CHALIMBANA UNIVERSITY

DIRECTORATE OF DISTANCE EDUCATION

ELE 2100-STRUCTURE OF THE ENGLISH LANGUAGE: PHONETICS AND PHONOLOGY, MORPHOLOGY AND SYNTAX.

FIRST EDITION 2018

PHONETICS AND PHONOLOGY

CHALIMABANA UNIVERSITY

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Acknowledgements

Introduction

Welcome to module 1– ELE 2100: Structure of the English language: Phonetics and Phonology, Morphology and Syntax. The module is the first one of the three and is about phonetics and Phonology, the first part of the course.

Rationale

This course is divided into Phonetics and Phonology, Morphology and syntax. Phonetics and Phonology, the first part of the course, explains to you how English language is pronounced in the accent deemed as the standard for people learning the English spoken in England. The course also provides principles that regulate or account for use of sounds spoken in English. In addition, the course also presents information contextually about speech sounds and how these are used in particular languages. The second part, which is Morphology involves detailed study of the internal structure of English words and word formation processes. The study includes derivational and inflectional Morphology. Syntax engages and is devoted to the syntactic analysis of language. It concerns itself with the ways in which wordscombine to form sentences and the rules which govern the formation ofsentences, making some sentences possible and others not possible withina particular language.

Aim

The aim of this course is to explain to you how English is pronounced in the accent normally chosen as the standard for people learning the English spoken in England.

Learning Outcomes

By the end of this course, you should be able to:

- Demonstrate understanding of the nature of speech sounds and the relationships between sound segments and articulation.
- Transcribe words phonetically
- Demonstrate understanding of the sounds as presented in the International Phonetic Alphabet
- Explain the nature of speech sounds and distinguish them from letters of the alphabet
- Distinguish between Phonetics and Phonology
- Demonstrate understanding of how different speech sounds are produced
- Identify branches of Phonetics
- Explain the process of speech production/articulation;
- Carry out a description and classification of the basic sounds of English;

- Undertake an analysis of syllable structure as well as rhythmic patternsusing intonation, accentuation/stress.
- Express the function of intonation in English language
- Distinguish between tone and intonation

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Summary of module

ELE 2100 is planned to make you knowledgeable in the most important starting pointsin general phonetics and the phonology of English. On the completion of the course, you will be well placed to appreciate some of the most essential issues for beginners in the study of general phonetics and the phonology of English. You should, for instance be in a position to understand the nature of language, sounds and their production in natural languages as well as non-segmental features such as intonation, accentuation/stress and rhythm.

Study Skills

As an adult learner your approach to learning will be different to that from your school days: you will choose what you want to study, you will have professional and/or personal motivation for doing so and you will most likely be fitting your study activities around other professional or domestic **responsibilities.**

Essentially you will be taking control of your learning environment. As a consequence, you will need to consider performance issues related to time management, goal setting, stress management, etc. Perhaps you will also need to reacquaint yourself in areas such as essay planning, coping with exams and using the web as a learning resource.

Your most significant considerations will be *time* and *space* i.e. the time you dedicate to your learning and the environment in which you engage in that learning.

We recommend that you take time now—before starting your self-study—to familiarize yourself with these issues. There are a number of excellent resources on the web.

Time frame

This part of the course is to be covered in the period of **3** months. You will be expected to spend at least 18 contact hours with the lecturer and 60 hours of self-study

Course material

The main course materials in this course are:

- Study units
- Text books
- Dictionaries & Charts
- Pre-recorded Radio lessons

- DVDs

Need help (contacts)

If you should need help, you can contact email**jimaimahandili@gmail.com.**You may also see us physically at the Chalimbana Literature and Languages department.

Recommended readings

Crystal, D. (2001). *The Cambridge Encyclopaedia of the English Language*. Edinburgh: Cambridge University Press.

Gimson, A.C. (1980). *An Introduction to the Pronunciation of English*. London: Edward Arnold.

Roach, P. (1998).*English Phonetics and Phonology: A practical course 2nd ed.* Cambridge: Cambridge University Press.

Skandera, P. & Burleigh, P. (2005).*Manual of English Phonetics and Phonology: Twelvelessons with an Integrated Course in Phonetic Transcription.*Bindung: Nadel, Nehren.

Assessment

Assessment	Comments	Percentage
Assignment 1	Written	20%
Assignment 2 (seminar)	Team work	10%
Test		20%
Final exam		50%
Total		**100%**

Unit 1:   LANGUAGE: MEANING AND ORIGIN

1.0 Introduction

You may be aware that studies in phonetics and phonology are based on natural languages. Owing to this, and because language is basically the subject of phonetics and phonology, it would be prudent that your good knowledge about language is set as the backdrop for understanding phonetics and phonology. In addition, since language is expressed through mediums, it is also essential that you have knowledge about which medium of language in particular is of concern in the study of phonetics and phonology.

1.1 Learning Outcomes

By the end of this unit, you should be able to:

- Explain what language is
- Discuss aspects of language origins
- Identify mediums of language
- Identify major components of language

1.1.1 Language: its meaning and origin

At this point, we may want to take it for granted that you know the meaning and origin of language from your lectures in Introduction to Language and Linguistics. However, refreshing your memories would still be fine. You must have learnt that the simplest explanation of the term **language** is to simply say it is a means of communication. This kind of communication may take place between individuals, groups or indeed nations. Through language, people are able to live together to interact and to express their thoughts and feelings. It is because of language that the world has remained live. It is also true that it is because of language that people have maintained constant relationships and social intercourse.

And concerning the origins of language, you must have learnt that the origin of language is not precisely known despite the significant social roles played by language. The matter of origins has remained a speculation. Among the speculations is one popularly known as the ***Divine Source.*** This source claims that God created Adam and

gave him the ability to speak. Adam in turn named the creatures so created by God **(Genesis 2:19).**

The issue of the origin of language is not the primary concern of this course. Therefore, we wish not to go unnecessarily beyond this point. However, this is not to suggest that you cannot read further to gain understanding on this subject matter.

1.2 Technical definitions of language

Even if the origin of language has remained unclear, technical definitions of what language is have been advanced. These definitions have been helpful in that they have called to attention the main features of language. The technical definitions are as cited below:

   i.   Gimson (1980: 4-5) describes language as: …a system of conventional symbols used for communication by a whole community, the pattern of conventions covers a system of significant sound units, the inflection and the arrangement of words and the association of meaning with words.

   ii. Hall (1968: 158) says that language is: …the institution whereby humans communicate and interact with each other by means of habitually used oral-auditory arbitrary symbols.

   iii. Sapir (1921: 18) sees language as: …a purely human and non-instinctive method of communicating ideas, emotions and desires by means of a system of voluntarily produced symbols.

1.3 Language and its Mediums

Having looked at some definitions of language and its origins, you also need to know that languages are realized through symbols which are either oral-auditory (spoken) or graphic (written). This basically means that languages are made up of symbols which are either spoken or written. The majority of attempts to explain language state that it is made up of phonic, vocal, oral-auditory conventional symbols. And the majority of sources on language indicate that speech is prior to writing. This means that practically all natural languages are usually first spoken and later written, if necessary. This

explains why it is true that there are many languages in the world which are not written whereas all are spoken. This is what is often described as the "***primacy of speech.***"

Sapir (1949) argues that language is primarily a system of symbols for the expression of communicable thought and feeling. The symbols of language are differentiated products of vocal behaviour. You can see from the arguments so presented that natural languages are expressed through speech or writing, which are the two main language mediums. Note that spoken language consists of organised sounds resulting from the actions of the speech organs. The spoken language is called **aural medium** because it is the sense of hearing that is utilised to perceive it. The written language is produced by use of symbols that are visually recognised by the reader visually. It is owing to this that written language is referred to as the **visual medium**. In addition, the written language is also used by the visually impaired in the form of the Braille. The Braille comprises symbols identified through the sense of touch. It is therefore referred to as **tactile medium**. Note that *medium*itself is not a language but a means through which language can be understood. At this point, you must have seen by now that language is expressed through mediums.

1.4 Major Components of Language

Major language components may be looked at through the consideration of the levels of language, such as phonetics and phonology, morphology, syntax, semantics and other levels. Language components are not only looked at through the mentioned levels but also through the study of sounds and letters and speech and writing. In this course however, the consideration will be based on only two levels-phonetics and phonology.

Reflection

Carefully think of what you have just read. What, in your opinion would you say on language and its origin? What about language and its mediums; would you say communication would still be there without the mediums of language?

Evaluation

i.	Briefly explain how language enables us to stay connected
ii.	Briefly state what you have learned about the origin of language
iii.	Describe the mediums of language studied in this section

A common feature of the mediums is that they serve as a link between the sender of a message and the receiver of it. What is normally perceived which affects the communication is the outcome of the activity which may be sounds or shapes. It is important to note that a language signal can be transferred from one medium to another. Thus, it is possible to write down what has been spoken and to read aloud what has been written.

Summary

In this part of the module, you have learned that human natural languages are realised through various mediums. You have also learned that language enables humans to remain connected. In addition, you have also been exposed to the technical definitions of language that help to bring out the main features of languages thereby assisting in the study of language.

Unit 2: DEFINING PHONETICS AND PHONOLOGY

2.0 Introduction

The dual function of language makes it possible for one to study human language at any linguistic level. Phonetics comes first in the hierarchy and is followed by Phonology. You will realise that Phonetics constitutes the study of the smallest units of speech sounds and it provides the materials for phonology to build on. This unit helps you understand the basic of linguistic study, more so as it relates to phonetic and phonological study.

Learning Outcomes

By the end of this unit, you be able to:

- State what phonetics is all about
- Distinguish between phonetics and phonology
- Establish the phonetic-phonology interface
- To establish the extent of the relationship.
- To find out whether the relationship is mutual

2.1 Defining Phonetics and Phonology

Phonetics is the systematic study of speech sounds that are utilised by all human languages to represent meaning. Phonetics is concerned with the study of the sounds of natural languages…languages into which human beings are born. Phonetics attempts to describe all the sounds used in human languages. You are able to recognise the difference and distinguish between sounds of the English language. The approach to phonetics is scientific in the sense that its analysis of the subject matter is accurate and verifiable. You will also be able to identify the restrictions in the occurrence of English consonants and vowels.

Phonetics studies the mechanism of production, transmission and reception of sounds. In short, phonetics is the systematic study of speech sounds and their properties. The task of phonetics includes among others an account of how speech sounds can be described and classified.

The term *phonetics* has been derived from the Greek word *phone* which means sound. Phonetics, thus, involves the study of general mechanism of production, transmission and perception of any sound. Its scope and subject matter are very wide.

2.2 Phonology

It is hoped that you have now been acquainted with phonetics as being the systematic study of speech sounds that are utilised by all human languages to represent meaning. You have also been precisely exposed to the concerns of phonetics. Phonology, on the other hand deals with the organisation, grouping, patterning and distribution of the basic sounds of natural languages (vowels and consonants). It studies the restrictions and regular patterns of sound combinations. The syllable (which shall be looked at later) is the basic unit of study. Symbols which are used to indicate the pronunciation of sounds, syllables or words are written within slanting lines / /, sometimes called slashes or oblique slashes following phonological convention. When the differences in sound combinations are as a result of non-segmental phenomena like tone, intonation, rhythm and accentuation, it is referred to as suprasegmental phonology. For example, when the first syllable in the word *import* is stressed, it constitutes a difference in meaning in that it functions as a noun, but as a verb if the stress is on the second syllable.

In phonology, distinctive features of phonemes are determined and used to describe, compare and contrast phonemes. The distinctive features of a phoneme refer to the group or bundle of features which differentiate a phoneme from other phonemes. The features are derived from the parameters for classification of sounds. Consonants are classified according to the parameters of place and manner of articulation, and voicing. Vowels are classified according to the parameters of tongue height, rounding of the lips, and length of production.

2.3 The Phonetics and Phonology interface

The relationship between phonetics and phonology is such that human speech is the subject matter. However, Phonetics is the starting point while phonology takes off from where phonetics ends. The example of aspiration in English will illustrate this relationship. Through phonetic analysis, the consonant /p/ is a distinct speech sound in English in terms of the parameters of classification, place and manner of articulation. Through phonological analysis, /p/ is a distinct phoneme because it constitutes a

difference in meaning when in combination with other sounds in a syllable. Also, /p/ is produced with a puff air when it occurs in word initial position and before a vowel as in *people* [pi:pl]. This production of /p/ is a variant called an allomorph. It is aspirated and represented as [ph]. The second /p/ in *people* does not meet the conditions of occurrence and so is not aspirated. Note however, that the aspirated [ph] is not a distinct sound nor is it a distinct phoneme of English. In other words, its occurrence does not constitute a difference in meaning.

The dual nature of human languages as alluded to earlier makes it possible for languages to be broken down into various units so that it is possible to be learnt. Language can be studied at different linguistic levels such as the Phonetics (sounds), Phonology (structuring of sounds), Morphology (words), Syntax (sentence) and Semantics (meaning), Pragmatics (level larger than meaning). In linguistics the study of sounds is in phonetics and phonology. The words are studied in morphology while sentences are studied under syntax. All these help in the development of the complex nature of human languages. Phonetics and phonology are closely related that they can hardly be separated. However, they are studied at different levels of linguistic analysis, because they constitute different levels of language structure.

Phonetics as a level of language study deals with the physical realization of sounds as produced by the organs of speech. It deals with the study and analysis of the speech sounds of languages in terms of articulation, transmission and perception. Thus, phonetics has three major components, which are acoustic phonetics (the physics or instrumental production of sounds), articulatory phonetics (production of sounds with the speech organs), and auditory phonetics (perception of sounds with the ears). Details deriving from these branches (of phonetics) facilitate the development of writing systems, that is, orthographies. Without phonetics, it will be extremely difficult to study phonology as it produces the basic raw materials or building blocks for phonology to build on. Human beings produce a whole lot of sounds ranging from the non-linguistics; belching, grunting, and hissing) to the linguistics (consonants and vowels). Out of all the sounds produced some of them are not linguistically relevant.

So, phonetics deals with the production of the relevant and the irrelevant sounds in languages. These sounds in phonetics do not belong to any particular language, they are universal sounds. Phonetics basically deals with all possible sounds by human beings, the useful and the useless sounds. Human beings can produce even the novelty sounds, which nobody has ever produced or heard. These phonetic and non-phonetic segments which are universal sounds constitute the raw material for phonology to build on. Without some output from phonetics there will be no input for phonology. It is where phonetics leaves off that phonology starts. Note that it is enough to say that there would not have been any phonology if there was no Phonetics.

From this point on you need to note that phonology is a branch of linguistics that deals with useful sounds of a specific language. It studies the ways sounds of a language are organized into systems. At the phonetics level a wide range of sounds, which are not linguistics, are produced; only a very small number of these sounds are contrastive or significant. It is these significant speech sounds that phonology is concerned about. Adetugbo (1992) proposes that phonology takes phonetic facts…but goes further to study speech sounds as constituting a system in any language. Among the possible sounds capable of being produced by human beings, only a minute number of them can be combined to bring about meaningful utterances in a language. Atolagbe (2000) defines phonology as the sound system of a language, the speech sounds that are combined into meaningful and acceptable patterns for communication purposes, in a specific language.

Phonology is particular to a language. Several languages may share the same or similar sound segments, but structure these sounds differently to suit the system of that language for example English and Tonga have the sound /p/. This sound is without doubt structured differently by each language based on phonological rules of that language (grammar is basically rule governed). Thus, we have Tonga phonology, Bemba phonology, Luvale phonology, English phonology and the phonology of many other languages not mentioned here. After phonetics has produced the useful and the useless sounds it stops its work. It is here that phonology comes in to pick and select the sounds and the non-sounds from the phonetic sound repertoire. Remember, we have said that 'Phonology is specific to a particular language'. No two languages share the

same rules in their organization of sounds. So, each language after selecting the sounds the sounds that are useful to it now leaves and structures these sounds and non-sounds to suit the rules of that language. It builds on the raw material produced at the phonetic level.

2.4 Conclusion

Phonetics is the science of language that deals with the study and analysis of the speechsounds of languages in terms of articulation, transmission and perception, while Phonology is a branch of linguistics that deals with useful sounds of a specificlanguage. It studies the ways sounds of a language are organized into systems. The two are closely related in that without one the other cannot exist. Sounds are used in language development; mostly in the development of languages' orthography,

transcription and establishment of contrastive units in languages.Phonetics is the starting pointing of any language as it deals with how sounds are produced (articulated), sent across (transmitted) and perceived (reception). In other words, phonetics accounts for how human beings generate speech sounds, the physical properties of the sounds and how they are received by the hearers. Phonology, however, focuses on speech sounds as well, but in a different way. It deals with how the sounds of a language are identified, classified and organised to function in that language.

2.5 Summary

The Interface between phonetics and phonology refers to the relationship between the two levels of language studies. There is a very close relationship between Phonetics and Phonology. Phonetics is the minimum level in language in the hierarchy of language analysis. It is general in that no language can lay claims to it. It contains the useful and the useless sounds of languages. It is these useful and useless sounds of thelanguage that constitute the raw materials on which Phonology needs to build on.Thus, Phonology is a branch of linguistics that deals with useful sounds of a specificlanguage. It studies the ways sounds of a language are organized into systems.The relationship between Phonetic and Phonology is that in the hierarchy of languagestudies, Phonetics comes first and it is followed by Phonology. Secondly, Phoneticsproduces the raw materials which phonology builds on. Without Phonetics there willbe no phonology, phonology cannot be studied without phonetics. The next unit introduces you to the description of speech sounds.

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Reflection

Think through what you have just been exposed to in this unit. Would you says it is possible to look at phonology before you deal with phonetics?

Evaluation

1. Phonetics produces the raw material on which Phonology builds with. Discuss.
2. In your opinion, can Phonology be studied without Phonetics, justify?
3. What is the level of relationship between Phonetics and Phonology?
4. Phonetics is general while Phonology is specific. Discuss these claims with corpus of data.

Unit 3: BRANCHES OF PHONETICS

Introduction

Speech sounds can be described at any stage in a chain of events or processes/phases, which include; articulatory phonetics, acoustic and auditory phonetics.

Learning Outcomes
By the end of this unit, you should be able to:
- Discuss the branches of phonetics
- Show how branches relate to each other

3.1 Articulatory Phonetics

This is the branch of phonetics which studies how different speech sounds are produced by human organs (the so-called organs of speech and vocal cords: lips, teeth, tongue, larynx, etc.).

In articulatory phonetics speech sounds are described in terms of the organs which produce them and how these organs behave during their production. Sounds are classified according to the place of articulation, in terms of the organs of speech used in their production (bilabial, alveolar, palatal), and according to manner of articulation in terms of the how airflow from the lungs is obstructed in their production e.g. stops, fricatives, affricates etc. For instance a description of the sound [p] will include the fact that the two lips come together and momentarily completely block the passage of air from the lungs and then a sudden release of the air or a sudden parting of the lips occurs resulting in some kind of explosion. It is for this reason that the phonetic description of [p] includes the terms "bilabial plosive". In this course we are mainly concerned with this aspect of phonetics.

3.2 Acoustic Phonetics

A branch of phonetics that studies the physical properties of speech sounds and how these sounds are transmitted from one place to the other or from one person to the other. Acoustic phonetics has emphasized the fact that speech is a continuous flow of speech sounds. It utilises machines such as the spectograph and the oscillomink to measure characteristics of sound waves particularly the frequency and the amplitude of sound wave. Engineers, builders and construction experts frequently make use of acoustic information. For the purpose of ensuring accuracy of information, machines

and other instruments used for acoustic measurement must be properly maintained by qualified engineers.

3.3 Auditory Phonetics

This is the branch of phonetics which studies the mechanism of how the listeners perceive the sounds and how these sounds are transmitted in form of energy to the brain.

Generally, the hearer does not listen to a sound for its own sake; he listens in order to get meaning. This means he listens for sounds in association with other sounds. As you become mature in your phonetic training, you will be able to listen to sounds analytically – listening in order to appreciate specific sound features. The person who has not received phonetic training should, other things beings equal, be different from you. He would be one capable of listening naturally – more concerned with meaning than with the sound features which produce the meanings.

Hearing, or audition, is one of the traditional five senses, and refers to the ability to detect sounds. In human beings hearing is performed traditionally by the ears which also perform a function of maintaining balance. A common rule of thumb used to describe human hearing is that human hearing is sensitive in the range of sound wave or frequency of 20 decibel or Hertz to 20 kHz. Auditory phonetics studies how the human hearing organ perceives sound. The above statement implies that phonetics is approached by first determining the basic sounds (vowels and consonants) of natural languages. In a phonetic study, square brackets [ ] or slashes/ /are used to enclose phonetic symbols. For instance to indicate the consonant sounds of the following English words: *boy, saw, too*, square brackets are used by convention:

For example, the string of consonants *zbfdoes not exist or is not permitted in English, but /str-/ is, as in /strei/.

3.4 Relationship of the Branches

The three different branches of phonetics would be said to be separate approaches to the study of phonetics. However, you will notice that they are interconnected. For example, if you pay attention to the realisation and perception of the sounds /**p**/ and /**b**/, which are bilabial plosives, all the branches would be seen to be relevant. Here is what

would happen; articulatory would add the dimension of vibration of the vocal cords to bring about voicing in /**b**/, for example, and absence of vibration of the vocal cords in the case of /**p**/.

Auditory phonetics would supply the information that differentiates the voiceless /**p**/ from voiced /**b**/. Finally, in an acoustic analyst, the difference between the two sounds would be even more prominent because evidence of both being voiced and being voiceless would be available.

And so, if you have followed through, you have noticed that even though the three branches of phonetics are separate, they are still united in their functions.

Conclusion

We have learned from this unit that phonetics is divided into three branches – articulatory, auditory and acoustic. We have also seen that the branches are intricately interconnected and each of them is important.

Reflection

Consider how things would be if articulatory or acoustic phonetics never existed at all.

Evaluation

1. Describe what you understand by: articulatory phonetics, acoustic and auditory phonetics.
2. Explain the relationship that exists among the various branches of phonetics.

Summary

In this unit, you have studied three branches of phonetics – articulatory, auditory and acoustic – and the main concern of each branch. You are now adequately prepared to begin a study in which your knowledge of articulatory phonetics in particular will be useful.

Unit 4 PRODUCTION OF SPEECH SOUNDS

Introduction

In this unit of the course, you are being introduced to speech sounds and how they are produced. You will learn here that all sounds that human beings make as they speak are as a result of muscles contracting.

Learning Outcomes

By the end of this unit, you should be able to:

- Identify the different organs involved in speech production
- Distinguish between active and passive articulators
- Describe how sounds are produced
- Describe different airstream mechanisms involved in speech production

4.1 Organs of speech

The muscles in the chest that humans use for breathing produce the flow of air that is needed for almost all speech sounds. Roach (2000) has argued that 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 is called the vocal tract, which ends at the mouth and nostrils. At these two points, the air from the lungs escapes into the atmosphere. Humans have a large and complex set of muscles that can produce changes in the shape of of the vocal tract, and in order to learn how the speech sounds are produced it is necessary that you become familiar with the parts of the vocal tract. These different parts are called artiuclators, and the study of them is called articulatory phonetics.

Fig. 1 is a diagram that is often used in the study of phonetics. It represents the human head, seen from the side, displayed as though it had been cut in half. You will need to look at it carefully as the articulators are described, and you will often find it useful to have a mirror and a good light placed in front of you so that you can look at the inside of your mouth. Interestingly, you will be able to see most of these labelled parts in the the fig.
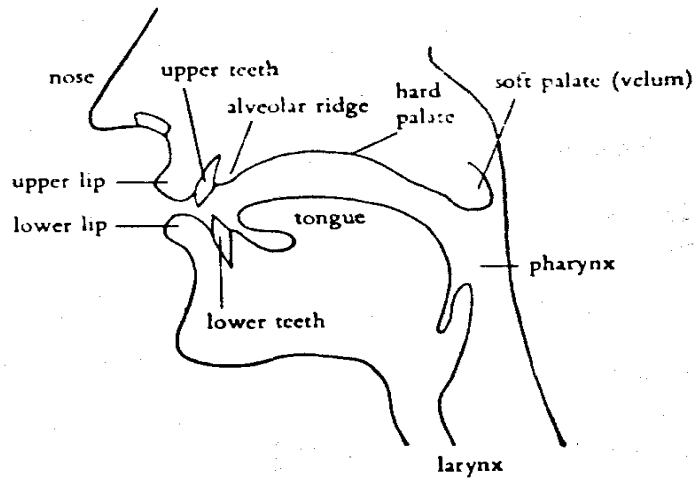
Fig. 1 The articulators

4.1.1 The articulators

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

ii. The velum or soft palate is seen in the diagram in a position that allows air to pass through the nose and trough the mouth. Yours is in that position now, but often in speech it is raised so that air escapes through the nose. The other important thing about the velum is that it is one of the articulators that can be touched by the tongue. When we make the sounds **/k/**and **/g/**the tongue is in contact with the lower side of the velum, 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.

iv. The alveolar ridge is between the top font teeth and the hard palate. You can feel its shape with your tongue. Its surface is really much tougher than it feels, and is covered with little ridges. You can only see these if you have a mirror small enough to go inside your mouth (such as those used by dentists). Sounds made with the tongue touching here (such as /**t/**and /**d/**) are called alveolar.

v. The tongue is, of course, a very important articulator and it can be moved into many different places and different shapes. The tongue is divided into five different parts: (i) the tip, (ii) the blade, (iii) the front, (iv) the back, and (v) the

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root. The extreme end of the tongue which touches the teeth is called the tip. The part which lies just behind the tip and opposite the alveolar ridge is the blade. The part opposite to the hard palate is the front. The back of the tongue is the part lying opposite to the velum. The end part of the tongue is the root.

vi.   The teeth (upper and lower) are usually shown in diagrams like Fig. 1only at the front of the mouth, immediately behind the lips. This is for the sake of a simple diagram, and you should remember that most speakers have to the sides of their mouths, back almost to the soft palate. The tongue is in contact with the upper side teeth for many speech sounds. Sounds made with the tongue touching the front teeth are called dental.

vii. The lips are important in speech. They can be pressed together (when we produce the sounds p, b), being in contact with the teeth (as in f, v), or rounded to produce the lip-shape for vowels like u:, Sounds in which the teeth are contact with each other are called bilabial, while those with lip-to-teeth contact are called labio-dental.
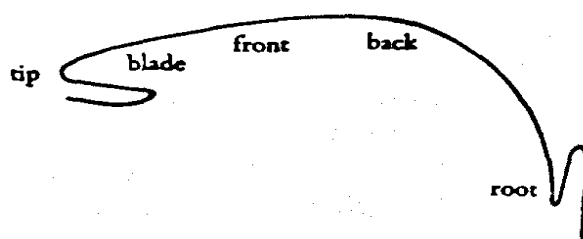
Fig. 2 Sub-divisions of the tongue

The seven articulators that have been described above are the main ones used in speech. However, there are three other things you ought to remember. Firstly, the larynx could also be described as an articulator-a complex and independent one. Secondly, the jaws are sometimes called articulators; you may have noticed that we are able to move the lower jaw a lot in speaking. The jaws, however, are not articulators in the same way as the others because they cannot themselves make contact with other articulators. As we close on articulators, and even though there is nothing that can be done about the nose and the nasal cavity, they are an important part of human equipment for making sounds (what is sometimes called our vocal apparatus), particularly nasal consonants such as

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/**m**/ and /**n**/.The nose and the nasal cavity again cannot really be described as articulators in the same sense as in **(i)**-**(vii)**in the preceding section.

4.1.2 Active and Passive Articulators

In the process of sound production, the oral cavity plays a very significant role. This cavity is divided into the upper and lower jaws. The upper jaw is fixed, thus, not movable whereas the lower jaw is movable. In spite of these differences, both jaws are of equal importance in the articulation of speech sounds. In the production of speech sounds, the participation of the of the upper lip, the alveolar ridge and the hard palate cannot be ignored, since without the interaction of these organs the speech sounds cannot be produced. In this case the organs of the lower jaw, such as the lower lip, the tongue, are active in the articulation of speech as they make contact with the upper lip, alveolar ridge, the upper teeth, the hard palate, the soft palate and the back wall of the throat or pharynx. Thus, the organs of the lower jaw which are movable and active in articulation of speech sounds are called ***active articulators***. Phonetically, the active articulator is one that ensures or sparks off the articulation of a particular sound. The organs which cannot move but are important in the production of speech sounds are called ***passive articulators.***In phonetic terms however, a passive articulator is not necessarily fixed in the physical or traditional sense: it is simply the articulator that remains motionless, waiting (so to speak) for the movable one to get to it for the purpose of a particular sound articulation.

Reflection

In this part of the unit, you have just been introduced to articulators that make it possible for humans to produce speech sounds. Imagine what it would be like if the articulators were not shaped as they are. Would the sounds they produce be produced in the same way?

Evaluation

1. Distinguish between active and passive articulators.

Summary

This section has exposed you to the different organs of speech involved in the production of speech sounds. We hope you were attentive as you interacted with the material. The subsequent section deals with actual speech production.

4.2 Speech Production Process

4.2.1 Respiratory and Phonatory Stages

In this part of the course, you are introduced to an interesting phenomenon of how sounds are produced. You must attempt to follow this closely if you are to clearly understand how various speech sounds are realised. When air leaves the lungs (where it is normally stored), it moves through the tracheato the larynx which covers and encloses the vocal cords or vocal folds. At the centre of the vocal cords, there is some space known as the glottis. When thisspace is closed, the vocal cords are brought together through the action of the elasticmembranes which stretch from the front to the back, across the larynx. When vocal cordsclose, naturally air pressure builds up below them. The air pressure sobuilt up forces itself through the vocal cords in periodic puffs. The vocal cords will thenopen under this pressure, first from the bottom and then upwards creating a kind ofrippling action. The combined effects of the forced opening and closing results in avibration of the vocal cords. A sound that comes with the vibration is normally voiced.Voice may, therefore, be seen as a technical term that refers to phonation – aprearticulatory output from the vibration of the vocal cords. All voiced sounds in allnatural languages are produced when the vocal cords are in a closed position – aposition that prepares the way for vibration.

Note that the vocal cords do not always remain in a closed position: sometimes they arepartially open and at other times they may be fully open. When they are partiallyopen, the air that passes through them results in a whisper. When they are fully open, airpasses through them without vibration and that results in the ensuing sounds being voiceless. The vocal cords therefore, help us to distinguish between voiced and voicelesssounds and when they assume a posture of intermediate opening, they help us toidentify whisper. Perhaps more importantly, the vocal cords help us to distinguishbetween vowels and consonants: in the realization of vowels, in practically all naturallanguages, there is a vibration of the vocal cords. This follows the fact that all

vowels inall natural languages are normally voiced. On the contrary, consonant sounds in allnatural languages are either voiced or voiceless.

4.3 The airstream Mechanism

The production of any speech sound (or any sound at all) involves the movement of an air-stream. Most speech sounds are produced by pushing air from the lungs out of the body through the mouth and sometimes through the nose. Because lung air is used, these sounds are called pulmonic sounds; because the air is pushed out, they are called eggressive. The majority of sounds used in languages of the world are produced by a pulmonic - egressive air-stream mechanism. All sounds in English are produced in this manner.

The air-stream expelled from the lungs as earlier stated passes out of the trachea (wind pipe) through the glottis. The glottis is the gap between the two vocal cords contained in the larynx. You must note that other air-stream mechanisms are used in other languages to produce sounds called ejectives, implosives and clicks.

Instead of lung air the body of air in the mouth can be moved. When this air is sucked in, instead of flowing out, ingressive sounds, like implosives and clicks are produced. When the air in the mouth is pushed out, ejectives are produced; therefore, ejectives are also egressive sounds. Implosives and ejectives are produced by glottalic air-stream mechanism, while clicks are produced by velaric air-stream mechanism. You need to find time to read more on the different air-stream mechanisms.

Ejective sounds (non-pulmonic consonants formed by squeezing air trapped between the glottis and the articulator), are found in many Native American, African and Caucasian languages. Implosives also occur in the languages of the Americans and throughout Africa, India and Pakistan. Clicks occur in Southern Bantu languages such as Xhosa and Zulu, and in the languages spoken by the Bushmen and the Khoikhoi. Note that the air-stream mechanisms here mentioned show that sounds can be classified according to the air-stream used to produce them.

Evaluation

> 1. Trace the journey of any given sound from the time it leaves the lungs to the time it is produced.
>
> 2. Discuss in detail the three airstream mechanisms learned in this section.
>
> 3. Distinguish between ingressive and egressive speech sounds.
>
> 4. Clearly state why speech sounds are different from each other.

4.3.1 Articulatory Stages

When the air leaves the vocal cords, it passes through the pharynx. When this happens, the brain carries a quick, sharp action, directing the soft palate (the velum) particularly the uvula (the pendulous end of the velum), on what to do: the uvula in this case may either be lowered to block the oral cavity or raised to the back wall of the throat to block the nasal cavity. Note that blocking of the oral cavity by lowering the uvula allows the airstream to pass through the nostril giving rise to nasalised sounds or nasals. On the hand, raising the uvula, blocking the nasal cavity and allowing the airstream to pass through mouth gives rise to oral sounds.

4.3.2 Sound Articulation: Specific Issues

All 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. The articulation of speech sounds involves the modification of the volume and shape of the vocal tract. The modification of the volume and shape of the vocal tract in turn modifies the flow of air from the chest to the mouth. The vocal tract has different parts. These parts as already discussed are called articulators, which we have already referred to as organs of speech.

4.4 Basic Sounds of English

We hope you still remember that sounds are represented by use of symbols. These are basically letters of the alphabet. You need to pay particular attention to these symbols because they will be used throughout this course.

4.4.1 Consonants and Vowels

You need to note that speech sounds in natural languages have traditionally been classified into two major categories: consonants and vowels. Consonants are sounds

whose production (realisation) involves some kind of obstruction which could be partial or total (complete). Vowels, on the other hand are sounds which are generally produced or realised without any audible obstruction to the air-flow. There are other kinds of sounds; of course, the so-called semi-vowels which are classified as consonants on functional grounds although from the articulatory stand point they would better be treated as vowel glides. We shall discuss semi-vowels later.

At this point of your study, you are being exposed to the basic sounds of the English language. This will be done with appropriate examples. As you study the sounds of the English language, you are advised to apply the same parameters or principles in the determination of the basic sounds of your own language. Follow closely because at the next unit, you will learn to describe each basic sound as a way to ensuring competence of the subject. You need to ensure that you remember the speech organs because they are important at this stage. Remember that it is these very speech organs that produce the particular sounds you will have to describe.

4.5 conclusion
In this unit, you have learned about speech organs and the role played by air in the production of speech sounds. You have also learned the whole process of speech production. Keep these aspects in mind as you get to the next chapter, which discusses the description of speech sounds.

4.6 Summary
You have in this unit learned of the speech organs, airstream mechanisms and the basic speech sounds. Not t only that but also speech production process and the stages of speech production.

UNIT 5: DESCRIPTION OF CONSONANTS

Introduction

This unit introduces you to various criteria involved in the description ofthe basic sounds (of English) and the actual description of such sounds. Follow closely as the unit unfolds.

Learning Outcomes.

By the end of this unit, you should be able to:

- classify and describe speech sounds using the criteria learned in the unit
- identify various speech sounds according to criteria of description
- distinguish consonant based on place or manner of articulation

It has already been stated that consonants are sounds produced with some obstruction to the flow of air as it passes from the larynx to the lips or nose. Classification and description of eggressive consonant sounds is based on the following criteria:

- (1)   The place of articulation
- (2)   The manner of articulation
- (3)   The position of the velum
- (4)   The vibration or non-vibration of vocal cords (i.e. the presence or absence of voice)

5.1 Place or Point of articulation

The expression 'Place of articulation' refers to the place where the vocal tract is blocked or narrowed by a movable organ of speech. The following are the main types of consonants according to the place or point of articulation.

- (i)   **bilabial:** the passage of the air-stream is blocked by the two lips which get in contact with each other (e.g. /**p b m w**/) as in: *pit, bad, mad*.

- (ii)   **labio-dental:** the lower lip touches the upper teeth (e.g. /**f v**/) as in: *fan, van.*

(iii) **dental/inter-dental** (between the teeth): the tip of the tongue and the rims act as active articulators and the upper teeth as the passive articulators (e.g. /θ, ð/) as in: *thin, there.*

(iv) **alveolar:** the blade or tip and blade of the tongue touches or is in close proximity with/of the alveolar ridge (e.g. /n, s, z, t, d, l,/) as in: nine, seizure, zoo, ten, dean, look, love.

(v) **retroflex:** 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 (e.g. /r/) as in *press, tress, cress.*

(vi) **palatal-alveolar or post-alveolar**: the tip of the tongue touches the alveolar ridge while the front of the tongue is raised to the hard palate (e.g. /ʃ, ʒ, tʃ, ʤ/) as in *shame, shirt, pleasure, vision, check, church, judge, just.*

(vii) **palatal**: the front of the tongue touches or is in proximity with the hard palate (e.g. /j /) as in yes, yellow.

(viii) **velar**: the back of the tongue touches or is in close proximity with the velum (soft palate) (e.g. /k, g, ŋ /) as in *king, goal, song.*

(ix) **glottal**: the root of the tongue is drawn backwards, almost as if being strangled (e.g. /h/ as in hat, hello. You may be interested to know that phonetically /h/ is a voiceless vowel with the quality of the voiced vowel that follows it. And phonologically, /h/ is a consonant and usually occurs before vowels. As well as being found in initial position it occurs medially in words such as: 'ahead,' 'greenhouse.' It is noticeable that when it occurs between voiced sounds (as in the words ahead and greenhouse), it is pronounced with voicing, yet not the normal voicing of vowels but a weak, slightly fricative sound called breathy voice.

5.2 Manner or Mode of Articulation

The expression 'manner of articulation' or mode of articulation refers to (i) how the air air-stream is constricted/obstructed or released and (ii) whether the vocal cords are vibrating or not (i.e. whether there is voice or absence of voice). So, manner of articulation describes the type of obstruction caused by the narrowing or closure of the articulators. Basically, there are four ways in which the vocal tract is obstructed to produce speech sounds. The description here is done after Gimson (1980). The vocal tract may be:

(a) Completely closed;

(b) Partially closed;

(c) Narrowed to such an extent that friction is made;

(d) Intermittently closed.

5.2.1 Complete closure of the vocal tract

The vocal tract is completely closed by two articulators that are firmly pressed to together so that air cannot pass between them. Three types of consonants are yielded by completely closing the vocal tract. These are: (i) plosives, (ii) affricates and (iii) nasals.

(i) Plosives/stops:

A plosive is a consonant articulation with the following characteristics:

- One articulator is moved against another, or two articulators moved against each other, so as to form a structure that allows no air to escape from the vocal tract. The stricture is, then, total.

- After this stricture has been formed and air has been compressed behind it, it is released, that is, air is allowed to escape.

- If the air behind the stricture is still under pressure when the plosive is released, it is probable that the escape of air will produce noise loud enough to be heard. This noise is called plosion.

- There may be voicing during part or all of the plosive articulation.

You have just read on the characteristics of plosives. The subsequent part exposes you to a description of how plosives are realised. In the production of plosives, the nasal cavity is sealed off by the soft palate, so that no air-stream escapes through the nose, and the rest of the vocal tract is blocked by two articulators that are moved against each other, so as to form a stricture at some point behind which the air pressure builds up so that when the obstruction is stopped, the air-stream is released explosively, or with explosion. Note that the other name for a plosive is a **STOP**. To give a complete description of a plosive consonant we must describe what happens at each of the following four phases.

i.   The first phase is when the articulator or articulators move to form the stricture for the plosive. We call this the **closure phase**.

ii. The second phase is when the compressed air is stopped from escaping. We call this the **hold phase.**

iii. The third phase is when the articulators used to form the stricture are moved so as to allow air escape. This is the **release phase**.

iv. The fourth phase is what happens immediately after the release phase. We will call this the **post-release phase**.

English has six plosive consonants, **p, b, t, d, k, g**. The plosives have different places of articulation. **p** and **b** are bilabial; the two lips are pressed together. **t** and **d** are alveolar; the tongue blade is pressed against the alveolar ridge. **k** and **g** are velar; the back of the tongue is pressed against the area where the hard palate ends and soft palate begins. One stop of each pair is voiceless while the other is voiced.

5.2.1.1 Affricates

These are rather complex consonants. They begin as plosives and end as fricatives. Like in the case of stops, the nasal cavity is sealed off by the velum and a complete closure at some other point is made. The air-stream is then released slower than in stops. The speech sound produced in this state is an affricate. A familiar example is the affricate heard at the beginning and end of the word 'church'. It begins with an articulation practically the same as the closure and hold phases of /**t**/, but instead of rapid release with plosion and

aspiration, as we would find in the word 'turn', the tongue moves to the position of the fricative /ʃ/ that isfound at the beginning of the word ship (Roach, 1998). So the plosive is followed immediately by fricative noise. Since phonetically this affricate is composed of **t** and **ʃ,** we represent as **/tʃ/** so that theword church is transcribed as **tʃɜ:tʃ.** So we have /**tʃ/** asin church, chair and **/ʤ/** as in jail, judge.

5.2.1.2 Nasals

Like for stops and affricates, there is a complete closure of the vocal tract at some point behind which air pressure builds up. As opposed to stops and affricates, the production of nasals involves the lowering of the soft palate/velum so that the air-stream escapes through the nose. The air-stream is interrupted at some point of the oral cavity, but allowed to pass through the nose. As the air-stream passes through the nose it creates a resonance (an echo).

Example of nasals include: /**m,ŋ, n/** as in: man, none and song.

Note that all English nasals are voiced.

5.3 Partial Closure

Some consonants are produced by blocking the nasal cavity with the soft palate and partially closing the vocal tract at some point with the tongue in such a way that the air-stream escapes along one side or both sides of the tongue. Such are referred to as laterals. Laterals are the /**l̠**/ as in late. Such a lateral sound is often voiced. The bilabial lateral sounds are produced by opening both sides of the lips and keeping the centre closed as in 'rain'.

5.4 Narrowing of the Vocal tract

When the vocal tract is narrowed by two organs, which come close to each other to such an extent that the air-stream passes with an audible friction, the sound produced is termed as a fricative. Such consonants are often said to be continuant consonants, and this is so because of the fact that the fricative sounds can be continued almost indefinitely do as the speaker has enough air to continue the pronunciation at any given time. Examples of fricatives include: /**f/** as in Frank, **/v/** as in vine, **/θ/** as in think, **/ð/**

as in t<u>h</u>ough, /**s**/ as in <u>s</u>ame, /**z**/ as in <u>z</u>ero, /**ʒ**/ as in mea<u>s</u>ure, /**h**/ as in <u>h</u>ouse and /**ʃ**/ as in <u>sh</u>irt. The sounds /**f, θ, ʃ, s**/ are voiceless whereas /**ð, z, ʒ, v**/ are voiced.

5.5 Intermittent closure

You must have by now noticed that not all consonant sounds are produced in the same manner. Some consonants are produced by intermittent closures or taps. These are made by a flexible organ on a firm surface, so that a vibration is heard. When several closures/taps are made, the consonant is called a trill or rolled consonant or a roll, (the Nyanja 'r' in bwera). When a single closure/tap is made, the consonant is called a 'flap'. An example of a flap is the inter-vocalic 'r' in Standard English as in 'merry'.The usual organs which produce thrills and flaps are the lips and uvula.

5.5.1 Frictionless continuant

This is articulated with an open approximant of articulators. The air-stream passes between the articulators without friction. The frictionless continuant is like a vowel, but it is included in the list of consonants.

The examples of frictionless continuants are /**r**/ as in red, run, read, real. In the articulation of frictionless continuants the tip of the tongue is brought just behind the alveolar ridge, so that there is enough space between them without friction. There are different conceptions about the English /**r**/. For example, Gimson includes the English /**r**/ under frictionless while Daniel Jones says the English /**r**/ as in **'try', 'cry', 'grow', 'pray'** comes under fricatives.

5.6 The Position of the velum

It has been mentioned earlier in this module that the velum, particularly the uvula assumes two positions. It is either lowered or raised. When it is lowered, it blocks the oral cavity to allow the air stream to escape through the nasal cavity giving rise to nasals or nasalised sounds such as the **m**, **n** and the **ŋ** sounds. The other position it assumes is the raised position which blocks the nasal cavity allowing the air stream to escape through the mouth, giving rise to oral sounds.

5.7 The vibration or non-vibration of the vocal cords (i.e. the presence or absence of voice or Voicing).

This decides whether the sound is voiced or voiceless. If the vocal cords are stretched taut, with little space between them, the air-stream passes through it forcing itself against the vocal cords. It causes a vibration called voice or voicing. The speech sounds thus produced are called voiced. In English, almost all the vowel phonemes and the consonant phonemes such as: **/b, d, ʤ, g, v, z, m, n, l, r, w, j, ð/**are voiced. And almost all nasalised consonants are voiced.

However, if the passage between the vocal cords is wide enough, the air-stream passes without any resistance and noise. The speech sounds produced in such a state are voiceless as; **/p, t, k, f, h,θ, ʃ /**

5.5 Semi vowels

Semi-vowels are sometimes referred to as glides. The more modern term used to refer to semi-vowels is approximant. The sounds /**y**/ and /**w**/ are produced with little or no obstruction of the air-stream in the mouth. When occurring in a word, they must always be either preceded or followed directly by a vowel.

In articulating /**y**/ or /**w/** the tongue moves rapidly in a gliding fashion either toward or away from a neighbouring vowel, hence the term glide. Glides are transmission sounds called semi-vowels; /y/ being a palatal glide- the blade of the tongue is raised toward the hard palate in a position almost identical to that in producing the vowel sound in the word beat.

In producing *you*, the tongue moves rapidly from /**y**/ to '*ou*' vowel. The glide /**w**/ is produced by both raising the back of the tongue toward the velum and simultaneously rounding the lips. It is therefore, a labiovelar glide or a rounded velar glide.

Note: These phonemes are phonetically like vowels but phonologically like consonants. From the phonetic point of view, the articulation of **/j/** is practically the same as that of the front close vowel as /**i:**/ but very short.

In the same way /w/ is closely similar to /**u:**/. This can be heard if one makes the initial sound of '**wet**' or '**yet**'.

5.6 Lenis and Fortis

As has been observed, at any point of articulation may be produced a voiceless, or a voiced consonant when the vocal cords do not vibrate, or a voiced consonant when the vocal folds vibrate. However, the presence or absence of voice usually brings about, or is accompanied by another difference, namely the amount of breath and the degree of muscular effort. For example, Gimson argues that English voiced consonants tend to be articulated with relatively weak energy. So, voiced consonants are weak or **lenis**. Voiceless consonants on the other hand are comparatively realised with a great exertion of energy, so they are said to be strong or **fortis.**

Place of articulation

	Bilabial	**Labiodental**	**Dental**	**Alveolar**	**Palate-alveolar**	**Palatal**	**Velar**	**Glottal**
Plosive	**p b**			**t d**			**k g**	
Fricative		**f v**	**θ, ð**	**s z**	**ʃ ʒ**			**h**
Affricate					**tʃ dʒ**			
Nasal	**m**			**n**			**ŋ**	
Lateral				**l**				
Approximant	**w**				**r**		**j**	

Table 1: chart of English consonant phonemes (from Peter Roach).

Reflection

Having read through this unit, we take for granted you have understood how the speech sounds are described. Would you think there could have been other ways of describing these sounds?

Evaluation

1. Distinguish between the production of plosives and that of affricates.
2. Give a complete description of the four phases in the production of plosives.
3. What do you understand by the following expressions?
   (a) Place of articulation
   (b) Manner of articulation

5.7 Conclusion

In this unit, you have learned quite much on consonant sounds. In the unit, you have established various ways in which consonants are described. It is hoped that you have gained mastery of the material you have been exposed to. If you have doubts, you can find time to seek clarity from your lecturer. In the next unit, you look at vowels and their description.

Summary

From this unit, you have been exposed to the criteria which help you to understand the formal description of consonants sounds of English. You are vested with the knowledge to describe and appreciate the formal description of the basic sounds of English.

Unit 6 ENGLISH VOWELS

Introduction

In this unit of the course, you are exposed to the patterning, grouping and organisation of the vowel sounds according to their duration. You will soon learn that description of vowel sounds is rather different from that of consonants.

Learning Outcomes
By the end of this unit you should be able to:

- Identify cardinal vowels
- Describe vowel sounds using appropriate criteria
- Identify vowel sounds in any given words
- Distinguish different vowel qualities

6.1 Cardinal vowels

Before we get to the actual description of vowels, it still remains important to refresh your memories on what kind of sounds vowels are.

Earlier in this course, you were introduced to what vowel sounds are. It was stated that vowels are speech sounds which are produced without any obstruction to the air – stream. This means that vowels are generated without any closure, narrowing and noise characteristic of consonants.

You need to know from the onset that Phoneticians need a very accurate way of classifying vowels, and have since developed a set of vowels, arranged in a close-open front-back diagram like **Fig. 3**, which are not vowels of any language particular language. They are called cardinal vowels. Cardinal vowels are a standard reference system, and people being trained in phonetics have to learn them accurately and recognise them correctly. Note that if you learn 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.

Cardinal vowels have been said to bevowelsounds produced when the tongueis in an extreme position, either front or back, high or low. The current system was systematised by Daniel Jones in the early 20th centurythough the idea goes back to earlier phoneticians, notably Ellis and Bell.

	Front	Back
Close	iː	uː
Open	æ	ɑː

Fig. 3 extreme vowel positions

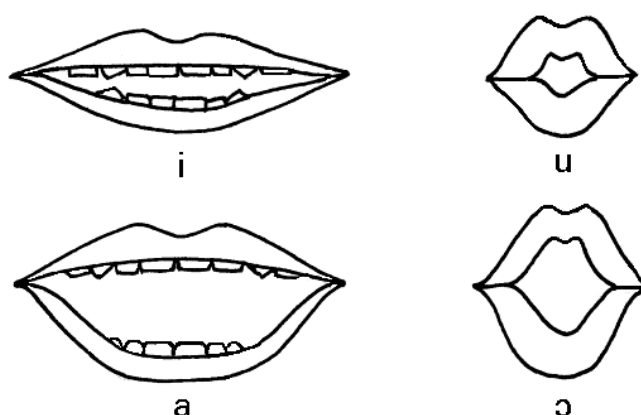**Robert Mannell presents the following Approximate lip postures for four vowels.**

Fig. 4   Approximate lip postures for the four vowels.

This diagram displays the two extreme lip postures and two intermediate lip postures. The high front cardinal vowel [i] has a very spread lip posture. The high back cardinal vowel [u] has a very tightly rounded lip posture. The low front cardinal vowel [a] has a spread lip posture but this is a more neutral posture than for [i] because the lower jaw position for this vowel causes the lips to be more open. The half-open back cardinal vowel [ɔ] has a rounded lip posture but the lips are more open than for [u] because of the lower jaw position.

The actual lip posture for vowels in any particular language may be similar to that of the closest cardinal vowel with the same lip posture feature, but often speakers of many

languages adopt a more neutral posture than would be indicated by these cardinal vowels. Languages that have lip posture contrasts are more likely to adopt the more extreme lip posture to emphasise those contrasts.

And so in this course, you will learn that it has become traditional to locate cardinal vowels on a four sided figure (quadrilateral) of the shape seen in **Fig. 5** (note that the design used in this module is the one recommended by International Phonetic Association in 1989). The exact shape may not be really important- a square would do quite well- but we have in this module used the traditional shape. The vowels on **Fig. 5** are the so-called primary cardinal vowels- the vowels that are most familiar to the speakers of most European languages, and there are other cardinal vowels (secondary cardinal vowels) that sound less familiar.
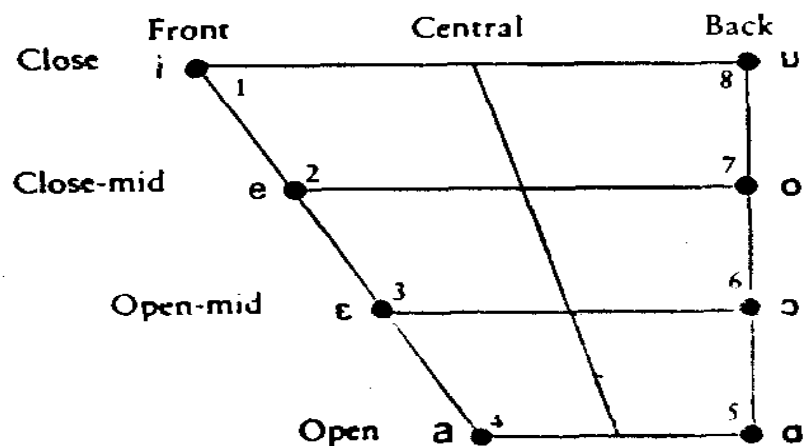

Fig.5 Primary cardinal vowels.

Refer to Fig. 4 for your understanding as we briefly describe the cardinal vowels.

Cardinal vowel no. 1 has the symbol [i], and is defined as the vowel which is as close and as front as it is possible to make a vowel without obstructing the flow of air enough to produce friction noise; friction noise is the sort of hissing sound that one hears in consonants like /**s**/and /**f**/.Cardinal vowel no. 5 has the symbol [**ɑ**] and is defined as the most open and back vowel that is possible to make. Cardinal vowel no. 8 [**u**], is fully close and back and no. [**a**], is fully open and front.

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Now that you have familiarised yourself with the establishment of these extreme points, then it is possible for you to easily familiarise with intermediate points (vowels no. 2, 3, 6 and 7). As you look at vowels, it will be important for you to think of the cardinal vowel framework as you would think of a map of an area you would want to explore. If the map is to be useful, it surely must cover the whole area; so it is important that that you know where the boundaries/edges are drawn.

Now that you are familiar with these extreme vowels, (dealt with above) you have definitely learnt way of describing and comparing vowels. You may have noticed, for example, that the English vowel [**æ]**(the vowel in 'cat') is not as open as cardinal no. 4 [**a**]. To help you, cardinal vowels in this course will always be printed within square brackets simply to distinguish them clearly from English vowel sounds.

6.2 Characteristics of Vowel Sounds

The various vowel qualities depend upon the shape and the volume of the supra-glottal area of the vocal tract as determined by the degrees of aperture of the mouth, the position of the tongue, the lips and the soft palate. Thus, vowels are produced by glottal tone modified by the action of the upper resonators of the mouth, pharyngeal and nasal cavities.

6.2.1 Function of the soft palate

Some languages distinguish between oral and nasalised vowels. Oral vowels are produced with the soft palate so raised that the air-stream from the lungs escapes through the mouth while in the production of nasalised vowels, the soft palate is so lowered that the air-stream from the lungs escapes both through the mouth and nose.

6.2.1.1 Function of the tongue

In the production of vowel sounds, there are two main ways in which the tongue moves, namely: tongue – height and tongue – advancement.

  (i) Tongue-height: Some part of the tongue is raised towards the palate or lowered below the neutral position.

  (ii) Tongue – advancement: Tongue height: Some part of the tongue is raised towards the palate or lowered below the neutral position.

6.2.1.2 Classification/ Description of vowel sounds:

On the basis of form and the position of the tongue and the lips, the vowels can be described in terms of three criteria.

      (i) The height of the tongue (the part of the tongue raised or lowered)

      (ii) Tongue advancement

      (iii) Lip rounding

It is important to know however the ways in which vowels differ from each other. The first matter to consider is the shape and position of the tongue. Basically, we first look or base our description on the vertical distance between the upper surface of the tongue and palate, and secondly, the part of the tongue, between front and back, which is raised highest.

6.2.1.3 Classification of vowels according to tongue-height criterion:

When we refer to the concept of tongue-height, we mean the position of the tongue as **(1)** close, **(2)** half-close, **(3)** half-open, and **(4)** open, and the manner such as: high, high-mid, mid (middle), low-mid, and low, in the process of producing vowel sounds.

6.2.1.4 High vowels:

In the production of high vowels, some part of the tongue is raised towards the palate e.g. in the production of [i, u]

6.2.1.5 Mid vowels:

Some part of the tongue is raised towards the palate but less than for high vowels. Mid vowels are grouped into high-mid e.g. [e, o], and low-mid [3, ɔ]. High-mid vowels are closer to the high vowels and low-mid vowels are closer to low vowels. Low vowels include [a, d].

This part has covered the classification of vowels according to their tongue height and their frostiness or backness. Another criterion of vowel quality you need to know about is lip-rounding. The lips, of course, as you will notice may possibly assume many different shapes and positions. Refer to **Fig. 4**. Only three possibilities are considered at this stage. These are:

i. Rounded, where the corners of the lips are brought towards each other and the lips pushed forwards. This is most clearly seen in cardinal vowel no. 8 [**u**].

ii. Spread, with the corners of the lips moved away from each other, as would happen for a smile. This is most clearly seen in cardinal vowel no. 1 [i].

iii. Neutral, where the corners of the lips are noticeably rounded or spread. The noise most English speakers make when they are hesitating (written '**er**') has a neutral lip position.

Reflection

In your opinion, are there any similarities in the description of consonants and vowels?

Evaluation

1. Give a detailed description of the three criteria used in the description of vowels

2. What are cardinal vowels and why are they important?

6.3 Conclusion

In this unit, you have been exposed to vowels and to principles on how they are classified and described. Bearing in mind the principles just advanced in the unit, let us try, in the next unit to examine the characteristics of the English short vowels based on the same principles so learnt.

6.4 Summary

You have learnt in this unit that vowels have a rather different description from that of consonants. You have been exposed to the three criteria of tongue height, tongue advancement and lip rounding as determinants of differences in vowel quality. The unit has also exposed you to cardinal vowels, which are a standard reference system.

UNIT 7 ENGLISH SHORT VOWELS

Introduction

This unit introduces you to English short vowels. You will realise that each vowel is described in relation to the cardinal vowels.

Learning Outcomes

By the end of unit, you should be able to:

- State the criteria upon which the description of vowels is based
- Describe and classify vowels based on principles learnt
- Discuss the phoneme and the allophone

7.0 Short vowels

Before we can begin to discuss English short vowels, you may wish to know that English has the largest number of vowels. The symbols for these English short vowels are: **ɪ, æ, e, ʌ, ɒ, ʊ**. Vowels can have quite different lengths depending on different contexts in which they occur. Note that these short vowels are only relatively short; as shall be seen later.

We hope that even up to this point you still remember what has been said about cardinal vowels. We have said earlier that these are a standard reference system. So, as we shall describe vowels in the subsequent section, we shall do so in relation to the cardinal vowels. It is also hoped that you still remember the criteria discussed in the preceding unit on how vowels are to be classified. This will also be important.

I
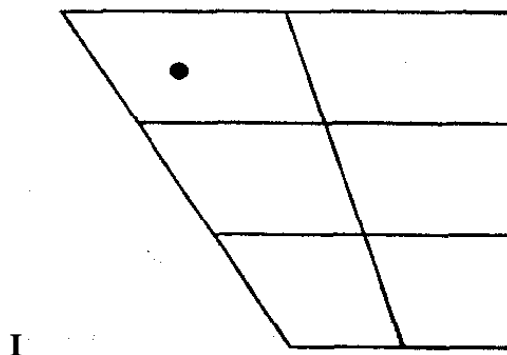
The diagram shows that, even if this vowel is in the close front area, compared with cardinal vowel no. 1 [i] it is more open, and nearer in to the centre. The lips are slightly spread. (Examples of words in which it occurs include: 'b**i**t', 'p**i**n', 'f**i**sh').

e
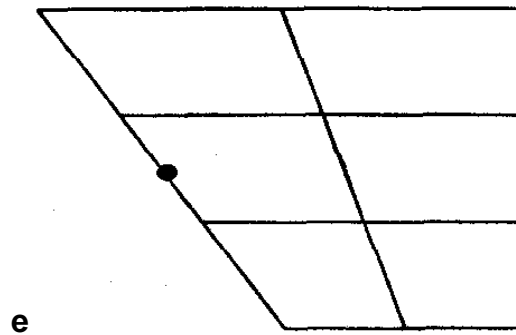
This is a front vowel between cardinal vowel no. 2 [e] and no. 3 [ɛ]. The lips are slightly spread.(example of words in which it occurs include: 'b**e**t', 'm**e**n', 'y**e**s').

æ
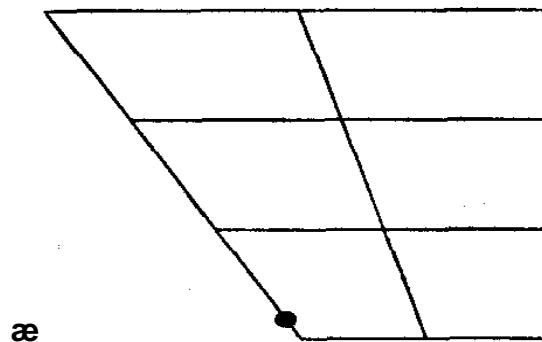
This is a front vowel, but not quite open as cardinal vowel no. 4 [**a**] and occurs in the following words: 'bat', 'man', gas). The lips are spread.

ʌ
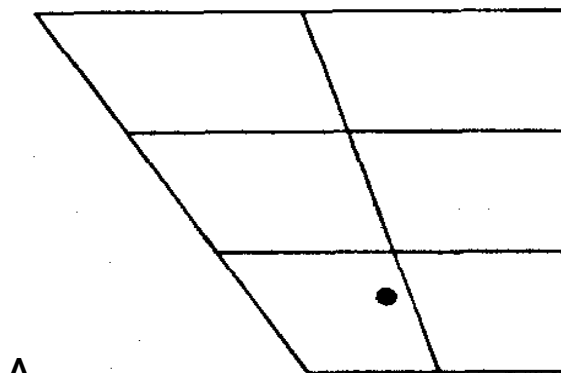
This is a central vowel and is realised as in the following words: 'b**u**t', 's**o**me', 'r**u**sh'. Note that this vowel is more open than the open-mid tongue height. The lip position is neutral.

ɒ
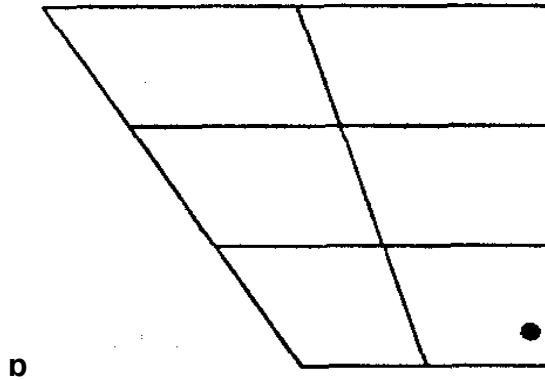
This vowel is not quite fully back, and between open-mid and open in tongue height. The lips are slightly rounded. The following are some examples of its occurrence: ('p**o**t', 'g**o**ne', 'cr**o**ss').

ʊ

The cardinal vowel nearer to this vowel ʊis no. 8 [u], but it can be seen that ʊ is more open and nearer to central. The lips are rounded. This is the vowel you hear in such words as: ('p**u**t', 'p**u**ll', 'p**u**sh').
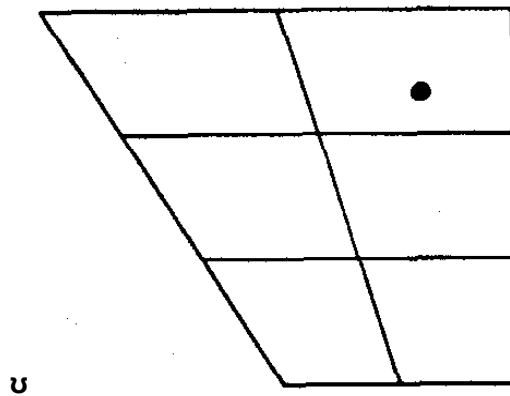
7.1 The Phoneme and Allophone

7.1.2 The Phoneme

Up to this section we have been looking at different sounds in English. We must have noticed that when we speak, we produce a continuous stream of sounds. However, in studying speech, we divide this stream into small pieces that we call segments. Each of these sound segments is significant, contrastive or distinctive and as such is capable of changing meaning when replaced by another segment. The significant sound segments into which speech is divided are called **phonemes**. So, we can simply say a phoneme is one of the units of sound that distinguishes one word from another in a particular

language. Phonemes themselves are abstract, but there are many slightly different ways in which we make the sounds that represent these phonemes, just as there are many ways in which we may make a mark on a piece of paper to represent a letter of the alphabet. For example, the minimal pair *tip* and *dip* illustrates that in English, **[t]** and **[d]** belong to separate phonemes /**t**/ and /**d**/; since these two words have different meanings, English speakers must be conscious of the distinction between the two sounds.

7.1.3 Allophone

An allophone is any of the different variants of a phoneme. The different allophones of aphoneme are perceptibly different but similar to each other, do notchange the meaning of a word, and occur in different phonetic environmentsthat can be stated in terms of phonological rules. For example, theEnglish phoneme /p/ is **aspirated** (see ASPIRATION) when it occurs at thebeginning of a syllable (as in *pot*) but **unaspirated**when it is preceded by/s/ (as in *spot*) and may be **unreleased** when it occurs at the end of anutterance (as in "he's not her *type*"). These aspirated, unaspirated, andunreleased sounds are all heard and identified as the phoneme /p/ and notas /b/; they are all allophones of /p/. Put simply, they are variants or differently heard or realised *sounds* of the same phoneme /**p**/.

Conclusion

You have in this unit seen that English has five short vowels and also that when we speak, we produce a continuous stream of soundsdivide this stream into small pieces that we call segments called phonemes.

Reflection

As you looked at the English vowels in this unit, did you try to compare them with the vowels of your own language?

Summary

This unit has exposed you to English short vowels and their characteristics. We hope you had an interesting experience as you looked at how these vowels are described. The

unit has also discussed the phoneme and the allophone. We hope it (the unit) has also prepared you for the next one, which looks at long vowels.

Evaluation

1. Using the descriptive labels introduced for vowel classification, say what the following cardinal vowels are:

   a) **æ**   b) **ʌ**   c) **ɪ** d) **e**

2. Write the symbols for vowels in the following words:

a) Bread b) rough   c) foot d) hymn   e) cough   f) friend

UNIT 8 LONG VOWELS, DIPHTHONGS AND TRIPHTHONGS

8.0 Introduction

In the previous unit, you were introduced to English short vowel sounds. In this unit we look at other types of English vowel sounds.

Learning Outcomes

By the end of unit, you should be able to:

- Distinguish short and long vowel sounds
- Locate various vowel sounds in their areas of production
- Distinguish diphthongs from triphthongs

8.1 Long vowels, Diphthongs and Triphthongs

We begin in this case with the five long vowels. Note that these five long vowels being introduced here tend to be longer than the short vowels in similar contexts. The expression '*in similar contexts'* has deliberately been applied because as shall be seen later, even as earlier stated, the length of all English vowel sounds varies very much according to context. Context here implies types of sounds that follow the vowels in question and the presence or absence of stress. To remind you that these vowels are longer than others, they are followed by a length mark made of two vertical dots (**:**). This length mark is not really necessary because every vowel has its own symbol, but it reminds us that some vowels are usually relatively long, and it seems to have established itself as an agreed standard.

8.2 The English Long vowels

We now list the five (5) long vowel phonemes, describe their manner of articulation individually, and label them according to the two distinct features. Thus we have **i:,ɜ:, ɑ:, ɔ:, u:.**

The subsequent diagrams,adapted from Roach 1998 give the descriptions of individual vowels. Make sure you study these diagrams carefully in order that you master the different descriptions of the vowels in question.

i:
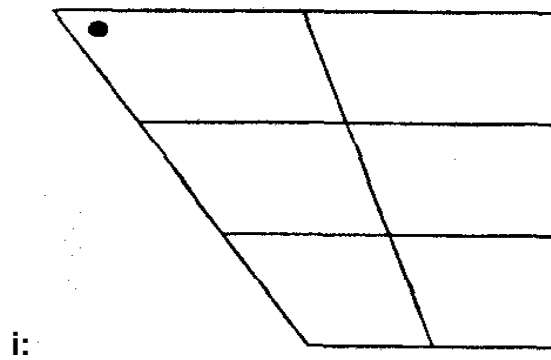
The vowel **i:** sounds like the sounds of the underlined parts in the words: ('b**ee**', 'b**ea**t', 'm**ea**n', 'p**ea**ce'). The vowel is nearer to cardinal vowel no. 1 [i] (that is more close and front) than the short vowel **I** vowel of 'bid', 'pin', 'fish' described in the preceding section. In the production of this vowel, the front of the tongue is raised so that it almost touches the palate, and the lips are slightly spread. The vowel is called a close front vowel.

3:
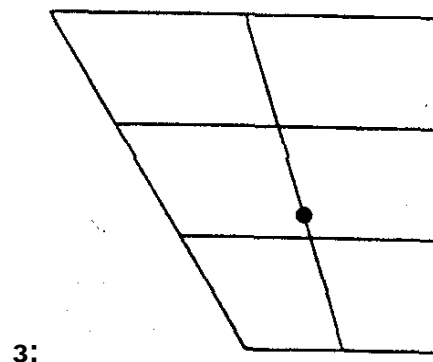
This is a mid-central vowel which is well-known in most English accents as a hesitation sound (spelt 'er'), but which many non-native speakers find difficult to copy. The centre of the tongue is raised mid-close and mid-open position and he lips are in neutralposition. The sound is as is found in the underlined parts of the words: ('b**ir**d', 'f**er**n', 'p**ur**se').

ɑ:
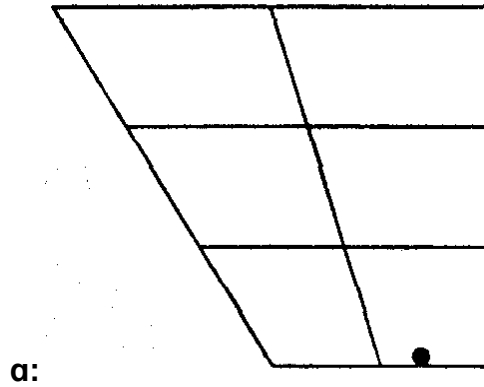
This is an open central-back vowel and lies in the region of cardinal no. 5 [ɑ] but not as back as this. . The part of the tongue between the centre and the back is lowered to fully open position and the lips are in neutral position. The vowel would occur in such words as: (p**a**ss, c**ar**d, h**al**f).

ɔ:
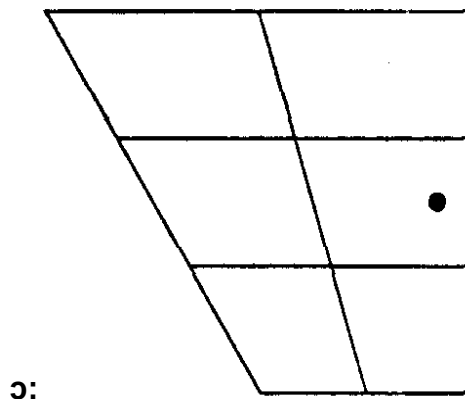
This is a mid-back (almost fully back) vowel in whose production the back of the tongue is raised between mid-close and mid-open position, and the lips are rounded. The tongue height of this vowel is between cardinal vowel no. 6 [ɔ] and no. 7[o]. Its sound is as the sound of the **bold** parts in the words: ('b**oar**d,' 't**or**n', 'h**or**se').

44
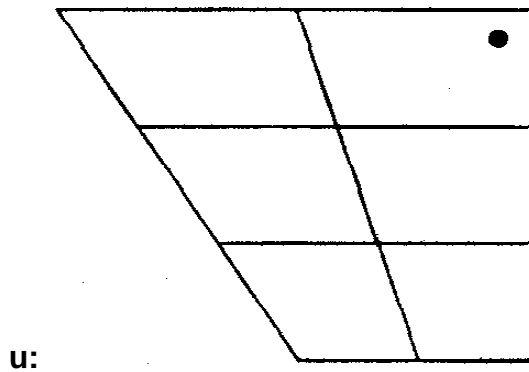
u:

This vowel is not so different from cardinal vowel no. 8 [**u**]. However, it is not quite so back nor so close. In other sources it is just said to be a close back vowel. In its formation, the back of the tongue is raised so that it almost touches the palate, and the lips are moderately rounded. Examples of words where this vowel occurs include: (s**oo**n, f**oo**d, l**oo**se).

Up to this point, when you compare some similar pairs of long and short vowels, for instance, **I** and **i:,** or **ʊ** with **u:,** or **æ** with **ɑ:**, you can clearly see distinct differences in quality as well as in length. These differences are as a result the differences in tongue shape and position, and lip position. It is for this reason, as pointed out earlier that the long and short vowels have different symbols. And as you study, ensure that you have a dictionary in order to look up the words and see their phonetic transcription.

Evaluation

1. Identify the vowels in the following words
   a) surf   b) calf   c) scar   d) cool e) cheap
2. Find words of your own with the same vowels you identified in 1.

8.3 Conclusion

This section of the unit has taken you through the English long vowels. You must have noticed that context is what makes them different from those we discussed as short vowels. We hope each step of your way gives you new experience and mastery of new

concepts. The next section exposes you to diphthongs. Brace yourself for new experience. We hope you follow the explanations as clearly as you expect.

8.4 Diphthongs

When pronouncing English long and short vowels, you must have noticed that their quality remains relatively constant. This is so owing to the speech organs that do not change their position during articulation. These vowels are therefore called pure or plain vowels, or monophthongs (from Greek *monophthonggos,* 'single sound'). RP has a large number of diphthongs, sounds which consist of movement or glide from one vowel to another. One common mistake made by non-native speakers of the English language is to produce a pure vowel where a diphthong should be pronounced.

Diphthongs are like the long vowels described above in terms of length. But you may wonder as to what is meant by a diphthong? In phonetics, a diphthong is a vowel in which there is a noticeable sound change within the same syllable. It is basically a combination of two vowel sounds that make up one syllable, in which the sound begins as one vowel and moves towards another as in (coin, loud and side). The process of moving from one vowel sound to another is called gliding, and thus another name for diphthong is gliding vowel. The most important thing you ought to remember about diphthongs is that the first part is much longer and stronger than the second part; for example, the diphthong '**aɪ**' (as in the word 'eye', '**ɪ**')consists of a vowel, and only in about the last quarter of thediphthongdoes the glide to '**ɪ**' become noticeable.You will notice that as the glide to 'ɪ'happens, the loudness of the sound decreases. Because of this, the 'ɪ'part is shorter and quieter. So, you as a non-native speaker of the English language, always remember that the last part of English diphthongs is not to be made too strongly. There are eight diphthongs and the easiest way you can remember them is in terms of three groups as in **Fig. 6**: And for clarity, kindly check the transcription of the example words for the diphthongs.

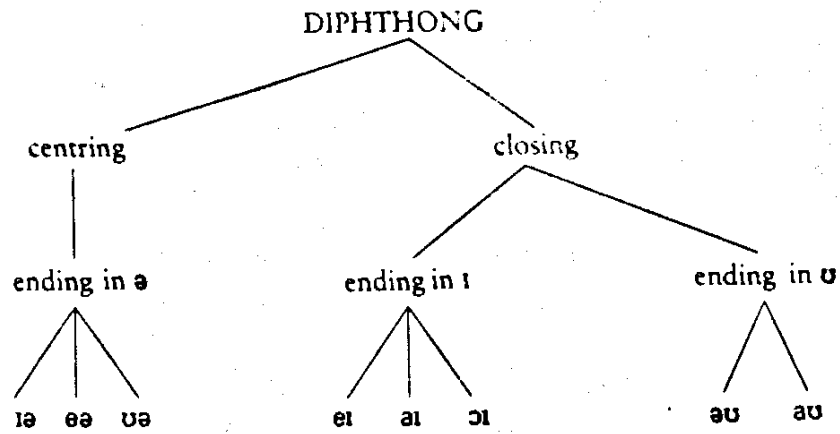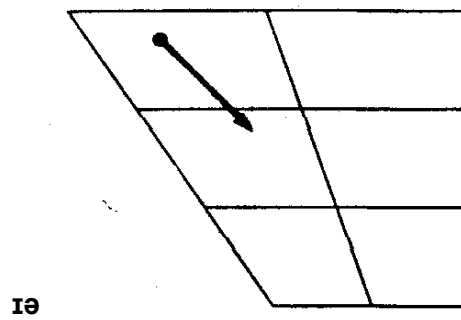**Fig. 6: adapted from Roach – 1998.**

The centring diphthongs glide towards the ə (schwa) vowel, the symbols indicate in the subsequent diagrams.

ɪə

The starting point of this diphthong is a little closer than **ɪ** in 'bit', 'bin'. From the '**ɪ**', it glides towards the schwa. The example of words in which this diphthong occurs are: ('b**ear**d', '**Ia**n', 'f**ie**rce', 'm**ere**').

eə

47
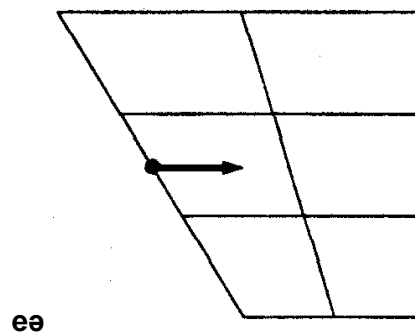
This diphthong is a begins with the same vowel sound as the **e** in 'get', 'men' then glides towards the schwa. The examples of words where this occurs are: ('**aire**d', '**cair**n', 'sc**are**d', 'p**are**').

ʊə
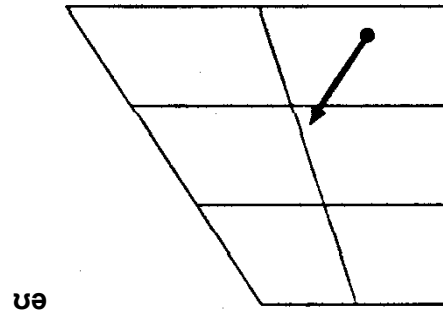
This has a starting point closer than **ʊ** in 'put', 'pull'. The examples of words where this diphthong occurs are: ('**c**ure', 't**our**', 'p**oor**').

We hope you have understood the centring diphthongs and can give as many examples of words in which they occur. The next part presents the closing diphthongs. You will notice that these, unlike the centring glide towards a closer vowel. Since the second part of the diphthong is weak as already established, these diphthongs do not necessarily reach a position that could be called close. One thing you need to master is the fact that a glide from a relatively more open vowel towards a relatively more close is produced (Roach, 1998). Three of the diphthongs glide towards 'ɪ', as exemplified in the following diagrams.

eɪ
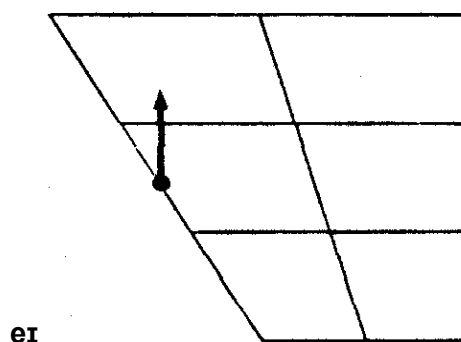
The starting point of this diphthong is the same as the **e**of 'get', 'men'. Example words are: ('st**ay**', 'p**ay**', 'f**a**ce').

48

aɪ
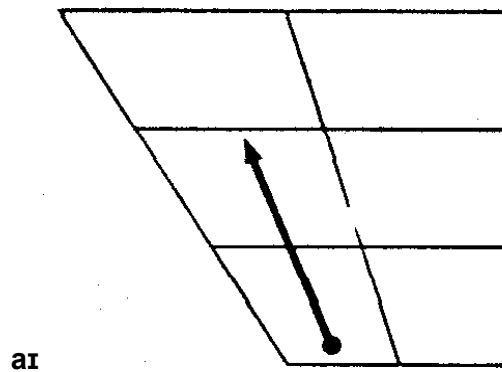
The beginning of this diphthong is an open vowel which is between front and back and is quite similar with the **ʌ** of the words 'cut', 'bun'. Examples of words are with this diphthong are: ('t**i**de', 't**i**me', 'n**i**ce').

ɔɪ
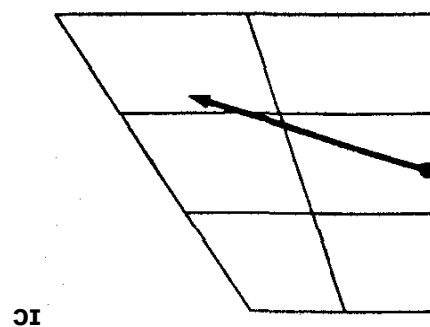
The first part of this diphthong has the same quality as **ɔ:** in 'ought', 'born'. Examples of words with this kind of a diphthong are: ('v**oi**d', 'l**oi**n', 'v**oi**ce', 'c**oi**n').

We hope you have successfully acquainted yourself with the closing diphthongs. The next section discusses the last two diphthongs. The diphthongs to be discussed here glide towards **ʊ,** so that as the tongue moves closer to the roof of the mouth there is at the same time a rounding movement of the lips (Roach, 1998). Note that this movement is not a large one, again because the second part of the diphthong is weak. We implore you to take a closer look at how differently these diphthongs are being produced, their starting point and the vowels they glide to.
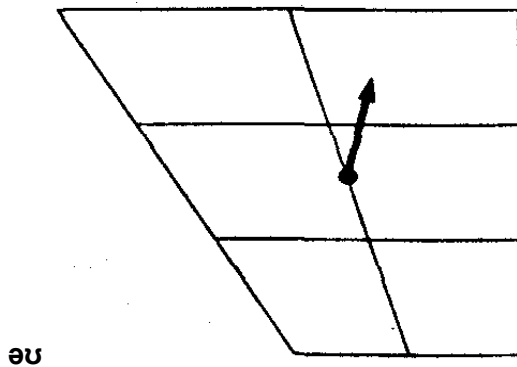
əʊ

The vowel position for the beginning of this diphthong is the same as for the 'schwa' vowel **ə**, as found in the first syllable of the word 'about'. The lips may be slightly rounded in anticipation of the glide towards **ʊ**, for which there is quite noticeable lip-rounding. The words in which this diphthong would occur are: ('l**oa**d', 'h**o**me', 'm**o**st', 'h**o**st').
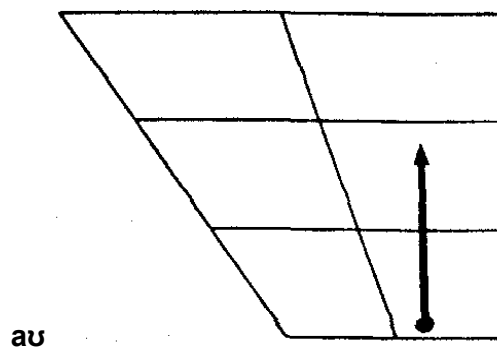
aʊ

This diphthong begins with a vowel similar to **ɑ:** but a little more front. Since this is an open vowel, a glide to **ʊ**would necessitate a large movement. With practice, you will notice that ordinarily in English the glide towards **ʊ**begins but is not completed. The end of the diphthong hangs somewhere between close-mid and open-mid in tongue height. There is only slight lip-rounding. The examples of words in which this diphthong occur are: ('l**ou**d', 'g**ow**n', 'h**ou**se').

8.5 Triphthongs

We hope you have gained mastery of the diphthongs and can easily recognise them as easily as possible. We hope the next section will be as exciting as the one you have just finished dealing with. In this segment, we introduce to you another type of long vowel sounds called triphthongs. You need to be reminded that triphthongs are the most

complex English sounds of the vowel type. Their complexity ranges from the difficult to pronouncing them to the difficult to recognising them. You therefore need to pay particular attention as you study this part if you are to understand triphthongs.

You may be wondering what type of a sound you are studying now. So, we wish to give you the definition of a triphthong right from the onset. The term triphthong is used to refer to a combination of three vowels. Roach (1998) defines a triphthong as a glide from one vowel to another and then to a third, all produced rapidly and without interruption. An example of would be a careful pronunciation of the word 'hour'. This begins with a vowel quality similar to **ɑ:,**then goes on to a glide towards the back close rounded area (for which we use the symbol **ʊ**), and ends with a mid-central vowel. And we use the symbols **aʊə**to represent the way we pronounce 'hour'. It will interest you to note that triphthongs are made up of the five closing diphthongs that have been described in the last section, with **ə**added at the end. And so we have the following combinations:

eɪ + ə = eɪə
aɪ + ə = aɪə
ɔɪ + ə = ɔɪə
əʊ + ə = əʊə
aʊ + ə = aʊə

eɪə
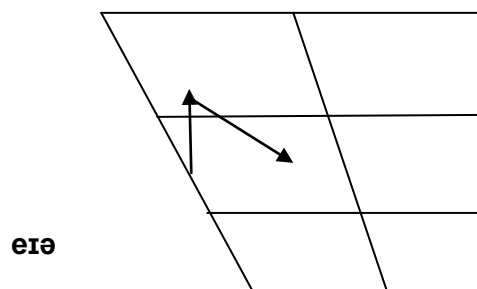
Thistriphthong begins to move from the front half-close region rising slightly to the front close region then ends at the centre of the mouth. Examples of words in which it occurs are: ('pl**ayer**', 'gr**eyer**', 'l**ayer**').

aɪə
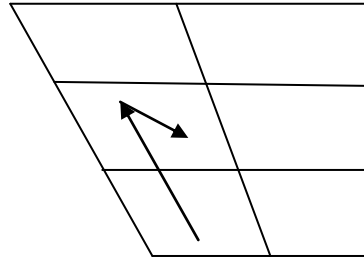
This triphthong starts at the open region, goes to the front close region and ends at the middle of the mouth. The tongue has a complex movement during the articulation as it moves from the low position to the high and finally to the neutral position. Examples of words in which it occurs are: ('**l**i**ar**', '**f**i**re**', '**b**uyer', '**t**yre', '**c**rier')

ɔɪə
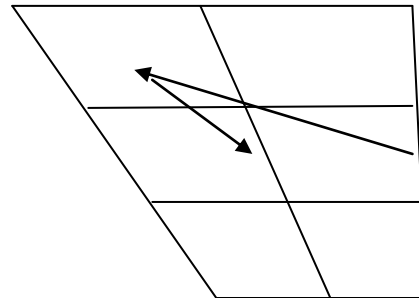
This triphthong moves from the back close position to the front half-close region and ends at the middle of the oral cavity. Note that this too has a complex configuration and appears in the following words: ('empl**oyer**', 'l**oyal**', 'r**oyal**',).

əʊə
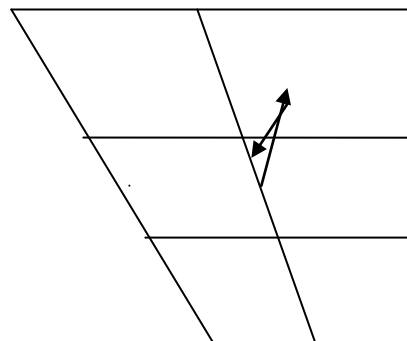
This triphthong begins from the centre and moves to the back close region and ends at the middle of the mouth. The example of words in which it occurs are: ('l**ower**', 'm**ower**',).

aʊə
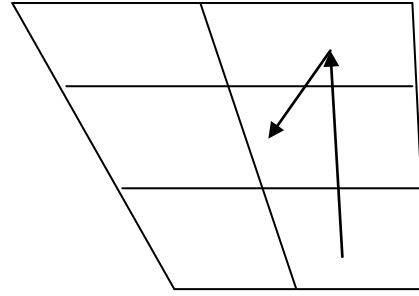
This triphthong (**aʊə**) also starts at the open region, moves to the back close region and ends at the middle of the mouth. It occur in the following words: ('p**ower**', 'sh**ower**', 'h**our**', 'fl**ower**'). Kindly check the transcription of all these example words for triphthongs.

Reflection

As you went through this unit, did you try to check whether your own language has long vowels and consequently diphthongs and triphthongs?

Summary

This unit has exposed you to English long vowels. In the unit, you have learned of diphthongs and triphthongs and what characterises them.

Evaluation

1. Following your studies on glides, show the symbols of the glides in the following words.

   (a) fright (b) clear (c) home (c) cow (d) sphere

2. Find words of your own in which the following sounds: **aʊə, əʊə, ɔɪə, eɪə, aɪə**

UNIT 9 THE SYLLABLE

9.0 Introduction

In the preceding units, we noticed that it is easy to decide whether a particular sound is a vowel or a consonant on phonetic grounds (that is in relation to how much they obstructed the airflow). In addition, in preceding units, the word syllable might have occurred without particular explanation. This unit, therefore, introduces you to the syllable. We hope you will pay particular attention to concepts discussed in the unit.

Learning Outcomes
By the end of this unit, you should be able to:

- State what a syllable is
- Identify distribution of syllables in given words
- Describe the basic nature of a syllable
- Describe the structure of a syllable

9.1 A phonetic approach to the syllable

We noticed that phonetically, consonants and vowels have different distributions. The syllable can also be defined both phonetically and phonologically. May we at this point try to give a simple definition of syllable. In linguistics, a unit of speech consisting minimally of one vowel and maximally of avowel preceded by a consonant or consonant cluster and followed by aconsonant or consonant cluster. For example, the English word *introductions*consists of four syllables: *in-tro-duc-tions*. In spite of this definition, other definitions of syllable exist. We can simply say; there is no definition of the syllable that Phoneticians or Phonologists currently agree upon.

Note that the syllable has psychological reality as a unit that speakers of a language can identify. Speakers are able to count the number of syllables in a word and can often tell where one syllable ends and the next begin as exemplified in the word *introductions.*

At the beginning of this section, we have pointed out that a syllable can also be defined both phonetically and phonologically. Follow through as we now look at the syllable in detail. And so phonetically, a syllable can be described as having a centre, also called peak or nucleus, which is produced with little or no obstruction of air, and is therefore

usually formed by vowel. The centre of the syllable is comparatively louder than its beginning and its end. The vowel at the centre of a syllable be a monophthong/one or diphthong (Skendraand Burleigh, 2005).

Note that what we might call a minimum syllable would be a single vowel in isolation as in the words: 'are' /**ɑ:**/, 'or' /**ɔ:**/ 'err' /**ɜ:**/

In many syllables, the centre is preceded by an **onset** (that is, they have more than just silence preceding the centre of the syllable), which is produced with great obstruction of air, and hence always formed by one or more consonants. Such syllables are exemplified by words like _bar_ /**bɑ:**/, _key_ /**ki**/, _more_ /**mɔ:**/, _stir_ /**stɜ:**/.

A syllable that ends in a vowel, i.e. one that ends with the _centre,_ is commonly referred to as an **open syllable**. Some syllables have no onset but the centre is followed by a coda (termination), which is also produced with greater obstruction of air, and therefore also formed by one or more consonants as exemplified in:

> ar<u>t</u>   /**ɑ:t**/, ur<u>ge</u>   /**ɜ:ʤ**/, and i<u>ce</u> /**aɪs**/

We hope you are following every step of the explanation being given on the syllable. Note that most syllables may have both an onset and a coda as in:

> b<u>ath</u>   /**bɑ:θ**/, ru<u>n</u>   /**rʌn**/, pe<u>ck</u>   /**pɜ:k**/

Some syllables may have no onset and no termination (coda). When this happens, we say the syllable has zero onset and zero termination or zero coda. This happens when the syllable begins with a vowel or ends with a vowel. Note that a syllable that ends in a consonant, i.e. one that ends with a coda, or termination – irrespective of whether it has an onset or not – is commonly referred to as a **closed syllable**. It is also sometimes called a _checked_ syllable. This then means that, the vowel forming the centre of this syllable is also a checked vowel. We can simply say, at this stage that an onset is the sound or sounds occurring before the nucleus and the coda being the sound or sounds that follow nucleus (the shell). The centre and the coda (if there is one) together account for the rhyming potential of a syllable as can be accounted for in: _mine_

and*fine*. We in short are saying rhyme covers the nucleus plus the coda. We thus provide the structure of the syllable as in Fig. 7.
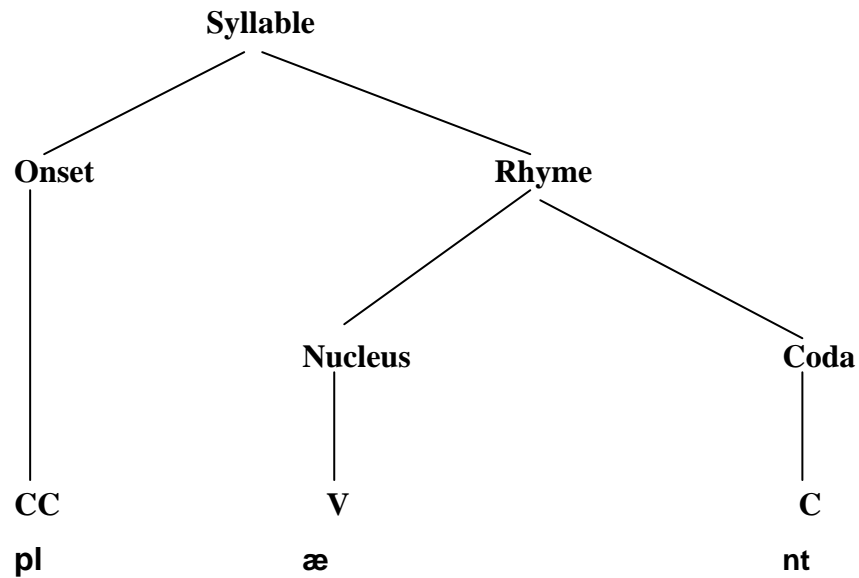
Fig. 7: Showing the structure of a syllable.

It is hoped that you have got insight thus far concerning the syllable. We encourage you to pay much more attention as we now look even at more details on the syllable.

9.2 Consonant clusters

We now look at details with regard to initials and finals of syllables. Note that if the syllable begins with one consonant, that initial consonant may be any consonant phoneme except ŋ; ʒis rare (Roach 1998). 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 set of about two consonants; examples of these are in words such as: 'sting' /**stɪŋ**/ 'sway' /**sweɪ**/ 'smoke' /**smaʊk**/. The s in these clusters is called the pre-initial consonant and the other consonant (**t, w, m** in the examples) are initial consonant. The other sort begins with one of a set of about 13 consonants, followed by one of the set l, r, w, j as in 'play' /**pleɪ**/, 'try' /**traɪ**/, 'quick' /**kwɪk**/ 'few' /**fju**/. 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. Note that when you look at three-consonant clusters, you can recognise a clear relationship between them and the two sorts of two-consonant clusters described above. Examples of three-consonant initial clusters are: 'split' /**splɪt**/, 'stream' /**stri:m**/, 'square' /**skweə**/. The '**s**' is the pre-initial consonant, the '**p**', '**t**' and '**k**' that follow the s in the 3 example words are the initial consonant and the '**l**', '**r**' and '**w**' are **post-initial**.

The study of final consonant clusters can be done in a similar way. There is a possibility of four consonants at the end of a word. As said earlier, when there is no consonant, we say that there is a zero termination. If there is one consonant only, this is called the final consonant. Any consonant can be a final consonant except '**h**', '**r**', '**w**', '**j**'. There are two sorts of two-consonant final cluster, one being final consonant preceded by a **pre-final** consonant and the other 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 /**bʌmp**/, bent /**bent**/, bank /**bæŋk**/, belt /**belt**/, ask /**ɑ:sk**/. The post-final consonants also form a small set: '**s**', '**z**', '**t**', '**d**', '**θ**' as in:

'bets' /**bets**/ 'beds' /**bedz**/ 'backed' /**bækt** / 'begged' /**bægd**/'eighth' /**eɪtθ**/.

These post-final consonants can often be identified as separate morphemes (though not always, e.g. 'axe', **æks**). Note that a pronunciation can be pointed out here: the release of the first plosive of the final of a plosive-plus-plosive cluster such as the **g** (of **gd**) in bægd or k of (**kt**) in **bækt**is usually without plosion and therefore practically inaudible. There are two types of final plus post-final, as in the following table: (Adapted from Peter Roach 1998)

	PRE – FINAL	FINAL	POST – FINAL
'helped' he	l	p	t
'banks' bæ	ŋ	k	s
'bonds' bɒ	n	d	z
'twelfth'twe	l	f	θ

The second type shows that more than 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'	fi	-	f	θ	s
'next'	ne	-	k	s	t
'lapsed'	læ	-	p	s	t

Most four-consonant final 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'	prɒ	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-finals. See below:

		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, the English syllable would be described as having the following maximum phonological structure:

Pre	initial	Post		Pre-		Post-	Post-	Post-
Initial		Initial	VOWEL	final	final	final 1	final 2	final 3
ONSET				**CODA (TERMINATION)**				
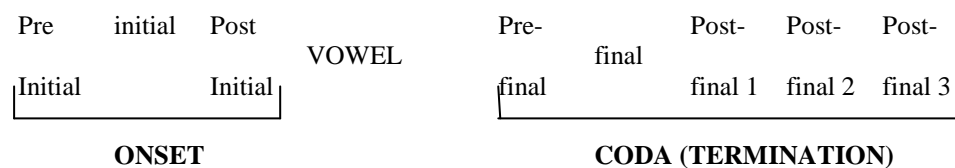
You must have noticed that there must be a vowel in the centre of the syllable. Note also that analysing syllable structure as has been done here is so important to you as a learner of English as a second language. We hope what you have been exposed to will help you in how you pronounce words in English.

9.3 The ə ("schwa")vowel

In the previous section, we have just been discussing the syllable. If you have observed, you must noticed that some syllables are strong while others are weak in the way they are articulated. In this section we discuss the schwa, which is always associated with weak syllables. The schwa is not articulated with much energy, thus it is described as lax. In quality it is mid (that is, half-way between close and open) and central (that is, half way between front and back). The quality of this vowel is always the same, of course.

Note that not all weak vowels contain the schwa even though many of them do. Knowing a syllable that should be weak in a given word is rather difficult. Below is a description of some guidelines on how we can go about with articulation of syllables.

(i) Spelt with '**a**'; strong pronunciation would have **æ**as in:

'*a*ttend'**ətend**   'char*a*cter'**kærəktə**   'barr*a*cks'**bærəks**

(ii) Spelt with 'ar'; strong pronounciation would have **ɑ:**as in:

'p*ar*ticul*ar*'**pətɪkjlə**   'mol*ar*'**məʊlə**   'mon*ar*chy'**mɒnəkɪ**

(iii)Adjectival endings spelt '*a*te'; strong pronunciation would have **eɪ**

'intim*ate*' **ɪntɪmət**   'accur*ate*'**ækjərət**   'desol*ate*'**dɛsələt**(though there are exceptions to this: 'private'is usually**praɪvɪt)**

(iv)Spelt with 'o'; strong pronunciation would have **ɒ**

'tomorrow'**təmɒrəʊ**   'p*o*tato'**pəteɪtəʊ**   'carrot'**kærət**

(v) Spelt with 'or ; strong pronunciation would have **ɔ:**

'f*or*get'**fəget**   'ambassador'**æmbæsədə**   'opp*or*tunity'**ɒpətju:nɪtɪ**

(vi)Spelt with 'e' ; strong pronunciation would have **e**

'settlem*en*t' **setlmənt**   '*violet*'**vaɪələt** 'postm*en*'**pəʊstmən**

(vii) Spelt with 'er'; strong pronunciation would have **ɜ:**

'p*er*haps' **pəhæps** 'strong*er*' **strɒŋgə** 'sup*er*man' **suːpəmæn**

(viii) Spelt with 'u' ; strong pronunciation would have **ʌ**

'Aut*u*mn' **ɔːtəm** 's*u*pport' **səpɔːt** 'halib*u*t' **hælɪbət**

(ix) Spelt with 'ough' ; (there are, of course, many other pronunciations for the leter sequence '*ough*')

'thor*ough*' **θʌrə** 'bor*ough*' **bʌrə**

(x) Spelt 'ous'

'graci*ous*' **greɪʃəs** 'call*ous*' **kæləs**

Reflection

In the process of your reading in this unit, did you try to compare syllables of your own language and those of the English language? Which ones are easier to identify?

Evaluation

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1. Identify parts with the schwa in the following words:
   (a) again (b) bargain (c) precious (d) major (e) caller
2. Transcribe the following words:
   (a) excite (b) bottle (c) many (d) effect
3. For the following transcriptions, write the actual words
   (a) dɪsiːv (b) ʃɑːpən (c) kəlekt (d) kɒŋkə

9.4 Conclusion

You have in this unit been exposed to the syllable and we hope you have gained mastery on how you are to identify syllables in different words. You have learned about the structure of the syllable and you have also been introduced to the schwa vowel. It is hoped that you can now pronounce English words with accuracy. The next unit exposes you to stress and intonation. Get ready, therefore.

9.5 Summary

This unit has exposed you to the syllable and its structure. In the unit, you have also read on consonant clusters and the schwa.

Unit 10 SUPRASEGMENTAL PHONOLOGY

10.0 Introduction

In this unit, you are going to study stress and pitch in natural languages and how the variations result in tone and intonation. You will also study the functions of intonation.

Learning Outcomes

By the end of this unit, you should be able to:

- explain variations of pitch in natural languages
- distinguish between tone and intonation
- express the functions of intonations

10.1 Stress

Stress, as a sound phenomenon, can be studied from two points of view: production and perception. The production of stressed syllables is said to imply a greater muscular energythan the production of unstressed syllables. From the perceptive point of view, stressed syllables are prominent. Prominence is the sum of different factors such as loudness, length, pitch and quality. There are three possibilities of stress in a word: a primary stress, characterised by prominence and, basically, by a rise-fall tone; a secondary stress, weaker than the primary stress but stronger than that of the unstressed syllables (ˌphotoˈgraphic); and unstressed syllables, defined by the absence of any prominence, becoming then the background against the prominent stressed syllables appear. Unstressed syllables normally have the short closed vowels /i/ or /u/ and the schwa.

Note that stress can be studied from two points of view; production and perception. The two are obviously related closely 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. Note that, when we produce stressed syllables, the muscles that we use to expel air from the lungs are more active, producing higher subglottal pressure.

10.2 Intonation

In the first part of this unit, you were exposed to stress, a part of suprasegmental phonology of English. In this second part, you are going to learn about another part of

suprasegmental phonology, or prosody. This part, therefore, introduces you to intonation, a fundamental property of spoken language. At this point you definitely would wish to know what intonation is. Intonation refers to the rise and fall of the voice in speaking. It is basically the pitch of voice; thus, the rising or falling of pitch of the voice when somebody says a word or syllable, or the rising and falling pattern of speech generally. Intonation is also called pitch contour or pitch movement. It is principally the variation of pitch, but also prominence, over s stretch of speech. All languages have intonation. In order to analyse intonation, continuous speech can be broken into smaller units, but there are different conventions about how to determine these units.

10.2.1 Pitch

You must have noticed in our discussion in the preceding part of this unit that intonation is shaped by the variation, or modulation, of the pitch of the voice. Skandera& Burleigh(2005) argue that prominence also plays a role, especially in marking the word that carries the main sentence stress. However, in this section, we wish to draw your attention to pitch. We wish at this point to state that pitch is related to the frequency of the vibration of the vocal folds. In short, we are saying that the faster the vocal folds vibrate, the higher the pitch. Pitch therefore, is another way of referring to the fundamental frequency of the voice. The frequency of voice is also determined by the physical size, and consequently by sex.

In spite of the variations alluded to, all speakers can use intonation to achieve its various functions, which shall be discussed later in the unit. Note that as an individual, you are endowed with ability to control the pitch of your voice, and you do so, you may transmit information of one sort or another. You need to note that no two speakers have the same fundamental frequency. It is therefore not the absolute frequency that has to be considered but the distinctive contrasts in the speaker's pitch level and the relative movements that are important. In other words, the important question to ask when analysing intonation is whether a change in pitch carries linguistic, or communicative significance.

10.2.1.1 The tone unit

Connected speech can be broken into utterances or units which begin and end with a clear pause. Though utterances in some cases consist only of one syllable, such as *yes* or *no*, they are much longer in normal circumstances as in; *The other day, while I was at school, I saw Victor, who I hadn't seen for months.* Within an utterance, we can sometimes also identify smaller units, over which a single intonation contour extends. It is such a stretch of speech we call a tone unit, or tone group. For example, the simple question in (1), the longer question in (2) and the statement in (3) are all utterances.

> (1) When?
>
> (2) When did you say you would go?
>
> (3) When he finally woke up, he discovered that classes had already begun.

(1) and(2) each consist of a single tone unit whereas (3) is made up of two tone units. A tone unit, then, can extend over a stretch of speech as short as a single syllable, as in (1), or over a much longer stretch of speech, as in (2).

So far, we can see that intonation cannot be indicated by IPA symbols. In this module, we shall use the conventional orthography, but without any punctuation, and we mark off tone units with double slashes, as in the following example:

> **//** When he finally woke up *//* he discovered that classes had already begun**//**

On this note, we safely say that connected speech consists of utterances; an utterance is made of one or more tone units; a tone unit is made up of one or more feet; a foot comprises one or more syllables; and a syllable consists of one or more phonemes.

10.2.1.2 Intonation patterns

Basing our argument on Received Pronunciation (RP), (the accent used by most announcers and newsreaders on serious national and international BBC broadcasting channels), we can say that within a tone unit, one or more syllables are usually more prominent than others. The last prominent syllable in a tone unit is called the **tonic syllable**, or **nucleus**. The tonic syllable is the syllable on which the main pitch movement begins. The pitch movement may be restricted to the tonic syllable, but often

it continues from the tonic syllable to the end of the tone unit (Skandera& Burleigh,2005). The tonic syllable, as well as being prominent, is said to carry tonic stress, or nucleus stress, and it is this stress which determines the particular intonation pattern, or tone. In this module, the convention we adopt is that syllables which carry stress are written in capital letters, and tonic syllables are written in capital letters and are underlined.

In this module, we shall consider five different patterns of intonation in RP: **fall**, **rise**, **fall-rise**, **rise-fall**, and **high key** (where the whole intonation contour is at a raised pitch). These tones are indicated by the symbols ⬂ (for fall), ⬈ (for rise), ⬊⬈ (for fall-rise), ⬈⬂(for rise-fall), and ↕(for high key). For practice, check how the symbols have been used in the following utterances (**as adapted from Skandera and Burleigh-2005**):

⬂	// WHERE do you <u>LIVE</u> //	(neutral question)
⬈	// WHERE have you <u>BEEN</u> //	(angry parent to a child)
⬊⬈	// I'LL BE there <u>SOON</u> //	(reassurance)
⬈⬂	// The FILM was <u>WON</u>derful //	(emphatic statement)
↕	// HOW much did you <u>PAY</u> //	(question signalling surprise at the price)

We hope you have familiarised with the rise and fall patterns in intonation. To gain mastery of these, you need to read and practice following the examples given. Truly not many examples have been given, but when you read other sources, you can understand even more. Before we leave this section, we would like to clarify a few more points on the patterns of intonation in Received Pronunciation (RP). Skandera & Burleigh (2005) argue as follows:

Rise: The rise is used for yes/no questions, for questions which are requests for repetitions of an answer, and for listing items (except the last item in the list, which is normally given a fall). When the speaker takes an authoritative or dominant role in the discourse, the Rise is also commonly used, for example in questions in an aggressive interview, in instructions, or in commands. Examples:

Do you live near here? Can I help you?

Sweets, oranges, apples and bananas.

When did your headache start?

First turn left, then turn right.

Fall-rise: The fall-rise is generally used to confirm an equal participation in the discourse. It is therefore used to refer to shared information, to confirm information, to ask for permission, and to reassure. Examples:

We are leaving tomorrow, aren't we?

We can't afford that car, it's too expensive.

May I open the window?

It will be alright.

Rise-fall: The rise-fall is used to express strong personal impression. It can be used to convey a strong positive attitude, or to express surprise. Examples:

That is a smart suit!

What an accent!

High key: The high key is normally used to express surprise, strong disagreement, and sometimes strong agreement. Examples:

Only 28? I thought you were at least 35!

Actually, I think you are wrong!

I quite agree!

Evaluation

Apply appropriate symbols to the following utterances
1. I don't agree with you
2. That girl is beautiful
3. We are having breakfast before we leave, aren't we

The next section exposes you to the functions of intonation. So follow closely as explanations are being done.

10.2.1.3 Functions of intonation

We hope you still can follow the rise-fall and fall-rise patterns learned in the previous section, and we still hope you can make your utterance in relation to what you have experienced. In this section, we expose you to the functions of intonation. As earlier pointed out, intonation is a fundamental property of spoken language as such, needless to over emphasise the need for you to just pay particular attention. Much of what the speaker intends to say would be lost if they spoke without intonation. Broadly speaking, we can see that intonation makes it easier for a listener to understand what the speaker is trying to convey. Of course, the ways in which intonation does this are very complex and suggestions have made for ways of isolating different functions (Roach, 1989). Intonation has **four** functions. The **structural or grammatical** function, the **accentual**, the **attitudinal** and the **discourse** function.

10.2.2 The Structural or Grammatical Function

The word "grammatical" has been used in a loose sense in this context. the grammatical function is usually illustrated by inventing which when written are ambiguous, and whose ambiguity can only be dealt with (removed) by using differences of intonation. A typical example is the sentence "Those who sold quickly made a profit". This can be said in at least two different ways:

      (a) |Those who sold <u>quic</u>kly | made a <u>pro</u>fit|

      (b) |Those who <u>sold</u>| quickly made a <u>pro</u>fit|

Note that the difference caused by the placement of the tonic-unit boundary is seen to be equivalent to giving two different paraphrases of the sentences, as in:

      (a) A profit was made by those who sold quickly.

      (b) A profit was quickly made by those who sold.

Another component of intonation that can be said to have grammatical significance is the choice of tone on the tonic syllable. One example that is very familiar is the use of a rising tone with questions. Many languages have the possibility of changing a statement

into a question simply by changing the tone from falling to rising. This is, in fact, not used very much by itself in the variety of English being described here, where questions are usually grammatically marked. The sentence "The price is going up" can be said as statement and it acceptable as a question especially in other dialects of English. If used as a question, the statement "The price is going up" the tonic stress could be placed on 'up'. Note that speakers of the English of England are more likely to say |Is the <u>price</u> going up|. It is important to note that a rising tone is always used for questions in English; and it is quite usual, for example, to use a falling tone with questions beginning with one of the "wh-question words" like 'what', 'which', 'when', etc. Here are two examples with typical intonations, where (a) does not start with a "wh-word" and has a rising tone and (b) begins with 'where' and has a falling tone.

(a) | Did you park the **car** |

(b) | Where did you park the <u>car</u> |

10.2.3 The Accentual Function

The term accentual is derived from "accent", a word used by some writers to refer to what we have called "stress" in this course. So when we say that intonation has accentual function we imply that the placement of stress is something that is determined by intonation. In other words, we are saying intonation helps to produce the effect of prominence on syllables that need to be perceived as stressed, and in particular the placing of tonic stress on particular syllable marks out the word to which it belongs as the most important in the tone-unit. This is what is referred to as accentual function of intonation.

Roach (1989) has proposed that the location of the tonic syllable is of considerable linguistic importance and the most common position for this is on the last lexical word (e.g. noun, adjective, verb, adverb and not on grammatical words such as prepositions, conjunctions etc.). Note that for contrastive purposes, however, any word may become the tonic syllable as in the following pairs of examples, (a) represents normal placement and (b) contrastive:

(a) | I want to know where he's <u>tra</u>velling to |

(The word 'to' being a preposition and not a lexical word, is not stressed.)

(b) | I don't want to know where he's travelling <u>from</u> |

In like manner, for the purpose of emphasis the tonic stress may be placed in other positions; in the following examples, (a) in non-emphatic and (b) is emphatic:

(a) | It was very <u>bor</u>ing |

(b) | It was <u>ver</u>y boring |

`The same applies to the following:

(a) | You mustn't talk so <u>loud</u>ly |

(b) | You <u>mus</u>tn't talk so loudly |

One thing must be put clear here. It would be wrong to say that the only cases of departure from putting tonic stress on the last lexical word were cases of contrast or emphasis. There are quite a few situations where it is normal for the tonic syllable to come earlier in the tone-unit. A well-known example is the ambiguous sentence: 'I have plans to leave'.

(a) | I have plans to <u>leave</u> | (i.e. I am planning to leave.)

(b) | I have <u>plans</u> to leave | (i.e. I have some plans/diagrams/drawings that I have to leave.)

Note that version (b) cannot be described as contrastive or emphatic.

10.2.4 The Attitudinal Function

As regards this function of intonation, many writers have stated that intonation is used to convey our feelings and attitudes. They argue this way because he same sentence can be said in different ways, which might be labelled "angry", "happy", "grateful", "bored" , and so on. As foreign learners of English, we need to learn English intonation and of course the appropriate way to use intonation in given situations, or we shall risk give offence. For example, instead of using an intonation suitable for expressing boredom or discontent on would end up using intonation that expresses gratitude or

affection. One point that needs to be clarified here is that different voice qualities will be used to display different attitudes.

For example, if you wanted to utter the following sentence "I want to buy a new car" and you were to say it in the following ways: "pleading", "angry", "sad", "happy", "proud", it obvious that at least some of your performances will be different from some others. It is certain that you will have used different facial expressions and even gestures and body movements. These factors are all of great importance in conveying attitudes and emotions. Some obvious suprasegmental variables that are likely to be observed in attitudinal intonation are: pauses, tone-unit boundaries, width of pitch range, speed and voice quality. We wish to end this part by saying that it is difficult to teach attitudinal intonation because of the complexity of the total set of sequential and prosodic components of intonation and paralinguistic features of intonation.

10.2.5 The Discourse Function

The study of discourse attempts to look at larger contexts in which sentences occur. Intonation in relation to discourse can be identified in two areas: one of them being the use of intonation to focus on the listener's attention on aspects of the message that are most important, and the other which is concerned with the regulation of conversational behaviour. In terms of "attention focussing", Roach (1989) has argued that it is the placing of tonic stress on the appropriate syllable of one particular word in the tone-unit. Roach further proposes that it is easy in many cases to demonstrate that the tonic stress is placed on the word that is in some sense the "most important", as in:

|She went to <u>Scot</u>land|

Sometimes it seems more appropriate to describe tonic stress placement in terms of "information content": the more predictable a word's occurrence is in a given context, the lower its information content is, and tonic stress will tend to be placed on words with high information content as in:

(a) |*Ive* to take the <u>dog</u> for a walk|
(b) |*Ive* got to take the dog to the <u>vet</u>|

The word 'vet' is less predictable (has a higher information content) than 'walk'. Of course, there are cases where it is difficult to explain tonic placement in terms of "importance" or "information". The placement of tonic stress is still to some extent an unresolved mystery; it is clear, though, that it is at least partly determined by the larger context in which the tone-unit occurs.

We wish at this point let you know that we can see at least two other ways in which intonation can assist in focussing attention. The tone chosen can indicate whether the tone-unit in which it occurs is being used to present new information or refer to information which is felt to be already possessed by the speaker and hearer. For example, in the following sentence:

|Since the <u>last</u> time we met| when we had that huge <u>din</u>ner | ***Ive*** been on a <u>diet</u>|

The first two tone-units in the sentence present information which is relevant to what the speaker is saying, but which is not something new and unknown to the listener. The final tone-unit, however, does present new information. You may wish to know that writers of discourse have proposed that the falling tone indicates new information while the rising (including falling-rising) tones indicate "shared" or "given" information. That is, information already known to both the speaker and the hearer.

Another use of intonation connected with the focussing of attention is intonational subordination; it is possible to signal that a particular tone-unit is of comparatively low importance and as a result give correspondingly greater importance to adjacent tone-units as in:
(a) | As I ex pect youve <u>heard</u> theyre only ad mitting e <u>mergency</u> cases |
(b) | The Japa<u>nese</u> | for some reason or <u>other</u> | drive on the <u>left</u> | like <u>us</u> |

In typical conversational pronunciation of these sentences, the first tone-unit of (a) and the second and fourth tone-units of (b) might be treated as intonationally subordinate; the prosodic characteristics marking this are usually (i) a drop to a lower part of the pitch range ("low key"), (ii) increased speed, (iii) narrower range of pitch range and (iv) lower loudness, relative to the non-subordinate tone-unit(s) (Roach, 1989).

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The other discourse function of intonation is the regulation of conversational behaviour. You will learn at this point that intonation is also important in the conversational interaction of two or more speakers. Most research on the function of intonation in the regulation of conversational behaviour has been restricted to conversations between doctor and patient, teacher and pupil or indeed between the various speakers in court cases. It has been easy in such material to identify what each speaker is actually ***doing*** in speaking – for example, *questioning*, *challenging*, *advising*, *encouraging*, *disapproving* and so on. What you would notice in general is that speakers use various prosodic components to indicate to others that they have finished speaking, that another speaker is expected to speak, that a particular response is required, and so on.

Reflection

What in opinion would have been the case if humans spoke without the non-segmental features discussed in this unit?

Evaluation

Discuss how speakers make use of intonation under the four functions of intonation discussed in this unit.

Conclusion

This section has discussed the functions of intonation. It is hoped that you followed closely as explanations were being made through the illustrations provided. Practically all the separate functions traditionally attributed to intonation (accentual, attitudinal and grammatical) could be seen as different aspects of discourse function of intonation. You must have seen that the study of intonation in relation to discourse makes it possible to explain much more comprehensively the uses that speakers make of intonation (Roach, 1989).

Summary

In this unit, you have looked at stress and pitch. You have alsobeen exposed to the term intonation and have contrasted it with tone. You have also isolated the various uses of intonation patterns.

UNIT 11 PHONOLOGICAL PROCESSES

11. 0 Introduction

This unit introduces you to various phonological processes or what we may simply call phonological rules. Phonological processes are a common and predictable part of phonological development often recognized as simple pronunciation alteration.

Learning Outcomes

By the end of this unit, you should be able to:

- differentiate sound changes that occur in or within words
- state what causes these changes
- differentiate phonological processes
- discuss how phonological processes function in languages

11.1 Phonological processes

In much of the preceding units, we have been describing speech sounds in syllables and words as if they are pronounced carefully and deliberately, almost in slow motion. Speech, however, is not like that. You must have noticed that mostly our talk is fast and spontaneous, and it requires our articulators to more from one sound to the next without stopping. Thus we have connected speech. If you compare how you articulate words in isolation with how you do it in connected speech, you will notice some difference in how sounds would be realised. A significant difference you will notice is that in natural connected speech, sounds belonging to one word can cause changes in sounds belonging to neighbouring words.

We by now ought to understand that when we talk about phonology, we are concerned with the way the sound system of a particular language is organised. And by the sound system of a given language we usually mean the number of phonemes or distinctive and significant sounds as well as the variations of sounds which may be occasioned by the phonological environments in which the sounds of such a language occur. So, when we talk about phonological processes, we refer to the changes sounds undergo for occurring with other sounds in a particular phonological environment.

One interesting aspect of the phonology of languages is that organised sounds of each language are not always static. You will or may have already noticed that they are constantly affected by the surrounding or neighbouring sounds, that is, the

neighbouring segments always condition them. These conditioning are governed by rules called 'Phonological Rules'. In some cases phonological changes are not strictly phonological, changes may occur in the morphology or syntax that warrant a phonological change.

To clearly put this, we can say phonological processes are the principles or indeed norms which explain how abstract units are combined and vary when they are used in speech. Such processes include: assimilation, dissimilation, coalescence, elision, vowel reduction, metathesis, etc. Note that we have dealt with just a few and not all phonological processes in this module. You may explore others not covered here.

The subsequent section discusses each of these phonological processes.

11.2 Assimilation:

This is a phonological process whereby one sound, usually a consonant, becomes more like, or identical with, a neighbouring sound regarding one or more of the distinctive features (Skandera & Burleigh, 2005). More specifically, the articulation of one sound is influenced by the articulation of a preceding sound or anticipates a distinctive feature of a following sound. Yule (1996) argues that assimilationasa process is when two sound segments occur in sequence and some aspect of one segment istaken or 'copied' by the other.e.g.:

Im– possible	impractical
In – tolerant	impatient
In – sincere	imbalance
In – delible	indirect

In the above examples, the forms with the prefix as 'im' take bilabial plosives as /p/ and /b/, whereas those with 'in-'prefix take alveolar plosives. We know for example, that /n/ is an alveolar sound, i.e. its place is the bony ridge behind the upper teeth, and /p/ is a bilabial sound, its place of articulation is the lips. You will not that in the process of producing the /n/ in a sequence like *ten pigs,* the lips, which primarily are not involved in the production of /n/, often anticipate the place of articulation of the following /p/, thus changing the /n/ into a bilabial sound. This process is called assimilation. You

notice that the new place of articulation is identical with the place of articulation of /m/ (/m/ is also a bilabial), and since the intensity and manner of articulation of /n/ and /m/ are also identical, (both are lenis nasals), then the /n/ now sounds like /m/, or we could say that the /n/ has been substituted with /m/. You will hear the sequence ten pigs being pronounced [tem pigz] instead of [ten pigz]. Assimilation can occur both across word boundaries and within a word.

11.2.1Dissimilation

This is a process whereby sounds become less or similar to their surrounding segments. It is less common than assimilation and creates distinctiveness in sounds in the same environment. In English the adjectival suffix – 'al', has two phonetic realizations of al'-al' or '-ar' e.g.

A		B	
Noun – Adjective		Noun -	Adjective
Electric – electrical		Angle -	Angular
Culture – cultural		Single -	Singular
Orbit - orbital		Circle –	Circular

11.2.2 Coalescence

This is a phonological process whereby two contiguous sounds are replaced by one which, though different from each of the two shares some properties in common with each of the two original sounds. In English coalescence occurs when a morpheme final alveolar plosive or fricative /t, d/ or /s, z/ is followed by /j/, a palate-alveolar fricative results, mostly when the segment is followed by the suffix '-*ion*' e.g.,

relate	**/rileit/**	relation	**/ri'leiʃən/**
confuse	**/kənfju:z/**	confusion	**/kənfju:zən/**

11.2.3 Elision or deletion

The nature of elision may be stated quite simply: you will notice that under certain circumstances   sounds disappear; one might express this in more technical language by saying that in certain circumstances a phoneme may be realised as zero, or have zero realisation or be deleted. In simple terms, elision is the omission of a sound (a phoneme) in speech. More specifically, elision may refer to the omission of an

unstressed vowel, consonant, or syllable. As with assimilation, elision is typical of rapid and casual speech. Note that the word elision is frequently used in linguistic description of living languages, and deletion is often used in historical linguistics for historical sound change. One important thing to know about elision is that it is uncommon among non-native speakers of a language.

You may be interested to look at some examples, though only a small number of many possibilities can be given here. You will have to read some more by yourself.

    i.   Loss of weak vowel after **p, t, k**

In words like 'potato', 'tomato', 'canary', 'perhaps', 'today', the vowel in the first syllable may disappear; the aspiration of the initial plosive takes up the whole of the middle portion of the syllable, resulting in these pronunciations (where ^hindicates aspiration):

p^{hʼ}teitəʊ;   t^{hʼ}mɑtəʊ;   k^{hʼ}neəri;   p^{hʼ}hæps;   t^{hʼ}deɪ

  ii.   Weak vowel + n, l or r becomes syllabic consonant. e.g.,

'tonight' – **tnait**;   'police' –**pli:s**;   'correct' - **krekt**

 iii.   Avoidance of complex consonant clusters. It has been argued that no normal English speaker would ever pronounce all the consonants between the last two words of the following:

'George the sixth's throne' **dʒɔːdʒðəsiksθrəʊn**

It might interest you to note that deletion exists in many forms. A few examples have been provided. Of course you need to read further in order to gain mastery of this material. As you read further, you will surely find more examples that will make you understand even better.

    (a) **Aphaeresis:** The kind of deletion that affects a sound at the initial position as in:

Knight   /**nait**/

Know   /**nəu**/

Pneumonia   /**njuməʊniə**/

Psychology   /**saɪkɒlədʒɪ**/

(b) **Syncope** (Syncopation): This has to do with internal deletion as exemplified in:

Listen /lɪs.n/

Plumber /plʌmə/

Chocolate /tʃɒk(ə)lət/

Often /ɒfn/

(c) **Apocope**(Apocopation): The deletion of the final sound segment as in:

Chalet /ʃæleɪ/

Coup /kuː/

11.2.4 Intrusion

Intrusion is the opposite of elision. It is a process whereby a sound that is not represented in the spelling and has no historical justification is added to a word or sequence in spoken language. Intrusion may occur in word-initial, internal or word-final position.

e.g. *helep* for *help*, *filem* for *film* and *midist* for *midst*.

11.2.5 Vowel reduction

Absence of stress on a syllable, or on a word in some cases, is associated with vowel reduction – many such syllables are pronounced with a centralised vowel (schwa) or other vowels that are described as being "reduced". In short, vowel reduction is a phonological process whereby unstressed vowels are weakened to schwa. This process can be exemplified as follows:

phone /fəʊn/

phonetics /fənɛtɪks/

about /əbaʊt/

11.2.6 Metathesis

This is a phonological process whereby the order of segments is juxtaposed. The process involves movement, permutation or reversal of segments in a string. This is common in speech errors and children's language. In some other literature, metathesis has been referred to as spoonerism as coined by Professor Spooner. Metathesis would occur as in the following words:

ask aks

disc   dics

desk   deks

Reflection

Have ever paid attention to how you speak and is it possible for you to identify some of these phonological processes in instances of social intercourse.

Evaluation

1. With tangible examples, discuss the different phonological processes discussed in this unit.
2. Discuss the different types of deletion with examples.

Conclusion

Phonological processes are natural facts of languages. They are changes that phonemes undergo because they happen to occur in the same environment with other words.

Summary

Phonological process is the change sounds undergo for occurring in the sameenvironment with other sounds. These changes could be phonological, morphological and syntactic. Phonologically, a sound change can be conditioned based on phonological environment

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