

MODULE 1 PHONETICS AND PHONOLOGY

- Unit 1 What Phonetics is.
Unit 2 What Phonology is.

UNIT 1 WHAT PHONETICS IS?**CONTENTS**

The main concern of this unit is to present to you, the theoretical background to issues that are usually discussed under the field of phonetics as a scientific study of speech sound. The unit is discussed under the following headings:

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Contents
 - 3.1 Theoretical Background on Phonetics
 - 3.2 Articulatory Phonetics
 - 3.3 Acoustic Phonetics
 - 3.4 Auditory Phonetics
- 4.0 Self-Assessment
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Reading List

1.0 INTRODUCTION

Phonetics, as a branch of Linguistics, concerns the scientific study of how speech sounds are produced, transmitted and perceived. The primary duty of a phonetician is to carry out rigorous studies of the human sounds made for the purpose of communication. The main aim of this is to be able to identify all the possible human sounds made for the purpose of oral communication. Another purpose of a phonetic study is to be able to describe and explain each of these identified sounds. One last main purpose of a phonetician is to be able to explain how these human sounds are produced (articulatory), transmitted (acoustic) and perceived (auditory). These form the three major (but not always easy to differentiate) types of phonetics, as shall be explained shortly.

2.0 OBJECTIVES

You should, by the end of this unit, be able to:

- define what phonetics is;

- identify the main duties of a phonetician;
- name a few notable phoneticians across the world;
- list phonetician's working tools;
- use a few of these tools; and
- explain the three main branches of phonetics.

HOW TO STUDY THE UNIT

- a. Read this unit as diligently as possible.
- b. Find meaning of unfamiliar words in the unit using your dictionary.
- c. As you read, put major points down in a piece of paper or jotter.
- d. Do not go to the next section until you have fully understood the section you are reading now.
- e. Do all the Self-Assessment exercises in the unit as honestly as you can. In some areas where it is not feasible to provide answers to Self-Assessment exercises, go to the relevant sections of the unit to derive the answers.

3.0 MAIN CONTENTS

3.1 Theoretical Background on Phonetics

Phoneticians all over the world have been engaged in the scientific investigation into the workings of the human speech sounds. This engagement was dated back to years before Christ. Precisely, Clark and Yallop (1992) confirms that as early as many centuries before Christ was born, the Indians had concerned themselves with the study of Sanskrit and done a lot of work in articulatory phonetics (p. 329), and so were linguists in China, Japan, Greece and Rome. Much of what we now learn in phonetics were efforts contributed by these ancient linguists and passed to us by the nineteen-century linguists. Such nineteen-century linguists were: Baudouin de Courtenay (1845-1929), a Polish; Ferdinand de Saussure (1875-1913), a Swiss; Henry Sweet (1845-1912) and Daniel Jones (1881-1967), both were English; Franz Boas (1858-1942), German; Edward Sapir (1884-1939) and Leonard Bloomfield (1887-1949), were both Americans. You would have, therefore, realised that many linguists had done so much work in the past, a lot more still goes on.

As it has been said earlier, the main concern of a phonetician is the scientific study of *all* possible human sounds that are meant for speech communication. His primary focus is on human speech sounds, not of any particular language. Thus, it is possible for him to investigate the speech sounds of a language he does not quite understand, speak, read or write because his primary focus is on the examination of human speech sounds, how they are produced, transmitted and perceived. To achieve this, he needs to observe, listen, record and analyse

what he is said. For this, he must be a good observer, listener, recorder and analyst. At the same time, he must have some tools handy to do all these, as reliability on his own senses alone may not give the desired results. In the past, the tools were few and far between, making observation, recording and analysis a tedious thing to do. But with modern technology, you can now observe, record and analyse with great accuracy, any human speech (and indeed non-human) sounds.

At the observatory and recording levels, you will need, apart from your sharp ears (which you *must* train), a good audio recording machine and video recording machine, you will need software, too – audio and video cassettes. You will also need to go with your pen, pencil, and other writing materials. Remember to wrap all this in waterproof containers (in case it rains or you need to cross a river!). In the past, machines such as Oscillomink and Visi-Pitch were often used to analyse corpora data (recorded utterances; singular: corpus datum). Other analysis tools are the X-Ray and the scanners. At the present moment, a number of computer programs have been devised and found to be highly useful for a phonetic analysis. Let me mention some of them: PRAAT, Speech Analyzer, Wavesurfer and LingWAVES. But in case you do not have your corpora as sound files or they are still in the audiocassette, you cannot use any of these computer programs. This means that, you then must find a way to covert and transfer them into the computer by a means of another program called the *Audacity*.

You can read a lot more of this in Jolayemi (2006) especially in Chapters Two, Seven, Eight and Nine.

Phoneticians represent the speech sounds they hear in signs called *phonetic symbols*, which they usually enclose in square brackets [] or in two slanting strokes. Remember that what you have transcribed in such square brackets are sounds from the human speech and *not* from any specific language. Remember, too, that such sounds are transcribed using phonetic symbols agreed upon by a consensus among members of *IPA*, an abbreviation for both the name of the association (International Phonetic Association) and the alphabet or symbols used for transcription (International Phonetic Alphabet). Let us now turn our attention to the three main branches of phonetics, as discussed in Units 3:2-4 below.

3.2 Articulatory Phonetics

In speech making, certain speech organs are brought together at various places and manners. These organs come together to shape or moderate the sound signals produced from the larynx. Major among these organs are the lips, teeth, teeth ridge, tongue, pharynx, and even the nose, etc. All these are usually

categorised into the pharyngeal, oral and nasal cavities, which form what is called the *vocal tract*. (Note: It is my belief that you have learnt the human organs involved in speech making; if you haven't, you must go back to your notes or books to learn or revise them). Housed by these organs are the upper and lower jaws, which come together in the formation or articulation of the speech sounds. Articulatory phonetics, therefore, is the branch of phonetics that is concerned with the study of how the speech sounds are produced. It is concerned with the study of the vowel and the consonant sounds involved in speech making in any language, concentrating on three main areas, namely: 1) place of articulation, 2) manner of articulation, and 3) quality of production. Let me briefly explain each of these factors of speech sound production below.

3.2.1 Place of Articulation of Speech Sounds

The areas of interest of a phonetician, here, are the identification and description of the organ or organs involved in the production of a specific sound; or put in another way, the particular place of the mouth or vocal tract that is used in the production of a specific speech sound. First, let me discuss the place of articulation of the vowel sounds, which are mainly the function of the mouth (tongue and lips). A phonetician may want to know what part of the mouth has been involved in the articulation of a particular vowel sound. Is it at the front such as /i/, centre such as /a:/ or back such as [ɔ:]? For the place of articulation of the consonant sounds, the phonetician may want to find out if a particular sound is produced with the two lips (*bilabial* – Latin word for two lips, *bi* (two), *labial* (lip) such as [p, b, m]; a lip and a set of teeth (*labio-dental*) such as the upper set of teeth and lower lip, [f, v]; or the two sets of teeth (*dental*) such as [ç, ð]. Other places of articulation of consonant sounds are: at the alveolar, velar, uvula, nasal, pharynx and glottis.

3.2.2 The Manner of Speech Production

Unlike the place of articulation, which tells the position of the organs of articulation, the manner of speech production concerns the various ways or *how* these articulators produce speech sounds. For the consonant sounds, it is possible to say that some sounds are produced with total closure of the articulators (*stops* or *plosives*), or friction (*Affricates/Fricatives*). Another sound might be produced by the vibration of the tip of the tongue, slightly touching the palate (*Rolled*) or just tapping it (*Tap-Flap*). It is also possible to shape the mouth such that a sound is allowed to pass through a space at both sides of the blade of the tongue and the mouth (*Lateral*), or allow the sound to come out of the vocal tract with little or no obstruction of the articulators (*Approximant* or *Semi Vowel*). As for the manner of producing the vowel sounds, the lips may be rounded, neutral or spread; the mouth may be open, close, partially open or

partially closed. Also, a vowel sound may be produced while the tongue is high, level or low. (*NOTE: It would be profitable to have a looking mirror of about the size of your palm handy as part of your phonetics tools*). More details of all this shall be learnt as the course progresses.

3.2.3 The Quality of Speech Production

By the quality of speech production, I mean: (i) the quantity or length of time expended on a sound; (ii) the amount of force or pressure exerted on a sound; (iii) the presence or absence of laryngeal vibrations while producing the sound; or (iv) in some circumstances, a combination of i-iii. By study or intuition (sub-conscious effort), you will have noticed that you exert a greater force in producing a sound compared with another. Specifically, some terms to describe how sounds are produced are *fortis* or *tense*, when a voiceless consonant is produced with greater force or pressure than its voiced counterpart (e.g. [p] vs [b]). Inversely, a voiced sound like [b] might be produced with a weaker force (*lenis* or *lax*) than its voiceless counterpart [p]. Also, you spend a *long* time producing a sound, for example /u:/ and a *short* time to produce another for example /ʊ/. You also notice that some sounds are voiced because you have produced them with some vibrations coming from your larynx. Some others are voiceless because they are produced with no laryngeal vibrations. This summary ends my brief discussion of the branch of phonetics described as articulatory phonetics. Your attention will now be focused on another branch of phonetics called acoustic phonetics, which is the concern of the next section below.

3.3 Acoustic Phonetics

In the previous section, I tried to briefly explain to you specific speech sounds that come into realisation as a result of the articulatory activities of some speech organs at the vocal cavity or above the glottis, or still at the *supraglottal* region. Thus, articulatory activities can be said to have taken place between the regions above the glottis, through the pharyngeal, oral and nasal cavities and ending at the two lips and the nose. But we have not discussed how the sound waves upon which the articulators have acted to result into speech sounds are made. Here, we are moving into the realm of acoustic phonetics, whose region starts from the larynx below the glottis, or at the *subglottal* region. It moves through the pharyngeal, oral and nasal cavities and beyond the two lips and the nose into the outer environment. Consequently, acoustic phonetics can be described as the scientific study of the properties of the signals that lead to speech and how they are propagated by man (Jolayemi, 2006: p. 6; O'Connor, 1973: p. 71).

Any sound, non-human or human, non-speech or speech, travels through a medium such as the air or water or metal. A sound is usually propagated or transmitted by *wave*, which is defined as the periodic displacement of pressure from one point to the other. Through these periodic movements, the wave is able to transmit or propagate a sound from one fixed place to the other. But specifically, human speech is transmitted by the sound waves that originate from the lungs into the larynx or what is called the voice box. The larynx is usually referred to as the voice box, mainly because it houses the *vocal folds* whose precursor is the generation of the vibrations that give phonation or the sound waves that lead to the voiced sounds.

The *Source-Filter Theory* recounts that the speech sound generation starts from the lungs, which pump air into the larynx. The air, so pumped, forces the vocal folds housed by the larynx to open and close. When the sound waves that escape through the folds get to the vocal tract, they are moderated by the various speech organs in the vocal tract by the process of filtration and the vocal tract acting as the acoustic filter. The filtering process converts the sound vibrations from the larynx into the individual speech sounds that we hear. Thus, it can be summarised that in speech production, the sound vibrations from the larynx serve as the input, which is filtered by the vocal tract; the result of the filtration is the output, which we hear as speech in the outer world (Clark & Yallop, 1995: p. 236; Johnson, 2003: p. 79; Jolayemi, 2006: p. 56-57; etc.).

In speech production, when the two folds close in order to vibrate, they generate *periodic* tones that lead to the *sonorant* sounds that form the voiced sounds such as the vowels, the laterals, the nasals and all other voiced consonants. But when the two vocal folds open and are not vibrating, the air from the lungs passes through them *freely* into the vocal tract. The tones generated in this process are referred to as *aperiodic*, and they form the obstruent sounds that generate the voiceless consonants. For a detailed discussion on acoustic phonetics, you may read any book on acoustic phonetics or phonology and phonetics. Some of the classical ones can be found on the reference and further reading list at the end of the unit. We may now turn our attention to the last branch of phonetics, which is discussed below.

3.4 Auditory Phonetics

This is the aspect of phonetics that concerns the natural processing systems of speech reception and perception. The main organ of the human body concerned with this is the ear (barring the controversy of the supremacy of the brain or the ear over speech reception and perception). Among the various contesting sounds that bombard the environment and surround the ear region every microsecond, the ear consciously selects those that it wishes to process, in this case, speech. It

also transmits the selected signals and analyses them. Because of the obvious reasons, information about the workings of the ear in speech processing or auditory phonetics is not abundant compared with what we have on the other branches of phonetics – articulatory and acoustic phonetics.

However, from what is available, the ear is divided into three sections namely: the outer ear, the middle ear and the inner ear. The *outer ear* comprises the ear lobe that channels the speech sound signals that come from the mouth, through the environment into the ear. It also contains the eardrum, a sensitive diaphragm, and a narrow canal that connects the outer world to the eardrum. When the sound signals come from the outer world through the channel, the sensitive diaphragm begins to vibrate repeatedly; and as it does, it causes the air molecules in the canal to shake violently. As this goes on, the intensity of the signals are modified so that the weak signals are amplified or increased, while the loud ones are filtered to be reduced or rejected; thus making the eardrum in the outer ear to perform the functions of a resonator.

These modified sound signals then move on to the next part of the ear called the middle ear. This is another air-filled cavity that connects the eardrum to the inner ear, and it contains a chain of three thin bones. The middle ear, too, is a resonator as it further increases or decreases the amplitude (the acoustic measurement of intensity or loudness) so that the sound signals that are too low to be heard by the ear can be increased and those too loud for the ear can be reduced or rejected. In addition, the middle ear acts as a resonator because its vibrations also set into motion the fluid molecules in the inner ear, thereby, transmitting the speech sound waves coming from the outer ear into the inner.

The *inner ear* is the main organ of the ear that connects the rest of the ear to the brain where the operations on speech reception and perception end. It is made up of what is called *cochlear*, a coiled conical shape object that looks like a snail. This last part transmits into the brain through some nerves, the received and processed sound information from the mouth.

Let me summarise the actions of the ear that I have just discussed in the figure below, which I have named The Pole of Sound Perception

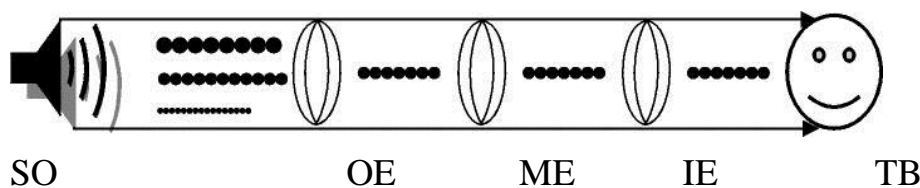


Figure 1: The Pole of Sound Perception

Where: SO = Sounds from Outside, which is the input; OE = Outer Ear; ME = Middle Ear; IE = Inner Ear; and TB = The Brain.

You would notice that between SO and OE, the types of sound signals are different; some look tiny or barely audible while some others are big and too loud. But between OE and TB, the signals appear similar. This is my simulation of the properties that serve as input into the auditory system, which are of irregular amplitude; how they are transmitted and analysed for enhancement and attenuation; and the output that looks fairly regular, ready for transmission for the brain processing.

4.0 SELF-ASSESSMENT EXERCISES (SAE)

Let us conclude this unit by calling your attention to the following self-assessment exercises.

SELF-ASSESSMENT EXERCISE (SAE) 1

- i. List a few places in the world where phonetics had an early engagement.
- ii. Mention four early phoneticians and period of engagement of each of them.
- iii. Discuss the work of a phonetician and how he sets about it.

SELF-ASSESSMENT EXERCISE (SAE) 2

- i. What can you describe as the vocal tract?
- ii. Give two examples of sounds produced with an explosion from the lips.
- iii. With three examples differentiate between lenis and fortis.

SELF-ASSESSMENT EXERCISE (SAE) 3

- i. Define acoustic phonetics.
- ii. Differentiate between the sub-glottal and supra-glottal regions.
- iii. Explain the Source-Filter Theory of speech production.

SELF-ASSESSMENT EXERCISE (SAE) 4

- i. What is the concern of auditory phonetics?
- ii. List the three parts of the auditory system.
- iii. “Garbage in garbage out” is an apt description of what transpires between the environment outside of the ear and the brain. Do you agree?

5.0 SUMMARY

From this Unit, you have learnt the following main points:

- ✓ Phonetics is the scientific study of speech sounds and how they are made.
- ✓ It is usually studied under three main branches, namely:
 - Articulatory phonetics
 - Acoustic phonetics, and
 - Auditory phonetics.
- ✓ By convention, we often enclose phonetic transcriptions in square brackets, e.g. [...].
- ✓ Phoneticians, the world over, have an association called the International Phonetics Association (IPA); the conventional phonetic symbols also share the abbreviations, International Phonetics Alphabet (IPA).
- ✓ Articulatory phonetics is concerned with how the organs of speech are manipulated to produce speech sounds.
- ✓ The speech organs for the production of speech reside in the vocal tract, mainly in the:
 - pharyngeal cavity
 - nasal cavity and
 - oral cavity.
- ✓ In describing a phoneme (speech sound), we are interested in the:
 - manner of articulation
 - place of articulation and
 - quality of articulation.
- ✓ Acoustic phonetics is concerned with the sound properties that lead to speech production such as:
 - waves and
 - vibrations.
- ✓ It is also the study of how these properties lead to speech sounds such as:
 - the aggressive or pulmonic air from the lungs
 - opening and closing phases of the vocal folds
 - vibration of the vocal folds and
 - the resonant activities of the vocal tract.
- ✓ Auditory phonetics concerns the processing and transmission of speech sound signals to the brain through the three main parts of the ear, which are:

- the outer ear (eardrum)
- the middle ear (a chain of three thin bones) and
- the inner ear (cochlear).

6.0 TUTOR-MARKED ASSIGNMENT

Why will you consider phonetics a scientific study?

7.0 REFERENCES/FURTHER READING

Christophersen, Paul. (1956). *An English Phonetics Course*. London: Longman.

Clark, John & Yallop, Colin. (1990). *An Introduction to Phonetics and Phonology*. Oxford and Cambridge: Blackwell.

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

Johnson, Keith. (2003). *Acoustic and Auditory Phonetics*. Oxford and Cambridge: Blackwell.

Jolayemi, 'Demola. (2006). *The Stress Pattern of Nigerian English: An Empirical Phonology Approach*. Göttingen, Germany: Cuvillier Verlag.

Roach, Peter. (2000). *English Phonetics and Phonology: A Practical Course*. Cambridge: Cambridge University Press.

UNIT 2 WHAT PHONOLOGY IS?

CONTENTS

In contrast to Unit 1, this unit brings to you the speech sounds of *a language in use*, the internal and external cohesion of the sound system of English and the rules of the structure of the sound system. All this will be discussed in the sub-topics below.

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Contents
 - 3.1 The Segmental Phonemes
 - 3.2 The Autosegmental (Suprasegmental) Features
 - 3.3 Mode of Representation and Rules of the Structure of the English Phonemes
- 4.0 Self-Assessment Exercises
- 5.0 Summary
- 6.0 Tutor-Marked Assignment
- 7.0 References/Reading List

1.0 INTRODUCTION

Phonology is the scientific study of the sound system of a language. It studies the interactions that occur among the sounds of a specific language. It also involves the rules of interaction of the sound system of the language that make a combination of sounds meaningful and acceptable in the language. The person who is concerned with this type of study is called a phonologist. His primary duty is to investigate how a set of sounds are structured before it makes meaning in the particular language. Based on this some rules or consistent structures are observed and noted.

2.0 OBJECTIVES

You should, by the end of this unit, be able to:

- define what phonology is;
- identify some branches of phonology; and
- discuss a few English phonological rules.

HOW TO STUDY THE UNIT

- a. Read this unit as diligently as possible.
- b. Find meaning of unfamiliar words in the unit using your dictionary.
- c. As you read, put major points down in a piece of paper or jotter.
- d. Do not go to the next section until you have fully understood the section you are reading now.
- e. Do all the Self-Assessment exercises in the unit as honestly as you can. In some areas where it is not feasible to provide answers to Self-Assessment exercises, go to the relevant sections of the unit to derive the answers.

3.0 MAIN CONTENTS

3.1 The Segmental Phonemes

One of the main ways the phonology of a language may be studied is through the examination of the segmental phonemes that are structured or put together as meaningful sound units through which the grammar of the language is projected. You know from the previous unit that sound segments may stand together in any form without making any meaning. But in English for instance, we know that when a sequence of /b/ + /ʌ/ + /t/ (but) comes in this manner, it is a meaningful entity. Also, /s/ + /k/ + /i/ + /l/ form the English word (skill), which means a special ability. We equally know that when /t/ is affixed to, for instance, “look” at the rear position giving /lʊkt/ (looked), we have an acceptable past tense of “look” in English. However, if we were to reverse the occurrence of /lʊkt/, to /tkɔl/, (tkɔl), we would not have formed any meaningful word in English. Or if we were to pick the first two words in /b/ + /ʌ/ + /t/ or of /s/ + /k/ + /ɪ/ + /l/, to form “bu” and “sk”, respectively, we would of course not be speaking English.

Let me further give you another illustration to show that a phoneme is the smallest meaningful, contrastive and distinctive sound unit of a language, using English /t/ and /k/. Words such as: take - cake; tool - cool; took - cook; tight - kite, are good examples to show this. This is because when you switch /t/ for /k/ in the positions highlighted, you have a different set of words. It also shows that there are no two types of /t/ or /k/. Again, it is possible for you to divide “took” /tʊk/ into three phonemes - /t/, /ʊ/ and /k/. But can you further divide or subdivide /t/ or /k/ or /ʊ/? It is absolutely impossible.

What the above analysis shows is that words are formed by a conscious arrangement of segmental (or segmented) phonemes according to an acceptable way in a particular language and not by an arbitrary arrangement of phonemes. It also shows that phonemes are the smallest sound elements or units that are meaningful, through which what one wants to say is said. Lastly, the analysis,

equally, shows that these phonemes are broken into single sound elements called segments that are no longer divisible into any further smaller unit. Thus, I hope that the first statement of the above paragraph:

One of the main ways the *phonology of a language* may be studied is through the examination of the *segmental phonemes* that are *structured or put together as meaningful sound units* through which the *grammar of the language* is projected.

has become more meaningful. The highlighted portions of the statement should remain as part of the repertoire of any language student.

Every language has its own consortium of the segmental phonemes usually called the vowel and consonant sounds. In addition, many languages also have a rapid movement from one vowel to another; this type of sound is called a *diphthong or glide*. Yet, some other languages have some glides from a diphthong to another vowel. This type of sound is called a *triphthong*. English is an example of a language that has the fulllength of the consortium described above. For instance, English language has 12 vowel sounds, 8 diphthongs and about 5 triphthongs, and 24 consonant sounds. Details of this shall be the contents of the next Module. Meanwhile, no language operates with only the segmental or segmented units. A few other sound elements, which operate beyond the phoneme, is also involved in the sound system of a language. They can however not be segmented or divisible into smaller units, yet they complete the meaning of what is to be said. A phonological discussion of these types of sound features is presented in the next section of this unit.

3.2 Suprasegmental Features

Have you ever heard of the word “supra”? It’s an English word formed from Latin around the 16th Century, which means “above”, “over”, “beyond” or “transcends”. If you prefix it to “segment”, you will have “suprasegment”, a word I think you may have come across. As said a little while ago, there are certain phonological features or sound elements that help a speaker to have a complete realisation of his thought. These sound elements transcend the phoneme, the word, the syllable or even a longer utterance. They operate at the composition or prose level; this is the reason such elements are often referred to as *prosodic features*. Because these features are used beyond the phoneme, they are also referred to as *suprasegmental features*. A new trend in generative phonology (you will get to know more of this later in this course) championed by Goldsmith (1976) further says that these features we are talking about are separate elements of the speech sound, which are often treated in phonology as part of the phonemes or segments of a speech. He argues that rather, these

features should be treated as autonomous segments, thus, they have earned the name *autosegmental features*. Such segments are: length, quality, crescendo, tempo, rhythm, stress and intonation, the last three being most prominent in a language like English (Gimson, 1980: pp. 222-223; Jolayemi, 1999: pp. 79-89). The study of how these features are used, when they are used and the particular interaction of these features with the segmental phonemes resulting in total meaning, fall in the realm of phonology.

3.3 Mode of Representation and Rules of the Structure of Phonology

In phonology, the smallest sound unit is the phoneme. We often use these phonemes to undertake phonemic analysis. Because we must be carrying out this analysis of a specific language, we often enclose the transcription in slashed brackets - /.../ as you would have noticed in 3.1, which is what is called the *phonemic transcription*. In doing all this, we often involve the phonemic symbols, a complete set of which is available in the table of IPA. You must have learnt these symbols, especially the English phonemic symbols; but the detailed description will be reserved till a little later in the course.

Another main concern of a phonological study borders on the determination of how the speech sounds of a language are structured so as to present to people what you have on your mind. All languages have their rules, different from one another. For example, the English language has a rule that accounts for the change in pronunciation occasioned by the change in the grammatical status of the word. Morphologically, a word like “complete” /kəmpli:t/, a verb becomes “completion” /kəmpli:ʃn/ when used as a noun. Two sounds, phonemically, you will notice, make the verb sound differently from the noun; the final vowel /i:/ changes to /ɪ/ and the final consonant, /t/changes to /tʃ/. Some examples in this category are: redeem – redemption and; however, such a phonemic change does not affect a word like delete – deletion. When there is a phonemic change in a pronunciation of a word because of the change in word class (morphology), as in the examples I just gave, we say the word has operated on a morphophonemic rule.

Let us look at these words that are considered to operate other morphophonemic rules, this time of present to past tense:

Group A	Group B	Group C
1. mess – messed	call – called	resist – resisted
2. sex – sexed	measure – measured	wade – waded
3. sack – sacked	gag – gagged	rest – rested
4. sack – sacks	boy – boys	kiss – kisses

4.0 SELF-ASSESSMENT EXERCISES (SAE)

Let us conclude this unit by calling your attention to the following self-assessment exercises.

SELF-ASSESSMENT EXERCISES (SAE)

1. What is a phoneme?
2. Identify some branches of phonology.
3. Define the Suprasegmental features.
4. List 3 examples of features studied under Suprasegmental features.
5. Name 2 synonyms you can use instead of Suprasegmental features.

5.0 SUMMARY

From this Unit, you have learnt the following main points:

- Phonology is the scientific study of speech sound system of a language
- It is usually studied under three main branches, namely:
 - Segmental phonemes such as the:
 - pure vowels
 - diphthongs
 - triphthongs and
 - consonants.
 - Autosegmental features such as:
 - stress
 - intonation and
 - tempo
- As a study of the sound system of a language, phonology also concerns the study of the phonological rules that operate in the target language, like the morphophonemic rules in the English language.

6.0 TUTOR-MARKED ASSIGNMENT

With adequate illustration, discuss what phonology is.

7.0 REFERENCES/READING LIST

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

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Jolayemi, 'Demola. (1999). Autosegmental Phonology and Oral interpretation of stage productions in English. *The Performer: Ilorin Journal of the Performing Arts*, 1(1), 74-92.

Oyebade, Francis. (2004). *A course in phonology*. Ilorin: Belodan Publishers.

Chart of phonemic symbols

You can listen to these words on the recording.

a Short vowels

ɪ swim building
 e red bread friend any said
 æ can map
 ʌ son sun
 ɒ clock hot
 ʊ full book
 ə about excellent letter doctor sugar Saturday
 i happy

b Long vowels

i: tree seat field secret kilo
 aɪ can't bar half
 ɔɪ wall talk saw daughter bought warm more door
 u: too group blue
 ɜ: bird work turn learn verb

c Diphthongs

ɪə real hear beer here
 eə care hair wear where
 eɪ came rain say great weight
 aɪ time dry high buy
 ɔɪ point toy
 ɔʊ cold home slow boat
 aʊ now sound

d Consonants

b baby job
 d do reading add
 f foot café off phone
 g go bigger bag
 h hand who
 j yes
 k cold talking black
 l leave yellow fill
 m more summer comb
 n now dinner gone know
 p pen stopping help
 r red sorry write
 s sister glass place scissors
 t ten better eight washed
 v view every five
 w well away white
 z zero roses scissors jazz
 ʃ shop washing cash machine sure national
 ʒ television usually
 tʃ choose which future
 dʒ jeans larger fridge
 ŋ thing bank singer
 θ thank north
 ð then mother with