



NATIONAL OPEN UNIVERSITY OF NIGERIA

SCHOOL OF ARTS AND SOCIAL SCIENCES

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COURSE TITLE ADVANCED STUDIES IN FRENCH PHONETICS



FRE 331

ADVANCED STUDIES IN FRENCH PHONETICS

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FRE 331: ADVANCED STUDIES IN FRENCH PHONETICS

COURSE DESCRIPTION:

As a raw component of language.

As a discipline of study.

Its growth – evolution in phonetic studies.

The latest in phonetic analyses.

This is an in-depth course on phonetics from the French language perspective.

The course shall treat different aspects of phonetic studies. Mention will be made of the definition of phonetics, its nature and scope, taking into consideration the growth of phonetics as a discipline. The different trends and innovations in phonetic analyses will also be reviewed.

COURSE GUIDE

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What you will learn in this course

STUDY UNITS

There are twenty study units in this course.

They are:

1. The concept of phonetics.
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4. The major branches in phonetics.
5. An introduction to articulatory phonetics.
6. Articulatory classification of sounds.
7. An introduction to auditory phonetics.
8. An introduction to acoustic phonetics.
9. An introduction to combinatory phonetics.
10. Liaison and elision as special combinatory phenomena in French.
11. The importance of phonetics in language study.
12. The concept of theories in phonetics.
13. Landmarks in the history of phonetics (Antiquity – Renaissance).
14. Further landmarks in the history of phonetics (17th – 20th centuries).
15. History of linguistic movements.
16. History of Western Linguistics.
17. Phonetics and the traditional school of thought.
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UNIT 1: THE CONCEPT OF PHONETICS.

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1.0. INTRODUCTION

This unit will introduce you to this course. You will learn the definition of phonetics. You will also learn the difference between simple and complex definitions of phonetics.

2.0. OBJECTIVES:

On successful completion of this unit, you should be able to:

1. Give an ordinary definition of phonetics.
2. Mention some of the shortcomings of the ordinary definition.
3. Give a simple but correct definition of phonetics.
4. Mention the limitation of this simple definition of phonetics.
5. Give a complex definition of phonetics.
6. Distinguish between the simple and complex definitions of phonetics.

3.0. THE CONCEPT OF PHONETICS

Before we proceed to define phonetics in order to fully group its meaning, we will first of all attempt an ordinary definition, a simple/correct definition separately.

3.1. ORDINARY DEFINITION OF PHONETICS

Let us define phonetics ordinarily from a layman's point of view as the study of sounds.

3.1.1 THE SHORTCOMING OF THE ORDINARY DEFINITION

In considering the above ordinary definition of phonetics as being the study of sounds, we shall be ignoring a lot of details. First of all you should be asking yourself, if you are now in a room as I am, with the clock ticking, is phonetics interested in the study of the tic-tac of the clock? Or, if you are near the road with cars passing occasionally, would you be right in considering phonetics as the study of sounds from passing vehicles or even the sound of doors sliding on their hinges or even banging. Or even the clapping of hands. Obviously, you can see that there are different types of sounds but none of the ones we have mentioned can be said to be the object of study of phonetics.

Therefore, you should note that even though an ordinary layman may be content in stating that phonetics is the study of sounds, this definition is rather limited and may be misleading. This then means that phonetics is not just the study of any type of sound.

3.2 The simple definition of phonetics:

Let us now consider a correct though simple definition of phonetics as the scientific study of the sounds of the human language.

3.2.1 The limitation of the simple definition.

To the extent that the simple definition that phonetics is the scientific study of the sounds of the human language, it is correct. But it is to be noted that if a person is talking and clears his throat or coughs, neither the cough nor the throat clearing can be the object of study of phonetics. Not even the sighing or sniffing can be included as sounds to be analysed by phonetics.

3.3 A detailed definition of phonetics

Now let us consider a more detailed definition of phonetics as: A branch of linguistics that studies essentially the substance of expression taking into consideration the acoustic composition and the physical origin of different elements of speech.

You can see that this definition is detailed because it contains 2 sets of information namely the general and the specific.

3.3.1 The general information in the detailed definition of phonetics

Let us consider the general or basic information in the detailed definition of phonetics. The first part of the detailed definition reads “A branch of linguistics that studies essentially the substance of expression”. You should note that the basic information here is that phonetics is the study of the substance of expression. The substance of expression so designated is the sound of human language. This information is the same as the one given in the simple definition we considered earlier in this unit.

3.3.2. The specific information in the detailed definition of phonetics

Let us consider the specific information in our detailed definition of phonetics. You do recall that the second part of the detailed definition of phonetics reads, “Shows the acoustic composition and physical origin of the different elements of speech”. We want you to note that the different elements of speech so designated are the same as the substance of expression and by implication the sounds of human language. However, we want to draw your attention to the specific information in this 2nd part of the detailed definition of phonetics as being represented by what is termed the:

- (a) acoustic composition of speech sounds
- (b) the physical origin of speech sounds.

In other words this detailed definition not only tells us that phonetics studies the sounds of human language but reveals the aspects of speech sounds that come under the focus of phonetics as a linguistic discipline.

3.4. The difference between the simple and detailed definitions of phonetics

Let us now consider the basic difference between our simple definition of phonetics (a scientific study of speech sounds) and our detailed definition (essentially the study of speech sounds highlighting both their acoustic composition as well as their physical origin). You should realise that both simple and detailed definitions have one thing in common (i.e. that phonetics is basically the study of human speech sounds). This basic information notwithstanding, you should note that the distinguishing factor between the simple and detailed definition of phonetics is that whereas the simple definition stops at stating the basic thing about phonetics (the study of human speech sounds) the detailed definition adds extra information as to the aspects of speech sounds that come under the scrutiny of phonetics as including not only the acoustic nature of speech sounds but also their physical origin.

3.5. SELF – ASSESSMENT EXERCISE:

Mention the three types of definitions of phonetics that have been discussed in this unit.

Possible Answers

The three types of definitions are

- ordinary layman's definitions
- simple basic definition
- detailed definition

4.0. CONCLUSION

In this unit, you have learnt about the concept of phonetics. In addition to a layman's definition of phonetics you also learnt the simple though correct definition of phonetics as being the scientific study of the sounds of human speech. You also learnt a detailed definition of phonetics as being a scientific study of the substance of expression (otherwise known as speech sounds) with particular reference to acoustic components and physiological origin of such speech sounds.

5.0. SUMMARY

This unit has equipped you with the basic concept of phonetics. You can now define phonetics. You can even mention the ordinary definition and mention some of its shortcomings. You can give a simple definition of phonetics. You can even mention the limitation of the simple definition. You can now define phonetics in detail. You can even mention the difference between the simple and detailed definitions of phonetics.

There is no doubt that what you have learnt in this unit will be useful for the rest of the units in this course.

6.0. TUTOR-MARKED ASSIGNMENT

1. Mention a layman's definition of phonetics.
2. Mention the limitations of the ordinary definition.
3. Define the basic concept of phonetics.
4. Define in detail the concept of phonetics
5. Mention the difference between the basic and the detailed concept of phonetics.

7.0. REFERENCES AND RESOURCE MATERIALS

Mbanefo, Eugenia (2009) A Structuralist Approach to the Teaching of Oral French.

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Alo, Paulin ()

UNIT 2: THE NATURE OF PHONETICS

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1.0. INTRODUCTION

You will recall that in our previous unit we discussed the concept of phonetics. You will recall that in our discussion we gave different definitions of phonetics. And at the end of our discussion we were able to establish that both the simple and detailed definitions of the concept of phonetics agree on the fact that phonetics is a scientific study of the sounds of speech. It is the idea of the scientific nature of phonetics that we shall be discussing in this unit.

This unit shall therefore introduce you to the scientific nature of phonetics as a discipline of studies. You will learn the concept of science. You will also learn the different examples of science. You will equally learn some of the reasons why phonetics can be regarded as a science. Precisely, you will learn not only the 3 canon principles of science but also some other characteristics of a science.

2.0. OBJECTIVES

On successful completion of this unit, you should be able to:

1. Define the concept of science.
2. Give examples of science
3. Mention some characteristics of science
4. Distinguish between social science and pure science
5. Give reasons to explain the scientific nature of phonetics.

3.0. THE NATURE OF PHONETICS

Let us first of all refresh our minds on the definitions of phonetics. Ordinarily and in a simple manner, you remember that it was defined as the “scientific study of the sounds of human language”. A detailed definition you will recall, had it that “phonetics is a branch of linguistics that studies essentially the substance of expression showing the acoustic composition and physical origin of the different elements of speech”. Before we proceed further to discuss fully the nature of phonetics as a discipline in order to prove whether or not it is a science, we will first of all attempt to define the concept of science.

3.1. THE CONCEPT OF SCIENCE

No doubt, if we ask you to define the word science, you may be taken aback. This is because ordinarily the English word may appear so simple that attempting to define it would be tantamount to stating the obvious. Let us however consider the term from two perspectives namely:

- the restricted acception
- the broad-sense acception.

3.1.1. THE RESTRICTED DEFINITION OF SCIENCE.

Let us define science in a restricted sense as “knowledge ascertained by observation and experiment, critically tested, systematised and brought under general principles, especially in relation to the physical world”.

3.1.1.1. EXAMPLES OF SCIENCE IN THE RESTRICTED OPTION.

Falling under this category of science are areas of study whose scientific status is unquestionable. Let us consider some of this category of examples. They include physics, chemistry, biology, biochemistry, etc. They are generally referred to as the natural sciences.

3.1.2. THE BROAD-SENSE DEFINITION OF SCIENCE.

Apart from the restricted everyday concept of science, there is an additional broad – sense definition. Let us define this broad – sense category as referring to “properly constituted academic disciplines”.

3.1.2.1. EXAMPLES OF BROAD – SENSE CATEGORY OF SCIENCE.

Let us consider the examples of science under this broad – sense category. These include the following disciplines:

- The social sciences
- The behavioural science
- The human science or humanities

3.2. CHARACTERISTICS OF A SCIENCE

Let us now consider the basic characteristics of a science. To refer to any of the subject areas we have mentioned in the natural sciences as being scientific we are referring to the methods of investigation that characterise them. To that extent we shall mention the 3 canon principles of science and other related characteristics.

3.2.1. THE THREE CANON PRINCIPLES OF SCIENCE.

Let us now consider the three canon principles of science. These include the following:

- Exhaustiveness
- Consistency
- Economy

Exhaustiveness

By exhaustiveness, we mean the adequate treatment of all relevant material.

Consistency

Consistency implies the absence of contradiction between different parts of the total statement, and within the limits imposed by the two preceding principles.

Economy

By economy, we mean that, all things being equal, a shorter statement or analysis employing fewer terms is to be preferred to one that is longer or more involved.

3.2.2. OTHER CHARACTERISTICS OF A SCIENCE

Now let us consider other characteristics of a science. These are characteristics that can be derived from our basic restricted definition of a science “knowledge ascertained by observation and experiment physical world”. The key ideas are:

- Observation and experiment.
- Critically tested
- Systematized and brought under general principles.
- Physical world

From these key ideas we can deduce related characteristics as can be shown in the table below:

Definition Trait	Characteristics
Observation and experiment	Empirical
Critically tested	Objectivity
Systematized	Theoretical construct
Physical	Tangible

We want you to realise from the foregoing that the other characteristics of a science aside from the 3 canons of exhaustiveness, consistency and economy are:

- Empiricism
- Objectivity
- Theory – dependency.

Let us explain further.

3.2.2.1. THE CONCEPT OF EMPIRICISM

Let us now consider what empiricism implies. An empirical science operates with publicly verifiable data obtained by means of observation and experiment.

3.2.2.2. THE CONCEPT OF OBJECTIVITY

Let us now consider what is implied by objectivity. An objective science evolves by building on the past not only by challenging and refuting traditional doctrines but also by developing and reformulating them.

3.2.2.3. THE CONCEPT OF THEORETICAL CONSTRUCT

Let us now consider the notion of theoretical construct as an underlying characteristic of a science. Every well-established science employs its own characteristics theoretic constructs and its own methods of obtaining and interpreting data.

3.3. REASONS WHY PHONETICS IS SCIENTIFIC IN NATURE

Let us now consider whether phonetics possesses scientific characteristics. We shall examine the nature of phonetics in the light of the characteristics of a science.

3.3.1. PHONETICS AND EMPIRICISM

Phonetics is an empirical science, in that its subject matter is observable with the senses, speech as heard, the movements of the vocal organs as seen directly or with the aid of instruments, the sensations of speaking as perceived by speakers.

3.3.2. PHONETICS AND OBJECTIVITY

Let us now consider whether phonetics is objective in its approach to the construction of knowledge. Phonetics is an objective science that has continued to build on the past in a very dynamic way. Since its beginning in the 17th century it has shaped many sub-disciplines in a very dynamic manner.

3.3.3. PHONETICS AND THEORETICAL CONSTRUCTS

Let us now consider whether phonetics can be justified by reference to a theory. We want you to realise that in this respect phonetics allows an interaction between general theory (the domain of general phonetics or linguistic phonetics) and description of individual language (the domain of descriptive phonetics) and that neither is possible without the other.

For example, if we take a hypothetical example, we may say that the sound system of a language consists of five vowels and ten consonants. You may realise that this piece of descriptive phonetics presupposes that theoretical statement that sound systems of languages are describable in terms of vowels and consonants; but it may become apparent that in the description of another language we require a third category which we then call “x” and so we change our theoretical statement to include a category of “x”.

3.4. SELF ASSESSMENT EXERCISE

Mention three canon principles of science that have been discussed in this unit.

Possible answers:

The three canon principles of science include:

- Exhaustiveness
- Consistency
- Economy

4.0. CONCLUSION

In this unit you have learnt about the nature of phonetics. You learnt the concept of science. In addition to a broad-science definition of science as including all properly constituted academic disciplines, you also learnt to define science in its restricted sense as having to do with natural sciences or “knowledge ascertained through observation and experiment, critically tested, systematized and brought under general principles especially in relation to the physical world”. You equally learnt the three canon principles that determine whether a study is scientific or not and these include exhaustiveness, consistency, and economy. You also learnt precisely that the other three characteristics of science as being empiricism, objectivity and theory-based. You learnt that phonetics is a science because its methodology includes the basic characteristics of empiricism, objectivity and theoretic constructs.

5.0. SUMMARY

This unit has equipped you with the knowledge of the scientific nature of phonetics. You can now define science. You can even mention the restricted definition of science. You can also give examples of science in a restricted category. You can even mention the broad-based definition of science. You can also mention some examples of science from the broad-based category. You can now mention the three canon principles of a science. You can even mention three other characteristics of science. You can now explain the reason why phonetics is a science.

There is no doubt, that what you have learnt in this unit will be useful for the rest of the units in this course.

6.0. TUTOR-MARKED ASSIGNMENT

1. Mention the restricted definition of a science.
2. Give two examples of science in the restricted category.
3. Mention the broad-based definition of a science.
4. Give two examples of science in the broad based category.
5. Mention three reasons why phonetics is a science.

7.0. REFERENCES AND OTHER RESOURCES

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UNIT 3: THE SCOPE OF PHONETICS

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3.4.	The recording of speech sounds with written symbols
3.5.	The study of how we hear and recognize different sounds
3.6.	Self assessment exercise
4.0.	Conclusion
5.0.	Summary
6.0.	Tutor-marked assignment
7.0.	References and other resources

1.0 INTRODUCTION

You will recall that in our previous unit we discussed the scientific nature of phonetics. You will recall that in our discussion we gave different definitions of science. At the end of our discussion in this unit we were able to establish the fact that the characteristics of science (empiricism, objectivity and theory relatedness) can be applied to phonetics. It is the idea of underlying theoretic constructs that delineate the scope of phonetics that we shall be discussing in this unit.

This unit will therefore introduce you to the scope of phonetics. You will learn the central concerns of phonetics. You will learn what comes under the scope of the production of speech. You will learn the scope of the realisation of speech sounds in words. You will learn the scope of transcription of speech sounds with written symbols. You will learn the scope of sound recognition (natural).

2.0 OBJECTIVES

On successful completion of this unit, you should be able to:

1. Mention the central concerns of phonetics (define the scope of phonetics)
2. Mention the important aspects of the production of speech.
3. Mention important points in the realisation of speech sounds in spoken language.

4. Mention the important aspects in the transcription of speech sounds.
5. Mention the important aspects in the natural recognition of speech sounds.

3.0 THE SCOPE OF PHONETICS

Let us first of all refresh our minds on the nature of phonetics. You do recall that we defined science at two levels, namely, in a restricted sense and in a broader perspective. Remember, we gave a restricted definition of science as that knowledge that is “ascertained through observation and experiment, critically tested, systematized and brought under general principles, especially in relation to the physical world”. You do recall the example of science that readily falls under this definition: physics, chemistry, biology, etc. Do you also recall that from a broad based perspective science includes all properly constituted academic disciplines like social sciences, behavioural sciences and even humanities? Remember we mentioned 3 canons of science as exhaustiveness, consistency and economy. You recall that other characteristics of a scientific study have to do with empiricism, objectivity and theoretic. I am sure you do recall that phonetics which is our own area of study possesses these characteristics.

Obviously, it is only a full discussion of the scope of phonetics that will bring to the fore how these characteristics of a science play themselves out in phonetics. Before we proceed further to discuss fully, the scope of phonetics, shall we first of all attempt to consider the concept of scope.

3.1. The concept of scope.

Let us consider the idea of scope. Let us now consider the definition of scope as “the range of things that a subject, an organization, an activity, etc. deals with”. In other words, we want you to realise the scope of phonetics refers to its central areas of concern.

3.1.1. THE CENTRAL CONCERN OF PHONETICS

Let us now consider the central concerns of phonetics. We want you to realise that the range of activities in phonetics falls under generally under the preview of spoken language. You should realise that there are four major areas of concern in phonetics. These central concerns include:

1. The discovery of how speech sounds are produced.
2. The study of how speech sounds are used in spoken language.
3. The recording of speech sounds with written symbols.
4. The study of how we hear and recognise different sounds.

3.2 THE STUDY OF THE PRODUCTION OF SPEECH SOUNDS

Let us now consider what comes under the study of how speech sounds are produced. Let us now consider what happens as we try to discover how speech sounds are produced. Do realise that when we consider how speech sounds are produced, we are going to come across two areas of activity. Do you realise that in talking about how speech sounds are produced we are bound to first of all observe what the speakers do. This is what is called articulatory observation. You should also realise that any study that is interested in finding out how speech sounds are produced will also focus on the observation of what goes on in our vocal tracts. That is to say that we can try to feel what is going on inside our vocal tracts. This is referred to kinaesthetic observation.

3.2.1 Articulatory Observation

Let us now consider what we mean by articulatory observation. You should realise that phonetics sets out to describe using its own terminology for the sounds of spoken language. Note that one way of doing this is by classifying these sounds in terms of their physiological production. You should realise that this is the realm of articulatory observation where the phonetician studies the movements of the articulators which produce speech sounds. Bear in mind that we shall discuss these articulators in detail in unit 5.

3.2.2. Kinaesthetic Observation

Let us now consider the kinaesthetic aspect of observation of how speech is produced. We want you to note that kinaesthetic or kinesthetic is descriptive of the sensation of one's own movements. You should realise that kinaesthetic information as an area of concern in phonetics has to do with the question of feedback from the nervous system. From your knowledge of biology, I am sure you can recall that when the brain instructs the body to produce some action or movement, it usually checks to see that the movement is carried out correctly. This process you know is normally referred to as feedback. (Another form of feedback which is recorded in phonetics is auditory but that will be discussed in unit 6). We want you simply to note that kinaesthetic feedback or observation informs us on the muscles and joints that are moved inside our vocal tracts during the production of a particular speech sound.

3.3. THE STUDY OF THE REALISATION OF SPEECH SOUNDS IN SPOKEN LANGUAGE.

Let us now consider this 2nd area of concern in the field of phonetics, the study of how speech sounds are used in spoken language. You should realise that this is an area of phonetics that overlaps with phonology, an aspect that we are going to discuss in fuller details in our very next unit.

For now, let us consider the kind of information that phonetics seeks to establish in looking at how sounds build up to make up the spoken language. Do you know that in phonetics, we are only interested in sounds that are used in meaningful speech as we mentioned in our introductory unit in this course? Based on that we want you to note that phoneticians are interested in discovering the range and variety of sounds used in this way in all the known languages of the world. This study of the realisation of speech sounds in spoken language is sometimes known as linguistics phonetics.

3.4. THE RECORDING OF SPEECH SOUNDS WITH WRITTEN SYMBOLS

Let us now consider a third area of concern in phonetics, the study of the recording of speech sounds with written symbols. You know for sure that there are two codes of language – the oral and written codes. You know of course that phonetics is primarily in the oral domain. It is important to note that there ought to be an interface between the oral and written code. As there is a need to represent language in a written form using the alphabets, efforts have been made in phonetics to provide a means of representation of the speech sounds in written form using transcription as a procedure.

This we want you to know came up as a result of the need for agreed conventions for using phonetic symbols that represent speech sounds. We want you to note with particular attention the contribution of the International Phonetic Association in this regard. The instrument they provided is the International Phonetic Alphabet. This will be discussed in details in unit 17.

3.5 THE STUDY OF HOW WE HEAR AND RECOGNIZE DIFFERENT SOUNDS

Let us now consider the fourth concern of phonetics, the study of how we hear and recognize different speech sounds. Note that this is what is normally referred to as auditory phonetics. You should realise that the ear is capable of making fine discrimination between different sounds. We want you to realise that sometimes it is not possible to define in auditory terms precisely what the difference is. Bear in mind that we shall be discussing auditory phonetics in greater details in unit 6.

3.6. SELF-ASSESSMENT EXERCISE

Mention two types of feedbacks related to the movements that you learnt in this unit.

POSSIBLE ANSWERS

The two types of feedback related to the movements that have been discussed in this unit include:

- Kinaesthetic feedback
- Auditory feedback.

4.0. CONCLUSION

In this unit you've learnt about the scope of phonetics. You've learnt to define the concept of scope. You also learnt about the four central concerns of phonetics. You learnt that phonetics studies how speech sounds are produced. In addition to the discovery of what the speakers do when they speak (articulatory information). You also learnt that importance is given to obtaining kinaesthetic feedback (i.e. what movement are involved in the vocal tract during the production of any given speech sound. You even learnt that phonetics also deals with the way speech sounds are used in spoken language. You learnt specifically that this level of information brings to the fore the overlapping of phonetics and phonology. You learnt as well that phonetics seeks to represent the recording of speech sounds with written symbols. You've equally learnt that the scope of phonetics includes unravelling how we hear and recognise the difference in sounds (how the ear provides us auditory feedback).

5.0. SUMMARY

This unit has equipped you with the knowledge of the scope of phonetics. You can now define the concept of scope. You can now mention the four central concerns of phonetics. You can now mention two aspects of the production of speech that are of interest in phonetics. You can even mention that phonetics is interested in describing how speech sounds are used in spoken language. Now you can state where there is an overlap between phonetics and phonology. You can now explain how phonetics is involved in the recording of speech sounds with written symbols. You can even mention that phonetics studies how the ear provides auditory feedback as to the difference in speech sounds that we hear. There is no doubt that what you've learnt in this unit will be useful for the rest of the units in this course.

6.0. TUTOR-MARKED ASSIGNMENT

1. Define the concept of scope.
2. Mention the 4 central concerns of phonetics.
3. Mention the phonetic instrument that helps in recording speech sounds with written symbols.
4. Explain the concept of feedback in phonetics.
5. Explain the concept of auditory feedback.

7.0. REFERENCES AND OTHER RESOURCES

- Mbanefo, Eugenia (in press). Cours d'initiation à la phonétique articulatoire.
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UNIT 4: THE MAJOR BRANCHES OF PHONETICS

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1.0 INTRODUCTION

You will recall that in our previous unit we discussed the scope of phonetics. You will recall that in our discussion we gave the definition of the concept of scope. Remember we told you that there are 4 central concerns in phonetics. Do you recall that we told you that one of the areas of interest in phonetics is the study of how speech sounds are produced? Remember we told you that in the study of the production of speech sounds phonetics seeks to provide two levels of information. Do you recall that in trying to discover how speech sounds are produced, phonetics is interested in articulatory details (the movement of the articulators and the physiological terminology that can be used in classifying the sounds). Remember also that phonetics seeks to obtain kinaesthetic feedback on what goes on inside our vocal tracts in the course of the production of a given sound. You do recall that we gave you information pertaining to how phonetics seeks to explain the realisation of speech sounds in spoken language. Remember we told you that this aspect of phonetics overlays with phonology. Do you recall as well that part of the scope of phonetics is the

quest to establish a relation between speech sounds (the oral code) and their written phonetics symbols, an area covered by transcription? Remember we told you that the instrument facilitating this transcription is the IPA. You recall also that phonetics primes itself with the study of how to provide auditory feedback by questioning how the human ear hears and recognises the different speech sounds. By the time you take a look at the different areas of concern that are treated in the scope of phonetics you will realise that there are bound to be many branches and types of phonetics. It is precisely to the question of branches and types of phonetics that we shall be drawing your attention in this unit.

This unit will therefore introduce you to the branches of phonetics. You will learn the 4 major branches of phonetics. You will learn the branch of descriptive phonetics and its areas of coverage. You will learn the branch of phonology and its sub-branches. You will learn the branch of diachronic phonetics. You will learn the distinction between diachronic and synchronic phonetics. You will learn the branch of applied phonetics.

2.0. OBJECTIVES

On successful completion of this unit, you should be able to:

1. Name the 4 major branches of phonetics
2. Mention the scope of descriptive phonetics.
3. Mention the scope of phonology.
4. Distinguish between the scope of diachronic and synchronic.
5. Mention the scope of applied phonetics.

3.0. THE BRANCHES OF PHONETICS

Let us first of all refresh our minds on the scope of phonetics. You do recall that we defined scope as the range of things that a subject, an organisation, an activity, etc. deals with. Remember we gave you the four central concerns of phonetics. To begin with, you do recall that we told you that phonetics is interested in discovering how speech sounds are produced. Remember we told you that in matters related to the study of the production of speech sounds, part of phonetic investigation is to find out what speakers actually do physically when they produce given sounds. You do recall also that part of the information that phonetics seeks to provide in studying the production of speech sounds is to find out the sensation that we feel due to the movements in our vocal tracts when we produce speech sounds. You recall as well that we told you that the scope of phonetics extends to finding out how speech sounds are used in spoken language (in their words the realisation of speech sounds in words). This you actually recall constitutes an interface between phonetics and phonology. No doubt, we told that the scope of phonetics includes transcription, another interface between the oral and the written codes. (i.e the recording of speech sounds using written symbols). You remember, don't you? That we

gave you information regarding how phonetics also studies the auditory feedback we get when we hear and recognise different speech sounds.

I'm sure you recall that phonetics is quite a vast discipline with a large area of influence and concern. It is only a full discussion of the branches and types of phonetics that will further reveal the diverse domains of investigation that are covered by phonetics. Before we can fully discuss the branches let us consider the major branches and different types of phonetics.

3.1. THE FOUR MAJOR BRANCHES OF PHONETICS.

Let us now consider the 4 major branches of phonetics. We want you to realise that generally phonetics can be broken down into four major branches. These 4 branches include:

1. Descriptive phonetics
2. Phonology (Functional)
3. Diachronic phonetics
4. Applied phonetics

3.2. DESCRIPTIVE PHONETICS

Let us now consider the area of descriptive phonetics. You should realise that as the name implies much of the activities that go on in this domain of phonetic studies centres on description. We want you to note that descriptive phonetics is also sub-divided further into areas of investigation.

Let us now consider the different areas of investigation covered by descriptive phonetics. These include:

- articulatory phonetics
- auditory phonetics
- acoustic phonetics
- combinatory phonetics

3.2.1. Articulatory phonetics

Let us now consider articulatory phonetics and its area of special concern. You remember that in our last unit where we discussed the scope or central concerns of phonetics. We mentioned that phonetics primes itself among other things in the study of how speech sounds are produced by the speech organs. We want you to note that articulatory phonetics is the aspect of descriptive phonetics that is in charge of this area. You should note that articulatory phonetics is sometimes referred to as physiological phonetics. We want you to realise that this branch of phonetics studies and analyses the mechanism of speech sound production. Its major instrument of description is the anatomy of speech organs. Please note that articulatory phonetics sets out to describe the position of speech organs like the tongue, the palate, the teeth, etc. during the production of speech sounds. Its description gives information on the classification of

sounds with respect to the mode and place of their articulation. We shall be discussing articulatory phonetics in greater details in unit 5.

3.2.2. Acoustic phonetics

Let us now consider acoustic phonetics and its domain of relevance in descriptive phonetics. We want you to bear in mind that this is an aspect of phonetics whose methodology is 100% deeped in physical calculations and measurements. This is because the major focus of acoustic phonetics is the study of the physical structure of speech sounds and the mechanisms involved in their transmission.

3.2.2.1. The physical structures of speech sound

Let us now consider the physical structure of speech sound that form the object of description in acoustic phonetics. These include:

- Intensity
- Frequency
- Duration

These shall be treated in fuller details in unit 7.

3.2.3 Auditory Phonetics

Let us now consider auditory phonetics as an aspect of descriptive phonetics. You remember we told you in our previous unit that auditory observation is the kind of feedback that is supplied in relation to the way speech sounds are perceived and identified by the hearer's ear and brain. Auditory phonetics is also referred to as perceptual phonetics. We shall be discussing this in fuller details in unit 6.

3.2.4. Combinatory Phonetics

Let us consider combinatory phonetics and its area of description. You should note that this is an area that is added on to the three major sub-divisions which we have talked about. You should realise that speech sounds are rarely pronounced in isolation. Sounds are normally pronounced in contact with many others. You are to note that when sounds come in contact they are bound to exert influence on themselves. In other words changes do occur when sounds are pronounced together in the speech chain (Remember our discussion about the chain in an earlier course FRE 206: Oral French). For now, we want you to realise that combinatory phonetics is the aspect of descriptive phonetics that sets out to describe the modifications that occur as a result of the association of sounds. This will be discussed in details in unit 8.

3.2 FUNCTIONAL PHONETICS OR PHONOLOGY

Let us now consider a second major branch of phonetics that is called functional phonetics. We want you to note that it is also called psycho-phonetics or phonology. You remember that in our discussion on the scope of phonetics, it was mentioned that one of the central concerns of phonetics was the study of the realisation of speech sounds in spoken language. (i.e how speech sounds are used in making up words in spoken language) Remember we mentioned in our discussions then that this particular area was where phonetics actually overlaps with phonology. As far as this overview of the branches of phonetics is concerned we want you to realise that functional phonetics or phonology deals with the study of speech sounds from the point of view of their function in language. We also want you to note that phonology is not the same thing as phonetics. It is further divided into two areas of study. As we get along in this course we shall discuss phonology in greater detail. (C.f unit 17)

3.3.1. THE TWO AREAS OF PHONOLOGY

Let us now consider the two fields of investigation in phonology. These include:

- phonematics
- prosody

3.2.1.1. Phonematics

Let us now consider phonematics as an aspect of phonology. Please note that it is also referred to as segmental phonology. We want you to realise that the object of study here is what is commonly referred to as phonemes. (minimal distinctive entities capable of changing the meaning of a word). This shall be discussed in details and with particular reference to French in Unit 17.

3.3.2.1. PROSODY

Let us now consider prosody as a sub-division of phonology. You should note that it is also called supra-segmental phonology. You should note that this is an area of functional phonetics that deals with sound features of a higher level in hierarchy than the other ordinary sounds or segments. Please note that prosody is further divided into components. These include:

- rhythm
- intonation.

These shall be elucidated in greater details in UNIT 18.

3.3 Diachronic phonetics

Let us now consider diachronic phonetics as an area of phonetic investigation. You should realise that the term diachrony is used in opposition to synchrony. Let us state that a study is considered to be synchronic if the features under study refer to the same moment and in the same language. Let us also state that diachrony can be used in describing features that have evolved over time in the same language. Simply put, we can say that diachronic phonetics studies changes that have taken place at different stages in the history of a given sound in a particular language. This is why diachronic phonetics can also be referred to as historic or evolutionary.

3.5. Applied phonetics

Let us now consider yet another branch of phonetic investigation, applied phonetics. We want you simply to note that as the name implies, this is an area where what is known of phonetics is applied to the teaching /learning of a foreign language. You should realise that areas covered by applied phonetics include the teaching of a good pronunciation.

3.4 SELF-ASSESSMENT EXERCISE

Mention three physical properties of sound.

Possible Answers

These include:

- intensity
- frequency
- duration

4.0. CONCLUSION

In this unit you've learnt about the different branches of phonetics. You've learnt the 4 major branches of phonetics. You've also learnt that the branches of phonetics include descriptive, functional, diachronic and applied phonetics. You learnt that descriptive phonetics is further divided into articulatory, auditory, acoustic and even combinatory phonetics. You've learnt that articulatory phonetics is the study of physiological aspect of speech production taking into cognisance the position of the different speech organs during the production of any given speech sound. You've learnt that auditory phonetics investigates and classifies speech sounds in terms of the way they are perceived and identified by the hearer's ear and brain. You've learnt also that acoustic phonetics investigates speech sounds in terms of the physical properties of the sound waves that are created by the activity of the speech organs and travel

through in air from the speaker to the hearer. You've learnt that combinatory phonetics investigates the modifications that occur when sounds are in contact. You've learnt that the study of how the speech sounds are used in spoken language establishes an overlap between phonetics and phonology. You learnt that phonology is the study of speech sounds from the point of view of their distinctive function in a given language. You learnt that phonology can be further divided into segmental phonology or phonemic analysis, on the one hand, and prosody or supra-segmental prosody, on the other. You even learnt about the components of prosody.

You've learnt about the aspect of phonetics that traces the history of the evolution of speech sounds of a given language over a period of time. This is what you learnt as diachronic phonetics. You've learnt to distinguish it from synchronic phonetics whose object of description is the state of the sounds of a language at a given time. You've learnt that applied phonetics seeks to make use of knowledge in phonetics in the area of foreign language teaching, with a particular emphasis on the rules of good pronunciation.

5.0. SUMMARY

This unit has equipped you with the knowledge of different branches of phonetics. You can now mention the 4 major branches of phonetics. You can now mention the sub-divisions of descriptive phonetics. You can even mention the specific areas of concern of articulatory, auditory, acoustic and combinatory phonetics. You can now describe the object of study of phonology, noting its two major components of segmental and supra-segmental phonology. You can even distinguish between synchrony and diachrony, because you can now define diachronic phonetics. You can now explain the area of interest of applied phonetics.

There is no doubt that what you have learnt in this unit will be useful to you in the rest of the units of this course.

6.0 TUTOR-MARKED ASSIGNMENT

1. Mention the scope of descriptive phonetics.
2. Mention the 2 branches of phonology.
3. Mention the central concerns of applied phonetics.
4. Distinguish between synchronic and diachronic phonetics.

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UNIT 5: AN INTRODUCTION TO ARTICULATORY PHONETICS

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1.0. INTRODUCTION

You will recall that in our previous unit we discussed branches and types of phonetics. You are now aware that phonetics is indeed a vast discipline, because at the end of our discussion in that unit we were able to highlight the four major branches of phonetics. You will recall that the 4 major branches of phonetics include descriptive, functional, diachronic and applied phonetics. You will also recall that each of these four branches has its own specific sub-disciplines. In that regard, you will recall, for instance that, while diachronic phonetics seeks to unravel the evolutionary trend in the development of speech-sounds in a given language over a certain period of time, applied phonetics is interested in making use of knowledge gained in phonetic studies for the benefit of foreign language teaching/learning. Remember we told you that functional phonetics or phonology is concerned with the role of speech-sounds in the composition of words in a spoken language.

No doubt, you will recall that we discussed the major areas of focus in descriptive phonetics, namely articulatory, auditory, acoustic and combinatory. The combinatory aspect of descriptive phonetics, you will recall describes the modifications that occur when speech sounds are in contact. Do you remember that we told you that acoustic phonetics is concerned with describing the physical properties of a speech-sound while it travels in the air? You will recall also that auditory phonetics gives us feedback as to how the sounds are perceived and analysed by the hearer's ear. I'm sure you do remember our

saying that articulatory phonetics primes itself with the study of speech-sound production. You do recall that the central concern of physiological origin of speech sounds and also provide kinaesthetic feedback as to what happens in the vocal tract during the production of any given speech sound.

It is on the articulatory aspect of descriptive phonetics that we shall be focusing our attention in this unit. The present unit will therefore introduce you to the area of articulatory phonetics. In this unit you will learn about the vocal apparatus and label the various speech organs. You will also learn to describe the role of various speech organs during the phonation process. You will learn the general principles for classifying speech sounds. You will learn to classify the French consonant phonemes. You will learn to classify the French vowel phonemes.

2.0. OBJECTIVES

On the successful completion of this unit, you should be able to:

1. Draw the vocal apparatus and label the speech organs.
2. Describe the role of various speech organs during the process of phonation.
3. Mention the general principles for classifying speech-sounds.
4. Classify the French consonant phoneme.
5. Classify the French vowel phonemes.

3.0. AN INTRODUCTION TO ARTICULATORY PHONETICS

We are now going to consider many aspects of articulatory phonetics. But before we go into full discussion of this very interesting topic, it is highly necessary to define certain terms like phonation and articulation.

3.1 Definition of phonation

Let us now consider the concept of phonation. In our earlier unit, precisely unit 1, when we were considering the definition of phonetics we stated that ordinarily a layman would content himself by saying that it is the study of sound. But we mentioned at that level that it is not just any sound that can be of interest to the phonetician. We still want to insist that it is not even the full range of sounds that can be produced by the human vocal organs that can be considered to be the object of phonetic study. Let us reiterate once again that the phonetician is interested in the sounds that are produced by the human speech organs in so far as these sounds have a role in language. Let us now define this limited range of sounds as the phonic medium. Let us also refer to the individual sounds within that range as speech-sounds. You should realise that the production of the speech sound is what we refer to as phonation. Let us now define phonation as the “production of a speech-sound or phone in any given language through the use of the appropriate articulatory mechanism”.

3.1.1 The Definition of articulation

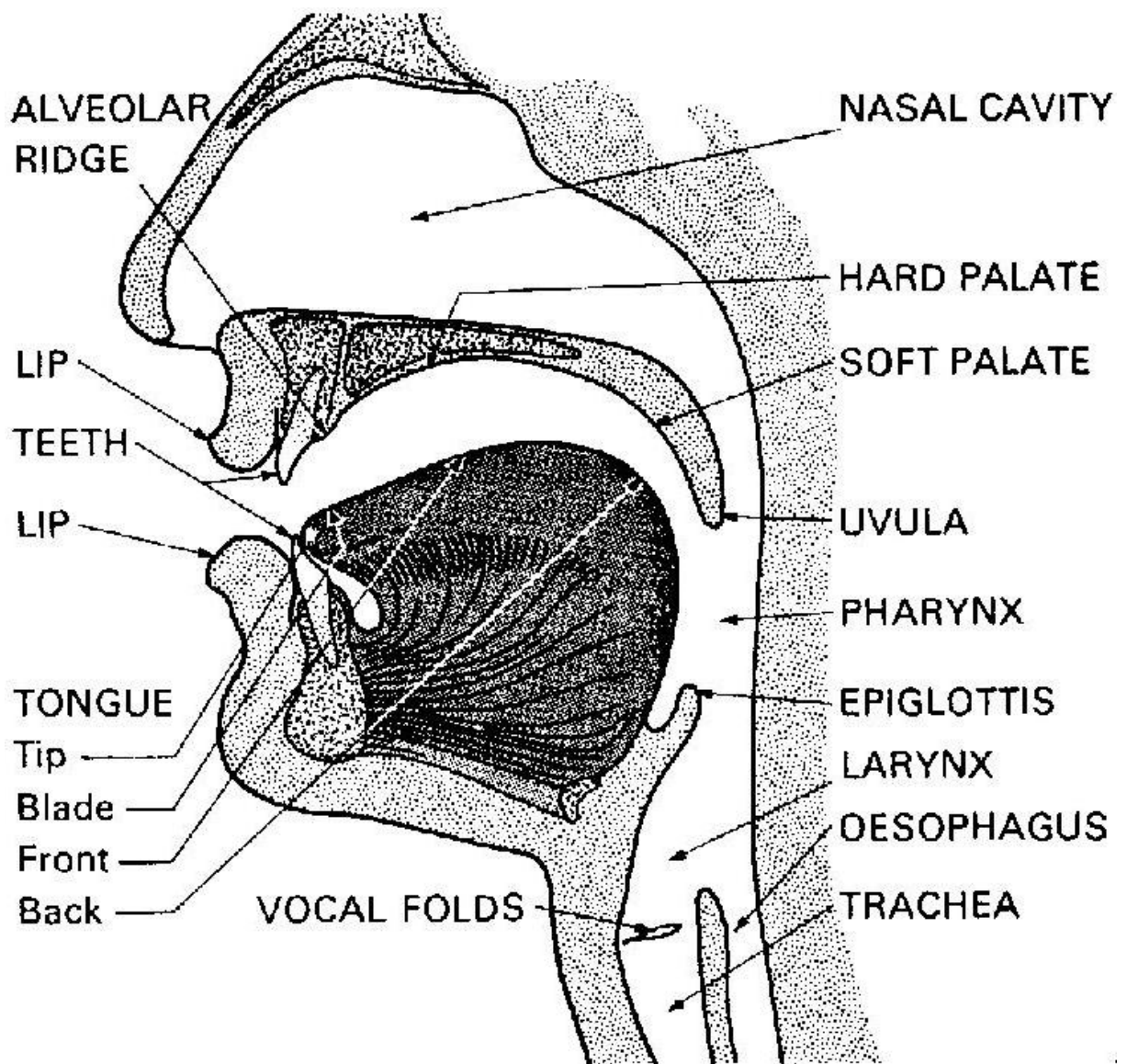
Let us now consider the concept of articulation. Let us start by saying that articulation is the production of speech sounds by moving parts of our body, using the contraction of muscles. Let us also add that what we move and how we move it is very important in defining articulation fully. We want you to realise that most of the movements relevant to speech take place in the mouth and throat area. We also want you to realise that the parts of the mouth and throat area that we move when speaking are called articulators. You should realise therefore that it is the movement or use of these articulators that is articulation. Of course you must be asking yourself the question: “which of the organs in our mouth and throat can we call the articulators?” Now, we want you to note that principal articulators are the tongue, the lips, the lower jaw and the teeth, the velum or soft palate, the uvula and the larynx. One last point we want you to bear in mind is that there is a distinction between active or mobile articulators and passive or fixed articulators. Active articulators, you should note, are those ones that can be moved into contact with other articulators, such as the tongue. Note also that passive articulators are fixed and cannot be moved. We want you to realise that these passive articulators include the teeth, the hard palate and the alveolar ridge. Before we go into giving you a holistic definition of articulation, we want you to try an experiment. Try moving your tongue, which appears to be the most mobile of the articulators. Move it up and down, back and forth as freely as you can. Also try moving your lips, shooting them out, and spreading them out. Do you realise that there are different volumes or space created as a result of the various muscular movements that you have made with your tongue and with your lips? These volumes or space chambers that you have just created are likened to special sound chambers.

Now let us define articulation as the “production of speech sounds due to the creation of special sound chambers or resonators arising from the muscular movements of the tongue and the lips”. Do not forget that if you are speaking to a Frenchman and he says “Articulez bien”, he is simply telling you to adopt the right muscular position with your speech organs in line with the type of sounds you are producing.

3.2 Presentation of the organs of speech

Let us now consider the speech apparatus. Below is a schematic representation of the human speech organs.

DRAWING



THE HUMAN SPEECH ORGANS

3.3 THE SPEECH ORGANS AND THEIR ROLE DURING THE PHONATION PROCESS

Let us now consider the various speech organs and their role during the process of phonation. Before we go on any further, let us quickly remark that ordinarily, there are no such things as speech organs. This is because what you can see in the above diagram is a representation of organs whose primary functions are rather biological in nature: digestive, respiratory, etc. However, now that we

have made that remark, we want you, all the same, to realise that the so-called speech organs are an adoption of biologically based organs of the human anatomy. Now let us consider what these speech organs are and how they are used in the speech sound production process.

3.3.1 THE CATEGORIES OF THE ORGANS

Now let us consider the different categories for describing the speech organs. Let us begin by saying that the organs can be categorised into three. These categories include:

1. The lungs and the tracheal (sub-glottalic wind – pipe)
2. The larynx and the vocal cords (source of sound energy)
3. Pharynx, oral cavity, nasal cavity (supra-glottalic resonators)

We are now going to consider their activities in stages.

3.3.1.1. The Sub-glottal Stage

Now let us consider the role of the lungs and the trachea in the process of phonation. We want you to realise that the lungs produce the air that is very much needed for the production of speech. You should realise that the sounds are produced during the respiratory phase of expiratory. In other words, you should note that it is the egressive pulmonic air stream that is used for the production of speech sounds. Note that this egressive pulmonary air passes through the pulmonary alveoli, through the bronchi, through the tracheal tube up to the larynx.

3.3.1.2. The Glottalic Stage

Now let us consider what happens at the level of the larynx and the vocal cords. The Larynx, you should know, can be visualised as a slit formed by two muscles covered with mucous membrane, lying side by side, known as the vocal folds (or vocal bands or vocal cords). You should also note that the space between the vocal cords is known as the glottis. You should realise that during normal respiration the glottis is open.

However, you should realise that during phonation the glottis assumes a closed position along its medium line. Please take note that the pressure of the pulmonary air separates the vocal cords, which close again and reopen once again. It is important for you to note that it is the vibrating movement of the cords or vocal folds while in contact with the pulmonary air escaping from the lungs that in turn sets this air vibrating thereby creating voice also known as laryngeal energy. We want you to note, this stage that the egressive pulmonic air stream is now in a transformed form as the energy necessary for the production of the speech sound.

3.3.1.3. The post-glottalic stage

Now let us consider what happens next after the energy has been supplied by the contact of the air stream and the vocal cords in the larynx. The post-glottalic stage, you should realise, is characterised by the entry of the airstream into the region of the articulators. You should note that the entry point is the pharynx, one of the supra-glottalic resonators. We want you to realise that it is at this entry point that 2 factors will determine the quality of the speech sound. The two factors, you should note, are the articulators employed and the degree of narrowing between them.

Let us also emphasise that at the point of entry into the pharynx, the state of the velum will go a long way into determining whether the sound is going to be oral or nasal.

Let us briefly explain further that from the pharynx the pulmonic air stream may enter only the mouth or both the mouth and the nasal cavity. You will do well to realise that either of these options will depend on the state of the velum, this membranous part of the roof of the mouth, known also as the soft palate. The important thing you should know, at this juncture, is that because of the membranous nature of the velum, it can be lifted and drawn back by muscles. Note, that if this happens the entrance to the nasal cavity is blocked and in that case, an egressive air stream can only enter the mouth.

This is what is known as the raised state or velic closure.

Now remember we are still talking about the post-glottalic stage in the physical activities of the process of phonation. We now want you to realise that this is yet another possible position for the velum. Now, let us consider that at other times the velum may hang down inertly (i.e. in its lowered state or velic opening). Note that if this happens the egressive air escapes through the nasal cavity as well as the mouth.

From what we have said so far, we want you to realise that if the velum is raised, oral sounds result, in which case air enters only the mouth. Example: [s] as in the French word *si*. You should also realise that if the velum is lowered, air enters the nasal cavity as well. We want to say that if air escapes through both the mouth and the nostrils, nasalized sounds are produced. Example: [œ] as in the French word *un*, meaning one. More of these details will be treated in our very next unit.

3.4. THE 3 STEPS IN THE PHONATION PROCESS.

Now let us consider in chronological sequence, the three steps in the phonation process. The three steps are:

Step 1.

The respiratory movement resulting in the production of the pulmonic air that is highly necessary for speech.

Step 2.

The transformation of this air into energy due to the activity of the glottis.

Step 3.

The stimulation of the appropriate articulators resulting in the modulation/amplification of the air stream to give rise to a particular sound.

3.5. SELF-ASSESSMENT EXERCISE

Mention three passive articulators

Possible answers include

- The teeth
- The hard palate
- The alveolar ridge

4.0. CONCLUSION

We set out in this unit to discuss the introduction to articulatory phonetics. At the end of our discussion you've learnt about the notion of phonation. You've learnt about the definition of phonation. You have also learnt about articulation. You even learnt about articulators. You learnt that they are located in the mouth. You have also learnt to distinguish between active and passive articulators. You learnt that active articulators are speech organs whose position can be changed due to muscular movements. You've learnt to draw the human vocal apparatus. You even learnt to label the various speech organs. You have learnt to describe the role of the various speech organs during the process of phonation. You even learnt the chronological sequence in the process of phonation. You also learnt about the three principal categories of the speech organs. You learnt, for instance, that the energy required for speech originates from the lungs.

There is no doubt that what you've learnt in this unit will be useful for the rest of the

SUMMARY

This unit has equipped you with all the necessary information on the introduction to articulatory phonetics. You can now define phonation. You have also learnt about articulation. You even learnt about articulators. You learnt that they are located in the mouth. You have also learnt to distinguish

between active and passive articulators. You learnt that active articulators are speech organs whose position can be changed due to muscular movements. You've learnt to draw the human vocal apparatus. You even learnt to label the various speech organs. You have learnt to describe the role of the various speech organs during the process of phonation. You even learnt the chronological sequence in the process of phonation. You also learnt about the three principal categories of the speech organs. You learnt, for instance, that the energy required for speech originates from the lungs.

6.0. TUTOR-MARKED ASSIGNMENTS

1. Draw the vocal apparatus and label the speech organs.
2. Describe the role of various speech organs during the process of phonation.
3. Mention the general principles for classifying French speech-sounds.
4. Mention the three stages in the phonation process in chronological order.

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UNIT 6

ARTICULATORY CLASSIFICATION OF FRENCH SPEECH SOUNDS

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1.0. INTRODUCTION

Welcome to unit 6. We hope you are getting more and more familiar with some of the technical terms in this course.

Now let us quickly go over what we treated in our last unit on articulatory phonetics. Do you remember what we said about the production of speech sound? You will recall that before we presented the speech production apparatus to you, we gave you definitions of some very important terms. Remember that phonation was defined as the production of a speech sound or phone in any given language through the use of the appropriate articulatory mechanism. You do recall also that articulation was defined as the production of speech sounds through the creation of speech sound chambers or resonators as a result of the muscular movement of the tongue and the lips. You will recall

that we discussed articulators and that we distinguished between active and passive articulators. Remember that in presenting the speech organs, you were told that they can be grouped into three main regions, namely the lungs or the sub-glottalic region, the glottalic (where the vocal cords are located) and the supra-glottalic region made up of all the articulators in the mouth. You will recall the nature of all these regions and the important roles they play in the phonation process. Remember we talked about the pulmonic egressive air stream and what happens to it when there is either velic opening or closure particularly the difference in sounds that results from such interplay.

It is the issue of the difference in speech sounds that will engage our attention in this unit. The present unit will therefore introduce you to the articulatory classification of speech sounds. In this unit, you will learn about the general principles for classifying speech sounds. You will learn the different types of sounds in French. You will learn to distinguish between vowels and consonants. You will learn the principles for classifying French consonants. You will learn to classify some French consonants. You will equally learn the principles guiding the classification of vowels in French. You will learn to classify some French vowels.

2.0. OBJECTIVES

On successful completion of this unit, you should be able to:

1. Mention the general principles for classifying speech-sounds.
2. Mention the three different types of sound in French.
3. Distinguish between vowels and consonants.
4. Mention the principles for classifying French consonants.
5. Classify some French consonants.
6. Mention the principles for classifying French vowels.
7. Classify some French vowels.

3.0. ARTICULATORY CLASSIFICATION OF FRENCH SPEECH-SOUNDS

No doubt, from your previous studies in other courses in this programme, you are well aware that speech sounds are not the same. But we go into discussing the difference in sounds in greater details. It is necessary to consider the general principles underlying the classification of speech sounds.

3.1. General principles for classifying speech sounds.

Let us now consider what can be regarded as the fundamental criteria to be followed in classifying speech sounds in general. We want you to realise that there are different criteria for classifying speech sounds. You should note that the phonetician has different options in studying the characteristics of speech sounds. From what we said in an earlier unit, you know that the option may be

articulatory, auditory, or even acoustic. What we are saying, mind you, is that speech sounds can possess different physical properties. For the purpose of our discussions in this unit, you should realise that we are interested in the articulatory properties of speech sounds. In that case, let us now consider the principles to be respected in classifying articulatory perspectives.

From the articulatory point of view, you should note principles for the classification of speech sounds are two-fold, namely mode and place of articulation. These two conditions of mode and place of articulation also have their own set of principles. We shall proceed to discuss them separately.

3.1.1. Principles for classifying speech sounds according to mode of articulation.

3.1.1.1. The idea of mode of articulation.

Let us now consider what we mean by mode of articulation. Do you remember that we said that the articulation process can only be initiated in the presence of air? Remember that the supply of air is the primary function of the lungs and the windpipe. Now you should realise that through the respiratory process the lungs push forth air through the vocal tract to the pharynx, the entry point into the rest of the articulators. One vital question that must be answered is “what happens to the pulmonic air stream as it struggles to escape outwards. Therefore, let us now say that the mode of articulation “refers to the air stream and happens to it”. You should realise that this question can further be elucidated by looking at it from three perspectives which include:

1. What happens to the air stream at the glottal region (in other words, what is the state of the vocal cords?)
2. What happens at the pharynx, after the larynx (in other words, what is the state of the velum?)
3. Is there stricture to the air stream and if so what is the degree of stricture between the articulators?

What is the state of the vocal cords?

Let us now consider the state of the vocal cords as one principle that supplies information in classifying a speech sound. Remember what we said in the previous unit concerning the vibration of the vocal cord. Now we want you to realise that if there is vibration of the vocal cords due to pressure from the egressive air stream, sound that will result from such a situation will be known as voiced sound. Conversely, you should realise that in the absence of vibration from the vocal cords, the resulting speech sound will be what is known as voiceless sound. Now, note that what we have said, in effect, is that from the state of the vocal cords, (vibration or no vibration) a speech sound can be voiced or unvoiced or voiceless.

The sound [v] as in French word ‘vous’ is a voiced sound. The sound [f] as in French word ‘famille’ is a voiceless sound.

3.1.1.3. The State of the Velum.

Now let us consider the state of the velum as the second principle to determining the characteristic potential of a speech-sound. You will recall that we considered this particular issue in our very last unit, specifically, you do recall that the velum is membranous tissue situated near the connecting region between the pharynx and the nasal cavity. We had said earlier that this tissue can either be in state of velic closure or velic opening. Remember that this is a determinant of nasality or orality. In other words, if there is velic closure, the egressive air stream can only pass through the mouth, in which case the resulting sound will be oral in nature. On the other hand, you should note that if there is velic opening at the approach of the air stream, the air stream can seek to escape both through the oral cavity and the nasal cavity, thus resulting in the production of a nasal sound. What we are saying, in effect, is that when considering the state of the velum a speech sound can either be oral or nasal. The sound [i] as in the French word 'il' is oral. The sound [ɛ̃] as in the French word 'pain' is nasal.

3.1.1.4. The Degree of Narrowing or Stricture

Now let us consider the third vital condition to be examined in classifying speech sounds from the articulatory perspective. We want you to realise that there are different muscular movements in the mouth and in the vocal tract during the process of phonation. For instance, you should note that as a result of the interplay of muscular movements between the articulators, the active ones being drawn closer to the passive ones there are bound to be varying degrees of narrowing or stricture between the articulators. We therefore want you to realise that such narrowing may affect the passage of the air stream. In general, we want you to note that there are 3 types of conditions of articulation when considering the issue of stricture.

These include:

- absence of stricture (or free articulation)
- partial narrowing (friction in the passage)
- total closure (occlusion).

3.1.2 Different types of sounds

Now, let us consider the different types of sounds from the articulatory point of view. From what we've just said about the degree of narrowing between the articulators employed in the articulation of speech sounds, we want you to realise that there two main types of sounds. These are known as vowels and consonants.

3.1.2.1. Vowels

Let us now consider vowels as speech sounds. Let us define vowel as a voiced articulatory variable produced without any obstruction to the air passage. The major vowels are [i] [e] [ɛ] [o] [u].

3.1.2.2. Consonants

Let us now consider consonants as speech sounds. Let us define consonants as an articulatory variable (voiced or voiceless) during which production process there is obstruction of the air passage. Some examples of voiced consonants are [b] and [d]. Some voiceless consonants are [p] and [t].

3.1.2.3. Difference between consonants and vowels

Let us now consider the major difference between consonants and vowels. We want you to realise that the major differences are as follows:

- There is obstruction to the air passage during the production of the consonant whereas there is no obstruction in the case of a vowel.
- All vowels are voiced whereas not all consonants are voiced.
- A vowel can constitute a syllable on its own but a consonant cannot stand on its own.

Principles for classifying French consonants.

Let us now consider the principles or criteria governing the articulatory classification of French consonant phonemes. You should know that the factors to be taken into account in classifying French consonants are the following:

1. point of articulation
2. manner (or mode) of articulation
3. presence or absence of voice.

Based on the foregoing criteria French consonants can be classified as depicted in the diagram below.

Diagram Price p.35

3.3. Principles for classifying French vowels

Let us now consider the principles to be taken into account while classifying French vowels. You should realise that there are four factors to be considered. Now, the four factors are the following:

1. the point of articulation
2. the degree of aperture
3. lip configuration
4. orality or nasality.

Point of articulation

Let us consider what we mean by point of articulation for the production of French vowels. You should realise that this refers to the ‘place in the mouth where a sound is produced’. We want to let you know that French vowels are classified generally in two broad categories, namely according to whether they are pronounced in front of the mouth (i.e. between the blade of the tongue and the palate, or between the back of the tongue and the velum. You should bear in mind, in this connection, that French vowels may therefore be ‘front vowels’ (commonly called *voyelles antérieures*), or back vowels (otherwise known as *voyelles postérieures*). Examples of *voyelles antérieures* include [i], [e]; while [o] and [u] are examples of *voyelles postérieures* .

Degree of aperture

Now let us consider the degree of aperture. This is also called the height of the tongue and we want you to realise that the degree of aperture is the same as the distance between the tongue and the palate. You should note that in this category we may have high, high-mid, low-mid and low. In French, you should realise that they correspond to:

1. *Fermée*, (example, [i], [e] and [u])
2. *mi-fermée*, (example, [•] and [o])
3. *mi-ouverte* (example, [œ])
4. *ouverte*. (Example, [•])

Lip Configuration

Now let us consider the principle of lip configuration. We want you to realise that the lips can assume two postures. You should realise that the lips can either be rounded or non-rounded. This being the case, the French vowel can be rounded (*voyelle arrondie*) or unrounded (*voyelle non-arrondie*).

Examples of rounded include [u] and [y], while examples of unrounded include [i] and [e].

Orality or Nasality

Let us consider orality or nasality. Remember we said that this articulatory tract depends on the position of the velum. We want you to realise that in French there are 4 vowels in which the velum is lowered throughout.

Nasal vowels in French.

Let us now consider the 4 nasal vowels in French. These vowels, you should realise are:

[ɔ̃] as in French word 'vin'

[œ̃] as in French word 'un'

[ɛ̃] as in the French word 'son'

[ɑ̃] as in the French word

3.3.4.1. Oral vowels in French

Let us now consider the vowels that have orality trait in their articulation. You should realise that of the 16 vowel phonemes in French, 12 of them have the orality trait. As you already know this also depends on the position of the velum. Specifically, we want you to remember that such vowels are articulated during the position of velum closure (i.e. when the velum is raised blocking the entry to the nasal passage). You should realise that the vowels that are so articulated include the following:

[i] as in the French word *lit*

[e] as in the French word *été*

[ɛ] as in the French word *très*

[a] as in the French word *patte*

[y] as in the French word *du*

[ɑ̃] as in the French word *pain*

[œ] as in the French word *seul*

[ɛ̃] as in the French word *je*

[u] as in the French word *nous*

[o] as in the French word *beau*

[ɔ̃] as in the French word *pâte*

[ɑ̃] as in the French word *port*

Classifying French vowels

Let us now consider a general classification of the French vowels. Based on what we have said about the 4 principles for classifying French vowels, we want you to realise that French vowels can be classified as can be seen below:

Price p.26

SELF-ASSESSMENT EXERCISE

Mention two types of sounds in French.

Possible answers include:

- consonants
- vowels

. Conclusion

During our discussion in this unit, you've learnt about the articulatory classification of sounds. You've learnt about the general principles for classifying speech sounds. You learnt that there are two major considerations guiding the articulatory classification of speech sounds, namely the mode and place of articulation. You've learnt that these two basic considerations have their own sub-sets of principles underlying the classification of speech sounds. You learnt, for instance, that the mode of articulation refers to the air stream and what happens to it as it struggles to leave the body, having been expelled by the lungs. From our discussion on the mode of articulation, you learnt that it is important to consider the three principles of questioning the state of the vocal cords, the state of the velum and the nature of the stricture, if any, between the articulators. You've learnt that the place of the articulation refers to the articulators employed in the production of a particular speech sound. You've also learnt that there are three different types of sounds in French, namely sounds articulated without any obstruction to the air passage (the vowels), sounds with partial narrowing or friction in the air passage (certain consonants) and other consonants with total momentary closure of the air passage. You learnt about the principles for classifying consonants in French. You equally learnt how to classify French vowels.

5.0 SUMMARY

This unit introduced you to the area of articulatory phonetics. You can now mention the general principles for classifying speech sounds. You can now differentiate between vowels and consonants. You can mention the principles for classifying consonants in French. You can even classify French consonants. You can as well mention the principles to be followed in classifying vowels. Even so, you can now classify French vowels.

There is no doubt that what you have learnt in this unit will be very useful to you in the remaining units of this course.

6.0 TUTOR-MARKED ASSESSMENT

1. Mention the general principles for classifying speech sounds.
2. Distinguish between vowels and consonants
3. Mention four principles for classifying consonants in French.
4. Classify the following consonants [t], [z], [m], [k].
5. Mention four principles for classifying vowels in French.
6. Classify the following vowels [i], [y], [e], [a].

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UNIT 7
AN INTRODUCTION TO AUDITORY PHONETICS

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1.0. INTRODUCTION

Welcome to unit 7! Now here is a quick reminder of our journey so far. No doubt, you will recall that in our previous unit, our discussions centred mainly on the articulatory classification of speech sounds in French. This, you do recall was only a follow-up on our discussion of articulatory phonetics in unit 5. However, lest we forget, let us quickly remind you of what we discussed in units 3 and 4. Remember, in unit 3, we discussed the scope of phonetics. You will recall, of course, that in that unit you were made to bear in mind that the major areas of concern in phonetics. Remember, those central concerns are the

discovery of how speech sounds are produced (in terms of what speakers do and in terms of the kinaesthetic feedback on what goes on in the vocal tract); the discovery of how speech sounds are used in spoken language; the recording of speech sounds with written symbols; and , the discovery of how we hear and recognise different sounds. Now, having painted a broad scope of investigation for phonetics in unit 3, you will recall that went further in unit 4 to narrow down our discussion on the major branches of phonetics. In case you have forgotten, we want you to recall that in unit 4 our discussion highlighted descriptive phonetics as one of the four major areas of investigation in phonetics. Remember, it was at that level that we told you that descriptive phonetics consists of articulatory phonetics, auditory phonetics, acoustic phonetics and even combinatory phonetics. You recall that we told you that you will get to know more about these sub-branches as we proceed in the course. Having just concluded our discussions on articulatory classification of sounds in unit 6, the other areas of interest will now come under focus, starting with the auditory phonetics.

We want to say that auditory phonetics will now be the basis of our discussion in this unit. The present unit will, therefore, introduce you to the concept of auditory phonetics. Essentially, in this unit, you will learn about the definition of auditory phonetics. You will learn about the scope of auditory phonetics. You will learn the physiology of the human ear (i.e. the human auditory system). You will learn about the functioning of the human auditory system. You will equally learn about the physical link between articulatory and auditory systems. Finally, you will learn about the importance of auditory phonetics. Happy reading!

2.0. OBJECTIVES

On successful completion of this unit, you should be able to:

1. Define auditory phonetics.
2. Delineate the scope of auditory phonetics.
3. Draw and label the physiology of the human auditory system.
4. Describe the functioning of the human auditory system.
5. Explain the physical link between the articulatory and auditory systems.
6. Mention 6 areas of importance in auditory phonetics.

3.0. AN INTRODUCTION TO AUDITORY PHONETICS

In order to provide the right focus for our discussion on auditory phonetics, we want you to reflect on some preliminary remarks about auditory phonetics. For us to do that effectively, it is necessary, as usual to begin with defining the concept of auditory phonetics.

3.1. THE CONCEPT OF AUDITORY PHONETICS

Let us now consider the meaning of auditory phonetics. Let us begin by saying that the word auditory is derived from audition which has to do with listening and hearing. To that extent, we can define auditory phonetics as an analysis of speech carried out by the listener's ear. This can go for a simple definition. However, we are going to provide a more comprehensive definition which we shall consider operational for the rest of the discussion in this unit. Let us now define auditory phonetics in operational terms by saying that "auditory phonetics investigates and classifies speech sounds in terms of the way they are perceived and identified by the hearer's ear and brain".

3.2 THE SCOPE OF AUDITORY PHONETICS

Now let us consider the scope of auditory phonetics. Now considering that auditory investigation includes varied constructs like perception of sounds, identification through auditory mechanism involving the brain as well, we want you to realise that auditory phonetics touches on areas of concern that are based in experimental psychology. You should realise that the information to be provided in the investigation will include electrophysiological data and psychoacoustic data.

ELECTROPHYSIOLOGICAL DATA

Let us now consider the scope of auditory phonetics in providing electrophysiological data. We want you to realise that there is a connection between auditory investigation and electro physics. This is because part of the information required in auditory phonetics has to do with the description of the auditory anatomy and this is provided by looking at the kind of responses we get from the peripheral (external ear) including the response/reaction of the auditory nerves in mammals.

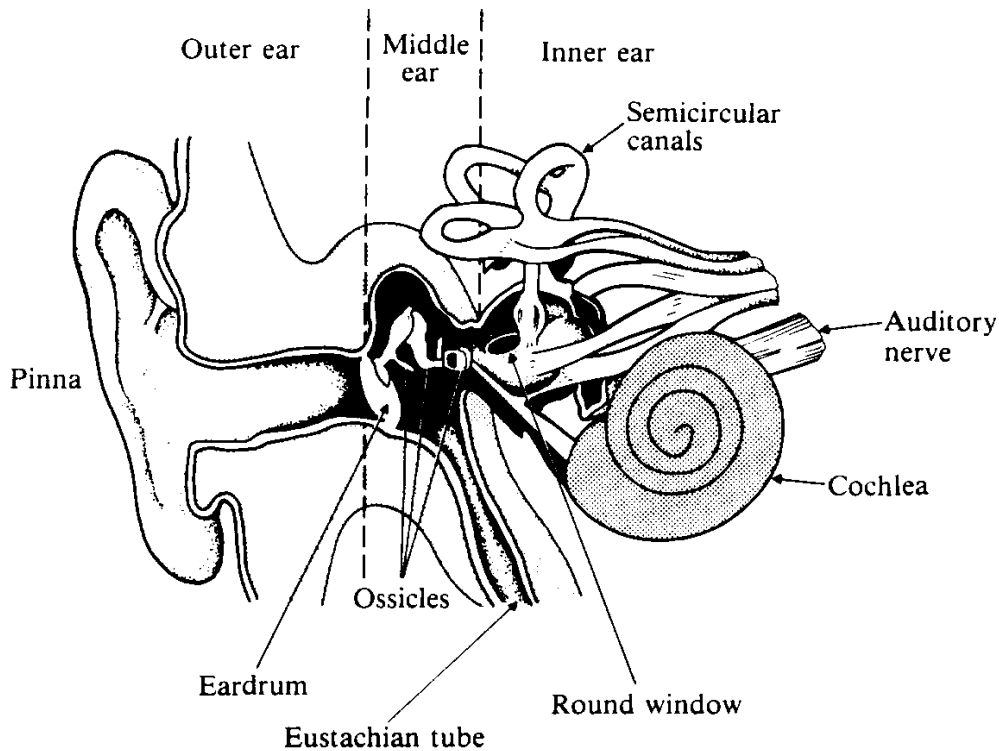
PSYCHOACOUSTICAL DATA

Let us now consider the scope of auditory phonetics in providing psychoacoustic data. You must be wondering what we mean by psychoacoustic. You should realise that psychoacoustic is a branch of psychophysics. You should note that psychophysics is involved in the experimental study of quantitative relationships between physically measurable acoustic stimulus and the response from the entire human auditory system with respect to auditory sensations and perceptions. We also want you to realise that psychoacoustics provides theories and hypothesis to neurophysiologists experimenting on audition.

PHYSIOLOGY OF THE HUMAN EAR

Let us now consider the physiology of the auditory system. Below is a diagram showing the anatomy of the human auditory system.

DIAGRAM



Now let us consider the make-up of this auditory anatomy. We want you to realise that the ear is divided into two parts, which are as follows:

- the peripheral auditory system
- the central auditory system

3.3.1. THE PERIPHERAL AUDITORY SYSTEM

Let us now consider the peripheral auditory system. We want you to know that the peripheral region of the auditory system corresponds to what is commonly known as the ear. You should note that this section stops with the first neurons of the auditory nerve.

3.3.2. CENTRAL AUDITORY SYSTEM

Let us now consider the central auditory system. We want you to realise that this is the section of the auditory system that extends from the first neurons up to cortex. This 2nd part of the anatomy, we want you to know is made up of two

sets of nerve fibres, namely the afferent fibres (that go from the ear to the cortex) and the efferent fibres (going from the cortex to the periphery).

FUNCTIONING OF THE AUDITORY SYSTEM

Let us now consider the functioning of the auditory system. We want you to realise that the peripheral auditory system carries out the coding of the acoustic signal into a neural influx after transforming it according to 4 different modes of transmission. What we are saying is that the sound waves are converted into nervous impulses in four different stages. You should know that the four stages are as follows:

- aerial transmission
- mechanical transmission
- hydro mechanical transmission
- electro-chemical transmission.

3.4.1. AERIAL TRANSMISSION STAGE

Let us now consider the aerial transmission stage. You should realise that this is the very first stage of conversion. We want you to note that this takes place at the external ear. You should note that at this stage the waves are picked up by the pinna, passed down the ear tube (the auditory canal) making it vibrate. This stage stops at the tympanum.

3.4.2. MECHANICAL TRANSMISSION STAGE

Now let us consider the mechanical transmission stage. This, of course, is the second stage of conversion. We want you to note that this stage takes place at the oval window located in the middle ear. You should take note that the oval window or the middle ear is made up of three ossicles. We want you to realise that what is considered as mechanical activity here is the fact that the vibrations on the eardrum set up further vibrations of the ossicles. Note that this in turn (the ossicles) act as levers by magnifying sound waves at the end of the stapes.

3.4.3. HYDRO MECHANIC TRANSMISSION STAGE

Let us consider the 3rd stage of conversion taking place this time around the basiliary membrane (inside the internal ear where we have the cochlea). Actually what you need to know is that at this stage, the stapes vibrate against the oval window, thereby setting up vibration in the perilymph. You should realise that this is called the hydro mechanic stage because actually the inner ear is a labyrinth filled with fluid. It is this fluid that is called the perilymph. Now as the perilymph is set into vibration, this vibration continues into the cochlea.

3.4.4. ELECTRO-CHEMICAL TRANSMISSION STAGE

Now, let us consider the final stage of the nervous impulse that was initially set up in the outer ear and has so far proceeded to the inner ear. You should realise that this electro-chemical activity takes place at the level of the ciliary cells. Note that these cells are part of the organ of corti which is situated on the basiliary membrane. Actually, you should realise that at this stage the vibration is further transmitted into the endolymph, from where it gets to organ of the corti where nervous impulses are triggered off along the auditory nerve to the brain and back and we are made to hear.

THE PHYSICAL LINK BETWEEN ARTICULATORY AND AUDITORY SYSTEMS

Now, let us consider the physical link between articulatory and auditory systems. I'm sure that from our discussions so far you must have noticed that the levels of description in phonetics are somehow inter-related. For instance, you must have seen that the auditory mechanism cannot be entirely separated from constructs that are rather of the acoustic level. You will get to see the close area of relationship between the acoustic analysis and auditory consideration. This, you should know, stems from the fact the acoustic information reports the state of affairs in the vocal tracts (articulatory) as well as the state of the auditory feedback. More details on the link between acoustic phonetics and perception will be discussed in the next unit. For now, let us go back to examine the link between articulatory and auditory systems.

Now, let us begin by saying that the articulatory system is to the production of sounds what the auditory system is to the perception/identification of speech sounds. Let us also go further by telling you that in the study of speech sounds there are norms.

3.5.1 ARTICULATORY AND AUDITORY NORMS

Of course, you will agree with this idea, particularly when you remember that there are agreed expectations as to the classification of speech sounds. In other words, what we are trying to bring to your attention on the issue of norms is that there are articulatory norms much the same way as there are auditory norms.

We want you to realise that articulatory norms refer to the physical settings that precede the production of speech sounds in any given language. In the same vein, you should realise that auditory norms imply that in any given language what the ear hears must conform to the expected speech standards. What we are saying, in effect, is that the physical link between articulatory and the auditory system is a question of norms. Put in another way, you should realise that in French for instance the auditory feedback that the speaker-hearer gets from an articulatory entity must satisfy the hypothesis that "what the ear hears in a

purported French production must sound like French”. If what the ear hears in such a situation does not sound French then, you should know that that would bring about a problem of another dimension that will be discussed before the end of this very unit in the section devoted to the importance of auditory phonetics.

THE IMPORTANCE OF AUDITORY PHONETICS

Now, let us consider the importance of auditory phonetics. We want you to observe that we are going to discuss the importance of auditory phonetics at six different levels. The six areas of importance that we want you to recognise include the following:

- Auditory norms
- Early language acquisition
- Foreign language teaching/learning
- Treatment of language disorders
- Specialist judgement

3.6.1. AUDITORY NORMS AND AUDITORY PHONETICS

Let us now consider the importance of auditory phonetics with respect to the provision of auditory norms. We want you to realise that auditory phonetics has established (or establishes) the auditory norms in the general study of sounds in spoken languages. These norms are established through ear-training. You should realise that there is a major example of this contribution of auditory norms in the study or classification of what is normally referred to as the cardinal vowels.

3.6.1.1. CARDINAL VOWELS: AN AUDITORY PHONETICS CONTRIBUTION

Now let us closely examine the concept of cardinal vowels and see the import of such an instrument in the classification of speech sounds. Let us just begin by telling you that cardinal vowels constitute a vital tool in articulatory classification of sounds. You should bear in mind that cardinal vowel is a component of a vowel classification system which is independent of the vowel system of a particular language. This is a standardizing tool used by trained phoneticians. The cardinal vowels represent theoretical points with reference to which the trained phonetician can plot the vowel-sounds of particular languages. (mention Paul Passy).

3.6.2 AUDITORY PHONETICS AND EARLY LANGUAGE ACQUISITION

Let us now consider the importance of auditory phonetics in early language acquisition. We want you to realise that auditory phonetics provides a lot of information in the area of early language acquisition.

3.6.3. AUDITORY PHONETICS AND FOREIGN LANGUAGE TEACHING/LEARNING

Again, let us consider the role of auditory phonetics in the area of foreign language teaching/learning. You should realise that the information provided by auditory phonetics concerning early language acquisition is applied in foreign language teaching/learning. For instance, the information finds application in three different areas of:

- repetition exercises in the laboratory
- discrimination exercise on minimal pairs
- listening at different levels of complexity (selective or advanced listening comprehension).

3.6.4. AUDITORY PHONETICS AND REEDUCATION

Let us now consider the importance of auditory phonetics in the area of re-education. Here we want to draw your attention to the fact that auditory phonetics provides information which can be usefully applied to advance the success of auditory re-education. Here, again, you should know that auditory phonetics contributes meaningfully in the following two areas:

- the treatment of hearing disorders
- phonetic correction for adult foreign language learners.

3.6.5. AUDITORY PHONETICS AND ACOUSTIC DATA ANALYSIS

Let us consider the place of auditory phonetics in connection with research in acoustic investigation. We want to draw your attention to the fact that auditory phonetics has the final say on the acceptability or otherwise of acoustic data that are linguistically relevant.

3.6.6. AUDITORY PHONETICS AND EAR-TRAINING

Let us consider the importance of auditory phonetics providing ear-training specialists. We want you to realise that ear-training is of utmost importance in auditory phonetics. You should realise that there are those with specialised ear-training. You should know that not every ear is phonetically trained. What we are saying that there is a difference between naïve ears and specialised ears. We want you to realise that without extensive training in auditory phonetics we cannot have specialised ears like those of orthophonists or other ear specialists with musical training.

3.7 SELF-ASSESSMENT EXERCISE

Mention the 4 stages of transmission of nervous impulses.

POSSIBLE ANSWERS

These include:

- aerial transmission
- mechanical transmission
- hydro-mechanical transmission
- electro-chemical transmission

4.0 CONCLUSION

In this unit, we have been discussing auditory phonetics. You have learnt about the definition of auditory phonetics. You have learnt that auditory phonetics investigates and classifies speech sounds according to how they are perceived and identified by the hearer's ear and brain. You equally learnt about the scope of auditory phonetics which spans through the areas of physics and experimental psychology. You have learnt about the anatomy of the auditory system. You equally learnt about the functioning of the human auditory system. You learnt about the different modes of transmission of nervous impulses from the very start when the sound waves hit the tympanum till the last stage of electro-chemical activity when the auditory nerves carry the impulse to the brain and back. You even learnt about the physical link between auditory and articulatory systems. Infact, you learnt that much as there are articulatory norms establishing the required physical settings that should precede the production of a given French sound, there are auditory norms that require that the ear must hear it correctly. You have learnt the six areas where research has proved the relevance of auditory phonetics, either in terms of providing reference tools for the classification of pure vowel sounds; providing valuable insight in the area of child language acquisition and applying such insight to second language teaching/learning; providing assistance in the treatment of hearing disorders; or even ensuring pedagogical remedy in the classroom conduct of phonetic correction; even exercising authority on the acceptability or otherwise of acoustic data that are linguistically relevant; or even providing ear-training specialists.

5.0 SUMMARY

You have now come to the end of our discussion in this unit. The unit has equipped you with a lot of knowledge about auditory phonetics. You can now define auditory phonetics. You can now mention the scope of auditory phonetics. You can even describe the physiology of the human ear. You can draw and label the anatomy of the human ear. You can also explain the functioning of the different parts of the human auditory system. You can now

explain the physical link between articulatory and auditory systems. You can even mention six reasons why auditory phonetics is considered to be important. There is no doubt that what you have learnt in this unit will be very useful to you in the rest of the units of this course.

6.0. TUTOR-MARKED ASSIGNMENT

1. Define auditory phonetics
2. Mention the scope of auditory phonetics
3. With reference to the anatomy of the human auditory system, explain the functioning of the different parts of the auditory system.
4. Explain the physical link between articulatory and auditory system
5. Give 4 reasons why auditory phonetics is important.

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WEBSITES

UNIT 8
AN INTRODUCTION TO ACOUSTIC PHONETICS

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1.0. INTRODUCTION

Here we are in Unit 8. I do hope that you are enjoying this course and that you are getting on very well with some key concepts in phonetic studies. Right. Let us then briefly go over our very last unit. You will recall that our previous unit was devoted to the discussion of auditory phonetics. In the course of our introduction to auditory phonetics in the last unit, you will recall that it was defined as an investigative study that aims at classifying speech sounds according to how they are perceived and identified by the hearer's ear and brain. You do recall, don't you, that the scope of auditory phonetics embraces disciplines as varied as physics and even experimental psychology? Remember we also discussed the anatomy of the human auditory system, explaining in details the functioning of the various organs that make up the system. You will recall that some of the details included the 4-stage nervous impulse transmission modes, which we told you could be summarised as aerial, mechanical, hydro-mechanical and electro-chemical. You will even recall that our discussion did not miss out in letting you know about the physical link between articulatory and auditory phonetics, a link, we told you, was a matter of norms (i.e. articulatory norms being confirmed by auditory norms). You must not forget that the norm specifies that what is heard must represent the sound as physically described along articulatory parameters. Shall we also remind you that in view of the emphasis on hearing correctly, we also discussed six areas in which the importance of auditory phonetics can be felt? Remember we mentioned that auditory phonetics can provide information from a melee of acoustic data through specialised ear-training. As a matter of fact, it was clear from our discussion in the last unit that auditory phonetics cannot be totally dissociated from acoustic phonetics. It is therefore that link between auditory and acoustic phonetics that now obliges our attempt in highlighting a few introductory details about acoustic phonetics.

In other words, we are now going to discuss acoustic phonetics. The present unit will therefore centre on acoustic phonetics. In this unit, you will learn about the definition of acoustic phonetics. You will learn about the scope of acoustic phonetics. You will learn to illustrate the acoustic representation of speech sounds. You will also learn further details about the link between acoustic and auditory phonetics, particularly with respect to perception.

2.0. OBJECTIVES

On successful completion of this unit, you should be able to:

1. Define acoustic phonetics.
2. Mention the scope of acoustic phonetics.
3. Explain basic notions in the physics of sound.
4. Mention the criteria for classifying sounds acoustically.
5. Mention the acoustic data in vocal production.
6. Mention the acoustic data in perception.

7. Draw the acoustic schema of French vowels.

3.0. AN INTRODUCTION TO ACOUSTIC PHONETICS

Before we go into detailed discussion on the area of acoustic phonetics, we need to briefly define the concept of acoustic phonetics.

3.1. DEFINITION OF ACOUSITC PHONETICS

Let us now define acoustic phonetics. We want you to note that acoustic phonetics involves the study of speech production and perception in regards to higher grammatical level, especially phonology. Let us begin by stating that acoustic phonetics is the study of the physics of speech signal. We want you to realise that acoustic phonetics investigates and classifies speech-sounds in terms of the physical properties of the sound waves that are created by the activity of the speech organs and travel through the air from speaker to hearer.

3.2. THE SCOPE OF ACOUSTIC PHONETICS

Now let us consider the scope of acoustic phonetics. From the definition that we have given you concerning acoustic phonetics, you will realise that its areas of concern in terms of phonetic description include the production and perception. The scope of acoustic phonetics, you should realise, includes the analysis of the structure of sounds and the relationship between activity in the vocal tract and the resulting sound (perception). We can now examine the scope at the two levels of production and perception.

3.2.1. THE SCOPE OF ACOUSTIC PHONETICS WITH RESPECT TO PRODUCTION

Now let us consider the areas of concern of acoustic phonetics as regards the activity of the vocal tract. We want you to realise that the acoustic model of speech production computes the resonance of the vocal tract during different articulatory configurations. In this connection, we want you to realise that acoustic phonetics describes language varieties using such terminologies as formant frequencies, fundamental frequencies, amplitude spectra and duration.

3.2.2. THE SCOPE OF ACOUSTIC PHONETICS WITH RESPECT TO PERCEPTION

Now let us consider the areas of concern of acoustic phonetics with regards to speech sounds as perceived. We want you to realise that when sound travels through the air from the speaker's mouth to the hearer's ear it does so in the form of vibrations in the air. We want you to realise that with acoustic phonetics it is possible to measure and analyse these vibrations by mathematical techniques.

3.3. BASIC NOTIONS IN THE PHYSICS OF SOUND

Before we proceed with the full discussions on acoustic phonetics, we would want us consider some basic notions in the physics of sound. You should realise that such preliminary clarifications are bound to set the stage for a better understanding of this area of phonetics, which ordinarily would tend to scare many away. We want you to feel very much at home as you go through this section of the course, while we try to make it as clear as possible. We shall begin with the concept of sound wave.

3.3.1. THE CONCEPT OF SOUND WAVE

Let us now consider the concept of sound wave. First, let us begin by stating that to a physicist, sound wave can be defined as the **movement o the air molecules through space**. Does this definition satisfy your curiosity? May be or may be not. Not to worry, let us take it a step further. Remember, we are in the realms of physics. So try to follow us gradually. For the purpose of this section on the physics of sounds, let us say that sounds are **variations in the atmospheric pressure as recorded by our auditory system through the tympanum**.

Now with this operational definition of sound, let us quickly add that the variations in the atmospheric pressure, which we are talking about, occur in the form of waves that are propagated in the air at a speed of 330 metres per second. What you must bear in mind, at this juncture, is that human beings and objects are surrounded by air (i.e. particles that move very fast in all directions).

3.3.2. THE ORIGINATION AND PROPAGATION OF SOUND WAVES

Now let us consider how sound waves are originated and how they are propagated. To explain the idea, we are going to try to simplify this phenomenon. Let us even suppose that the air particles occupy an average stable position from which they are displaced due to the passage of the wave. From this scenario, we want you to realise that it does appear that each sound perception implies that a certain mass of air has been set in motion of vibration. For us to understand the vibratory movement here are some examples, which include: the swinging pendulum, the AC power, the diapason, the piano cord or the spring-mass system.

3.3.2.1. THE SPRING-MASS SYSTEM

Let us quickly illustrate using the spring-mass system. Now, the spring is fixed at one extremity and at the other end it is attached to a mass that can be made to glide on a surface that does not offer any resistance. What we are saying actually is that the simplest mechanical oscillating system is a mass attached to a linear spring subject to no other forces.

You should realise that this system may be approximated on an air table or ice surface. We want you to realise that the system is in equilibrium when the spring is static. Note also that if the system is displaced from the equilibrium there is a net **restoring force** on the mass, tending to bring it back to equilibrium. You should realise, however, that in moving the mass back to the equilibrium position, it has acquired momentum, which keeps it moving beyond that position, establishing a new restoring force in the opposite sense. Again, we want you to realise that if a constant force such as gravity is added to the system, the point of equilibrium is shifted. Now, you should note that the time taken for an oscillation to occur is often referred to as the oscillatory period.

Now let us consider the illustration in Fig....
(Add figure on spring-mass system)

Let us say that the needle indicates point B when the system is at rest. You should note that if we push the mass towards A, the spring, while compressing, would exert a counter force (the restoring force we just talked about). This restoring force as you have just been told, tends to return the mass to its original position of equilibrium (i.e. point of departure). However, at this point, because of **inertia** of the mass (i.e. the maintaining of the movement or the rest in the absence of external forces), this mass will go on to point C, where the extension of the spring will exert yet another restoring force. Now, we want you to realise that this back and forth movement will not stop except there are energy losses due particularly to scratching (except there is a decay in the process). With these preliminary remarks, we can now define the concept of vibration.

3.3.2.2. THE CONCEPT OF VIBRATION

Let us now consider vibration or oscillation. We may now define vibration as the back and forth movement of a body from its point of equilibrium. This oscillation is said to be complete (double vibration) when the body moves from B (point of rest) to A (extreme point), then from A to C (another extreme point), and then finally from C to B.

3.3.3. APPLYING THE SPRING-MASS PRINCIPLE TO THE MOVEMENT OF AIR PARTICLES

Now let us consider the mass-spring system that we have just described with what happens in the air. We want you to realise that in the air, the particles can be compared to the mass, while the forces that relay them can be likened to the spring. You should note that this could be due to a series of compressions and rarefactions that the waves propagate along the particles, the latter oscillating between their resting positions. Now, I hope that you are not entirely lost in the technicalities of molecular movement, as we prepare to consider some definitions that will prove useful in acoustic phonetics.

3.4. IMPORTANT DEFINITIONS FOR ACOUSTIC PHONETICS

Now let us consider some definitions that are particularly vital for a good grasp of acoustic phonetics. These include periodic movement, frequency, elongation, amplitude, damping, and resonator.

3.4.1. PERIODIC MOVEMENT

Now let us consider the notion of periodic movement. Let us define periodic movement as an identical movement that is repeated at regular time intervals. You should also note that period can be defined as this constant time interval (T). We are saying that a period expresses the time that it takes to have a complete oscillation.

3.4.2. FREQUENCY

What do we mean by frequency in acoustic phonetics? Let us define frequency as the number of periods per second. You should note that this unit of measurement is often expressed in p/s (periods per second). But you should equally realise that it can also be expressed in c/s (cycles per second) or more frequently in Hz (Hertz). Owing to the definition of the period, we want you to realise that frequency corresponds to the inversed form of the period. Therefore, you should note that the formula for frequency is $f = 1/T$. You should realise that this is a simple formula, which allows us to indicate that for one period of 1/20 of a second, the frequency is 20 Hz.
(insert fundamental frequency, Chiss p.84)

3.4.3. ELONGATION

Let us now consider elongation. Here, we want you to realise that for a periodic vibratory movement corresponding to the displacement from one point to the

other of the position of equilibrium, elongation can be said to be the distance, at each instance for the mobile point to its position of equilibrium.

3.4.4. AMPLITUDE

Let us now consider the notion of amplitude. We can define amplitude as the maximal elongation. Note that this maximal elongation is not constant since we have already seen that resistance can dampen it.

3.4.5. DAMPING

Let us now consider damping. We can define damping as the reduction in the amplitude. This, you should realise, can either be weak or strong. You should realise that damping can be weak when the amplitude reduces slowly. Conversely, you should note that if the amplitude diminishes very fast damping is said to be high.

3.4.6. RESONATOR

Now let us consider the concept of a resonator. You should know that when a sound wave comes in contact with a mass of air in an enclosed cavity, there is compression of this mass. You equally should note that this compressed mass tends to expel the wave. However, we want you to realise that should the frequency of the penetrating wave correspond to that of the cavity, or should it be slightly higher or lower, this cavity plays the role of resonator, by reinforcing the amplitude of the penetrating vibration. We are saying, therefore, that resonator is the reinforcing role adopted by the cavity at the approach of penetrating amplitude. This concept will be further developed shortly when we are set to classify French vowels.

3.5. ACOUSTIC CLASSIFICATION OF SOUNDS BASED ON THE ACTIVITIES OF THE VOCAL TRACT

Let us now consider the acoustic classification of sounds as produced by the vocal tract. Based on the activities of the vocal tract, acoustic classification considers the source of the sound. In this connection, we want you to note that there are two types of sources. They are periodic and a-periodic (i.e. voiced/unvoiced).

3.5.1. VOICED SOUND

Let us now consider the periodic source of sound, in other words, sounds resulting from periodic pulses. Here the sounds resulting from periodic pulses are acoustically classified as voiced. The sounds that fall under this category generally are vowels. Examples include [o], [u], [i] and [e].

3.5.2. UNVOICED SOUND

Let us now consider sounds resulting from a-periodic pulses. Here we want you to note that sounds resulting from a-periodic pulses are known as noise. The source is normally regarded as noise. There are two types of noises. You should note that they either result from constriction (pure noise), e.g. [f] [s] [ʃ]; or from occlusion (brief noise), e.g. [p] [t] [k].

3.5.3. OTHER SOURCES RESULTING FROM COUPLING

Now let us consider other sources of sound resulting from coupling. Here we want you to realise that there are two types of coupling, namely periodic/a-periodic coupling and acoustic coupling

3.5.3.1. PERIODIC/APERIODIC COUPLING

Let us consider sounds that result from a coupling of periodic and a-periodic pulses and see how they are classified acoustically. Now we want you to realise that this category of sounds which result from a combination of voice and noise is what is normally referred to as voiced consonants. E.g. [z].

3.5.3.2. ACOUSTIC COUPLING

Let us now consider sounds that result from a coupling of cavities. Here we want you to realise that this is the case where two different cavities of resonance are brought together. This is the case of the combination of pharynx and the buccal cavity on the one hand and the nasal cavity on the other. E.g. the nasal consonant [m].

You should also realise that the nasal vowels can also result from a coupling of the oral and the nasal cavity. You should note, however, that in this case the oral cavity remains open in its front part. This is why this category of vowels is known as oralo-nasal.

3.5.4. SUMMARY OF ACOUSTIC CLASSIFICATION OF FRENCH CONSONANTS

Now let us quickly summarise the classification of French consonants. This can be clearly show in the table below:

TYPE OF NOISE	SOURCE	EXAMPLE
Pure	Continued	[f] [s] []
	Brief	[p] [t] [k]
Coupling	Continued	[v] [z] []
		[r] [R] [l]
	Brief	[b] [d] [g]
		[m] [n] [] []

3.5.5. ACOUSTIC CLASSIFICATION OF FRENCH VOWELS

Now we are going to consider how French vowels are classified acoustically. But before we do this, we shall consider the concepts of resonance and formants.

3.5.5.1. THE CONCEPT OF RESONANCE

Now let us consider the concept of resonance. Actually, the signal emitted at the level of the vocal folds is complex but it is possible (using the Fourier principle) to decompose it into a sum of sinusoidal oscillations whose frequencies (called harmonics) are all multiples of the F_0 . It is equally possible to suppose that they have more or less the same amplitude. This signal will be modified while passing through the vocal tract. Now, note that this vocal tract is constituted by cavities like the pharynx, the buccal (which itself can be further broken down to anterior and posterior) nasal and labial. We want you to note that the form and relationships can be modified. You must not forget that their respective volumes and their acoustic couplings will be determined by the articulation particularly by the position of the tongue. These cavities assume the role of chambers of resonance (i.e. they reinforce in the sound spectrum the harmonics whose frequency is close to theirs.)

3.5.5.2. THE CONCEPT OF FORMANTS

Now from what we have just said about resonance, let us consider the concept of formants. Now we want you to realise that the zones of reinforced frequency are called formants and it is these formants that help in recognizing and identifying sounds. You should note that the frequency of the first zone (F_1) varies between 200 Hz and 900 Hz. The second frequency (F_2) varies between 500 Hz and 2500 Hz.

3.5.5.3. ACOUSTIC CLASSIFICATION OF FRENCH VOWELS

Based on what we have already said, below is the acoustic schema of French vowels:

INSERT DIAGRAM

3.5.6. RELATIONSHIP BETWEEN ACOUSTIC PHONETICS AND AUDITORY PHONETICS (PERCEPTION)

Let us now consider the relationship between acoustics and perception. Remember the auditory canal is a resonator which amplifies sound waves to frequencies that are close to its own.

3.6. SELF-ASSESSMENT EXERCISES

Question: Mention the acoustic correlates of pitch and loudness respectively.

Possible answers include:

- Frequency
- Intensity

4.0. CONCLUSION

We have just concluded our discussions on acoustic phonetics. You've learnt about the definition of acoustic phonetics. You also learnt about the scope of acoustic phonetics. You learnt equally that acoustic phonetics deals with the physics of sound. You even learnt about some basic notions in physics. You learnt about the concept of sound waves. You learnt about vibrations. You learnt that air particles are displaced in space and that they travel at a speed of 330 metres per second. You learnt that there are two basic sources of speech sounds, acoustically speaking. You learnt that they are periodic and a-periodic pulses

5.0. SUMMARY

In this unit, you have been introduced to the concept of acoustic phonetics. You can now define acoustic phonetics. You can now mention the scope of acoustic phonetics. You now define basic concepts in the physics of sound. You can now mention the criteria for classifying sounds acoustically. You can even state the acoustic correlates of perceptual concepts like pitch and loudness.

There's no doubt that what you've learnt in this unit will be useful to you for the rest of the units in this course.

6.0. TUTOR-MARKED ASSIGNMENTS

1. Define acoustic phonetics.
2. Mention the scope of acoustic phonetics.
3. Mention and explain two sources of sound.
4. Define the following terms: fundamental frequency, formant, vibration and acoustic coupling.
5. Using a diagram, explain the principle of a spring-mass resort.

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UNIT 9
AN INTRODUCTION TO COMBINATORY PHONETICS

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1.0. INTRODUCTION

Welcome to Unit 9. We want to congratulate you for having completed the first eight units of this course. For the avoidance of doubt, you will have noticed a gradual build up in the relationship between the first eight units that we have treated so far. Actually, you will notice that the first 4 units were more or less an introduction to the course either in terms of the concept of phonetics (unit 1); the nature of phonetics (unit 2); the scope of phonetics (unit 3); the major branches of phonetics (unit 4). Having identified the major branches of phonetics as articulatory, acoustic, auditory and combinatory, you will recall that the next four units (i.e. units 5, 6, 7 & 8) were actually an opportunity for

us to discuss what, traditionally, constitutes the age-long areas of specialization in descriptive phonetics, namely articulatory, auditory and acoustic. You will recall that we gave much attention to articulatory phonetics because, as you are well aware, we devoted 2 units (units 5 and 6) to this very aspect of phonetic description. Remember we even treated the articulatory classification of sounds on its own in unit 6. You will recall that sounds were treated on their individual merit and given their articulatory characteristics.

You will agree, however, that phonetics is not just about individual sounds, but also about how these sounds are used or realized in speech in a given language. So far, we have not discussed the fourth branch of descriptive phonetics, which we added in our list, namely combinatory phonetics. Even if this area is not treated in phonetic literature as a well established domain of investigation on its own, for the purpose of this course, we want to accord it some measure of attention. We are therefore determined to close our module on the scope and branches of phonetics by briefly discussing combinatory phonetics.

The present unit is therefore going to focus on combinatory phonetics. This unit will introduce you to the concept of combinatory phonetics. You will learn about the definition of combinatory phonetics. You will learn about the scope of combinatory phonetics. You will learn the reasons why there are changes in the nature of speech sounds. From a combinatory point of view, you will learn about the types of combinatory changes that occur in speech sounds. Happy reading!

2.0. OBJECTIVES

On successful completion of this unit, you should be able to:-

1. Define combinatory phonetics.
2. Mention the scope of combinatory phonetics.
3. Mention 2 major reasons why sounds change their original phonetic value.
4. Mention 4 types of combinatory changes that occur in the phonetic value of speech sounds.
5. Differentiate between assimilation and co-articulation.

3.0. AN INTRODUCTION TO COMBINATORY PHONETICS

Before we go any further, we want to make you fully aware of what we mean by combinatory phonetics. In other words, we want to start our discussion as usual by providing an operational definition of combinatory phonetics.

3.1. THE CONCEPT OF COMBINATORY PHONETICS

Let us now consider the definition of combinatory phonetics. Let us start by saying that behind combinatory is the notion of combination. We want you to realize that combinatory phonetics is that aspect of descriptive phonetics that deals with a study of a combination of sounds, the study of sounds in contact. This of course, you will agree has to do with the study of sounds and their neighbours. For the purpose of our discussion in this unit, let us define combinatory phonetics as “The study of sounds in their neighbourhood with a view to observing the changes that occur in their phonetic value”.

3.2. THE SCOPE OF COMBINATORY PHONETICS

Now let us quickly consider the scope of combinatory phonetics. We want you to realize that this is an area of phonetics with concerns that cut across many areas of phonetic investigation. For instance, we want you to realize that combinatory phonetics deals with articulation, experimental phonetics, neurophysiology and even embraces some of the concerns of the pedagogy of pronunciation as expressed by phonology or applied phonetics.

3.3. TWO MAJOR REASONS WHY SOUNDS CHANGE THEIR ORIGINAL PHONETIC VALUE.

Now let us consider why sounds get to change their original phonetic value. Why, for instance, would a sound lose certain of its characteristic traits, or even add new characteristic traits, or even add new characteristics that ordinarily are not part of its articulatory distinctions? The reasons, we dare say, may be adduced from 2 different perspectives. These include:

- The nature of speech organs.
- The nature of connected speech.

3.3.1. THE NATURE OF SPEECH ORGANS.

Now let us consider the nature of speech organs and how such a nature may bring about changes in the phonetic value of a speech sound. The best way in which this change may be brought about is in considering what happens in the neighbourhood of sounds in an isolated word. Here, we want you to take note that speech organs are not static. “What does this mean”, you might be tempted to ask. The point we want to emphasise, at this juncture, is that when we speak, the speech organs are not constantly in the same position. Please note that, apart from brief moments of silence, the speech organs are constantly moving from the position required for one sound to that required for a later sound in the same or a following word. What we are saying, mind you, is that from the point of view of articulation, as we are in the process of uttering one sound, the way we pronounce it is likely to be affected by the fact that, at the moment we are uttering it, we are equally preparing to utter a later sound.

3.3.2. The Nature of Connected Speech

Let us now consider the nature of connected speech and see how this can constitute a source of change in a sound. Do you know what we mean by connected speech? Obviously, you know that it would be quite unnatural for us to speak and understand ourselves if we were to observe gaps in between words. That will sound as if we were counting our words. Natural speech does not function that way. We can therefore consider connected or natural speech as speech produced without unnecessary pauses. We want you to realize that in natural speech, there are few gaps. It is for this reason that there are bound to be differences between the pronunciation of isolated words and the same words occurring in connected speech.

3.4. FOUR TYPES OF COMBINATORY CHANGES IN THE PHONETIC VALUE OF SOUNDS

Now let us consider the four types of processes of combinatory change in the phonetics value of sounds. Of course, there may be more than four processes of observable changes in the phonetic value of sounds. However, for the purpose of this unit on the neighbourhood changes in the pronunciation of sounds in French, we want to limit ourselves to only four. Now, we want you to realize that the four types of combinatory changes in the pronunciation of sounds are as follows:

- Assimilation
- Co-articulation
- Liaison
- Elision

3.4.1. ASSIMILATION

Let us now consider assimilation as a type of neighbourhood-induced change in the phonetic value of sounds in French. Before we fully come to terms with this type of neighbourhood-induced change, I'm sure you will be itching for the definition of assimilation.

3.4.1.1. DEFINITION OF ASSIMILATION

Let us now consider the definition of assimilation. Before we come out clearly with a definition, let us go mathematical. Shall we begin by making a fundamental assumption that a given word contains three phonemes, namely 1 - 2 - 3?

Given that basic assumption, now our next assumption is that the pronunciation of '2' is affected by that of '1' and/or of '3', i.e. that, either way, the pronunciation of '2' is more like that of '1' and/or '3' than it would otherwise be. Given the foregoing assumptions, if you agree, we can now say that

phoneme '2' is assimilated to '1' and/or '3'. Let us now define assimilation as a "common phonological process by which the phonetics of a speech segment becomes more like that of another segment in a word / or a word boundary)". Simply put, you should note that assimilation could be said to be the transferring of phonetic characteristics of one phoneme to a neighbouring phoneme.

3.4.1.2. TYPES OF ASSIMILATION

Let us now consider types of assimilation. We want you to realize that there are two types of assimilation, namely

- Progressive assimilation
- Regressive assimilation

3.4.1.3. PROGRESSIVE ASSIMILATION

Let us now consider progressive assimilation. We want you to realize that assimilation can be said to be progressive when a sound changes with reference to a preceding segment. To avoid confusion, note that this type of assimilation is also known as left-to-right or preservatory or preservative, lagging or lag assimilation.

3.4.1.4. EXAMPLES OF PROGRESSIVE ASSIMILATION

Let us now consider some examples of progressive assimilation in French. You should realize that this type of assimilation is less frequent in French. All the same here are some examples:

1. Cheval [ʃfal] In this example, you will observe that the influence of the voiceless consonant phoneme [ʃ] is transferred to [v] (which ordinarily is a voiced consonant) thereby making it sound [f] (i.e. devoicing it).
2. Subsister [sybziste] In this example, you will notice that the influence of the voiced consonant phoneme [b] is transferred to [s] making it sound [z].

3.4.1.5. REGRESSIVE ASSIMILATION

Let us now consider regressive assimilation. We want you to realise that assimilation can be said to be regressive when a sound changes with reference to a subsequent segment. Contrary to what we said about progressive assimilation, we want you to note that regressive assimilation is a right-to-left movement.

3.4.1.6. EXAMPLES OF REGRESSIVE ASSIMILATION.

Let us now consider some examples of regressive assimilation. In French, we want you to note that this phenomenon is the regressive assimilation of voiced consonants, i.e. a voiced consonant becomes voiceless when in contact with a following voiceless consonant. Now here are some examples:-

1. Medecin [mɛtsɛ́] Here, you would have noticed the voiced [d] becoming voiceless in [t].
2. Observer [ɔpsɛRve] Here, again, you will equally realize that [b] another voiced consonant becomes voiceless in [p].
3. anecdote [anɛgdɔ́t] Here, as you can see, the voiceless consonant [k] changes its phonetic value to a voiced [g].

3.4.2. CO-ARTICULATION

Now, let us consider a second type of combinatory change in the phonetic value of a sound. As usual, you may want to know exactly the meaning of co-articulation before we proceed to give you examples of this phenomenon in French. Let us therefore define co-articulation, as the influence of phonetic context on the articulation of speech sounds.

3.4.2.1. Relationship with Experimental Phonetics

Let us quickly explain a bit further by letting you know that it is actually at this level that there is a great influence of experimental phonetics in this aspect of descriptive phonetics. We want you to realize that Experimental phonetics studies co-articulation as a way of finding out how the brain controls the production of speech. Actually, you should note that when we speak, many muscles are active at the same time and sometimes the brain tries to make them do things that they are not capable of.

3.4.2.2. Examples of Co-articulation

Now let us consider examples of co-articulation. What we want to give you here are rather effects of co-articulation. The two effects of co-articulation are:-

- Nasalization of a vowel
- Lip-rounding of a consonant

NASALIZATION OF A VOWEL

Now let us consider nasalization as an effect of co-articulation. If you take the French word *mène*, the vowel phoneme is one that is normally pronounced with the soft palate raised to prevent the escape of air through the nose while the two nasal phonemes must have the soft palate lowered. Now do you notice from what you already know about the articulation of this individual sound segments

(as per unit 6) that the soft palate cannot be raised very quickly, so the vowel is likely to be pronounced with the soft palate still lowered, giving a nasalized quality to the vowel. The important thing you need to retain, therefore, is that nasalization is a co-articulation effect caused by the nasal consonant environment.

LIP ROUNDING OF A CONSONANT

Now let us consider lip-rounding which is also another effect of co-articulation. To be precise, you should realize that we are actually of a consonant in the environment of rounded vowels. Let us take for example the co-articulatory lip-rounding that takes place in the phrase **vous tous**. Now do you observe that / t / occurs between two rounded vowels? Of course, it is obvious that there is not enough time in normal speech for the lips to move from rounded to unrounded and back again in a few hundredths of a second. You should then understand why in this case the / t / is pronounced with lip-rounding.

3.4.2.3. RELATIONSHIP BETWEEN ASSIMILATION AND CO-ARTICULATION

Now let us consider the relationship between assimilation and co-articulation. Now, you may be tempted to ask yourself the question. “Are these two processes not the same?” Now are they really the same? And if they are not, what is the difference?

Let us quickly say that co-articulation is closely related to assimilation. However, we want you to realize that there is a major difference. The difference which we must point out and which you will do well to remember is that assimilation is used as a name for the process whereby one sound becomes like another neighbouring sound, which co-articulation, though it refers to the same processes, is concerned explicitly with articulatory explanations for why the assimilation occurs. Simply put, we want you to consider that co-articulation explains assimilation.

3.5. SELF ASSESSMENT EXERCISE

Mention 4 types of combinatory changes in the phonetic value of speech sounds.

Possible answers include:

- Assimilation
- Coarticulation
- Liaison
- Elision

4.0. CONCLUSION

We have been discussing combinatory phonetics. We started by defining combinatory phonetics as the study of speech sounds in their neighbourhood with a view to observing the changes that occur in their phonetic value. In the course of our discussion, we also mentioned that the concerns expressed in combinatory phonetics cut across many disciplines including articulatory phonetics, experimental phonetics, phonology and applied phonetics.

We went further to explain why sounds do change their phonetic value. We actually mentioned the nature of speech organs and the nature of connected speech as the two major reasons underscoring such changes in the phonetic value of speech sounds. Equally, in this unit mention was made of four types of combinatory changes that may occur in the phonetic value of speech sounds. The 4 types of phenomena mentioned included assimilation, co-articulation, liaison and phonetic elision. Of those four types of change-inducing processes, assimilation and co-articulation were discussed in detail and examples were also given for each of these two cases.

5.0. SUMMARY

Now that we have come to the end of our discussion in Unit 9, shall we briefly go over what you have been able to achieve. This unit discussed an introduction to combinatory phonetics. Based on the discussions in this unit, you can now define combinatory phonetics. You can also mention the scope of combinatory phonetics. You can even explain why there are bound to be changes in the phonetic value of speech sounds. You can now mention four major types of combinatory changes that can occur in the phonetic value of speech sounds.

There is no doubt that what you have learnt in this unit will be very useful to you for the rest of the units in this course.

6.0. TUTOR-MARKED ASSIGNMENTS

1. Define combinatory phonetics.
2. Mention the link between experimental phonetics and combinatory phonetics.
3. From what you know about the nature of speech organs define assimilation.
4. From what you know about connected speech give two examples of change in the phonetic value of speech sound.
5. With appropriate examples explain the concept of regressive assimilation.

7.0. REFERENCES AND OTHER RESOURCES

Price, Glanville (1991). *An Introduction to French Pronunciation*. Oxford: Blackwell Publishers.

Roach, Peter (1992). *Introducing Phonetics*. David Crystal (Ed.), London: Penguin Group.

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UNIT 10

LIAISON AND ELISION AS SPECIAL COMBINATORY PHENOMENA IN FRENCH

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1.0. INTRODUCTION

Welcome to the Unit 10. In our last unit, you will recall that we discussed combinatory phonetics. Remember we told you that the notion of combinatory phonetics stems from the observation of sounds and their neighbours. Remember we defined combinatory phonetics as the study of sounds in their neighbourhood with a view to observing the changes that occur in their phonetic value. You will recall that we discussed the scope of combinatory phonetics. Do you recall that we told you that combinatory phonetics deals with such areas of concern as articulation, experimental phonetics, neurophysiology and even applied linguistics? Remember we discussed two major reasons why sounds can change their phonetic value. You will recall that sounds can change their phonetic value due to the nature of speech organs and also due to the nature of connected speech. You will recall, for instance, that from the articulatory point of view, speech organs are constantly moving from the position required for one sound to that required for a later sound either in the same word or in a following word.

You will recall also that connected speech is different from counting and as such, there is a difference between the pronunciation of sounds in isolated words and the way such sounds are pronounced when they come in close

contact with neighbouring sounds in adjoining words. Remember we mentioned four types of combinatory changes likely to occur in the phonetic value of sounds. You will recall that we mentioned assimilation, co-articulation, liaison and elision as types of combinatory phenomena in French. You will recall that we discussed assimilation and co-articulation extensively. Remember we defined assimilation as the transferring of phonetic characteristics of one phoneme to a neighbouring one. You will recall that we discussed two types of assimilation. Remember we told you about the progressive assimilation and regressive assimilation. Do you remember that assimilation can be said to be progressive when a preceding sound exerts its influence on the following sound. Remember the example of progressive assimilation as in the French word *subsister* [sybziste], where a preceding voiced sound [b] transfers its voicedness to s (an unvoiced sound), which becomes voiced in [z]. Remember we defined regressive assimilation as the transfer of the phonetic characteristics of a sound on a preceding one. You will recall the example of a voiced consonant becoming voiceless when in contact with a following voiceless consonant. You will recall the example of regressive assimilation as in the French word *observer* [opseRve], where [b], a voiced consonant loses its voiced nature to the influence of the voicedness of [s], thereby becoming [p].

Still on that last unit, you will recall that we mentioned co-articulation as one of the types of combinatory phenomena. Do you remember that even distinguished between assimilation and co-articulation? Remember we also discussed the two examples of co-articulation as the nasalization of a vowel and the lip-rounding of a consonant. You will obviously recall that we explained the relationship between assimilation and co-articulation, pointing out that while assimilation is the name for the process of sound change, co-articulation is the reason behind assimilation. In other words, you will recall that co-articulation explains assimilation.

At this point, you will certainly that even though liaison and elision were mentioned as types of neighbourhood-induced changes, the two phenomena were not discussed in detail in our last unit. It is therefore our intention in this unit to deal with these two phenomena. The present unit, therefore, is going to focus on liaison and elision as special combinatory phenomena in French. In this unit, therefore, you're going to learn the definition of liaison. You will learn about three types of liaison-induced phonetic changes. You will also learn some examples of each of the three types of phonetic changes brought about by liaison. You will learn about elision. You will learn the definition of elision. You will also learn the two types of elision. You will distinguish between orthographic elision and phonetic elision. You will learn some examples of phonetic elision. Happy reading!

2.0. OBJECTIVES

On completion of this unit, you should be able to:

1. Define liaison.
2. Mention 3 types of liaison-induced phonetic changes.
3. Give examples of each of the 3 types of liaison-induced phonetic changes.
4. Define elision.
5. Mention 2 types of elision.
6. Distinguish between orthographic elision and phonetic elision.
7. Give examples of phonetic.

3.0. LIAISON AND ELISION AS SPECIAL COMBINATORY PHENOMENA IN FRENCH

Now we want to consider liaison and elision, the two other types of neighbourhood-induced changes in the phonetic value of speech sounds in French. We are going to consider them one after the other.

3.1. DEFINITION OF LIAISON

Now we want to consider liaison as a third type of neighbourhood-based combinatory change in the phonetic value of speech sounds. As usual, let us first of all consider the definition of liaison as a concept, before we go on to explain its functioning in French. Let us define liaison as the pronunciation of a latent word-final consonant immediately before a following vowel sound. We want you to bear in mind that in French, most written word-final consonants are no longer pronounced and are known as latent or mute.

Remember, our focus is on the fact that liaison is a phenomenon that brings about a change in the phonetic value of a speech sound. Therefore, with that focus in mind, we want to consider instances of phonetic changes due to liaison.

3.2. INSTANCES OF PHONETIC CHANGE DUE TO LIAISON

Let us now consider the instances of change in phonetic value due to the effect of liaison. We want you to realise that there are three main instances of phonetic change due to liaison. Now the three instances of phonetic change are as follows:

- Orthographic s becoming / z /
- Orthographic d becoming / t /
- Denasalization of nasal vowel

We shall consider them one after the other.

3.2.1. ORTHOGRAPHIC s BECOMING /z/

Now let us consider the example where an orthographic *s* will be pronounced /z/ due to liaison. Let us consider the letter *s* in the word *les*, ‘the’. You will realise that ordinarily this letter is silent or, if you like, we can consider it phonologically null. But we want to draw your attention to what happens in the combination *les amis* [lezami], ‘the friends’. Here, you should realize that it is the contiguity of the vowel at the initial position of *ami* that conditions this phonetic change.

3.2.2. ORTHOGRAPHIC d BECOMING /t/

Now let us consider the example of liaison bringing about a change in the phonetic value of *t*. Let us consider the letter *d* in the French word *grand*, ‘big’. You know that in this isolated word, the letter *d* is silent as in [gRɑ̃], But then let us consider what happens in an expression like *grand homme*, ‘great man’ the pronunciation is [gRatom], with /t/ now taking the place of a silent orthographic *d*.

3.2.3. DENASALIZATION OF A NASAL VOWEL

Now let us consider how liaison can denasalize an otherwise nasal vowel. Now let us consider the lone word *mon*, ‘my’. On its own, you know that this word is pronounced [mɔ̃], with the nasal vowel [ɔ̃]. Let us then consider the process of change likely to occur when this nasal vowel is used in a neighbourhood of another word beginning with a vowel. Take for example, the expression *mon ami*, ‘my friend’ This expression when pronounced under the influence of liaison will result in [monami]. Here, we want you to realize that not only is our nasal vowel denasalized but actually there is the insertion of /n/ in between the two neighbouring vowels.

3.3. THE CONCEPT OF ELISION

Let us now consider what we mean by elision. We can simply define elision as the omission of one or more sounds (such as a vowel, a consonant, or a whole syllable) in a word or phrase, producing a result that is easier for the speaker to pronounce.

3.3.1. TYPES OF ELISION

Let us now consider the different types of elision that we have in French. We want you to realize that there are two types of elision. They include the following:

- Phonetic elision
- Orthographic elision

3.3.1.1. ORTHOGRAPHIC ELISION

Now let us consider orthographic elision. Now we simply want to remind you that you already know about the orthographic convention of elision. We simply want you to realise that there is said to be orthographic elision where the deletion of a vowel is reflected in writing by indicating such by an apostrophe. This is what happens in a case like *l'école* in place of *la école*. We want to point out that orthographic elision is not the one that we are highlighting in this course.

3.3.1.2. PHONETIC ELISION

Now let us consider phonetic elision. For the purpose of our discussion in this unit we are focusing on phonetic elision. We want you to take note that this is a feature in rapid informal speech. It is only for information, as we do not encourage you to be that informal.

3.3.2. EXAMPLES OF PHONETIC ELISION

Let us briefly consider the examples of phonetic elision. Take a look at the expressions:

- *Tu as décidé de lui rendre visite*
- *Tu es allé voir le film.*
- *Tu n'étais pas là.*

(You decided to visit him/her, you went to see the film, you were not there).

Now in the above sentences, what you have is careful speech. We want to say that in typically informal speech you are likely to have the following versions:

- *T'as décidé de lui rendre visite*
- *T'es allé voir le film.*
- *T'étais pas là.*

3.4. SELF ASSESSMENT EXERCISE

Mention 3 types of liaison-induced phonetic changes.

Possible answers include

- Orthographic s becoming / z /
- Orthographic d becoming / t /
- Denasalization of nasal vowel

4.0.CONCLUSION

In this unit, we have been discussing liaison and elision as special combinatory phenomena in French. We started by defining liaison as the pronunciation of a latent word-final consonant immediately before a following vowel sound. In

the course of our discussion, we also mentioned the 3 types of liaison-induced phonetic changes, namely orthographic s becoming /z/, orthographic d becoming /t/ and denasalization of a nasal vowel. We gave you examples for each of those cases. We went on to define elision as the omission of one or more sounds (such as a vowel, a consonant, or whole syllable) in a word or phrase to make for easier pronunciation by the speaker. We went further to mention orthographic and phonetic elision as the two possible types of elision. We actually distinguished between these two types of elision. As a matter of fact, we concentrated our attention on phonetic elision and we gave examples of phonetic elision.

SUMMARY

Now that we have come to the end of our discussion in Unit 10, we shall briefly go over what you have been able to achieve. This unit discussed liaison and elision as special combinatory phenomena in French. Based on the discussion in this unit, you can now define liaison as a combinatory phenomenon in French. You can now mention 3 types of liaison-induced changes. You can also give examples of phonetic elision.

There is no doubt that what you have learnt in this unit will be of immense benefit to you for the rest of the units in this course.

TUTOR-MARKED ASSIGNMENTS

1. Define liaison.
2. Define phonetic elision.
3. Distinguish between orthographic elision and phonetic elision.
4. Mention 3 examples of liaison-induced changes.
5. Give 2 examples of phonetic elision.

REFERENCES AND OTHER RESOURCES

Price, Glanville (1991). *An Introduction to French Pronunciation*. Oxford: Blackwell Publishers.

Roach, Peter (1992). *Introducing Phonetics*. David Crystal (Ed.), London: Penguin Group.

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UNIT 11

THE IMPORTANCE OF PHONETICS IN LANGUAGE STUDY

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1.0. INTRODUCTION

Whao! You are welcome to Unit 11. This is going to be an important unit in this course. We want you to realise that this unit will mark a transition point between the first ten units of this course and the second half of the course. You will recall that the last ten units have been introductory in nature. Did we say introductory? With all the technical terminologies that have been used so far? O yes! Obviously you have not forgotten that this course is Advanced Phonetics! So all we have said so far is preparatory to advanced reflections in the area of phonetics.

Now, back to what we have done so far. In Unit 1, we treated the concepts of phonetics. In Unit 2, we discussed the scientific nature of phonetics. Later in Unit 3, we discussed the scope of phonetics and we highlighted its major branches in Unit 4. You do recall that Units 5, 6, 7, 8 and 9 afforded us the

opportunity to discuss in detail the major branches of descriptive phonetics, focusing on their specific tools of description. You will remember that articulatory phonetics alone engaged our discussion in Units 5 and 6. You do recall that we discussed the speech organs at length and that we also treated the articulatory classification of speech sounds. Do you recall that the auditory system was fully discussed in Unit 7? Remember we told you that it functions as a feedback mechanism interpreting the sensations that travel through the air from the speaker's vocal tract to the hearer's ear. You will recall as well that in Unit 8 we discussed yet another system of feedback, precisely acoustic phonetics. Finally, in the last two units, Units 9 and 10, if you will recall, we created a special opportunity to harness information on an aspect of phonetics - Combinatory Phonetics – that does not feature independently in the literature of phonetics as an exclusive discipline. That area of phonetics, you should have realized, is an interface between articulatory phonetics, experimental phonetics and phonology. In Unit 9, we introduced the concept of combinatory phonetics. Remember in that unit we discussed some phonetically induced changes that do occur in the value of sounds in contact. Mention was made of combinatory phenomena like assimilation, co-articulation, liaison and articulation. While assimilation and co-articulation were treated in detail in Unit 9, effort was made in Unit 10 to discuss liaison and elision. You remember the different types of liaison-induced phonetic changes like orthographic s becoming /z/, orthographic d becoming /t/ and denasalization of the vowel. Remember we also discussed phonetic elision as being an instance of phonetic economy in rapid informal speech.

With what has been said so far on different aspects of phonetics, wouldn't it be proper, at this point in time, to clearly define the place of phonetics in language study? That is exactly what we intend to do in this unit. The present unit will therefore introduce you to the importance of phonetics in language study. In this unit, you will learn about the concept of language study. You will also learn about the scope of language study. Again, you will learn about second language learning as an aspect of language study. You will learn to situate phonetics in the area of 2nd language acquisition. You will also learn to identify phonetic activities in language study. You will eventually learn to justify the primacy of phonetics in language study. Happy reading!

2.0. OBJECTIVES

On successful completion of this unit, you should be able to:-

1. Define language study in a broad sense.
2. Mention the scope of language study in a broad sense.
3. Define language study with respect to L2 acquisition.
4. Mention the scope of language study in a restricted sense.
5. Give reasons to justify the primacy of phonetics in language study.

3.0. THE IMPORTANCE OF PHONETICS IN LANGUAGE STUDY

Now before we can fully discuss the importance of phonetics in language study, it is necessary for us to understand exactly what we mean by language study.

3.1. Defining Language Study

Now let us consider what we mean by language study. As you can see, two concepts are embedded in language study, namely language and study. We are therefore, going to explain the two concepts separately before we associate them for further discussion. In what follows therefore, we want to explain the following concepts: -

- Language
- Study
- Language study in a broad sense.

3.1.1. THE CONCEPT OF LANGUAGE

Now let us consider what we mean by language. Many definitions can be found in literature with regards to language. Now let us consider some definitions: Sapir, for instance defines language as “a purely human and non-instinctive method of communicating ideas, emotions and desires by means of voluntarily produced symbols” As for Bloch and Trager, “a language is a system of arbitrary vocal symbols by means of which a social group co-operates”. Now you will notice that while Sapir talks about communication, Bloch and Trager fail to mention the communicative function of language, even though their emphasis is on spoken language. Hall on his own part defines language as “the institution whereby humans communicate and interact with each other by means of habitually used oral-auditory arbitrary symbols”. You can see that despite slight differences in these definitions one of the essential features of language is that it is a system of symbols designed for the purpose of communication. It is certainly not our intention to confuse or overload you with definitions of language. However, as a student of phonetics, and by implication linguistics, we want you to consider the following operational definition, which states, “A language may be defined as the system of arbitrary vocal symbols by means of which the members of a speech community communicate with each other”.

3.1.2. THE CONCEPT OF STUDY

Now let us consider the notion of study. Ordinarily, a simple definition of study has it that study is “the activity of learning and gaining knowledge, either through books or by examining things in the world”.

3.1.3. THE CONCEPT OF LANGUAGE STUDY IN A BROAD SENSE

Now let us consider the concept of language study in a broad sense. We want you to realize that we are going to adopt a mechanical association of the simple definition of study with the operational definition of language that we had proposed earlier on. From that association, let us now define language study in a broad sense as “learning and gaining knowledge of the system of arbitrary vocal symbols by means of which members of a speech community communicate with each other”. You can see that this broad sense definition of language study can throw up a myriad of questions. Some of these questions may include who gains this knowledge and for what purpose? In order to provide answers for such questions we are going to define the scope of language study in a broad sense.

3.2. THE SCOPE OF LANGUAGE STUDY IN A BROAD SENSE

Now let us consider the scope of language study in a broad sense. Now we want you to realize that in a broad sense language study can be very vast. This is because those interested in language study may set out with diverse concerns. The scope of language study may include the following areas of concern

- Cognitive processes
- Comprehension
- Language Acquisition
- Language Maintenance
- Language Processing
- Language Research
- Language Role
- Linguistic Theory
- Psycholinguistics
- Second Language Learning.

We still want you to realize that the foregoing may just be the tip of the iceberg, because even one of the areas of concern may bring to the fore a whole gamut of possibilities for whoever desires to probe further the scope of language study. For instance, if we take the area of psycholinguistics, we want you to realize that a brief survey of psycholinguistic investigation into language acquisition may want to unravel questions having to do with areas as diverse as:

- Language acquisition
- Language production
- Comprehension
- Language loss

What we are telling you, actually, is that under psycholinguistics alone may query:

- First words (the birth of grammar, evidence or the innateness of language ability, linguistic creativity)
- Stages of linguistic development

Under language production, the psycholinguist may query the following language issues:

- Conceptualisation
- Formulation
- Articulation.
- Self – monitoring

Under comprehension things to be queried will include:

- Comprehension of sounds
- Comprehension of words
- Comprehension of sentences
- Comprehension of texts

Under Language loss questions will bother on the following:

- neurolinguistics and language loss.
- Speech and language disorders.

However in this unit, we want you to realize that we do not want to engage in a wild goose chase in so far as language study is concerned. That is why we would prefer a restricted definition of language study.

3.3. LANGUAGE STUDY IN A RESTRICTED SENSE

Let us now consider language study in a restricted sense. Here we want you to realize that we want to tie language study specifically to the area of second language learning. However to do this effectively, we want to consider what applied linguistics has to say about language and also consider what they have to offer as major contributions in the area of classroom practice.

3.3.1. APPLIED LINGUISTICS AND LANGUAGE STUDY

Now let us consider the relationship between applied linguistics and language. Let us first of all consider what language represents to applied linguistics. We want you to realize that from the perspective of applied linguistics, “language is behaviour”. We also want you to realize that the linguist of this persuasion considers that language being behaviour, that behaviour can be learned only by inducing the student to behave –in other words to “perform in the language”. Can you then see that from the perspective of applied linguistics, there is a clear-cut demarcation between learning the language (performing in the language) and learning of the rules and grammatical terminology (linguistic competence)?

3.3.1.1 APPLIED LINGUISTICS AND LANGUAGE ANALYSIS

Now let us consider the way applied linguistics analyses language and its pedagogical implications. Now we want you to note that in trying to facilitate language study by linguistic analysis, applied linguistics proposes the decomposition of utterances of a language into their component elements until the linguist obtains the entire inventory of building stones which the speaker of the language has at his disposal in order to construct those utterances. You should realize that this view of language learning entails the direct application of this process of analysis into pedagogical considerations. This means, from all indications, that the learner gets to know slowly, systematically, and one by one each one of the building stones that have been identified and analysed by the linguist. From the foregoing, we shall now proceed to define language study in a restricted sense.

3.3.1.2 DEFINITION OF LANGUAGE STUDY IN A RESTRICTED SENSE

Let us now consider defining language study in a restricted sense. In a restricted sense, we may now define language study as “the process by which the learner appropriates and uses the building blocks in a given language to communicate with members of that language community”. Having defined language study in this restricted sense, it may then be necessary to examine the scope of such a restricted focus in language study.

3.4. THE SCOPE OF LANGUAGE STUDY IN A RESTRICTED PERSPECTIVE

Let us now consider the scope of language study from a restricted perspective. Now we want you to realize, from the restricted perspective that one who sets out to learn to use a given language has to appropriate the various components that have been identified by linguistic analysis. These components, mind you, can be grouped into the following: -

- Phonetics
- Morphology
- Syntax
- Vocabulary

Now, you can see that we have mentioned the scope of language study in a restricted sense. We want you to pay particular attention to the fact that phonetics features even in this restricted sense of language study. Now that it is obvious that phonetics is an integral part of language study, in the rest of what follows in this unit we shall proceed to give reasons to justify the pride of place given to phonetics in the area of language study.

3.5. REASONS TO JUSTIFY THE PRIMACY OF PHONETICS IN LANGUAGE STUDY

Now let us consider reasons why phonetics enjoys pride of place in the scheme of things as far as language study is concerned. Some of the reasons include the following: -

- Phonetics belongs to the oral domain.
- Phonetics is the starting point in language acquisition.
- Phonetics is the preferred starting point in 2nd language learning.

We shall now proceed to consider these reasons in detail one after the other.

3.5.1. PHONETICS BELONGS TO THE ORAL DOMAIN

Now let us consider the fact that phonetics belongs to the oral domain and also consider why this reason, of its own, would justify the place of importance accorded to phonetics in language study. You will agree perfectly with the fact that the oral code or form of language is of essence. We want you to realize that there are many arguments in favour of this fact. Some of the reasons, which you shouldn't forget, include that:

- The oral code exists before the written, spoken language is the mark of every normal human being.
- All known languages of the world exist in their spoken form.
- We are then saying that phonetics should be considered important in as much as it belongs to an aspect of language that is of prime necessity to every normal human being.

3.5.2 PHONETICS IS THE STARTING POINT IN LANGUAGE ACQUISITION.

Let us now consider what we mean by language acquisition and how phonetics is the starting point of language acquisition. You should realize that when we talk of language acquisition we are actually referring to child language acquisition. Now you should realize that there is ample evidence from research to show that it is the phonetic template that is first installed. The newborn baby listens to the sounds in its immediate environment before it begins to make its first set of vocoïds. Even at that, he keeps monitoring and adjusting until he can produce sounds similar to the one, acceptable to members of the speech community where he is being brought up.

3.5.3 PHONETICS AS THE PREFERRED STARTING POINT IN SECOND LANGUAGE LEARNING.

Now let us consider phonetics as being the preferred starting point in second language learning. We want you to realize that there are four cardinal principles to be followed in the deontology of language teaching/learning.

These principles are listening, speaking, reading and writing, in that order. Do you realize that the first three sets of activities are phonetics in nature?

3.6. SELF ASSESSMENT EXERCISE

Mention the scope of language study in a restricted sense.

Possible answer includes: -

- Phonetics
- Morphology
- Syntax
- Vocabulary

4.0. CONCLUSION

We can now conclude our discussion in Unit 11. In this unit, you have learnt about the concept of language study. You have learnt that in a broad sense language study is “learning and gaining knowledge of the system of arbitrary vocal symbols by means of which members of a speech community communicate with each other”. You also learnt about the wide range of concerns that can be treated under language study in its broad spectrum. You learnt that some of those concerns have to do with cognitive processes, comprehension, language acquisition, psycholinguistics, language research, etc. You learnt that under the realm of psycholinguistics alone one is likely to cover the scope of language acquisition, language production, comprehension and language loss. You also learnt that language study can equally be restricted to second language learning, in which case it will be defined as “the process by which the learner appropriates and uses the building blocks in a given language to communicate with the members of that language community”. You learnt about the scope of language study from that restricted perspective and you were told that the major concerns of that limited area of language study include phonetics, morphology, syntax and vocabulary. You learnt about three reasons why phonetics should be considered to be of prime importance in language study. You learnt that phonetics can be considered important due to the fact that it belongs to oral, a domain that is understandably senior to its written counterpart in a natural respect. You learnt that even child language acquisition begins with phonetics. You also learnt that phonetics is even the preferred starting point in second language learning.

5.0. SUMMARY

Unit 11 has equipped you with some vital information concerning the place of phonetics in language study. You can now define language study in a broad sense. You can also mention the scope of language study on a broad perspective. You can now define language study in a restricted sense. You can equally mention the scope covered by language study in a restricted sense. You

can now give reasons to justify the prime position of phonetics in language study.

There is no doubt that what you have learnt in this unit will be very useful to you in the rest of the units of this course.

6.0. TUTOR-MARKED ASSIGNMENTS

1. Define language study as it pertains to second language learning.
2. Mention the scope of language study from a broad perspective.
3. Define language from the point of view of applied linguistics.
4. Explain why phonetics is the preferred starting point in second language learning.
5. Explain why it is important to note that phonetics belongs to the oral code.

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UNIT 12
THE CONCEPT OF THEORIES IN PHONETICS

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1.0. INTRODUCTION

We have now come to Unit 12, the second unit of transition and the beginning of a new module. Before we go into the business of this unit, a quick reminder of what has been covered in the past two modules – module I (Introduction to the course), Module II (Major branches of phonetics). You do recall that the last unit, Unit 11, served as a transition point between the preceding modules and the second half of this course. You will recall that in that first unit of transition we discussed the place of phonetics in language study. Remember language study was presented first as a broad discipline housing areas of concern as varied as cognitive processes, comprehension, language acquisition, language maintenance, language research, to mention but a few. You will also recall that language study was equally presented as an area with limited scope, having to do essentially with second language learning. Do you recall that in a restricted sense language study was presented as the “process by which the

learner appropriates and uses the building blocks in a given language to communicate with members of that language community”? Remember it was within the framework of restricted language study that we discussed the important position of phonetics. Do you remember that within that restricted framework of language study other areas of interest included morphology, syntax and vocabulary? You will recall that phonetics was presented as being of prime importance in the scheme of things in language study. Remember the fact of phonetics belonging to the domain of spoken language added impetus to it as an area of study. You will remember that even in the area of child language acquisition phonetics was presented as being the starting point. You will recall as well that in second language learning we presented phonetics as being equally the preferred starting point.

So much has been said so far about the importance of phonetics that it is about time we zeroed in on the question of theories and trends in phonetics. To open the discussion on such an area, we need to address the fundamental concept of theories to being with. It is actually the opening remarks on theories that we are going to deal with in this unit. The present unit, therefore, is going to discuss the notion of theories. In the unit you are going to learn about theories. You will learn to define theories. You will learn about the importance of theories. You will learn the relationship between theories and knowledge. You will learn the relationship between theories and research. You will learn about how theories are sustained. You will learn the difference between theories and practice. You will learn the characteristics of a good theory.

2.0. OBJECTIVES

On completion of this unit, you should be able to:-

1. Define the concept of theories.
2. Mention the advantages of a theory
3. Explain the relationship between theory and research
4. Explain the relationship between theory and knowledge.
5. Mention the difference between theory and practice.

3.0. THE CONCEPT OF THEORIES

Before we can discuss fully the concept of theories we are going to consider the definition first of all.

3.1. Definition of Theory

Let us now consider the definition of theory. We want you to realize that there are many ways of defining theory. First of all, we may define theory as a well substantiated explanation of some aspect of the natural world, i.e. an organized system of accepted knowledge that applies in a variety of circumstances to explain a specific set of phenomena. What is important in this definition is the

fact that here theory is seen as a set of statements or principles that have been repeatedly tested and are widely accepted and can be used to make predictions about natural phenomena.

3.1.2 Theory a Branch of Science

Let us consider the second definition of theory. In this 2nd definition, we want you to realize that theory may well refer to the branch of science or art consisting of its explanatory statements, accepted principles, and methods of analysis. This definition is clearly opposed to practice. This explains why one may refer to somebody as being a fine musician who had never studied the theory of music and yet in practice, such a person is more of an impresario.

3.1.3. Theory a Mathematical Construct

Now let us consider the definition of theory in the light of mathematical statement. Of note in this particular usage of the term theory is its reference as a set of theorems. Here we want you to realize that theory may be defined as a set of theorems that constitute a systematic view of a branch of mathematics. For instance, in mathematics we may be referring to Pythagoras theory.

3.1.4 Theory An Abstract Construct

Now let us consider theory at the abstract level. Here we want you to realize that theory may be defined as speculation or abstract reasoning. In this connection, you should note that theory is opposed to a decision that is based on experience.

3.1.5. Theory A Guiding Principle

Now let us consider theory as a guiding principle. Here we want you to realize that based on this interpretation, theory may be defined as a belief or principle that guides action or assists comprehension or judgement.

3.1.6. Theory As An Assumption

Now let us consider theory as an assumption. Here, we want you to realize that it is possible to define theory as an assumption based on limited information or knowledge. At this level, you should note that theory is considered as a mere conjecture. It is based on this sixth meaning that Rogers Thesaurus sometimes defines theory as a tentative insight into the natural world, a concept that is not yet verified but that if true would explain certain facts or phenomena. You should take note that considering this very meaning, it is not uncommon to state, "A scientific hypothesis that survives experimental testing becomes a scientific theory".

What do we make of all these definitions, you must be wondering. In that case shall we say by way of summarizing, that which ever we look at it, be it from the point of view of a well-substantiated explanation or a tentative conjecture that is open to verification, theories are a vital aspect of science that can simply be defined as a knowledge-building instrument?

3.2. TYPES OF THEORIES

Let us now consider different types of theories. We want you to realize that as there are as many disciplines as we can think of, so also can we envisage corresponding types of theories. To drive this point home, let us say that in the field of psychology, for instance, we may identify the following types of theories:-

- Theories of motivation
- Theories of personality
- Theories of intelligence
- Theories of learning
- Theories of development
- Theories of evolution
- Theories of emotion, etc

3.3. THREE CHARACTERISTICS OF A GOOD THEORY

Now let us consider three characteristics that a good theory must possess. We want you to bear in mind that if a theory is good then it should be able to do the following:-

1. Explain findings
2. Have implications
3. Generate further testable hypotheses.

3.4. FUNCTIONS OF A THEORY

Now let us consider the functions or uses of a theory. Even though some of the uses of a theory may have been implied in the definition we still want to mention some of these uses separately, for the purpose of clarity. Of all the immense benefits of a theory we are going to discuss the following:-

- Building knowledge
- Binding knowledge together
- Guiding research.

3.4.1. THEORY BUILDING KNOWLEDGE

Now let us consider the role of a theory in knowledge building. We want you to realize that theories provide complex and comprehensive conceptual understandings of things that cannot be pinned down. For instance, it is through theories that we get to know how societies work, how organizations operate,

why people interact in certain ways. As a matter of fact, we want you to realize that theories play a big role in generating new hypothesis to be tested.

THEORY BINDING KNOWLEDGE TOGETHER

Now let us consider the role of a theory in binding knowledge together. Of course you know that it is one thing to build knowledge, but it is yet another to bind such knowledge together. We want you to realize that one of the greatest functions of theories is that they serve as a glue. This is because theories hold seemingly, isolated findings together, providing a framework upon which knowledge can be built. What we are saying, mark you, is that if there were no theories research would consist of disparate findings which bore no relation to one another. For instance, you should realize that if psychologists did not rely upon theories, psychological research would not be able to move forward in the sense that it would not be able to link facts.

THEORY AS A GUIDE TO RESEARCH

Now let us consider the role of a theory as a guide to research. Clearly, we want you to note that theories and research are inseparable. First of all let us quickly say that there are many ways in which theories and research go hand in hand. We can at least mention the guiding role of theory in the following areas:-

- Generating research questions
- Providing literature review
- Useful in the discussion of findings.

3.4.3.1 THEORY A SOURCE OF RESEARCH QUESTIONS

Now let us consider the role of a theory in generating research questions. Here we want you to realize that no meaningful research can take place without research questions. Here it is the theories that, as it were, give researchers different lenses through which to look at complicated problems and social issues. You know that it is by asking pertinent research questions that it will be possible for the researcher's attention to be focused on different aspects of data.

3.4.3.2. THEORY PROVIDING LITERATURE REVIEW

Now let us consider the role of theory in providing literature review. You should realize that without thorough literature review there would be no theoretical framework based on which the analysis will be conducted. It is through the available theory that the researcher can search literature to know what has been done earlier on a particular problem, to ascertain the worthwhile ness of a research venture, to determine prior findings, determine the existing

gap to be filled, in short to find out which breakthrough is likely to emanate from the current research.

3.4.3.3. THEORY USEFUL IN DISCUSSING FINDINGS

Now let us consider the role of theories in this area. You should realize that it is the underlying theory that will guide the discussion of the findings, to know whether the findings corroborate the theory, whether there are new perspectives being suggested by the findings, whether there are new hypotheses to be generated, etc.... (i.e. pointing the way forward).

3.5. SELF ASSESSMENT EXERCISES

Mention 4 types of theories in psychology.

Possible answers include:

- Theories of motivation
- Theories of intelligence
- Theories of learning
- Theories of development

4.0. CONCLUSION

In this Unit we have been discussing about the concept of theories. You have learnt about the definition of a theory. You have learnt about the fact that a theory can be a branch of science or art consisting of its explanatory statements. You learnt that theory could be an assumption or belief guiding action or assisting comprehension or judgment. You even learnt that theory could be a well-substantiated explanation of some aspects of the natural world, an organized system of accepted knowledge applicable to a variety of circumstances. You also learnt that a theory could be a tentative insight into the natural world, i.e. that a hypothesis that is yet to be verified, upon verification can become a scientific theory. In all you learnt that a theory is a knowledge-related construct. As a knowledge-related construct you learnt that a theory could be useful not only in building knowledge, but can also bind disparate knowledge together thereby serving as glue. You equally learnt that as a knowledge-related construct a theory is a perfect guide for a researcher, providing him with different lenses through which to look at complicated problems. It provides him the appropriate research questions to illuminate his search. You learnt that a theory also provides the researcher with the literature review that will inform the researcher on work already done on a particular problem, what aspects were left unattended to, such that if well focused his research will now provide a breakthrough. You learnt that the theory would help a researcher in discussing his findings and also generating further testable hypothesis.

5.0. SUMMARY

The topic of our discussion in this unit has been the concept of theories. You have learnt to define a theory. You can now distinguish different definitions of a theory. You can now mention some types of theories. You can now mention the functions of a theory.

There is no doubt that what you have learnt in this unit will be very useful to you for the rest of the units in this course.

6.0. TUTOR-MARKED ASSIGNMENTS

1. Give two definitions of a theory.
2. Mention 2 areas in which a theory can guide research.
3. Mention 2 ways in which a theory is useful as a knowledge-related consult.
4. Explain the relationship between a theory and a hypothesis.

7.0. REFERENCES AND OTHER RESOURCES

- [Http://www.research](http://www.research) methods in psychology
- Thesaurus.

UNIT 13
 LANDMARKS IN THE HISTORY OF PHONETICS
 (ANTIQUITY –RENAISSANCE)

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1.0. INTRODUCTION

Welcome to Unit 13, the first unit in this module on theories and schools of thought in linguistics and phonetics. Let us quickly remind ourselves of the discussion we had on the transition unit introducing this module, precisely the very last unit. You will recall that unit 12 was focused on the concept of theories. Do you recall that in that unit, we gave several definitions of the concept of theory? Remember we defined a theory as a well-substantiated explanation of some aspect of the natural world, i.e. an organized system of accepted knowledge that applies in a variety of circumstances. You will recall as well that theory was presented in the light of a tentative insight into the natural world in which case a scientific hypothesis that survives experimental

becomes a scientific theory. Remember other definitions of a theory included *inter alia*, its being a branch of science or art consisting of its explanatory principles, its being an abstract construct that contrasts with experience, its being a major guiding principle for research. Remember we discussed some basic theories in psychology as being examples of types of theories.

You will certainly remember that we discussed some of the uses of theories. Do you recall our presenting theory as a knowledge-related construct that helps not only in building knowledge but also in binding disparate knowledge together? Remember we told you that as a guide to research, a theory provides different lenses to the researches. You will recall that no meaningful research will be carried out in the absence of an underlying theory that will guide the research questions, the literature review to be made in order to ascertain what sort of data should be sought and collected. You remember we told you that it is also the theory that will direct the discussion of the findings and equally help in generating further testable hypothesis. Remember we even told you what to look out for in assessing the soundness of a theory. Accordingly we told you that a good theory must be one that explains findings, has implications and generates further hypothesis for subsequent verification.

Of course you have not forgotten that we announced in the last unit that it was only an introduction to the third module of this course where the focus is entirely on theories and trends in phonetics and linguistics. That introduction certainly suggests that for the rest of the units of this module discussions will centre on theory-related trends in phonetics and linguistic schools of thought. As a follow-up to our last unit, therefore we are going to trace the trends and history of theories that have helped to shape knowledge in linguistics, in general, and in phonetics, in particular.

In this unit, therefore, we are going to discuss the historical landmarks in the development of phonetics. We are going to define the concept of landmarks. You will learn about the 6 different periods in the history of the development of phonetics. You will learn about the first three periods in the history of the development of phonetics comprising the Antiquity, the Middle Ages and the Renaissance. You will equally learn about the landmark icons in the history of phonetics in the Antiquity. You will also learn about the landmark events and activities in the development of phonetics in the Middle Ages. You will also learn about the landmark icons in the development of phonetics in the Renaissance. You will learn about the landmark events and activities that characterised the development of phonetics in the Renaissance.

2.0. OBJECTIVES

On completion of this unit, you should be able to:

1. Define the concept of landmarks.
2. Identify the 6 landmark periods in the history of phonetics.
3. Mention the 2 major places in the history of phonetics
4. Mention the names of the important personalities in the history of phonetics in the Antiquity
5. Mention the landmark events characterising the development of phonetics in the Antiquity.
6. Mention the landmark figures in the history of phonetics in the Middle Ages.
7. Mention the landmark events in the development of phonetics in the Middle Ages.
8. Mention the landmark icons in the development of phonetics during the Renaissance.
9. Mention the landmark events in the history of phonetics during the Renaissance.

3.0. HISTORICAL LANDMARKS IN THE DEVELOPMENT OF PHONETICS

Before any meaningful discussion, we need to start with the definition of landmarks.

3.1. THE CONCEPT OF LANDMARKS

Now let us consider the concept of landmarks. We shall begin by stating that a lot of variables will be taken into consideration in trying to figure out what we mean by historical landmarks. Ordinarily, landmarks can be defined as a discovery that marks an important stage in something.

But for the purpose of our discussions, we want you to realize that special periods, important people, special places and outstanding activities and events can add up to constitute landmarks. Therefore, let us define the historical landmarks in the development of phonetics as a discipline of study as being made up of periods, people, places and activities that stand out in the shaping of phonetics as a discipline. For there to be an organized structure in our discussion of these landmarks, we want you to realize that it is necessary, first and foremost, to identify the different periods that are landmarks in themselves. You should realize that the rest of the landmarks in terms of people and activities could be discussed according to the appropriate period and place of their relevance.

3.2. IMPORTANT PERIODS IN THE HISTORY OF PHONETICS

Now let us consider the major periods that constitute the landmarks in the history of the development of phonetics. Now we want you to realize that there are 6 major periods and they include the following:

- Antiquity
- Middle Ages
- Renaissance
- 17th and 18th Centuries
- 19th and 20th Centuries
- Present day phonetics

For the rest of our discussions in this unit we are going to discuss the landmarks in the first three of the above-mentioned periods (i.e. the Antiquity, the Middle Ages and the Renaissance). We shall consider them one after the other.

3.3. IMPORTANT PLACES IN THE HISTORY OF PHONETICS

Now let us consider the places of importance in the history of the development of phonetics. We want you to realise that in the history of the development of phonetics two places stand out. Now you should note that the two major areas of historical importance in the development of phonetics are the following:

- India
- Greco-Roman empire

3.4. LANDMARKS IN THE ANTIQUITY

We want you to realize that the first known activities related to the study of speech sounds were recorded in the antiquity. Now let us consider the historical landmarks in the development of phonetics during the period of antiquity, with regards to the key figures and their respective activities. We want you to realise that for the purpose of our discussion of the landmarks in the period under review, we shall organise our discussion as follows:

- Landmark figures in India
- Landmark activities in India
- Landmark figures in the Greco-Roman empire
- Landmark activities in the Greco-Roman empire

We shall consider these landmarks one after the other.

3.4.1. LANDMARK FIGURES IN INDIA

Now let us consider the landmark figures in the history of the development of phonetics from the Indian perspective. Now we want you to realise that, from available records, the most prominent name associated with earliest activities related to the study of speech sounds in ancient India was Panini. Who was Panini? You should note that Panini was a Sanskrit grammarian. We also want to let you know that there may have been some other Sanskrit grammarians, but you should note that Panini was the most prominent among them.

3.4.2. LANDMARK ACTIVITIES IN INDIA

Now let us consider what activities marked the beginning of the history of phonetics from the Indian perspective. We want you to note that around 750 AD the Indian Grammarian Panini studied and wrote about the rules of articulation of Sanskrit. We also want you to realize that other Indian grammarians in their detailed descriptions of the physiology of sounds did a classification of sounds with purely ritual motives (for the repetition or recitation of Vedic texts). You should note that these activities did not have any influence on European phonetics.

3.4.3. LANDMARK FIGURES THE GRECO-ROMAN EMPIRE

Now let us consider the landmark figures in the development of phonetics from the Greco-Roman perspective. Here we want you to realise that the personalities involved in speech-related activities from the Greco-Roman perspective included the following:

- Demosthene
- Plato
- Aristotle
- Dionysius of Thrace

3.4.4. LANDMARK ACTIVITIES IN THE GRECO-ROMAN EMPIRE

Now let us consider the landmark activities in phonetics during the antiquity from the Greco-Roman perspective. First and foremost, we want you to realise That, quite in contrast to the Indian descriptions by Sanskrit grammarians, which did not have any impact on European phonetics, activities of the Greeks formed the basis for European phonetics. What were some of these activities and what was their major emphasis? Let us begin by saying that rhetoric and philosophy characterized activities in the study of speech sounds at this point in time. We also want you to note that ancient Greece placed emphasis on the study of the Bible. Now we want you to realise that speech was emphasized through rhetoric and that Demosthène a key figure in this connection. Furthermore, we want you to realize that philosophic orientation from great

Greek thinkers like Plato, Aristotle, Dionysus of Thrace, etc. made a mark on the classification of sounds of the Greek language. Again, you should equally realise that during this era there was emphasis in oral in the teaching of language and culture.

3.5. LANDMARKS IN THE MIDDLE AGES

Let us consider the historical landmarks in the development of phonetics in the middle ages. Now in view of the structure that we have adopted in discussing these landmarks so far, we want you to realise that we are going to consider the landmark figures and activities in the history of phonetics with reference to the middle ages.

3.5.1. LANDMARK FIGURES IN THE MIDDLE AGES

Now let us consider the landmark figures in the history of the development of phonetics during the Middle Ages. We want you to realise that the two key figures that must be mentioned in this connection are Sylvester II and Albert le Grand. We want you to note that they fabricated automates, which were broken on the basis that these were the work of the devil.

3.5.2. LANDMARK ACTIVITIES IN THE MIDDLE AGES

Now let us consider the landmark activities in the history of the development of phonetics in the Middle Ages. We want you to realize that activities related to phonetics during this period stemmed out of curiosity. You should realize that the curiosity of this period led to the construction of speaking machines.

3.6. LANDMARKS DURING THE RENAISSANCE

Let us now consider the landmarks in the development of phonetics during the Renaissance. We want you to realise that unlike the preceding period of the Middle Ages, which was characterised by curiosity, this period was marked by a clear move away from speculation. We also want you to realise that because of the move away from speculation, a lot of activities having to do with speech and speech-related processes were embarked upon, even though we must emphasize and you should take note that the multiple activities of the period were not referred to as phonetics. We shall go on to discuss the activities and the important figures behind them.

3.6.1. LANDMARK FIGURES DURING THE RENAISSANCE

Now let us consider the important figures associated with the history of the development of phonetics during the period of the Renaissance in Europe. We want you to realise that the key figures of the period under review included the following:

- Dante
- Leonard de Vinci
- Bartholomeo Eustachi
- Guillo de Musi.
- Pedro Ponce de Leon
- Juan Pablo Bonet

You will get to know their specific contributions as we proceed to discuss the landmark activities of the period.

3.6.2. LANDMARK ACTIVITIES DURING THE RENAISSANCE

Now let us consider the landmark activities in the history of the development of phonetics during the Renaissance. Let us start by letting you know that the period under review was characterized by quite a lot of activities. In this connection, we would like you to realize that the activities include the following:

- Observation of speech sounds
- Study of the sound system and pronunciation
- Observation of speech organs
- Teaching of the deaf

These activities shall now be discussed one after the other.

3.6.2.1. OBSERVATION OF SPEECH SOUNDS

Let us now consider the activity of observing speech sounds. You should take note that it was the clear move away from speculation that allowed people to give time to the observation of speech sounds. You should equally note that Greek language formed the main focus of study. We want you to realize that the emphasis was on the study of the parental relationship among languages and Dante was the name associated with the activities of this period.

3.6.2.2. STUDY OF THE SOUND SYSTEM AND PRONUNCIATION

Now let us consider the issue of studying the sound system and pronunciation. We must let you know that during the period that interest was on the comparing of languages attention was drawn to study the sound system and pronunciation.

We want you to realize that landmarks at this period included activities in France and in England. You should note particularly that this period coincided with spelling reforms, which made it necessary to look at pronunciation. We want you to take note that all these activities were not referred to as phonetics.

3.6.2.3. OBSERVATION OF SPEECH ORGANS

Shall we now consider the observation of speech organs as one of the landmark activities of the Renaissance? Here we must mention that it was the interest in the pronunciation of speech sounds that actually led to the observation of the speech organs. In this connection, we want you to realise that Leonard de Vinci, Bartholomeo Eustachi and Guillo de Musi were some of the notable names behind the observation of speech organs.

What were the contributions?

We shall now consider the individual contributions of these people to the development of phonetics going by their specific interest in the observation of speech organs. For brevity let us quickly summarise their activities as follows:

- Leonard de Vinci, you should note, esquissed some drawings of the larynx in 1500.
- Concerning Bartholomeo Eustachi, you should note that he was the one who gave us the idea of the Eustachian tube linking the middle ear with the pharynx. We want you to realize that he even went further by drawing the cartilages in the larynx and vocal cords.
- Also we want you to note that Eustachi's drawings were also engraved by Guilio de Musi

3.6.2.4. TEACHING OF THE DEAF

Now let us consider the teaching of the deaf, being yet another set of landmark activities in the history of the development of phonetics during the Renaissance. Here we want you to realize that the belief among the teachers of the deaf was that only the description of the modes of articulation of sound could make the deaf to pronounce their language. You should note also that the interest in the description of modes of articulation further led to the publications.

Who were some of those involved in this activity and what was their major contribution?

First let us begin by mentioning names like Pedro Ponce de Leon and Juan Pablo Bonet (both Spanish). Here we want you to realize that Pedro Ponce de Leon published a method on articulation, even though records have it that the book was lost. Also, we want you to note that Juan Pablo Bonet edited another

work. His work contained some phonetic remarks. But we still want to say that there was no rational articulatory system.

The important thing, which you must know at this juncture, is that the novelty was the willingness to use phonetic values of letters in teaching in the place of their names. However, we must emphasize that there was yet no scientific approach.

3.7. SELF-ASSESSMENT EXERCISE

Mention 6 periods of landmarks in the development of phonetics.

Possible answer includes.

- Antiquity
- Middle ages
- Renaissance
- 17th & 20th centuries
- 19th & 20th centuries
- Modern phonetics

4.0. CONCLUSION

We have been discussing the historical landmarks in the development of phonetics. We started by defining the concept of landmarks pointing out that these may include special periods, important people and places and outstanding activities. We also told you that historical landmarks in the development of phonetics as a discipline of study would include such variables as periods, people, places and activities that stand out in the shaping of phonetics as a discipline. We told you that the important periods in the history of the development of phonetics included the Antiquity, the Middle Ages, Renaissance, 17th and 18th centuries, 19th and 20th centuries and present-day phonetics. We told you that phonetics started in India with the works of Panini, a Sanskrit grammarian. You were equally told you that in India, the general motive was purely ritual, that it had to do with recitals and repetition of Vedic texts. We told you that the Indian origin did not have any influence on European phonetics. We also told you about what marked the major emphasis in the Greco-Roman era. We told you that the study of the Bible was at the centre of activities. Particularly, we told you that rhetoric and philosophic orientation made a mark on the classification of sounds of the language.

As pertaining to the landmarks during the middle ages you were made to realize that the activities of this period stemmed primarily from curiosity. We told you that such curiosity led to the construction of speaking machines. We told you that such speaking machines were destroyed on the basis that they were the work of the Devil.

As pertaining to the Renaissance, we told you that this period marked a clear move away from speculation, pointing out that time was devoted to the observation of speech sounds. We also told you that the period marked an emphasis on the study of parental relationship among languages. We told you how attention was drawn to the study of the sound system and pronunciation. We told you that spelling reforms in France and England made it necessary to look at pronunciation. Still on the Renaissance, we told you that part of the landmarks included the observation of the speech organs. We even told you of the drawings of the larynx proposed by Leonard de Vinci, the discovery of the Eustachian tube by Bartholomew Eustachi. We told you that there were landmark activities having to do with the teaching of the deaf. You were told that there was a strong belief that only a description of the mode of articulation could make the deaf to pronounce their language. We told you also that the interest placed on the mode of articulation led to some important publications, notably that of Juan Pablo Bonet which contained some phonetic remarks. We told you that even though there was no rational articulatory system as yet, we made you realize that the high point at this period was the willingness to use phonetic values of letters in teaching in the place of their names.

SUMMARY

So far we have been discussing the historical landmarks in the development of phonetics as a discipline. In this unit you can now define the concept of landmark. You can now define historical landmarks as those periods, people, places and activities that stand out in the shaping of phonetics as a discipline of study. You can now mention the periods of landmarks as the periods of Antiquity, Middle Ages, Renaissance 17th & 18th centuries, 19th & 20th centuries and the present day. You can mention the characteristic features of the landmarks of antiquity. You can even mention the features of the landmarks in the Middle Ages. You can also mention the landmarks features in the development of phonetics during the Renaissance.

There is no doubt that what you have learnt in this unit will be very useful to you in the remaining units of this course.

TUTOR-MARKED ASSIGNMENTS

1. Mention the 2 characteristics of the activities of the Greco-Roman era.
2. Mention the motive behind the interest in phonetics during the middle ages.

7.0. REFERENCES AND OTHER RESOURCES

Ohala, John. (1991). The integration of phonetics and phonology. Proceedings of the XIIth International Congress of Phonetic Sciences, Aix-en-Provence, 19-24 August 1991. vol.1, pp. 1-16.

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UNIT 14
 FURTHER LANDMARKS IN THE HISTORY OF PHONETICS
 (17TH – 20TH CENTURIES)

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1.0. INTRODUCTION

Welcome to Unit 14, the second in our 6-unit module on theories and schools of thought in phonetics and linguistics. This unit is christened “Further Landmarks in the History of Phonetics (17th – 20th centuries)”. Further landmarks, because as you are well aware, our last unit was devoted essentially to discussing landmarks in the history of phonetics. Let us quickly do a run down of our discussion in that last unit.

Now do you recall that in the course of our discussion in the previous unit devoted to the historical landmarks in the development of phonetics, we started by defining the concept of landmarks? Remember we pointed out that landmarks might include special periods, important people and places and outstanding activities. Remember we also told you that historical landmarks in the development of phonetics as a discipline of study would include such variables as periods, people, places and activities that stand out in the shaping of phonetics as a discipline. Now what about the specific periods in the history of phonetics? Do you recall that we told you that the important periods in the history of the development of phonetics included the antiquity, the middle ages,

Renaissance, 17th and 18th centuries, 19th and 20th centuries and present-day phonetics? Remember that, of those 6 main periods that we identified, we limited our discussion to the first three, namely Antiquity, Middle Ages and Renaissance. Certainly, you will recall that we told you that phonetics started in India with the works of Panini, a Sanskrit grammarian. Remember we equally told you that in India, the general motive was purely ritual, that it had to do with recitals and repetition of Vedic texts. Remember we also told you that the activities of Indian origin did not have any influence on European phonetics. You will recall that we also discussed landmark activities during the antiquity from the Greco-Roman perspective. Remember it was pointed out that contrary to the Indian activities that did not have any bearing on European phonetics, activities of the Greco-Roman origin had an influence on European phonetics, due to the fact that the language of focus was Greek. We also told you about what marked the major emphasis in the Greco-Roman era. We told you that the study of the Bible was at the centre of activities. Particularly, we told you that rhetoric and philosophic orientation made a mark on the classification of sounds of the Greek language. Certainly, you will recall the landmark figures behind the Greco-Roman activities. Remember such names like Demosthene, Plato, Aristotle and Dionysus of Thrace.

As pertaining to the landmarks during the middle ages, I'm sure you can still vividly recall that we made you to realize that the activities of this period stemmed primarily from curiosity. Do you recall that it was mentioned that such curiosity led to the construction of speaking machine by Sylvester II and Albert le Grand? Remember we also told you that such speaking machines were destroyed on the basis that they were the work of the Devil.

What about our discussion as pertaining to the Renaissance? Do you still recall we mentioned that this period marked a clear move away from speculation, pointing out that time was devoted to the observation of speech sounds? Remember we also told you that the period marked an emphasis on the study of parental relationship among languages. We told you how attention was drawn to the study of the sound system and pronunciation. We told you that spelling reforms in France and England made it necessary to look at pronunciation. Still on renaissance, you will definitely recall that part of the landmarks included the observation of the speech organs. Remember the drawings of the larynx proposed by Leonard de Vinci, the discovery of the Eustachian tube by Bartholomew Eustachi. For sure you will recall Eustachi's drawings, which were engraved by Guilio de Musi.

Still on the Renaissance, do you recall that we told you that there were also landmark activities having to do with the teaching of the deaf? You were told that there was a strong belief that only a description of the mode of articulation could make the deaf to pronounce their language. You will recall that we told you also that the interest placed on the mode of articulation led to some important publications, notably that of Juan Pablo Bonet which contained some

phonetic remarks. Remember that even though there was no rational articulatory system as yet, we made you realize that the high point at this period was the willingness to use phonetic values of letters in teaching in the place of their names.

Remember that in spite of the numerous activities that took place during those three periods under review, we kept emphasizing that none of those activities qualified for the term phonetics in the real sense. Do you recall that we told you that later on in Unit 14 we would be discussing further historical landmarks that helped to shape phonetics as a discipline? It is those further landmarks that we are now going to discuss in the present unit. This present unit, therefore, is going to deal with landmarks during the period from 17th to 20th centuries.

You will learn the landmarks during the 17th and 18th centuries. You will learn about the landmark figures and activities during the 19th century. You will learn about the origin of the real phonetic science. You will learn about the introduction of instrumental techniques into the study of phonetics. You will learn of the landmark development of the 20th century.

2.0. OBJECTIVES

On completion of this unit, you should be able to:

1. Mention the landmark figures in the 17th and 18th centuries.
2. Mention the landmark activities in the 17th and 18th centuries.
3. Mention the landmark figures in the 19th century.
4. Explain the origin of the real phonetic science.
5. Mention some of the instrumental techniques that were introduced in phonetic analysis.
6. Mention some of the landmark activities of the 20th century.
7. Mention the landmark figures of the 20th century.

3.0. FURTHER LANDMARKS IN THE HISTORY OF PHONETICS (17TH – 20TH CENTURIES)

3.1. LANDMARKS IN THE 17TH & 18TH CENTURIES

Now let us consider the landmarks in the development of phonetics in the 17th and 18th centuries. We want you to realize that this period marked a turning point in the history of phonetics. You should equally bear in mind that it is a period marked by many landmark figures and activities. We shall proceed to consider the landmark figures and their activities separately.

3.1.1. LANDMARK FIGURES IN THE 17TH AND 18TH CENTURIES

Now let us consider the figures that were prominent during the 17th and 18th centuries with respect to the history of the development of phonetics. We want you to realize that the landmark figures in the history of the development of phonetics during the period under review included the following:

- Johan Conrad Amman
- John Wallis
- Wolfgang von Kempelen
- Erasmus Darwin

Now who were these people? Before we go into their individual contributions, we want you to realize that these landmark figures were people from diverse callings and backgrounds. For instance, we want you to note that Johan Amman was a Swiss physician practicing in the Netherlands. As for John Wallis, you should note that he was of English nationality and he was a teacher Oxford. You should note that Kempelen was a lawyer, physicist, engineer and student of language in the Austro-Hungarian Empire. As for Erasmus Darwin, we want you to note that he was not only a product of the Enlightenment, but also a scientist, philosopher and a promoter of liberal values including the education of women. The varied backgrounds of these landmark figures notwithstanding, we shall consider their specific contributions toward the growth of phonetics as a discipline of study. But first and foremost, we want to determine what constituted the major activities of the period under review.

3.1.2. LANDMARK ACTIVITIES

Now let us consider the major activities in the history of the development of phonetics during the 17th and 18th centuries. We want you to realize that the landmark activities of this period included the following:

- The discovery of laterals
- The teaching of the deaf
- Important publications
- Building of speech synthesizers

We shall go on to discuss these activities one after the other and that will help us determine who did what among the key figures we have already identified.

3.1.2.1. THE TEACHING OF THE DEAF

Let us now consider the teaching of the deaf as one of the landmark activities of this period. You should realize that the other activities that we had earlier on mentioned (i.e. discovery of laterals, important publications and building of synthesizers) were closely related to the teaching of the deaf and so we shall proceed to discuss them.

3.1.2.2. THE DISCOVERY OF LATERALS

Now let us consider the discovery of laterals as one of the landmark activities of the 17th century. We want you to realize that the key figure behind this activity was Johan Conrad Amman. What did he do? We want you to realise that he made some original observations about speech articulations including a characterization of how laterals (l sounds) are produced. We also want you to realise that this period also marked the discovery of how nasals (n and m) are made.

3.1.2.3. IMPORTANT PUBLICATIONS

Now let us consider the publications that were landmarks in the history of the development of phonetics during the period under review. We want you to realise that one of the key figures that made landmark contributions in this regard was John Wallis. What did he do? We want you to realise that as a teacher at Oxford John Wallis took a bold step by publishing *Grammatica linguae anglicanae* in 1653. In this landmark publication Wallis arranged the vowels 3x3 following the place of articulation in the mouth. Though it was a general schema that arranged vowels as gutturals, palatinae or labials.

We also want you to realise that apart from Wallis, Amman also made an important contribution by way of publication. What did he do? We want you to realise that Johan Amman wrote of his attempt to teach speech to a deaf person. You should bear in mind that this was put together in two of his books:

- *The talking deaf man: or, a method proposed whereby he who is born deaf may learn to speak.* (1694)
- *Dissertatio de loquela* (1700)

3.1.2.4. CONSTRUCTING SPEECH SYNTHESIZERS

Now let us consider the construction of speech synthesizers as one of the historical landmarks in the development of phonetics during the period under review. You should actually realize that many such speech synthesis machines were built and tested by scientists from all fields. We want you to realise that some of the key figures behind this particular activity were Wolfgang von Kempelen and later Erasmus Darwin. What did they do?

First and foremost, let us begin with Kempelen. We want you to realise that in the 18th century, Kempelen conceived of and built what is regarded as the first mechanical speech synthesizer capable of producing connected speech. He published a detailed description of his device and his experience with it in 1791. His work was later to have a great influence on more than a century. You should note that Kempelen's experimental instrument was an inspiration to, among others, Alexander Graham Bell.

And what about Erasmus Darwin?

As for Darwin, we want you to realise that he followed up the initiative of Kempelen by constructing a much simpler speech synthesizer. You should realise that he conducted what may be considered as the first instrumental phonetic study on a live, intact speaker. Precisely what did he do? We want you to realise that Darwin inserted cylinders of tin foil into the mouth of his subject to determine by the indentations made on them by the tongue where the different vowels were articulated.

3.2. LANDMARKS IN THE 19TH & 20TH CENTURIES

Let us now consider the landmarks in the development of phonetics in the 19th and 20th centuries. We want you to realise that these two centuries stood out in many ways in the history of the development of phonetics. Now what actually stood them out? Generally speaking, we may say that this period was characterized by the following:

- Maturity and independence of phonetics
- Era of instrumental/experimental phonetics
- Empiricism
- Estrangement

However, for ease of discussion, we would simply want you to realise that the peculiarity of this period lay in its two contrasting phonetic climates, which we choose to christen the ‘peak’ and the ‘lull’. We shall explain by looking at the people and events of the two centuries separately.

3.2.1. THE PEAK OF THE LANDMARKS

Now let us consider the apogee in the history of the development of phonetics. We want you to realise that the 19th century was the century when the development of phonetics came to the peak of its climax. In order to get a full picture of the period we shall discuss both the key figures and the landmark events. We want to identify the key figures before we proceed to highlight the key phonetic events of the century.

3.2.1.1. LANDMARK FIGURES DURING THE PEAK

Let us now consider the landmark figures during the peak of the history of phonetics. We want you to realise that the landmark figures could be grouped into three as follows:

- Rasmus Rask, Jakob Grimm and Hermann Helmholtz.
- Edward Sievers and Winteler.
- L’Abbé Rousselot, Charles Rosapelly and Paul Passy.

We shall now go on to discuss them in conjunction with their respective activities.

3.2.1.2. LANDMARK ACTIVITIES DURING THE PEAK PERIOD

Now let us consider the landmark activities as depicted by the three groups of experts that we have just identified. Let us first of all start by stating that it was comparative linguistics founded by Rasmus Rask and his German contemporaries (the likes of Jakob Grimm, etc) that paved the way for the real phonetic science. You should note, particularly, that Hermann Helmholtz (1862) for the first time found value in an instrumental infrastructure. We want you to realize that Helmholtz was particularly noted for his vowel theory on the origin of vocalic timbre.

Yet another important landmark was the fact that Edward Sievers and J. Winteler (1876) made of phonetic and independent science. Following that landmark, the next stage, which you should note was the adoption of empiricism in the classification and description and technical instruments were borrowed from physiology and acoustics.

Finally, the growth of phonetics cannot be complete without mention being made to the French connection. We want you to realize the crucial nature of the work of l'Abbé Rousselot '*Principe de phonétique expérimentale*' - regarded as the father of experimental phonetics. We also want you to note that Charles Rosapelly also contributed in no small measure having proposed the use of the kymograph earlier on initiated by Ludwig. More details would be discussed regarding the kymograph and other technological tools in Unit 19. Still on the French connection, we want you to note that Paul Passy was the French phonetician responsible for the introduction of the International Phonetic Alphabet (IPA). We also want you to realise that he also formed the International Phonetic Association. That way, we want you to note that at that stage phonetics had come of age. But what happened thereafter is what we shall refer to as the lull in the history of phonetics.

3.2.2. THE LULL

Now let us consider what we mean by the lull in the history of the development of phonetics. Without going into details for now we simply want you to realise that just when phonetics was starting to make significant advances in the understanding of the physical nature of speech, there is evidence that traditional phonology and linguistics started to distance itself from phonetics. You should bear in mind therefore that the turn of the 19th century up to the mid-20th century marked a period of estrangement between the classical phoneticians and the scientific. That will be discussed in Unit 17.

3.3. SELF ASSESSMENT EXERCISE

Mention some of the landmark figures in the development of phonetics during the 17th and 18th centuries.

POSSIBLE ANSWER.

- Johan Conrad Amman
- John Wallis
- Wolfgang von Kempelen
- Erasmus Darwin

4.0. CONCLUSION

So far we have been discussing further landmarks in the development of phonetics as a discipline, particularly during the period from the 17th to 20th centuries. We started our discussion by letting you know some of the landmark figures and activities of the 17th and 18th centuries. We told you that some of the landmark figures of this period included Johan Conrad Amman, John Wallis and Wolfgang von Kempelen. Part of the landmark activities of the 17th and 18th centuries, which we mentioned, included the discovery of how lateral (l) and nasals (m and n) are made. We also told you that this period was marked by the introduction of speech synthesis machines, which were built and tested by scientists from all fields. We told you that the period witnessed interest in teaching the deaf and that this, in effect, led to important publications. Particularly, we told you that John Wallis published *Grammatica linguae anglicanae* in 1653, arranging vowels 3 x 3 along a general schema of gutturals, palatinae and labials.

Your attention was drawn to the mechanical speech synthesizer built by the Austrian Wolfgang Von Kempelen, a major landmark in experimental phonetics. We told you that Kempelen's experimental instrument was later to have great influence on many for more than a century. We told you how Kempelen's instrument became a later source of inspiration for Alexander Graham Bell.

We told you that the 19th century was actually the period where the work of Rasmus Rask and his German contemporaries like Jakob Grimm, etc. paved the way for the real phonetic science. We told you that Hermann Von Helmholtz vowel theory on the origin of vocalic timbre, as well as contributions from Edward Sievers and J. Winteler made of phonetics an independent science. Thereupon we made you realize that empiricism was adopted in the classification and description of sounds. However, we made it clear that there was no model for phonetics description.

Also we told you that technical instruments were borrowed from physiology and acoustics. We told you about the work of l'Abbé Rousselot, *Principe de phonétique expérimentale*, and how he was considered to be the father of

experimental phonetics. We told you that there was fast development of instrumental phonetics due to physiological techniques being proposed by names like Merkel, Lenz, Rosapelly, Erasmus Darwin and Robert Willis. We mentioned that the 20th century marked a period of estrangement between the classical phoneticians and the physical phoneticians, a situation we promised to discuss later in Unit 17.

5.0. SUMMARY

So far we have been discussing further landmarks in the development of phonetics as a discipline, particularly during the period from the 17th to 20th centuries. You can now mention the major landmark figures and activities during the 17th and 18th centuries. You can equally mention some of the landmark figures and activities of the 19th and 20th centuries. You can even explain the origin of the real phonetic science. You can even mention the characteristic features of phonetics as a field of study in the modern day. You can mention some of the instrumental techniques that were introduced in phonetic analysis.

There is no doubt that what you have learnt in this unit will be very useful to you in the remaining units of this course.

6.0. TUTOR-MARKED ASSIGNMENTS

1. Mention 2 names of people who succeeded in making of phonetics an independent science.
2. Mention four landmark activities characterizing the history of the development of phonetics in the 17th and 18th centuries.
3. Mention the landmark activities in the history of phonetics during the 19th century.
4. Explain why phonetics suffered a hitch in the later part of 19th century and in the mid 20th century.

7.0. REFERENCES AND RESOURCE MATERIALS.

Ohala, John. (1991). The integration of phonetics and phonology. Proceedings of the XIIth International Congress of Phonetic Sciences, Aix-en-Provence, 19-24 August 1991. vol.1, pp. 1-16.

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UNIT 15
HISTORY OF LINGUISTICS (ANTIQUITY – 19TH CENTURY EUROPE)

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1.0. INTRODUCTION

We are now in Unit 15, which, as you know, is the third in this 6-unit module on theories and schools of thought in phonetics and linguistics. But before we go on, let us quickly go over what was discussed in those two opening units of this module. You will recall that in the last two units, our discussion centered on the landmarks in the history of the development of phonetics as a discipline. You remember we kick-started our discussions in Unit 13 on landmarks in the history of phonetics, while we devoted Unit 14 to discussing further landmarks. Even before delving into the landmarks *per se*, you will recall that we flagged off our discussion by specifying our definition of the concept of landmarks. You will recall that we defined historical landmarks in the development of phonetics to be a combination of periods, people, places and activities that stand out in the shaping of phonetics as a discipline of study.

You will recall that we identified some major periods of landmark as the antiquity, the middle ages, the Renaissance, 17th and 18th centuries, 19th and 20th centuries as well as the present day period of modern phonetics. Do you remember that we have discussed in details each of these landmark periods in the history of phonetics? Remember we discussed the first three of the historical landmark periods in Unit 13. That way you remember we discussed landmark figures, places and events progressively from the antiquity through the Middle Ages to the Renaissance. In discussing the landmarks during the period of antiquity, do you remember that we presented two perspectives? You will recall that we did not only discuss antiquity from the Indian perspective but we also included the Greco-Roman perspectives. You will remember, for instance, that while the Indian perspective presented phonetic activities using the Sanskrit, the Greek language was the focal point of phonetic activities in Greco-Roman perspective. Remember we told you that, unlike the Indian activities that did not have any influence on Europe, European activities were greatly influenced by the Greek.

Remember the other historical periods (17th – 20th centuries) were discussed in Unit 14 under the caption of further landmarks. Can you still recall that we discussed the periods 17th /18th and 19th /20th separately? You will recall that the 17th century was presented as a period characterized by landmarks in the description of the mode of articulation. You will surely recall all we told you about the growth of phonetics including the discovery of laterals, the teaching of the deaf and the activities related to it, building of speech synthesizers, the publications... As regards publications, for instance, you will remember it was the period that witnessed the landmark publication “*Grammatica Linguae Anglicanae*” by the Oxford teacher, John Wallis featuring a 3 x 3 general schema of vowel description. As for speech synthesizers, you will also recall that it was equally the period of the introduction of experimental instruments in the analysis of phonetic features, courtesy Wolfgang Von Kempelen.

As regards the 19th Century, you will recall, we told you it was the era when phonetics became an independent science. Remember we said that the growth was unprecedented even up till the 20th century (early) because of empiricism in the classification and description of sounds. You will recall, particularly, that technical instruments from physiology and acoustics also boosted the classification and phonetic descriptions. Remember we told you that in spite of this growth phonetics suffered a set back due to the absence of linguistic model for phonetic description. You will most certainly recall the period of suspicion and scepticism being expressed by the classical phoneticians vis-à-vis the progress that was recorded by the physical phoneticians. Remember we told you that while the cold war lasted it was the period that linguistic theory had the time to consolidate and constitute its solid indispensable basis for a general science of language. Remember we told you that we will come back to discuss in fuller details the development of linguistic movements.

It is the idea of the history of linguistic movements that we are now going to address. Precisely then, this unit is going to deal with the history of the earliest linguistic activities from three different perspectives. You will learn about the early history of linguistics in India. You will learn about the earliest linguistic activities from the Greco-Roman perspective. You will learn about the history of linguistics in the 19th century Europe.

2.0. OBJECTIVES

On successful completion of this unit, you should be able to:

1. Name 2 Indian linguists and mention their contributions to the growth of linguistics.
2. Name 3 Greek grammarians and mention their contributions to the growth of linguistics.
3. Mention the 3 features of the Greco-Roman linguistics.
4. Explain the reason for the shift in emphasis in the history of linguistics in 19th century Europe.
5. Explain why Germany can be regarded as the home of philology in 19th century Europe.
6. Mention the names of the new pioneers of philology.

3.0. HISTORY OF LINGUISTICS (ANTIQUITY – 19TH CENTURY EUROPE)

Now before we start considering the history of linguistics from the antiquity to the 19th century Europe, we want you to realize that we can view the early history of linguistics from the following three perspectives:

- Indian Linguistics
- Greco-Roman linguistics
- 19th Century Europe

Let us now consider these three perspectives one after the other.

3.1. INDIAN LINGUISTICS

Now let us consider the earliest linguistic activities from the Indian perspective. First and foremost, we want you to realize that some of the earliest linguistic activities can be recalled from Iron Age India with the analysis of Sanskrit. What we are saying in effect is that the activities in India were based on the Sanskrit language. Now to facilitate our discussion we need to identify the key figures associated with the Sanskrit-based activities.

What are some of the important names associated with the Indian linguistic activities?

Now let us consider some of the important names involved in the history of linguistics from the Indian perspective. We want you to realize that some of the

important names associated with language-related activities in India include the following:

- Panini (520 – 460 BC)
- Bhartrihari (450 – 510 BC).

We shall now discuss these two figures and their major contributions to the history of linguistics in India.

3.1.1. PANINI'S CONTRIBUTIONS

Now let us consider the contributions of Panini in the history of linguistics in India. We want you to realize that Panini contributed in the area of the study of the Vedic texts. We want you to note that there were several generations of Indian grammarians before Panini. However, you should realize that Panini's work is the earliest surviving account of such works. We want you to realize that Indian collections on Sanskrit grammar included the Pratishakhyas and Vyakarana.

What was the Pratishakhyas?

The Pratishakhyas constitute a proto-linguistic *ad hoc* collection of observations and mutations to a given corpus particular to a given Vedic School.

What was the relationship between the Pratishakhyas and Vyakarana?

We want you to realize that a systematic study of these texts from the different Vedic schools gave rise to the Vedanga and that one of the disciplines of the Vedanga was the Vyakarana. We are therefore saying that a systematic study of the pratishakhyas gave rise to the Vedanga discipline of Vyakarana.

What was Panini's role in all of these?

Now let us consider the influence of Panini. We want you to note that Panini's work was the earliest surviving account of the grammatical analysis of the Pratishakhyas. We want you to realize that Panini, in referring to the works of several generations of grammarians, proposed what has become a compact generative grammar of Sanskrit. We want you to note that Panini's Sanskrit grammar is made up of 4,000 rules.

What are the characteristics of this grammar?

In Panini's analytic approach are the concept of the phoneme, the morpheme and the root. You should note that Panini's grammar was also characterized by its unintuitive structure (reminiscent of "machine language", therefore opposed to "human readable" programming languages).

You should note that even though Panini's work came to be criticized by Patanjali in the 2nd century BC Panini's grammar in later centuries remained a reference prescriptive grammar upon which commentators depended quite a lot.

3.1.2. BHARTRIHARI

Now let us consider the influence of Bhartrihari. Now we want you to realize that unlike Panini whose major work was in the area of proposing a Sanskrit grammar, Bhatrihari was more involved in formulating a communication theory. To that effect, we want you to realize that Bhartrihari had a 4-stage theory on the act of speech. This is because according to him the act of speech can be said to consist of the following four stages:

1. Conceptualisation of an idea.
2. Verbalization and sequencing (i.e. articulation)
3. Delivery of speech into atmospheric air.
4. Interpretation of speech by the listener, the interpreter.

3.2. GRECO-ROMAN OR WESTERN LINGUISTICS

Now let us consider the early activities in the history of linguistics from the Greco-Roman perspective. We want you to realize that the period under focus is the period of classical Antiquity and that activities here are often referred to as western linguistics. We also want you to realize that the Greek language was the basis of all the linguistic activities during this period in Europe. You should equally realize that unlike Sanskrit, which was an oriental language, thereby not having any influence on European linguistics, Greek, being a European language, formed the basis of Western linguistics. Now what were some of the highpoints of the Greco-Roman linguistics? In other words, who were the important figures in Western linguistics? What were the landmark activities of the period? We shall examine some of these questions in the lines that follow.

3.2.1. THE IMPORTANT FIGURES IN GRECO-ROMAN LINGUISTICS

Now let us consider the important figures in the Greco-Roman linguistic activities. We want you to realize that there were two sets of figures involved in the early history of Western linguistics in classical antiquity and they include the following:

- Philosophers/great thinkers
- Grammarians

You should realize that among the philosophers/great thinkers we have the following:

- Plato
- Socrates
- Aristotle

On the other hand, we want you to note that among the grammarians were the following:

- Apollonius Dyscolus
- Aelius Donatus
- Dante Alighieri

We are going to see the contributions of these people toward the growth of Western Linguistics. But before then we are going to consider the main features in linguistic activities of this period in general.

3.2.2. THE MAIN FEATURES IN GRECO-ROMAN LINGUISTICS

Now let us consider the highpoints in the activities of western linguistics. We want you to realize that the major features in western linguistics were the following:

- Speculative grammar
- Creation of the alphabet
- Introduction of writing

3.2.2.1. SPECULATIVE GRAMMAR

We want you to realize that grammatical speculation was the starting point of western linguistics. You should realize that Plato was the figure noted for activities in this area. We want you to realize that in this regard Plato's Cratylus was the starting point of speculative grammar.

3.2.2.2. CREATION OF THE ALPHABET

Aside from speculative grammar, activities in western linguistics received an impetus through the creation of the alphabet. We want you to bear in mind that the first important advancement of the Greeks was the creation of the alphabet. We want you, as a matter of fact, to note that the creation of the alphabet led to a major impact, that of the introduction of writing.

3.2.2.3. INTRODUCTION OF WRITING

Now let us consider the issue of the introduction of writing and see what major impact it had on the history of linguistics before the 19th century in Europe. Now we want you to realize that the introduction of writing led to such text-based activities as the following:

- Critic
- Dialectics
- Philology

Let us quickly add that critic and dialectics were closely related because critic was a text-based activity that led to dialectics, itself being a text genre. Now you should realize that the important figures in this regard were Socrates and Aristotle. We want you to note that these text-based activities provided room for the observation of the behaviour of language structures featuring in the logic of speech and argument. These speech-related activities were fertile grounds for the growth of studies in grammar and philology.

We shall now discuss the landmark activities of the Greek grammarians.

3.2.3. THE ACTIVITIES OF THE GREEK GRAMMARIANS

Let us now consider the activities of the three Greek grammarians whom we had mentioned earlier on in this section, namely Appollonius Dysclosus, Aelius Donatus and Dante Alighieri.

3.2.3.1. APPOLLONIUS DYSCLOSUS

You should realize that Appollonius was one of the greatest of the Greek grammarians having written more than thirty treatises on the question of syntax, semantics, morphology, prosody, orthography, dialectology and more.

3.2.3.2. AELIUS DONATUS

You should note that Aelius was considered important for compiling the Latin grammar *Ars Grammatica*. Note that this was the defining school text through the middle Ages.

3.2.3.3. DANTE ALIGHIERI:

You should note that Dante's contribution was in the area of vernacular. We want you to realize that Dante's "*De Vulgari eloquentia*" (i.e. the Eloquence of Vernacular) helped in expanding the scope of linguistic enquiry from the traditional languages of antiquity to include the language of the day. We want you to realize that with this development, more than one language was about being considered and with time interest was going to be shifted to the study of other languages. That would gradually bring attention to the study of philology as yet another linguistic activity embarked upon in western linguistics. We shall discuss an important figure in this area, in the person of Sir William Jones.

3.3. 19TH CENTURY EUROPE AND COMPARATIVE PHILOLOGY

Let us consider the history of linguistic activities in the 19th century Europe. We want you to realize that the study of linguistics at this period in Europe was largely philology, which had to do with the comparison of the grammar of Indo-European languages. But before we go into details, let us simply say that our discussions will be better directed along the following sub headings:

- Sir William Jones (1746-94) and the origin of philology
- Philology and the German connection
- Other pioneers of philology

We shall now consider these sub headings one after the other.

SIR WILLIAM JONES (1746-94) AND THE ORIGIN OF PHILOLOGY

Who was Sir William Jones? Now we want you to realize that he was the one who brought in the idea of comparison at the close of the 18th century in Europe. You should note that he contributed in pointing out that Sanskrit shared many common features with classical Latin and Greek. How did it all start? Now we want you to realize that British scholarship first spread the knowledge of Sanskrit in Europe. Among such scholars was Sir William Jones. We want you to note that he worked as a judge in Calcutta from 1783 onwards. You should also realize that he was a brilliant student of languages, especially Oriental ones. You should note that he studied as many as twenty-eight languages and that he knew Sanskrit very well. All we want you to realize is that his statement that Latin, Greek and Sanskrit shared common source was considered the beginning of philology. Now we want you to realize that based on his statement other European scholars took up language comparison with excitement in the 19th century. We shall consider the German perspective, first and foremost.

PHILOLOGY AND THE GERMAN CONNECTION

Now let us consider philology from the German perspective and see how Germany came to be known as the spiritual home of philology in the 19th century in Europe. We want you to realize that philology implied immense labour comprising of the following stages:

- Observation of correspondences
- Interpretation of the data
- The Neogrammarian periods

We do not intend to go into all the details of these stages but the point we want you to note is that such painstaking procedures gave rise to many theories and laws expounded mainly in Germany by German nationals. Such laws and theories included the following:

- Jakob Grimm: You should note that Grimm was known for Grimm's law a principle of consonant shifts in pronunciation.

- August Schleichel's *Stammbaum theorie*: This had to do with family tree.
- *Wellern theorie*: The wave model developed in 1872.

OTHER PIONEERS OF PHILOLOGY

Now let us consider other pioneers of philology during the 19th century in Europe. We want you to realize that the other new pioneers of philology were of diverse nationalities. They include the American, W. D. Whitney (1827-94), the Pole, Jan Baudoin de Courtenay (1845-1929), the Englishman, Henry Sweet (1845-1912), the Swiss, Ferdinand de Saussure (1857-1913), the American Franz Boas (1858-1942), the Dane Otto Jespersen (1860-1943) and the Czech, Vilém Mathesius (1882-1946)

Now we want you to realize that, of all these, de Saussure is regarded as the 'father of linguistics' due to the fact that he produced a short, comprehensible 'system' and exerted a virtually unbroken influence on linguistics in Europe. We shall certainly discuss more about de Saussure and his contribution to the growth of linguistics in Europe in the next unit.

SELF ASSESSMENT EXERCISE

Mention the three periods of linguistic activities that we have discussed in this unit.

POSSIBLE ANSWER

- India
- Greco-Roman empire
- 19th Century Europe

4.0. CONCLUSION

We have just concluded our discussion on the history of linguistics from the earliest perspectives. You learnt about the three historical perspectives in the growth of linguistics as a discipline. You learnt about the earliest activities in India. You learnt about Panini and his 4000 rules Sanskrit grammar for his Vedic texts. You learnt about Bhatrhari and his 4-stage communication theory. You learnt about the three Greek grammarians, namely Appollonius Dysclosus, Aelius Donatus and Dante Alighieri. You learnt about their major contributions to the growth of linguistics in the Greco-Roman era. You learnt about the main features of Greco-Roman linguistics – the starting point of speculative grammar, the creation of the alphabet and the introduction of writing. You learnt of the shift of emphasis to comparative philology due to Sir William Jones' statement confirming the common source uniting classical Latin, Greek and Sanskrit. You learnt of how Germany came to be known as the spiritual

home of philology in the 19th century Europe. You learnt of the painstaking processes involved in the practice of philology. You even learnt of some of the pioneers of diverse nationalities who were involved in comparative philology.

5.0. SUMMARY

In this unit on the history of linguistics from the antiquity to the 19th century Europe, you can now mention the names of the two Indian linguists and even their contributions to the growth of linguistics. You can now name three Greek grammarians and mention their contributions to the growth of linguistics. You can equally identify three features of the Greco-Roman linguistics. You can even explain the reason for the shift of emphasis to comparative philology in the 19th century Europe. You can now explain why Germany came to be referred to as the spiritual home of philology in the 19th century Europe. You can also mention the names of the new pioneers in philology in the late 19th century in Europe.

There is no doubt that what you have learnt in this unit will be very useful to you for the rest of the units in this course.

6.0. TUTOR-MARKED ASSIGNMENTS

1. Name 2 Indian linguists and mention their contributions to the growth of linguistics.
2. Name 3 Greek grammarians and mention their contributions to the growth of linguistics.
3. Mention the three features of the Greco-Roman linguistics.
4. Explain the reason for the shift in emphasis in the history of linguistics in the 19th century Europe.
5. Explain why Germany can be regarded as the spiritual home of philology in 19th century Europe.

7.0. REFERENCES AND OTHER RESOURCES

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UNIT 16
HISTORY OF MODERN LINGUISTICS (20TH CENTURY)

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1.0. INTRODUCTION

Welcome to Unit 16, the 4th in this 6-unit module on theories and schools of thought in phonetics and linguistics. Let us hope that you have been following our discussions in the past units. Just in line with our house-style tradition, let us quickly do a flash back on the discussions we had in Unit 15. As you are well aware, the topic of our discussion in Unit 15 was the history of linguistics (antiquity – 19th century Europe). You will recall that we identified three major perspectives in the history of linguistics of that particular era. Remember the periods included the Indian linguistics, Greco-Roman linguistics and the 19th century Europe. You will recall that we told you that activities in Indian linguistics were based on Sanskrit. You will certainly recall what we said about the Indian linguistics of this time not having any bearing on activities in Europe.

Do you still remember the two key figures connected with Indian linguistics, namely Panini and Bhatihari? Do you recall that Panini's contribution to Indian linguistics included his 4000 rules Sanskrit grammar? Remember that

Panini's work was mainly Vedic texts. Do you remember that we told you that some of the Vedic texts were known as *prastishkhyas*, a proto-linguistic ad hoc collection of observations and mutations to a given corpus particular to a Vedic school? Remember we told you that Bhatrhari was noted for his 4-stage communication theory made up of conceptualisation of an idea, verbalisation and sequencing, delivery of speech into the atmospheric air and the interpretation of speech by the listener.

As regards the Greco-Roman perspective, you will recall that the activities here were referred to as Western linguistics and that the Greek language formed the basis of all the linguistic activities. Remember the key figures in Western linguistics included philosophers like Plato, Socrates and Aristotle and grammarians like Appollonius Dysclosus, Aelius Donatus and Dante Alighieri. Do you remember that the major activities of this period were speculative grammar, the creation of the alphabet and the introduction of writing? Sure you do recall the contributions of the grammarians and the eventual shift of emphasis to philology, courtesy Sir William Jones' statement about the common source shared by classical Latin, Greek and Sanskrit. You remember we told you that 19th century Europe was characterised by immense activities in comparative philology. Remember, for instance, that Germany was shown as the spiritual home of philology, what with all the theories and laws by German nationals. Remember Grimm's Law on consonant shift in pronunciation, August Schleicher's *stammbaum theorie* or family tree or even *wellern theorie* or wave theory. Remember that other pioneers from diverse nationalities were also mentioned as furthering the activities in philology and forming the bridge between philology and linguistics. Remember we mentioned Ferdinand de Saussure as one of such pioneers and we told you that he was regarded as the "father of linguistics", having provided a linguistic model for Europe. Remember we told you in that unit that we would discuss in fuller details de Saussure's linguistic model in Unit 16. It is exactly what we plan to do in this present unit on the history of modern linguistics.

In this unit therefore, we are going to discuss the history of modern linguistics. In this unit, you will learn about de Saussure. You will learn about de Saussure's major contributions toward the growth of modern linguistics. You will learn about the three distinctions specified in the Saussurian linguistic theory and methodology. You will learn about the concept of system. You will learn about the concept of structuralism. You will learn about the concept of semiotics. You will learn about the main features in de Saussure's synchronic linguistics. You will learn about the linguistic movements that were influenced by de Saussure's structuralism in Europe.

2.0. OBJECTIVES

On completion of this unit, you should be able to:

1. Explain why the first decade of the 20th century marked a watershed in the development of linguistics.
2. Mention the contributions of Ferdinand de Saussure to the growth of modern linguistics.
3. Mention the schools of thought that were directly influenced by de Saussure in Europe.
4. Mention landmark figures that contributed to the growth of linguistics in USA.
5. Mention conferences that marked the coming of age of linguistics in the 20th century.

3.0. HISTORY OF MODERN LINGUISTICS IN THE 20TH CENTURY

3.1. 1ST DECADE OF THE 20TH CENTURY: A WATERSHED IN THE HISTORY OF MODERN LINGUISTICS

Now let us consider why the first decade of the 20th century can be said to constitute a watershed in the history of modern linguistics. But before engaging further discussion on this issue, let us even consider the concept of watershed. What is a watershed? Now we want you to realise that, generally, the term watershed is a geographical notion referring to the line of high ground separating two river basins; a drainage or a catchment area; a slope or structure down which water flows. We want you to realise that for the purpose of our discussion in this unit, watershed is used to mean “a crucial point or dividing line between two phases or conditions”. I’m sure you must be wondering why we are even using the term watershed in this instance. Or better still, what two phases are we actually talking about in order to give effect to the idea of a ‘dividing line’? We want you to realise that the two phases to be demarcated are the pre-20th century and the beginning of the 20th century.

As a matter of fact, the point we are trying to make is that western linguistics in 19th century was characterised by comparative philology and that for the most part, the Greek grammar (the Thrax-type grammar) could be applied without much difficulty to the Indo-European languages. However with the increased interest in philology attempts were made to compare Greek with other languages different from Greek. We want you to realise that at that point there were practical problems. We want you to realise that the major problem was the inadequacy of the Greek Thrax-type grammar. You should note that this grammatical apparatus was inadequate to analyse any language but Greek. Secondly, you should note that this inadequacy was equally experienced in trying to analyse the indigenous languages of North America. Simply put, we are saying that at the close of the 19th century and at the beginning of the 20th century, there were practical challenges to be met by linguistic investigators in

Europe and America and, independently of one another. Key individuals in both Europe and the USA proposed different approaches to tackle a common phenomenon. Such proposals ended up providing guidelines for linguistic investigation. In the rest of this unit we are going to discuss the contributions to the growth and development of modern linguistics as made possible during the first decade of the 20th century.

3.2. SAUSSURIAN LINGUISTICS

3.2.1. WHO WAS FERDINAND DE SAUSSURE?

First of all, you should note that Ferdinand de Saussure was the founder of modern structural linguistics. You should realize that de Saussure was a Sanskrit scholar and a semiotician. Note also that he was the originator of the 20th century re-appearance of structuralism. You should note that in his work course in general linguistics, published posthumously in 1916, there was a departure from the historical consideration of language. We want you to realize that de Saussure proposed synchronic explanations for language form. We shall now go to details of de Saussure's contribution to the growth of modern linguistics in Europe.

3.2.2. SAUSSURE'S CONTRIBUTIONS TO MODERN LINGUISTICS

Now let us consider the major contributions of de Saussure to the growth of modern linguistics. We want you to realise that Ferdinand de Saussure made valuable contributions to the theory and methodology of linguistics. His contributions can be grouped under two broad headings as follows:

- Clarification of three distinctions essential to the theory and methodology of linguistics.
- Enunciating three goals for linguistics.

Before we talk about the three goals for linguistics as enunciated by de Saussure, we shall first of all go on to discuss the three distinctions essential for the theory and methodology, which include the following:

- Langue/parole distinction
- Synchronic/diachronic distinction
- Syntagmatic/paradigmatic relationships

3.2.2.1. THE LANGUE/PAROLE DISTINCTION

Let us consider *langue* v. *parole* as the first important distinction that de Saussure clarified to guide linguistic theory. How does de Saussure define the two concepts? We want you to realize that from the Saussurian perspective, *langue* is the "system according to which speakers in a speech community

speak”. What about parole? We want you to realize that Saussurian linguistics sees parole as the utterances in a system.

Why this distinction?

We want you to realize that this distinction was informed by the influence of the social representation of his time. According to the sociologist, Emile Durkheim a ‘social fact’ is anything that ‘exercises external constraint over the individual and is general throughout a given society’. Based on that principle, *langue* according to Saussure is such a social fact. We want you to realize that Saussurian linguistics places emphasis on system (i.e. the underlying organization of the language).

3.2.2.2. SYNCHRONIC/DIACHRONIC DISTINCTION

Let us consider the synchronic/diachronic distinction. What is synchronic? We want you to realize that synchronic is the state of affairs at one point in time (an ‘*état de langue*’) What is diachronic? We want you to realize that the diachronic is the historical axis along which one element of *langue*, such as the form of a word, might be studied. For example, the relationship between ‘foot’ and ‘feet’ is synchronic, a relationship (singular v. plural) on an axis of simultaneity. For the purpose of our discussion, we want you to realize that Saussure’s innovation was to opt for synchronic linguistics in the place of diachronic linguistics that characterised the pre-twentieth century linguistics. To that effect, he also specified certain vital features to be included in synchronic linguistics.

Now let us consider the important elements in Saussure’s synchronic linguistics. We want you to realize that some of the important elements are as follows:

- The concept of linguistic sign
- The characteristics of the sign

What is the linguistic sign?

We want you to realize that in Saussurian linguistics the sign is the word or idea as existing in the mind of the speaker. You should realize that the sign has the following characteristics:

- The composition of the sign
- Arbitrariness
- Value of the sign

COMPOSITION OF THE SIGN

We want you to realize that the linguistic sign is made up of two parts, namely the concept and the sound-image. The concept is what is signified (i.e. what the speaker understands the concept to be, what one understands by the word). You should realize that the sound-image is the signifier (i.e. one's memory of the sound of the word).

ARBITRARINESS

As for the arbitrariness of the linguistic sign, we want you to bear in mind that Saussure is pointing to the fact that there is no natural connection between the two parts of the sign.

VALUE OF THE SIGN

We want you to realize that according to Saussure the linguistic signs possess a value. You should note that this value is derived from their place in the system.

3.2.2.3. SYNTAGMATIC/PARADIGMATIC DISTINCTION

Now let us consider the third distinction clarified by Saussure. This is the distinction in the relationship between linguistic signs. We want you to realize that Saussure makes a distinction between two types of relationship between linguistic signs. You should realize that the relationship can either be syntagmatic or paradigmatic.

What is syntagmatic relationship?

We want you to realise that a syntagma is any stretch of language of more than one unit. Now we want you to realize that the elements in a syntagma are mutually defining because they are in an association. You should realize that no one element can replace another in a syntagma.

What about the paradigmatic relationship?

Here we want you to realise that this refers to relations between elements that may occur at the place in a given syntagma. In other words, elements in a paradigm are more or less alternative 'fillers' for the same slot.

In summary of Saussure's structuralism, we want you to realise that Saussure visualises mechanisms of *langue* as the interplay of the horizontal (syntagmatic) and the vertical (paradigmatic) axes. This is what constitutes structuralism. In this system therefore, the analyst may divide syntagmas into constituent parts,

examine the syntagmatic relations between these and classify them on the basis of paradigmatic relations with possible substitutes.

3.2.3. THE GOALS OF LINGUISTICS

Now let us consider the three goals, which de Saussure enunciated for linguistics. According to de Saussure, the task of linguistics will be:

1. To make the description of and trace the history of every language that it can study, which means in effect writing the history of each language family and, as far as possible, reconstructing the present language of each family;
2. To look for those forces permanently and universally operative in all languages, and to decide the general law to which may be attributed every individual phenomenon;
3. Itself to fix its boundaries and frame its definition.

3.3. SCHOOLS OF THOUGHT INFLUENCED BY SAUSSURE IN EUROPE

Let us consider the influence of Saussure's structuralism in Europe. We want you to realize that some of the school of thought influenced by Saussure in Europe include:

- The Prague school
- The Circle of Copenhagen

3.3.1. THE PRAGUE SCHOOL

Let us now consider the Prague school. The important aspect of the Prague school of structuralism was phonemics. Rather than simply compile a list of which sounds occur in language, the Prague school sought to examine how they were related. They determined that the inventory of sounds in a language could be analyzed in terms of a series of contrasts. This approach was known as the Distinctive Features Analysis. The influential names were Nikolai Troubezky and Roman Jakobson.

3.3.2. THE CIRCLE OF COPENHAGEN

Now let us consider the influence of Saussure on the Circle of Copenhagen. Louis Hjelmslev conducted this. His approach was known as Glossematics, the aim of which was to establish a type of algebra for language.

3.4. OTHER LANDMARK FIGURES AND ACTIVITIES CONTRIBUTING TO THE GROWTH OF LINGUISTICS

3.4.1. LANDMARK FIGURES IN THE USA

Now let us consider the American school of Linguistics. We want you to know that in North America the structuralist tradition grew out of a combination of missionary linguistics (whose goal was to translate the Bible) and anthropology. In this regard we want you to realize that the important names in American Linguistics were Edward Sapir and Leonard Bloomfield.

3.4.2. LANDMARK CONFERENCES

Now let us consider the conferences that marked the coming of age of linguistics in the 20th century. We want you to realise that after the works of Saussure, Boas and Mathesius scholars reached some sort of agreement on the shape of linguistics and the problems it should be tackling. You should note that such agreements came about during series of international conferences. For instance, you should note the following conferences:

- First International Congress of Linguists (The Hague 1928)
- First International Congress of Slavists (Prague 1929)
- First International Congress of Phonetic Sciences (Amsterdam 1932)

3.5. SELF ASSESSMENT EXERCISE

Mention the three characteristics of Saussure's linguistic sign.

POSSIBLE ANSWER

These include

- Being composed of two parts (signified and signifier)
- Being arbitrary
- Possessing a value

4.0. CONCLUSION

We have just come to the end of this unit. We have been discussing the history of modern linguistics in the 20th century. In this unit, we told you that the first decade in the 20th century marked a watershed in the history of the development of linguistics. We explained the idea of watershed by specifying that there was a clear departure from the pre-twentieth century practice of philology and the absence of a linguistic model. You learnt about the contributions of Ferdinand de Saussure, a Swiss scholar of Sanskrit and a semiotician. You learnt about the innovations in Saussure's synchronic linguistics. You learnt about the three important distinctions clarified by Saussure. We told you that Saussure's structuralist approach emphasised the

notion of langue as a system. We told you of the characteristics of Saussure's linguistic signs. You also learnt about the relationship between linguistic signs. You learnt that this could be either syntagmatic or paradigmatic. You learnt that in applying Saussure's approach, the linguist could classify the linguistic elements into constituents. You learnt that Saussure also enunciated three goals that guide the theory and methodology of linguistics. You learnt about the different schools of thought that were influenced by Saussure in Europe. You equally learnt of some landmark figures in the history of the development of linguistics in USA. You learnt about the series of international conferences that helped shape linguistics in the 20th century.

5.0. SUMMARY

We have just concluded our discussions in Unit 16. This unit has equipped you with vital information on the development of modern linguistics in the 20th century. You can now mention the father of linguistics. You can now mention the contributions of de Saussure to the growth of modern linguistics. You can also mention the schools of thought that were influenced by de Saussure in Europe. You can even mention landmark figures contributing to the growth of linguistics in USA. You can now mention the series of international conferences that helped shape linguistics as a discipline in the early twentieth century.

There is no doubt that what you have learnt in this unit will be very useful to you for the rest of the units in this course.

6.0. TUTOR-MARKED ASSIGNMENT

1. Explain the two parts of Saussure's linguistic sign.
2. Explain the difference between synchronic and diachronic linguistics
3. Explain the distinction between syntagmatic and the paradigmatic relationship.
4. Mention two schools of thought that were influenced by de Saussure's structuralism in Europe.
5. Mention one of the goals enunciated for linguistics by Ferdinand de Saussure.

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UNIT 17
PHONETICS AND THE TRADITIONAL SCHOOL OF THOUGHT

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1.0. INTRODUCTION

Welcome to Unit 17, the 5th in our 6-unit module on theories and schools of thought in phonetics and linguistics. In the last unit you remember our discussion centred on the History of Linguistic movements. You will recall that three major periods stood out in our last discussion in the last unit. Remember the three distinct periods included the beginning of linguistic activities before Saussure, the Saussurian era and the post-Saussure period. You do remember equally that we discussed western linguistics focusing essentially on the Greco-Roman tradition. Remember we told you that it all started with grammatical speculation with Plato's Cratylus. Also we told you that philosophy or the history of language was the centre point of early western linguistics. Remember you were told that the major breakthrough made by the Greeks was the creation of the alphabet and with it the science of writing. Of course you must not forget the early activities proposed by the Greek grammarians. You remember some of the names that came to be associated

with these activities in grammar included Appollonius Dyslosus, Aelius Donatus and Dante Alighieri. You will recall that the works in grammar provided the springboard for language comparison.

Apart from the early linguistic activities spanning the Antiquity via the 19th century, you will recall that we discussed Ferdinand de Saussure as the one responsible for the reappearance of structuralism. Remember we told you that structuralism grew out of semiotics. Remember we defined semiotics as the study of sign processes. Do you recall that we told you about Saussure's influence in Europe on the Prague school of thought and the Copenhagen school? Remember we told you that the Prague school was under the control of Roman Jakobson and Nikolai Troubetzkoy and that their area of linguistic analysis was phonology with emphasis on distinctive features. You will recall also that Louis Hjelmslev was presented under the linguistic tag of glossematics. As for the linguistic activities in the USA, you will recall that the major linguistic activities were anthropological in nature first under Edward Sapir. Then of course you will recall that Leonard Bloomfield was presented because of his contributions in the area of distributionalism.

Do you remember that we told you that there were different schools of thought and we mentioned particularly that the Prague school of thought engaged in phonological analyses and concentrated so much in studying distinctive features in classifying phonemes? It is this idea of phonological analysis that prevailed as a traditional school of thought. And it is this school of thought that we are going to view in its relationship with phonetics. In this unit we are going to discuss phonetics in relation to the traditional school of thought.

In this unit therefore we are going to discuss the two phonetics. You will learn about the differences between the taxonomic and scientific phonetics. You will learn about 3 different periods in the relationship between the two disciplines. You will learn about phonetic and structuralism.

2.0. OBJECTIVES

On completion of this unit, you should be able to:-

1. Mention the two types of phonetics
2. Mention the external differences between the two types of phonetics.
3. Mention the philosophical differences between the two types of phonetics.
4. Mention the three different periods in the relationship between phonetics and the traditional school of thought.
5. Mention the part played by structuralism in the face-off between phonetics and the traditional school of thought.

3.0. PHONETICS AND THE TRADITIONAL SCHOOL OF THOUGHT

3.1. THE TWO PHONETICS

Now let us consider the two forms of phonetics. First, we want you to realize that the two forms of phonetics are what we can refer to as:

- Taxonomic phonetics
- Scientific phonetics

3.1.1. TAXONOMIC PHONETICS

Let us now consider taxonomic phonetics. We want you to realize that taxonomic phonetics is the same as phonology. You should realize that taxonomic phonetics provides two basic tools for the dealing with speech sounds. First, we want you to note that taxonomic phonetics provides uniformity in naming and classifying speech sounds. You should note as well that taxonomic phonetics helps in the transcription of speech sounds.

3.1.2. SCIENTIFIC PHONETICS

Now let us consider scientific phonetics. We want you to bear in mind that scientific phonetics seeks to understand how speech works at all levels from the brain of the speaker to the brain of the hearer.

3.2. DIFFERENCES BETWEEN TAXONOMIC AND SCIENTIFIC PHONETICS

Let us now consider the differences between the two types of phonetics. We want you to note that the differences are of two levels, namely external and philosophical.

3.2.1. External differences between Taxonomic and Scientific phonetics.

Now let us consider what we chose to call the external differences between taxonomic and scientific phonetics. We want you to realize that these are some of the external differences:

1. Most of the work of phonetics lies in scientific phonetics.
2. It is in scientific phonetics that theories are formulated.
3. It is in scientific phonetics that statistical analysis of results is performed.
4. It is in scientific phonetics that we can have controlled observations, calibrations and all other characteristics of traditional scientific procedures.

5. All what has been stated above is what one finds presented at phonetics conferences and congresses and in phonetics journals.

3.2.2. PHILOSOPHICAL DIFFERENCE

Now let us consider the philosophical difference between taxonomic phonetics and scientific phonetics. Here we want you to realize that there is one major philosophical difference. You should realize that whereas taxonomic phonetics thrives on conformity, scientific phonetics adopts the fundamental approach that underlies all sciences right from the Renaissance - the principle that any given theory, including whatever one believes most fondly, may be erroneous but that by gathering data in a rigorous way such error may be minimized or avoided.

3.3. THREE PERIODS IN THE RELATIONSHIP BETWEEN SCIENTIFIC AND TAXONOMIC PHONETICS.

Now let us consider three outstanding periods in the relationship between scientific and taxonomic phonetics. We want you to realize that the three periods are as follows:

- Period of Integration
- Period of Separation
- Period of better understanding.

3.3.1. PERIOD OF INTEGRATION

Now let us consider the period of integration between the two phonetics. We want you to realize that the period 17th, 18th and 19th centuries correspond to the era when scientific phonetics was integrated with phonology. We can attest to this integration in two ways, either traditional phonological (linguistic) questions are offered phonetically based answers or we may have situations where the same individual is equally productive in scientific phonetics and phonology in general.

3.3.1.1. EXAMPLES OF INTEGRATION

Let us consider some examples of integration through the work of some individuals. These include:

- John Conrad Amman (1669 – 1724)
- Wolfgang Von Kempelen (1734 – 1804)
- Erasmus Darwin (1731 – 1802)
- Robert Willis (1800 – 1875)
- Herman Grassman (1809 – 1877)
- Karl Verner (1846 – 1896)

- Paul Passy (1859 – 1940)
- Abbé J – P Rousselot (1846 – 1924)
- Charles Rosapelly

3.3.2. PERIOD OF SEPARATION

Let us now consider the period of estrangement of phonetics and phonology. We want you to realize that from the period of the turn of the 19th century up to the mid 20th century, just when phonetics was starting to make significant advances in the understanding of the physical nature of speech, there is evidence that traditional phonology and linguistics started to distance itself from phonetics. Why the estrangement?

We want you to realize that the estrangement arose out of the misgivings that the linguistically and phonetically trained researchers had towards a methodology that was unfamiliar to them.

3.3.2.1. PHONETICS AND STRUCTURALISM

Let us consider the relationship between phonetics and structuralism. We want you to take note that the greatest hostility shown to phonetics was from the Prague school of structuralism.

This was because the Prague school was the most influential in phonology. You should realize that they paid more attention to the relations and contrasts between speech sounds. They esteemed contrasts and relations over and above the substance of speech itself.

3.3.3. PERIOD OF BETTER UNDERSTANDING

Now let us consider the period of better understanding between phonetics and the traditional school of thought. We would like you to realize that after the mid 20th century phonetics became integrated with phonology once again. This better understanding has continued in the present day.

3.3.3.1. REASONS FOR THE BETTER UNDERSTANDING

Let us now consider the reasons for the better understanding between the two phonetics. We want you to realize that the better understanding is due to what is known as “existence proofs” (i.e. demonstration of the relevance of physical and psychological aspects of speech for explaining sound patterns in language (the traditional concern of phonology)).

3.3.3.2. MAJOR FIGURE IN THE UNDERSTANDING.

Now let us consider the major figure in this rapprochement. We want you to realize that the figure behind this rapprochement was Sieb Noteboom. You should note that Noteboom has played a prominent role in providing “existence proofs” of the benefits of phonetics. This is because such proofs can be found in diverse research areas. These include:

- Speech production and perception.
- Speech technology, prosody, psycho-phonology, speech, errors, etc.

3.4. SELF-ASSESSMENT EXERCISE

Mention the philosophical difference between taxonomic and scientific phonetics.

Possible answer:

Whereas phonology thrives on conformity, scientific phonetics upholds experiments and observation.

4.0. CONCLUSION

We have been discussing the relationship between the two types of phonetics - the traditional approach and the scientific approach. You have learnt that traditional approach or phonology is referred to as taxonomic. You learnt that phonetic proper, is based on scientific procedures of investigation. You learnt that there are differences between the two types of phonetics. You learnt that there are 3 different periods in their relationship, namely,

- The period of integration
- The period of estrangement
- The period of better understanding.

5.0. SUMMARY

In this unit, we have been discussing the relationship between phonetics and the traditional school of thought. You can now mention the two types of phonetics, the taxonomic and the scientific. You can differentiate between taxonomic and scientific phonetics. You can mention the external differences between taxonomic and scientific phonetics. You can equally mention the philosophical difference between the two types of phonetics. You can mention the three periods in the relationship between taxonomic phonetics and scientific. You can explain what led to the estrangement of phonetics from the traditional school of thought. You can explain the role of structuralism in this

estrangement. You can explain what led to the better understanding that now exists between taxonomic and scientific phonetics.

There is no doubt that what you have learnt in this unit will be very useful to you for the rest of the units in this course.

6.0. TUTOR-MARKED ASSIGNMENTS

1. Mention the philosophical difference between taxonomic and scientific phonetics.
2. Mention the role of structuralism in the face-off between phonetics and phonology.
3. Mention the three different periods in the relationship between phonetics and the traditional school of thought.
4. Mention four factors that account for the external differences between scientific and taxonomic phonetics.

7.0. REFERENCES AND OTHER RESOURCES

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UNIT 18
PHONETICS AND THE GENERATIVE SCHOOL OF THOUGHT

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1.0. INTRODUCTION

Welcome to the last of the units in our module on Theories and Trends in the History of Phonetics and Linguistics. So far in this module we have discussed the question of landmarks in the history of phonetics right from the Antiquity down to the 20th century (Units 13 and 14), the History of Linguistic Movements (Unit 15), History of Western Linguistics (Unit 16) and Phonetics and the Traditional School of Thought (Unit 17).

In the previous unit we discussed Phonetics and the Traditional School of Thought. Remember we discussed the relationship between taxonomic phonetics and scientific phonetics. You will recall that we presented taxonomic phonetics as the traditional linguistic phonetics that deals with traditional relations between speech sounds in terms of their contrasting and distinctive features. Remember we told you that this is what is known as phonology. We told you as well that this school of thought thrives on the philosophy of conformity, maintaining old classes of grouping sounds. Remember we told you that this traditional phonetics also differs from scientific phonetics externally. This, you do recall, is due to the fact that scientific phonetics is “where the action is”. It is in scientific phonetics that theories are formulated, statistical analysis of results performed, observations controlled. It is scientific phonetics that embraces all other characteristics of traditional scientific procedures. It is the research results in scientific phonetics that one finds presented at phonetics conferences and congresses and in phonetics journals. You will recall also that the relationship between scientific phonetics and taxonomic phonetics has known 3 different types of periods. Remember there was a time from the 17th to 19th centuries when there was integration of activities in the two domains. Do you recall that just at the turn of the 19th century when instrumental phonetics started making waves, there was separation between the two? You recall also the role that structuralism played in that separation.

Now, do you remember specifically that, prior to our discussions in unit 13, we had already discussed phonetics and linguistic movements in unit 12? Remember we mentioned some schools of thought that branched out from structuralism, one of them being generative grammar. You will recall that we told you in that unit that we shall be dealing with some of those linguistic movements in our later units. It is in that line that we shall now be considering phonetics in its relation with the generative school of thought. In this unit, therefore, we are going to discuss phonetics and the generative school of thought. In this unit, therefore, you are going to learn about the generative school of thought, to know what it is all about. You will learn the origin of generative school of thought. You will learn about Chomsky, the proponent of the generative school of thought. You will learn the nature of transformational grammar. You will learn about the concept of deep/surface structure. You will learn about the principle of recursion. You will learn the three rules of a phrase structure grammar. You will learn to situate phonetics at the appropriate level of analysis in Chomsky’s model.

2.0. OBJECTIVES

On completion of this unit, you should be able to:

1. Explain the concept of generative grammar.
2. Explain the origin of generative grammar.
3. Name the proponent of generative grammar.
4. Mention the two main properties of generative grammar.
5. Mention three major contributions of generative grammar to linguistic theory.
6. Place phonetics at the appropriate level of analysis in Chomsky's model.

3.0. PHONETICS AND THE GENERATIVE SCHOOL OF THOUGHT

3.1. THE CONCEPT OF GENERATIVE GRAMMAR

Now let us consider the concept of generative grammar. As you can see, there are two terms embedded in the concept of generative grammar. Therefore, before we can go on further to consider the idea of generative grammar, we would like us to define the two terms of 'grammar' and 'generative' separately.

3.1.1. THE CONCEPT OF GRAMMAR IN LINGUISTICS

Let us now consider the concept of grammar in linguistics. We want you to realise that the term grammar is polysemic (i.e. it is subject to many interpretations). But we also want you to realise that we shall not go into all the detailed definitions that are associated with the notion of grammar. We simply want to begin by stating that grammar is a sub-field of linguistics. In this connection, we want you to realise that in linguistics, grammar is regarded as the language structure.

3.1.1.1. THE SCOPE OF GRAMMAR

Now let us consider the scope of grammar. From the basic definition of grammar as the language structure, we want you to realise that this structure can be viewed from a restricted sense and also from a broad sense. Without going into details, we want you to realise that grammar encompasses the following:

- Morphology (the formation and composition of words)
- Syntax (the rules that determine how words combine into phrases and sentences)
- Phonology (the study of sound systems and abstract sound units).

3.1.1.2. THE PURPOSE OF GRAMMAR

Now let us consider the purpose of grammar. We want you to realise that grammar is a “device which generates all and only the grammatical sentences of a language”. As you can see, this is a definition that focuses on the function of grammar. In this definition the term generate cannot be overlooked. Therefore, it calls for explanation.

3.1.2. THE CONCEPT OF GENERATING

Now let us consider the term generating. The term as used in the definition of grammar purports the idea of “producing” or “developing” or explaining the structure of sentences. We want you to realise that the term “generating” summarizes the two main properties of grammar, namely

- Its ability to account by its rules for the **infinite** sentences of a language (i.e. define them as grammatical)
- Its ability to be absolutely **explicit** about the grammaticality of sentences by precisely defining the **characteristics of their internal structure**.

We want you to bear in mind that when we say explicit, we mean leaving nothing to chance, leaving nothing to be ‘filled in’ by the intuitions of the native speaker.

3.1.3. THE CONCEPT OF GENERATIVE GRAMMAR

Now that we have considered the terms ‘generative’ and ‘grammar’ separately, let us consider the concept of generative grammar as “a fully explicit finite set of rules that can be applied to generate all those and only those sentences (often, but not necessarily, infinite in number) that are grammatical in a given language”.

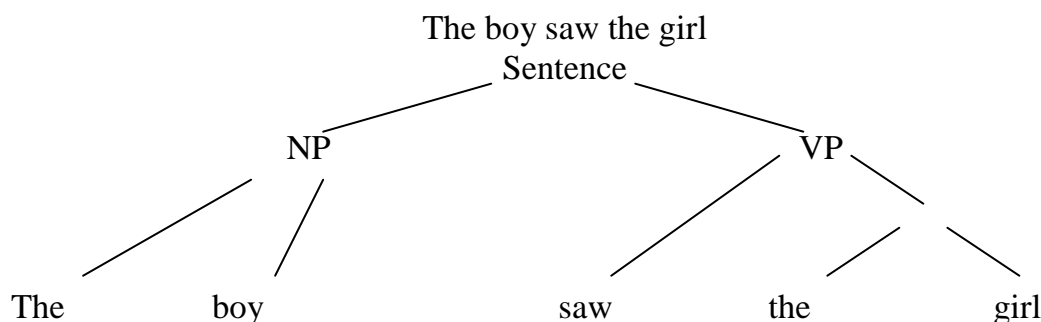
3.2. THE ORIGIN OF GENERATIVE GRAMMAR

Let us now consider the origin of generative grammar. We want you to realise that the construct of generative grammar can be traced to Noam Chomsky who invented the term in his 1957 book on *Syntactic Structures*. ‘What was Chomsky’s motive?’ you may be tempted to ask. Now, as you are well aware, before Chomsky, the mid-20th century linguistic activities in North America were greatly influenced by the post-Bloomfieldian taxonomic approach, which laid emphasis on identification and classification of discrete grammatical elements, like nouns, verbs, etc. Now we just want to point out that the term generative grammar was Chomsky’s preferred option in the face of perceived inadequacy of the post-Bloomfieldian taxonomic approach and its analysis of the Immediate constituents (IC). We also want you to note that Chomsky’s generative approach was introduced under the theory of transformational

grammar. Before we go on to examine this transformational model as part of Chomsky's contributions to linguistic theory, we shall first of all examine the inadequacy of the post-Bloomfieldian IC model.

3.2.1. THE INADEQUACY OF THE POST-BLOOMFIELDIAN IC MODEL

Now let us quickly consider the inadequacy of the IC model. Let us use the example as illustrated below:



From Chomsky's point of view it is true that this sentence has two immediate constituents. But he esteems that the decision that produced this analysis is not explicit. On the other hand, the relationship between the various cutting points is unclear. We want you therefore to bear in mind that generative grammar was born out of Chomsky's criticism of the Post-Bloomfieldian labeling. We shall then proceed to see some of Chomsky's contributions to the linguistics theory.

3.3. CHOMSKY'S CONTRIBUTIONS TO LINGUISTIC THEORY

Let us now consider some of Chomsky's contributions to the development of linguistics. We want you to realize that for the purpose of our discussions in this unit, we are going to group the contributions of Chomsky's generative grammar under the following broad headings:

- Chomsky's publications
- Chomsky's principle of recursion
- Chomsky's surface/deep structure dichotomy

3.3.1. CHOMSKY'S PUBLICATIONS

Now let us consider Chomsky's landmark publications. We want you to realise that Chomsky made valuable contributions in the linguistic theory through two major publications. The two publications are as follows:

- Syntactic Structures (1957)
- Aspects of the Theory of Syntax (1965)

3.3.2. CHOMSKY'S PRINCIPLE OF RECURSION

Now let us consider the principle of recursion as proposed in Chomsky's Syntactic Structures. Before we can go any further, I want us to flash back to the purpose of grammar from Chomsky's perspective – a device which generates all and only the grammatical sentences of a language. Now the word all is an important point on which you should focus due attention. We want you to realise that an important principle of Chomsky's approach is that a grammar should be able to explain not only the sentences used in any given corpus of data, but should be able to account equally well for all possible (grammatical) sentences in a language. You should note that it is assumed that the number of sentences that any grammar has in principle to account for is infinite. Now, if you have been following this discussion quite closely, you should have realised that the rules which constitute the grammar of a language must be finite.

Now what is the implication of the foregoing (i.e. finite grammar/infinite grammatically possible sentences)? The implication of the scenario that we have just discussed is that something has to be done to relate the finite system of rules to the infinite set of possibilities by 'projecting' as it were, the former on the latter. We want you to realise that the way to achieve this projection is by the principle of recursion. We can now define the principle of recursion as the generative mechanism that allows some of the rules which produce sentences to be used more than once in developing a particular sentence. What we are saying is that from the syntactic point of view, language has an important property of organizing elements into recursive structures.

3.3.2.1. EXAMPLES OF RECURSIVE RULES

Now let us consider some of the recursive structures that may occur in language. We want you to realise that there are various examples of recursive structures. These include:

- A noun phrase-inserting
- Clause-inserting
- Adjective-inserting

We shall now consider these examples separately. Below are some examples:

- A noun phrase containing another noun phrase – the chimpanzee's lips
- A clause containing another clause – I think that it's raining
- Adjective-inserting – Why do you think we make Nuttal's Mintoes **such** a devilishly smooth cool creamy minty chewy round slow velvety fresh clean solid **buttery taste**?

3.3.3. CHOMSKY'S 3-COMPONENT MODEL

Now let us consider the 3-component model and how Chomsky uses it to illustrate the explicitness of a grammar in Syntactic Structures. In this model, Chomsky proposes the following components:

- The phrase structure component
- Transformational component
- Morphophonemic component

We shall consider them separately.

3.3.3.1. THE PHRASE STRUCTURE COMPONENT

Now let us consider the phrase structure component. Using the IC model as the starting point, Chomsky formalizes the analytic divisions into a system of ordered rules. Using the example of **The boy saw the girl**, Chomsky develops a notation which both orders the analytical decisions and formally relates them to each other by deriving each decision from some previous one.

E.g. The sentence (S) \rightarrow Noun phrase (NP) + Verb phrase (VP)
VP \rightarrow Verb + NP
NP \rightarrow T + Noun (Noun)
T \rightarrow the ...
N \rightarrow boy, girl ...
V \rightarrow saw ...

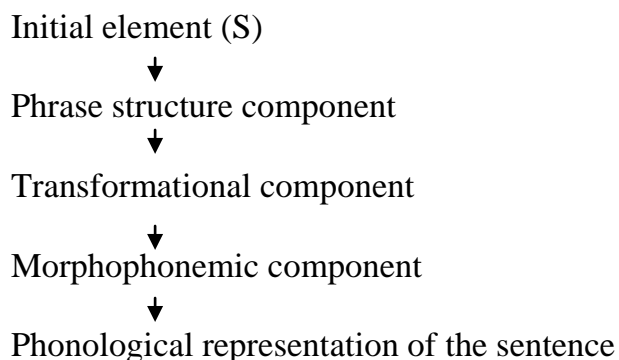
Now let us consider this example. The first rule takes as a primitive the concept of sentence and makes an initial statement about its internal structure. The arrow is an 'instrument' to replace (or rewrite) the element on the left into the string of elements on the right. Clearly, this first component contains rules which took an initial element (S, standing for any sentence) and assigned to it a particular phrase structure. You should realize that these rules would then produce strings of elements which represented the underlying structure of a sentence (a 'kernel' sentence).

3.3.3.2. THE TRANSFORMATIONAL COMPONENT

Let us now consider the second component, the transformational component. We want you to realize that in Chomsky's design the transformational component consisted of transformational rules which operated on the strings produced by the phrase structure component and altered them in various ways (e.g. by turning 'active' strings into 'passive' ones, by altering word order, by adding inflections, and so on), making relationships between different types of sentences explicit.

3.3.3.3. THE MORPHOPHONEMIC COMPONENT

Now let us consider the third component, the morphophonemic component. This consisted of a set of morphophonemic rules which converted the string of words and morphemes produced into a string of phonological units – in other words, told you how the sentence as a whole was to be pronounced. Schematically, the model can be represented as follows:



3.3.4. CHOMSKY'S MODEL OF GRAMMAR IN ASPECTS

Now let us consider Chomsky's model of grammar in Aspects of the Theory of Syntax (Aspects for short). We want you to realize that this model had to do with meaning which the 3-component model failed to address in Syntactic Structures. Now we want you to realize that this is the model that expresses the Surface/Deep structure dichotomy. It is this dichotomy between the surface and the deep structure that clearly marks the difference between Chomsky's new techniques and the old model. In addressing this model, we shall have to define surface structure, deep structure and explain the deep/surface structure relationship.

3.3.4.1. THE CONCEPT OF SURFACE STRUCTURE

Now let us consider the concept of surface structure. We want you to realize that the surface structure of a sentence is the superficial or apparent structure of the sentence.

3.3.4.2. THE DEEP STRUCTURE

Now let us consider the deep structure. We want you to realize that the deep structure is the underlying structure of the sentence.

3.3.4.3. IMPLICATION OF THE DEEP STRUCTURE RELATIONSHIP

Now let us consider the surface/deep structure relationship. Here we want you to realize that a pair of sentences may have identical surface structure but different deep structure. Let us consider the following example:

- John is eager to please.
- John is easy to please.

Now you should realize that though these two sentences may be identical at the surface level, judging by the sequence in the stringing together of the five elements (John + is + eager + to + please/John + is + easy + to + please), yet the deep structure withholds the underlying meaning. You should realize that whereas in the first sentence “John is eager to please”, John is the underlying subject of the verb “to please”, in the second sentence “John is easy to please”, John is the underlying direct object of the verb “to please”.

3.4. THE PLACE OF PHONETICS IN CHOMSKY’S MODEL OF GENERATIVE GRAMMAR

Now let us consider the place of phonetics in Chomsky’s model of generative grammar. Now we want you to take note that phonetics belongs to the surface realization level. We want to illustrate using the diagram below:

INSERT DIAGRAM

3.5. SELF ASSESSMENT EXERCISE

Mention two important publications of Chomsky.

POSSIBLE ANSWER

The two important publications of Chomsky are the following:

- Syntactic Structures (1957)
- Aspects of the Theory of Syntax (1965)

4.0. CONCLUSION

We have been discussing phonetics and the generative school of thought. We told you that generative grammar is the combination of two notions, namely generative and grammar. We started by defining grammar as a device which generates all and only the grammatical sentences of a language. In the course of our discussion, we explained that to generate implies producing, developing or explaining the structure of a sentence. We mentioned the two main properties of generative grammar (i.e. its ability to account by its rules for the **infinite** sentences of a language and its ability to be absolutely **explicit** about the grammaticality of sentences by precisely defining the characteristics of their internal structure). We explained the principle of recursion, a mechanism used in projecting a set of finite rules to an infinite number of grammatical sentences in a language. We mentioned the two major publications of Chomsky, the first being Syntactic Structures (1957), in which Chomsky exposed the 3-component model of phrase structure, transformational and morphophonemic levels, the second being Aspects of the Theory of Syntax (1965). We told you that Chomsky's model of surface/deep structure in Aspects was his contribution in making up for the level of meaning, which was lacking in post-Bloomfieldian structuralism. We told you that one of the advantages of the surface/deep structure dichotomy was its ability to situate phonetics at the appropriate level of surface realisation where it belongs.

5.0. SUMMARY

This unit on Phonetics and the Generative School of Thought has equipped you with a clear understanding of concepts. You can now define generative grammar. You can even mention the purpose of grammar. You can also define the concept of recursion. You can even mention the two major publications of Chomsky. You can even mention three components of Chomsky's model in Syntactic Structures.

There is no doubt that what you have learnt in this unit will be very useful to you for the rest of the units in this course.

6.0. TUTOR-MARKED ASSIGNMENTS

1. Define generative grammar.
2. Mention the two properties of grammar from the generative perspective.
3. Mention the three components in Chomsky's mode in Syntactic Structures
4. Explain the concept of surface structure.
5. Using a diagram, situate phonetics at the appropriate level in Chomsky's generative grammar.

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UNIT 19

TOOLS OF ANALYSIS IN PHONETICS

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1.0. INTRODUCTION

Welcome to the last module in this course titled “Phonetics in Practice”. In retrospect, you know that we have already concluded discussions in the first four modules on Introduction to Phonetics, Review of the Major Branches, a 4-unit module of Transition/Interface and Theories and Trends in Phonetics and Linguistics, respectively. In this final module, we are going to have just two units as follows:

- UNIT 19 – Tools of Analysis in Phonetics
- UNIT 20 – Practical Applications of Phonetics in the Teaching/Learning of French in Nigeria

Now before we go into full discussions on Unit 19, let’s have a quick reminder of what we discussed in earlier units that will help guide our discussions forthwith. Let us bear in mind that we had earlier on in Units 14 and 17 mentioned issues that will find echo in this present unit. But before we gloss over those particularly scientifically oriented questions, it may be more appropriate to recall elements of our recent discussions in the very last unit,

considering that they should be quite fresh in our memory. As you are well aware, our discussions in unit 18 centred on phonetics and generative grammar. You will recall that in that unit we discussed the concept of generative grammar. Remember we retained the purpose of grammar as “a device which generates all and only the grammatical sentences of a language”. You do certainly recall that the concept of generating was encapsulated in the two main properties of a grammar, namely its ability to account by its rules for the infinite sentences of a language and its ability to be absolutely explicit about the grammaticality of sentences by precisely defining the characteristics of their internal structure. Of course you will remember that generative grammar was then defined in that last unit as follows: “a fully explicit finite set of rules that can be applied to generate all those and only those sentences that are grammatical in a given language”. Remember we told you about the origin of generative grammar, tracing it to the works of Chomsky in his 1957 *Syntactic Structures* and his 1965 publication of *Aspects of the Theory of Syntax* which clearly was a reaction to the Post-Bloomfieldian taxonomic structuralism emphasizing the IC model. Remember we discussed some of Chomsky’s contributions in the area of recursive rules and in the area of his 3-component model of phrase structure, transformation and morphophonemics. Do you recall that a major defect of the IC model was the absence of meaning, which Chomsky addressed in the deep/surface structure dichotomy? Above all, you will recall that our discussion in that unit ended at a point where we located phonetics at the surface realisation level.

Now that you have been reminded of how we wrapped up discussions in Unit 18 with a focus on the place of phonetics in the generative school of thought, we are yet going to briefly remind ourselves of a few issues bothering on the scientific nature of phonetics that were touched on in Units 17 and 14, since such issues are likely to help us focus when we open up discussions on the tools of analysis in phonetics.

Do you remember that in Unit 17, we talked about two types of phonetics, the scientific and the taxonomic? Do you also remember that, in tracing the growth of phonetics during the 19th and 20th centuries in Unit 14, it was clearly stated that phonetics became an independent science with an instrumental infrastructure? That’s just to remind you that we discussed the history of instrumental phonetics and some landmark figures and activities connected with instrumental and experimental phonetics. Remember that the kymograph was mentioned as one of the instruments of analysis or phonetic description? Remember it was also mentioned that there was a period of estrangement in the relationship between the linguistic phonetics and the scientific phonetics? Now you will recall that each time we were talking about the two types of approaches to phonetic studies in those units of discussion under review, we specifically told you that we would discuss later in Unit 19. It is such differences in methodology that we intend to address in the present unit. Therefore, this present unit is going to discuss Tools of Analysis in Phonetics.

You will learn about the two methodologies at work in the practice of phonetics with respect to data build-up. In this unit, you will learn about the concept of instrumental phonetics. You will learn about the concept of technology. You will learn about the link between technology and instrumental phonetics. You will learn about the different types of instruments and their use in obtaining and analysing phonetic data. You will learn about the concept of linguistic phonetics. You will learn about the appropriate tools for linguistic or phonological analysis.

2.0. OBJECTIVES

On completion of this unit, you should be able to:

1. Mention the two different approaches to data build-up in phonetics.
2. Define the concept of technology.
3. Define the concept of instrumental phonetics.
4. Explain the link between technology and the study of phonetics.
5. Mention different types of tools of analysis in instrumental phonetics.
6. Mention the basic tools of analysis in phonology.

3.0. TOOLS OF ANALYSIS IN PHONETICS

Before we go into full discussions on tools of analysis in phonetics, let us specify that right from Unit 17, we are already aware that there are two different types of phonetics. For our discussions in this unit to be meaningful, we are operating on the premise that since there are two types of phonetics, namely the scientific and the linguistic, there are also bound to be two approaches to data build-up in phonetics. We want you to bear in mind that the two perspectives of building up and analysing data include the following:

- Instrumental tools of analysis
- Traditional tools of analysis

From the foregoing premise we shall proceed to consider these tools separately, even though more emphasis will be placed deliberately on instrumental tools of analysis.

3.1. INSTRUMENTAL TOOLS OF ANALYSIS IN PHONETICS

Before we go on to discuss instrumental tools of analysis, let us indicate that we are going to consider *ab initio* the concept of instrumental phonetics. This will imply our explaining the concept of technology, the link between technology and the study of phonetics and also the scope of instrumental phonetics.

3.1.1. THE CONCEPT OF INSTRUMENTAL PHONETICS

Now let us consider the concept of instrumental phonetics. Before we go into fuller discussions let us quickly state that instrumental phonetics is a technological concept. Consequently, we want you to realise that before we can fully appraise the meaning of/and implication of instrumental phonetics, our starting point should be the definition of the notion of technology and its link to the study of phonetics.

3.1.2. THE CONCEPT OF TECHNOLOGY

Now let us consider the concept of technology. What is technology? From the etymological perspective, we want you to realise that the term 'technology' comes from the Greek word *techne* which means an art or a skill. Now let us add that generally speaking, technology can be defined as a branch of knowledge that deals with the creation and use of technical means and their interrelation with life, society and environment. To this extent, we want you to realise that technology can refer to the basic tools and gadgets developed and put into use in dealing with a particular object of study in order to obtain information with scientific precision. Now, of what use is this to phonetics? In other words, what is the link between technology and the study of phonetics?

3.1.2.1. THE LINK BETWEEN TECHNOLOGY AND THE STUDY OF PHONETICS

Now let us consider the link between technology and the study of phonetics. Now to fully establish the link between technology and the study of phonetics, we would like to draw your attention, first and foremost, to the general object of study of phonetics. It is important for us to remind ourselves that the general object of phonetics is the study of speech sounds. However, we would also remind you that there are two approaches to the study of phonetics, the taxonomic and the scientific (see Unit 14).

You are very much aware that taxonomic phonetics provides two basic tools for dealing with speech sounds, namely uniformity in naming and classifying speech sounds and also transcribing them. (We treated this aspect in Unit 18). Meanwhile, scientific phonetics primes itself with a search to understand how speech works at all levels from the brain of the speaker to the brain of the hearer. We want you to bear in mind that in doing so it provides the scientific tools necessary for the study. It is in this connection that we want to establish the link between this aspect of phonetics with the idea of technology which we started off with in the opening session of this discussion. What we are saying in effect is that if technology is about the creation and use of instruments to obtain information with scientific precision, it will be easy to define instrumental

phonetics in the light of the application of technology to the scientific study of phonetics.

3.1.2.2. DEFINITION OF INSTRUMENTAL PHONETICS

Let us now consider the definition of instrumental phonetics. We can now define instrumental phonetics simply as the analysis of speech by means of instruments.

3.1.2.3. THE SCOPE OF INSTRUMENTAL PHONETICS

Now let us consider the scope of instrumental phonetics. Now we want you to realise that the concerns of instrumental phonetics include investigation at both the acoustic and articulatory aspects of phonetics. Instrumental investigation of acoustic phonetics deals with the study of the vibration in the air caused by speech sounds. On the other hand, you should note that instrumental investigation of articulatory phonetics is concerned with the study of the movements of the articulators that produce speech sounds.

3.2. TYPES OF TOOLS FOR INSTRUMENTAL ANALYSIS

Now let us consider the types of tools for instrumental analysis. We want you to realise that, in view of the two areas of concern of instrumental phonetics that we have mentioned under the scope, namely the investigation of articulatory movements and the investigation of the acoustic properties of speech sounds, there are two types of tools for instrumental analysis. They are as follows:

- Instrumental techniques for articulatory analysis
- Instrumental techniques for acoustic analysis

TOOLS FOR ARTICULATORY ANALYSIS

Now let us consider the tools for articulatory analysis. We want you to realise that many laboratory techniques are used in analysing the movements of the speech organs. Some of these techniques help in providing information on articulatory and muscular movements that are ordinarily hidden. We shall consider the first of such techniques and mention others in passing.

THE FIRST TECHNIQUE FOR INSTRUMENTAL ANALYSIS

Now let us consider the first technique for instrumental analysis. We want you to realise that the earliest instrument used in the investigation of human speaking is the kymograph. What is the kymograph? We shall now consider the kymograph in terms of its nature, its origin and its use.

What is the nature of the kymograph?

We want you to realise that the kymograph is a cylindrical device with a revolving drum covered with white glossy paper that had been smoked so that there was a layer of soot on it. Now, you should realise that the subject of the experiment spoke into a tube that led to a rubber drum that vibrated when a voiced sound was produced. You should also realise that a straw with a pointer on the end picked up these vibrations and made a trace on the soot-covered paper.

What was the origin of the kymograph?

You should note that Karl Ludwig produced the kymograph in 1847. But we also want you to realise that it became popular under the influence of the phonetician, Abbé Rousselot, in conjunction with Charles Rosapelly and the German phonetician, Wilhelm Viëtor.

Of what use is the kymograph?

We want you to realise that the kymograph is an effective way of recording the duration of a voiced sound. You should also realise that with modern technology, there are much more sophisticated versions of the kymograph that permit the observation of aspiration, onset and cessation of voice, or even nasalisation.

OTHER INSTRUMENTAL TECHNIQUES

Apart from the kymograph, there are several other techniques for the investigation of diverse articulatory movements. We shall now mention some of these techniques. You should realise that these techniques include the following:

- Radiography
- Laryngoscopy
- Electromyography
- Palatography
- Glottography

INSTRUMENTAL TECHNIQUE FOR ACOUSTIC ANALYSIS

Now let us consider the instrumental technique for acoustic analysis. From an earlier unit on acoustic phonetics, you already know that speech sound is a 3-dimensional phenomenon. Now we want you to realise that the technique for analysing these three aspects of the acoustic property of speech is the spectrograph. Now we want you to realise that the sound spectrograph interprets speech by giving a visual account of component frequencies. You should realise that this visual account is called a spectrogram. What does the spectrogram look like? We want you to realise that the spectrogram is a two-dimensional picture in which the vertical axis represents the frequency and the horizontal axis represents time. We want you to realise that the relative intensity (i.e. the acoustic measurement of loudness) attributed to each frequency shows up as relative darkness, so that each spectrogram consists of patches of greys and blacks. You should realise that this can be displayed on a computer by the use of various soft wares available these days in the market.

TRADITIONAL TOOLS FOR PHONETIC ANALYSIS

Now let us consider the traditional tools for analysing speech sounds. We want you to bear in mind that this has to do with taxonomic phonetics. You should realise that the tools include the following:

- Naming and classifying speech sounds
- Transcribing speech sounds

We shall only discuss the problem of classifying speech sounds.

CLASSIFYING SPEECH SOUNDS

Now let us consider the tool for classifying speech sounds. We want you to realise that there is hierarchy in the classification of speech sounds. You should realise that speech sounds can be considered in terms of segments and higher categories like morphemes. Therefore, we want you to realise that there are two forms of classification, which include the following:

- Phonemic classification
- Morphological classification

PHONEMIC CLASSIFICATION

Now let us consider the tool for phonemic classification. We want you to realise that the basic tools for phonemic classification is the IPA. You should realise that the phonological system for French contains 36 phonemes, which you already know from earlier course in phonetics.

MORPHEMIC CLASSIFICATION

Now let us consider the classification of French phonetic morphemes. We want you to realise that these are intonation morphemes, which we discussed in a unit in your earlier course, FRE 206. You will do well to revise that unit on intonation morphemes.

SELF ASSESSMENT EXERCISE

Mention the two different approaches to building up data in phonetics.

POSSIBLE ANSWER

The two approaches to data build-up in phonetics include:

- Instrumental technique
- Traditional approach

4.0. CONCLUSION

We have now come to the end of our discussion in this unit on tools of analysis in phonetics. We started our discussion by explaining that there are two perspectives of building up and analysing data in phonetics including the instrumental and the traditional.

From the instrumental perspective, we told you that there are two types of instrumental analysis, namely the articulatory and the acoustic. You were made to realise that the articulatory analysis had to do with the various muscular movements involved during the production of speech sounds and that acoustic analysis had to do with the physical properties of the speech sounds themselves. You also learnt about the tools for articulatory analysis on one hand, and those for acoustic analysis on the other. We told you about some of the instrumental techniques for the investigation of articulatory movements. We told you that the first instrumental technique for the investigation of articulatory movements was the kymograph. We described its nature, its origin and its use. We told you that there are more sophisticated versions of the kymograph with the capacity of providing more robust information. We also mentioned some other techniques for articulatory investigation including radiography, electromyography, palatography, laryngoscopy and glottography.

Concerning instrumental techniques for acoustic analysis, we told you that the modern technique for such investigation is the spectrograph. We explained the make up of the spectrograph, pointing out that it is a 2-dimensional picture with information on both the horizontal axis and the vertical axis. You learnt that the spectrograph provides information on the 3-dimensional aspect of the sound structure, namely the frequency, duration and intensity.

You also learnt about the traditional methods of analysing speech sounds. You learnt about the basic tool for naming and classifying sounds. You learnt about the IPA as a classical tool that provides uniformity. You learnt about the phonemic classification of phonemes and you equally learnt about morphemic analysis.

. SUMMARY

The present unit has equipped you with vital information on the tools of analysis in phonetics. You can now mention the two different approaches to data build-up in phonetics. You can now define the concept of technology. You can now define the concept of instrumental phonetics. You can even explain the link between technology and the study of phonetics. You can also mention different types of tools of analysis in instrumental phonetics. You can even mention the basic tools of analysis in phonology.

There is no doubt that what you have learnt in this unit will be useful to you for the rest of the unit in this course.

6.0. TUTOR-MARKED ASSIGNMENTS

1. Define the concept of instrumental phonetics.
2. Mention the instrumental techniques for articulatory investigation.
3. Explain the use of the kymograph.
4. Mention the basic tool for phonemic analysis.
5. Mention the information that we can get on the spectrograph.

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UNIT 20: CHALLENGES FOR PHONETICS

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1.0. INTRODUCTION

Welcome to the last unit in this course on Advanced Studies in French Phonetics. No doubt we have engaged your attention on many topics as you read your way through the last 19 units of this course. Need we remind you that the course was structured in five modules in such a way as to allow you an in depth reflection on phonetics?

Remember in Module I on Introduction comprising units 1 – 4, you were introduced to the concept of phonetics (unit 1), the nature of phonetics (unit 2), the scope of phonetics (unit 3) and the major branches of phonetics (unit 4). Do you recall that Module II, comprising another four units, focused on the

overview of the branches of descriptive phonetics? That way, you do recall that units 5, 6, 7 and 8 dealt, respectively, with An Introduction to Articulatory Phonetics, Articulatory Classification of French Sounds, An Introduction to Auditory Phonetics and An Introduction to Acoustic Phonetics. Remember that the four units of Module III (units 9 – 12) provided an Interface/Transition in our discussions in this course. You will recall that combinatory phonetics was mentioned and discussed in this course as constituting part of the areas of concern in descriptive phonetics even though it does not feature as such as an autonomous discipline the way one would consider the normal three branches of articulatory, auditory and acoustic phonetics. But because of the nature of French language, where one can hardly ignore the neighborhood effect of speech sounds in contact, that interface was created in our discussions in units 9 and 10, which, if you will recall, dealt with an introduction to combinatory phonetics and liaison/elision as special combinatory phenomena in French. From our discussions, you will recall that combinatory phonetics is an interface for interplay of phonetic activities that cut across articulatory, auditory, acoustic and even experimental phonetics.

Apart from the interface, do you remember that the next two units of Module III, units 11 and 12, provided a kind of transition to later discussions in subsequent units of the course? You will remember that Module IV covered discussions on the development of phonetics and linguistics from a historical perspective. In that connection, you remember that it was necessary to establish the importance of phonetics in language study. Much the same way, you will also remember how we even introduced you to the very concept of theories as a prolegomenon to the idea of schools of thought. Remember it was after the transition in units 11 and 12 that we were able to move on to discuss landmarks in the history of phonetics from the antiquity to the Renaissance (unit 13), further landmarks in the history of phonetics from the 17th to the 20th centuries (Unit 14), the History of Linguistic Movements (Unit 15), the History of Western Linguistics (Unit 16).

Remember that we told you about Ferdinand de Saussure and his major contribution of structuralism to Western linguistics. Do you recall the schism between phonetics and the traditional school of thought (Unit 17)? Remember also how inevitably the phonetic component of a language appeared at the very starting point of Chomsky's model of generative grammar (Unit 18). Of course you remember that phonetics can be located at the surface level in Chomsky's deep/surface structure dichotomy. Needless to remind you of what must be fresh in your mind after our very last discussion in Unit 19. Of course you remember that discussions in Unit 19 portrayed phonetics as a discipline with a wide range of analytic repertoire that makes it a toast not only for researchers in language-related disciplines but also for foreign language students like you. We told you in that unit that we would look at some of the pedagogical implications of such a discipline as phonetics for French language studies. It is

against backdrop that the present unit is going to focus on some of the practical applications of phonetics in the teaching/learning of French in Nigeria.

In this present unit, therefore, you are going to learn about the three major areas of practical application of phonetics to the teaching/learning of French in Nigeria. You will learn the practical applications of phonetics in enhancing learner performance either at the receptive or at the productive level. You will learn about the practical applications of phonetics in enhancing teacher effectiveness. You will equally learn about the practical applications of phonetics in enhancing research.

2.0. OBJECTIVES

On successful completion of this unit, you should be able to:

1. Mention the three major areas of practical application of phonetics to the teaching/learning of French in Nigeria.
2. Mention the areas of practical application of phonetics in enhancing learner performance in the reception of oral French.
3. Mention the areas of practical application of phonetics in enhancing learner's production of spoken French.
4. Explain how phonetics can be applied toward enhancing teacher effectiveness in the teaching of French in Nigeria.
5. Mention some of the research potentials of phonetics as a discipline in Nigeria.

3.0. PRACTICAL APPLICATIONS OF PHONETICS IN THE TEACHING/LEARNING OF FRENCH IN NIGERIA

We are now going to consider the practical applications of phonetics in the teaching/learning of French in Nigeria. But for us to do that effectively, we want to, first of all, let you know that there are three major areas where phonetics can be of practical relevance. Therefore we need to identify the three areas.

What are these three areas of practical application?

3.1. THE THREE MAJOR AREAS OF PRACTICAL APPLICATION

Now let us consider the three major areas of practical application of the knowledge of phonetics in the teaching/learning of French in Nigeria. Now you should realize that these three areas of practical application include the following:

- Improving learner performance
- Enhancing teacher effectiveness
- Enhancing research

We are now going to consider these areas one after the other.

3.1.1. PRACTICAL APPLICATIONS FOR IMPROVING LEARNER PERFORMANCE

Now let us consider the practical applications of phonetics toward enhancing learner performance. We want you to realize that learner performance can be of two levels when considering oral French. We want you to note that these two levels can be said to comprise the receptive (listening) and the productive (speaking) levels. We also want you to realize that these two levels have their different phonetic-related learning tasks, which we will consider appropriately.

3.1.2. PHONETIC-RELATED LEARNING TASKS AT THE RECEPTIVE LEVEL

Now let us consider the phonetic-related learning tasks that need to be embarked upon in order to enhance learner's listening performance. Now we want you to realize that the phonetic-related learning tasks that will richly enhance the learner's performance at the level of listening in French include the following:

- *Dictée*
- Auditory discrimination
- Oral comprehension

We shall consider them one after the other in order to explain the practical applications of phonetics in each case.

3.1.2.1. PRACTICAL APPLICATION OF PHONETICS TO DICTEE AS A LEARNING ACTIVITY IN FRENCH

Now let us consider the practical application of phonetics with respect to *dictée* as a learning activity in a French class. We want you to realize that *dictée* is one of the activities in a French class where the learner's mastery of phonetic details can be tested at the level of reception. We want you to bear in mind that *dictée* as an activity can involve quite complex tasks on the part of the learner. For instance, you should realize that effective performance in this exercise implies that the learner should be able to carry out a combination of activities in French that span across grammatical, orthographic and lexico-semantic levels. Such a student should be able to:

- Recognize French sounds when heard
- Propose the correct spelling (graphic representation) of the French sounds heard
- Make sense of the French sounds when heard
- Show evidence of the mastery of homonyms in French
- Show evidence of liaison-induced phonological changes

3.1.2.2. PRACTICAL APPLICATION OF PHONETICS TO AUDITORY DISCRIMINATION

Now let us consider the practical application of phonetics to auditory discrimination of French sounds. We want you to realize that auditory discrimination implies distinguishing between the sounds of French. We want you to realize that satisfactory performance at this level requires that the learner should be able to spot the difference between sounds. Such a learner should be able to identify a particular sound from a series of options.

3.1.2.3. PRACTICAL APPLICATIONS OF PHONETICS TO ORAL COMPREHENSION AS A LEARNING TASK

Now let us consider how phonetics can be relevant in oral comprehension as a task in a French class. Here, we want you to realize that oral comprehension entails reacting correctly to the message formulated in a given recording or a spoken message. A learner who exhibits this type of proficiency will be capable of doing a couple of things like:

- Providing answers to questions asked at the end of a spoken or recorded document.
- Summarizing the message in a given recording or spoken text.
- Supplying missing bits of information (i.e. filling the gap).
- Picking the right answer from a series of options.

3.1.3. PHONETIC-RELATED LEARNING TASKS AT THE PRODUCTION LEVEL

Now let us consider the phonetic-related learning tasks, which if performed will add to enhance the level of the student's mastery of French at the level of speech production. Here we want you to bear in mind that there are different speech production modes (see FRE 206: Oral French). These three production modes include:

- Spontaneous speech
- Reading
- Prepared speech

We want you to realize that these different production modes have their specific phonetic details. We do not intend to go into all the phonetic details that come with each of these modes but we simply want you to note that part of the phonetic-related learning tasks that a student of French will be required to accomplish as a result of general mastery will include:

- Possessing good diction through articulation and correct pronunciation.
- Observing liaison/*enchaînement* at the appropriate places.
- Observing the adequate syllabification.

- Observing rhythmic/breath groups with the right boundaries.
- Observing the right intonation patterns.
- Maintaining fluency.

3.2. ENHANCING TEACHER EFFECTIVENESS IN FRENCH THROUGH PHONETICS

Let us now consider the practical application of phonetics in enhancing teacher effectiveness. Now we want you to realize that teacher effectiveness, as far as oral French is concerned, can be enhanced through a well-articulated French teacher education that pays attention to two major areas, among others. The two major areas include the following:

- Quality of teachers handling oral French
- Availability of teachers

3.2.1. IMPROVING ON THE QUALITY OF TEACHERS OF ORAL FRENCH

Now let us consider how teacher education can help enhance the quality of French taught in Nigerian schools. Now we want you to bear in mind that from the phonetic perspective the teacher's spoken French is supposed to be an impeccable model that should go a long way in shaping the learner's spoken French. Most times this is not the situation and that is why we want you to bear in mind that this enhancement can be achieved through teacher education. We want you to note that teacher education can address this problem in two ways. These include:

- General level
- Professional level

Let us consider them one after the other.

3.2.1.1. GENERAL LEVEL OF ORAL PROFICIENCY IN FRENCH TEACHER EDUCATION

Now let us quickly consider how teacher education can help ensure that all would-be teachers of French possess good quality of expression in French. We want you to bear in mind that even though not everybody should be a phonetician, it is pertinent that at a general level, all French teachers should possess an enviable level of spoken French. This can only be achieved through emphasizing the oral component of the teacher education curriculum. Trainee teachers should undergo adequate drills both at the receptive and the productive levels.

3.2.1.2. PROFESSIONAL LEVEL OF PROFICIENCY FOR TEACHERS OF PHONETIC-RELATED LEARNING TASKS IN FRENCH

Now let us consider briefly how professional training is a necessary ingredient for teacher effectiveness in the teaching of phonetics-related learning tasks. We simply want you to realize that the Nigerian aspiring to teach phonetics-related learning tasks effectively should be adequately equipped. We want you to realize that such a person ought to be well grounded professionally at two levels. The professional training should include the following:

- Phonetic awareness
- Contrastive analysis

3.2.2. TRAINING OF MORE TEACHERS

Now let us consider how the availability of more teachers will help sustain the impact of phonetics and phonetics-related learning activities in our French classes. Here we want you to realize that not even the most qualified of phoneticians would achieve the desired results in terms of teacher effectiveness in the face of large unwieldy classes. This is why you should bear in mind that that, for phonetics to have direct applications in our French classes, the teaching/learning environment should be more phonetics-friendly. Simply put, we want to let you know the urgency of providing specialists in phonetics.

3.3. ENHANCING RESEARCH IN PHONETICS IN NIGERIA

Now let us consider the third area of practical application of phonetics in the teaching/learning of French in Nigeria. Now I suggest you pause here briefly and go back to our earlier units, particularly the transition units (Units 11 and 12) on the importance of phonetics in language study and the concept of theories in phonetics. Also we want you to check out the growth of phonetics as depicted in Units 13 and 14 on landmarks and further landmarks in the history of phonetics.

Have you actually glossed over those contact points that you have just been referred to? If so, welcome back! Now can you hazard a guess as to the research implications of phonetics with a bias to French studies in Nigeria? Doesn't it appear to you that from the trend in modern phonetics and what you know about the Nigerian linguistic canvas, there seems to be enormous indication that phonetics and phonetics-related research can surely thrive to boost the study of French in Nigeria? In case you have not got the message, let us quickly draw your attention to some of the research potentials of phonetics as a discipline in the teaching/learning of French in Nigeria. We will limit our discussion to two potentials of growth for phonetics in Nigeria. These include the following:

- Implications for the growth of the discipline

- Implications for the problem of interference

3.3.1. RESEARCH IMPLICATIONS FOR THE GROWTH OF PHONETICS IN NIGERIA

Now let us key into some of the areas in which phonetics can be developed in Nigeria. We want to tell you that you can decide to become a phonetician. If that is your decision right now, be rest assured that in addition to the areas mentioned in Unit 11 on the importance of phonetics in language study, you can work in many areas of research including:

- Telecommunication
- Audio phonology
- Orthophony
- Language pathology
- Criminology
- Speech synthesis

We want you to realize that the list is non-exhaustive.

3.3.2. IMPLICATIONS FOR THE PROBLEM OF INTERFERENCE

Now let us consider the practical application of phonetics in research-oriented perspective with the Nigerian linguistic repertoire. We want you to know that every Nigerian learner of French comes to the French class as a linguistic adult whose language luggage contains the phonological peculiarities of the mother tongue (L1), English as our language of instruction (L2), and even the phonological systems of other local languages. We want you to note that these Nigerian languages and English compete for space in the learner's receptive/productive arsenal. What goes on in the head, (the brain and the ear) and the mouth of the Nigerian learners of French is enough to engage research on the age-long problem of interference. We just want to encourage you to bear in mind that your errors of pronunciation are quite natural. We also want to let you know that much work can engage you if you choose to give a go studying the phonological interference of whatever Nigerian language on French. It will surely engage you for a lifetime.

3.4. SELF-ASSESSMENT EXERCISE

Mention the three areas where phonetics is of practical relevance in the teaching/learning of French in Nigeria.

POSSIBLE ANSWER

The three major areas of practical application of phonetics in the teaching/learning of French in Nigeria include the following:

- Enhancing learner performance in oral French both at the receptive as well as the productive level.
- Enhancing teacher effectiveness
- Enhancing research options

4.0. CONCLUSION

We have come to the end of the last unit of our discussions in this course on Advanced Phonetics Studies. As you are well aware, this last of our course was titled “Practical Applications of Phonetics in the Teaching/Learning of French in Nigeria. We started off our discussions by identifying the three major areas of practical relevance of phonetics with respect to the teaching/learning of French in Nigeria. We told you that the major areas include the enhancing of learner performance, teacher effectiveness and research development. You learnt about the different phonetic-related learning tasks through which learner performance can be improved upon in French language study. You learnt about the relevance of such activities like *dictée*, auditory discrimination and oral comprehension in boosting learner performance at the receptive level. You also learnt about phonetics-related activities like diction, syllabification, observing liaison/*enchaînement*, observing the right intonation patterns, maintaining fluency, all of which combine to make a good show of the evidence of the mastery of oral French. You have also learnt that phonetics has direct application in boosting teacher effectiveness. You learnt that this is possible through a teacher education programme that lays emphasis on the phonetic component for the general proficiency of whoever aspires to teach French. You learnt that while the inclusion of the phonetic component in the French teacher education curriculum will go a long way in improving on the quality of oral French of all French teachers, a course in linguistics with a particular focus on contrastive linguistics will enhance the effectiveness of those French teachers whose task would entail the handling of oral French. You learnt that phonetics is of relevance and has potentials for growth either as a discipline per se or as an umbrella for exploring the prospects of Nigeria’s multilingual resources as regards studies related to linguistic interference.

5.0. SUMMARY

The last unit of this course has equipped you with quite a number of practical applications of phonetics-related activities in the teaching/learning of French in Nigeria. You can now identify the three major areas of relevance as far as phonetics is concerned. You can now mention the different phonetics-related learning tasks that will help enhance learner’s receptive level in French. You can equally mention the specific learning tasks involving the application of phonetics toward improving learner performance in spoken French. You can also mention the direct applications of phonetics in boosting teacher effectiveness. Finally you can mention the research potentials of phonetics in the teaching/learning of French in Nigeria.

There is no doubt that what you learnt in this unit will be very useful to you as you work your way through the entire B.A. French programme.

6.0. TUTOR-MARKED ASSIGNMENTS

1. Mention the areas of practical application of phonetics in enhancing learner performance in the reception of oral French.
2. Mention the areas of practical application of phonetics in enhancing learner's production of spoken French.
3. Explain how phonetics can be applied toward enhancing teacher effectiveness in the teaching of French in Nigeria.
4. Mention some of the research potentials of phonetics as a discipline in Nigeria.

7.0. REFERENCES AND OTHER RESOURCES

Mbanefo, Eugenia (2003). Enhancing Fluency in the Reading of a French Text: An Experimental Phonetics Approach. In *Proceedings of The 15th International Congress of Phonetic Sciences (ICPhS)*. Barcelona, 2461-2464.

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