphthongs.

Diphthongs contrast with monophthongs, where the tongue doesn't move and only one vowel sound is heard in a syllable. Where two adjacent vowel sounds occur in different syllables—for example, in the English word *re-elect*—the result is described as hiatus, not as a diphthong.

Diphthongs often form when separate vowels are run together in rapid speech during a conversation. However, there are also unitary diphthongs, as in the English examples above, which are heard by listeners as single-vowel sounds (phonemes).

Diphthong in phonetics, a gliding vowel in the articulation of which there is a continuous transition from one position to another. Diphthongs are to be contrasted in this respect with so-called pure vowels-i.e., unchanging, or steady state, vowels. Though they are single speech sounds, diphthongs are usually represented, in a phonetic transcription of speech, by means of a pair of characters indicating the initial and final configurations of the vocal tract. Many of the vowel sounds in most dialects of English are diphthongs: e.g., the vowels of "out" and "ice," represented as [au] and [ai], respectively.

In the International Phonetic Alphabet, monophthongs are transcribed with one symbol, as in English *sun* [sʃ n]. Diphthongs are transcribed with two letters, as in English *sign* [sa i̯ n] or *sane* [se i̯ n]. The two vowel symbols are chosen to represent the beginning and ending positions of the tongue, though this can be only approximate.

The non-syllabic diacritic (an inverted breve below, ◌̯) can be placed under the less prominent component to show that it is part of a diphthong rather than a separate vowel. It is, however, usually omitted in languages such as English, where there is not likely to be any confusion.

Without the diacritic, the sequence ([ai]) can represent either a diphthong ([a i̯]) or two vowels in *hiatus* ([a.i]).

Notes

8.1 Types of Diphthongs

Falling and rising

Falling (or **descending**) diphthongs start with a vowel quality of higher prominence (higher pitch or volume) and end in a semivowel with less prominence, like [a i̯] in *eye*, while **rising** (or **ascending**) diphthongs begin with a less prominent semivowel and end with a more prominent full vowel, similar to the [ja] in *yard*. (Note that "falling" and "rising" in this context do *not* refer to vowel height; the terms "opening" and "closing" are used instead. See below.) The less prominent component in the diphthong may also be transcribed as an approximant, thus [aj] in *eye* and [ja] in *yard*. However, when the diphthong is analysed as a single phoneme, both elements are often transcribed with vowel letters (/ ai̯ /, / i̯a /). Note also that semivowels and approximants are not equivalent in all treatments, and in the English and Italian languages, among others, many phoneticians do not consider rising combinations to be diphthongs, but rather sequences of approximant and vowel. There are many languages (such as Romanian) that contrast one or more rising diphthongs with similar sequences of a glide and a vowel in their phonetic inventory. (see semivowel for examples).

Closing, opening, and centering

In **closing** diphthongs, the second element is more close than the first (e.g. [ai]); in **opening** diphthongs, the second element is more open (e.g. [ia]). Closing diphthongs tend to be falling ([ai̯]), and opening diphthongs are generally rising ([i̯a]), as open vowels are more sonorous and therefore tend to be more prominent. However, exceptions to this rule are not rare in the world's languages. In Finnish, for instance, the opening diphthongs / ie̯ / and / uo̯ / are true falling diphthongs, since they begin louder and with higher pitch and fall in prominence during the diphthong.

A third, rare type of diphthong that is neither opening nor closing is **height-harmonic** diphthongs, with both elements at the same vowel height. These were particularly characteristic of Old English, which had diphthongs such as / æ ɑ̯ /, / eo̯ /.

A centering diphthong is one that begins with a more peripheral vowel and ends with a more central one, such as [ɪə̯], [ɛə̯], and [ʊə̯] in Received Pronunciation or [iə̯] and [uə̯] in Irish. Many centering diphthongs are also opening diphthongs (iə̯], [uə̯]).

diphthongs may contrast in how far they open or close. For example, Samoan contrasts low-to-mid with low-to-high diphthongs:

- *'ai* [ʔ ai̯] 'probably'
- *'ae* [ʔ ae̯] 'but'
- *'auro* [ʔ au̯ro] 'gold'
- *ao* [ao̯] 'a cloud'

Length

Languages differ in the length of diphthongs, measured in terms of morae. In languages with phonemically short and long vowels, diphthongs typically behave like long vowels, and are pronounced with a similar length. In languages with only one phonemic length for pure vowels, however, diphthongs may behave like pure vowels. For example, in Icelandic, both monophthongs and diphthongs are pronounced long before single consonants and short before most consonant clusters.

Notes

Some languages contrast **short** and **long** diphthongs. In some languages, such as Old English, these behave like short and long vowels, occupying one and two morae, respectively. In other languages, however, such as Ancient Greek, they occupy two and three morae, respectively, with the first element rather than the diphthong as a whole behaving as a short or long vowel. Languages that contrast three quantities in diphthongs are extremely rare, but not unheard of; Northern Sami is known to contrast long, short and "finally stressed" diphthongs, the last of which are distinguished by a long second element.

8.2 Difference from a Vowel and Semivowel

While there are a number of similarities, diphthongs are not the same as a combination of a vowel and an approximant or glide. Most importantly, diphthongs are fully contained in the syllable nucleus while a semivowel or glide is restricted to the syllable boundaries (either the onset or the coda). This often manifests itself phonetically by a greater degree of constriction. though this phonetic distinction is not always clear. The English word *yes*, for example, consists of a palatal glide followed by a monophthong rather than a rising diphthong. In addition, while the segmental elements must be different in diphthongs so that [i i̯], when it occurs in a language, does not contrast with [i:] though it is possible for languages to contrast [ij] and [i:].

Examples

Germanic languages

English

All English diphthongs are falling, apart from /ju:/, which can be analyzed as [i̯u ː].

In words coming from Middle English, most cases of the Modern English diphthongs [aɪ̯ , oʊ̯ , eɪ̯ , aʊ̯] originate from the Middle English long monophthongs [iː, ɔː, aː, uː] through the Great Vowel Shift, although some cases of [oʊ̯ , eɪ̯] originate from the Middle English diphthongs [ɔu̯ , aɪ̯].

Standard English diphthongs

	RP (British)	Australian	American	GA	Canadian
low	[əʊ̯]	[əɐ̯]			[oʊ̯]
loud					[aʊ̯]
	[aʊ̯]	[æɔ̯]		[aʊ̯]	
lout					[ʌʊ̯][t2 1]
lied					[aɪ̯]
light	[aɪ̯]	[ɑe̯]			[ʌɪ̯][t2 1]
lane	[eɪ̯]	[æɪ̯]			[eɪ̯]
loin	[ɔɪ̯]	[oɪ̯]			[ɔɪ̯]
loon	[uː]	[ɐ̯ː]		[ʊu̯][t22]	
leen	[iː]	[ɪi̯][t22]		[iː][t22]	

Notes

leer	[lə͡]	[lə͡]	[lə͡ˑ][t23]
lair	[ɛə͡][t24]	[eː][t24]	[ɛə͡ˑ][t23]
lure	[ʊə͡][t24]	[ʊə͡]	[ʊə͡ˑ][t23]

8.3 IPA Transcription Systems for English

1. Introduction: the IPA. 2. Pronunciations in dictionaries. 3. Consonants. 4. Stress. 5. Vowels: quantitative and qualitative. 6. Vowels: the standard scheme. 7. Upton's scheme.

1. Introduction: the IPA

The **International Phonetic Alphabet (IPA)** is widely used for the transcription of English and many other languages. People are often surprised to find that not all authorities who claim to use the IPA transcribe the same words in the same way. They feel that since phonetics is a science there should be just one pronunciation scheme for a word.

The reasons for the fact that there are several such schemes can be summed up in the term **academic freedom**. No one can impose a given transcription scheme on an author, although most authors have the common sense to adopt a widely-used scheme rather than invent one of their own.

The IPA offers a set of symbols, and some general guidelines **for their use. It does not prescribe transcription systems for particular languages.** In practice, the system that people use may well depend on the purpose for which they use it. Specifying the pronunciation of a headword in a dictionary is one thing; transcribing a specimen of running speech, making notes in linguistic fieldwork, or annotating an acoustic display may each require something rather different. Transcriptions intended to be used by native speakers of a language may well differ from those intended for foreign learners; indeed, different groups of foreign learners may have rather different requirements.

The symbols currently recognized by the IPA are set out on the Chart of its Alphabet. There are over a hundred of them; any given language normally needs to exploit only a small subset.

2. Pronunciations in dictionaries

Our focus here is on British English dictionaries and how they indicate the pronunciation of each headword. First, a little history.

Until relatively recently, English dictionaries did not use IPA. Instead, they used (if anything) various respelling schemes. The only dictionaries that did use IPA were specialist pronunciation dictionaries, notable Daniel Jones's *English Pronouncing Dictionary* ("EPD", first edition 1917). The earliest general dictionaries to adopt IPA seem to have been dictionaries aimed at learners of English as a foreign language: the *Oxford Advanced Leaner's Dictionary* (first edition 1948), the *Longman Dictionary of Contemporary English* (first edition, 1978). This was in response to market forces, since specialist teachers of pronunciation for EFL had been using IPA for many years. The first native-speaker dictionary with IPA may have been *Collins English Dictionary* (first edition 1979). Since then, many others have followed suit.

3. Consonants

The transcription of English consonants in IPA is not subject to any disagreement. Everyone agrees that we give the symbols/p, t, k, b, d, f, v, s, z, m, n, r, l, w, h/ their usual values as in ordinary spelling. The remainder are as shown in the box. For Scottish, Welsh and foreign words there is also /×/ (*loch*) available.

g *or* ɡ	g*et*, g*i*gg*le*	ŋ	*sing*, *think*
tʃ	*church*	dʒ	*judge*

Notes

θ	*th*in, au*th*or	ð	*th*is, fa*th*er
f	*sh*eep	ʒ	vi*s*ion
(×	lo*ch*)	*j*	*y*es

4. Stress

Likewise, there is no disagreement among IPA users about the symbols for word stress (although there may well be disagreement about the analysis of secondary stress). Primary stress is shown by the mark', placed before the syllable concerned. (Compare the older, non-IPA, dictionary tradition, where it was shown by the mark ' after the syllable.)

Secondary stress, if shown at all, is indicated by a similar mark below the line.

5. Vowels: quantitative and qualitative

The pronunciation scheme used in the first twelve editions of EPD was one that required rather few special symbols. It achieved this parsimony by transcribing the English vowels **quantitatively**. This meant writing /iː/ for the vowel of *reed* and /i/ for that of *rid*, using the same phonetic symbol with and without a length mark.

iː	*reed*
i	*rid*
ɔː	*cord*
ɔ	*cod*

The vowel of *cord* was written / ɔ :/, that of *cod* / ɔ /, and similarly for other pairs. Thus the difference in vowel quality (vowel timbre, vowel colour) between such pairs of vowels was not shown explicitly but had to be inferred from the presence or absence of the length mark.

i	*reed*
I or ɪ	*rid*
ɔ	*cord*
ɒ	*cod*

Many phoneticians were dissatisfied with this scheme, feeling that the difference in vowel quality was at least as important as that of quantity. They preferred to use a scheme in which each vowel was shown by a separate letter-shape, without the use of length marks. Thus /i/ was used for reed, /ɪ/ for *rid*, / ɔ / for *cord* and /ɒ/ for *cod*. This **qualitative** scheme was particularly popular among speech therapists and students of speech and drama.

iː	*reed*
ɪ	*rid*
ɔː	*cord*
ɒ	*cod*

The rivalry of these two widely used schemes was resolved by A.C. Gimson. Both in his own works and in Jones's *EPD*, which he took over as editor, he made use of a scheme that was both quantitative and quantitative. It uses distinct letter-shapes for the different vowels, but also retains length marks for the long vowels. So *reed* is written with /iː/, *rid* with /ɪ/, *cord* with / ɔ :/, and *cod* with /ɒ/. The resulting scheme is admittedly somewhat redundant — but almost all British phoneticians quickly rallied to it, and this quantitative-qualitative notation has become a de facto standard.

All three types of transcription can be defended as conforming to IPA principles. All are equally "scientific". All convey the same information, equally unambiguously. The difference is in what they make explicit and what they leave to be inferred. The quantitative-qualitative type, now generally adopted, makes explicit both vowel length and vowel quality.

6. Vowels: the standard scheme

By 1990 the quantitative-qualitative transcription had been adopted by all the most influential writers on phonetics in England, and by many general dictionaries. It is found, for example, in

Notes

Collins English Dictionary, the *Oxford Pocket Dictionary*, and the *Hutchinson Encyclopedic Dictionary*, as well as in my own *Longman Pronunciation Dictionary* and in the 14th and 15th editions of Daniel Jones's *English Pronouncing Dictionary*, now edited by Peter Roach. It is what you will find in Gimson's *Introduction to the Pronunciation of English* and in the second edition of O'Connor's *Better English Pronunciation*. It is used in the Oxford *Advanced Learner's Dictionary*, the *Longman Dictionary of Contemporary English*, and the *Collins Cobuild Dictionary*. Almost all recent EFL textbooks published in Britain have adopted it.

ɪ	*bit*	ʃ	*put, foot*
e	*bet*	^	*cut, blood*
æ	*bat*	ɒ	*lot*

Here (left) is how the **short** ə *ago* **vowels** are represented in this scheme. To them we must add **schwa** (right), the weak vowel of *ago*, *banana*.

To the right we see the symbols for the **long vowels** (monophthongs). Note that in every case not only is there a length mark, but the symbol shape is different from that for the corresponding short vowel.

iː	*beat*	uː	*boot*
		ɜː	*nurse*
ɒː	*cart*	ɔː	*caught*

Lastly we have the **diphthongs**. These are vowels whose quality noticeably alters as the tongue moves in the course of their production. They are represented by two letters, one indicating the start of the diphthongal movement, the other indicating its end or general direction.

eɪ	*face*	əʊ	*goat*
aɪ	*price*	aʊ	*mouth*
ɔɪ	*choice*		
ɪə	*near*	ʊə	*poor*
eə	*square*		

There are also the sequences to be aɪe *fire* aʊe *power*

heard in words such as *fire*, *power*, which some people analyse as **triphthongs:** they are represented by the diphthong symbols as in *price*, *mouth* plus schwa. Some authors recognize other similar sequences as well (*player*, *slower*...), but there really seems to be no need to list them separately.

English, like all languages, gradually changes over time. The transcription of some words has to change accordingly. Dictionaries still generally prescribe / ʊe / for words such as *poor*, but it has to be admitted that more and more people pronounce / ɔ :/ instead, making *poor* like *pour*, *pore*, *paw*, and similarly with other / ʊe / words.

Another recent trend is that of i *happy* u *situation*

pronouncing the vowel at the end of *happy*, *coffee*, *valley* tense, like *beat*, rather than lax like *bit*. This is actually another weak vowel, restricted like schwa to unstressed syllables. Traditionally it was identified with the vowel of *bit*, and transcribed identically, /w/. However LDOCE decided instead to use the symbol /i/ (without length marks) for this vowel. This was intended as a kind of cover symbol, which everyone could interpret in their own way: traditionalists could think of it as identical with /ɪ/, whereas users of the tenser vowel might want to identify it with /i:/. I followed this lead in my LPD and so subsequently did Roach in EPD—15 and Ashby in the Oxford ALD. (In fact we need two extra weak vowels: /i/ in *happy* and /u/ in *situation*.)

It is fair to say that by the 90's, with these minor tweakings, the Gimson quantitative-qualitative scheme had become the standard IPA transcription system for RP-oriented phonetics.

Notes

7. Upton's scheme

This hard-won uniformity was shaken, however, by Clive Upton's appointment as pronunciation consultant for Oxford's native-speaker dictionaries. His scheme, adopted by the influential *Concise Oxford Dictionary* (1995) remains quantitative-qualitative, but differs from the standard scheme in the symbolization of five vowels (see box: the standard notation in green, Upton's in pink). In at least some of the cases one can see what motivated Upton to alter the standard symbol: but in my view the supposed gains did not make up for the sacrifice of an agreed standard.

e	*bet*	ɛ
æ	*bat*	a
ɜː	*nurse*	əː
eə	*square*	ɛː
aw	*price*	ʌɪ

Upton's Reforms: for and against

- **Bet:** In some languages, notably French and German, one needs to distinguish two e-type vowels, a closer one (IPA [e]) and an opener one (IPA [ɛ]). The English *bet* vowel lies between them, but is more similar to [ɛ], which is why Upton prefers that symbol. However, from the point of view of an EFL learner whose native language is, say, Japanese or Greek — languages that have no such distinction — it is quite unnecessary to distinguish the "[e]" at the starting point of the *face* diphthong from the "[ɛ]" of *bet*. And following IPA principles, if we are to choose just one of the two symbols we should prefer the simpler one.
- **Bat:** It is well known that the quality of the RP *bat* vowel has changed since the 1930's. It is now more similar to "cardinal [a]" than it used to be. Hence Upton's choice of the [a] symbol. A more conservative line is to stick with the familiar symbol [æ], but to redefine it as appropriate. That, after all, is what we have all done with the [ʌ] symbol for the vowel of *cut*, *blood*, which used to be a back vowel but now has a central/front quality for which the most specific IPA symbol would probably be [ɐ] (turned a). A further argument in favour of retaining the symbol [æ] is that it preserves the parallelism with American and Australian English, in which the movement towards an opener quality has not taken place.
- **Nurse:** For many speakers there is no appreciable difference in quality between the short [ə] in *ago* and the long vowel of *nurse*. Hence Upton writes them with the same symbol, with and without length marks. The arguments against this are that (i) all other long-short pairs use distinct letter shapes alongside presence/absence of length marks; (ii) schwa is a weak vowel, restricted to unstressed syllables, and subject to very considerable variability depending on its position. This is not true of the *nurse* vowel. (I concede that the logic of this argument would lead also to the avoidance of the schwa symbol in the *goat* diphthong [əʊ]. It might well have been better if Gimson had chosen to write it [ɜʊ]. I was tempted to innovate in LPD by using that symbol. But I decided, rightly I believe, that it was not worth upsetting an agreed standard for.)
- **Square:** People do increasingly use a long monophthong for this vowel, rather than the schwa-tending diphthong implied by the standard symbol. What used to be a local-accent feature has become part of the mainstream. There are millions of English people, however, who still use a diphthong. To produce the distinction in pairs such as *shed — shared* EFL learners generally find it easier to make the *square* vowel diphthongal ([eə]) rather than to rely on length alone.
- **Price:** The standard notation might seem to imply that the starting point of the *price* diphthong is the same as that of the *mouth* diphthong. In practice, speakers vary widely in how the two qualities compare. In *mouth* people in the southeast of England typically have a rather *bat*-like

Notes

starting point, while in *price* their starting point is more like *cart*. In traditional RP the starting points are much the same. Upton's notation implicitly identifies the first element of *price* with the vowel quality of *cut* — an identification that accords with the habits neither of RP nor of southeastern speech (Estuary English). His choice of [ʌɪ] is really very unsuitable.

- My recommendation is therefore to remain with the standard scheme

Self-Assessment

1. Write the symbol for the diphthong you hear in each word. (1—12).

8.4 Summary

- Technically, a diphthong is a vowel with two different targets: That is, the tongue moves during the pronunciation of the vowel. In most dialects of English, the words *eye*, *hay*, *boy*, *low*, and *cow* contain diphthongs.
- Diphthongs contrast with monophthongs, where the tongue doesn't move and only one vowel sound is heard in a syllable. Where two adjacent vowel sounds occur in different syllables—for example, in the English word *re-elect*—the result is described as hiatus, not as a diphthong.
- Diphthongs often form when separate vowels are run together in rapid speech during a conversation. However, there are also unitary diphthongs, as in the English examples above, which are heard by listeners as single-vowel sounds (phonemes).
- **Diphthong** in phonetics, a gliding vowel in the articulation of which there is a continuous transition from one position to another. Diphthongs are to be contrasted in this respect with so-called pure vowels-i.e., unchanging, or steady state, vowels. Though they are single speech sounds, diphthongs are usually represented, in a phonetic transcription of speech, by means of a pair of characters indicating the initial and final configurations of the vocal tract. Many of the vowel sounds in most dialects of English are diphthongs: e.g., the vowels of "out" and "ice," represented as [au] and [ai], respectively.
- In **closing** diphthongs, the second element is more close than the first (e.g. [ai]); in **opening** diphthongs, the second element is more open (e.g. [ia]). Closing diphthongs tend to be falling ([a͡i]), and opening diphthongs are generally rising ([i͡a]), as open vowels are more sonorous and therefore tend to be more prominent. However, exceptions to this rule are not rare in the world's languages. In Finnish, for instance, the opening diphthongs /i͡e/ and /u͡o/ are true falling diphthongs, since they begin louder and with higher pitch and fall in prominence during the diphthong.
- A third, rare type of diphthong that is neither opening nor closing is **height-harmonic** diphthongs, with both elements at the same vowel height. These were particularly characteristic of Old English, which had diphthongs such as /æ͡ɑ/, /e͡o/.
- Languages differ in the length of diphthongs, measured in terms of morae. In languages with phonemically short and long vowels, diphthongs typically behave like long vowels, and are pronounced with a similar length. In languages with only one phonemic length for pure vowels, however, diphthongs may behave like pure vowels. For example, in Icelandic, both monophthongs and diphthongs are pronounced long before single consonants and short before most consonant clusters.

8.5 Key-Words

1. Vocalic/non-vocalic : Vowel is differentiated from consonant by this feature. Vocalics are marked by resonance patterns.
2. Compact/diffuse : Shape and volume of the resonance chamber characterise these features. Compact sounds show closer, resonance patterns.

Notes

3. Consonantal/non-consonantal : Vowels are non-consonantal and vocalic, consonants are non-vocalic. Vocal energy is notably high in vowels and quite low in consonants.

8.6 Review Questions

1. Write the symbol for the vowel you hear in each word. (1—10)
   Check your answers.
2. Listen and repeat (words in spelling):

iː and	ɪ	ɑː	and	ʌ	ɑː	and	æ
feel	fill	calm		come	part		pat
bead	bid	cart		cut	lard		lad
steel	still	half		huff	calm		Cam
reed	rid	lark		luck	heart		hat
bean	bin	mast		must	harms		harms

ɔː and	ɒ	uː	ʊ	ɜː	and	ʌ	ɑː	and	ɒ
caught	cot	pool	pull	hurt		hut	dark		dock
stork	stock	suit	soot	turn		ton	part		pot
short	shot	Luke	look	curt		cut	lark		lock
cord	cod	wooed	wood	girl		gull	balm		bomb
port	pot	fool	full	bird		bud	large		lodge

Answers: Self-Assessment

1. ɪə in fɪəs 'fierce'
2. eə in keəd 'cared'
3. ʊə in mʊəz 'moors'
4. eɪ in reɪd 'raid'
5. aɪ in taɪm 'time'
6. əʊ in kəʊt 'coat'
7. aɪ in kawt 'kite'
8. ɪə in bɪəd 'beard'
9. ʊə in tʊəz 'tours'
10. əʊ in bəʊn 'bone'
11. ɔɪ in bɔɪl 'boil'
12. aʊ in taʊn 'town'

8.7 Further Readings

1. Verma, S.K., V.N. Krishnaswamy. Modern Linguistics: An Introduction.
2. An Introduction to Linguistics, John Lyon.
3. Peter Roach: English phonetics and phonology. Cambridge University Press.
4. Encyclopedia of Linguistic Science Edited By V. Prakasam, Allied Pub., New Delhi.

Notes

Unit 9: Clusters and Syllables

CONTENTS

Objectives

After studying this Unit students will be able to:

- Discuss Clusters.
- Understand Syllables.

Introduction

In linguistics, a **consonant cluster** (or **consonant blend**) is a group of consonants which have no intervening vowel. In English, for example, the groups /spl/ and /ts/ are consonant clusters in the word *splits*. Some linguists argue that the term can only be properly applied to those consonant clusters that occur within one syllable. Others contend that the concept is more useful when it includes consonant sequences across syllable boundaries. According to the former definition, the longest consonant clusters in the word *extra* would be /ks/ and /tr, whereas the latter allows /kstr/. The German word *Angstschweiβ* (/aŋstʃvaIs/; "fear sweat") is another good example, with a cluster of five consonants: /ŋstʃv/.

Languages' phonotactics differ as to what consonant clusters they permit.

Many languages forbid consonant clusters altogether. Maori and Pirahã, for instance, forbid any two consecutive consonants in a word. Japanese is almost as strict, but allows clusters of consonant plus /j/ as in *Tokyo* [to: kjo:], the name of Japan's capital city. Across a syllable boundary, it also allows a sequence of a nasal plus another consonant, as in *Honshū* [hoɴɕu:] (the name of the largest island) and *tempura* [tempuɽa] (a traditional dish). A great many languages are more restrictive than English in terms of consonant clusters; almost every Malayo-Polynesian language forbids consonant clusters entirely. Tahitian, Samoan and Hawaiian are all of this sort. Standard Arabic forbids initial consonant clusters and more than two consecutive consonants in other positions. So do most other Semitic languages, although Modern Israeli Hebrew permits initial two-consonant clusters (e.g. *pkak* "cap"; *dlat* "pumpkin"), and Moroccan Arabic, under Berber influence, allows strings of several consonants. Like most Mon-Khmer languages, Khmer permits only initial consonant clusters with up to three consonants in a row per syllable. Finnish has initial consonant clusters natively only on South-Western dialects and on foreign loans, and only clusters of three inside the word are allowed. Most spoken languages and dialects, however, are more permissive. In Burmese, consonant clusters of only up to three consonants (the initial and two medials—two written forms of /-j-/, /-w-/) at the initial onset are allowed in writing and only two (the initial and one medial) are pronounced. These clusters are restricted to certain letters. Some Burmese dialects allow for clusters of up to four consonants (with the addition of the /-l-/ medial, which can combine with the above-mentioned medials.

Notes

Loanwords

Consonant clusters occurring in loanwords do not necessarily follow the cluster limits set by the borrowing language's phonotacties. The Ubykh language's root *psta*, a loan from Adyghe, violates Ubykh's rule of no more than two initial consonants; also, the English words *sphere* /'sfɪər/ and *sphinx* /'sfiŋks/, Greek loans, violate the restraint (or constraint, see also optimality theory) that two fricatives may not appear adjacently word-initially.

English

In English, the longest possible initial cluster is three consonants, as in *split* /'splIt/ and *strudel* /'ʃtru:dəl/, all beginning with /s/ or /ʃ/ and ending with /l/ or /r/; the longest possible final cluster is five consonants, as in *angsts* /'aeŋksts/, though that is rare and four, as in *twelfths* /'twɛlfθs/, *sixths* /'sIksθs/, *bursts* /'bɜrsts/ and *glimpsed* /'glɪmpst/, is more common. In compound words, longer clusters are possible, as in *handspring* /'hændspriŋ/.

However, it is important to distinguish clusters and digraphs. Clusters are made of two or more consonant *sounds,* while a digraph is a group of two consonant *letters* standing for a single sound. For example, in the word *ship*, the two letters of the digraph ⟨sh⟩ together represent the single consonant [ʃ]. Also note a combination digraph and cluster as seen in *length* with two digraphs ⟨ng⟩, ⟨th⟩ representing a cluster of two consonants: /ŋθ/; *lights* with a silent digraph ⟨gh⟩ followed by a cluster ⟨t⟩, ⟨s⟩ : /ts/; and compound words such as *sightscreen* /'saItskri:n/ or *catchphrase* /'kætʃfreIz.

The **phonological history of English consonant clusters** is part of the phonological history of the English language in terms of changes in the phonology of consonant clusters.

9.1 Clusters

Most English syllables consist of more than one vowel. We must examine what they can consist of, because it is not sufficient to add any consonant or group of consonants to a vowel to get an English syllable: /pteɪ/ is not a syllable of English whereas /pleɪ/ and /steɪ/ are.

The construction of a syllable is always organised around a vowel which is the **nucleus**, i.e. the indispensable element of the syllable. What comes before the nucleus is called **onset** and what follows it is called **termination**. Neither onset nor termination are necessary. They occur separately, or together with the nucleus, as illustrated in the table below:

Table: 9.1 Structure of the syllable

	onset	nucleus	termination	examples
nucleus only	--	X	--	/*a*:/ *are*
onset + nucleus	X	X	--	/bi:/ *bee*
nucleus + termination	--	X	X	/ɔ:t/ *ought*
onset + nucleus + termination	X	X	X	/bed/ *bed*

There are restrictions as to the position consonant phonemes can occupy: for example /ŋ/ can never occur before a vowel; just as /h/, /w/ and /j/ can never occur after a vowel. Our list does not include /r/ as in RP, it never occurs in a termination cluster.

Notes

Both onset and termination can consist of one or more consonant phonemes. Two or more consonants in the onset or in the termination form **consonant clusters**. Here again there are restrictions as to how the consonants can combine in the onset and termination respectively (onset clusters do not have the same restrictions as termination clusters and vice-versa)

s	+	p	+	l =	spteI *splay*
				r =	spreI *spray*
				j =	spju: *sprew*
		t	+	r =	strɔ: *straw*
				j =	stju: stew *stew*
		k	+	1 =	skle(rɔ:zIs) *sclerosis*
				r =	skru *screw*
				w =	skwi:z *squeez*
				j =	skju: *skew*

Any consonant can be the sole element of the onset except /ŋ/ as mentioned before. Note that /ʒ/ is rare and is found in initial position only in words directly imported from French, such as /ʒIgələʃ/ *gigolo* or /ʒi:g/ *gigue* (examples from Gimson 1980:189). The largest onset consonant cluster can consist of three elements. In this case the first one is necessarily /s/:/s C C nucleus/(where C stands for "consonant").

Notes

1. Examples for these clusters could be found; however they are all foreign or onomatopeic: psoriasis - pterodactyl - pshaw - tsetse - gwen - Sri-Lanka - Schweppes.
2. A decision has to be made here as to whether /tʃ/ and /dʒ/ are single phonemes or clusters.
3. It is a matter of pronunciation: some dialects pronounce [ʍeə(r)] for *where* (the sound /ʍ/ is a voiceless velar approximant.

Notice that among two-consonant clusters /s/ seems to combine most easily when in initial position.

Whereas it was possible to list the combinations of onset clusters fairly faithfully, it is practically impossible to present termination clusters in a chart that would allow immediate reading. Trnka (cited in Troubetzkoy 1967: 269) trying to enumerate and explain possible clusters in English and yet doesn't succeed in producing simple rules!

Hence we will restrict ourselves to showing some of the most frequent termination clusters. Any consonant may be a final consonant i.e. be the only element of a termination except for /h/, /w/, /j/ and to a certain extent /r/, as we have seen.

Examples of two-consonant clusters in termination:

bump	/__ mp/
rent	/__ nt/
bank	/__ ŋk/
belt	/__ 1t/

Notes

beds	/__ dz/
bets	/__ ts/
nest	/__ st/
bathes	/__ ð z/

Note that /pm/ wouldn't be possible, nor /kn/, /tl/ (/bi:tl/ *beetle* is considered to be split into two syllables.

Examples of three-consonant clusters in termination:

bumps	/__ mps/
bonds	/__ ndz/
banks	/__ ŋks/
helped	/__ lpt/
belts	/__ lts/
twelfth	/__ lf θ /
fifths	/__ f θ s/
next	/__ kst/
lapsed	/__ pst/

Examples of four-consonant clusters in termination:

twelfths	/__ lf θ s/
sixths	/__ ks θ s/
texts	/__ ksts/

9.1.1 H-cluster Reductions

The h-cluster reductions are various consonant reductions that have occurred in the history of English involving consonant clusters beginning with /h/ that have lost the /h/ in certain varieties of English.

Wh-cluster reductions

- The hole-whole merger is the replacement of/hw/ with /h/ before the vowels /o:/ and /u:/ which occurred in Old English. This is due to the effect that rounded back vowels have on /h, giving it velar and labial characteristics making /hw/ an allophone of /h/ before these vowels; the true phonetic /hw/ then eventually became perceived as this allophone of/h/ and no longer a phonologically distinct speech sound.
- The wine-whine merger is the merger of/hw/ (spelled *wh*) with /w/. It occurs in the speech of the great majority of English speakers. Notable dialects that retain the distinction include lrish English, Scottish English, and Southern American English. This occurred after the hole-whole merger meaning that wh- is usually /w/ before orthographic a, e, i and y, but /h/ before orthographic o. (Orthographic a is usually phonologically / ɒ / or / ɔ :/ after /w/ in some varieties of English.)

Yew-hew merger

The yew-hew merger is a process that occurs in some dialects of English that causes the cluster /hj/ to be reduced to /j/. It leads to pronunciations like /ju:d ʒ / for *huge* and /ju:mən/ for *human*; *hew* and *yew* become homophonous. It is sometimes considered a type of glide-cluster reduction, but is much less widespread than wh-reduction, and is generally stigmatized where it is found. Aside from accents with *h*-dropping, this reduction is in the United States found mainly in accents of Philadelphia and New York City; also in Cork accents of Hiberno-English. In some dialects of English, the cluster

Notes

/hj/ (phonetically [ç j]) has been reduced to [ç] so that *hew* and *yew* differ only by the initial consonant sound (i.e. [ç u:] and [ju:]).

hl-cluster, hr-cluster and hn-cluster reductions

The hl-cluster, hr-cluster and hn-cluster reductions are three reductions that occurred in Middle English that caused the consonant clusters /hl/, /hr/ and /hn/ to be reduced to /l/, /r/, and /n/. For example, Old English hl a f, *hring* and *hnutu* became *loaf, ring* and *nut* in Modern English.

9.1.2 Y-cluster Reductions

Yod-dropping

Yod-dropping is the elision of the sound [j]. The term comes from the Hebrew letter yod, which represents [j].

Yod-dropping before [u:] occurs in most varieties of English in the following environments:

- After [t ʃ , d ʒ , j], for example *chew* ['t ʃ u:], *juice* ['d ʒ u:s], *yew* [ju:]
- After /ɹ/, for example *rude* [ɹu:d]
- After consonant+/l/ clusters; for example *blue* ['blu:]

There are accents, for example Welsh English, in which pairs like *chews/choose, yew/you, threw/through* are distinct: the first member of each pair has the diphthong [Iu] while the second member has [u:].

Many varieties of English have extended *yod*-dropping to the following environments, on condition that the [j] be in the same syllable as the preceding consonant:

- After /s/, for example *suit* ['su:t]
- After /l/, for example *lute* ['lu:t]
- After /z/, for example *Zeus* ['zu:s]
- After / θ /, for example *enthusiasm* [ɛ n' θ u:zi æ z ə m]

Yod-dropping in the above environments was formerly considered nonstandard in England, but today it is heard even among well-educated RP speakers. In General American *yod*-dropping is found not only in the above environments but also:

- After/t/, /d/ and /n/, for example *tune* ['tu:n], *dew* ['du:], *new* ['nu:]

9.1.3 Other Initial-cluster Reductions

Rap-wrap merger

The rap-wrap merger is a reduction that causes the initial cluster /wr/ to be reduced to /r/, making *rap* and *wrap*, *rite* and *write* etc. homophones.

Old English had a contrast between /wr/ and /r/, the former characterized by lip rounding. In Middle English, the contrast disappeared and all cases of initial /r/ came to be rounded [r^{w}].

Not-knot merger

The not-knot merger is a reduction that occurs in modern English where the historical cluster /kn/ is reduced to /n/ making *knot* and *not* homophones.

All of the *kn* words stem from Old English forms beginning with *cn-*, and at the time all were pronounced with an initial /k/ before the /n/. These words were common to the Germanic languages, most of which still pronounce the initial /k/. Thus, for example, the Old English ancestor of *knee* was

Notes

cn ē o, pronounced /kn e͡o:/, and the cognate word in Modern German is *Knie*, pronounced /kni:/. Most dialects of English reduced the initial cluster /kn/ to /n/ relatively recently; the change seems to have taken place in educated English during the seventeenth century, meaning that Shakespeare did not have the reduction.

Nome-gnome merger

The nome-gnome merger is the reduction of the initial cluster /ɡn/ to /n/. In Middle English, words spelt with *gn* like *gnat*, *gnostic*, *gnome*, etc. had the cluster /ɡn/. The humorous song *The Gnu* jokes about this, even though the *g* in *gnu* may actually have always been silent in English, since this loanword did not enter the language until the late 18th century. The trumpeter Kenny Wheeler wrote a composition titled "Gnu High", a pun on "New High".

S-cluster reduction

S-cluster reduction is the dropping of /s/ from the initial consonant clusters with voiceless plosives (environments /sp/, /st/, and /sk(ʷ)/) occurring in Caribbean English. After the initial /s/ is removed, the plosive is aspirated in the new word-initial environment, resulting in pronunciations such as:

spit → 'pit (['spit] → ['pʰɪt])

stomach → 'tomach (['stɐmək]) → ['tʰɐmək])

spend → 'pen (['spɛnd] → ['pʰɛn]) (also affected by final consonant-cluster reduction)

squeeze → 'queeze (['skwi:z] → ['kʰwi:z])

9.1.4 Final-cluster Reductions

Final-consonant-cluster reduction

Reduction of final consonant clusters occurs in African American Vernacular English and Caribbean English. The new final consonant may be slightly lengthened as an effect.

Examples are:

test → tes' ([tʰɛst] → [tʰɛs])

desk → des' (['dɛsk] → ['dɛs])

hand → han' ([hænd] → ['hæn])

send → sen' ([sɛnd] → ['sɛn])

left → lef' (['lɛft] → ['lɛf])

wasp → was' (['wa:sp] → ['wa:s])

The plurals of *test* and *desk* may become *tesses* and *desses* by the same English rule that gives us plural *messes* from singular *mess*.

Plum-plumb merger

The plum-plumb merger is the reduction of the final cluster /mb/ to ɪm ɪ that occurs in all dialects of present English. In early Middle English, words spelled with *mb* like *plumb*, lamb etc had the cluster /*mb*/.

Notes

9.1.5 Consonant-cluster Additions

Prince-prints merger

The **prince-prints merger** is a merger of /ns/ and /nts/ occurring for many speakers of English. For them, "prince" and "prints" are homonyms as [prints]. A [t] is inserted between the [n] and the [s]. Likewise the fricative [j] often becomes $[t\int]$ after [n], so that "pinscher" and "pincher" are homophones.

These similar clusters may also merge:

- /nz/ and /ndz/ as in "bans", "pens" and "Hans" sounding the same as "bands", "pends" and "hands". The merged form being [nz]
- /mt/ and /mpt/ as in "dreamt" and "attempt". The merged form being [mpt].
- /ms/ and /mps/ as in "camps" and "hamster". The merged form being [mps].

9.1.6 Consonant-cluster Alterations

Yod-rhotacization

Yod-rhotacization is a process that occurs for some Southern AAVE speakers where /*j*/ is rhotacized to /*r*/ in consonant clusters causing pronunciations like:

beautiful → /'bru:tɪfəl/

cute → /'kru:t/

music → /'mru:zɪk/

S-cluster metathesis

S-cluster metathesis is the metathesis of final consonant clusters starting with /s/ occurring in African American Vernacular English as well as many other varieties of English.

For AAVE speakers with S-cluster metathesis the following words can undergo the following changes:

ask → /'æks/
grasp → /'græps/
wasp → /'wa:ps/
gasp → /'gæps/

S-cluster metathesis is lexically determined.

The above pronunciations in fact have a long history, and all the metathesised forms have existed in English for around as long as the words themselves, with varying degrees of acceptance.

For example, the Old English verb *ascian* also appeared as *a'sian*, and both forms continued into Middle English. The two forms co-existed and evolved separately in various regions of England, and later America. The variant *ascian* gives us the modern standard English *ask*, but the form "axe", probably derived from Old English *acsian*, appears in Chaucer: "I axe, why the fyfte man Was nought housband to the Samaritan?" (*Wife of Bath's Prologue*, 1386.) It was considered acceptable in literary English until about 1600 and can still be found in some dialects of English including African American Vernacular English. It is, however, one of the most stigmatized features of AAVE, often commented on by teachers. It also persists in Ulster Scots as /'aks/ and Jamaican English as /'a:ks/, from where it has entered the London dialect of British English as /'a:ks/.

Conclusion

In summarizing her research on the cluster, Dandy (1991) notes that the form is found in Gullah and in the speech of some young African Americans born in the Southern United States. She explains that

Notes

the stream-scream merger is a highly stigmatized feature and that many of the students in her study who used it were referred to speech pathologists. She goes on to note the following about her research: "I also found a continuum that may indicate sound change in progress. If children said *skretch* for *stretch*, they probably have used the *skr* alternation in other words that contained the feature: *skreet* for *street*, *skrong* for *strong*, *shrike* for *strike*, *skranger/deskroy* for *stranger/destroy*. There were some who said *skreet* for *street* but did not make alteration on other words with that sound". Also, although Dandy does not make this point, it is important to note that the students' use of/skr/ may have been affected by the training they were getting from the speech pathologists.

In my paper, I will discuss the English Syllable, phoneme, ways of identifying phonemes and the application of stress in English words. The area of linguistics that puts effort into the understanding the sounds of a language is Phonetics, a sub-category of Phonetics, which deals specifically with the ways sounds are organized into the individual languages and studies the subset of those sounds that constitute language and meaning, is Phonology.

Phonologically talking the sounds are the phonemes. According to Rogers (2000) "phonemes can be thought of as instructions for articulating speech-sounds, and so a phoneme can be described in terms of the behavior of the vocal apparatus that occurs when a physiologically normal speaker articulates his or her particular representation of the phoneme. Thus phonemes are the phonetic alphabet of the mind. That is, phonemes are how we mentally represent speech; how we store the sounds of words in our memory. The following two tables show phonemes of Modern English, the consonants and vowels.

9.2 Syllables

The syllable is a very important unit. Most people seem to believe that, even if they cannot define what a syllable is, they can count how many syllables there are in a given word or sentence. If they are asked to do this they often tap their finger as they count, which illustrates the syllable's importance in the rhythm of speech. As a matter of fact, if one tries the expriment of asking English speakers to count the syllables in, say, a recorded sentence, there is often a considerable amount of disagreement.

9.2.1 The Nature of the Syllable

When we looked at the nature of vowels and consonants in Previous units it was shown that one could decide whether a particular sound was a vowel or a consonant on phonetic grounds (in relation to how much they obstructed the airflow) or on phonological grounds (vowels and consonants having different distributions). We find a similar situation with the syllable, in that it may be defined both phonetically and phonologically. Phonetically (i.e., in relation to the way we produce them and the way they sound), syllables are usually described as consisting of a centre which has little or no obstruction to airflow and which sounds comparatively loud; before and after this centre (ie.,e at the beginning and end of the syllable), there will be greater obstruction to airflow and/or less loud sound. We will now look at some examples:

1. What we will call a minimum syllable is a single vowel in isolation (e.g. the words 'are'aː, 'or' ɔː, 'err' ɜː). These are preceded and followed by silence. Isolated sounds such as m, which we sometimes produce to indicate agreement, or ʃ, to ask for silence, must also be regarded as syllables.
2. Some syllables have an onset—that is, instead of silence, they have one or more consonants preceding the centre of the syllable:
   'bar baː' 'key' kiː 'more' mɔː
3. Syllables may have no onset but have a coda—that is, they end with one or more consonants:
   'am' æm 'ought' ɔːt 'ease' iːz
4. Some syllables have both onset and coda:
   'ran' ræn 'sat' sæt 'fill' fil

Notes

This is one way of looking at syllables. Looking at them from the phonological point of view is quite different. What this involves is looking at the possible combinations of English phonemes; the study of the possible phoneme combinations of a language is called phonotactics. It is simplest to start by looking at what can occur in initial position - in other words, what can occur at the beginning of the first word when we begin to speak after a pause. We find that the word can begin with a vowel, or with one, two or three consonants. No word begins with more than three consonants. In the same way, we can look at how a word ends when it is the last word spoken before a pause; it can end with a vowel, or with one, two, three or (in a small number of cases) four consonants. No current word ends with more than four consonants.

9.2.2 The Structure of the English Syllable

Let us now look in more detail at syllable onsets. If the first syllable of the word in question begins with a vowel (any vowel may occur, though ˈʊ is rare) we say that this initial syllable has a zero onset. If the syllable begins with one consonant, that initial consonant may be any consonant phoneme except ŋ; ʒ is rare.

We now look at syllables beginning with two consonants. When we have two or more consonants together we call them a consonant cluster. Initial two-consonant clusters are of two sorts in English. One sort is composed of s followed by one of a small set of consonants; examples of such clusters are found in words such as 'sting' stɪŋ, 'sway' sweɪ, 'smoke' sməʊk. The s in these clusters is called the pre-initial consonant and the other consonant (t, w, m in the above examples) the initial consonant. The other sort begins with one of a set of about fifteen consonants, followed by one of the set l, r, w, j as in, for example, 'play' pleɪ, 'quick' kwɪk, 'few' fjuː. We call the first consonant of these clusters the initial consonant and the second the post-initial. There are some restrictions on which consonants can occur together. This can best be shown in table form, as in Table 9.2. When we look at three-consonant clusters we can recognise a clear relationship between them and the two sorts of two-consonant cluster described above; examples of three-consonant initial clusters are: 'split' splɪt, 'stream' striːm, 'square' skweə. The s is the pre-initial consonant, the p, t, k that follow s in the three example words are the initial consonant and the l, r, w are post-initial. In fact, the number of possible initial three-consonant clusters is quite small and they can be set out in full (words given in spelling form):

		Post-Initial			
		l	r	w	j
s plus initial	p	'splay'	'spray'	—	'spew'
	t	—	'string'	—	'stew'
	k	'sclerosis'	'screen'	'squeak'	'skewer'

We now have a similar task to do in studying final consonant clusters. Here we find the possibility of up to four consonants at the end of a word. If there is no final consonant we say that there is a zero coda. When there is one consonant only, this is called the final consonant. Any consonant may be a final consonant except h, w, j. The consonant r is a special case: it doesn't occur as a final consonant in BBC pronunciation, but there are many rhotic accents of English in which syllables may end with this consonant. There are two sorts of two-consonant final cluster, one being a final consonant preceded by a pre-final consonant and the other a final consonant followed by a post-final consonant. The pre-final consonants form a small set: m, n, ŋ, l, s. We can see these in 'bump' bʃmp, 'bent' bent, 'bank' bæŋk, 'belt' belt, 'ask' aːsk. The post-final consonants also form a small set: s,z,t,d,θ; example words are: 'bets' bets, 'beds' bedz, 'backed' bækt, 'bagged' bægd, 'eighth' eɪtθ. These post-final consonants can foten be identified as separate morphemes (although not always—'axe' æks, for example, is a single morpheme and its final s has no separate meaning). A point of pronunciation can be pointed out here: the release of the first plosive of a plosive-plus-plosive cluster such as the g (of gd) in bægd or the k (of kt) in bækt is usually without plosion and is therefore practically inaudiable.

Table: 9.2 Two-consonant clusters with pre-initial s

Pre-initial s followed by:

Initial																	
p	t	k	b	d	g	f	θ	s	ʃ	h	v	ð	z	3	m	n	ɧ
spɪn	stɪk	skɪn	–	–	–	sf1ə	–	–	–	–	–	–	–	–	smel	sneʊ	–

Note: Two-consonant clusters of s plus l, w, j are also possible (e.g. slɪp, sw1ŋ, sju:), and even perhaps sr in 'syringe' sr1nd3 for many speakers. These clusters can be analysed either as pre-initial s plus initial s plus initial l, w, j, r or initial s plus post-initial l, w, j, r. There is no clear answer to the question of which analysis is better; here they are treated in the latter way, and appear in Table: 9.3.

Table: 9.3 Two-consonant clusters with post-initial l, r, w, j

	p	t	k	b	d	g	f	θ	s	ʃ	h	v	ð	z	3	m	n	ɧ	l	r	w	j
l	pleɪ	–	bleɪ	blæk	–	glu;	flaɪ	–	slɪp	–	–	–	–	–	–	–	–	–	–	–	–	–
r	preɪ	treɪ	kraɪ	brɪɧ	drɪp	grɪn	fraɪ	qrəʊ	?[1]	ʃ ru:	–	–	–	–	–	–	–	–	–	–	–	–
w	–	twɪn	kwɪk	–	dwel	?[2]	–	θwɔ:t	sw1m	?[3]	–	–	–	–	–	–	–	–	–	–	–	–
j	pjɔ:	tju:n	kju:	bju:ti	dju:	?[4]	fju:	?[5]	sju:	–	hju:dʒ	vju:	–	–	–	mju:d	nju:z	–	lju:d	–	–	–

Notes in doubtful cases:

1. Some people pronounce the word 'syringe' as sr1nd3; there are no other cases of sr unless one counts foreign names (e.g. Sri Lanka)
2. Many Welsh names (including some well known outside Wales)—such as girls' names like Gwen and place names like the country of Gwent-have initla gw and English speakers seem to find them prefectly easy to pronounce.
3. Two cases make ʃ w seem familiar: the vowel name 'schwa', and the name of the soft drinks brand Schweppes. This is, however, a very infrequent cluster for English.
4. The only possible occurrence of gj would be in the archaic (heraldic) word 'gules', which is in very few people's vocabulry.
5. θj occurs in the archaic word 'thew' only.

Notes

There are two types of final three-consonant cluster; the first is pre-final plus final plus post-final, as set out in the following table:

		Pre-final	Final	Post-final
'helped'	he	l	p	t
'banks'	bæ	n	ŋ	s
'bonds'	ba	n	d	z
'twelfth'	twe	l	f	θ

The second type shows how more than one post-final consonant can occur in a final cluster: final plus post-final 1 plus post-final 2. Post-final 2 is again one of s, z, t, d, θ.

		Pre-final	Final	Post-final 1	Post-final 2
'fifths'	f1	–	f	θ	s
'next'	ne	–	k	s	t
'lapsed'	læ	–	p	s	t

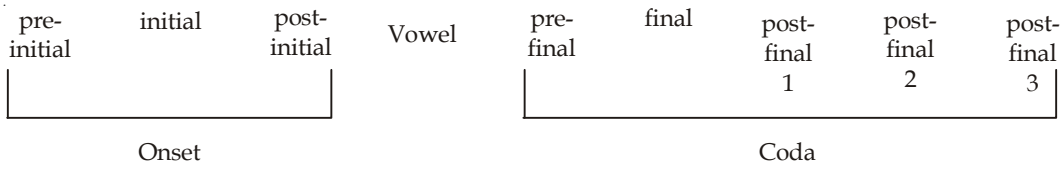
Most four-consonant clusters can be analysed as consisting of a final consonant preceded by a pre-final and followed by post-final 1 and post-final 2, as shown below:

		Pre-final	Final	Post-final 1	Post-final 2
'twelfths'	twe	l	f	θ	s
'prompts'	pro	m	p	t	s

A small number of cases seem to require a different analysis, as consisting of a final consonant with no pre-final but three post-final xonsonant:

		Pre-final	Final	Post-final 1	Post-final 2	Post-final 3
'sixths'	sɪ	–	k	s	θ	s
'texts'	te	–	k	s	t	s

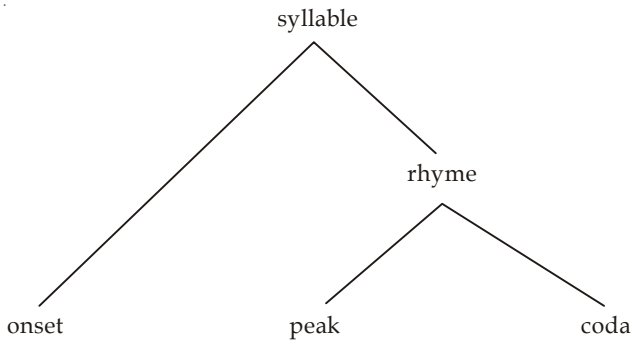
To sum up, we may describe the English syllable as having the following maximum phonological structure:



In the above structure there must be a vowel in the centre of the syllable. There is, however, a special case, that of syllabic consonants; we do not, for example, analyse the word 'students' st ju:dnts as consisting of one syllable with the three-consonant cluster stj for its onset and a four-consonant final cluster dnts. To fit in with what English speakers feel, we say that the word contains two syllables, with the second syllable ending with the cluster nts; in other words, we treat the word as though there was a vowel between d and n, although a vowel only occurs here in very slow, careful pronunciation.

Notes

Much present-day work in phonology makes use of a rather more refind analysis of the syllable in which the vowel and the coda (if there is one) are known as the rhyme; if you think of rhyming English verse yu will see that the rhyming works by matching just that part of the last syllable of a line. The rhyme is divided into the peak (normally the vowel) and the coda (but note that this is optional: the rhyme may have no coda, as in a word like 'me'). As we have seen, the syllable may also have an onset, but this is not obligatory. The structure is thus the following



9.2.3 Syllable Division

There are still problems with the description of the syllable: an unanswered question is how we decide on the division between syllables when we find a connected sequence of them as we usually do in normal speech. It often happens that one or more consonants from the end of one word combine with one or more at the beginning of the following word, resulting in a consonant sequence that could not occur in a single syllable. For example, 'walked through' wˈɔ:kt θru: gives us the consonant sequence ktθr.

We will begin by looking at two words that are simple examples of the problem of dividing adjoining syllables. Most English speakers feel that the word 'morning' mˈɔ:nɪŋ consists of two syllables, but we need a way of deciding whether the division into syllables should be mˈɔ: and nɪŋ and ɪŋ. A more difficult case is the word 'extra' exstrə. One problem is that by some definitions the s in the middle, between k and t, could be counted as syllable, which most English speakers would reject. They feel that the word has two syllables. However, the more controversial issue relates to where the two syllables are to be divided; the possibilities are (using the symbol . to signify a syllable boundary):

1. e.kstrə 2. ek.strə 3. eks.trə 4. ekst.rə 5. ekstr.ə

How can we decide on the division? No single rule will tell us what to do without bringing up problems.

One of the most widely accepted guidelines is what is known as the maximal onsets principle. This states that where two syllabes are to be divided, any consonants between them should be attached to the right-hand syllable, not the left, as far as possible. In our first example above, 'morning' would thus be divided as mˈɔ:.n1ŋ. If we just followed this rule, we would have to divide 'extra' as (*i*) e.kstrə, but we know that an English syllable cannot begin with kstr. Our rule must therefore state that consonants are assigned to the right-hand syllable as far as possible within the restrictions governing syllable onsets and codas. This means that we must reject (*i*) e.kstrə because of its impossible onset, and (*v*) ekstr.ə because of its impossible coda. We then have to choose between (*ii*), (*iii*) and (*iv*). The maximal onsets rule makes us choose (*ii*). there are, though, many problems still remaining. How should we divide words like 'better' betə. The maximum onsets principle tells us to put the t on the right-hand syllable, giving be. tə, but that means that the first syllable is analysed as be. However, we never find isolated syllables ending with one of the vowels I, e, æ, ˈʌ , ˈɒ , ˈʊ , so this division is not possible. The maximal onsets principle must therefore also be modified to allow a consonant to be assigned to the left syllable if that prevents one of the vowels I, e, æ, ˈʌ , ˈɒ , ˈʊ from occurring at the end of a syllable. We can then analyse the word as bet. ə, which seems more satisfactory. There are

Notes

words like 'carry' kæri which still give us problems: if we divide the word as kæ. ri, we get a syllable-final æ, but if we divide it as kær . i we have a syllable-final r, and both of these are non-occurring in BBC pronunciation. We have to decide on the lesser of two evils here, and the preferable solution is to divide the word as kær . i on the grounds that in the many rhotic accents of English this division would be the natural one to make.

One further possible solution should be mentioned: when one consonantstands between vowels and it is difficult to assign the consonant to one syllable or the other—as in 'better' and 'carry'—we could say that the consonant belongs to both syllabes. The term used by phonologists for a consonant in this situatin is ambisyllabic.

Self-Assessment

1. Answer the following questions:

(*i*) Final plasive-plus-plasive clusters

(*a*) When one plosive is followed by another at the end of a syllable, the second plosive is usually the only one that can be clearly heard. In this exercise, take care not to make an audiable release of the first plosive.

pækt	packed	rIgd	rigged
bægd	bagged	dʃkt	duct
drɒpt	robbed	græbd	grabbed

(*ii*) It is difficult to hear the difference between, for example, 'dropped back' and 'drop back,' since in the normal pronunciation only the last plosive of the cluster (the b of bæk) is audibly released. The main difference is that the three-consonant cluster is longer.

Listen and repeat:

A	B
græbd bə͡ɔ̰θ grabbed both	græ bə͡ɔ̰θ γραβ βοτη
laIkt ð ə̰m liked them	laIk ð ə̰m like them
hpɒ̰t bæk hopped back	hɒ̰p bæk hop back
lɔ̰kt fɔ:wəd looked forward	lɔ̰k fɔ;wəd look forward
pegd da͡ɔ̰n pegged down	peg da͡ɔ̰n peg down
wIpt kri:m whipped cream	wIp kri:m whip cream

9.3 Summary

- The study of syllable structure is a subject of considerable interest to phonologists. If you want to read further in this area, I would recommend Giegerich, Katamba, Hogg and McCully and Goldsmith. In the discussion of the word 'extra' ekstrə it was mentioned that the s in the middle might be classed as a syllable. This could happenif one followed the sonority theory of syllables: sonority corresponds to loudness, and some sounds have greater sonority than others. Vowels have the greatest sonority, and these are usually the centre of a syllable. Consonants have a lower level of sonority, and usually form the beginnings and ends of syllables. But s has greater sonority than k or t, and this could lead to the conclusion that s is the centre of a syllable in the middle of the word 'extra,' which goes against English speakers' feelings. There is a thorough discussion, and a possible solution, in Giegerich. Some writers believe that it is possible to describe the combinations of phonemes with little reference to ythe syllable as an independent unit in theoretical phonology.
- A paper that had a lot of influence on more recent work in Fudge (1969). This paper brought up two ideas first discussed by earlier writers: the first is that sp, st, sk could be treated as individual phonemes, removing the pre-initial position from the syllable onset altogether and removing s from the pre-final set of consonants; the second is that since post-initial j only occurs before

Notes

ʊ̈, ɒ:, ʊ̈ə (which in his analysis all begin with the same vowel), one could postulate a diphthong Ju and remove j from post-initial position. These are interesting proposals, but thereis not enough space here to examine the arguments in full.

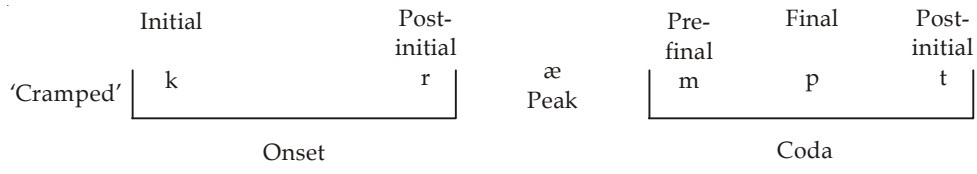
- There are many different ways of deciding how to divide syllables. Analysing syllable structure, as we have been doing in this unit, can be veryuseful to foreign learners of English, since English has a more complex syllable structurethan most languages. There are many more limitations on possible combinations of vowels and consonants than we hae covered here, but an understanding of the basic structures described will help learners to become aware of the types of consonant cluster that present them with pronunciation problems. In the same way, teachers can use this knowledge to construct suitable exercises. Most learners find some English clusters difficult, but few find all of them difficult.

9.4 Key-Words

1. Plum-Plumb merger : It is the reduction of the final cluster /mb/ to MI that occurs in all dialects to present English.

9.5 Review Questions

1. Using the analysis of the word 'cramped' given below as a model, analyse the structure of the following one-syllable English words:



(*i*) spuealed (*ii*) eighths (*iii*) splash (*iv*) texts

2. Devoicing of l, r, w, j

   When l, r, w, j follow p, t or k in syllable-initial position they are produced as voiceless, slightly fricative sounds. Listen and repeat:

pleI play	treI tray	klIə clear
preI pray	twIn twin	kraI cry
pju: pew	tju:n tune	kju: queue

3. Repetition of initial clusters

   Two Consonants

   Listen and repeat:

spɒ̈t	spot	plaʊ̈	plough
stəʊ̈n	stone	twIst	twist
skeIt	skate	kri:m	cream
sfIə	sphere	pjəʊ̈	pure
smaIt	smile	fleIm	flame
snəʊ̈	snow	ʃrIŋk	shrink
slæm	slam	vju:	view
swIfʃ	switch	qwɔ̈:t	thwart

Notes

Three Consonants

Listen and repeat:

spleK	splay	streI	stay	skru:	screw
spreI	spray	stju:	stew	skwɒʃ	squash
spju:	spew			skju:	skew

9.6 Further Readings

Books

1. Verma, S.K., V.N. Krishnaswamy. Modern Linguistics: An Introduction.
2. An Introduction to Linguistics, John Lyon.
3. Peter Roach: English phonetics and phonology. Cambridge University Press.
4. Encyclopedia of Linguistic Science Edited By V. Prakasam, Allied Pub., New Delhi.

Notes

Unit 10: Phonemes: Detailed Study

CONTENTS

Objectives

After studying this Unit students will be able to:

- Define Phonology.
- Discuss Phonemes.

Introduction

Children do not learn the rules of spoken language by explicit instruction, but rather by a combination of copying what they hear, and building up mental generalisations based on their experiences. How much they are helped in this by some internal structure in the brain dedicated to language acquisition, which linguists call a Language Acquisition Device or Language Faculty, is still a matter of debate.

Nonetheless, aspects of spoken language show very strong similarities to the types of patterns outlined above for writing. Again, some differences between units matter, because replacing one with another will cause a different meaning to be conveyed in the language in question: replace the initial sound [k] in *call* with [t], and you have *tall*, an entirely different English word. Correspondingly, English speakers perceive [k] and [t] as entirely separate sounds, and find them rather easy to distinguish.

In other cases, two sounds which phoneticians can equally easily tell apart will be regarded as the same by native speakers. For instance, say the phrase *kitchen cupboard* to yourself, and think about the first sounds of the two words. Despite the difference in spelling (another case where orthography, as we saw also in the last chapter, is not an entirely reliable guide to the sounds of a language), native speakers will tend to think of those initial consonants as the same—both are [k]s. However, if you say the phrase several times, slowly, and think uncharacteristically carefully about whether your articulators are doing the same at the beginning of both words, you will find that there is a discernible difference. For the first sound in kitchen, your tongue will be raised towards the roof of your mouth, further forward than for the beginning of cupboard; and for kitchen, your lips will be spread apart a little more too, while for capboard your mouth will be more open. Unless you are from Australia or New Zealand, this difference is even clearer from the phrase *car keys*, this time with the first word having the initial sound produced further back in the mouth, and the second further forward.

In IPA terms, these can be transcribed as [k], the *cupboard* sound, and [c], the *kitchen* one. However, in English [k] and [c] do not signal different meanings as [k] and [t] do in *call* versus *tall*; instead, we can always predict that [k] will appear before one set of vowels, which we call back vowels, like the [ʃ]

Notes

of cupboard or the [ɑ:] a Southern British English speaker has in *car*, while [c] appears before front vowels, like the [ɪ] of kitchen or the [i:] in Southern British English *keys*. Typically, speakers control predictable differences of this type automatically and subconsciously, and sometimes resist any suggestion that the sounds involved, like [k] and [c] in English, are different at all, requiring uncharacteristically close and persistent listening to tell the two apart. The difference between [k] and [c] in English is redundant; in phonological terms, this means the difference arises automatically in different contexts, but does not convey any new information.

Returning to our orthographic analogy, recall that every instance of a hand-written *a* or *A* will be different from every other instance, even produced by the same person. In just the same way, the same speaker producing the same words (say, multiple repetitions of *kitchen cupboard*) will produce minutely different instances of [k] and [c]. However, a hierarchical organisation of these variants can be made: in terms of spelling, we can characterise variants as belonging to the lower-case or capital set, and those in turn as realisations of the abstract grapheme <a>. The subclasses have a consistent and predictable distribution, with upper-case at the beginnings of proper nouns and sentences, and lower-case everywhere else: we can say that this distribution is rule-governed. Similarly again, we can classify all the variants we hear as belonging to either fronter [c] or backer [k], although we are not, at least without a little phonetic consciousness-raising, aware of that difference in the way we are with *a* and *A*; presumably the fact that we learn writing later, and with more explicit instruction, accounts for our higher level of awareness here.

In turn, [c] and [k], which native speakers regard as the same, are realisations of an abstract unit we call the phoneme (where the ending-*eme*, as in *grapheme*, means 'some abstract unit'). Phonemes appear between slash brackets, and are conventionally represented by IPA aymbols, in this case /k/. As with graphemes, we could in principle use an abstract symbol for this abstract unit, say /§/, or /✪/, or give it a number or a name: but again, it is convenient and clear to use the same symbol as one of its realisations. Those realistions, here [k] nd [c], are allophones of the phoneme /k/.

To qualify as allophones of the same phoneme, two (or moe) phones, that is sounds, must meet two criteria. First, their distribution must be predictable: we must be able to specify where one will turn up, and where the other; and those sets of contexts must not overlap. If this is true, the two phones are said to be in complementary distribution. Second, if one phone is exceptionally substituted for the other in the same context, that substitution must not correspond to a meaning difference. Eve if you say *kitchen cupboard* with the [k] first and the [c] second (and that won't be easy, because you have been doing the opposite as long as you have been speaking English—it will be even harder than trying to write at your normal speed while substituting small *a* for capital *A* and vice versa), another English speaker will only notice that there is something vguely odd about your speech, if that. She may think you have an unfamiliar accent; but crucially, she will understand that you mean 'kitchen cupboard', and not something else. This would not be so where a realisation of one phoneme is replaced by a realisation of another: if the [k] allophone of /k/ is replaced by the [t] allophone of /t/, then *tall* will be understood instead of *call*.

Finally, just as the orthographic rules can vary between languages and across time, so no two languages or periods will have exactly the same phonology. Although in English [k] and [c] are allophones of the same phoneme, and are regarded as the same sound, in Hungarian they are different phonemes. We can test for this by looking for minimal pairs: that is, pairs of words differing in meaning, where the only difference in sound is that one has one of the two phones at issue where the other has the other (think of *tall* and *call*). In Hungarian, we find minimal pairs like *kuka* [kuka] 'dustbin' and *kutya* [kuca] 'dog'. It follows that [k] and [c] are not in complementary but in contrastive distribution; that interchanging them does make a meaing difference between words; and hence that [k] and [c] belong to different phonemes, /k/ and /c/ respectively, in Hungarian. Unsurprisingly, speakers of Hungarian find the difference between [k] and [c] glaringly obvious, and would be extremely surprised to find that English speakers typically lump them together as the same sound.

As for differences between periods of the same language, it is straight forward to demonstrate that Modern English [f] and [v] contrast, or are in complementary distribution, since minimal pairs like *fat* [f] versus *vat* [v], *leaf* versus *leave*, or *safer* versus *saver* are easy to come by. The phoneme system of

Notes

Modern English therefore contains both /f/ and /v/. However, the situation was very different in Old English, as the examples in (3) show.

3. Old English

hla[v]ord <hlaford> 'lord'	heo[v]on <heofon> 'heaven'
æ[f]ter <æfter> 'after'	[f]isc <fisc> 'fish'
o[v]er <ofer> 'over'	
heal [f] <healf> 'half'	

Instead of minimal pairs, we find predictable, complementary distribution, with [v] appearing medially, between vowels, and [f] in other positions. Consequently, [f] and [v] can be analysed as allophones of one phoneme, which we might call [f]: Old English speakers would have regarded [f] and [v] as the same, just as Modern English speakers think of [k] and [c] as the same sound. Later in the history of English, many words like *very*, *virtue* and *veal* were borrowed from French, bringing with them initial [v], which had not previously been found in English. The distribution of [f] and [v] therefore ceased to be complementary, since both could appear in word-initial position, creating minimal pairs like *very* and *ferry*, or *veal* and *feel*. In consequence, [v] stopped being an allphone of [f], and became a phoneme in its own right, producing the opposition of [f] (realised as [f]) and [v] (realised as [v]) we find today.

10.1 What is Phonology?

According to Bloomfield phonology is the organization of sounds into patterns. In order to fulfil the communicative functions, languages organize their material, the vocal noises, into recurrent bits and pieces arranged in sound patterns. It is the study of this formal organisation of languages which is known as phonology.

What is sound? How and where is it produced from? How is it received by the ears? How and why is one sound different from the other?—questions like these are the subject-matter of Phonology.

10.2 Difference between Phonetics and Phonology

The difference between phonetics and phonology is that of generality and particularity. Whereas phonetics is the science of speech sounds, their production, transmission and reception and the signs to represent them in general with no particular reference to any one language, phonology is the study of vocal sounds and sound changes, phonemes and their variants in a particular language. If phonetics can be likened to a world, phonology is a country. Phonetics is one and the same for all the languages of the world, but the phonology of one language will differ from the phonology of another. According to John Lyons. "Phonetics differs from phonology.... in that it considers speech sounds independently of their paradigmatic opposition and syntagmatic combinations in particular languages," and that phonology is the level at which the linguist describes the sounds of a particular language.

The subject-matter of phonology is the selected phonetic material from the total resources available to human beings from phonetics. The human vocal system can produce a very large number of different speech sounds. Members of a particular speech community speaking that particular language, however, use only a limited number of these sounds. Every language makes its own selection of sounds and organizes them into characteristic patterns. This selection of sounds and their arrangement into patterns constitute the phonology of the language.

To quote Robins, "Phonetics and phonology are both concerned with the same subject-matter or aspect of language, speech sounds, as the audible result of articulation, but they are concerned with them from different points of view. Phonetics is general (that is, concerned with speech sounds as such without reference to their function in a particular language), descriptive and classificatory: phonology is particular (having a particular language or languages in view) and functional (concerned with working or functioning of speech in a language or languages). Phonology has in fact been called functional phonetics."

Notes

10.3 Some Major Concepts of Phonology

10.3.1 Phoneme

Most linguists, until recently at least, have regarded the phoneme as one of the basic units of language. But they have not all defined the phonemes in the same way. Some linguists like Bloomfied and Daniel Jones have described phonemes in purely physical terms. Others like Sapir have preferred psychological definitions. Some regard the phoneme only as abstractional fictitious unity and argue that in a language it is not phonemes but allophones that exist in reality. Furthermore, linguists of the Copenhagen School treat the phonemes as glassemes and regard them as algebraical units.

The term phoneme was first used in the late 1870's notably by Kruszewski. Saussure too worked on the phonemes. But the most notable work in this field was done by Sapir in 1927. Most phoneticians such as Louis Jhelmslev, Bloomfield, Trubetzkoy, Daniel Jones, Roman Jakobson, and Pike have thrown light on the phoneme.

The phoneme, according to Bloomfield, is the minimal unit of distinctive sound-feature. In Webster's *Third New International*, the phoneme is defined as the smallest unit of speech distinguishing one unit from another, in all the variations it displays in the speech of one person or in one dialect as a result of modifying influences, such as neighbouring sounds or stress. In Dorfman's opinion a phoneme is a single speech sound or group of similar or related speech sounds functioning analogously in a language, and usually represented in writing by the same letter, with or without diacritic marks.

According to most contemporary linguists, however, the phoneme is the minimal bundle of relevant sound features. A phoneme is not a sound; it can be realized only through one of its allophones: it is a class of sounds, actualized or realized in a different way in any given position by its representative, the allophone: it is an ideal towards which the speaker strives, while the allophone is the performance he achieves; it occupies an area within which the various allophones move and operate; its outer limits may approach but not overlap those of other phonemes, and it cannot invade the territory of another phoneme without loss of phonemic distinction.

Thus the precise definition of a phoneme has been the subject of much discussion among linguists and there are two major points of view. The first is the 'classification' theory developed by Daniel Jones which considers the phoneme to be a group or family of related sounds, e.g. /p/ in English consisting of [p], [p^h], etc. or /u/ consisting of (u:), (u) etc. The second or 'distinctive feature' theory developed by N.S. Turbetzkoy and the Prague School considers a phoneme to be a bundle of distinctive features, e.g. /p/ in English is considered to be made up of bilabial + stop + voiceless (aspiration is therefore not distinctive and thus the allophones (p^h) and (p) above are allowed for.

Depending on the point of view taken, a phoneme can be defined as "a unit, a rubric, a bundle of sound-features", or "the smallest contrastive linguistic unit which may bring about a change of meaning. "Hence it is a minimum distinct functional unit. Phonemes of a language may be discovered by forming minimal pairs, i.e. pairs of words are different in respect of only one sound segment. The series of words **pat, bat, cat, hat, sat, that, mat,** supplies us with seven words which are distinguished simply by a change in the first (consonantal) element of the sound sequence. These elements of contrastive significance are phonemes and be symbolized as /p,b,k,h,s,ð,m/. Similarly, in the series of words **hat, hit, heat, hot, heart,** the elements of contrastive significance are æ,i,i:,o,a:/

10.3.2 Phone

Any objective speech sound, considered as a physical event, and without regard as to how it fits into the structure of any given language, is a phone. Hence a phone in phonology is 'the smallest possible segment of sound abstracted from the continuum of speech'.

10.3.3 Allophone

Some sounds, the native speaker thinks are the same, while others are different. The linguist has to figure out what sounds are grouped together as the same, what it is that they all have in common among themselves and how dissimilar are they to other groups of sound in the informant's speech

Notes

and what criteria the native speaker uses to tell sounds apart. We said earlier that by substituting other segments, the linguist can arrive at a list of these significant, contrastive classes of sounds called 'phonemes'. But we do not always find minimal pairs to help us figure out the list of phonemes. There must be other criteria too, which we will have to incorporate into the definition of a phoneme. The **k**-sound in **keel, calm** and **cool** differs. In **keel** it is at the front in the mouth, in **calm** it is a little in the centre and in cool further back in the mouth. The absence of the above mentioned features do not distort the message for the native speaker. He does not differentiate these sounds in every day speech in the sense that he is not aware of the physical differences. He thinks these sounds are members of the k-class or are all **k**. In other words for the phoneme /k/. central-k, retracted-k, fronted-k are all allophones.

Hence an allophone is a speech sound which is one of a number of variants of a phoneme. Such a variant can be either in complementary variation or in free variation. The occurrence of a particular allophone may be determined by its environment, or it may be in free variation. Allophones determined by environment, for example, are front or clear [l] as in **lamp** or **light** occurring before vowels and the so-called 'back' or 'dark [l] as in **old** and **table** occurring before consonants and at the end of words. They are in complementary distribution, that is where the dark [l] appears in English, there cannot occur the clear [l]. An example of allophones occurring in free variation in the Southern British English (R.P.) is the /r/ between vowels, as in **very,** which can occur either as a flap, or as a fricative. Thus allophones are phonetic variants; they are positional or contextual, or conditional variants (alternants) of phoneme.

According to Trager and Smith (*An Outline of English Structure*), a linguist identifies these allophones in the following way:

1. The sounds should be phonetically similar.
2. They should be in complementary distribution.
3. They should exhibit pattern congruity with other groups of sounds.

10.3.4 Diaphone

Sometimes a sound is used by a particular speaker or group of speakers of a language, but is substituted by another sound by some other speaker or group of speakers of the same language. For example, the sound of the diphthong /ou/, as in the word 'loan' may be substituted by the vowel-sound /ˈəˈɔ:/ ,or the sound of the consonants dark 'I' as in 'little' may be substituted by the sound of clear 'I' by some speaker. The bilabial plosive consonant-sounds /p/ and /b/ may often be replaced by the aspirated sound /pʰ/ and /bʰ/. In Hindi word vkj (meaning 'towards'), the sound 'vk'is replaced by 'vk' and the word is spoken as 'vkj' (meaning 'and'). Similarly, the consonant '"k' /ʃ/ is replaced by 'l' /s/, and the word "kh"kk is pronounced as lhlk. Now, both the sounds that is originally used by the speakers of a language as well as that which is used by other speakers of that language, are said to constitute a *diaphone*. Daniel Jones has defined a *diaphone* in the following manner: "The term *diaphone* is suggested to denote a sound used by one group of speakers together with other sounds which replace it consistently in the pronunciation of other speakers" (*An Outline of Phonetics*, 9th edn. 1962, Cambridge, Heffer.)

Jones elucidates certain facts related to *diaphones*, two of which are stated below:

1. "Everyone has different styles of pronunciation. Such different styles are merely different ways of pronouncing the language. When a person consistently uses one sound in one style of speech but substitutes another for it in another style, it is as if two different people were speaking, and the two sounds must be regarded as two members of the same diaphone." (*Ibid*).
2. "Care must be taken to distinguish diaphones from phonemes. The different members of one phoneme are sounds used by *one single person* speaking in one particular style; their use is conditioned by the nature of the surrounding sounds in the sequence and on the degree of stress, sometimes also on length and intonation. The different members of one diaphone are found in *comparing the speech of one person with that of another*, or in comparing two styles of speech of the same person." (*Ibid*.,)

Notes

10.3.5 Phonetic Similarity

Phonetically similar sounds are sounds that share a phonetic feature, such as nasality /m,n,ŋ/, or labial quality (/p/ and /b/ or front vowel quality (/i/ and /e/). But the notion of phonetic similarity is not a reliable guide. In a sense all sounds are phonetically similar, and are produced by the same organs of speech. In another sense they are also dissimilar, which is why we can tell them apart. Hence phonetic similarity is a tricky notion.

10.3.6 Complementary Distribution

Having discovered sets of phonetically similar sounds, for examples /p/ and /b/ we must ask whether the variation in each set can be accounted for in terms of the phonetic environments of the members of the set. Mutually exclusive distribution is otherwise known as complemenatry distribution. For every phoneme there may be positional variants—allophones. Sometimes an allophone occurs in a fixed place in a word. The English phoneme /l/, for example, has one form at the beginning of a word and another form at the end. In a word such as **light,** the first consonant is a 'clear' l, pronounced by placing the tip of the tongue just behind the teeth and keeping the back of the tongue fairly low. In **hill,** the tongue tip is in the same place, but the back of the tongue is raised resulting in a 'dark' 1. These variants of /l/ are said to be in complementary distribution: each allophone occurs in its own predictable place in a word.

Another example of complementary distribution is found in the English phoneme /p/. When p occurs in initial and stressed position, it is pronounced with aspiration (a puff of breath). After s, this puff of breath disappears. This can be tested by holding a sheet of paper in front of the mouth and saying the words **spot, spill, pot, pill.** In the case of **spot and spill,** the paper remains motionless. But when **pot** and **pill** are pronounced, the accompanying puff of breath makes the paper billow out.

The notion of complementary distribution in the discovery and assignment of the allophones of a phoneme is useful in a number of cases, but fails in some other cases. For example, in English no word has the segment /ŋ/ in its initial position. Nor does the segment /*h*/ ever occur in the final position. These two phones are in mutually exclusive distribution, but they are not phonetically very similar to each other. Therefore, the linguist does not regard them as allophones of a simple phoneme, but two different phonemes in English, although there is no minimal pair establishing that these two sounds are in contrastive distribution. If two allophones are not in contrast, they are said to be in complementary distribution: that is, neither occurs in any environment in which the other is found.

10.3.7 Symmetrical Patterning

A third principle of discovering allophones, besides those of phonetic similarity and complementary distribution, is that of symmetrical patterning. Languages seem to have symmetrical patterning. This patterning is also known as phonetic patterning or pattern congruity. This pattern differs from language to language. It is to a large extent unconscious and appears to be one of the means by which human memory is able to store a large number of items. In English, for example, many consonant phonemes are unconsciously paired together: /p/ is paired with /b/, /t/ is paired with /d/, /f/ is paired with /v/. In addition, /p/ and /t/ and /k/ behave in a very similar way to one another. Each of them has an aspirated form which occurs at the beginning of a word, as in **pill, till, kill,** and an unaspirated form after /s/, as in **spill, still, skill**.

By pattern congruity we also mean that relationships are far more important than the phonetic characteristics of the sounds. For example, the allophones of /t/ in English are produced at different points of articulation in words like fountain, the allophone of /t/ is realized at the back of the mouth and in a word like *little* it is at the glottis. For this reason, they ought not to be considered allophones of a dental stop. They are phonetically similar to velar and glottal stops. But the linguist looks at distribution and maintains there are parallel positional variants for /p/ and /k/. So, disregarding the physical characteristics and paying attention to the patterning, the assignment of the allophones to a phoneme is made.

Notes

10.3.8 Criterion of Economy

Yet another governing principle is economy. The list of phonemes should be as small as possible. It will be in accordance with the principle of economy if we recognize length /:/ as a phoneme in English. Similarly some others prefer on the basis of economy to transcribe **choose** as /cu:z/ rather then as /tʃ/u:z/. These examples are given to show that there is no unified theory of phonemics or phonology and that there are some controversial questions that have not been resolved yet. Different linguists use different symbols, consider the material at different times, thus giving rise to different interpretations.

10.3.9 Neutralization

Lack of contrast between two phonemes in one particular environment is referred to as neutralization of the contrast in the environment. This so-called neutralization of the distinction between two phonemes is a more common phenomenon than free variation between phonemes in phonology. In languages like German, Russian, Turkish, there is a phonemic distinction between voiced and voiceless consonants in most positions of the word, but in the final positions voiced consonants do not occur. Thus both the German words **Rad** ('wheel', 'bicycle') and **Rat** ['council', 'advice'] are pronounced alike namely /ra: t/. The normal orthography maintains the difference but in the phonology this difference is neutralized. In English, examples of this kind are to be found in the allophones of /m/ and /n/ before f and /v/, in words like **sympathy** and **infancy**. The nasal consonant in each case is likely to [m], that is to say, that /m/ and /n/ are not opposed, so that the sound could be allocated to either the /m/ or the /n/ phoneme.

There are different ways of treating this kind of neutralization. Some scholars say, that it is the phoneme /t/ that occurs in both **Rad** and **Rat** and account for the change of /d/ to /t/ in **morphonemics** which is an intermediate linguistic level between grammar and phonology. Others [e.g. the linguists of the so called Prague-school] account for this phenomenon by recognizing in addition to the phonemes the **archiphonemes** restricted to the positions of neutralization. They symbolize the archiphonemes by the use of capital letters and would transcribe **Rad** and **Rat** as [ra:d] and [ra:t]

10.3.10 Free Variation

Non-significant linguistic variation between two or more linguistic forms is known as free variation. We have an instance of free variation when two phonetically different units occur, but do not contrast: that is to say, the substitution of one for the other does not produce, a different word, but merely a different pronunciation of the same word; e.g [ai] and [i:] in the pronunciation of the word **either** as /aiðe/or i: ðe/are not allophones [phonemic alternants], but are in free variation. Similarly /ekənɔmiks/and /i:kə ncmiks/would produce only one word **economics**. The difference in the pronunciations of **either economics,** etc. is 'accidental'; it is not a part of the regular phonological structure of the language. Other examples of free variation are [w] and [hw] in the pronunciation of the word wheel as /wi: l/or as /whi: l/. Similarly a word like fortnight may be pronounced either as /fc: tnait/or fc:?. nait/[?] is the symbol for the 'glottal stop', a sound produced by first bringing the vocal cords together and then releasing them so that there is a sudden escape of air. So [?] is a free variant of /t/ at the end of an English syllable as [hw] is of [w] in the beginning of an English syllable.

10.4 Theories of Phonological Analysis

The analysis of an utterance into segemental and suprasegmental features is known as phonemic or phonological analysis. There are several different theories of phonological analysis. Some of these major theories are discussed below:

10.4.1 Structure and System

One approach is in terms of what are called structure and system. The phonological units (Phonemes or sounds) of a language are grouped together to form the various systems and the arrangements of these units in larger units such as syllables, feet, tone-group, sentence that form the structure of that

Notes

language. The units that form a system, can be replaced by other units to produce different utterances, while the relations between the different units present in an utterance consitute a structure. For instance, the English word sack/sack has one syllable, which is made up of sequence of three phonemes /s/, /ae/ and /k/. The phoneme /s/ can be replaced by other phonemes /b/,/p/,/ t/dz/./h/,/l/ to give us different words **back, pack, tack, jack, hack, lack.** All these items that can be replaced by another at a particular place in a structure are in **paradigmatic** relationship and form a system. Similarly, /ae/ forms a system with other phonemes /i/,/i:/,/e/,/ei/ that can be used as substitutes to give us other words **sick, seek, seck, sake**, /k/ also forms a system with the /t/,/d/,/p/,/m/ŋ/ that give us the words **sat, sad, sap, sam, sang.**

The units of phonological analysis have a hierarchy, so that a unit of higher ranks consists of a sequence of one or more occurrences of the next lower rank. For example, in English one or more phonemes make up a syllable; one or more syllables make up a foot (which is the unit of rhythm); one or more feet make up a tone group (which is the unit of intonation); one or more tone groups make up a sentence. Examples of these phonological units are given here:

1. **Phoneme**: /k/,/b/,/t/,/d/,/i/,/e/, etc.
2. **syllable**: **back** /bæk/ ago /ˈəigou/ **button** bˈʌ-tn,/ etc.
3. **foot**: The cur/few tolls/the knell/of part/ing day/. Here we have five feet. (/A slanting bar/ represents a foot boundary)
4. **tone group**: / / If the "bride a, grees / / the 'marriage is in' January./ /. (/ / represents tone group boundary; 'represents rising tone, and 'falling tone,' accent (strong or stressed syllable.)
5. **Sentence**: For example, the sentence given above has two tone groups.

10.4.2 Prosodic Analysis

Prosodic analysis is another aspect of phonology. It is concerned with phonological features 'that extend beyond a phonematic unit in a structure'. Features like aspiration, nasalization, labialization, retroflexion and palatalisation often relate to sequences of more than one phonematic unit. The study of supra-segmental features like stress, rhythm, intonation, etc. also forms a part of prosodic analysis. Examples of a few prosodic features are given below:

1. **aspiration**: The English word **clay** /klei/ has an aspirated /k/ in the form of [kh], but the aspiration affects the following /l/ also and devoices it to [^{l}o]. It can therefore be described as /h/ prosody.
2. **nasalization**: The English word **sing** /siŋ/ has incidental nasalization of the vowel /i/ under the influence of the nasal consonant after it. Nasalization can therefore be described as a prosody in this kind of syllable.
3. **lip-rounding**: The English word quiet /kwait/ has lip-rounding for /k/ also under the influence of the following /w/. We have here an example of /w/—prosody.
4. **retroflexion**: The Hindi word gUMk has retroflexion extending to both the nasal and the following plosive sounds. We can call it an example of the prosody of retroflexion.
5. **palatalization**: The English word **key** /ki:/ has a palatal instead of a velar /k/ under the influence of the following /i:/. This can be described as /i/—prosody.
6. **accent**: Accent on a particular syllable in a word can be taken as a prosody. For example, the English word ago/ˈə'gou/ has the accent on the second syllable.
7. **sentence stress, rhythm and intonation** are also prosodic features.

10.4.3 Phonemics

Another approach to phonology is based on phonemics, according to which the discovery of the phonemes (the minimal distinctive sound-units) of a language is done by forming minimal pairs (by replacement of one phoneme by another which can bring about a change of meaning). Each phoneme, however, may have slightly different phonetic realizations, called allophones, in different environments. Most phonological theories are based on phonemics.

Notes

Some linguists restrict the use of the term 'phoneme' to segments of human sounds only, and analyse what are called suprasegmental or **prosodic** features separately. The most important of the suprasegmental features are: (1) **length** (syllables and feet), **stress, and pitch**. (These are discussed in the next section of this chapter). Other linguists extend the use of the term 'phoneme' to cover all distinctive sound features including levels of stress, levels of pitch, and types of juncture.

10.4.4 Distinctive Features Theory

In the phoneme theory, the phoneme (segment) is the smallest unit of phonology, but in the **Distinct Features Theory** the phonetic feature is the smallest unit of phonology. Segment theory is linguistically inconvenient. There are no rules in any language which apply to all the sounds. There are a fixed number of features or components which form a basic stockpile from which every language selects phonetic features and combines them in different ways. It is these features which keep a segment distinct or separate from others. That is why they are called the distinctive features.

In distinctive features theory (as different from the notation transcription), the phonetic transcription is simplified and systematized by regarding each sound a set of components, exactly parallel to semantic component. As proposed by Roman Jakobson, Morris Halle, Chomsky, etc., acoustics and / or articulatory variables can be reduced to a small number of parameters or phonetic features (twenty-seven with multi-values). A distinctive features component, for example for the sounds /t/ and /k/ as in the English word take according to this theory, may be as follows:

t	k
+ consonantal	+ consonantal
– vocalic	– vocalic
– voice	– voice
+ plosive	+ aspirate
+ alveolar	+ plosive
+ aspirate	.
+ tense	.
.	.
.	.
.	.

Notes Dots [.] mean that the list is inexhaustive.

In English, for example, the following phonetic features are distinct:

1. **State of Glottis**: voiceless / voiced.
2. **Position of Soft Palate**: oral / nasal.
3. **Place of Articulation**: (a) bilabial / alveolar / velar; (b) labiodental / dental / alveolar / palato-alveolar.
4. **Manner of Articulation**: (a) plosive / fricative / nasal; (b) nasal / lateral; (c) affricate / fricative.
5. **Part of Tongue Raised**: front / back.
6. **Height of Tongue**: Close / between half-close and half-open / between half-open and open / open.
7. **lip-position**: unrounded / rounded.
8. stressed / unstressed.
9. reduced vowel / unreduced vowel.

Notes

9. tonic / non-tonic.
10. **Tone**: falling / rising; low fall / high fall / low rise / high rise / fall rise: or primary / secondary / tertiary / fall-rise.

In more recent work on generative phonology, particularly by Noam Chomsky and Morris Halle, these features have been extensively modified and placed into categories such as

1. **Major class features** as sonorant [making a deep impression] vs. non-sonorant; vocalic vs. non-vocalic.
2. **Cavity features** relating to the shape of the oral cavity and the point of articulation with such features as coronal vs.non-coronal, anterior vs. non-anterior.
3. **Manner of Articulation** features such as continuant vs. non-contiuant, tense vs. lax.
4. **Source Features** as voiced vs. voiceless; strident vs. mellow.
5. **Prosodic Features** as stress, pitch, etc.

10.4.5 Generative Phonology

Modern science of speech sounds really began with the concept of the 'phoneme' (as developed by Trubetzkoy and others of Prague School in 1930's. The first significant modification occurred in 1952 with the distinctive features theory, which goes further in rejecting many concepts of the 'traditional' phonology).

'Classical' phonology was concerned with the analysis of the continum of speech into distinctive segments, whereas the aim of Generative Phonology is to establish a series of universal rules for relating the output of the syntactic component of a generative grammar to its phonetic realization. As mentioned by P. Ladefoged, the aim of generative phonology is to formulate rules to express, "the relationship between the output of a set of syntactic rules and the sounds of actual utterances."

In the application of the generative rules two levels of representation are recognized: a systematic 'phonetic representation' and a 'phonological representation'. An earlier term for the latter was 'systematic phonemic', but this was later rejected because of the meaning of 'phonemic' in structural theories. Generative grammar rejects the notion of a phonemic level and the concept of 'phoneme'. On the phonetic level the phones are bundles of distinctive features and phonological rules relate these phones directly to 'lexical' level.

10.5 Phonemes of English

Trager and Smith-set up the following forty-five phonemes for English:

9	simple vowels
3	semi-vowels
21	consonants
4	stresses
4	pitches
1	plus juncture
3	terminal juncture
Total 45	

Vowels: Trager and Smith propose nine simple vowels arranged 3x3:

	Front	**Central**	**Back**
High	i	1	u
Mid	e	ə	o
Low	m	a	ɔ

Semi-Vowels: There are three semi-vowels / y,w,h /.

Notes

Complex Vowels: Any one of these can be added to each of the nine vowels giving us 9 x 3 = 27 complex vowels—a vowel phoneme follwed by a semi-vowel phoneme. Thus in all there are thirty-six (9 simple and 27 complex) vowel phonemes that serve as the vocalic nuclei.

Consonants:

In addition, there are twenty-one consonant phonemes

/ p t k b d g c j f θ s sv ð z z m nŋl r/.

Stress

Trager and Smith recognize four levels of stress:

1. Primary /ˈ /: teacher
2. tertiary / /: Miss Smith; contens
3. weak [zero] /◡/: animal
4. Secondary /◠/: under; came

Tell me the truth.: /tel miy ðə truw θ /

Juncture: Trager and Smith recognize four junctures as phonemes: 1. Internal junction /+/ as in **night+rate** as contrasted to **nitrate**; 2. Single-bar Juncture /1/, indicative of incompleteness; 3. Double-bar Juncture /1/, indicative of incompleteness; 3. Double-bar Juncture /ll/, indicative of uncertainty; 4. Double-cross Juncture /#/, corresponding to the orthographic period of fullstop, indicative of assertion. The first one is known as plus juncture, the other three are called terminal junctures.

Pitch: Trager and Smith accord the phonemic status to pitch and recognize four levels /1 2 3 4/; for example,

/²wə n//²tu¯w//² θ viy//³fohv³#/

Stress, pitch and juncture are described by Trager and Smith as 'suprasegmental' whereas the vowels and consonants, including the semi-vowels, are segmental phonemes. With segmental phonemes there is very little transition from one segment to the other. But the suprasegmentals are not restricted to one segment but extend over more than one. The segmental phonemes are discrete; the suprasegmental phonemes are super-imposed.

10.6 Phonology of English

In English (the Received Pronunciation of England), there are 44 distinctive speech sounds or phonemes. Twenty of these are vowel sounds and the remaining 24 are consonantal sounds. In the vowel sounds twelve are **pure vowels or monophthongs**—/i:/,/i/,/e/,/æ/,/a:/,/ɔ:/,/ɔ/,/u/:./u,/ə/,/ə:/,/ʌ/; and eight are **vowel glides or diphthongs**—/ei/,/ai/,/au,/,/ou/,/ɔi/,/uə/eə/. The vowels /i:/,/a:/./):/,/u:/, are comparatively long and the vowels /i/,/e/,/ael,/ɔ/u/, /ʌ/ and /ə/ are compartively short. In other words, the five long vowels are always longer than other seven short vowels in identical phonetic environments (=when they are preceded and followed by the same sounds.) Thus the vowel in **peel** is always longer than the vowel in **pill**).

10.6.1 Vowels in Detail

/i:/During the articulation of /i/ the front of the tongue is raised in the direction of the hard palate, to an almost close position. The lips are spread, and thus it is a **front close unrounded vowel** [since all English vowels are **voiced** and **oral** we shall not repeat this phenomenon]. The various **spellings** for this vowel are e,ee,ea. ie,i,ey,eo, as in the words eve, see, tea, piece, receive, police, key and people respectively. As regards the **distribution** of /i/ it can occur initially [eat], medially [meat] and finally [bee].

/i/ During the articulation of R.P. vowel /i/ the front part of the tongue is raised in the direction of the hard palate to a position between the close and half-close positions. The lips are loosely spread. /i/ is thus a **centralised front unrounded vowel between close and half-close positions**. /i/ is represented in spelling by i, e, y, a, u, ee, ey, ia, ai, ui, and ei as in pit, begin, city, baggage, ladies,

Notes

busy, coffee, money, carriage, bargain, build, and foreign respectively. As regards its **distribution**, /i/ can occur intially, medially and finally in a word.

/e/ During the articulation of the vowel /e/, the front of the tongue is raised in the direction of the hard palate to a position between the half-close and half-open positions. The lips are neutral. Thus /e/ is **front unrounded vowel between half-close and half-open positions**. /e/ is represented in spelling by e, ea, a, u, ie, ei, ai, ay, as in bed, dead, any, bury, /beri/, friend, leisure, said, /sed/ and says, /sez/. Regarding its **distribution,** it occurs initially and medially and does not occur finally.

/ae:/ The vowel/ / is articulated with the front of the tongue raised toward the hard palate to a height between the half-open and half open-positions. The lips are neutral. It is thus a **front unrounded vowel between half-open and open positions**. Regarding its distribution, it can occur initially and medially in a word. It does not occur finally. It is represented in spelling by a as in apple, cat, bad, etc.

/a:/ can occur initially, medially and finally in a word. It is represented in spelling by **a, au,** (laugh), **e** (clerk) and **ea** (heart). During the articulation of /a:/, the back of the tongue is in the fully open position; it is very low in the mouth; the lips are neutral. It is thus a **back open unrounded vowel**.

/ɔ/ During the articulation of /ɔ/ the back of the tongue is in the fully open position. The lips are rounded. Hence it is a **back open rounded** vowel. In spelling it is represented by o, ua, au, ou, ow in words such as pot, quality, because, cough, knowledge respectively. As far as its distribution is concerned, /ɔ,/ occurs initiallly and medially. It does not occur finally.

/ɔ:/ occurs initially, medially and finally in a word, e.g. in ought, thought, law. In spelling it is represented by a (wall), or (corn), our (court), ore (more), ough (bought), oor (door), aw (awful), al (walk), oar (board), ough (caught), o (story), ar (war), etc. During the articulation of /ɔ:/ the back of the tongue is raised towards the soft palate to a height between the half-open and half-close position. The lips are rounded (more closely than for /ɔ:/described above). /ɔ:/ is thus a **back rounded vowel between half open and half-close** position.

/u/ During the articulation of /u/, the fore part of the back of the tongue is raised towards the soft palate to a height between the half-close and close positions. The lips are rounded. /u/ is thus a **centralized back rounded vowel between close and half-close positions.** In spelling it is represented by oo (book), u (bull), o (woman) and oul (could). It does not occur initially. It occurs very freely in the medial position, e.g. book, cook. In the final position it occurs only in the weak form of the preposition **to**.

/u:/ is articulated with the back of the tongue raised to an almost close position towards the soft palate. The lips are closely rounded, /u:/ is thus a **back close rounded vowel**. In the spelling it is manifested by (pronounced/ju/) as in 'unit', oo (fool), o (do) ou (soup), ui (fruit), ew (few) eau (beauty), oe (shoe) and wo (two), /u:/ can occur initially and finally in a word.

/ʌ/ During the articulation of /ʌ/, the centre of the tongue is raised towards that part of the roof of the mouth which is between the hard palate and soft palate, to a height between the open and half-open positions. The lips are neutral. It is thus a **central unrounded vowel between open and half-open positions**. This vowel is represented in spelling by u, o, ou, oo, oe as in out, come, rough, blood, and does respectively. As regards its **distribution,** it can occur initially and medially in a word (up, cup). But it does not occur finally.

/ə:/ During the articulation of /ə:/ the centre of the tongue is raised towards the roof of the mouth (i.e. between the hard and soft palates to a height between the half-close and half-open positions. The lips are spread. /ə:/ is thus a **central unrounded vowel between half-close and half-open positions.** In spelling, it can be represented by er (perfect), ir (bird), ur (church), or (word), ear (earth) and our (journey). As far as its distribution is concerned, it can occur initially, medially and finally as in earn, burn and fur.

/ə/ is a very frequently occurring vowel in English; it can occur initially, medially and finally in a word (admit, excellent, and upper respectively). **This vowel occurs only in unaccented syllables.** It is articulated with two different tongue-positions, depending upon whether it occurs finally in a word or elsewhere.

Notes

During the articulation of non-final /ˈə/ the centre of the tongue is raised towards the roof of the mouth to a height between half-close and half-open. The lips are neutral. Nonfinal /ˈə/ is thus a central **unrounded vowel between half-close and half-open**. Final /ˈə/ is slightly opene r than nonfinal /ˈə/.

Spellings	(non-final /ˈə/)	Transcription
a	about	/ˈə, baut/
ar	backward	/bækwˈəd/
e	sentence (n)	/sentˈəns/
er	entertain	/entˈə'tein/
o	condition	/kˈəndi: ʃˈən/

10.6.2 Diphthongs of R.P.

A diphthong is an independent vowel-glide. It has to occupy one syllable. During the articulation of /ei/, the glide is from a front unrounded vowel between half-close and half-open to a front unrounded vow-el just above the half-close position. Its spelling can be represented by a (age), ay (day), ai (pain), ey (they) and ea (break). It occurs initially, medially and finally as in age, pain and say respectively.

During the articulation of /ai/, the glide is from a front open unrounded vowel to a front unrounded vowel just above the half-close position. The spelling is represented by i (mine), y (by), igh (high), ei (either) and uy (buy). It occurs, as regards its **distribution** initially, medially and finally, in a word, e.g. ice (initial), fine (medial) and cry (final).

During the articulation of /ˈɔi/, the glide is from a back rounded vowel between open and half open to a front unrounded vowel just above the half-close positions. The spelling is represented by **oi** and **oy** as in boil and boy. This diphthong can occur initially, medially and finally as in oil, boil, and boy.

During the articulation of /au /, the glide is from a back open unrounded vowel to a back rounded vowel just above the half-close position. It occurs initially (out), medially (scout) and finally (cow). Its spelling is represented by ou (house) and ow (how).

During the articulation of /ou/, the glide is from a central unrounded vowel between half-close and half-open to a back rounded vowel just above the half-close position. As to its distribution, this diphthong can occur in all three positions: initial (over), medial (coat), and final (go). Its spelling is represented by o, ow, oa and ou as in bone, blow, boast, shoulder respectively.

During the articulation of /iə/, the glide starts from a front unrounded vowel just above the half close position and moves in the direction of central unrounded vowel between half-close and open. Its spelling can be represented by **eer** (deer), **ear** (clear), **ere** (here), **e** (zero), **ier** (fierce) and **ea** (idea). As regards its **distribution** /ie/ can occur initially, medially and finally as in **ear**, **serious** and **fear** respectively.

During the articulation of /uə/, the glide starts from a back rounded vowel just above the half-close position and moves in direction of a central unrounded vowel between half-close and half-open. Its **spellings** are represented by **oor, ure** and **our** as in **poor, sure** and **tour** respectively. As far as the **distribution** is concerned, /uə/ occurs medially and finally, as in **poorly**, and **moor**. It does not occur initially in a word.

During the articulation of /eə/, the glide is from a front half-open urounded vowel to a central unrounded vowel between half-close and half-open. The spellings are **air** (chair), **are** (bare), **ear** (bear) **ae** (aeroplane), **eir** (their). As regards its **distribution,** this diphthong can occur in all the three positions in a word, e.g. initial (**airoplane**), medial (**daring**) and final (**dare**).

10.6.3 Tripthongs

The diphthongs /ei/, /ai/, /ou/, /au/ may be followed by the vowel /ˈə/ within a word e.g.

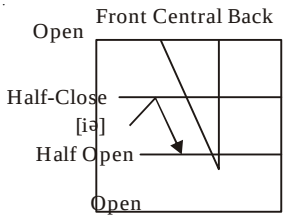
player /plerˈə*/

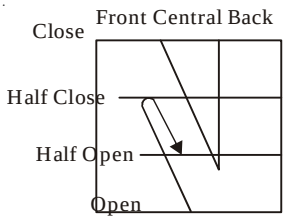
higher /[1]haˈə*/

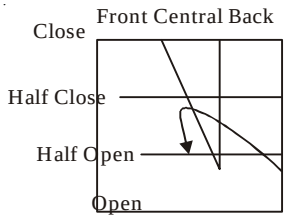
Notes

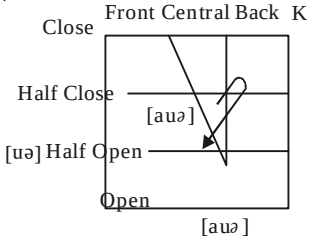
employer	/ˈmˈplˈɔə*./
mower	/ˈməˈə*/
shower	/ˈʃaˈə*/

These glides (called triphthongs), i.e., /eˈə/, /aˈə /, /ˈɔˈə/, /ˈə and /ˈə e/ are represented in the diagrams given below.









10.6.4 Consonants of English

A: Plosives or Stops

A plosive or stop consonant is one that is produced with a stricture. The articulators are in firm contact for some time and then are separated suddenly.

There are six plosive consonants in English (R.P.). These are /p/,/b/,/t/,/ d/ /,/k/,/ and /g/. Of these /p/ and /b/ are bilabial, /t/ and /d/ are alveolar, and /k/and /g/ are velar.

1. During the articulation of /p/, the two lips make a firm contact with each other. The soft palate is raised, thereby shutting off the nasal passage. Air that is compressed by pressure from the lungs, escapes with an explosive sound when the two lips are separated. The vocal cords are held apart and they do not vibrate, /p/ can thus be described as a **voiceless bilabial plosive**.

   Spellings: The phoneme /p/ is represented by the letters p and pp as in p*in, paper, upper, gap*. It is to be remembered that the letter *p* is silent in words *like psalm, psychology, receipt, cupboard*, etc.

   Distribution: /p/ can occur initially, medially and finally in words as in *pin* (initial), *supper* (medial) and *gap* (final).

Notes

(i) /p/ is aspirated (i.e., released with a strong puff of air) when it occurs initially in a stressed syllable. The aspirated variety can be represented by the symbol [p^1].

pin	/ˈpin/	[ˈp^hin]
appoint	/əˈpɔint/	[eˈp^hɔint]]
paper	/ˈpeipə*/	[ˈp^h e^1pə*]]
appear	/əˈpiə*/	[ˈəp^hiə*]]

(ii) /p/ is unaspirated when it occurs after /s/ and in unaccented syllables e.g.,

spare	/ˈspeiə*/
spirit	/ˈspirit/
supper	/ˈsʌ pə*/
pot'tato	/pu'teitou/

(iii) /p/ is nasally released when it is followed by / m /, e.g., topmost toepmoust

(iv) /p/ is not released audibly when it occurs finally or before another plosive or affricate e.g.,.

gap	/ˈgæp/	(final /p/)
captain	/ˈkæptin/	(/p/ occurring before another plosive)
capture	/ˈkæpʃə*/	(/p/occurring be fore an affricate)

2. /b/ is articulated exactly like /p/ described above, except that during the articulation of /b/ the vocal cords vibrate producing voice. /b/ can thus be described as **voiced bilabial plosive**.

Spellings: /b/ is represented by the letter b and bb in *beer*, *tobacco*, *rubber*, *tub*. It is to be remembered, however, that the letter is silent in words like *thumb*, *plumber*, etc.

Distribution: /b/ occurs initally, medially and finally in a word as in *bin* (initial), *rubber* (medial) and *tub* (final).

Allophonic variants:

(i) /b/ is nasally released when it is immediately followed by /m/e.g.,

submit	/səbˈmit/
submarine	/ˈsʌbməriːn/

(ii) In R.P. /b/ is devoiced when it occurs initially and finally (devoicing is represented by a diacritic [̥] placed under the symobl concerned.

(iii) /b/ is not released audibly when it occurs finally and when it is immediately followed by another plosive or affricate e.g.,

tub	/ˈtʌb/	(final)
subject	/ˈsʌbodʒ ikt/	(noun occurring before an affricate)
obtain	/ab$_{o}$'tein/	(/b/ occurring before another plosive)

3. /t/ is articulated by the tip or blade of the tongue making a firm contact against the teeth ridge. The soft palate is raised thereby blocking the nasal passage of air. When the tip or blade of the tongue is released from the teeth ridge, the air that is compressed by pressure from the lungs escapes with an explosive sound. The vocal cords do not vibrate. /t/ can thus be described as a **voiceless alveolar plosive**.

Spellings: /t/ is represented by the letters t and *it* as in *tea*, *at*, *stain*, *cut*, etc. **Also, the past tense marker** *ed* **is pronounced /t/ when the present tense form ends in a voiceless consonants other than /t/.**

Distribution: /t/ can occur initially, medially, and finally in a word as in *tell* (initial), obtain (medial) and bat (final).

Notes

(i) /t/ is aspirated when it occurs initially in a stressed syllable. e.g.

tub	/tʌb/	[ʻtʰʌb]
attain	/ˌəˈtein/	[ˌəˈtʰein]
potato	/Pəteitou/	[Pəˈtʰeitouˌ]

(ii) /t/ is unaspirated when it is preceded by /s/ and when it occurs in an unaccented syllable e.g.,

stain	/ˈstein/
stamp	/ˈstaemp/
butter	/bʌtə*/
computer	/kəmpju:tə*/

(iii) /t/ is nasally released when it is immediately followed by /n/. e.g.,

cotton	/ˈkɔtn/
button	/ibʌtn/

(iv) /t/ is laterally released when it is immediately followed by /1/

little	/ˈlitl/
cattle	/ˈkaetli/

(v) /t/ is not released audibly when it occurs finally in a word and when it is immediately followed by another plosive or affricate e.g.,

cut	/kʌt/	(final /t/)
football	/ˈfutbɔl/	(/t/ occurring before another plosive
that church	(/æˈ+ʃ z tʃ/)	(/t/ occurring before an affricate)

4. /d/ is articulated exactly like /t/ described above, except that during the articulation of /d/ the vocal cords vibrate, producing voice, /d/ can thus be described as a **voiced alveolar plosive**.

Spellings: /d/ is represented by the letters d, dd as in *dog*, *rudder*, *good*, etc.

Distribution: /d/ can occur initially, medially and finally in a word as in *day* (initial), *modest* (medial) and *bad* (final).

Allophonic Variants

(i) /d/ is released nasally when it is immediately followed by /n/

e.g.

sudden	/sʌdn/
gladden	/ˈglædn/

(ii) /d/ is laterally released when it is immediately followed by /1/ e.g.

riddle	/ˈridl/
/ˈbridle/	/ˈbraidl/

(iii) /d/ is not released audibly when it occurs finally and when it is immediately followed by another plosive or affricate e.g.

good	/ˈgud/	(final /d/)
bad boy	/bædboi/	(/d/ followed by another plosive).
good jam	/gudd*z* æm/	(/d/ followed by an affricate).

Notes Most Indians substitue retroflex plosive /t/ and /d/ for the English alveolar plosive /t/ and /d/.

Notes

5. During the articulation of /k/, the back of the tongue makes a firm contact with the soft palate. The soft palate is raised, thereby shutting off the nasal passage of air. The air that is compressed by pressure from the lungs, escapes with an explosive sound when the back of the tongue is released from the soft palate. The vocal cords do not vibrate. /k/ can thus be described as a **voiceless velar plosive**.

Spellings: /k/ is represented by:

(i) the letter k as in **book.**

(ii) the letter c as in **cot, music.**

(iii) the letters ch as in **character.**

(iv) the letters ck as in **back.**

(v) the letters cc as in **account.**

(vi) the letters que as in **cheque.**

Distribution: /k/ can occur initially and finally in a word as in *calm*, (initial), *reckon* (medial) and like (final).

Allophonic Variants

(i) /k/ is aspirated when it occurs initially in a stressed syllable, e.g.

captain	ˈvˈvkæptin/	[ˈvˈk^{h}æptinˈ
kit	/ˈkit/	[ˈk^{h}it]

(ii) /k/ is unaspirated after /s/ and in unaccented syllables, e.g.,

skin	/skin/	(/k/after/s/)
canal	/kəˈnæl/	(/k/ in an unaccented syllable)

6. /g/ is articulated like /k/ described above except that during the articulation of /g/ the vocal cords vibrate, producing voice, /g/ can thus be described as a **voice velar plosive**.

Spellings: /g/ is represented by

(i) the letter g as in *get*, *glory*, *bag*, *ago.*

(ii) the letters gg as in *baggage*, *luggage*.

B: Affricates

An affricate is produced with a complete closure, but the articulators are separated slowly so that some friction is heard. It is to be remembered that friction heard while articulating an affricate is of shorter duration than that heard during the articulation of a fricative.

In English there are two affricates, /tʃ/ and /dʒ/. Both are palato-alveo-lar.

1. During the articulation of /tʃ/, the tip and blade of the tongue make a firm contact with the teeth ridge. Simultaneously, the front of the tongue is raised in the direction of the hard palate. The soft palate is raised to shut off the nasal passage of air. The tip of the tongue is separated very slowly from the teeth ridge so that some friction is heard and the sound so produced is described as a **voiceless palato-alveolar affricate**.

Spellings: /fʃ/ is represented by

(i) the letters *ch* as in *cheap, church*

(ii) letters *tch* as in *batch.*

(iii) The letter *t+ure* as in *picture.*

(iv) the letter *t+ion* as in *question*.

Distribution

/tʃ/ can occur initally, medially land finally as in *chip* (initial), *butcher* (medial) and *catch* (final).

Notes

2. /dʒ/ is articulated exactly as /tʃ/ described above, except that during the articulation of /dʒ/, the vocal cords vibrate producing voice. /dʒ/ is thus **voiced palato alveolar affricate**.

Spellings: /dʒ/ is represented by the following letters:

(i) initial *j* as in *jump*.

(ii) initial g as in *gin*, *gentle*.

(iii) *gg* as in *suggest*.

(iv) final ge as in *luggage, revenge*.

(v) *di* as in *soldier*

(vi) medial *gi* as in *religion*

Distribution

/dʒ/ occurs initally, medially and finally as in *join* (initial), *religion* (medial) and *badge* (final)

C: Nasals

A nasal consonant is produced by a complete oral closure. That is, the oral passage of air is completely blocked by the articulators coming into firm contact with each other, but the soft palate is lowered so that the nasal passage of air is open. The air has thus a free passage through the nose.

There are three nasal consonant-phonemes in English. They are:

/m/ bilabial

/n/ alveolar

/ŋ/ velar

1. During the articulation of /m/, the two lips are brought together and thus the oral passage of air is blocked completely. The soft palate is lowered and the air escapes through the nose. The vocal cords vibrate, producing voice. /m/ is thus a **voiced bilabial nasal.**

Spellings: /m/ is represented by

(i) the letter *m* as in *man, many*

(ii) the letters *mm* as in *summer*

(iii) the letters *mb* as in *comb, lamb*

(iv) the letters *mn* as in *autumn*

Distribution

/m/ can occur initially, medially and finally as in *man* (initial), *enemy* (medial) and *some* (final).

2. During the articulation of /n/, the tip of the tongue makes a firm contact with the teeth ridge, thus blocking off the oral passage of air completely. The soft palate is lowered so that the air escapes through the nose. The vocal cords vibrate producing voice. /n/ is thus a **voiced alveolar nasal.**

Spellings: /n/ is represented by

(i) the letter *n* as in *near, pin*

(ii) the letters *nn* as in *running*

(iii) initial *kn* as a *knife, knit*

(iv) final *gn* as in *sign*

Distribution

/n/ can occur initially, medially and finally as in *name* (initial), *many* [medial] and *son* [final].

Allophonic variants

A dental [n] instead of the nasal is used if /n/ is immediately followed by the voiceless and dental fricative /θ/, and // e.g.

Notes

tenth	/t enθ/	(/n/ followed by /θ/)
in there	/in ð eə */	(/n/followed by/ ð /)

/n/ occurs as the syllabic nucleus in certain syllables. The second syllables of followings words are examples:

sudden	/'s ʌ–dn /
mutton	/'m ʌ–tn /
cotton	/'kɔ -tn /
button	/'b ʌ–tn /

3. During the articulation of (ŋ), the oral closure is made by the back of the tongue making a firm contact against the soft palate. The soft palate is lowered thereby allowing the air to escape freely through the nose. The vocal cords vibrate producing voice, /ŋ/ is thus a **voiced velar nasal.**

Spellings

(i) *ng* as in *sing, king*

(ii) *n* followed by /k/ as in *monkey, uncle*

Distribution

[ŋ] occurs medially and finally as in *uncle* (medial) and *sing* (final). It does not occur initially.

Important note: In R.P. final orthographic *ng* is **pronounced** /ŋ/ **as in** sing /siŋ/ and *king* /k *i*ŋ/. Medial *ng* **is also Symbol** (i.e. **without a /*g*/ following /ð/ in words which are derived from verbs. In other words medial *ng* is** /ŋg/. **Thus** *singer* **is pronounced /sinŋə*/ while finger is pronounced /** fingə*/.

Listed below are words in which the consonants that we have discussed so far, occur in various positions. The words are given in ordinary spelling. In words of more than one syllable, stress is marked. Practise saying these words.

(i) Aspirated /p/ at the beginning of accented syllables:

‘paper	pre’pare’	policy
‘pepper	o’pinion	‘previous
a’part	‘perfect (adj.)	im’portant
ap’pear	‘pen	‘pool
‘parrot	‘precious	‘pill
re’pair	‘pencil	ap’point

(ii) Unaspirated /p/

(a) after /s/

‘spin	‘spear
‘split	‘spring
‘splash	‘spine
‘spleen	‘spurious

(b)

‘apple	open
‘capital	‘protect
po’lice	per’fect (verb)
par’ticular	re’present

Notes

D: Fricatives

A fricative is articulated with a *stricture of close approximation*: **that is, the two articulators are brought so close to each other that the gap between them is very narrow. The air that is compressed by pressure from the lungs escapes through the narrow gap with** *audible friction*.

In English there are 9 fricative consonants. These are:

/f/ and /v/ : labiodental fricatives

/θ/ and ð : dental fricatives

/s/ and /z/ : alveolar fricatives

/ʃ/ and /ʒ/ : palato-alveolar fricatives

/h/ : glottal fricative

of these, /f/, /θ/, /s/, /ʃ/ and /h/ are voiceless and /v/, ð/, z/ and ʒ are voiced.

/f/

1. During the articulation of /f/, the lower lip is brought very close to the upper front teeth so that the gap between them is extremely narrow. The soft palate is raised and thus the nasal passage of air is blocked completely. The air escapes through the narrow gap between the lower lip and the upper front teeth with audible friction. The vocal cords are held wide apart and they do not vibrate. /f/ is thus a **voiceless labio-dental fricative.**

   Spellings: /f/ is represented by

   (i) the letter f as in *five, fool*

   (ii) the letters ff as in *coffee, affair*

   (iii) the letters ph as in *physics, photograph*

   (iv) the letters gh as in *cough, rough.*

   Distribution

   /f/ can occur initially, medially and finally as in five (initial) *offer* (medial) and *roof* (final).

(v)

2. /v/ is articulated exactly like /f/ described above except that during the articulation of /v/ the vocal cords vibrate producing voice. /v/is thus a voiced **Labio-dental fricative.**

   Spellings: /v/ is represented by

   (i) the letter v as in over,

   (ii) the letter f as in *of*

   (iii) the letter ph as in *nephew*.

   Distribution

   /v/ occurs initially, medially and finally, as in *vine* (initial) *cover*, (medial) and *love* (final).

/θ/

3. The tip of the tongue makes a light contact with the edge of the upper front path. The soft palate is raised so as to shut off the nasal passage of air. The air escapes through the narrow space between the tip of the tongue and the front teeth, causing audible friction. The vocal cords do not vibrate. /θ/ is thus a **voiceless dental fricative.**

   Spellings

   /θ/ is represented by the letters *th* as in *thin, thick, path*, etc.

   /θ/ can occur initially, medially and finally in a word as in *thick* (initial), *ethereal* (medial) and *oath* (final).

(ð)

Notes

4. /ð/ is articulated exactly like /θ/ described above, except that during the articulation of /ð/ the vocal cords vibrate producing voice, /ð/ is thus a **voiced dental fricative.**

   Spellings: /ð/ is represented by the letters *th* as in *then* and *that*.

   Distribution: /ð/occurs initially, medially and finally in a word as in *then* (initial), *leather* (medial) and *soothe* (final).

(s)

5. /s/ is articulated by placing the tip and blade of the tongue very near the teeth ridge so that the space between them is very narrow. The soft palate is raised, shutting off the nasal passage of air. The vocal cords do not vibrate. The air escapes through the narrow gap between the tip and blade of the tongue and teeth ridge with audible friction. /s/ is thus a **voiceless alveolar fricative.**

   Spellings: /s/ is represented by

   (i) the letter *s* as in *sin*.

   (ii) the letters *ss* as in *message, pass*.

   (iii) the letter *c*, (followed by the letter *e* or *i*) as in *cease, cell*.

   (iv) Medial and final *x* is pronounced /ks/ as in *ox, box, taxi*.

   (v) the letters *sc* as in *Scene, Science*

   Distribution

   /s/ can occur initially, medially and finally as in *seen* (initial), *passive* (medial) and *less* (final).

(z)

6. /z/ is articulated exactly like /s/ described above, except that during the articulation of /z/ the vocal cords vibrate producing voice. /z/ can thus be described as a **voiced alveolar fricative.**

   Spellings: /z/ is represented by

   (i) the letter *z* as in *zoo, zero, lazy*

   (ii) the letter (medial and final) *s* in *poison, dogs*

   (iii) the letters *ss* as in *scissors*

   (iv) the letters *zz* as in *buzz*.

   Distribution

   /z/ occurs initially, medially and finally as in *zoo* (initial), *puzzle* (medial), and *lose* (final).

   A NOTE ABOUT INFLEXIONAL SUFFIXES

   Inflexional suffixes (i.e. suffixes used for making plurals and possessives of nouns and third person simple persent tense singular forms of verbs) are pronounced /s/ /z/or/z/ according to certain rules.

   (i) /s/, if the stem ends in voiceless consonants except /s/, /f/ and /tf/.

cats	/kæts/
cups	/kʌps/
puffs	/pʌfs/
cooks	/kuks/

   (ii) /z/, if the stem ends with a voiced sound except /z/, /ʒ/ and /dz/ e.g.

boys	/bɔiz/
eggs	/egz/
lads	/lædz/
comes	/kʌmz/

Notes

nuns	/n ʌ nz/
calls	/kɔ:lz/
writhes	/rai ð z/
laws	/lɔ:z/

(iii) /iz/, if the root ends in /s/, /z/, /ʃ/, /ʒ/, /tʃ/, and /dʒ/, e.g.,

losses	/'losiz/
buzzes	/'b ʌ ziz/
bushes	/'bu ʃ iz/
garages	/g'era: ʒ iz/
churches	/'tʃ 3:1 ʃ iz/
judges	/'dz dz i z'/

(ʃ)

7. The tip and blade of the tongue are brought very close to the teeth ridge. Simultaneously the front of the tongue is raised in the direction of the hard palate. The soft palate is raised, thereby completely blocking the nasal passage of air. The air escapes through the narrow passage between the tip, blade and front of the tongue and the teeth ridge and the hard palate, with audible friction. The vocal cords do not vibrate. /ʃ/ is thus **a voiceless palatoalveolar fricative**.

Spellings: /ʃ/ is represented by

(i) the letters *sh* as in *shine, sheep.*

(ii) the letters *ch* as in '*machine.*

(iii) the letter *s* [+u] as in *sugar.*

(iv) the letters *tio* as in *nation*, *caution*,

(v) the letter *c* as in *efficient*.

(vi) the letters *ss* as in *pressure*.

(vii) the letters *ci* as in *conscience*.

Distribution

/ʃ/ occurs initially, medially and finally as in *shell* [initial] *pressure* (medial) and *fish* (final).

/ʒ/

8. /ʒ/ is articulated exactly like /ʃ/ described above, except that during the articulation of /ʒ/ the vocal cords vibrate producing voice. /ʒ/ is thus **a voiced palato-alveolar fricative**.

Spellings: /ʒ/ is represented by

(i) the letters *si* as in *decision*, *vision*,

(ii) the letters *s* [+u] as in *pleasure, leisure*,

(iii) the letters *ge* in French loan words like *rouge, garage*.

Distribution

/ʒ/ occurs only medially in English words. It occurs finally in French loan words. It does not occur initially e.g. *pleasure* [medial] and *mirage* (final).

/h/

9. The vocal cords are kept close together so that the glottis is very narrow. The air escapes through the narrow glottis with audible friction. /h/ is thus **voiceless glottal fricative.** In English /h/ occurs only in syllable-initial positions, always followed by a vowel. It may thus be regarded as a strong, voiceless onset of the succeeding vowel.

Notes

Spellings:: /h/ is always represented by the letter h.

Allophonic Variant: Between two vowels /h/ may be voiced as in *behind, beehive*.

Distribution: /h/ occurs only initially and medially as in *hat* (initial), *behave* (medial).

E: Lateral

A lateral consonant is articulated with a complete closure in the centre of the vocal tract the air escaping along the sides of the tongue.

In English there is one lateral consonant which is /l/.

/l/ is articulated by the tip of the tongue making a firm contact against the teeth ridge. There is thus a complete closure in the middle of the mouth. The soft palate is raised so as to shut off the nasal passage of the air completely. The sides of the tongue are lowered so that the lung air is free to escape along sides of the tongue without any friction. The vocal cords vibrate, producing voice. /I/ is thus **voiced alveolar lateral.**

Spellings: /l/ is represented by the letter l as in *leave* and by letters ll as in *villain*. It should be remembered that the letter l is silent in words like *calm, palm, alms* etc.

Allophonic Variants

(i) A dental [l] is used when [l] followed by / θ /] or / ð /-

/hel θ / (/l/ followed by / θ /)

/tel ð em/ (l/followed by / ð /)

(ii) in R.P. there are two varieties of /l/. One in called a 'clear' /l/ and the other a 'dark' /l/, (the phonetic symbols are [l] and [∅] respectively).

'Clear' /l/ is articulated by making a closure in the middle as described above and simultaneously raising the front of the tongue in the direction of the hard palate. In R.P. this variety of /l/ is used before vowels and /j/, e.g.

live	/liv/
lure	/ljuə'/

'Dark' /l/ is articulated by making a closure in the middle as described above and simultaneously raising the back of the tongue in the direction of the soft palate. In R.P. it is used before consonant other than /j/ and finally e.g.

told	/tould/	(before a consonant)
tell	/te l/	(finally)

(iii) In R.P. III is syllabic (i.e. it functions as the nucleus of the syllable) in certain words like

little	/'litl/	
cattle	/kaetl/	(The final /l/ is syllabic in these words)

Distribution

/1/ occurs initially, medially and finally as in *leave* (initial), *pulley* (medial) and *pull* (final).

F. Frictionless Continuant

A frictionless continuant is articulated with an open approximation of the articulators, so that the air passes between the articulators without any friction. Thus the sound is vowel like, but it is included in the list of consonants because it never functions as the nucleus of a syllable.

In English there is one frictionless continuant which is symbolized by /r/.

/r/

Notes

The tip of the tongue is raised in the direction of the hinder part of the teeth ridge. The soft palate is raised so as to shut off the nasal passage of the air. The air from the lungs comes out through the gap between the tip of the tongue and the post-alveo-lar region without any friction. The vocal cords vibrate, producing voice. **/r/ is thus a voiced postalveolar frictionless continuant.**

Spellings: /r/ is represented by the letter /r/ but in R.P. it occurs only before a vowel sounds e.g. in *red, run, dry, trial.* /r/ is not pronounced in other positions, e.g., in words Vike,*garden, larder, early, jerk*, etc.

Allophonic Variants

(i) A voiced post-alveolar fricative /r/ (phonetic symbol [i] is used after /d/ as in *dry, draw*.

(ii) A voiceless, post-alveolar fricative /r/ (phonetic symbol [r] is used after aspirated /p/, /t/ and /k/ as in *pray, try*, and *cry*).

(iii) A voiced alveolar, single flap-phonetic symbol [ ] is used when /r/ occurs between two vowels and after / θ / as in

very sorry	/r/ between two vowels
three	(/r/ after / θ /

Distribution:

In R.P. /r/ occurs initially and medially, but only before a vowel sound. It does not occur finally. For example,

red	(initial)
moderate	(medial)

[LINKING /r/: In R.P. /r/ does not occur finally, but in connected speech, /r/ is retained when followed by a vowel in the following words, For example, the word *far* is pronounced /fa:/ but in *far away* the final r in *far* is pronounced because away in isolation begins with a vowel sound. The phrase *far away* is pronounced /fa:r/. A few other examples are:

pepper	/pepə/
pepper and salt	/pepər ən'sa:lt/
here	/'hiə/
here and there	/"hiər ən' ðeə/
father	/fa: ðə/
father is at home	/fa: ðə r iz ət'houm/

INTRUSIVE /r/: Some people use an /r/ at word boundaries if the first word ends in [ ] and the second begins with a vowel even if there is no r in spelling. Thus, we often hear

/'1ɔ:rən 'ɔ:də [law and order]

/'dramərən ,mju:zik/ [drama and music]

G: Semi-Vowels

A semi-vowel is a vowel glide to a more prominent sound in the same syllable. In English there are two semi-vowels, /j/ and /w.

/j/ is a **palatal semi-vowel.**

/w/ is a **labio-velar semi-vowel.**

Notes

/j/ is a glide from /:/ and /w/ is glide from /u:/ *Though these sounds are vowel-like in their articulation, they are classified as consonants because they do not function as the nucleus of any syllable.*

/j/

1. The soft palate is raised, shutting off the nasal passage of air. The front of the tongue assumes a position for a vowel between close and half-close and quickly glides to the position of the following vowel. The vocal cords vibrate, producing voice. /j/ is thus a **voiced unrounded palatal semi vowel**.

   The lips are normally spread or neutral during the articulation of /j/ but there may be anticipatory lip rounding if the immediately following vowel is a rounded vowel as in *you, yawn* etc.

   Spellings: /j/ is represented by the letter *y* as in yes, yard, beyond, yellow. The letters *u, eau, ue, ew* and *iew* are pronounced /ju/, as in *unit, beauty, due, dew, view*.

/w/

2. The soft palate is raised to shut off the nasal passage of air completely. The back of the tongue is raised in the direction of the soft palate to the position for a vowel between close and half-close and the lips are rounded. Then the tongue quickly glides to the position of the following vowel. The position of the lips also changes depending upon the immediately following vowel. The vocal cords vibrate, producing voice. /w/ is thus a **voiced rounded labio-velar semi-vowel.**

Spellings: /w/ is represented by

(i) the letter *w* as in *west*.

(ii) the letters *wh* as in *why*.

(iii) the letter *q* or *g + w* as in *queen, language.*

(iv) the words, *one, once, suit* also have the sound of /w/.

Distribution: /w/ occurs initially as in *west* (initial) and *queen* (middle). It does not occur finally.

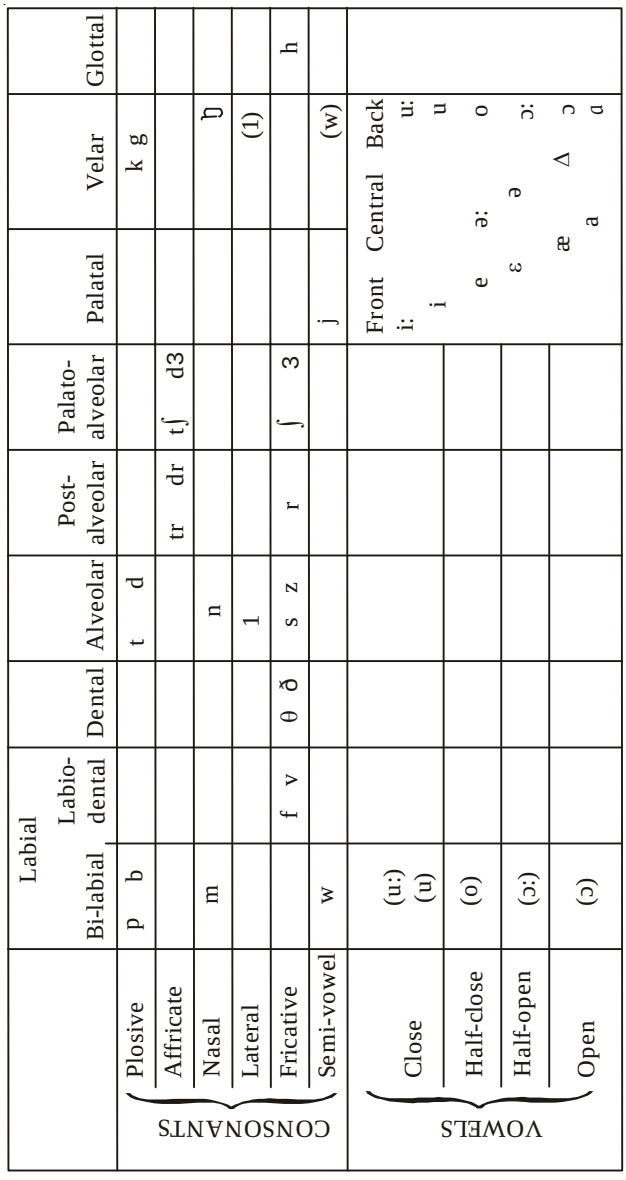
(i) Most Indians do not have /w/ as a distinct phoneme in their English. Instead, they generally use a voiced labio-dental frictionless continuant (phonetic symbol [b] the sound represents the Devnagari symbol(ɕ). Most Indians use [V] even in place of the fricative /v/. There is no distinction in their speech between minimal pairs like

wine	vine
west	vest
wail	vale
why	vie
went	vent
wile / while	vile
whale	vale

/w/ can be acquired easily by trying to say /u:/ and then quickly moving on the vowel.

Various English sounds are (shown in a classified manner in the table given on the next page (from Daniel Jones's book 'An Outline of English Phonetics'):

Notes



		Labial										
		Bi-labial	Labio-dental	Dental	Alveolar	Post-alveolar	Palato-alveolar	Palatal	Velar	Glottal
CONSONANTS	Plosive	p b			t d				k g	
	Affricate					tr dr	tʃ d3			
	Nasal	m			n				ŋ	
	Lateral				l				(l)	
	Fricative		f v	θ ð	s z	r	ʃ ʒ			h
	Semi-vowel	w						j	(w)	
VOWELS	Close	(u:) (u)						Front Central Back i: u: i u		
	Half-close	(o)						e ə: o		
	Half-open	(ɔ:)						ɛ ə ɔ:		
	Open	(ɔ)						æ ʌ ɔ a ɑ		

10.7 Summary

- The difference between phonetics and phonology is that of generality and particularity. Whereas phonetics is the science of speech sounds, their production, transmission and reception and the signs to represent them in general with no particular reference to any one language, phonology is the study of vocal sounds and sound changes, phonemes and their variants in a particular language. If phonetics can be likened to a world, phonology is a country. Phonetics is one and the same for all the languages of the world, but the phonology of one language will differ from the phonology of another.
- Most linguists, until recently at least, have regarded the phoneme as one of the basic units of language. But they have not all defined the phonemes in the same way. Some linguists like Bloomfied and Daniel Jones have described phonemes in purely physical terms. Others like Sapir have preferred psychological definitions. Some regard the phoneme only as abstractional fictitious unity and argue that in a language it is not phonemes but allophones that exist in

Notes

reality. Furthermore, linguists of the Copenhagen School treat the phonemes as glassemes and regard them as algebraical units.

- The term phoneme was first used in the late 1870's notably by Kruszewski. Saussure too worked on the phonemes. But the most notable work in this field was done by Sapir in 1927. Most phoneticians such as Louis Jhelmslev, Bloomfield, Trubetzkoy, Daniel Jones, Roman Jakobson, and Pike have thrown light on the phoneme.
- According to most contemporary linguists, however, the phoneme is the minimal bundle of relevant sound features. A phoneme is not a sound; it can be realized only through one of its allophones: it is a class of sounds, actualized or realized in a different way in any given position by its representative, the allophone: it is an ideal towards which the speaker strives, while the allophone is the performance he achieves; it occupies an area within which the various allophones move and operate; its outer limits may approach but not overlap those of other phonemes, and it cannot invade the territory of another phoneme without loss of phonemic distinction.
- According to most contemporary linguists, however, the phoneme is the minimal bundle of relevant sound features. A phoneme is not a sound; it can be realized only through one of its allophones: it is a class of sounds, actualized or realized in a different way in any given position by its representative, the allophone: it is an ideal towards which the speaker strives, while the allophone is the performance he achieves; it occupies an area within which the various allophones move and operate; its outer limits may approach but not overlap those of other phonemes, and it cannot invade the territory of another phoneme without loss of phonemic distinction.
- Thus the precise definition of a phoneme has been the subject of much discussion among linguists and there are two major points of view. The first is the 'classification' theory developed by Daniel Jones which considers the phoneme to be a group or family of related sounds, e.g. / p / in English consisting of [p], [p^h], etc. or / u / consisting of (u:), (u) etc. The second or 'distinctive feature' theory developed by N.S. Turbetzkoy and the Prague School considers a phoneme to be a bundle of distinctive features, e.g. / p / in English is considered to be made up of bilabial + stop + voiceless (aspiration is therefore not distinctive and thus the allophones (p^h) and (p) above are allowed for.

10.8 Key-Words

1. Affricates : An affricate is produced with a complete closure, but the articulators are separated slowly so that some friction is heard.
2. Nasals : A nasal consonant is produced by a complete oral closure. That is, the oral passage of air is completely blocked by the articulators coming into firm contact with each other, but the soft palate is lowered so that the nasal passage of air is open.
3. Fricatives : A fricative is articulated with a stricture of close approximation: that is, the two articulators are brought so close to each other that the gap between them is very narrow.
4. Lateral : A lateral consonant is articulated with a complete closure in the centre of the vocal tract the air escaping along the sides of the tongue.

10.9 Review Questions

1. Distinguish between **phonetics** and **phonology**.
2. Define and exemplify: (a) **phoneme**, and (b) **allophone**.
3. What is a **minimal pair**?
4. Distinguish between a phoneme and an allophone.
5. How many phonemes are there in British English (R. P.)
6. What is an **allophone**?
7. Distinguish between **free variation and complementary Distribution.**

Notes

8. Do [P] and (p^h) exist in your language? If they do, give one example of each used in a word. Do they belong to different phonemes or to the same phoneme? How will you prove it? Indicate your language.
9. If [p], [t] and [k] exist in your language, indicate whether they belong to three different phonemes or not. How do you prove it? Indicate your language.
10. Prove that [p], [b], [t], and [d] belong to separate phonemes in English.
11. Show how phonology can be described in terms of structure and system.
12. What are supra segmental (non-segmental) features in phonology? Exemplify from English.
13. Distinguish between the clear 1 and the dark 1 and the aspirated **p, t** and unaspiratsd **p** and **t**.
14. What are weak forms? Give some ten examples of words which have weak forms in **R.P.**
15. Describe the phonemes of English.

10.10 Further Readings

1. Verma, S.K., V.N. Krishnaswamy. Modern Linguistics: An Introduction.
2. An Introduction to Linguistics, John Lyon.
3. Peter Roach: English phonetics and phonology. Cambridge University Press.
4. Encyclopedia of Linguistic Science Edited By V. Prakasam, Allied Pub., New Delhi.

Notes

Unit 11: Allophones–Allophonic Variation in English Speech: Difference between Monopthong and Diphthong Glides

CONTENTS

Objectives

After studying this Unit students will be able to:

- Understand Allophones.
- Discuss Monopthong and Diphthong Glides.

Introduction

In phonology, an **allophone** is one of a set of multiple possible spoken sounds (or *phones*) used to pronounce a single phoneme. For example, [p^h] (as in *pin*) and [p] (as in *spin*) are allophones for the phoneme / p / in the English language. Although a phoneme's allophones are all alternative pronunciations for a phoneme, the specific allophone selected in a given situation is often predictable. Changing the allophone used by native speakers for a given phoneme in a specific context usually will not change the meaning of a word but the result may sound non-native or unintelligible. Native speakers of a given language usually perceive one phoneme in their language as a single distinctive sound in that language and are "*both unaware of and even shocked by*" the allophone variations used to pronounce single phonemes.

11.1 Concept of Allophones

The term "allophone" was coined by Benjamin Lee Whorf in the 1940s. In doing so, he placed a cornerstone in consolidating early phoneme theory. The term was popularized by G. L. Trager and Bernard Bloch in a 1941 paper on English phonology and went on to become part of standard usage within the American structuralist tradition.

Allophones are audibly distinct variants of a phoneme, such as the different pronunciations of the 't' sound in tar and star. Substituting onc allophone for another allophone of the same phoneme doesn't lead to a different word, just a different pronunciation of the same word. In other words the sounds that are merely phonetic variants of the same phoneme are allophones. Notice that any two sounds of a given language represent either two allophones of the same phoneme (if the sound can be interchanged in words with no resulting change in meaning, such as the p's of pit and keep) or two different phonemes (if the sounds cannot be interchanged without a resulting change in meaning, such as the m and s of milk and silk).

"Now consider the word stop. If you say the word several times, you will probably notice that sometimes the final / p / contains more aspiration and sometimes, less. (In fact, if you end the word with your lips together and do not release the / p /, it contains no aspiration at all). Since you are not

Notes

pronouncing stop as part of a larger chunk of language that varies from utterance to utterance (for example, John told Mary to stop the car versus Stop and go versus when you come to the sign, stop), the phonetic environment of the /p/ remains constant—it is at the end of the word and preceded by /a/. In other words, we cannot predict when a particular allophone with more or less aspiration islikely to occur, so the allophones of /p/ must be in free variation." (Thomas Murray, *the Structure of English*. Allyn and Bacon, 1995)

Phonetics and Phonology

Phonetics and phonology are two branches of linguistics that deal primarily with the structure of human language sounds. Phonetics focuses on the physical manifestations of speech sounds and on theories of speech production and perception. Phonology is concerned with the systems of rules (or constraints) that determine how the sounds of a language combine and influence one another.

Most phonetic work falls into the sub-field of articulatory phonetics (the study of the human vocal tract, the International Phonetic Alphabet, and how to make and describe language sounds), but with recent advances in computers and the availability of good phonetics software, there has been a recent boom in acoustic research (the physical properties of sounds-wave forms, pitch, intensity, spectrograms).

Phonology cares about the entire sound system for a given language. The goal is to formulate a model/theory which explains not only the sound patterns found in a particular language, but the patterns found in all languages. Examples of questions which are interesting to phonologists are: How do sounds change due to the sounds around them? (For example, why does the plural of cat end with an 's' sound, the plural of dog end with a 'z' sound, and the plural of dish end in something sounding like 'iz'?) How do sounds combine in a particular language? (For example, English allows 't' and 'b' to be followed by 't' rattle, rabble, atlas, ablative—so why then does 'blick' sound like a possible word in English when 'tlick' does not?)

Complementary and free-variant Allophones

Every time a speech sound is produced for a given phoneme, it will be slightly different from other utterances, even for the same speaker. This has led to some debate over how real, and how universal, phonemes really are (see phoneme for details). Only some of the variation is significant (i.e., detectable or perceivable) to speakers. There are two types of allophones, based on whether a phoneme must be pronounced using a specific allophone in a specific situation, or whether the speaker has freedom to (unconsciously) choose which allophone he or she will use.

When a specific allophone (from a set of allophones that correspond to a phoneme) *must* be selected in a given context (i.e. using a different allophone for a phoneme will cause confusion or make the speaker sound non-native), the allophones are said to be **complementary** (i.e. the allophones complement each other, and one is not used in a situation where the usage of another is standard). In the case of complementary allophones, each allophone is used in a specific phonetic context and may be involved in a phonological process.

In other cases, the speaker is able to select freely from **free variant** allophones, based on personal habit or preference.

Allotone

A tonic allophone is sometimes called an **allotone,** for example in the neutral tone of Mandarin.

Examples in English vs. other languages

For example, [p^h] as in pin and [p] as in *spin* are allophones for the phoneme /p/ in the English language because they cannot distinguish words (in fact, they occur in complementary distribution). English speakers treat them as the same sound, but they are different: the first is aspirated and the second is unaspirated (plain). Plain [p] also occurs as the **p** in *cap* [k^hæ p], or the second **p** in *paper* [p^heI.p˞ə]. Chinese languages treat these two phones differently; for example in Mandarin, [p] (written **b** in Pinyin) and [p^h] (written **p**) contrast phonemically. Many Indo-Aryan languages, such as Hindi-Urdu, also write the two phones differently and treat them as completely distinct phonemes: [p] is

Notes

written as, i (or ‘چ‘), while [p^h] is written Q (or ‘چھ‘) and so on.

There are many other allophonic processes in English, like lack of plosion, nasal plosion, partial devoicing of sonorants, complete devoicing of sonorants, partial devoicing of obstruents, lengthening and shortening vowels, and retraction.

- Aspiration — strong explosion of breath. In English a voiceless plosive that is p, t or k is aspirated whenever it stands as the only consonant at the beginning of the stressed syllable or of the first, stressed or unstressed, syllable in a word.
- Nasal plosion - In English a plosive (/p, t, k, b, d, g/) has nasal plosion when it is followed by a nasal, inside a word or across word boundary.
- Partial devoicing of sonorants — In English sonorants (/j, w, l, r, m, n, ŋ/) are partially devoiced when they follow a voiceless sound within the same syllable.
- Complete devoicing of sonorants — In English a sonorant is completely devoiced when it follows an aspirated plosive (/p, t, k/).
- Partial devoicing of obstruents - In English, a voiced obstruent is partially devoiced next to a pause or next to a voiceless sound, inside a word or across its boundary.
- Retraction — in English /t, d, n, l/ are retracted before /r/.

Because the choice of allophone is seldom under conscious control, people may not realize they exist. English speakers may be unaware of the differences among six allophones of the phoneme /t/, namely unreleased [t] as in *cat*, aspirated [t^h] as in *top*, glottalized [?] as in *button*, flapped [ɾ] as in American English *water*, nasalized flapped as in *winter*, and none of the above [t] as in *stop*. However, they may become aware of the differences if, for example, they contrast the pronunciations of the following words:

- **Night rate:** unreleased [‘nʌɪt̚.ɹʷeɪt̚] (without word space between . and ɹ)
- **Nitrate:** aspirated [‘naɪ.tʰɹ̥eit̚] or retracted [‘naɪ.tʃɹʷeɪt̚]

If a flame is held before the lips while these words are spoken, it flickers more during aspirated *nitrate* than during unaspirated *night rate*. The difference can also be felt by holding the hand in front of the lips. For a Mandarin speaker, to whom /t/ and /t^h are separate phonemes, the English distinction is much more obvious than it is to the English speaker who has learned since childhood to ignore it.

Allophones of English /l/ may be noticed if the ‘light’ [l] of *leaf* [‘li: f] is contrasted with the ‘dark’ [ɫ] of *feel* [fi: ɫ]. Again, this difference is much more obvious to a Turkish speaker, for whom /l/ and /ɫ/ are separate phonemes, than to an English speaker, for whom they are allophones of a single phoneme.

Allophony of “v-w” in Hindi-Urdu

A reverse example is that of [v] versus [w] in Hindi-Urdu. These are distinct phonemes in English, but both allophones of the phoneme /o/ (or /و/) in Hindi-Urdu. Native Hindi speakers pronounce /o/ as [v] in *vrat* (‘or’, *fast*) but [w] in *pakwan* idoku (*food dish*), treating them as a single phoneme and without being aware of the allophone distinctions they are subconsciously making, though these are apparent to native English speakers. However, the allophone phenomenon becomes obvious when speakers switch languages.

When non-native speakers speak Hindi-Urdu, they might pronounce /o /in ‘or‘ as [w], i.e. as *wrat* instead of the correct *vrat*. This results in an intelligibility problem because *wrat* can easily be confused for *aurat*, which means *woman* instead of *fast* in Hindi-Urdu. Similarly, Hindi-Urdu speakers might unconsciously apply their native ‘v-w’ allophony rules to English words, pronouncing *war* as *var* or *advance* as *adwance*, which can result in intelligibility problems with native English speakers.

Representing a Phoneme with an Allophone

Since phonemes are abstractions of speech sounds, not the sounds themselves, they have no direct phonetic transcription. When they are realized without much allophonic variation, a simple (i.e.

Notes

'broad') transcription is used. However, when there are complementary allophones of a phoneme, so that the allophony is significant, things become more complicated. Often, if only one of the allophones is simple to transcribe, in the sense of not requiring diacritics, then that representation is chosen for the phoneme.

However, there may be several such allophones, or the linguist may prefer greater precision than this allows. In such cases a common convention is to use the "elsewhere condition" to decide which allophone will stand for the phoneme. The "elsewhere" allophone is the one that remains once the conditions for the others are described by phonological rules. For example, English has both oral and nasal allophones of its vowels. The pattern is that vowels are nasal only when preceding a nasal consonant within the same syllable; elsewhere they're oral. Therefore, by the "elsewhere" convention, the oral allophones are considered basic; nasal vowels in English are considered to be allophones of oral phonemes.

In other cases, an allophone may be chosen to represent its phoneme because it is more common in the world's languages than the other allophones, because it reflects the historical origin of the phoneme, or because it gives a more balanced look to a chart of the phonemic inventory. In rare cases a linguist may represent phonemes with abstract symbols, such as dingbats, so as not to privilege any one allophone.

An **allophonic rule** is a phonological rule that indicates which allophone realizes a phoneme in a given phonemic environment. In other words, an allophonic rule is a rule that converts the phonemes in a phonemic transcription into the allophones of the corresponding phonetic transcription. Every language has a set of allophonic rules.

In American English, the voiceless alveolar stop phoneme /t/ is realized as the alveolar flap allophone [ɾ] when it is preceded by a sonorant phoneme other than an alveolar nasal or lateral, and, at the same time, followed by an unstressed vowel phoneme.

/t/ → [ɾ] | /+ son - lat/ — /+ vwl - str/

[st ʌ b] *This linguistics article is a stub. You can help Wikipedia by expanding it.*

Examples and Observations

- "Sounds that are merely phonetic variants of the same phoneme are **allophones.** Notice that any two sounds of a given language represent either two allophones of the same phoneme (if the sounds can be interchanged in words with no resulting change in meaning, such as the *p*'s of *pit* and *keep*) or two different phonemes (if the sounds can*not* be interchanged without a resulting change in meaning, such as the *m* and *s* of *milk* and *silk*)....

  "Now consider the word *stop*. If you say the word several times, you will probably notice that sometimes the final /p/ contains more aspiration and sometimes, less. (In fact, if you end the word with your lips together and do not release the /p/, it contains no aspiration at all.) Since you are not pronouncing stop as part of a larger chunk of language that varies from utterance to utterance (for example, *John told Mary to stop the car* versus *Stop and go* versus *When you come to the sign, stop*), the phonetic environment of the /p/ remains constant--it is at the end of the word and preceded by /a/. In other words, we cannot predict when a particular allophone with more or less aspiration is likely to occur, so the allophones of /p/ must be in *free variation*."
- "[E] very speech sound we utter is an **allophone** of some phoneme and can be grouped together with other phonetically similar sounds."
- "[T] he choice of one **allophone** rather than another may depend on such factors as communicative situation, language variety, and social class. . . . [W]hen we consider the wide range of possible realisations of any given phoneme (even by a single speaker), it becomes clear that we owe the vast majority of allophones in free variation to idiolects or simply to chance, and that the number of such allophones is virtually infinite."

Notes

11.2 Phonemes and Allophones; Describing English Sounds

What is language? → What is it that we know when we know a language? → What is it that we know when we know English?

I. Phonological Knowledge (roughly):

(a) Sounds

(b) Sound Patterns

Thus, phonologists are concerned with:

a. Sound Inventory

What sounds does the language make use of?

Exercise 1: Which ones of the followings are possible sounds of English?

a. [!]: as in *tut-tut*! / *tsk-tsk*!

b. [y]

c [3]

d. [ð]

e. [ŋ]

What relationship do these sounds have to each other?

Which are used contrastively and which are the variant pronunciations of contrastive sounds?

Can we predict the different realizations of a contrastive sound?

b. Sound patterns

Which sound combinations are allowed?

Exercise 1: Which of the followings can be a possible word of English?

a. hled

b. θok

c. tlnaz

d. ŋala

e. pkar

f. plask

g. talg

II. The concept of phoneme and allophony: "Same but different":

Aspirated vs. unaspirated stops in English

***p**ill* *s**p**ill*

***t**ill* *s**t**ill*

***k**ill* *s**k**ill*

PHONETIC FACT: There is a burst or puff of air after the / p / in *pill*, *till*, and *kill*, that is absent in *spill*, *still*, and *skill*.

Aspiration: The period between the release of the closure of a consonant and the start of the vocal cord activity for the vowel that comes after it. This period is usually felt as a puff of air.

pill [**p**^{h}Il]

till [**t**^{h}Il]

kill [**k**^{h}Il]

Notes

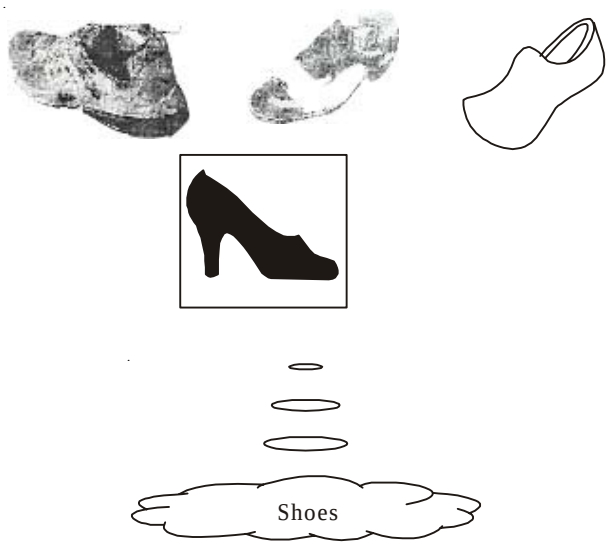
s**p**ill [s**p**Il]

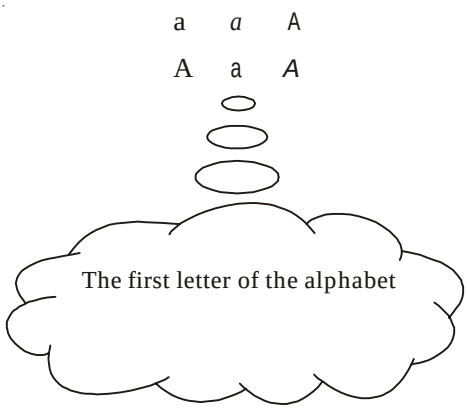
s**t**ill [s**t**Il]

s**k**ill [s**k**Il]

Aspiration Rule in English: Aspiration occurs on all voiceless stops occurring as the first sound in a stressed syllable.

- Although aspirated stops and unaspirated stops are physically different, we consider both to be the same sound.
- For English, aspiration is not employed to create a meaning difference.
- Human mind also ignore other physical / perceptible differences which are not relevant for particular purposes:





III. Same sounds but different representations

Two or more languages might share the same sound or sounds but this does not mean that those languages organize these sounds in the same way.

a. Hindi aspirated stops

[p^hal] “knife edge”

[pal] “take care of”

Notes

[kapi] "copy"

[kap^{h}i] "ample"

- Aspiration is "contrastive" in Hindi.
- [pal] for "knife edge" instead of [p^{h}al] is like saying "shave" instead of "save".
- Hindi speakers cannot "overlook" the difference between aspirated and unaspirated stops because they distinguish meaning based it.
- [s] and [ʃ] are contrastive and the occurrence of the two is **un**predictable in English.
- In Japanese, we can predict their distribution.
- In Japanese, [s] and [ʃ] are considered to be the "same" sound even though they may be phonetically distinct.

Phonology deals with the following questions:

1. Of all the sounds in a language, which are predictable?
2. What is the phonetic context that allows us to predict the occurrence of these sounds?
3. Which sounds affect the meaning of words?

c. English lateral liquid (/l/):

lean

let

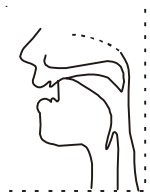
lace

knee**l**

te**ll**

sai**l**

Articulatory Facts about/l/: An alveolar consonant



Alveolar

d, t, s, z, n

But, when saying the first three words (i.e., ***l****ean*, ***l****et*, ***l****ace*):

[l1: clear 'l' / alveolar lateral

Tip of the tongue: high, touches the alveolar ridge

Back of the tongue: down

Sides of the tongue: drawn in so that the air escapes around the tongue

But, When saying the last three words (i.e., *kneal, tell, sail*):

[ɬ]: dark 'l' / velarized lateral

Tip of the tongue: may be raised

Back of the tongue: high

Center of the tongue: low

Sides of the tongue: curled in

- /l/ may be pronounced several different ways. And, we overlook this difference when we learn words that contain this sound.

Notes

What is the distribution?

Rule (to be revised in the following lectures):

Before a vowel, we say [l], after a vowel we say [ɬ].

Thus, English [l] and [ɬ] are in predictable (complementary) distribution.

Turkish		**Scots Gaelic**	
[soɬ]	'left'	[bala]	'town'
[sol]	'a musical note'	[baʻɬ'a]	'wall'

d. English voiceless alveolar stop /t/:

tip

s**t**ick

li**tt**le

Acoustic/ articulatory phonetic facts

FACT #1: Aspiration

Examples

[p^{h}at] vs. [spat] "pot" vs "spot"

[t^{h}ek] vs. [stek] "take" vs. "stake"

When sounds are in complementary distribution, they cannot be contrastive. The replacement of one sound for the other does not change the meaning of the word.

FACT #2

a. Speakers of American English

The /t/ in "li**tt**le" sounds a lot "softer" (and a bit voiced). In American English, this sound is actually pronounced as a flap ([ɾ]).

Flap: A flap sound is a consonant in which one articulator strikes the other with a sliding motion (as in the Spanish word *pero*).

b. Speakers of (non-Standard) British English

/t/ is pronounced as a glottal stop [ʔ]

- At least at some psychological level, that this word contains a /t/ sound although we may not pronounce or hear it as such.

/t/

[t] [t^{h}] [ɾ] [ʔ]

[t^{h}]op "top"
s[t]op "stop"
li[ɾ]le "little"

Harry

Notes

What is a phoneme?

A class of speech sounds that are identified by a native speaker as the same sound is called a *phoneme*. The different phonetic realizations of a phoneme are called *allophones*.

Thus [p^h] and [p] are the allophones of the same phoneme in English; Whereas in Hindi, [p^h] and [p] are different phonemes.

[l] and [ɬ] are the allophones of the same phoneme in English; whereas in Turkish and Scots Gaelic, they are different phonemes.

Phonemes are the psychological (abstract) representations or units of actual physical realizations of phonetic segments.

Did u know? If two sounds are separate phonemes, then they are contrastive (in terms of meaning).

- If the two phones are allophones of the same phoneme, then they are non-contrastive.
- To determine whether a given pair of sounds is contrastive, linguists look for minimal pairs.

III. Phonemes of English

CONSONANTS

When describing a consonant, use the following parameters:

VOICE: do your vocal cords vibrate?

PLACE: Which cavity is involved? Which articulators are used?

MANNER: how is the sound produced?

Voicing

Try putting a hand lightly on your throat and then say the following words, drawing out the initial sounds.

If you feel vibration, this means that your vocal cords are open and the sound in question is a **voiceless** sound. If, on the other hand, you feel some vibration or a buzzing feeling, this is due to the vibration of your vocal cords which are closed together. This means that the sound you are making is a **voiced** sound.

feel, veal

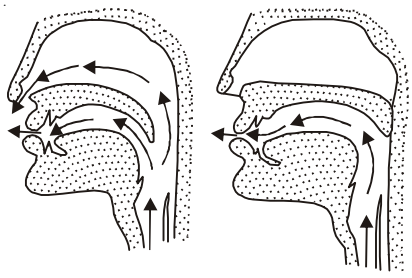
zip, sip

thigh, thy

gap, cap

cheap, jeep

Oral vs. Nasal Cavities



Nasal articulation

Oral articulation

Notes

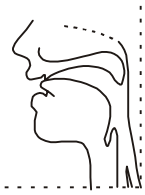
Place of Articulation

Labial

b, p, m

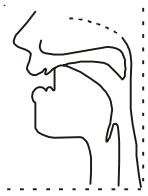
Labio-dental

f,v



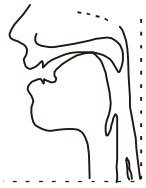
Interdental

θ, ð



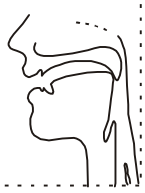
Alveolar

d, t, s, z, n



Velar

g, k, ŋ



Uvular

Notes

There are also alveopalatal and palatal sounds in English, for which I don't have figures. The two articulatory points associated to these sounds are between the alveolar ridge and the velum.

Manner of Articulation

How is the air stream modified by the vocal tract to produce the sound?

Stops: Sounds that are stopped completely in the oral cavity for a brief period of time.

Fricatives: If the airstream is not completely stopped because of a narrow passage in the oral cavity that causes friction and turbulance.

Affricates: a stop closure + slow release (fricative)

Liquids: some obstruction formed by the articulators, but not narrow enough to cause any real constriction.

Glides: slight closure of the articulators, they are almost like vowels. Therefore, they are often called semi-vowels.

Consonants Vs Vowels

- Consonants are produced with some closure or restriction in the vocal tract as the airstream is pushed through the glottis out of the mouth.
- When vowels are produced, there is nothing in the vocal tract that narrows the passage such that it would obstruct the free flow of the airstream. That is, vowels are produced without any articulators touching or even coming close together.
- Vowels are the most audible, SONORANT (or intense) sounds in speech.
- Vocal fold vibration is the sound source for vowels. Therefore, all vowels are, almost always, VOICED.
- Unlike consonants, there is neither place of constriction or closure (place of articulation), nor a specific manner of articulation.
- The shape of the vocal tract determines the quality of the vowel. There are several ways in which we can change the shape of the vocal tract:

Notes

1. raising or lowering the body of the tongue
2. pushing the tongue forward or pulling it back
3. rounding the lips

Figure 11.1 Tongue position for [i]

Figure 11.2 Tongue position for [æ]

Figure 11.3 Tongue position for [u]

We can classify vowels by answering the following questions:

1. How high is the tongue?
   HIGH , MID , LOW
2. Is the tongue advanced or retracted?
   FRONT , CENTRAL , BACK
3. Are the lips rounded?
   ROUNDED, UNROUNDED
4. Is the tongue tense?
   TENSE, LAX
   - Compare the vowels in 'beat' and 'bit', or 'bait' and 'bet'.
   - TENSE vowels ([i], [u], [e], [o]) are produced with greater tension of the tongue muscles than their LAX counterparts (all others). TENSE vowels are phonetically longer than LAX vowels.

11.3 Monopthongs and Diphthongs Glides

The Monophthongs: As explained in the chart of vowel sounds above, there are twelve monophthongs. Monophthongs can be divided into three categories depending upon the different placement of tongue in the mouth. They are-front vowels, back vowels and central vowels.

Notes

Front Vowels, /i:, l, e, æ/: The defining characteristics of a front vowel is that the tongue is positioned as far in front as possible in the mouth without creating a constriction that would be classified as a consonant. Front vowels are sometimes also called bright vowels because they are perceived as sounding brighter than the back vowels. The different front vowels are:

1. /i:/ (the phoneme spelled ee in beet): high front vowel, also called close unrounded vowel. It appears in both accented and unaccented positions. Examples of accented /i:/ are: bel'icve, 'seizure, etc. and examples of unaccented /i:/ are: decrease, secrete, etc.
2. /l/ (the phoneme is spelled i in bit): high front vowel. this vowel is articulated slightly further back and slightly lower than the preceding vowel /i/. It is also called centralised front half-close unrounded vowel. This vowel sound also appears in both accented and unaccented positions. Examples for accented /l/ are: for 'bid. 'dimple, 'sister, etc. and examples of unaccented /i/ are: engine, folly, etc.
3. /e/ (the phoneme is spelled e in bet): mid front vowel. This vowel is articulated slightly further back and slightly lower than the preceding vowel /l/. This vowel is also seen as front unrounded vowel between half-close and half-open. This vowel sound, usually, appears in accented position in words like, 'celebrate, 'definite, etc., but sometimes it can also be used in unaccented position in words like, insect, inquest, etc.
4. /æ/ (the phoneme is spelled a in bat): low front vowel. this vowel is also described as front unrounded vowel between the half-open and half-closed positions. It appears in both accounted and unaccented positions. Examples for accented /æ/ are: 'absent, 'calendar, 'camphor, etc. and examples for unaccented /æ/ are: canteen, stampede, etc.


Notes

A monophthong is a "pure" vowel sound, one whose articulation at both beginning and end is relatively fixed, and which does not glide up or down towards a new position of articulation. Whereas a diphthong is a contour vowel—that is, a unitary vowel that changes quality during its pronunciation, or "glides", with a smooth movement of the tongue from one articulation to another, as in the English words eye, boy, and cow.

Back Vowels, /a:, *ɤ*, ɔ, ɤ, u:/: The defining characteristic of a back vowel is that the tongue is positioned as far back as possible in the mouth wirhout ceating a constriction that would be classified as a consonant. Back vowels are sometimes also called dark vowels because they are perceived as sounding darker than the front vowels.

1. /a:/ (the phoneme is spelled a in arm): low back vowel. This vowel sound is produced when central back part of tongue is lowered, and air comes out. It is called back open unrounded vowel. /a:/ sound usually appears in accented positions like 'car, 'bar, etc.
2. /*a*/ (the phoneme spelled o in cot): mid back vowel. It is articulated at a bit higher position than /a:/. This vowel is then described as a back rounded vowel just above the open position. It also, usually, appears in accented syllables.
3. /ɔ/: (the phoneme spelled au in caught): mid back vowel. This vowel is articulated slighter further forward and slightly lower than is the preceding vowel /o/. It is described as a back rounded vowel between half-open and half-close. It mostly appears in accented syllables, e.g. 'crawl, 'yawn, etc.
4. /*ɤ*/: (the phoneme spelled u in put): high back vowel. This vowel is articulated slightly further forward and slightly lower than is the preceding vowel /u/. It is a centralised back rounded vowel just above half-close. This vowel sound appears in both accented and unaccented positions. Examples of accented /ɤ/ are: 'woman, 'sugar, 'bullock, etc. and examples of unaccented /ʊ/ are: manhood, fulfill, careful, etc.

Notes

5. /u:/ (the phoneme spelled oo in food): high back vowel. It also called a back close rounded vowel. It appears in both accented and unaccented positions. Examples of accented /u:/ are: 'beautiful, 'foolish, 'frugal, etc. and the examples of unaccented /u:/ are: value, tuition, etc.

Central vowels, /ʌ, ɜ:, ə/: The defining characteristic of a central vowel is that the tongue is positioned halfway between a front vowel and a back vowel.

1. /ʌ/ (the phoneme spelled u in but): mid central vowel. It is articulated with help of raised central part of the tongue. Also described as central unrounded vowel between open and half-open. It appears usually in accented syllables, but sometimes also appears in unaccounted syallbles. Examples of accented are: 'butter, e'nough, etc. examples of unaccented are: hiccup, cucumber, etc.
2. /ɵ/ (this sound is also called schwa): In linguistics, specifically phonetics and phonology, schwa (sometimes spelled shwa can mean the following:
   (*i*) An unstressed and toneless neutral vowel sound in some languages, often but not necessarily a mid-central vowel. Such vowels are often transcribed with the symbol 'ə', regardless of their actual phonetic value.
   (*ii*) The mid-central vowel sound (rounded or unrounded) in the middle of the vowel chart, stressed or unstressed. In IPA phonetic transcription, it is written as /ə/. In this case the term mid-central vowel may be used instead of schwa to avoid ambiguity.
3. /ɜ:/ (the phoneme is spelled as ea in early): To articulate this sound the centre of the tongue is raised between half-open and half-closed position. This sound is also described as a central unrounded vowel between half-close and half-open. /ɜ:/ appears mostly in accented positions as well but sometimes in accened positions as well. Examples of accented /ɜ:/ are: 'burden', 'certain', etc. and examples of unaccented /ɜ:/ are: commerce, foreword, etc.

   /ə/ is also called central unrounded short vowel. This vowel sound appears only in unaccented position. For examples, account, achieve, etc.

The Diphthongs of English

A diphthong is a speech sound in which the articulatory mechanism moves continuously from an initial vowel position to a final vowel position. In other words it is contour vowel–that is, a unitary vowel that changes quality during its pronunciation, or "glides", with a smooth movement of the tongue from one articulation to another, as in the English words eye, boy, and cow. This contrasts with "pure" vowels, or monophthong, where the tongue is held still.

In English there are total eight diphthongs, which can be classified in three categories according to the tongue glide.

(*i*) In diphthongs /cI, aI, ɔI/ the tongue glides towards /I/. These are called closing diphthongs.

(*ii*) In diphthongs /ɘʊ, aʊ/ the tongue glide towards /ʊ/. These diphthongs are also called closing diphthongs.

(*iii*) In diphthongs /Iə, æ, ʊə/ tongue glide towards /ə/. These diphthongs are called centering dipthongs.

Closing Diphthongs Gliding to /l/

(*i*) /el/ (this diphthong is spelled as a in gate): For the production of this diphthong the glide of tongue starts from just below the front of the tongue and moves toward /I/. /eI/ appears in both accented and unaccented syllables. Examples of accented /el/ are: di'splay, 'neighbour, etc. And examples of unaccented /eI/ are: survey, hesitate, etc.

Notes

(*ii*) /aI/ (this diphthong is spelled as i in bite): This diphthong sound is produced when the tongue glides towards /I/ from somewhere near the front-open position. /aI/ also like /eI/ appears in both accented and unaccented syllables. Examples of accented /aI/ are: ‘either, ‘trial, etc. And examples of unaccented /aI/ are: idea, qualify, etc.

(*iii*) /ˈɔI/ (It is spelled as oy in boy): For the production of this sound it is necessary for the lips to be open-rounded and back of the tongue should glide between open and open-rounded positions. Usually /ˈɔI/ appears in accented syllables in words like an‘nony, ‘oyster, etc. but sometimes it may appear in unaccented syllables as well, for example, employee, exploit, etc.

Closing Diphthongs Gliding to /u/

(*i*) /ˈəʊ/ (this diphthong is spelled as oa in *boat*): During the production of this diphthong, the tongue moves in between half-close and half-open and glides towards /ʊ/. /ˈəʊ/ appears in both accented and unaccented syllables. Examples for accent /ˈəʊ/ are: be‘low, cor‘rode, etc. And examples for unaccented /ˈəʊ/ are: donate, fellow, etc.

(*ii*) /aʊ/ (this is spelled as ow in cow): During the production of this sound tongue glides towards /ʊ/ from between back and central-open positions. Usually /aʊ/ appears in accented syllables in words like a‘round, ‘boundary, etc. But vry rarely it may appear in unaccented syllables in words like anyhow, eyebrow, etc.

Centering Diphthongs of English (R.P)

(*i*) /Iə/ (spelled as ea in tear): For the production of this diphthong the glide of tongue starts from /I/ and moves toward /ˈə/. /Iə/ appears in accented syllables in words like ‘theatre, ‘theorem, etc. It also appears in unaccented syllables in words like curious, impious, etc.

(*ii*) /eə/ (spelled as ea in bear): In the production of this sound the tongue glides towards /ˈə/ from the front between the half-close and half-open. /eə/ too appears in both accented and unaccented syllables. Examples of accented /eə/ are: de‘clare, re‘pair, etc. And examples of unaccented /eə/ are: hardware, fanfare, etc.

(*iii*) /ʊə/ (this sound is spelled as ou in tour): During the production of this sound, tongue glides from the position of /ʊ/ and moves towards /ˈə/. /ʊə/ also appears in both accented and unaccented syllables. Examples of accented /ʊə/ are: ‘furious, ‘rural, etc. And examples of unaccented /ʊə/ are influence, manual, etc.

Self-Assessment

1. Transcription of words:

   You should now be able to recognise all the vowels, diphthongs and triphthongs of English, and all the plosives. In the next exercise you will hear one-syllable English words composed of these sounds. Each word will be said twice. You must transcribe these words using the phonemic symbols that you have learned in the first three chapters. When you hear the word, write it with phonemic symbols. (1–20).

11.4 Summary

- The term “allophone” was coined by Benjamin Lee Whorf in the 1940s. In doing so, he placed a cornerstone in consolidating early phoneme theory. The term was popularized by G. L. Trager and Bernard Bloch in a 1941 paper on English phonology and went on to become part of standard usage within the American structuralist tradition.
- A tonic allophone is sometimes called an **allotone,** for example in the neutral tone of Mandarin. **Examples in English vs. other languages**
- Since phonemes are abstractions of speech sounds, not the sounds themselves, they have no direct phonetic transcription. When they are realized without much allophonic variation, a

Notes

simple (i.e. 'broad') transcription is used. However, when there are complementary allophones of a phoneme, so that the allophony is significant, things become more complicated. Often, if only one of the allophones is simple to transcribe, in the sense of not requiring diacritics, then that representation is chosen for the phoneme.

- An **allophonic rule** is a phonological rule that indicates which allophone realizes a phoneme in a given phonemic environment. In other words, an allophonic rule is a rule that converts the phonemes in a phonemic transcription into the allophones of the corresponding phonetic transcription. Every language has a set of allophonic rules.
- A class of speech sounds that are identified by a native speaker as the same sound is called a *phoneme*. The different phonetic realizations of a phoneme are called *allophones*.
- Thus [p^h] and [p] are the allophones of the same phoneme in English; Whereas in Hindi, [p^h] and [p] are different phonemes.

11.5 Key-Words

1. Monophthongs : They are front vowels, back vowels and central vowels.
2. Diphthong : It is a speech sound in which the articulatery mechanism moves continuously from an initial vowel position to a final vowel position.

11.6 Review Questions

1. What are Diphthongs? Discribe their articulation in different classifications.
2. Define Monophthongs.
3. Discuss the concept of Allophones.

Answers: Self-Assessment

1. (*i*) geIt 'gate' (*ii*) kˈəʊt '' (*iii*) bIt 'bit'
   (*iv*) taIˈəd 'tired' (*v*) biːt 'beat' (*vi*) pˈəʊk 'poke'
   (*vii*) kaːt 'cart' (*viii*) kˈɔːt 'caught' (*ix*) paʊˈə 'power'
   (*x*) kˈɔːd 'cord' (*xi*) gæp 'gap' (*xii*) bIəd 'beard'
   (*xiii*) kaː 'car' (*xiv*) peId 'paid' (*xv*) gˈʌt 'gut'
   (*xvi*) daʊt 'doubt' (*xvii*) tˈəʊd 'toad' (*xviii*) duː 'do'
   (*xix*) peˈə 'pair' (*xx*) dek 'deck'

11.7 Further Readings

1. Verma, S.K., V.N. Krishnaswamy. Modern Linguistics: An Introduction.
2. An Introduction to Linguistics, John Lyon.
3. Peter Roach: English phonetics and phonology. Cambridge University Press.
4. Encyclopedia of Linguistic Science Edited By V. Prakasam, Allied Pub., New Delhi.

Gowher Ahmad Naik, Lovely Professional University

Notes

Unit 12: Transcription of English Speech Sounds: From Words to Sentences, Syllables: Monosyllabic, Bi-syllabic and Stress in English

CONTENTS

Objectives

After studying this Unit students will be able to:

- Understand the English Speech Sound.
- Explain the Definitions, Structure, Parts, Phonotactics, Syllable Division and Classification.

Introduction

One of the major hurdles that people face in the pronunciation of English words are that they try to pronounce words as they are spelled, i.e., the correspondence between the spellings and pronunciation. For example, 'cough', 'through' and 'bough', all these words use the 'ough', but their pronunciations are different. In order to overcome this problem International Phonetic Association introduced International Phonetic Alphabet (IPA) to describe the sounds and their pronunciation. The association claims that these sound symbols can be used for any language in the world.

12.1 Transcription

Roach (2000: 41) states that transcription is a number of symbols of several different sorts. As a matter of fact. English transcription is of two kinds:

1. **Phonemic Transcription**

   It is the kind of transcription" where every speech sound must be identified as one of the phonemes and written with the appropriate symbol.".

Notes

2. Phonetic Transcription

A phonetic transcription "containing a lot of information about the exact quality of the sounds would be called a narrow phonetic transcription, while the one which only include a little more information than a phonemic transcription would be called a broad phonetic transcription ".

12.2 Phonetic Transcription

Phonetic transcription (or phonetic notation) is the visual system of symbolisation of the sounds occurring in spoken human language. The most common type of phonetic transcription uses a phonetic alphabet (such as the International Phonetic Alphabet). Phonetic transcription becomes important, because the spelling of a word does not tell us how you should pronounce it. Consider two words, call and cell both the word begin with c but their pronunciations are different. In word call 'c' is pronounced as /k/ and in word cell 'c' is pronounced as /s/. Phonetic transcription is based on the principle of one sound-one symbol i.e., one symbol will always represent one sound.

Phonetic transcription may aim to transcribe the phonology of a language, or it may wish to go further and specify the precise phonetic realisation. In all systems of transcription we may therefore distinguish between broad transcription and narrow transcription. Broad transcription indicates, only the more noticeable phonetic features of an utterance, whereas narrow transcription encodes more information about the phonetic variations of the specific allophones in the utterance. The difference between broad and narrow is a continuum. One particular form of a broad transcription is a phonemic transcription, which disregards all allophonic difference, and, as the name implies, is not really a phonetic transcription at all, but a representation of phonemic structure.

Phonetic transcription can be simply defined as the representation of the alphabet of any language in the word into the special language sound symbols, as one given by the International Phonetic Association, which is known as International Phonetic Alphabet. The English word 'call' when transcribed into phonetic alphabet will look like /cɔ:l/ and 'cell' will look like /sel/. We can see from the above examples that the letter 'c' can be pronounced in two different ways, which can be very well distinguished by the phonetic transcription of the words. In English there isn't any relationship between the spellings and the pronunciation of the word. There are various instances when one letter is pronounced differently in different words. Therefore, the concept of phonetic transcription can avoid lot of confusion and make this entire deal of pronunciation simple. Phonetic transcription is based on the principle of one sound, one symbol.

Phonetic transcription can be of many types, but the widely used are phonemic or broad phonetic transcription and allophonic or narrow phonetic transcription.

Initial Two Consonant Clusters

With reference to initial consonant clusters, Roach (2000: 71) refers to the cluster of two categories in English, e.g. 'smoke' /sm ∂ uk/. The **s** is called the pre-initial consonant and the **m** is called the initial consonant (see table 12.1.)

Table 12.1

Two Consonant Clusters with Pre-initial s

Pre-Initial	Initial																
s plus	p	t	k	b	d	g	f	θ	s	ʃ	H	V	∂	z	3	m	n	ŋ
	spIm	stIk	sklm	–	–	–	sfl ∂	–	–	–	–	–	–	–	–	smel	sn ∂ ʊ	–

(Taken from Roach, 2000: 72)

The other sort begins with one of a set of about fifteen consonants, followed by one of the set l, r, w, j, the first consonant of these clusters is called the initial consonant and the second is the post-initial e.g., 'play' /pleɪ/, 'try' /traɪ/, 'quick' /kwik/, 'few' /fju:/, (lbid.: 73).

Notes

12.3 Phonotactics

Looking at syllables from the phonological point of view, i.e., "the possible combinations of English phonemes of a language are called phonotactics".

Fromkin and Rodman (1988: 83) indicate that "speakers know more about the phonological system of their language". While Carr (1993: 193) stresses that "the phonotactics of a language... are enforced by the phonological rules". It is generally agreed that the syllable is a central unit in phonotactic description. "In describing the phonotactics (pattering of phonemes) of English syllables, linguists focus on absolute restrictions concerning which phonemes may occupy which slots of the syllable".

Consonant Cluster

With respect to the definition of the term 'consonant cluster', Roach (2000, 71) defines that "a consonant cluster is a combination of two or more consonants without the interference of a vowel". Consonant clusters in English fall into different categories. They are:

Initial Three Consonant Clusters

This type of initial cluster usually begins with **s** e.g. 'split, 'stream' /stri:m/, 'square' /skweə/. The **s** is the pre-initial consonant, the p, t, k, follow **s** in the three words are the initial consonants, and the I, r, w are post -initials as shown in table 2:

Final Three Consonant Clusters

As far as final three consonant clusters are concerned, there are two types as illustrated in the tables 3,4 and 5.

12.4 The Syllable: Definitions

In its broadest sense, the term 'syllable' is looked at from the phonetic and phonological point of view. In his turn, Crystal defines the syllable as: "A unit of pronunciation typically larger than a single sound and smaller than a word."

"It should be born in mind that the syllable is found in languages all over the world and can be put into units, i.e., syllables. Humans seem to need syllables as a "way of segmenting the stream of speech...".

To recapitulate, two different approaches are used in dealing with the syllable, i.e., the phonetic approach and the phonological approach.

The first and for the while the most popular, phonetic definition of the syllable was given by "Stetson (1928) who argued that each syllable corresponds to an increase in air pressure... the pulse or motor theory of syllable production". A number of phoneticians like among others, look at the syllable from articulatory, acoustic and auditory points of view) i.e., the phonetic approach. Abercrombie (1967: 39) points out that:

> **The basis of the syllable is a sudden brief contraction of the respiratory muscles and this construction expels a small amount of air from the lungs. This air so expelled needs for its escape to the outer air a relatively free and unrestricted passage through the vocal tract, and it is this movement of lead restriction in the sequence of movements that makes up the syllable.**

Gimson (1989: 52) takes the same view when he states that the syllable is a "Unit that is defined by counting peaks of activity of the breathing muscles". Viewing the 'syllable' acoustically, O'Connor & Arnold (1973: 200) mention that "the highly inter-related acoustic activity within short stretches of syllable length..." The syllable is also defined auditorily. Jones (1972: 134), for instance, explains that "in every word made up from more than a single sound; at least one of the sounds is heard to be more

Notes

'prominent' than the other(s). If there is only one such 'prominent' sound, the sequence is said to consist of a single syllable". Schane (1973, 9) argues that "the vowels... are more capable of being heard than consonants...".

1. On the other hand, discuss the syllable from the phonological point of view. In this respect, Crystal (2003: 374) observes that **"the** phonological approach the of Hyman (1975: 188) illustrates that "the most discussed suprasegmental features is the syllable". Katambas' (1989: 153) words are worth quoting where he believes that "The syllable is at the heart of the phonological representation. It is the unit in terms of which phonological systems are organized".

Some writers believe that there is still no sufficient or adequate definition to the term 'syllable'. In this regard, Abercrombie (1976: 34) expresses that "It is believed that a syllable is unit which can be apprehended but cannot be easily defined".

12.4.1 The Structure of the English Syllable

It is worth noting that in a particular language, or in languages generally, the requirements and constraints which determine the shapes of possible syllables, usually formulated in terms of sequences of consonants and vowels, and also in terms of onset plus rhyme, or onset plus nucleus plus coda (Trask, 1996: 346). In this regard, Kreidler (2003: 74) asserts that when discussing syllables, two kinds of facts are important:

1. the structure of the syllable, and
2. the relative prominence of the syllable.

Every syllable has a structure that can be divided into two parts. Consider the following figure which diagrammatically illustrates the division:

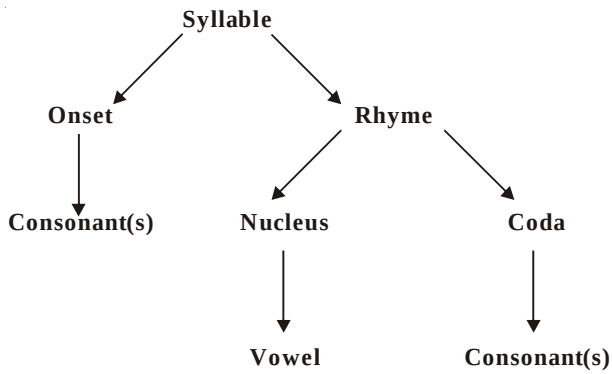


Figure 12.2: Typical Syllable Structure

It is significant to point out that not all syllables have all these parts; the smallest syllable may contain a nucleus only. Simply, onset means the beginning sound(s) of the syllable; the one(s) preceding the nucleus. These are always consonants in English (Roca & Johnson, 2000: 239).

The term 'Rhyme' consists of "the vowel that is treated as the nucleus, as well as any following consonant(s) treated as the coda" (Hogg & McCully, 1989: 369). The essential part of the syllable is called 'the nucleus'. The term 'peak' is used interchangeably (Kreidler, 2003: 74). Similarly, Rogers (2000: 88) points out that "the vowel is a syllable, and any following semivowel, is regarded as the nucleus or center of the syllable. Coda is the closing segment of a syllable.

12.5 Syllable Structure Analysis

The internal structure of a simple syllable, for example: 'read' is analysed phonologically as follows:

read: one syllable

onset: [r]

Notes

rhyme: [i:d] (within the rhyme)

nucleus: [i:]

coda: [d]

If the word contains more than one syllable, e.g. 'window', it is analysed phonologically as shown below:

window: two syllables

first syllable: [win]

rhyme: [in]

nucleus: [i]

coda: [n]

second syllable: [dow]

onset: [d]

rhyme: [ow]

nucleus: [əu]

(This syllable has no coda) (Rubba, 2000: 2)

A syllable may not have a vowel in special cases as when syllabic consonants are used, for example, (l̩, m̩, n̩, ŋ̩, r̩,) To exemplify, the word 'middle' is made up of two syllables though it has only one vowel and pronounced with a final syllabic consonant [mid ɻ] (Brandford, 1967: 32). Rogers (2000: 88-9) states that syllables with an empty coda are called 'open syllables' e. g. tree /tri:/; while those with final coda are called 'closed syllables' e. g. sweet /swi:t/ (Yule, 1998: 57). Thus, the basic syllable structure is as follows:

Consonant(s) Vowel consonant(s) or in short: CVC

(Thornborrow and Wareing, 1998: 26).

In every language there are restrictions on the sequences of phonemes that are used, and studying the syllables of the language helps to analyse what the restrictions and regularities are in a particular language. For example, no English word begins with the consonant sequence zbf or ends with the sequence ah. (lbid.: 45).

It is necessary to have a look at the following maximum phonological structure as seen below:

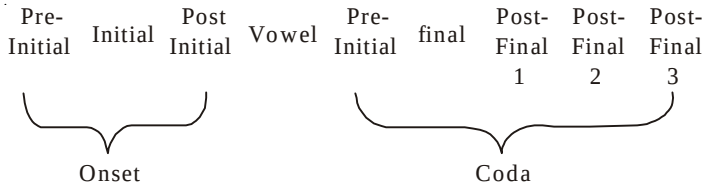


Figure 12.3: The Maximum Phonological Structure of the syllable

Taken from Roach (2000: 76)

12.6 Syllable Division

On syllable division, Kreidler (2003:84-6) stresses the fact that the English language has stress timing, i.e., certain syllables are louder and longer; others are softer and shorter and usually have a reduced vowel. It is easy to indicate and clarify the beginning of the strong syllable, but it is too difficult to tell where a weak syllable begins unless it is an initial syllable. It is possible to get information about how a written word should be syllabified from a dictionary, the dictionary indicates syllable division according to certain conversation that are based on two principles (1) recognition of certain prefixes and suffixes which are not divided (mis. treat, un.able, free, dom, work, ing), and (2) different treatment according to whether the vowel letter A, E, I (or Y), if the vowel is 'long', it ends with a syllable and

Notes

the next letter goes in the following syllable, but if the vowel is 'short' the next letter goes with a preceding vowel letter. Thus as in writing:

ra. dical. Sa.vor	but rad. ic. al
le. gal, me. di. um but	leg. a. cy, med.i.cine
fi. nal, ri. val	but fin. ish, riv. er
co. pi. ous, so. lo	but op.er.a, sol.id
pu. ny, stu. di. ous	but punish, stud. y

Generally speaking, the rules for syllabifying spoken English words are:

1. If two vowels occur in a sequence, the syllable break is between the vowel (v,v): ne. on, cha. os, cru.el (ty), bi.o (logy), re.a(lity).
2. If one consonant occurs between vowels and the second is strong, the consonant is part of the second syllable whether the second vowel is stressed or not. e.g, re'.pent, va' ca (tion).
3. If two vowels are separated by a consonant cluster, syllable division depends on the consonant in the cluster. If the cluster is of the type (sc-, cr-, cl- , cw-, scr-, etc.) that can occur word initially and followed by a vowel which is strong, the whole cluster is part of the syllable with the strong vowel: pa. tri (cia), de. 'c'line, re. 'q'uire, s'u. 'spect etc.
4. The consonants are divided in such a way that the second syllable begins with a single consonant or cluster that can occur initially if the consonant cluster is one that cannot occur in initial position e.g. can. dy.lat, shel. ter, a. car. pen. ter (lbid.).

12.7 Classification of the English Syllable

The classification of the English syllable has been acknowledged in a large number of linguistic and phonetic studies. Thus, syllables are categorizedi in terms of three criteria: quality (strong and weak), number (monosyllabic, disyllabic and polysyllabic) and complexity (complex and simple).

Strong (Heavy) and Weak (Light) Syllables

Laver (1994:517) distinguishes between heavy syllables and light syllables saying that a light syllable is one whose rhyme is made up of a nucleus consisting of a short vowel, followed by a maximum of one short consonant. A heavy syllable is any other type of syllable, and its phonological length is greater than mora".

Another important fact is that strong syllables are stressed while weak syllables are unstressed; any strong syllable has in its peak one of vowel phonemes (or triphthong). If the vowel is short, the strong syllable will have a coda (Roach, 2000:81). Heavy syllables always have more quantity than light ones (Ohsieck, 1978:35).

Weak syllables, on the other hand, can only have one of a very small number of possible peaks (lbid.).

Kreidler (2003:81) points out that the strong unstressed syllables are similar to stressed ones in certain ways:

1. Strong syllables never contain a schwa.
2. The onset of a strong medial syllable is much clearer than the onset of weak medial syllable.
3. Voiceless stops at the onset of the strong unstressed syllables are aspirated just as they are at the onset stressed syllables.
4. A strong syllable is a stressed syllable.

A weak syllable, on the other hand, is potentially an accented syllable. Roach (2000:82-6) identifies the different types of weak syllables as follows:

1. The vowel (∂) schwa.
2. A close front rounded vowel, i.e., in the general area between /i:/ and /i/.
3. A close back rounded vowel i.e, in the general area between /u:/ and /u/.
4. A syllabic consonant e.g., [$n_{,}$] and [$l_{,}$] etc.

Notes

12.7.1 Monosyllabic, Disyllabic and Polysyllabic

Trask (1996: 226) defines monosyllabic as "A word consisting of a single syllable e.g. cat, dog, is, try, black, when, strength." While the longest complex monosyllabic English words are: scratched, stretched, scrunched, straights, strengths (the Free Encyclopedia, 2005: a lnt.). In one syllable lexical word, the primary stress is actually unmarked because it is predictable (Tathem, 1998:1). Disyllabic is a word consisting of two syllables e.g. money, delay, trouble, happy, believe, teacher etc. Polysyllabic is a word consisting of three or more syllables, e.g.:

generous /gen ə r ə s/

ambassador / ə mbas ə d/

opportunity /op ə tjumn ə ti/

particular / p ə tikj ə l ə /

Roach (2000).

12.7.2 Simple and Complex Syllables

Syllables are classified in terms of complexity. Singh and Singh (1977:170) differentiate between a simple syllable and a complex one saying that a simple syllable is "one with a vowel or vowel accompanied by a single consonant or a vowel preceded and followed by a single consonant. All other syllable types are called complex syllables i.e., one with consonant clusters in the onset and/ or the coda" the symbol 'c' is used to refer to consonant whereas the symbol 'V' stands for a vowel e.g. see/si:/, the letter s is represented by the symbol 'C' and the double letter ee are represented by the symbol 'V' (Stetson , 2003:1).

The following table illustrates the distinction between simple and complex syllables by Singh and Singh (1979: 38)

Table 12.4

Simple and Complex Syllables

	Syllable type	**example**
Simple	V	a/ ə /or/o:
	CV	the / ð ə , ð e/
	VC	it /it/
	CVC	sit /sit/
Complex	CCV	tree /tri:/
	VCC	east /i:st/
	CCVC	stood /stud/
	CCCVC	street /stri:t/
	CCCVCC	streets /stri:ts/
	CCCVCCC	strength /streŋkθ/
	CVCC	sips /sips/
	CCVCC	treats /tri:ts/
	CVCCC	depths /depθs/
	CCCV	screw /skru:/
	VCCC	asks /a:sks/

Notes

Roach (200:20-1) argues that: simple syllables are of the following categories:

1. A minimum syllable would be a single vowel in isolation, e.g. the words 'are' (strong form) a::, 'or' o: , 'err' 3: these are preceded and followed by silence. Isolated sounds such as m, which is some times produced to indicate agreement, or ʃ to ask for silence, must also be regarded as syllables.
2. Some syllables have an onset (i.e., they have more than just silence preceding the centre of the syllable (CV) e.g.:

   'bar' ba: 'key' ki: 'more' mo:.
3. Syllables may have no onset but have a coda (VC) e.g.: ' æ m' am 'ought' o:t 'ease' i:z.
4. Some syllables have onset and coda (CVC) e. g.: 'rn' r ʌ n 'sat' 'fill' fil(lbid.).

Cox, Harrington and Mannel (2000: 6) affirm that the open syllable has the structure CV as in 'die' /dai/. On the other hand, closed syllables are those which end with the 'coda', the most common closed syllable has the structure (CVC) as in 'died' /daid/.

The different structures of the open and closed syllables are:

A- Open Syllables:

V	I	/ai/
CV	tea	/ti:/
CCV	spy	/spai/
CCCV	spray	/sprei/

B-Closed Syllables:

VC	am	/æm /
VCC	ant	/ænt/
VCCC	ants	/ænts/
VCCCC	pre-empts	/primpts/
CVC	man	/mæn/
CVCC	band	/bænd/
CVCCC	bands	/b æ ndz/
CVCCCC	sixths	/siks θ s/
CCVC	brag	/bræg/
CCVCC	brags	/bragz/
CCVCCC	plants	/plænts/
CCCVC	spring	/spring/
CCCVCC	springs	/springz/
CCCVCCC	splints	/splints/
CCCVCCCC	strengths	/streryk θ s/

(lbid.)

Two-syllable Words

In the case of simple two-syllable words, either the first or the second syllable will be stressed-not both. There is a general tendency for verbs to be stressed nearer the end of a word and for nouns to be stressed nearer the beginning. We will look first at verbs. If the final syllable is weak, then the first syllable is stressed. Thus:

'enter'	'entə'	'open'	'əupən
'envy'	'envi	'equal'	'i:kwəl

Notes

A final syllable is also unstressed if it contains əʊ (e.g. 'follow 'fɒləʊ' 'borrow' 'bɒrəʊ).

If the final syllable is strong, then that syllable is stressed even if the first syllable is also strong. Thus:

'apply' əplaI	'attract' ə'trækt	'rotate' rəʊ'teIt
'arrive' ə'raIv	'assist' ə'sIst	'maintain' meIn'teIn

Two-syllable simple adjectives are stressed according to the same rule, giving:

'lovely' 'lʌvli	'divine' dI'vaIn
'even' i:vən	'correct' kə'rekt
'hollow' 'hɒləʊ	'alive' ə'laIv

As with most stress rules, there are exceptions; for example: 'honest' 'ɒnIsl, 'perfect' 'p3:fIkt, both of which end with strong syllables but are stressed on the first syllable.

Nouns requires a different rule: stress will fall on the first syllable unless the first syllable is weak and the second syllable is strong. Thus:

'money' 'mʌni	'divan' dI'væn
'product' prɒdʌkt	'balloon' bə'lu:n
'larynx' 'lærIŋks	'design' dI'zaIn

Other two-syllable words such as adverb seem to behave like verbs and adjectives.

Three-syllable Words

Here we find a more complicated picture. One problem is the difficulty of indentifying three-syllable words which are indisputably simple. In simple verbs, if the final syllable is strong, then it will receive primary stress. Thus:

'entertain' 'entəteIn	'resurrect' 'rezə'rekt

If the last syllable is weak then it will be unstressed, and stress will be placed on preceding (penultimate) syllable if that syllable is strong. Thus:

'encounter' Iŋkaʊntə	'determine' dI't3:mIn

If both the second and third syllables are weak, then the stress falls on the initial syllable:

'Parody' pærədi	'monitor' 'mɒnItə

Nouns require a slightly different rule. The general tendency is for stress to fall on the first syllable unless it is weak. Thus:

'quantity' 'kwɒntəti	'emperor' 'empərə
'custody' 'kʌstədi	'enmity' 'enməti

However, in words with a weak first syllable the stress comes on the next syllable:

'mimosa' mI'məʊzə	'disaster' dI'zɒ:stə
'potato' pɒ'teItəʊ	'synopsis' sI'nɒpsIs

When a three-syllable noun has a strong final syllable, that syllable will not usually receive the main stress:

'intellect' 'Intəlket	'marigold' 'mærIgəʊld
'alkali' ælkəlaI	'stalactile' 'stæləktaIt

Adjectives seem to need the same rule, to produce stress patterns such as:

'opportune' 'ɒpətju:n	'insolent' 'Insələnt
'derelict' 'derəlIkt	'anthropoid' 'ænθrəpɔId

The above rules certainly do not cover all English words. They apply only to major categories of lexical words (nouns, verbs and adjectives in this chapter), not to function words such as articles and prepositions. There is not enough space in this course to deal with simple words of more than three

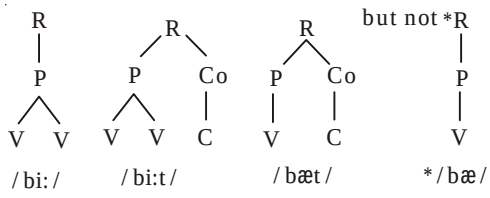
Notes

syllables, nor with special cases of loan words (words brought into the language from other languages comparatively recently). Other words–which we will look at in studying connected speech–change their stress pattern according to the context they occur in. Above all, there is not space to discuss the many exceptions to the above rules. Despite the exceptions, it seems better to attempt to produce some stress rules (even if they are rather crude and inaccurate) than to claim that there is no rule or regularity in English word stress.

English Strong-Syllable Rhymes

English has certain limitations on the form of strong syllables – they can be **open** only if they contain a long vowel or a diphthong, and only a **closed** strong syllable may have a short vowel. In other words, long vowels and diphthongs can occur in both open (*sue* / su:/, *bay* /beɪ/) and closed (*beam* /bi: m/, *eight* /eɪt/) strong syllables, whereas short vowels only occur in closed ones (*cat* /kæt/, ill /ɪl/).

As we saw in the section on **syllable structure,** a syllable ending in VC has a branching Rhyme with a non-branching Peak and Coda; and VV is a branching Peak, while VVC is a branching Rhyme with a branching Peak and a non-branching Coda. We can now consider the permissible Rhyme structures of English strong syllables:



The phonotactic restriction can be defined this way: the Rhyme of a strong syllable must branch, OR contain at least one branching constituent. (Lass, 1984: 254—255)

Division of Syllables

So far we have been using monosyllabic words as examples. But when a string of syllables is concerned, how do we decide what is the Coda of one and the Onset of the next? The question of syllabification, the division of a word into syllables, is quite controversial and there are several approaches to it.

The two most important and widely used pronunciation dictionaries of the English language, the *English Pronouncing Dictionary* (EPD) and the *Longman Pronunciation Dictionary* (LPD), employ different principles of syllabification, which we shall quote in turn, and then briefly mention another, more abstract, approach to syllable division.

Syllabification in EPD, Maximal Onsets Principle

In the introduction to EPD syllable divisions are explained as follows:

A dot is used to divide syllables, in accordance with the current recommendations of the **International Phonetic Association.** (...) However, this is not used where a stress mark or occurs, as these are effectively also syllable division markers. (...)

1. As far as possible, syllables should not be divided in a way that violates what is known of English syllable structure. The 'Maximal Onsets Principle', which is widely recognised in contemporary phonology, is followed as far as possible. This means that, where possible, syllables should be divided in such a way that as many consonants as possible are assigned to the beginning of the syllable to the right (if one thinks in terms of how they are written in transcription), rather than to the end of the syllable to the left. However, when this would result in a syllable ending with a stressed /ɪ/, /e/, /æ/, /ʌ/, /ɐ/ or /ʃ/, it is considered that this

Notes

would constitute a violation of English phonotactics, and the first (or only) intervocalic consonant is assigned to the preceding syllable; thus the word 'better' is divided /'bet.ə/, whereas 'better' is divided /'bi: tə'/. In the case of unstressed short vowels, /e/, /æ/, /ʌ/ and /ɒ/ are also prevented from appearing in syllable-final position; however, unstressed /ɪ/ and /ʊ/ are allowed the same "privilege of occurrence" as /ə/ when a consonant begins a following syllable, and may therefore occur in final position in unstressed syllables except pre-pausally. Thus in a word such as 'develop', the syllable division is /dɪ'vel.əp/.

2. Notwithstanding the above, words in compounds should not be re-divided syllabically in a way that does not agree with perceived word boundaries. For example 'hardware' could in theory be divided /'ha: .dweə/, but most readers would find this counter-intuitive and would prefer /'ha: d . weə/. This principle applies to open, closed and hyphenated compounds.

Syllabification in LPD

Here is how LPD sets out an alternative approach to syllabification:

Syllable divisions are shown in LPD by spacing. (...)

It is generally agreed that phonetic syllable divisions must as far as possible avoid creating consonant clusters which are not found at the edges of words. This is the phonotactic constraint. Thus windy might be 'wɪn di or 'wɪnd i, but it could not be 'wɪn di (because English words cannot begin with nd). LPD takes the view that the syllabification of this word actually parallels its morphology: wind+y, 'wɪnd i. For the same reason, language must be 'læŋ gwɪdʒ, not 'læŋg wɪdʒ or 'læŋg wɪdʒ.

The principle that LPD adopts is that consonants are syllabified with whichever of the two adjacent vowels is more strongly stressed. If they are both unstressed, it goes with the leftward one. A weak vowel counts as 'less stressed' than an unstressed strong one.

In general, this principle is subject to the phonotactic constraint. However, there are some cases where correct prediction of allophones requires us to override it.

1. Certain unstressed syllables end in a strong short vowel, even though words cannot. In nostalgia the t is unaspirated (as in stack stæk, not as in tack tæk), so the syllabification is (BrE) nɒ 'stældʒ ə/
2. r can end a syllable, even though in BrE it cannot end a word pronounced in isolation. The r in starry is like the r in star is, and different from the more forceful r in star runner, Likewise, ʒ can end a syllable: vision 'vɪʒ 'ŋ.
3. Within a morpheme, tr and dr are not split If petrol were 'pet rəl, as the phonotactic constraint leads us to expect (since English words do not end in tr), its t would likely be glottal and its r voiced (as in rat-race 'ræt reɪs). In fact, the tr in this word is pronounced as a voiceless affricate; so LPD syllabifies it 'petr əl.

Ambisyllabicity

Yet another possibility of treating intervocalic consonants that the phonotactics of a language allows as both Codas and Onsets is to view them as belonging to both syllables at the same time. Consider the disyllabic word *habit* /'hæbɪt/. The consonant /b/ may well function as Coda in the initial syllable – [hæb] – or, alternatively, as Onset in the final syllable – [bɪt]. (Here we use square brackets [ ] to indicate syllable boundaries.) In cases like this, many phonologists argue that the intervocalic consonant has a dual function – Coda in syllable l, on one hand, and Onset in syllable 2, on the other. This can be represented as follows: $[_1$hæ$[_2$b$]_1$It$]_2$ (σ_1 = [hæb]$_1$ σ_2 = [bɪt]). Consonants that enter the structure of two syllables are called ambisyllabic. (Example from Lass, 1984: 266)

Notes

12.8 Pronunciation: General Theoretical Framework

12.8.1 Definition of Pronunciation

In its broadest sense, Roach (2002:61) views pronunciation

As shown in the following lines:

Pronunciation is the acts of producing the sounds of a language. The things that concern most people are (1) standards of pronunciation and (2) the learning of pronunciation.

12.8.2 The Main Features of Pronunciation

The main features of pronunciation. In this regard, Kelly (2000:1) provides us with a diagram illustrating the main features of pronun.

The Main Feature of Pronunciation

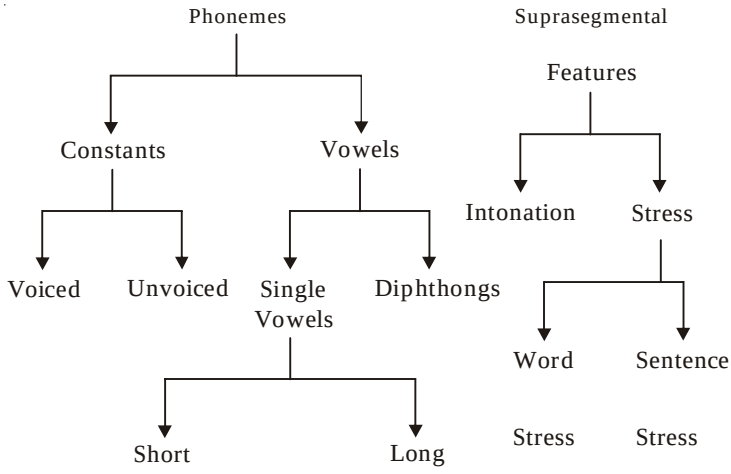


Figure 12.5

12.9 Stress

Stress is also seen from the phonetic and phonological points of view. Jones (1969:245) defines 'stress' as" the degree of force with which a sound or a syllable is "uttered". Hyman (1975:204) emphasizes the function of stress, i.e., a word receives only one primary stress'. Words with several syllables receive primary stress and secondary stress ' . Unstressed syllables, as stated by Heffner (1975:226), are "used loosely for minimally stressed and always understood in that sense".

English word stress is part of the language; it is used to communicate rapidly. To exemplify, the words 'photography' and 'photographer' are distinguishable according to the position of stress (Roach, 2002: 89). Hyman (1925:205) puts forward two criteria that determine stress patterns in all languages: a grammatical criterion, and a phonological one.

Sentence stress, at the other extreme, depends on the important words. In other words, the most important lexical stress, i.e., noun, verb, adjective . and adverb in a given sentence can carry stress (lbid.: 20).

Stress placement within a word is either unpredictable as adopted by Jones (1969) or predictable as adopted by Chomsky and Hall é (1968). Aitchison (1994:12) believes that a basic feature of the skeleton is the number of syllables".

Notes

12.10 The Nature of Stress

Stress has been mentioned several times already in this course without an explanation of what the word means. The nature of stress is simple enough: practically everyone would agree that the first syllable of words like 'father', 'open', 'camera' is stressed, that the middle syllable is stressed in 'potato', 'apartment', 'relation', and that the final syllable is stressed in 'about', 'receive', 'perhaps'. Also, most people feel they have some sort of idea of what the difference is between stressed and unstressed syllables, although they might explain it in different ways.

We will mark a stressed syllable in transcription by placing a small vertical line (') high up, just before the syllable it relates to; the words quoted above will thus be transcribed as follows:

ˈfɒːðə	pəˈteɪtəʊ	əˈbaʊt
ˈəʊpən	əˈpɒːtmənt	rlˈsiːv
ˈkæmrə	rɪˈlˌeɪʃn	pəˈhæps

What are the characteristics of stressed syllables that enable us to identify them? It is important to understand that there are two different ways of approaching this question. One is to consider what the speaker does in producing stressed syllables and the other is to consider what characteristics of sound make a syllable seem to a listener to be stressed. In other words, we can study stress from the points of view of production and of perception; the two are obviously closely related, but are not identical. The production of stress is generally believed to depend on the speaker using more muscular energy than is used for unstressed syllables. Measuring muscular effort is difficult, but it seems possible, according to experimental studies, that when we produce stressed syllable, the muscles that we use to expel air from the lungs are often more active, producing higher subglottal pressure. It seems probable that similar things happen with muscles in other parts of our vocal apparatus.

Many experiments have been carried out on the perception of stress, and it is clear that many different sound characteristics are important in making a syllable recognisably stressed. From the perceptual point of view, all stressed syllables have one characteristic in common, and that is prominence. Stressed syllables are recognised as stressed because they are more prominent than unstressed syllables. What makes a syllable prominent? At least four different factors are important:

1. Most people seem to feel that stressed syllables are louder than unstressed syllables; in other words, loudness is a component of prominence. In a sequence of identical syllables (e.g. ba:ba:ba:ba:), if one syllable is made louder than the others, it will be heard as stressed. However,it is important to realise that it is very difficult for a speaker to make a syllable louder without changing other characteristics of the syllable such as those explained below (2–4); if one literally changes only the loudness, the perceptual effect is not very strong.
2. The length of syllables has an important part to play in prominence. If one of the syllables in our "nonsense word" ba:ba:ba:ba: is made longer than the others, thereis quite a strong tendency for that syllable to be heard as stressed.
3. Every voiced syllable is said on some pitch; pitch in speech is closely related to the frequency of vibration of the vocal folds and to the musical notion of low and high-pitched notes. It is essentially a perceptual characteristics of speech. If one syllable of our "nonsense word" is said with a pitch that is noticeably different from that of the others, this will have a strong tendency to produce the effect of prominence. For example, if all syllables are said with low pitch except for one said with high pitch, then the high-pitched syllable will be heard as stressed and the others as unstressed. To place some movement of pitch (e.g. rising or falling) on a syllable is even more effective in making it sound prominent.
4. A syllable will tend to be prominent if it contains a vowel that is different in quality from neighbouring vowels. If we change one of the vowels in our "nonsense word" (e.g. ba:bi:ba:ba:) the "odd" syllable bi: will tend to be heard as stressed. This effect is not very powerful, but there is one particular way in which it is relevant in English: the previous chapter explained how the most frequently encountered vowels in weak syllables are ə, I,i,u (syllabic consonants are also

Notes

common). We can look on stressed syllables as occurring against a "background" of these weak syllables, so that their prominence is increased by contrast with these background qualities.

Prominence, then, is produced by four main factors: (1) loudness (2) length, (3) pitch and (4) quality. Generally these four factors work together in combination, although syllables may sometimes be made prominent by means of only one or two of them. Experimental work has shown that these factors are not equally important; the strongest effect is produced by pitch, and length is also a powerful factor. Loudness and quality have much less effect.

12.11 Levels of Stress

Up to this point we have talked about stress as though there were a simple distinction between "stressed" and "unstressed" syllables with no intermediate levels; such a treatment would be a two-level analysis of stress. Usually, however, we have to recognise one or more intermediate levels. It should be remembered that in this chapter we are dealing only with stress within the word. This means that we are looking at words as they are said in isolation, which is a rather artificial situation: we do not often say words in isolation, except for a few such as 'yes', 'no', 'possibly', 'please' and interrogative words such as 'what', 'who', etc. However, looking at words in isolation does help us to see stress placement and stress levels more clearly than studying them in the context of continuous speech.

Let us begin by looking at the word 'around' əraʊnd, where the stress always falls clearly on the last syllable and the first syllable is weak. From the point of view of stress, the most important fact about the way we pronounce this word is that on the second syllable the pitch of the voice does not remain level, but usually falls from a higher to a lower pitch. We can diagram the pitch movement as shown below, where the two parallel lines represent the speaker's highest and lowest pitch level. The prominence that results from this pitch movement, or tone, gives the strongest types of stress; this is called primary stress.

In some words, we can observe a type of stress that is weaker tha primary stress but stronger than that of the first syllable of 'around'; for example, consider the first syllables of the words 'photographic' fəʊtəgræfIk, 'anthropology' ˌænθrəpɒləd3i. The stress in these words is called secondary stress. It is usually represented in transcription with a low mark (ˌ) so that the examples could be transcribed as, fəʊtəgræfIk, ˌænθrəpɒləd3i.

We have now identified two levels of stress; primary and secondary; this also implies a third level which can be called unstressed and is regarded as being the absence of any recognisable amount of prominence. These are the three levels that we will use in describing English stress. However, it is worth noting that unstressed syllables containing ə, I, i, u, or a syllabic consonant, will sound less prominent than an unstressed syllable containing some other vowel. For example, the first syllable of 'poetic' pəʊ'etIk is more prominent that the first syllable of 'pathetic' pə'θetIk. This could be used as a basis for a further division of stress levels, giving us a third ("tertiary") level. It is also possible to suggest a tertiary level of stress in some polysyllabic words. To take an example, it has been suggested that the word 'indivisibility' shows four different levels: the syllable bIl is the strongest (carrying primary stress), the initial syllable In has secondary stress, while the third syllable vIz has a level of stress which is weaker than those two but stronger than the sdcond, fourth, sixth and seventh syllable (which are all unstressed). Using the symbol $_{o}$ to mark this tertiary stress, the word could be represented like this: ˌIndI$_{o}$ vIzə'bIləti. While this may be a phonetically correct account of some pronunciations, the introduction of tertiary stress seems to introduce an unnecessary degree of complexity. We will transcribe the word as,IndI, vIzə'bIləti.

12.12 Placement of Stress within the Word

We now come to a question that causes a great deal of difficulty, particularly to foreign learners (who cannot simply dismiss it as an academic question): how can one select the correct syllables to

Notes

stress in an English word? As is well known, English is not one those languages where word stress can be decided simply in relation to the syllables of the word, as can be done in French (where the last syllable is usually stressed), Polish (where the syllable before the last–the penultimate syllable– is usually stressed) or Czech (where the first syllable is usually stressed). Many writers have said that English word stress is so difficult to predict that it is best to treat stress placement as a property of the indivudual word, to be learned when the word itself is learned. Certainly anyone who tries to analyse English stress placement has to recognise that it is a highly complex matter. However, it must also be recognised that in most cases (though certainly not all), when English speakers come across an unfamiliar word, they can pronounce it with the correct stress; in principle, it shuld be possible to discover what it is that the English speaker knows and to write it in the form of rules. The following summary of ideas on stress placement in nouns, verbs and adjectives is an attempt to present a few rules in the simplest possible form. Nevertheless, practically all the rules have exceptions and readers may feel that the rules are so complex that it would be easier to go back to the idea of learning the stress for each word individually.

In order to decide on stress placement, it is necessary to make use of some or all of the following information:

1. Whether the word is morphologically simple, or whether it is complex as a result either of containing one or more affixes (i.e., prefixes or suffixes) or of being a compound word.
2. What the grammatical category of the word is (noun, verb, adjective, etc.).
3. How many syllables the word has.
4. What the phonological structure of those syllables is.

It is sometimes difficult to make the decision referred to in (1). The rules for complex words are different from those for simple words and these will be dealt with in previous Chapter. Single-syllable words present no problems: if they are pronounced in isolation they are said with primary stress.

Point (4) above is something that should be dealt with right away, since it affects many of the other rules that we will look at later. We saw that it is possible to divide syllables into two basic categories: strong and weak. One component of a syllable is the rhyme, which contains the syllable peak and the coda. A strong syllable has a rhyme with either (1) a syllable peak which is a long vowel or diphthong, with or without a following consonant (coda). Examples:

‘die’ daI ‘heart’ ha:t ‘see’ si:

or (2) a syllable peak which is a short vowel, one of I, e, æ, ˈʌ, ˈɒ, ˈʊ, followed by at least one consonant. Examples:

‘bat’ bæt ‘much’ mˈʌtʃ ‘pull’ pˈʊʃ

A weak syllable has a syllable peak which consists of one of the vowels ˈə,i,u and no coda except when the vowel is ə. Syllabic consonants are also weak. Examples:

‘fa’ in ‘sofa’ 'səˈʊfə ‘zy’ in ‘lazy’ 'leIzi

‘flu’ in ‘influence’ 'Influˈəns ‘en’ in ‘sudden’ 'sˈʌdn

The vowel I may also be the peak of a weak syllable if it occurs before a consonant that is initial in the syllable that follows it. Examples:

‘bi’ in ‘herbicide’ 'h3:bIsatd ‘e’ in ‘event’ I'vent

(However, this vowel is also found frequently as the peak of stressed syllables, as in ‘thinker’ θiˈŋkˈə, ‘input’ 'InpˈʊT.)

The important point to remember is that, although we do find unstressed strong syllables (as in the last syllable of ‘dialect’ 'dIəlekt), only strong syllables can be stressed. Weak syllables are always unstressed. This piece of knowledge does not by any means solve all the problems of how to place English stress, but it does help in some cases.

Notes

12.13 Summary

- This study aims at finding out whether there are significant differences in the frequency of occurrence of the different consonants depending on whether they are in the onset or coda. The researcher analyzed 2001 mono morphemic CVC words found in the Random House Dictionary (Elexner 1987)
- Grammars coefficient is used to find out the association between consonant type and syllable position which is found to be a strong association in this study.
- The findings of this study are:
  - (*i*) Glides (/h/, /j/, /w/,) can only occur in the onset.
  - (*ii*) /z/, /t/, /l/ and /k/ show a significant preference for the coda.
  - (*iii*) /b/, /s/ and /r/ show a significant preference for the onset
  - (*i*) A strong syllable is a stressed syllable.

    Roach (200:20-1) argues that: simple syllables are of the following categories:
  - (*ii*) A minimum syllable would be a single vowel in isolation, e.g. the words 'are' (strong form) a::, 'or' o: , 'err' 3: these are preceded and followed by silence. Isolated sounds such as m, which is some times produced to indicate agreement, or ʃ to ask for silence, must also be regarded as syllables.
  - (*iii*) Some syllables have an onset (i.e., they have more than just silence preceding the centre of the syllable (CV) e.g.:

    'bar' ba: 'key' ki: 'more' mo:.
  - (*iv*) Syllables may have no onset but have a coda (VC) e.g.: 'æ m' am 'ought' o:t 'ease' i:z.
  - (*v*) Some syllables have onset and coda (CVC) e. g.: 'run' r ʌ n 'sat' 'fill' fil(lbid.).

12.14 Key-Words

1. Phonotactics : The possible combinations of English Phonemes of a lenguage are called Phonotactics.
2. Monosyllabic : A word consisting of a single syllable. For examples, cat, dog.

12.15 Review Questions

1. Mark the stress on the following words:
   - (*i*) Verbs
     - (*a*) protect (*b*) clamber (*c*) festoon (*d*) detest
     - (*e*) bellow (*f*) menace (*g*) disconnect (*h*) enter
   - (*ii*) Nouns
     - (*a*) lanugage (*b*) captain (*c*) career (*d*) paper
     - (*e*) event (*f*) jonquil (*g*) injury (*h*) connection

   (Native speakers of English should transcribe the words phonemically as well as marking stress.)

12.16 Further Readings

1. Verma, S.K., V.N. Krishnaswamy. Modern Linguistics: An Introduction.
2. An Introduction to Linguistics, John Lyon.
3. Peter Roach: English phonetics and phonology. Cambridge University Press.
4. Encyclopedia of Linguistic Science Edited By V. Prakasam, Allied Pub., New Delhi.

Notes

Unit 13: Branches in Linguistics: Socio-Linguistics

CONTENTS

Objectives

After studying this Unit students will be able to:

- Know Socio-Linguistics.
- Discuss Language Variation.
- Understand Varieties of English.

Introduction

Sociolonguistics is a term including the aspects of linguistics applied toward the connections between language and society, and the way we use it in different social situations. It ranges from the study of the wide variety of dialects across a given region down to the analysis between the way men and women speak to one another. Sociolinguistics often shows us the humorous realities of human speech and how a dialect of a given language can often describe the age, sex, and social class of the speaker; it codes the social function of a language.

13.1 Socio-Linguistics and Other Branches of Linguistics

Language is a social-cultural-geographical phonomenon. There is a deep relationship between language and society. It is in society that man acquires and uses language. When we study a language which is an abstraction of abstractions, a system of systems, we have to study its further abstractions such as dialects, sociolects, idiolects, etc. That is why we have to keep in mind the geographical area in which this language is spoken, the culture and the society in which it is used, the context and situation in which it is used, the speakers who use it, the listeners for whom it is used, and the purpose for which it is used, besides the linguistic components that compose it. Only then can our study of a language be complete and comprehensive. So we must look at language not only from within but also from without; we should study language from the points of view of both form and functions. An informal definition of socio-linguistics suggested by a linguist is that it is the study of: *'Who can say what how, using what means, to whom and why."* It studies the causes and consequences of linguistic behaviour in human societies; it is concerned with the function of language, and studies language from without.

Socio-linguistics is a fascinating and challenging field of linguistics. It studies the ways in which language interacts with society. It is the study of the way in which the structure of a language changes

Notes

in response to its different social functions, and the definition of what these functions are. 'Society, here is to cover a spectrum of phenomena to do with race, nationality, more restricted regional, social and political groups, and the interactions of individuals within groups. Different labels have sometimes been suggested to cover various parts of this spectrum. **Ethnolinguistics** is sometimes distinguished from the rest, referring to the linguistic correlates and problems of ethnic groups—illustrated at a practical level by the linguistic consequences of immigration; there is a language side to race relations. The term Anthropological Linguistics is sometimes distinguished from 'sociological linguistics', depending on one's particular views as to the validity or otherwise of a distinction between anthropology and sociology in the first place (for example, the former studying primitive cultures, the latter studying more 'advanced' political units; but this distinction is not maintained by many others). 'Stylistics' is another label which is sometimes distinguished, referring to the study of the distinctive linguistic characteristics of smaller social groupings. But more usually, stylistics refers to the study of the literary expression of a community using language. Socio linguistics gradually merges into ethno-linguistics, anthropological linguistics, stylistics and the subject-matter of psychology.

Socio-linguistics is the study of speech functions according to the speaker, the hearer, their relationship and contact, the context and the situation, the topic of discourse, the purpose of discourse, and the form of discourse.

Broadly speaking, however, the study of language as part of culture and society has now commonly been accepted as Sociolinguistics. But there are also some other expressions which have been used at one time or another, including 'the sociology of language', 'social linguistics', 'institutional linguistics', 'anothropological linguistics', 'linguistic anthropology', 'ethnolinguistics', the 'ethnography of communication', etc.

The kinds of problems which are faced by the sociolinguist are: the problems of communities which develop a standard language, and the reactions of minority groups to this (as in Belgium, India, Pakistan, Bangla Desh, or Wales) ; the problems of people who have to be educated to a linguistic level where they can cope with the demands of a variety of social situations (for example of problem of learning Hindi in the people of Tamil Nadu if they want to have a communication with the common people of North India); the problems of communication which exist between nations or groups using a different language, which affects their 'world-view' (for example the problem of pupularising Russian among the nations which are friendly to Russia); the problems caused by linguistic change in response to social factors; the problems caused or solved by bilingualism or multilingualism (for example in India and Canada); the problems caused by the need for individuals to interact with others in specific linguistic ways (language as an index of intimacy or distance, of solidarity, or prestige of power, or pathology, and so on). By this however, we do not mean that socio-linguistics can or does solve all such problems as stated above. Yet it can identify precisely what the problems are and provide information about the particular manifestation of a problem in a given area, so that possible solutions can thereby be found out or expedited. Furthermore, problems related to interference, code-switching or dialect-switching can be successfully handled by socio-linguistics. But the success of socio-linguistics ultimately depends upon 'pure linguistics'.

As J.B. Pride says, socio-linguistics is not simply 'an amalgam of linguistics and sociology (or indeed of linguistics and any other of the social sciences)'. It incorporates, in principle at least, every aspect of the structure and use of language that relates to its social and cultural functions. Hence there seems no real conflict between the socio-linguistics and the psycho-linguistic approach to language. Both these views should be reconciled ultimately. Linguisticians like John Lyons and cognitive psychologists like Campbell and Wales advocate the necessity of widening the notion of competence to take account of a great deal of what might be called the 'social context' of speech.

Notes

Notes The scope of socio-linguistics, therefore, is the interaction of language and various sociologically definable variables such as social class, specific social situation, status and roles of speakers / hearers, etc.

13.2 Language Variation

Language with its different varieties is the subject matter of socio-linguistics. Socio-linguistics studies the varied linguistic realizations of socio-cultural meanings which in a sense are both familiar and unfamiliar and the occurrence of everyday social interactions which are nevertheless relative to particular cultures, societies, social groups, speech communities, languages, dialects, varieties, styles. That is why language variation generally forms a part of socio-linguistic study.

Language can vary, not only from one individual to the next, but also from one sub-section of speech-community (family, village, town, region) to another. People of different age, sex, social classes, occupations, or cultural groups in the same community will show variations in their speech. Thus language varies in geographical and social space. Variability in a social dimension is called sociolectical. According to socio-linguists, a language is code. There exist varieties within the code. And the factors that cause language variation can be summarized in the following manner:

— **nature of participants, their relationship** (socio-economic, sexual, occupational, etc.)

— **number of participants** (two face-to-face, one addressing a large audience, etc.)

— **roles of participants** (teacher / student priest / parishoner / father / son / husband / wife, etc.)

— **function of speech event** (persuasion, request for information ritual, verbal, etc.)

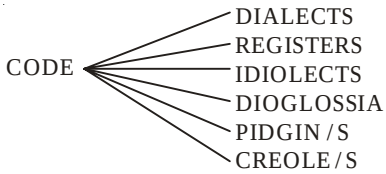
— **nature of medium** (speech, writing, scripted speech, speech reinforced by gesture, etc.)

— **genere of discourse** (scientific, experiment, sport, art, religion, etc.)

— **physical setting** (noisy / quiet, / public / private / family / formal gathering, familiar / unfamiliar, appropriate for speech (e.g. sitting-room) (inappropriate.)

— **regional or geographical setting**, etc.

The major varieties that exist within the code are the following:



13.2.1 Code

'A code' is 'an arbitrary, pre-arranged set of signals'. A language is merely one special variety of code. The total organization of various linguistic components in a language is the code of that language. It is an abstract system which happens to be accepted arbitrarily in the community which uses it.

13.2.2 Dialect and Sociolect

A regional, temporal or social variety within a single language is a dialect; it differs in pronunciation, grammar and vocabulary from the standard language, which is in itself a socially favoured dialect. So a dialect is a variation of language sufficiently different to be considered a separate entity within a language but not different enough to be classed as a separate language. Sometimes it is difficult to decide whether a variant constitutes a dialectal sub-division or a different language, since it may be blurred by political boundaries, e.g. between Dutch and some Low German dialects. Regional dialects

Notes

(or local or geographical or territorial dialects) are spoken by the people of a particular geographical area within a speech community, e.g. Cockney in London, but due to the increase in education and mobility they are receding.

"Dialect is a specific form of a given language, spoken in a certain locality or geographic area, showing sufficient differences from the standard of literary form of **that** language, as to pronunciation, grammatical construction and idiomatic use of words, to be considered a distinct entity, yet not sufficiently distinct from other dialects of the language to be regarded as a different language."

—*A Dictionary of Linguistics* (1954) by

A. Pie and Frank Gaynor.

Sociolects (social dialects or class dialects), on the other hand, are spoken by the members of a particular group or stratum of a speech community.

A variety of language used at a particular stage in its historical development, e.g. Prakrit and Pali in ancient India, may be called **temporal dialects.**

Dialects are dialects not because of linguistic reasons but because of political or cultural reasons. It is customary to describe them as varieties of a language according to users. For example Brijbhasha, Avadhi, Bhojpuri, Khari Boli, etc. are some of the dialects of Hindi.

To the linguist, however, as stated by Sapir, 'there is no real difference between a dialect and a language.' Grierson also observes, 'In the course of the survey, it has sometimes been difficult to decide whether a given form of speech is to be looked upon as an independent language or as a dialect of some other definite form of speech. In practice, it has been found that it is sometimes impossible to decide the question in a manner which will gain universal acceptance. The two words 'language' and 'dialect' are in this respect like 'mountain' and 'hill'. One has no hesitation in saying that Everest is mountain and Hoborn Hill a hill, but between these two the dividing line cannot be accurately drawn.'

13.2.3 Isogloss

An isogloss is 'a line indicating the degree of linguistic change'. 'On linguistic maps, a line separating the areas (called isoglass area) in which the language differs with respect to a given feature or features, i.e. a line making the boundaries within which a given linguistic feature or phenomenon can be observed' (*A Dictionary of Linguistics*).

So an isogloss is a representation of statistical probabilities, a graphic way of portraying a transition in speech characteristics from one area to another, a bundle of isoglosses may be interpreted as marking a zone of relatively great transition in speech. We may, therefore, think of it as indicating **dialect boundary**. It is a term modelled on geographical terms like **isotherm** (a line joining areas of equal temperature) and **isobar** (a line joining areas of equal atmospheric pressure). It is in contrast to another linguistic term **isograph**, i.e. 'any line on a linguistic map, indicating a uniformity in the use of sounds, vocabulary, syntax, inflection, etc.'

Though an isogloss is a convenient way of description, but may be misleading if the apparent sharpness of distinction between the areas is not carefully discounted. "The drawing of isoglosses is one of many places where it is easy to be over-precise. The reading of them is even more dangerous, since the reader has not seen the intricate mass of data upon which they are based." (Gleason)

13.2.4 Registers

Whereas dialects are the varieties of language according to users, registers are the varieties of language according to use. Registers are 'stylistic-functional varieties of a dialect or language'. These may be narrowly defined by reference to subject matter (field of discourse, e.g. jargon of fishing, gambling, sports, etc.) to medium (mode of discourse e.g. printed material, written letter, message on tape, etc.),

Notes

or to level of formality, that is style (manner of discourse). Registers are, therefore, situationally conditioned field-of-discourse oriented varieties of a language. Some well-known definitions of register are cited below:

1. "By register we mean a variety correlated with a performer's social role on a given occasion. Every normal adult plays a series of different social roles—one man, for example, may function at different times as head of a family, motorist, cricketer, member of a religious group, professor of bio-chemistry and so on, and within his idiolect he has varieties shared by other persons and other idiolects appropriate to these roles. When the professor's wife tells him to 'stop talking like a professor,' she is protesting at a misuse of register."

   —J. C. Catford, *A Linguistic Theory of Translation*, OUP, 1965.

2. Registers are those "varieties of language which correspond to different situations, different speakers and listeners, or readers and writers, and so on."

   —R.M.W. Dixon, "On Formal & Contexual Meaning," A L H (Budapast), XIV.

3. "By register, itself a linguistic, not situational category, is meant a division of idiolect, or what is common to dialects, distinguished by formal (and possibly substantial) features and correlated with types of situations of utterance (these distinguished by such components as those here enumerated)."

   —J. Ellis, "On Contextual Meaning," *In Memory of J. R. Firth*, Longmans.

According to the role of the speaker, a young lecturer, for example, will speak in different ways when communicating with his wife, his children, his father, his colleagues, his students, or when shopping, and so on. Each of these varieties will be a register. Examples of registral varieties according to the subject matter or field of discourse are scientific, religious, legal, commercial writings and also the language of newspaper, of buying and selling, of agriculture, of airport announcers, of telephone operators, etc. The following passage belongs to the register of embroidery.

Make a small hem on the edge of the garment, turn it on to the right side, then take it down. Arrange the lace in position over this hem, with the straight edge of the lace to the hem of edge. Pin and tack. Sew the lace to the garment with tiny stitches worked close together as according.

A register is also determined by the medium or mode of discourse. The main distinction is between speech and writing. But within speech one may have such distinctions as conversation, discussion, debate, talk and lecture. And in writing we may have distinctions like a personal letter, a memoir, a biography, an autobiography, a poem to be read, a speech to be read aloud, and a play to be performed on a stage and so on.

The Advanced Learner's Dictionary of Current English (1976) indexes the following types of register:

accounts	ecclesiastical	naval
aerospace	electricity	pathology
algebra	engineering	philosophy
anatomy	farming	phonetics
architecture	finance	photography
arithmetic	football	physics
art	gambling	physiology
astronomy	geology	politics
ballet	geometry	psychology
biblical	grammar	racing
biology	journalism	radio telegraphy
book-keeping	mathematics	rugby
botany	mechanics	science
business	medical	sports
chemistry	meteorology	tennis

Notes

cinema	military	theatre
commerce	music	trignometry
cricket	nautical	zoology

Though this list covers a fairly wide range of language registers, yet it should not be regarded as final and complete.

Register and Style

Registers may be classified on the basis of style. We may talk of, for example religion, in a temple with the old folk or at a seminar with scholars, or in a restaurant with friends. Depending on who participates (passively or actively) in the discourse or discussion, the tone, the words etc. will vary. In a religious gathering or temple we may be serious and reverential in our speech; in a seminar we may be analytical; in a restaurant casual. The topic is a serious one but our treatment of it may be highly formal or frozen; it may be, at the other extremes, highly informal or casual. The degree of formality may vary according to the style or manner of discourse. In the restaurant we may say that water is 'dirty', but in a laboratory we may have to say it is 'impure' or 'polluted.'

On the basis of stylistic values the following types of stylistic varieties have been listed in *The Advanced Learner's Dictionary* (1976):

archaic	formal	pejorative
colloquial	historical	poetic
dated	humorous	proverb
derogatory	ironical	rare
dialect	jocular	slang
emphatic	laudatory	taboo
emotive	literary	vulgar
euphimistic	literal	
facetious	modern	
figurative	old use	

Nevertheless, it is difficult to draw a sharp dividing line between the two axes of **register** and **style**; and register classification, instead of being a pigeon-hole classification, is only a workable solution. Register, says Dr. S.K. Verma, is primarily "field (of discourse)-bond and situationally conditioned. It is a restricted code of social behaviour." Furthermore, 'register is a variety of language with marked phonological, grammatical and lexical features correlating with distinctive situational features. Hence registral varieties, like any other variety, can be analysed and described at the interpreting levels of phonology, grammar and lexis. One of the marked features of a register is predominance of a particular type of technical terms. It is only with the help of certain marked lexical features that we delimit and classify registers, e.g. in the passage quoted above. (S.K. Verma. "Towards a Linguistic Analysis of Registral Features," *Acta Linguistica Academica*, Budapest).

Style in linguistics has to do with those components or features of the form of a literary composition which give to it its individual stamp, marking it out as the work of a particular author and producing a certain effect upon the reader. The analysis of style in this sense is commonly called stylistics

13.2.5 Idiolect

Idiolect is a variety of language used by one individual speaker, including pecularities of pronunciation, grammar, vocabulary, etc. A dialect is made of idiolects of a group of speakers in a social or regional subdivision of a speech community. Linguists often analyse their own idiolect to make general statements about language. So the idiolect is "an identifiable pattern of speech characteristic of an individual." or "Idiolect is the individual's personal variety of the community language system" (*A Dictionary of Linguistics:* 1954).

Notes

13.2.6 Diglossia

Where we do find two or more dialects or languages in regular use in a community we have a situation which Fergusson has called 'diglossia.' He has observed that in diglossic communities there is a strong tendency to give one of the dialects or languages a higher status or prestige, and to reserve it for certain functions in society, such as government, education, the law, religion, literature, press, radio and television. The 'prestige dialect' is often called the standard dialect (= the language).

The use of two widely divergent forms of the same language by all members of the community under different conditions is called diglossia. In such a situation, a 'high' or a 'classical' literary language is used for formal occasions and in written texts, and a 'low' or vernacular form is used in colloquial conversation. Thus within the same speech community, one form is used for specialised activities—official work, religion, education, law, press, radio, television, literature, etc. The other form is used for non-specialized daily activities. Perhaps the most familiar example is the standard language and regional dialect as used, say, in Italian or Persian, where many speakers speak their local dialect at home or among family or friends of the same dialect area but use the standard language in communicating with speakers of other dialects or on public occasions. A similar situation exists in the Arab world, where classical Arabic is used for specialised purposes by speakers of all dialects of Arabic. An example from India would be 'high' and 'low' Tamil. These forms vary considerably at all levels of language—sounds, words, grammar and meaning.

13.2.7 Pidgin

A pidgin is a contract language, a mixture of elements from different natural languages. Its use is usually restricted to certain groups, e.g. traders and seamen. Pidgins are used in some parts of South-West Asia. Chinese pidgin, a combination of items from Chinese and English to serve the limited purpose of trade, is another well-known example. An alternative term used for the pidgin is contact vernacular.

13.2.8 Creole

When a pidgin becomes a lingua franca, it is called a creole. Thus a pidgin may extend beyond its limited function and permeate through various other activities. Then it may acquire a standardized grammar, vocabulary and sound-system; and it may then be spoken by an increasing number of people as their first language. It has no such history, nor much prestige either. But on account of its wider application and first-language status, it has to be distinguished from a pidgin. A creole or a creolized language is a mixed natural language composed of elements of different languages in areas of intensive contact. Well-known examples are the creoles of the islands of Mauritius and Haiti.

An example of Creole English from Jamaica is quoted here from Randolph Quirk's *The English Language and Images of Matter* (London, 1972:48):

Hin sed den, 'Ma, a we in lid?' Him sie, 'Mi nc nuo, wi pikini, bot duon lukfi him niem hahd, or eni wie in a di wohld an yu kal diniem, him hie unu.' Him sed, 'Wel Ma, min want im hie me an nuo mi.' 'Lahd nuo masa'. Duo no kal di niem, hin we kom kil yu.' 'Him sie, 'Wei Ma, hin wi haf fi kil mi.

The following is the 'translation' of the sample quoted above: He said then, 'And where does he live, mother?' 'I don't know, my child' she said, 'but don't look hard for his name, or anywhere in all the world that you call the name, he will hear you.' 'Well, mother,' he said, 'I want him to hear me and know me.' 'Heavens, no sir,' 'Don't call the name: he'll come and kill you.' 'Well, mother,' he said 'he'll have to kill me.'

13.3 Varieties of English

There are many varieties of English which can be classified according to the following six criteria:

1. Region,
2. Education and Social Standing,
3. Subject Matter,
4. Medium,
5. Attitude, and
6. Interference.

Notes

The variety according to region as a criterion is the most well-known and has been called '*dialect*'. Dispersion in geographical terms has been the basis for the establishment of dialects. Sometimes dialects diverge so vastly that they become independent language. For example, Dutch, English, Norwegian, and Danish as distinct languages emerged from the dialectical varieties of their ancestor Germanic. But such vast variations are rare. Regional variation manifests itself most commonly in phonology, though occasional difference in grammar or vocabulary cannot be ruled out. American English (AmE) and British English (BrE), Canadian English, Australian English are the dialects of English on international geographical basis. Scots, Irish, Northern Midland, London, and Southern varieties within the British English are examples of the regional variation.

Within each dialect area, one notices linguistic variation according to education and social standing. The uneducated speech is most easily identified with the regional dialect, while educated speech tends to transcend regional limitations. Educated speech has the additional advantage of being patronised by the government, the universities, the learned professions, the press, and the political parties, for which reason it is accorded implicit social and political sanction, allowing it, therefore, to become 'Standard English'. Speech deviating from Standard English is termed 'substandard' to distinguish it from 'dialectal'. Standard English is reasonably monolithic despite regional and national pulls.

Varieties according to the subject matter of the discourse are called 'register'. It is very clear that every profession, every subject uses peculiar vocabulary which distinguished one register from another. Literary critics have their own language, while engineers and doctors have different needs expressed by vocabulary which especially meets their needs. Different registers exist in English too.

Varieties depend on the medium also. The two commonly used media being speaking and writing, their products are different. One difference is situational. Speech involves two or more persons, while writing can be, and most frequently is, done by an individual insulated from others. Writing generally entails the necessity of explicitness, leaving nothing vague or unsaid,—things which are compensated for by the physical presence of the speaker and hearer. The other difference arises out of the limitation of the graphic system which is unable to cope with devices of spoken language such as emphasis, stress and intonation.

Varieties according to attitude are called *style*. Depending upon the attitude of the speaker about the hearer of the subject matter, the variety can be anywhere between stiff, formal, cold on the one hand and relaxed, informal, warm, friendly on the other. On this basis, for the sake of simplicity, we have two varieties 'formal' and 'informal' interposed by the third called 'neutral'.

As regards the varieties due to interference, English, being an international language, is being learnt by people of different cultures and countries which allow lexical and grammatical structures of their languages to enter the English language. Such varieties of English as spoken by the French, the Russians, or the Japanese, are examples of varieties of English according to interference. Indian English is a special case of this category because it is learnt and studied not as a *foreign* language, but as a *second* language.

Self-Assessment

1. Answer the following questions:

(*i*) What is Isogloss?

(*ii*) Define Registers.

13.4 Summary

- Sociolinguistics is the branch of linguistics concerned with the social functions of language use and the impact of social context on language. As opposed to other branches of linguistics which seek to understand the formal and structural aspects of language, sociolinguistics focuses on how social structures, situations and contexts acan alter the rules, functions and uses of language.

Notes

- Sociolinguistics is the descriptive studyof the effect of any and all aspects of society, including cultural norms, expectations, and context, on the way langage is used, and the effects of language use on society. Sociolinguistics differs from sociology of language in that the focus of sociolinguistics is the effect of the society on the language, while the latter's focus is on the language's effect on the society. Sociolinguistics overlaps to a considerable degree with pragmatics. It is historically closely related to linguistics anthropology and the distinction between the two fields has even been questioned recently.
- It also studies how language varieties differ between groups separated by certain social variables, e.g., ethnicity, religion, status, gender, level of education, age, etc., and how creation and adherence to these rules is used to categorize individuals in social or socioeconomic classes. As the usage of a language varies from place to place, language usage also varies among social classes, and it is these sociolects that sociolinguistics studies.
- Studies in the field of sociolinguistics typically take a sample population and interview them, assessing the realisation of certain sociolinguistic variables.
- A commonly studied source of variation is regional dialects. Dialectology studies variations in language based primarily on geographic distribution and their associated features. Sociolinguists concerned with grammatical and phonological features that correspond to regional areas are often called dialectologists.
- There are several different types of age-based variation one may see with in a population. They are: vernacular of a subgroup with membership typically characterized by a specific age range, age-graded variation, and indications of linguistic change in progress.
- Variation may also be associated with gender. Men and women, on average, tend to use slightly different language styles. These differences tend to be quantitative rather than qualitative. That is, to say that women use a particular speaking style more than men do is akin to saying that men are taller than women (i.e., men are on average taller than women, but some women are taller than some men).
- Sociolinguistics is a quickly developing branchof linguistics which investigates the individual and social variation of language. Just as regional variation of language can give a lot of information about the place the speaker is from, social variation tells about the roles fulfilled by a given speaker within one community, or country. Sociolinguistics is a practical scientific discipline researching the language that is actually used either by native speakers, or foreigners, in order to formulate theories about language change.
- There are numerous factors influencing the way people speak which are investigated by sociolinguistics:

  (*i*) Social class: the position of the speaker in the society, measured by the levelof education, parental background, profession and their effect on syntax and lexis used by the speaker;

  (*ii*) Social context: the register of the language used depending on changing situations, formal language in formal meetings and informal during meetings with friends for examples;

  (*iii*) Geographical origins: slight differences in pronunciation between speakers that point at the geographical region which the speaker come from;

  (*iv*) Ethnicity: differences between the use of a given language by its native speakers and other ethnic groups;

  (*v*) Nationality: clearly visible in the case of the English language: British English differs from American English, or Canadian English;

Notes

(*vi*) Gender: differences in paterns of language use between men and women, such as quantity of speech, intonation patterns.

(*vii*) Age: the influence of age of the speaker on the use of vocabulary and grammar complexity.

- An important factor influencing the way of formulating sentences is according to sociolinguists the social class of the speakers. Thus, there has been a division of social classes proposed in order to make the description accurate. Twomain groups of language users, mainly those performing non-manual work and those with more years of education are the 'middle class', while those who perform some kind of manual work are 'working class'. Additional terms 'lower' and 'upper' are frequently used in order to subdivide the social clases. Therefore, differences between pper middle class can be compared with lower working class.
- It is notable that people are actualy aware of the differences in speech patterns that mark their social class and are often able to adjust their style to the interlocutor. It is especially true for the members of the middle class who seem eager to use forms associated with upper class, however, in such efforts the forms characteristics of upper class are often overused by the middle class members. The above mentioned process of adopting own speech to reduce social distance is called convergence. Sometimes, however, when people want to emphasize the social distance they make use of the process called divergence purposefully using idiosyneratic forms.
- investingates the way in which language changes depending on the region of country it is used in. To describe a variety of language that differs in grammar, lexis and pronunciation from others a term dialect is used. Moreover, each member of community has a unique way of speaking due to the life experience, education, age and aspiration. As individual personal variation of language use is called an idiolect.
- There are numerous factors influencing idiolect some of which have been presented above, yet two more need to be elucidated, namely jargon and slang. jargon is specific technical vocabulary associated with a particular field of interest, or topic. For example words such as convergence, dialect and social class are sociolinguistic jargon. Wheras alang is a type of language used most frequently by people from outside of high-status groups characterized by the use of unusual words and phrases instead of conventional forms.

13.5 Key-Words

1. Style : Varieties according to attitude.
2. Registers : It is the variety of language according to use.

13.6 Review Questions

1. Write brief notes on:
   (*i*) Dialect (*ii*) Idiolect
   (*iii*) Register (*iv*) Diglossia
   (*v*) Pidgin (*vi*) Creole
2. What is an isogloss? How are isoglosses useful in determining dialect boundaries?
3. Distinguish between standard language and dialect.
4. Distinguish between dialect and idiolect.
5. Distinguish between pidgin and creole.
6. 'What is correct and what is not correct is ultimately only a matter of what is accepted by society, for language is a matter of conventions within society.' Discuss this view.
7. What is socio-linguistics? What is its relation with other branches of linguistics?

Notes

8. What do you mean by language varieties? How would you classify language varieties? Give examples from English.
9. How are registers classified on the basis of style?
10. Bring out the difference between dialect and sociolect.

Answers: Self-Assessment

1. (*i*) An isogloss is 'a line indicating the degree of linguistic change'. 'On linguistic maps, a line separating the areas (called isoglass area) in which the language differs with respect to a given feature or features, i.e. a line making the boundaries within which a given linguistic feature or phenomenon can be observed' (*A Dictionary of Linguistics*).

   (*ii*) Registers are those "varieties of language which correspond to different situations, different speakers and listeners, or readers and writers, and so on."

13.7 Further Readings

1. Verma, S.K., V.N. Krishnaswamy. Modern Linguistics: An Introduction.
2. An Introduction to Linguistics, John Lyon.
3. Peter Roach: English phonetics and phonology. Cambridge University Press.
4. Encyclopedia of Linguistic Science Edited By V. Prakasam, Allied Pub., New Delhi.

Notes

Unit 14: Branches in Linguistics: Psycho-Linguistics

CONTENTS

Objectives

After studying this Unit students will be able to:

- Discuss Psycho-Linguistics.
- Explain Language Acquisition
- Understand Other Areas of Psycho-Linguistics.

Introduction

Psycholinguistics is a recent branch of linguistics developed in the sixties. It is the study of interrelationship of psychological and linguistic behaviour. It uses linguistic concepts to describe psychological processes connected with the acquisition and use of language. As a distinct area of interest, psycholinguistics developed in the early sixties, and in its early form covered acoustic phonology and language pathology. But now-a-days it has been influenced deeply by the development of generative theory, and its most important area of investigation has been language acquisition. It has raised and has partly answered questions such as how do children acquire their mother tongue? How do they grow up linguistically and learn to handle the registral and stylistic varieties of their mother tongue effectively? How much of the linguistic system that they ultimately command, are they born with and how much do they discover on the basis of their exposure to that system?

14.1 Psycho-Linguistics

In its early form, psycholinguistics covered the psychological implications of an extremely broad area, from acoustic phonetics to language pathology. Now-a-days, certain areas of language and linguistic theory tend to be concentrated on by the psycholinguist. Much of psycholinguistics has been influenced by generative theory and the so-called mentalists. The most important area is the investigation of the acquisition of language by children. In this respect there have been many studies of both a theoretical and a descriptive kind. The need for descriptive study arises due to the fact that until recently hardly anything was known about the actual facts of language acquisition in children, in particular about the order in which grammatical structures were acquired. Even elementary questions as to when and how the child develops its ability to ask question syntactically, or when it learns the inflectional system of its language, remained unanswered. However, a great deal of work has been done recently on the methodological and descriptive problems related to the obtaining and analysing information of this kind.

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The theoretical questions have focussed on the issue of how we can account for me phenomenon of language, development in children at all. Normal children have mastered most of the structures of their language by the age of five or six. The generative approach argued against the earlier behaviourist assumptions that it was possible to explain language development largely in terms of imitation and selectives reinforcement. It asserted that it was impossible to explain the rapidity or the complexity of language used by the people around them.

Psycholinguists therefore argue that imitation is not enough; it is not merely by mechanical repetition that children acquire language. They also acquire it by natural exposure. Both nature and nurture influence the acquisition of language in children. Children learn first not items but systems. Every normal child comes to develop this abstract knowledge of his mother tongue, even of a foreign language, to some extent for himself; and the generative approach argues that such a process is only explicable if one postulates that certain features of this competence are present in the brain of the child right from the beginning. 'In other words, what is being claimed is that the child's brain contains certain **innate** characteristics which 'pre-structure' it in the direction of language learning. To enable these innate features to develop into adult competence, the child must be exposed to human language, i.e. it must be stimulated in proper to respond. But the basis on which it develops its linguistic abilities is not describable in behaviourist terms.' (David Crystal, *Linguistics*).

The boundary between psycholinguistics and linguistics is becoming increasingly blurred as the result of recent developments in linguistics which aim at giving psychological reality to the description of language. The bonds between psychology and linguistics become more and more strong by the extent to which language is influenced by and itself influences such things as memory, motivation, attention, recall and perception.

Similarly psycholinguistics and sociolinguistics are coming closer because of the realization that merely grammatical competence is not enough; we have to aim at communicative competence too. Whereas psycholinguistics is language and the mind, sociolinguistics is language and community. In other words, psycholinguistics can be said to deal with language and the individual, and sociolinguistics with language and society.

Did u know? Chomsky regards linguistics as a subfield of psychology, more specially the cognitive psychology. His view of linguistics, as outlined for instance, in his book *Language and Mind*, is that the most important contribution linguistics can make, is to the study of the human *mind*.

14.2 Language Acquisition

By the study of language acquisition is meant the process whereby children achieve a fluent control of their native language. Few people in the 1950s asked about the processes by which language was acquired. It was assumed that children imitated the adults around them, and that their speech gradually became more accurate as they grow up. There seemed to be some mystery attached to this apparently straight-forward process. Psycholinguists have therefore attempted general theories of language acquisition and language use. Some have argued that learning is entirely the product of experience and

Notes

that our environment affects all of us in the same way. Others have suggested that everybody has an innate language learning mechanism which determines learning or acquisition of language identically for each of us. These two schools are known as 'empiricists' (behaviourists) and 'rationalists' (mentalists).

The empiricists say that all knowledge is derived from experience. They are of the opinion that children start out as clean slates. Learning a language is a process of getting linguistic habits printed on these slates. Language acquisition is the result of stimulus-response activities. Imitation, repetition, memorization, reward, and reinforcement faciliate this process of language acquisition. The behaviourists argue that learning is controlled by the conditions under which it takes place and that, as long as individuals are subjected on the same condition, they will learn in the same way. Variations in learning are caused because of the difference in learning experience, difference in the past experience of learning, difference in aptitudes, motivation, memory and age. So, for them there is not a theory of language learning as such but merely the application to language of general principles of learning.

From this follows that in general there is no difference between the way one learns a language and the way one learns to do anything else. So, according to the empiricists, language is a result of stimulus and response. A child should therefore learn to make a response in the first place, and then the response should be reinforced in a variety of ways. Indeed strength of learning is measured in terms of the number of times that a response has been made and reinforced. A word that has been uttered thirty times is better learned than one which has been said twenty times. So language learning process is basically a mechanical process of habit formation. Habits are strengthened by reinforcement.

Language is behaviour, a conditioned behaviour which can be learned only by inducing the child to behave. Repetition plays a vital role in learning a language. Hence the necessity of mechanical drills and exercises, imitation and repetition.

The rationalists contradict the empiricists at almost every point. Children learn a language, not because they are subjected to a similar conditioning process, but because they possess an inborn capacity which permits them to acquire a language as a normal maturational process. This capacity is universal. The child has an innate language acquiring device. He learns a language by exposure to it in society and by unconsciously forming certain hypotheses about language, which he goes on modifying till he comes to the adult model to which he is for the most part exposed. So the child goes on constructing an innate grammar, operating overgeneralized rules.

Language acquisition is species-specific and species-uniform. The ability to take up and understand language is inherited genetically but the particular language that children speak, is culturally and environmentally transmitted to them. Children all over the world acquire their native tongue without tutoring. Whereas a child exposed to an English speaking community begins to speak English fluently, the other one exposed to a community of Hindi speakers, begins to use Hindi fluently. Only human beings can acquire language. Language acquisition thus appears to be different in kind from acquisition of other skills such as swimming, dancing, or gymnastics. Native language acquisition is much less likely to be affected by mental retardation than the acquisition of other intellectual activities. Every normal human child learns one or more language unless he is brought up in linguistic isolation, and learns the essentials of his language by a fairly little age, say by six. To acquire fluency in a language a child has to be exposed to people who speak that language. A language is not something we know by instinct or inherit from our parents. It is the result of our exposure to a certain linguistic community. It is part of that whole complex of learned and shared behaviour that anthropologists call 'culture'. By this we do not mean that language is acquired ready-made. It is created anew by each child by putting together bits and pieces of environmental raw material. The human child does play an active role in this process; he actively strains, filters, recognizes what he is exposed to. His imitations are not photographic reproductions but artistic recreations. A child is a linguist in cradle. He acquires a language more easily than adults. He discovers the structure of his native language to use that language; no one hands it to him in a ready-to-use form.

Notes

Both schools have said significant things, yet neither is perfect. The mentalists' emphasis on the rule-learning is over-enthusiastic, and the behaviourists' rejection of meaning entirely is unjust. Language acquisition seems to be a process both of analogy and application, nature and nurture. The difference between the empiricists' approach and that of the rationalists can be summarised in the following manner also:

Empirical or behavioural Approach	**Rationalistic or Mentalistic Approach**
L.a. — Language acquisition	
1. Language acquisition is a result of experience.	L. a. is result of condition.
2. L. a. is a stimulus-response process.	L. a. is an innate, in-born process.
3. Language is a conditioned behaviour.	Language is not a behaviour like other behaviours but a species-specific and species-uniform mental process.
4. Children learn language by imitation and analogy.	Children learn language by application.
5. Language learning is practice based.	Language learning is rule based.
6. Language learning is mechanical.	Language learning is analytic, generative and creative.
7. Role of imitation, repetition, reinforcement, memory, motivation is very significant in language learning	Role of exposure is very significant.
8. Language acquisition is the result of nurture.	Language acquisition is the result of nature.

Two points in particular have become clearer: (1) Language is a maturationally controlled behaviour, and (2) child language is rule-governed, at every stage. Many types of behaviour develop 'naturally' at a certain age, provided that the surrounding environment is adequate and teaching is available at the crucial time. Such behaviour is maturationally controlled. Arguments as to whether it is inborn or learnt, are futile. Both nature and nurture, analogy and application, practice and exposure are important. Innate potentialities lay down the framework Within this framework, there is wide variation depending on the environment. From the age of around eighteen months, human infants are in a state of 'language readiness'. The urge for language in them at this time is very strong, and only very extraordinary circumstances can suppress it. A child brought up in complete linguistic isolation, will not acquire language. But all normal children and some abnormal ones—begin to speak if they hear language going on around them at this time.

Having been exposed to a small number of utterances, the child begins to extract the principles underlying the utterance and compose new utterances of his own. This is the way every child constructs a mini-grammar of his native language. He uses this grammar to communicate in an intelligible manner. He makes mistakes and produces ungrammatical sentences. His elders correct him. He feeds this information into his mini-grammar, modifies some of the rules, and again produces new utterances. In a period of about four years he is able to master and internalize all the essential rules of language. He begins not only to speak but also to understand altogether new utterances of his language. That is to say, the child does not learn individually all the idiosyncratic linguistic phenomena. He learns and internalizes the regular linguistic phenomena. For example, in learning English, he does not learn individually thousand of nouns: that **pencil** has a plural, that **pen** has a plural, and so forth. He internalizes the general structure principle that any common noun referring to a concrete, individual object has a plural. **Mohan, honesty,** and **cheese** are instances of nouns that normally do not have plurals. Mohan is a proper noun or name, not a common noun, **honesty** is not a concrete object; and **cheese** is not an individual object.

Notes

Another more advanced but obvious example of the rule-governed nature of child language are forms such as **mans, foots, gooses, childs,** which children produce frequently. Such plurals occur even when a child understands and responds correctly to the adult forms **men, feet, geese,** etc. This is a proof that a child's own rules of grammar are more important to him than mere imitation.

14.3 Other Areas of Psycho-Linguistics

Psycholinguistics covers a wide range of interests, and other aspects are currently being studied. The study of speech disturbances, aphasia, pausing and hesitations, language use, etc. are the other aspects of psycholinguistics. More recent studies are taking into consideration not only the utterance of children but also of parents. The realisation is growing that future studies must take into account the child's whole environment, and particularly the speech of its parents.

Roger Brown and Ursula Bellugi of Harvard University have studied an interesting type of interaction which takes place between parent and child, to processes which they call 'imitation and reduction', and 'imitation and expansion'. They have noted that the child imitates its mother; but reduces the utterance in length and omits inflections, resulting in a 'telegraphic' style of speech:

Mother: Daddy is eating food.

Child: Daddy food.

Conversely, a parent tends to imitate the child by repeating and expanding its utterance:

Child: Daddy food.

Mother: Yes, that's right. Daddy's eating food.

But more research on parent and child speech is needed before any firm conclusions about universal acquisition processes can be reached.

Self-Assessment

1. Why the boundary between Psycholinguistics and languages becoming blurred?

14.4 Summary

- As a distinct area of interest, psycholinguistics developed in the early sixties, and in its early form covered acoustic phonology and language pathology. But now-a-days it has been influenced deeply by the development of generative theory, and its most important area of investigation has been language acquisition.
- Now-a-days, certain areas of language and linguistic theory tend to be concentrated on by the psycholinguist. Much of psycholinguistics has been influenced by generative theory and the so-called mentalists. The most important area is the investigation of the acquisition of language by children. In this respect there have been many studies of both a theoretical and a descriptive kind. The need for descriptive study arises due to the fact that until recently hardly anything was known about the actual facts of language acquisition in children, in particular about the order in which grammatical structures were acquired. Even elementary questions as to when and how the child develops its ability to ask question syntactically, or when it learns the inflectional system of its language, remained unanswered. However, a great deal of work has been done recently on the methodological and descriptive problems related to the obtaining and analysing information of this kind.
- Psycholinguists therefore argue that imitation is not enough; it is not merely by mechanical repetition that children acquire language. They also acquire it by natural exposure. Both nature and nurture influence the acquisition of language in children. Children learn first not items but systems. Every normal child comes to develop this abstract knowledge of his mother tongue, even of a foreign language, to some extent for himself; and the generative approach argues that such a process is only explicable if one postulates that certain features of this competence are present in the brain of the child right from the beginning.

Notes

- Similarly psycholinguistics and sociolinguistics are coming closer because of the realization that merely grammatical competence is not enough; we have to aim at communicative competence too. Whereas psycholinguistics is language and the mind, sociolinguistics is language and community. In other words, psycholinguistics can be said to deal with language and the individual, and sociolinguistics with language and society.
- Psycholinguistics covers a wide range of interests, and other aspects are currently being studied. The study of speech disturbances, aphasia, pausing and hesitations, language use, etc. are the other aspects of psycholinguistics. More recent studies are taking into consideration not only the utterance of children but also of parents. The realisation is growing that future studies must take into account the child's whole environment, and particularly the speech of its parents.

14.5 Key-Words

1. Empiricists : Behaviourists
2. Rationalists : Mentalists

14.6 Review Questions

1. What is psycholinguistics?
2. Write a note on the process of language acquisition.
3. Distinguish between the empirical (behavioural) and rationalistic (mentalistic) approach to language acquisition.
4. 'The first things that are learned are principles—not items: principles of categorization and pattern perceptions'. Discuss.
5. What is the crucial difference between being able to utter some sentences of English and being able to 'speak English'?

Answers: Self-Assessment

1. The boundary between psycholinguistics and linguistics is becoming increasingly blurred as the result of recent developments in linguistics which aim at giving psychological reality to the description of language.

14.7 Further Readings

1. Verma, S.K., V.N. Krishnaswamy. Modern Linguistics: An Introduction.
2. An Introduction to Linguistics, John Lyon.
3. Peter Roach: English phonetics and phonology. Cambridge University Press.
4. Encyclopedia of Linguistic Science Edited By V. Prakasam, Allied Pub., New Delhi.

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Unit 15: Branches in Linguistics: Educational Linguistics

CONTENTS

Objectives

After studying this unit students will be able to:

- Provide the background and a description of the ways in which Linguistics and Education interact with each other in current HE* teaching.

Introduction

A fully developed Educational Linguistics has to integrate linguistic understanding with all the areas listed above. Thus educational linguistics is inevitably a sub-branch of applied linguistics, the study of language in real-world situations where the problems and conventions are defined by non-linguists, whether the general public or language professionals such as (eg) teachers or translators. It needs to be informed by linguistic research but it cannot be limited to it, for language activity is constrained by social, economic, political and ethical factors which are beyond the immediate concerns of Linguistics proper. Thus the individual contribution that linguists can make to educational work is twofold. First, they can provide technical understanding deriving from linguistic, psycho- or socio-linguistic research to address educational problems, or to enable educational practitioners to become more proficient in addressing them themselves. Second, they can contribute by collaborating with colleagues, or by themselves operating both as linguistic and as educational researchers and teachers, understanding the inevitable "messiness" of classroom and broader educational practice, in which so many agendas are competing for attention in limited space. The first contribution is relatively easy; it

*HE - Higher Education

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is in a sense a loaning of linguistic understanding to another field. The second is more valuable, but is more difficult, and involves individuals understanding sympathetically the nature of two distinct approaches to understanding and practice.

15.1 Two Disciplines: Education and Linguistics

Much human activity could be described as educational, for human beings are distinguished by their capacity to learn, and learning is usually co-operative. "Education" can refer both to formal activity within controlled and planned educational institutions, and to the more informal upbringing of children or helping adults who wish to benefit from others' experience. Language is of course the most distinctive means of human communication and therefore for transmission of cultural understanding, skills and value systems.

The disciplines that have developed for the study of these two phenomena are known in higher education as "Linguistics" and "Education", but their histories as the sources of professional and scholarly understanding have taken different routes. Both are characterised, like most disciplines, by the tension between tidiness and manageability on the one hand, and closeness to their object of study on the other. The first takes us towards idealisation and formal models, and the second towards contextualisation and embeddedness in "real world" data. Linguistics has tended to move towards idealisation and formalisation of data, while Education has tended to resist calls for a formal science of learning. This is partly because Education is inevitably bound up with conflicting goals about the nature of the society it is aspiring to create, and political debates about control and investment. Linguistics is less liable to external political interference in the definition of its goals and procedures. Nonetheless, language and learning are so deeply implicated each with the other that it is difficult to conceive of a study of education in which communication and language are not central issues.

One effect of the different domains that each of these addresses is that Education, as studied and taught in higher education, is regarded as a field of human activity which can be investigated from the standpoint of many different, well-established disciplines: history, philosophy, psychology, sociology, among others - and of course linguistics. Branches of Education include not only pedagogy (procedures for effective teaching), but curriculum design, policy, comparative education, and the traditional core disciplines of earlier teacher education (but now largely abandoned) of psychology, sociology, philosophy, and history of education.

Linguistic study impinges on Education through two main routes. First, it has been the core discipline in work on teaching languages, mostly foreign and classical, but to some extent mother tongues. Second, it provides a foundation for studies of communication in the general educational process, mainly in relation to (a) literacy, (b) social behaviour in formal educational settings, and (c) learning processes.

15.2 The Historical Relationship between the Disciplines

The close relationship between language and education is recorded for almost as long as either has been discussed. Certainly, in the western tradition since classical times the association of learning with rhetoric, reflected in (eg) Quintilian, testifies to a close connection between educational standing and oral linguistic performance. Even stronger has been the association between education and the development of literacy (reflected in the widespread use of the term "grammar school"), though this has also been closely connected with the political concerns about who, and how many, in any population should learn to read and write.

Current practice is most directly affected by the past century's greater involvement of government in all levels of education, including HE. This saw an immense increase in access to formal education throughout the world, alongside a similar increase in our understanding of contemporary, particularly spoken language use.

In English-speaking countries much HE work on the interface between the two fields has been driven by the expanding market for English as a foreign language, and for professionally qualified teachers in this field. This has been part of a world-wide development in which government agencies in most

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countries funded their educational provision to respond to pressures from a wide range of sources. Between them, parents, taxpayers, international agencies and researchers influenced governments with three major aims. These were (a) to increase multilingualism, including especially command of English (b) to defend minority cultures and thus minority languages in the face of a greater threat by global economic and political power, and (c) to exploit linguistic understanding that had been acquired as the volume of research in this field increased.

Language in education work has to make sense of the effects of these pressures on current educational practice. It is clear that the three aims potentially conflict with each other.

15.3 The Contribution of Linguistics to Education

Areas in which Linguistics has been seen to contribute to understanding the total education process, beyond teaching methodology, include the following:

1. the relationship between language and cognition;
2. the role of language as a socialising agent within educational institutions;
3. the relationship between language in the educational institution and the wider community;
4. the role of language in general educational policy, in relation to (for example) national and international literacy policies, language in development, and language as a marker of local, regional, national and wider identities;
5. language and its relationship to power structures and the manipulation of communicative strategies by those with power.

Areas in which Linguistics typically contributes to work on language pedagogy include the following:

1. Basic descriptive and analytical work to establish skills necessary for (eg) describing target models and styles, learner errors or literary sources (conventional phonology, morphology, syntax, lexis, semantics, discourse);
2. Sociolinguistic studies, geared to the understanding of language variation and change;
3. Institutional sociolinguistic work aimed at national and educational language policy decision-making;
4. Language acquisition and learning;
5. Categories for the structure of language curricula: formal, functional, situational, etc.
6. Research methods for understanding language use in the classroom (or in other acquisition settings);
7. Language and ideology: power relations, the development of languages of wider communication, language loss (both individual and societal) - providing the context of much language teaching;
8. Various specialised fields: literary stylistics, lexicology, etc for courses with particular orientations.

15.4 Educational Linguistic

First named as a field 30 years ago and defined in two introductory books (Spolsky, 1978; Stubbs, 1986), the title "Educational Linguistics" was proposed by Bernard Spolsky in 1972 for a discipline whose primary task would be "to offer information relevant to the formulation of language education policy and to its implementation" (1974:554). It is an area of study that integrates the research tools of linguistics and other related disciplines of the social sciences in order to investigate holistically the broad range of issues related to language and education.

In his book "The Handbook of Educational Linguistics", Spolsky (2008) says that he first proposed the term "Educational Linguistics" (EL) because of his dissatisfaction with efforts to define the field

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of applied linguistics and of his belief in the close relationship among research, theory, policy, and practice. He asserted that it should be a problem-oriented discipline, focusing on the needs of practice and drawing from available theories and principles of relevant fields including many subfields of linguistics (Hornberger, 2001). Pica also supports this idea and sees it as a problem- and practice-based field "whose research questions, theoretical structures, and contributions of service are focused on issues and concerns in education".

With the responsibility it has taken for L1 and L2 learning, EL has become particularly influential on the scholars engaged in Foreign Language Education (FLE), who attempt to understand how teachers teach and how students learn languages in schools, and especially how they acquire foreign literacy skills, that is, the ability not only to comprehend and interpret but also to create written texts in the foreign language. FLE has become, since the 1920s, a highly scientific field of research that draws its insights mostly from social and educational psychology, thus educational linguistics.

In the following sections, educational linguistics will be examined in detail creating associations with foreign language learning / teaching (FLL / FLT). In addition to the background information and its relations to a number of approaches, theories, and methods; its principles and how they are implemented in ELT settings will be discussed. Moreover, its relations to language teacher education and its contributions to FLL and FLT will be put forward.

15.5 Related Approaches, Theories, and Methods

The problem-oriented nature of EL leads it to look to linguistics together with other relevant disciplines such as theoretical linguistics, sociolinguistics, psycholinguistics, anthropological linguistics, neurolinguists, clinical linguistics, pragmatics, discourse analysis and educational psychology. This transdiciplinary structure provides it to be associated with a number of approaches, theories and methods.

15.5.1 Whole Language Approach

Rigg (1991) claims that the term "whole language" comes from educators not from linguists. It is an approach developed by educational linguists in 1980s to teach literacy in the mother tongue, which is one of the important issues that educational linguists are concerned. In this approach, it is emphasized that learning goes from whole to part for the reason that the whole is not equal to the sum of the parts. Actually, it can be traced back to Gestalt Psychology, which is a theory of mind and brain proposing that the operational principle of the brain is holistic. Similarly, Whole Language Approach adopts the view that learning cannot be achieved through isolated entities; that exacly corresponds to the educational linguists' hatred for segmental phonogy and their insistance on educational phonology.

15.5.2 Humanistic Approach

Humanistic Approach originated by Carl Rogers in 1951 (Demirezen, 2008), also has close links with EL in the sense that it focuses on the emotional side of learning and the principles such as learner-centeredness, cooperation and unearting students' potentials, which are also basic elements of educational psychology, and thus EL.

15.5.3 Communicative Approach

Communicative Approach is also associated with EL regarding the idea that the fundamental aim of language instruction should be communicating in the target language. In order to achieve this, it is not sufficient to have a comprehensive knowledge of language forms and functions; what is further needed is exchange of meanings in real communication.

15.5.4 Discourse Theory

Discourse theory and especially discourse analysis play a significant role in Educational Linguistics. As Stubb (1986) stresses that it is important to distinguish between language in education and linguistics in education, referring to the need to study language "in its own terms" (1986:232), as a discourse system, rather than treating language at the level of isolated surface features, ignoring its abstract, underlying, sequential and hierarchic organization.

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15.5.5 Interactionist Theory

In parallel with communicative approach, interactionist theory also puts emphasis on the effect of social environment in which linguistic competence can be turned out to be communicative competence through interaction and by the help of nonverbal components, much more meaningful language learning can be achieved, as proposed by educational linguists. It is worth noting that "classroom interaction" is the core of educational linguistics research.

According to the associations given above, it is obvious that communicative language teaching, silent way, suggestopedia, TPR and other methods such as task-based and competency-based language teaching can also be linked to educational linguistics.

15.6 The Birth and Development of Educational Linguistics

As a research area, educational linguistics is very young. Its birth occured in 1972 with the works of Bernard Spolsky in America. As mentioned earlier, it grew from the discomfort with the ambiguity of the term "applied linguistics". Therefore, the history of educational linguistics is inextricably linked to applied linguistics.

Since its inception, applied linguistics has had a broad scope, but it is language and education that has come to be dominant. In 1950s, it included a wide range of topics (linguistic geography, dictionary and literature, rhetoric, stylistics, lexicography, general language planning, etc.); however, while ELT was gaining momentum in 1960s and booming by the 1970s, many of these areas which were included in applied linguistics either received less attention or became the object of interest of other developing areas of study.

The problems and controversies regarding the nature and scope of applied linguistics were driving forces in Spolsky's decision to formulate a more precise title for the research studies specifically related to language and education. Moreover, there was also an implication in the term applied linguistics that linguistics is simply applied to issues of social practice. Such a "unidirectional" approach is undesirable and even dangerous especially in education where attempts by linguists to insert their theories directly into practice have led to disastrous results in, for example, phonemic approaches to reading and audiolingual approaches to general language learning.

Spolsky felt that applied linguistics in broad sense obscures the work specifically devoted to language and education. He also felt that to use applied linguistics in a narrow sense to refer to only language education research obscures the multiplicity of the work being done within the field in other domains. Namely, the term applied linguistics was imprecise and disadvantaging for everyone concerned.

He first set fourth his vision for its nature in a presentation at the third AILA congress in 1972, later published in its proceedings. Then, in 1976, the department of Educational Linguistics was established at the University of Pennsylvania's Graduate School of Education within the deanship of Dell Hymes. In 1978, Spolsky published a seminal monograph on educational linguistics. Moreover, in 1984, the journal Working Papers in Educational Linguistics has been established, and since then, sixteen volumes have been published under student editorial direction which include topics ranging from speech act analysis and classroom discourse to language planning and second language acquisition.

At the beginning, people thought that his objective was to provide a new label for applied linguistics. This was largely stemming from a view of applied linguistics as being solely occupied with language and education. However, it was later understood that it's a "unified field within the wider discipline of applied linguistics". And today, it has turned out to be an independent field whose "starting point is always the practice of education and the focus is squarely on the role of language in learning and teaching (Hornberger, 2001: 19). Now, it is widely believed that it is EL which should be responsible for L1 and L2 learning, not applied linguistics.

15.7 The Nature and Composition of Educational Linguistics

Concerning the nature and composition of EL, Spolsky puts forward that language teaching takes place in a school and is closely tied to sociological, economic, political, and psychological factors.

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Therefore, a good language education policy or effective methods of implementation will not ignore linguistics and the other related fields but will represent much more than an application of linguistics. In this respect, educational linguistics is concerned with the dynamic ways in which theory, research, policy, and practice inter-relate, and all work done under the rubric of educational linguistics is focused on this relationship. Actually, what is distinctively important in his original formulation is his "problem-oriented approach" to doing educational linguistics.

15.8 Problem-oriented Nature of Educational Linguistics

In educational linguistics, one does not simply apply disciplinary knowledge to a specific situation. Instead, the researcher starts with a problem (or theme) related to language and education and then synthesizes the research tools in his / her intellectual repertoire to investigate or explore it. Here, the synthesis of research tools refers to a number of methods used in related fields for data acquisition and analysis such as tutorials, observations, surveys, questionnaires, statistics, national / international anthropological archives, goverment information sources, etc. All these research tools present educational linguists the data from different perspectives and help attaining reliable and valid findings for a specific situations.

Still, Spolsky admits that linguistics has a central role to play and it is in this area that most educational linguists will have their primary training. However, while there has been a consensus on the relevance of linguistics for education (and also education for linguistics), there is still less clarity as to the nature of this relationship between them: is it application, implication, interpertation or mediation? Or is it coexistance, collaboration, complementarity or compatibility?

Spolsky insistently emhasizes that educational linguistics "should not be, as it often seems, the application of the latest linguistic theory to any available problem", but rather a problem-oriented discipline focused on the needs of practice. He argues that linguistics has applications to and implementations for education, both directly through language descriptions and secondarily through linguistic subfields. At the same time, such a relationship includes the "coexistance of activities, collaboration of efforts, complementarity of contributions, and compatibility of interests" - a balanced reciprocity which may well serve as a model for theory and practice in the whole of the educational linguistics field.

In educational linguistics, the focus on educational practice is both indirect and direct. The knowledge generated in EL may be used to guide the process of crafting sound educational language policy which is designed to influence practice. On the other hand, this knowledge may be used to guide sound teaching practice as it is implemented in relation to educational language policy. Then, the scope of educational linguistics, Spolsky later elaborates, is the intersection of linguistics and related language sciences with formal and informal education.

One of the core themes in educational linguistics is language policy. Within language policy, it is educational language policy that they are concerned. Educational language policy forms a part of wider national language planning, focusing specifically on the educational sector as "the transmitter and perpetuator of culture". Other themes dealt within EL can be specified as L1 and L2 acquisition, language choice, language and ethnicity, descriptive analysis of speech acts and discourse, educational implications of linguistic diversity, language planning, bilingual education, spoken interaction in professional settings, and biliteracy.

15.9 Subfields of Educational Linguistics

Thanks to its problem-oriented nature, educational linguistics has close links with a number of disciplines which are regarded as 'subfields' of educational linguistics by Hornberger. This also proves that EL is an independent field, not a subfield of applied linguistics any more, but it has its own subfields.

Theoretical Linguistics: It is a branch of linguistics concerned with developing models of linguistic knowledge. It involves the search for and explanation of linguistic universals. Syntax, phonology, morphology, and semantics are the core of theoretical linguistics.

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Sociolinguistics: It is the study of effect of any and all aspects of society, including cultural norms, expectations, and context on the way language is used. The chief contribution of sociolinguistics in educational settings has been to draw attention to the differences between language use in the classroom and in students' homes and communities. Because it is important to teaching and learning, language is heavily regulated in classrooms. Teacher talk is the name given to the special register that teachers use. It is a means of inducting pupils into specific topics and approaches and imparting instruction. Like all registers, Teacher Talk has developed certain conventions and properties. It typically comprises longer and more complex utterances than the teacher expects from the pupils.

Psycholinguistics: It is interdisciplinary in nature and is studied by people in a variety of fields such as psychology, cognitive science and linguistics. Linguistic-related areas are phonetics and phonology (focusing on how the brain processes and understands these sounds), morphology (relationships among words and their formations), syntax (how words are combined together to form sentences), semantics, and pragmatics.

Anthropological Linguistics: It is the study of the relations between language and culture, and the relations among human biology, cognition and language. It studies humans through the languages that they use.

Neurolinguistics: It is the science concerned with the human brain mechanisms underlying the comprehension, production and abstract knowledge of language, be it spoken, signed or written. Neurolinguistics has highlighted the special role of that part of the human brain known as Broca's area in crucial aspects of human language, namely syntax: the component of language that involves recursion.

Clinical Linguistics: It is a sub-discipline of linguistics and involves the application of linguistic theory to the field of Speech-Language Pathology. The International Clinical Phonetics and Linguistics Association is the unofficial organization of the field and was formed in 1991. They conduct researches with the aims of advancing techniques in assessment and remediation in Speech-Language Pathologists and offering insights to formal linguistic theories.

Pragmatics: It is the study of the ability of natural language speakers to communicate more than what is explicitly stated. The ability to understand another speaker's intended meaning is called pragmatic competence. Another perspective of pragmatics is that it deals with the ways we reach our goals in communication.

Discourse Analysis: It is a general term for a number of approaches to analyzing written, spoken or signed language use. Discourse analysis has been taken up in a variety of social science disciplines such as linguistics, sociology and psychology. As stated earlier, it has close links with educational linguistics in the sense that language is a discourse system so it should not be treated at the level of isolated surface features.

Educational Psychology: It is the study of how humans learn in educational settings, the effectiveness of educational interventions, the psychology of teaching, and the social psychology of schools as organizations. It informs a wide range of specialities within educational studies, including instructional design, educational technology, curriculum development, organizational learning, special education and classroom management. It both draws from and contributes to cognitive science and the learning sciences. Actually, it is one of the most important fields from which educational linguistics benefit.

It is clear that linguistics and psychology are indispensable parts of educational linguistics. However, language teaching should not look to educational psychology or linguistics for revelations or discoveries on how to teach language, but should learn to utilize these disciplines to make the vast practical experience in the teaching of foreign languages more meaningful, to evolve definite principles of language teaching and consolidate them in a true science of language learning.

15.10 Basic Principles of Educational Linguistics

The principles of Educational Linguistics got matured around 1970s by Spolsky giving references to a number of related disciplines. Giving a general framework for the practices of foreign language education, they can be specified as follows:

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1. Literacy is at the core of foundations of education. Literacy can be defined as the ability to identify, understand, interpret, create, communicate, compute and use printed and written materials associated with varying contexts. It involves a continuum of learning to enable an individual to achieve his or her goals, to develop his or her knowledge and potential, and to participate fully in the wider society. For this reason, EL stresses that literacy should be in primary consideration at each and every stage of educational processes.
2. It is educational linguistics which should be responsible for L1 and L2 acquisition, not applied linguistics. As an independent field of inquiry with its own departments, journals, conferences and scholars specialized in the field, EL is the one which should conduct researches and studies specifically on L1 and L2 learning, and thus seek ways for improving opportunities in language learning contexts.
3. Verbal intelligence is one of the most-used predictors of educational success. Therefore, learners should be encouraged to have sufficient amount of linguistic competence and then turn it into communicative competence.
4. Education needs linguistics since the improvement in language skills of writing, reading, speaking, and listening can only be achieved through knowledge about language. Spolsky himself admits that linguistics is an indispensible part of language learning process. Without knowing about language itself, it is impossible to use it properly. The important point is the 'proportion' that should be allocated for linguistics in language learning. It should be as it is required in foreign language education, not more than that.
5. A learner-centered, holistic, humanistic, and problem-oriented language teaching approach should be adopted. Only in this way, learners' full potential can be unearthed and they can fulfill the communicative functions of language use.
6. The use of target language in real communication should be the focus of foreign language education. Literacy in foreign language can only be achieved through the use of target language in all stages of learning, and thus teachers should create opportunities for learners to use the language outside the classroom. Especially in the context of foreign language learning and teaching, this can be managed through the use of technological devices.
7. Language education is a whole together with individials, educational setting, curriculum design, and educational language policy. Therefore, language learning process should be considered as a whole with its components and all planning should be made within this framework.

In the light of these principles, educational linguists aim at organizing classroom activities so as to fulfill basic functions of foreign language education such as literacy, communicative competence, learner-centered language learning tasks, and attempt to consider language learning / teaching issue in a holistic manner including learners, schools, curricula and national policies of the governments.

15.11 Educational Linguistics' Relations to ELT

Even though it is considered as a young field, educational linguistics has been very active since 1970s in the sense that it has strong arguments related to the teaching of English as a second or foreign language.

Its emphasis on "classroom interaction" is one of them. Educational linguists think that as well as it is the core of educational linguistics research, classroom interaction is a significant part of language teaching methodology. It is also important since it is closely associated with power and control in classrooms and schools. Since the main objective of ELT practices is to be able to make students equipped with necessary knowledge of language so that they can communicate well in real world, educational linguistics' focus on classroom interaction is quite reasonable.

On the other hand, Pica notes that educational linguistics research has shed light upon primarily two domains of practice: design and implementation of learner-centered, communicative curricula and professionalization of the classroom teacher as decision-making educator. Stubbs (1986) also supports the idea and adds that educational linguistics provides teachers with the knowledge of language

Notes

itself and how to teach it, so this, in turn, helps educators tackle with English language education problems such as the teaching of vocabulary, reading and writing.

Teacher's role is very important in this respect. As well as being a good source of knowledge for the learners, s/he should also act like a psychologist so as to determine proper applications in accordance with learners' mood, perceptions, backgrounds, etc. Namely, s/he should be a professional need analyst.

According to EL, ELT practitioners are required to create an autonomous, interactive and meaningful language learning environment for the learners while making necessary decisions in accordance with the school and the state policies because classroom applications are thought together with its hierarchical structure in EL. Similarly, learners are regarded as the center of all classroom practices and thus educational objectives of the school and the state.

All materials are presented in a meaningful way which enables learners to see the whole picture first and then getting the necessary knowledge through this holistic structure, not in isolation. Similarly, that is why educational linguists reject segmental phonology, but creat educational phonology to be used in language education.

15.12 Educational Linguistics and Language Teacher Education

The recent recommendation by Fillmore and Snow that all teachers need to know quite a bit about language has revived old debates about the role of linguistics in educating teacher trainees.

At the beginning of the 20th century, the predominant assumption was that teachers were born and not made, or if they were made, they were "self-made." Therefore little attention was paid to the idea of foreign language teacher education. By the 1920s, however, articles began to appear that outlined curricula for the training of high school language teachers. One of the problems confronting teacher education programs in the early years of the century was lack of speaking ability on the part of candidates for certification. Teacher exams were proposed over the years to ensure a reasonable level of proficiency. They were required to pursue general methods and testing courses as well as courses in the psychology of learning. As a consequence, teachers were no longer producers, but were consumers of knowledge related to language learning and teaching.

By the 1960s, teachers were expected to demonstrate both subject matter and professional competence. They were required to take courses that focused on the language itself. When linguistics courses were taught, for example, linguists in general had serious problems making linguistics relevant to teaching. Especially interesting is that in a 1964 special issue of the Modern Language Journal, a set of "guidelines" for teacher preparation was published. Despite the field's best efforts, one problem continued to nag the profession -the low level of language proficiency among future teachers. This was due to the fact that although teachers were knowledgeable about language itself, they were not taught how to present that knowledge in communicative ways.

This great lack in language teacher education became booming in mid 1970s and drew special attention of educational linguists. Then they have proposed that language teachers are not -and should not be- pure linguists, thus they should learn linguistics as it is required by language education. Furthermore, EL also emphasizes that as well as language learners, teacher trainees also should be educated in a holistic and humanistic way which will enable them to teach foreign languages in the same manner, and all practices in teacher education process should aim at revealing trainees full potential in communicative competence.

Educational Linguistics' Contributions to FLL/FLT

While educational linguistics contributes distinctive disciplinary focus, concepts, methods and history, it also takes distinctive form in each of the following types of curriculum and comes up with novel perspectives in curriculum planning.

- **Skills**: An economistic-vocationally oriented curriculum: In this kind of curricula, teaching aims to facilitate the acquisition of skills which are seen to be discrete or separately specific,

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and are taught via pedagogies that stress explicit teaching, identifying sub-skills and teaching these separately and aiming through apprenticeship to combine the subskills. For instance, it may be suitable for "language for specific purposes".

- **Eloquence**: A humanistic-intellectual paradigm: When curricula are conceptualized as in some sense "humanizing", the educational linguistics makes use of notions of eloquence, expression, rhetoric, and elevated culture. Informing learners of timevalidated canonical thought, works of art, and literature distinguishes this class of curricula.
- **Virtue**: Paradigms of religion or social ideology: Some curricula aim to reproduce norms of life that derive from ethnicity, religious creed, or moral ideology. Educational linguistics, in this respect, serves unique goals of teaching, content sequencing, assessment, and evaluation associated with modes of practice particular to the ideology of the schools involved.
- **Nationing**: The discourse of loyal citizenship to nationality-defined states: Nationing, both in new nations intent on forging identities larger than regional or local ones and in established nations intent on preserving distinctiveness, utilizes linguistic based narration, story telling about national cohesion and unity, or subliminal and continual reminders of the persistence of nationality.

On the other hand, it gave way to the emergence of Whole Language Approach in 1980s which is also called "the real books approach" since it used real books instead of coursebooks. Its focus on meaningful and purposeful communication in language classes enabled it to help students be at ease while communicating.

In this respect, it is not wrong to say that Ausubel's Meaningful Learning Theory is one of the contributions of EL to the teaching and learning foreign languages. As an opposition to the traditional language learning theories, particularly Audiolingualism, it has derived from a cognitive perspective to language learning and teaching, thus attempts to find ways of creating meaningful learning situations in which learners feel comfortable and construct knowledge with their own effort.

Participatory approach is another term proposed by educational linguists which means a process through which the views of all interested parties are integrated into the decision-making process Alatis, et al. That is why EL benefits from a number of disciplines to solve an educational problem.

Educational linguistics also created a market of materials designed specifically for foreign language learning and teaching. Different text types and application-oriented materials became available all around the world.

Furthermore, it became influential on the emergence a number of language teaching methods such as Silent Way, TPR, content-based and task-based language teaching, which are all holistic, humanistic, and problem-oriented in nature. But most importantly, educational linguistics enabled L1 and L2 learning to be an independent field with its own research studies, approaches and applications for better educational opportunities.

15.13 Criticism of Educational Linguistics

Educational linguistics is a relatively recent issue that draws scholars' and researchers' attention from a number of disciplines and thus takes various reflections concerning its strong sides and inadequacies. They can be listed as follows:

15.13.1 Advantages of Educational Linguistics

- It has been understood that there is a need for more research into teachers' explicit beliefs about, and understanding of, language in order to enable us to understand teachers' central role as educational linguists, that is, as conscious analyst of linguistic processes.
- Educational linguists made an attempt to address a fundamental problem -the language barrier to education- i.e. the instance where a child acquires a vernacular language informally and is required by the educational system to acquire a different, standard language, a problem which recurs for millions of children daily, weekly, and yearly all over the world.

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- It has elucidated that education and linguistics are in need of each other all the time; especially teaching linguistics to the educators is important so that they can cope with the problems such as teaching vocabulary, reading, and writing.
- EL follows from this notion that educational linguists variously investigate a host of themes related to individuals, the institutions they inhabit, and the socities in which both are situated, all as they relate to language and education. This holistic perspective makes it so strong and successful.

15.13.2 Disadvantages of Educational Linguistics

o Although educational linguistics claims that it is an independent but transdisciplinary field any more, there are some other arguments which insist that it is still a sub-branch of applied linguistics. For instance, van Lier puts forward that researchers working on language learning should consider themselves to be linguists who do applied linguistics who do educational linguistics.

o In a similar way, applied linguists also claim that for a discipline to be an independent one, it has to create its own approaches, theories and methods. Therefore, they assert that EL cannot be regarded as a seperate field in this respect. However, the contradiction that applied linguistics -considering itself as an independent field- also does not have its own approaches, theories, or methods weakens this argument.

The inadequecy of EL concerning these aspects can be explained best with its being such a young field to produce its own approaches, theories, and methods. In the course of time, educational linguistics is to come up with novel approaches in L1 and L2 learning and improve current practices with more efficient and innovative ones.

Self-Assessment

1. Fill in the blanks:

(i) The book 'The Handbook of Educational Linguistics' written by ..... .

(ii) The title 'Educational Linguistic' was proposed by Spolsky in ..... .

15.14 Summary

- Concerning Spolsky's own words; educational linguistics starts with the assessment of a child's communicative competence on entering school and throughout his or her career, includes the analysis of societal goals for communicative competence, and embraces the whole range of activities undertaken by an educational system to bring its students' linguistic repertoires into closer accord with those expected by society.
- With its roots in the controversies of applied linguistics, educational linguistics has grown into a thriving field of inquiry focused on foreign language education. Its transdisciplinary nature has allowed it to flourish in a wide range of disciplinary climates. While this wide range has resulted in an impressively diverse body of knowledge with great potential to influence educational practice, it has also made it challenging to develop a sense of cohesion for educational linguistics as a whole.
- Although the question "Do we really need educational linguistics as a separate field? " is still echoing especially at the part of applied linguists, EL has proved that language practicioners are really in need of such a distinct field so as to specifically work on the issues belonging to this particular area: foreign language education. On the other hand, this does not mean that applied linguistics is useless any more. In the case that EL becomes insufficient to solve a particular problem related to language learning and teaching, it is applied linguistics that EL will call upon. In this respect, the two are always in juxtaposition and cannot reject the presence and significance of each other.
- Even though there are some oppositions concerning its independent structure, today it is obvious that educational linguistics stands powerfully as an independent but at the same time transdisciplinary discipline. This position can be summarized best with the metaphor used by Hornberger: birds on a wire. He says that the shifting and repositioning nature of

Notes

academic disciplines can be depicted best with this methaphor. When a new one joins their midst; if they refuse to budge, the newcomer will have to fly off again. That is to say, educational linguistics has indeed found a place on the wire amidst its peer disciplines and goes on its way with strong paces.

15.15 Key-Words

1. Theoretical Linguistics	:	It is a branch of linguistics concerned with developing models of linguistic knowledge. It involves the search for and explanation of linguistic universals. Syntax, phonology, morphology, and semantics are the core of theoretical linguistics.
2. Sociolinguistics	:	It is the study of effect of any and all aspects of society, including cultural norms, expectations.
3. Psycholinguistics	:	It is interdisciplinary in nature and is studied by people in a variety of fields such as psychology, cognitive science and linguistics.
4. Anthropological Linguistics	:	It is the study of the relations between language and culture, and the relations among human biology, cognition and language.
5. Neurolinguistics	:	It is the science concerned with the human brain mechanisms underlying the comprehension, production and abstract knowledge of language, be it spoken, signed or written.

15.16 Review Questions

1. What is meant by Educational Linguistics? Discuss.
2. Discuss the Basic Principles of Educational Linguistics.
3. Explain the nature of Educational Linguistics.
4. What are the Sub-fields of Educational Linguistics?

Answers: Self-Assessment

1. (i) Bernard Spolsky (ii) 1972

15.17 Further Readings

1. Verma, S.K., V.N. Krishnaswamy. Modern Linguistics: An Introduction.
2. An Introduction to Linguistics, John Lyon.
3. Peter Roach: English phonetics and phonology. Cambridge University Press.
4. Encyclopedia of Linguistic Science Edited By V. Prakasam, Allied Pub., New Delhi.