MACHAKOS UNIVERSITY

CENTRE FOR OPEN DISTANCE AND E-LEARNING

IN COLLABORATION WITH

SCHOOL OF HUMANITIES AND SOCIAL SCIENCES

DEPARTMENT: LINGUISTICS AND LANGUAGES

MODULE

AEN 300: PHONETIC AND PHONOLOGICAL ANALYSIS

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MACHAKOS UNIVERSITY

SCHOOL OF HUMANITIES AND SOCIAL SCIENCES

DEPARTMENT OF LINGUISTICS AND LANGUAGES

COURSE OUTLINE

UNIT CODE: AEN 300

UNIT TITLE: PHONETIC AND PHONOLOGICAL ANALYSIS

CONTACT HOURS: 42

PRE-REQUISITES: AEN 200: INTRODUCTION TO PHONETICS AND PHONOLOGY

AEN 202: PHONOLOGICAL ANALYSIS

UNIT DESCRIPTION

This course introduces fundamental knowledge of phonetics and phonological analysis. The course content includes understanding of basis for phonetic and phonological analysis, developing analytical skills in phonology and learning introductory phonological theories. Thus, the course focuses on structural descriptions, rules and constraints that have been proposed to account for the patterns which are found across many languages.

COURSE OBJECTIVES

By the end of the course learners should be able to:

i)   Demonstrate a deep understanding of the sound structures of human languages.
ii) Identify how people use phonetic and phonological systems in languages to communicate.
iii) Use a range of methods of phonetic and phonological analysis to describe important variation in sound systems.
iv) Carry out in-depth analysis and research on the sound systems of a language.

COURSE CONTENT

LECTURE I: BASIS OF PHONETIC AND PHONOLOGICAL ANALYSES

- Dimensions or specifications in the analysis of human speech sounds
- -Differences between phonetics and phonology
- -Different analytic approaches-Parametric and Linear approaches

LECTURE II: PHONETIC AND PHONOLOGICAL ANALYSES
- Phonetic features of speech sounds
- -Phonological analyses
- -Phonological and phonetic forms

LECTURE III: DESCRIPTIVE ELEMENTS

- Analysis of initiation
- -Analysis of phonation
- -Types of phonation

LECTURE IV: DESCRIPTIVE ELEMENTS

- Classification according to place
- -Major articulatory areas and articulations
- -Analysis of articulation in the oral cavity
- -Analysis of articulation in the phangeo-laryngeal cavity

LECTURE V: DESCRIPTIVE ELEMENTS

- Classification according to manner of articulation
- -Definition of stricture types
- -The four dimensions of the vocal tract
- Maintainable stricture types

LECTURE VI: OTHER ARTICULATIONS
- Parameters of describing vowel sounds
- Tongue height
- Tongue position
- Shape of the lips
- Double articulations; secondary
- Articulations; homorganic articulations

LECTURE VII: PHONOLOGY

- Phonemes
- Phones
- Allophones

LECTURE VIII: DISTINCTIVE OPPOSITIONS

- Binary
- Equipollent
- Multilateral
- Gradual opposition
- Parametric approach

LECTURE IX: SEGMENT ORGANIZATION
- Free variation
- Complementary distribution
- Contrastive distribution

LECTURE X: ANALYSIS AND ROLE OF PROSODIC CATEGORIES
- Syllable
- Stress
- Pitch
- Sonority
- Rhythm

LECTURE XI: PROCESSES BEYOND A SINGLE SEGMENT

- Assimilatory processes

LECTURE XII: PROCESSES BEYOND A SINGLE SEGMENT

Non assimilatory process

COURSE REQUIREMENTS

Students are expected to:

i.   Do proper semester registration
ii.   Obtain log in credentials from ODEL Centre to enable them access the unit online
iii. Log in onto the online unit.
iv.   Actively participate in online lectures
v.   Actively participate in ALL e-tivities in each lecture
vi.   Attempt self-test activities provided at the end of the lesson

COURSE ASSESSMNT

i.   There shall be Continuous Assessment Test and End of Semester Examination
ii.   Continuous Assessment Test (CATs) shall comprise of 30%
iii. Continuous Assessment Test shall comprise of all marks garnered in individual assessments, group tasks and workshops which shall be assigned to you from time to time in the course of our online learning.

iv.   End of semester Examination shall comprise 70% (a summative assessment of the content covered in the unit).

Pass mark: 40%

Recommended Text Books

Abercrombie, D. (1965) *Studies in Phonetics and Linguistics*. Oxford University Press.
Archangeli, D. (1997). "Optimality Theory: An Introduction to Linguistics in the 1990s" IN Optimality Theory: An Overview. Diana Archangeli and Terry Langendoen, eds. MA: Blackwell. (Blackboard)

Catford, J. C. (1977). *Fundamental Problems in Phonetics.* Edinburgh University Press.

Jakobson, R. and L. R. Waugh (1979) *The Sound Shape of Language.* Harvester Press.

Ladefoged, P. and I. Maddieson (1996) *The Sounds of the World's Languages.* Blackwell.
Lass, Roger (1998). *Phonology: An introduction to basic concepts_*. Cambridge:Cambridge University Press.

 Maddieson, I. (1984). *Patterns of sound.* Cambridge: Cambridge University Press.
Roach, P. (2001). *Phonetics*. Oxford: Oxford University Press

Text Books for further Reading
Archangeli, D. (1997). "Optimality Theory: An Introduction to Linguistics in the 1990s" IN Optimality Theory: An Overview. Diana Archangeli and Terry Langendoen, eds. MA: Blackwell. (Blackboard)
Catford, J. C. (2001). A Practical Introduction to Phonetics. Second Edition. Oxford. [JC] (Bookstore)
Chomsky, N., Halle, M. 1968. The Sound Pattern of English. New York: Harper and Row, Publishers.
Hayes, B. (2009). Introductory Phonology. First Edition. Wiley-Blackwell. [BH] (Bookstore)

Lecture I

Basis of Phonetic and Phonological Analysis

1.1 Introduction

In this lesson, we lay the foundation for the entire course by discussing the basis of Phonetic and Phonological Analysis. We will explore how the fields of phonetics and phonology are related. We shall do this by reviewing the dimensions or specifications in the analysis of human speech. We shall also remind ourselves of the differences between phonetics and phonology and discuss the different analytic approaches.

The Phonological processes are the patterns that usually young children used to simplify the adult speech. All children use these processes while their speech and language are developing

1.2 Lesson Learning Outcomes

By the end of the lesson, you should be able to

1.2.1. Identify dimensions in the analysis of human speech sounds
1.2.2. Differentiate between phonetics and phonology
1.2.3. Describe the different analytic approaches

1.2.1   Dimensions in the analysis of human speech sounds

In AEN 200 we learnt that both phonetics and phonology deal with human speech sounds whose production is effected by a combination of three major features; Respiratory (airstream mechanism) Vocal tract (Articulation), and Vocal orgarns (Phonation). Section 1.2.2 will be a review of these dimensions or rather the speech anatomy as shown in the E-tivity below:

E-tivity 1.2.1

Numbering, pacing and sequencing	1.2.1
Title	Dimensions in the analysis of human speech sounds
Purpose	To enable you understand the dimensions in the analysis of human speech sounds
Brief summary of overall task	Watch Video1 and Video2
Spark	

Individual task	a) List the dimensions in the analysis of human speech sounds b) Describe the dimensions in i) above and save your work in **your unit portfolio** to be accessed by your facilitator when required
Interaction begins	a) Post your assignment on the dimensions in the analysis of human speech sounds in the discussion forum 1.2.1. b) Provide feedback on the learners' views and ideas regarding Language. Do this on Discussion forum 1.2.1
E-moderator interventions	1. Ensure that learners are focused on the contents and context of discussion. 2 Stimulate further learning and generation of new ideas. 3 Provide feedback on the learning progress. 4 Close the e-tivity
Schedule and time	This task should take 40 minutes
Next	Different Analytic Approaches

From the E-tivity above we note that:

❖ There are three central mechanism of speech production:

❖ The three central mechanisms are referred to as the dimensions or specifications in the analysis of human speech sounds.
❖ The dimensions are:

1. The air stream mechanisms/Respiration

From the three initiators, there are four natural air stream mechanisms namely:

❖ Pulmonic: utilizes the pulmonic eggressive mechanism.
❖ Glottalic: utilizes ingressive and eggressive mechanisms.
❖ Velaric: utilizes ingressive mechanism.

2. The vocal tract/Articulation

This is divided into three regions or cavities.

❖ The nasal cavity starts at the nose and goes back to the lowered velum.
❖ The oral cavity starts at the lips and goes back to the raised velum.
❖ The pharyngeo-laryngeal cavity starts at the pharynx (back wall of the end of the nasal cavity, cylindrical in nature) and moves down to the larynx.

Using these mechanisms, we can say that a sound is nasal, oral or pharyngeo-laryngeal.

3. **The vocal organs**
- ❖ These stretch from the lips to the larynx.
- ❖ In this we have the active and passive articulators.

1.2.2 Differences between Phonetics and phonology

Phonetics is often defined with respect to phonology. Both disciplines are concerned with the sound medium of language, and it is not useful to draw a hard and fast line between them. However there are some differences between them in terms of analysis that we must note. The E-tivity below will help us to draw a line between Phonetics and phonology.

E-tivity 1.2.2 Differences between Phonetics and phonology

Numbering, pacing and sequencing	1.2.2
Title	Differences between Phonetics and Phonology
Purpose	To enable you understand the differences between phonetics and phonology
Brief summary of overall task	Watch Videos1 and Video2
Spark	WHAT ARE THE DIFFERENCES BETWEEN PHONETICS AND PHONOLOGY?
Individual task	a) List the differences between phonetics and phonology? b) Give examples of the above differences using any two languages and save it in **your unit portfolio** to be accessed by your facilitator when required
Interaction begins	a) Provide a summary on the differences between phonetics and phonology in the discussion forum 1.22 b) Provide feedback on the learners' views and ideas regarding phonetics and phonology. Do this on Discussion forum 1.2.2
E-moderator interventions	1. Ensure that learners are focused on the contents and context of discussion. 2 Stimulate further learning and generation of new ideas. 3 Provide feedback on the learning progress. 4 Close the e-tivity

Schedule and time	This task should take 40 minutes
Next	Different analytic approaches

From the two e-tivity above we conclude that:

- ❖ Phonetics gathers raw material, Phonemics/phonology cooks it or phonology is the architecture. (This is a famous quote by Spyke).
- ❖ That is: Phonetics studies speech in general and provides general material (speech sounds and suprasegmental information) Phonology on the other hand uses this materials to discover patterns that formulate rules or principles that govern particular languages.
- ❖ The two are grouped in two levels; segmental level (what you say) and super segmental level (how you say something).
- ❖ Phonetics involves Physical representation of sounds while Phonology is Mental representation of sounds

1.2.3. Different analytic approaches

In this section we shall focus on segmentation. That is the ability to break words down into individual sounds. Speech is a continuum with few points in the stream which constitute natural breaks (breath, swallow and cough). The E-tivity below will focus on the approaches to segmentation.

E-tivity 1.2.3

Numbering, pacing and sequencing	1.2.3
Title	**Different analytic approaches**
Purpose	To enable you understand the different analytic approaches
Brief summary of overall task	Watch Videos1 and Video2
Spark	APPROACHES TO SEGMENTATION The parametric approach The Linear approach
Individual task	a. List the two major methods/approaches to segmentation of speech? b. Describe the two methods i) above and save your work in **your unit portfolio** to be accessed by your facilitator when required
Interaction begins	1. Post your discussion on two methods/approaches to segmentation of

	speech and save it in **your unit portfolio** to be accessed by your facilitator when required 2. Provide feedback on the learners' views and ideas segmentation of speech. Do this on Discussion forum 1.2.3
E-moderator interventions	1. Ensure that learners are focused on the contents and context of discussion. 2 Stimulate further learning and generation of new ideas. 3 Provide feedback on the learning progress. 4 Close the e-tivity
Schedule and time	This task should take 40 minutes
Next	Phonetic and Phonological Analyses

From the E-tivity above we note that:

- ❖ There are 2 major methods of segmentation of the stream of speech: PARAMETRIC and LINEAR.
- ❖ **The parametric approach**
- ❖ **The Linear approach**

When the speech continuum is analyzed, either parametrically or linearly the speech continuum is represented in terms of the following:

1.4 Summary

In this lecture we have:

- ❖ Discussed the speech anatomy or the dimensions of analyzing speech sounds
- ❖ We have also noted that there are two major approaches of to the analysis of phonetics and phonology (Parametric and Linear)
- ❖ We have also looked at the representation of speech sounds.

1.5 Further Activity

	What does the speech chain consist of? What are the 2 major methods of segmentation of the stream of speech?

	What are the linear units of phonetic organization according to J.Laver? Characterize them

1.6 Further Reading

1.Catford, J.C. (1988). A Practical Introduction to Phonetics. Oxford: Oxford University Press.
2 ._____(1964). Phonation Types: In Honour of Daniel Jones. Oxford: Oxford University Press.
3. Lass, Roger (1998). *Phonology: An introduction to basic concepts_*. Cambridge: Cambridge University Press.
4. Maddieson, I. (1984). *Patterns of sound.* Cambridge: Cambridge University Press.

5.Roach, P. (2001). *Phonetics*. Oxford: Oxford University Press.

Lecture 2

Phonetic and phonological Analyses

2.0 Introduction

In this lesson we shall explore two approaches of analysis that relate to the field of phonetics and phonology. As we learnt in AEN 200: Introduction to phonetics and phonology and lecture 1 Phonetics involves description of sounds of the world's languages from articulatory, acoustic and perceptual perspectives. Phonology on the other hand examines the way sounds are grouped together into systems in particular languages. In this lesson we shall look at structural descriptions of sounds using phonetic and phonological analyses.

2.1 Lesson Learning Outcomes

By the end of the lesson, you should be able to:
2.2.1 Describe the Phonetic features of speech sounds

2.2.2 Analyze sounds using phonological analyses

2.2.3 Demonstrate the relation between phonetic and phonological forms

2.2.1 Phonetic features of speech sound

Phonetic analysis refers to the analyses of sound production and perception. Phonetic analyses studies human speech sounds in terms of articulation, acoustic and perception. The E-tivity below expands on the notion of phonetic analyses by exposing us to the phonetic features of a speech sound.

E-tivity 2.2.1 Phonetic features of a speech sound

Numbering, pacing and sequencing	1.2.1
Title	Phonetic features of a speech sound
Purpose	To enable you understand the dimensions in the analysis of human speech sounds
Brief summary of overall task	Watch Video1 and Video2
Spark	
Individual task	1. Define phonetic features of a speech sound. 2. Describe the difference between distinctive and non-distictive features above and save your work in **your unit portfolio** to be accessed by your facilitator when required

Interaction begins	b) Describe Distinctive and non-distinctive features in phonetic analysis b) Provide feedback on the learners' views and ideas regarding Language. Do this on Discussion forum 1.2.1
E-moderator interventions	2. Ensure that learners are focused on the contents and context of discussion. 2 Stimulate further learning and generation of new ideas. 3 Provide feedback on the learning progress. 4 Close the e-tivity
Schedule and time	This task should take 40 minutes
Next	Phonemic Analysis

From the E-tivity above we note that:

❖ Phonetic features are described in terms of (Non distinctive features and Distinctive features).

❖ Non distinctive features are redundant features of a speech sound
❖ Non-distinctive features are predictable by phonemic rules but do not affect the meaning.
❖ Non-distinctive features are those that are predictable for any sound.
❖ For example, in Standard English, voiceless stops are aspirated when they are the first sound of a word (word initial) or when they are in the onset position of a stressed syllable.
❖ Non-distinctive features are identical phonemes, no different meanings, but just allophones. They are part of the description of the speech sound.

The notations used in phonetic level of analyses include

1. Diacritics: Diacritics are extra marks used together with phonetic symbols in order to represent the actual pronunciation of phonemes (i.e., allophones) or represent particular pronunciations (or accents) in a given language

[ʰ]- Aspiration

2. The square brackets

The square bracket is used in the presentation of speech sounds at the phonetic level of analyses.

Square brackets indicate **phonetic transcription**.

2.2.2 **Phonological analyses**

Phonological analysis explores the contextual distribution of segments within a language. The focus is on a Phoneme; a category of sound that is contrastive within a language. The E-tivity below briefly introduces us to what phonological analysis entails.

E-tivity 2.2.2

Numbering, pacing and sequencing	1.2.1
Title	**Phonological analysis**
Purpose	To enable you understand what phonological analysis is and what it entails
Brief summary of overall task	Watch Videos1 and Video2
Spark	WHAT IS PHONONOLOGICAL ANALYSIS?
Individual task	i) Develop your own definition of phonological analysis ii) Mention other areas in linguistics where phonological analysis is relevant and save your work in **your unit portfolio** to be accessed by your facilitator when required
Interaction begins	c) Describe the dimensions in the analysis of human speech sounds. b) Provide feedback on the learners' views and ideas regarding Language. Do this on Discussion forum 1.2.1
E-moderator interventions	3. Ensure that learners are focused on the contents and context of discussion. 2 Stimulate further learning and generation of new ideas. 3 Provide feedback on the learning progress. 4 Close the e-tivity
Schedule and time	This task should take 40 minutes
Next	**The relation between phonetic and phonological forms**

From the E-tivity above we note that:

- ❖ Phonological analysis is subject that enable students to be an expert in analyzing phonological data.
- ❖ Phonology is the study of human speech sounds in terms of the following:
- ❖ **The function of sounds-**In every language sounds are used to convey meaning. How sound pattern together and how they are perceived by people.
- ❖ **Phonological structure of language:** The focus is on how sounds are classified for example as plossives, trills, taps etc and in terms of functions they are classified as consonants and vowels.
- ❖ **The Sound Patterns of a particular Language**
- ❖ As discussed in lesson 1 all the languages in the world sound so different because the way the languages use speech sounds to form patterns differs from language to language.
- ❖ The study of how speech sounds form patterns is phonology
- ❖ Phonology tells us what sounds are in a language, how they do and can combine into words, and explains why certain phonetic features are important to identifying a word
- ❖ **Phonological rules/the restriction**-how sounds are organized in a given language.

2.2.3   The relation between phonetic and phonological forms

The relation between phonetic and phonological forms is presented in the classic generative model of linguistics. Chomsky and Halle (1968), note that phonological Representations are seen as classificatory feature Bundles which are converted by phonological rules into a phonetic representation in which features take on scalar values. That is the phonetic form is the output of the input of phonological form. The E-tivity below shows the relation between Phonetic and phonological forms.

E-tivity 2.2.3: The relation between phonetic and phonological forms

Numbering, pacing and sequencing	2.2.3
Title	The relation between phonetic and phonological forms
Purpose	To enable you understand the relation between phonetic and phonological forms
Brief summary of overall task	Watch Videos1 and Video2
Spark	WHAT IS THE RELATION BETWEEN PHONETIC AND PHONOLOGICAL FORMS?

Individual task	i. In your own way explain the relation between phonetic and phonological forms. ii. Explain why phonological analysis is essential and save your work in **your unit portfolio** to be accessed by your facilitator when required
Interaction begins	Post your assignment on distinctive and non-distinctive features in phonetic analysis and save in the discussion forum (2.2.3) b) Provide feedback on the learners' views and ideas regarding Language. Do this on Discussion forum 2.2.3
E-moderator interventions	1. Ensure that learners are focused on the contents and context of discussion. 2. Stimulate further learning and generation of new ideas. 3 Provide feedback on the learning progress. 4 Close the e-tivity
Schedule and time	This task should take 40 minutes
Next	Phonemic Analysis

From the E-tivity above we learn that:

- ❖ The role phonetics plays in phonological analysis is considered with respect to features, segments.
- ❖ Segments are the unique single sounds produced during articulation. The articulation can be a single, corrticulation or homorganic.
- ❖ Phonological processes are articulatory and determine the syllable structure.

2.4 Summary

In this lecture we have learnt there are two ways of analyzing sounds; Phonetic and phonological analysis. We have learnt that phonological analysis involves representing the actual sounds in terms of their acoustic and articulatory properties. Phonological analysis on the other hand entails mental representation of sounds and that it is abstract and it is represented in slashes/ forward slashes. We not that phonetic and phonological analysis are related and neither of the transcription is better than the other.

2.5 Further Activity

	1. Using English language show the distinction between phonetic and phonological analysis.

	2. show the notations used at each level

2.6 Further reading

Archangeli, D. (1997). "Optimality Theory: An Introduction to Linguistics in the 1990s" IN Optimality Theory: An Overview. Diana Archangeli and Terry Langendoen, eds. MA: Blackwell. (Blackboard)
Catford, J. C. (2001). A Practical Introduction to Phonetics. Second Edition. Oxford. [JC] (Bookstore)
Chomsky, N., Halle, M. 1968. The Sound Pattern of English. New York: Harper and Row, Publishers.
Hayes, B. (2009). Introductory Phonology. First Edition. Wiley-Blackwell. [BH] (Bookstore)

Lecture 3

Descriptive Elements: Analysis of Initiation and Phonation

3.1 Introduction

In AEN 200: Introduction to phonetics and phonology we learnt that consonants can be described in terms Initiation (airstream mechanism), phonation and articulation. These are called descriptive

elements. In this lecture we shall further develop these concepts and apply them to the analysis of sounds.

3.2 Lesson Learning Outcomes

By the end of the lesson, you should be able to
3.2.1 Identify initiation types.
3.2.2 Classify sound segments according to initiation
3.2.3 Classify sound segments according to phonation

3.2.1 Initiation types

In introduction to phonetics and phonology we learnt that initiation is setting air in motion through the vocal tract or the method by which airflow is created in the vocal tract. In this section we shall have an overview of initiation types (airstream mechanism and then we shall now classify sound segments by initiation. The types of airstream mechanism are demonstrated in the E-tivity below:

E-tivity 3.3.1 Types of airstream mechanism

Numbering, pacing and sequencing	3.3.1
Title	Types of Airstream mechanism
Purpose	To enable you describe different types of airstream mechanism
Brief summary of overall task	Watch Videos1 and Video2
Spark	TYPES OF AIRSTEAM MECHANISM ❖ Pulmonic ❖ Glottatic ❖ Velaric
Individual task	c) Using bullets List the three types of airstream mechanism? d) Explain the three types of airstream mechanism i) above and save your work in

	to be accessed by your facilitator when required
Interaction begins	i)Post your discussion on types of airstream mechanism and post in discussion forum 3.3.1 ii) Provide feedback on the learners' views and types of airstream mechanisms. Do this on Discussion forum 3.3.1
E-moderator interventions	1. Ensure that learners are focused on the contents and context of discussion. 2 Stimulate further learning and generation of new ideas. 3 Provide feedback on the learning progress. 4 Close the e-tivity
Schedule and time	This task should take 40 minutes
Next	Initiation types found in various speech sounds

From the E-tivity above we note that there are three types of airstream mechanism: Pulmonic, Glottic, Velaric.

- ❖ **Pulmonic:** Initiation by means of the lungs (actually the diaphragm and ribs). Air flow is directed outwards towards the oral cavity and pressure is built by compression of lungs English [p], [n], [s], [l], [e]. The vast majority of sounds used in human languages.
- ❖ **Glottic:** the glottis *(glottalic* mechanisms). It is possible to initiate airflow in the upper vocal tract by means of the vocal cords or glottis. This is known as **glottalic** initiation.
- ❖ **Velaric\Lingual:** the tongue is the initiator. Lingual stops are more commonly known as clicks, and are almost universally ingressive. The word *lingual* is derived from Latin *lingua*, which means tongue.

3.2.2: Classification of sound segments by initiation

In Introduction to Phonetics and Phonology we learnt that initiation types can further be grouped as either egressive or ingressive. This further gives us six ways of classifying sounds. The E-tivity below will enable us identify this classification.

E-tivity 3.3.2 Classification of sound segments by initiation

Numbering, pacing and sequencing	3.3.2
Title	**Classification of sound segments by initiation**
Purpose	To enable you classify sounds segments by initiation
Brief summary of overall task	Watch Video1 and Video2
Spark	HOW CAN WE PRODUCE SOUNDS?
Individual task	e) Using bullets list the egressive and ingressive sounds. f) Explain the egressive and ingressive sounds in i above and save your work in **your unit portfolio** to be accessed by your facilitator when required
Interaction begins	a) Post your discussion on Egresive and ingressive sounds in the forum 3.3.2 b) Provide feedback on the learners' views regarding egressive and ingressive sounds. Do this on Discussion forum 3.3.2.
E-moderator interventions	1. Ensure that learners are focused on the contents and context of discussion. 2 Stimulate further learning and generation of new ideas. 3 Provide feedback on the learning progress. 4 Close the e-tivity
Schedule and time	This task should take 40 minutes
Next	Descriptive elements: Phonation

From the E-tivity above we note that:

❖ Any of the three initiators − pulmonic, glottis or tongue − may act by either increasing or decreasing the pressure generating the airstream.
❖ These changes in pressure often correspond to outward and inward airflow, and are therefore termed *egressive* and *ingressive*.
❖ **Egressive sounds** are sounds by which the air stream is created by pushing air out through the mouth or nose. There are three types:

The opposite of an egressive sound is an <u>ingressive sound</u>, by which the airstream flows inward through the mouth or nose.
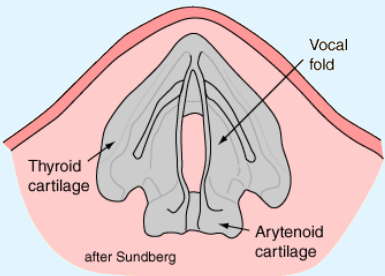
Ingressive sounds are sounds by which the <u>airstream</u> flows inward through the mouth or nose. The three types of ingressive sounds are (lingual \velaric ingressive, glottalic ingressive and pulmonic ingressive.

3.2.3 Classification of sounds by phonation

In introduction to Phonetics and Phonology we defined phonation as all the movements of the vocal folds in producing speech sounds – and in particular to those sounds that involve vibration of the folds. We further looked at two major classifications of sounds basing on phonation as voiced and voiceless. In this lesson we shall further look at the different type's phonation that are either voiceless or voiced as expanded by the E-tivity below:

E-tivity 3.2.3Types of phonation

Numbering, pacing and sequencing	3.2.3
Title	Types of phonation
Purpose	To enable you describe sounds in terms of phonation
Brief summary of overall task	Watch <u>Video1</u> and <u>Video2</u>
Spark	PHONATION-VOCAL FOLDS **Voiceless** <u>nil</u> <u>whisper</u> **voiced** <u>modal</u> <u>creak</u> <u>breathy</u> <u>harsh</u> <u>falsetto</u>

Individual task	a). List the two types of phonation
	b). List the different phonations that fall under I above and save your work in **your unit portfolio** to be accessed by your facilitator when required
Interaction begins	1. Post your discussion on the types of phonation on this forum (3.2.3). 2. Provide feedback on the learners' views regarding types of phonation. Do this on Discussion forum 3.2.3
E-moderator interventions	1. Ensure that learners are focused on the contents and context of discussion. 2. Stimulate further learning and generation of new ideas. 3 Provide feedback on the learning progress. 4 Close the e-tivity
Schedule and time	This task should take 40 minutes
Next	Descriptive elements: place of articulation

From the E-tivity above we learn that:

❖ **Voice** or **voicing** is a term used in phonetics and phonology to characterize speech sounds.
❖ The following are the types of phonation types

Voiceless   nil   whisper
Voiced   modal   creak breathy harsh falsetto

3.4 Summary

We have described sounds in terms of aspects of airstream mechanism. We have learnt that there are three types of airstream mechanism (Pulmonic, glottalic and velaric). We have also learnt that these airstreams may be egressive or ingressive hence resulting to six types ways of describing sounds; Pulmonic egressive, Glottallic egressive, Velaric egressive, Pulmonic ingressive, Glottalic ingressive and Velaric ingressive. In this lecture we also described sounds according to phonation types. We have learnt there are two major types of voice (Voiceless and voiced sounds). Voiceless sound is further grouped into Nil phonation and whisper sound while the Voiced sound is further grouped into the modal, creaky, breathy and harsh voice.

In the next lecture we shall look at classification of sounds according to place of articulation.

1.5 Further Activity

	1. Describe the following types of sounds: Ejectives, implossives and clicks. 2. Explain the different types of voiceless and voiced sounds

1.6 Further Reading

Catford, J. (1964). Phonation types: the classification of some laryngeal components of speech production. In D. Abercrombie, D.B. Fry, P.A.D. MacCarthy, N.C. Scott and J.L.M. Trim (Eds.), In honour of Daniel Jones, pp. 26-37. London: Longmans.

Gordon, M. (1998). The phonetics and phonology of non-modal vowels: a cross-linguistic perspective, Berkeley Linguistics Society 24, 93-105.

Ladefoged, Peter; Maddieson, Ian (1996). *The Sounds of the World's Languages*. Oxford: Blackwell

Ogden (2009). *An Introduction to English Phonetics*, p. 9, 164.

Yadav, R. (1984). Voicing and aspiration in Maithili: a fiberoptic and acoustic study. Indian Linguistics 45, 27-35.

Lecture 4

Descriptive Elements: Classification according to place of articulation

4.1 Introduction

In introduction to phonetics and phonology we learnt that apart from initiation and phonation articulation is one way of describing consonant sounds. We noted that articulation is grouped into two; place of articulation and manner of articulation. In this lecture our focus will be on classification of sounds according to place of articulation.

4.**2Lesson Learning Outcomes**

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

4.2.1 Describe major articulatory areas and articulations
4.2.2 Analyze articulations in the oral cavity
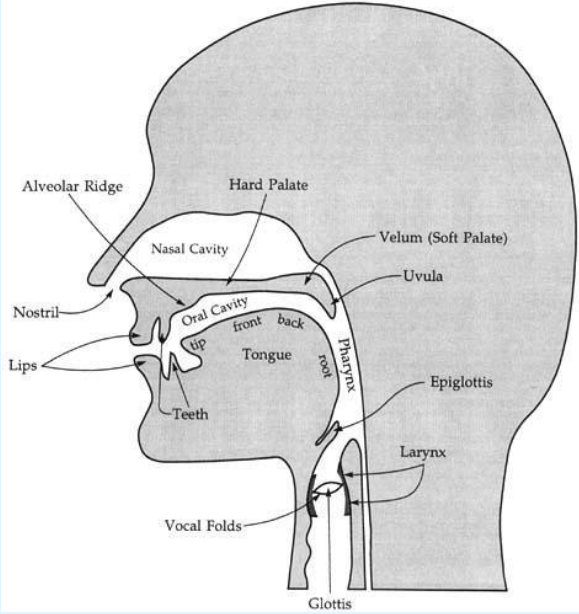4.2.3 Analyze articulations in the pharyngeo-laryngeal cavity.

4.2.1 Major articulatory **areas and articulations**

In introduction to phonetics and phonology we learnt about the vocal tract and its parts. This is a following lesson to what we learnt but the focus will be on specific areas in which it is possible to articulate human speech.

E-tivity 4.2.1 Major articulatory areas and articulations

Numbering, pacing and sequencing	4.2.1
Title	Major articulatory areas and articulations
Purpose	To enable understand the major areas and articulation
Brief summary of overall task	Watch; Video1 Video2
Spark	THE VOCAL TRACT

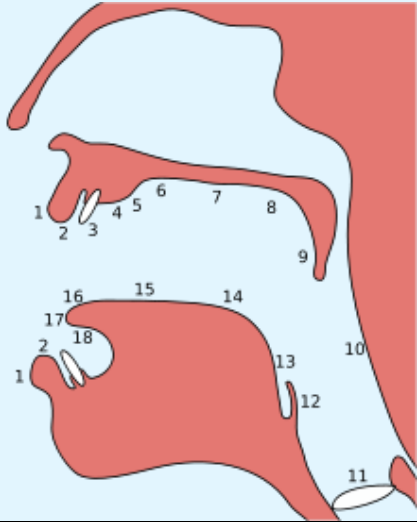|	
Individual task	a) In a paragraph describe the three major areas of articulation.
Interaction begins	1. Post your answers on major areas of articulation I 2.Comment on your classmates responses. Do this on Discussion forum 4.2.1
E-moderator interventions	1. Ensure that learners are focused on the contents and context of discussion. 2. Stimulate further learning and generation of new ideas. 3 Provide feedback on the learning progress. 4 Close the e-tivity
Schedule and time	This task should take 40 minutes
Next	Analysis of articulation in the oral cavity

From the E-tivity above we note that:

- ❖ The major articulatory areas are defined in terms of the vocal tract.
- ❖ The vocal tract is divided into three regions or cavities:

- The nasal cavity
- The oral cavity
- The pharyngeal

4.2.2 Articulations in the oral cavity
In section 4.2.1 we learnt that the vocal tract is divided into three cavities: Nasal, oral and pharyngeo-langeal-cavity. This section focuses on articulations in the oral cavity. The E-tivity below will help us identify and describe sounds in the oral cavity.

E-tivity 4.4.2: Articulations in the oral cavity

Numbering, pacing and sequencing	4.4.2
Title	**Articulations in the oral cavity**
Purpose	To enable to you describe sounds in terms of place of articulation
Brief summary of overall task	Watch Videos1 and Video2
Spark	PLACES OF ARTICULATION
Individual task	a) Using bullet points list the different articulations in the oral cavity only. b). Describe each places of articulation and save your work in **your unit portfolio** to be accessed by your facilitator when required.
Interaction begins	1. Post your discussion on articulation in the oral cavity only 2. Provide feedback on the learners' views regarding places of articulation. Do this on Discussion forum 4.4.2

E-moderator interventions	1. Ensure that learners are focused on the contents and context of discussion. 2. Stimulate further learning and generation of new ideas. 3 Provide feedback on the learning progress. 4 Close the e-tivity
Schedule and time	This task should take 40 minutes
Next	Analysis of articulation in the pharyngeo-laryngeal cavity

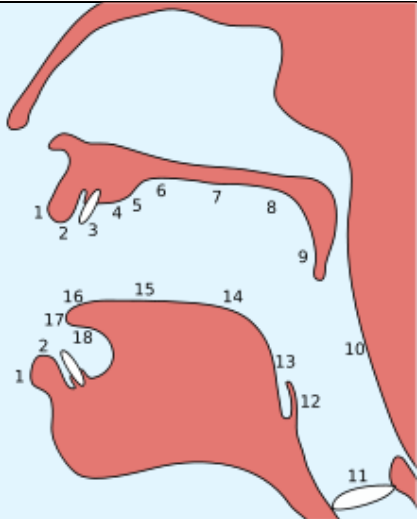**From the E-tivity above we describe the following sounds in the oral cavity:**

- ❖ **Bilabial**: In English, /p,b,m/ are bilabial sounds.
- ❖ **Labiodental**: Examples of labiodental sounds in English are /f,v/.
- ❖ Labiodental sounds can be divided into two types.
    - o **Endolabial**:
    - o **Exolabial**:
- ❖ **Dental**: Examples of Dental sounds in English are / θ, ð/.
- ❖ **Alveolar**: Examples of alveolar sounds in English are /t,d,n,l,s/.
- ❖ **Postalveolar**: Examples of post-alveolar sounds in English are / ʃ, ʒ   /.
- ❖ **Palatal**: An example of a palatal sounds in English is /j/, usually spelt as <y>.
- ❖ **Velar**: Examples of velar sounds in English are /k,g ŋ /.
- ❖ **Uvulars** The tongue tip is retracted so that it touches the uvula. English does not have any uvular sounds

4.2.3 Articulations in the Pharyngeo-laryngeal cavity
Having looked at the Oral cavity we now move to the Pharyngeo-laryngeal cavity. The E-tivity below exposes us to the Pharyngeo-laryngeal cavity.

E**-tivity : 4.2.3: Articulations in the Pharyngeo-laryngeal cavity**

Numbering, pacing and sequencing	4.4.3
Title	Articulations in the pharyngeo-laryngeal cavity
Purpose	To enable to you describe sounds in terms of place of articulation
Brief summary of overall task	Watch Videos1 and Video2
Spark	PLACES OF ARTICULATION

Individual task	a) Using bullet points list the different palaces of articulation. b). Describe each places of articulation and save your work in **your unit portfolio** to be accessed by your facilitator when required.
Interaction begins	1. Post your discussion on articulation in the pharyngeo-laryngeal cavity only 2. Provide feedback on the learners' views regarding places of articulation. Do this on Discussion forum 4.4.3
E-moderator interventions	1. Ensure that learners are focused on the contents and context of discussion. 2. Stimulate further learning and generation of new ideas. 3 Provide feedback on the learning progress. 4 Close the e-tivity
Schedule and time	This task should take 40 minutes
Next	Descriptive elements classification according to manner of articulation

From the E-tivity below we learn that:
Pharyngeo articulation

❖ Pharyngeal consonants are produced in the walls of the pharynx which act as the articulators. English does not have this sounds but Arabic has

    Examples:
The laryngeal articulators
Glottal articulators are found in the laryngeal area eg
ʔ glottal stop
ɦ breathy-voiced glottal "fricative"

H <u>voiceless glottal "fricative"</u>

4.4 Summary

In this lecture we have learnt that we have 3 major areas of articulatory (nasal, oral and pharyngeo-laryngeo). We have also learnt the classification of sounds according to place of articulation (oral cavity and pharyngeo-laryngeal cavity).

In the next lecture we shall discuss the classification according to manner of articulation.

4.5 Further Activity

	1. Discuss each cavities in the vocal tract 2. Discuss the importance of the nasal cavity in the production of sounds

4.6 Further Reading

Catford, J. (1964). Phonation types: the classification of some laryngeal components of speech production. In D. Abercrombie, D.B. Fry, P.A.D. MacCarthy, N.C. Scott and J.L.M. Trim (Eds.), In honour of Daniel Jones, pp. 26-37. London: Longmans.

International Phonetic Association (1999). *Handbook of the International Phonetic Association*. Cambridge University Press.

Ladefoged, P (2005). *A Course in Phonetics* (5th ed.). Boston: <u>Thomson/Wadsworth</u>.

Lecture 5

Descriptive elements: Classification according to manner of articulation

5.1 Introduction

In introduction to phonetics and phonology we learnt that one of the parameters of describing consonants is manner of articulation. We defined manner of articulation as the way a sound is made, as opposed to where it's made. In this lecture we shall go further and discuss manner of articulation in terms of stricture types.

5.1 Lesson Learning Outcomes

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

5.1.1   Define stricture types

5.2.1 Describe the four dimensions of vocal tract

5.2.3 Classify and describe sounds in terms of stricture types

5.1.2   Definition of stricture types

In introduction to phonetics and phonology, we noted that consonant sounds may be described in terms. This section will focus on the definition of stricture in phonetics and phonology. The E-tivity below will help us develop the definition of stricture types.

E-tivity 5.1.1: Definition of stricture

| Numbering, pacing and sequencing	5.1.2
Title	Definition of stricture types
Purpose	To help you develop the definition of stricture
Brief summary of overall task	Watch Videos1 and Video2
Spark	What is a stricture?

Individual task	Using bullet points list the manner of articulation
	List the stricture degrees and save your work in **your unit portfolio** to be accessed by your facilitator when required.
Interaction begins	1. Post your discussion on manner of articulation on this forum 5.2.1. 2. Provide feedback on the learners' views regarding the definition of the stricture. Do this on Discussion forum 5.2.1.
E-moderator interventions	1. Ensure that learners are focused on the contents and context of discussion. 2. Stimulate further learning and generation of new ideas. 3 Provide feedback on the learning progress. 4 Close the e-tivity
Schedule and time	This task should take 40 minutes
Next	The dimensions of the vocal tract

❖ Stricture simply means the manner of articulation.
❖ Degree of stricture" means how narrow the gap is between the active articulator and the passive articulator at the narrowest point in the vocal tract.

When sounds are grouped basing on stricture degree they appear as shown:

Stricture Types

stop

tap

trill

fricative

approximant

resonant

time
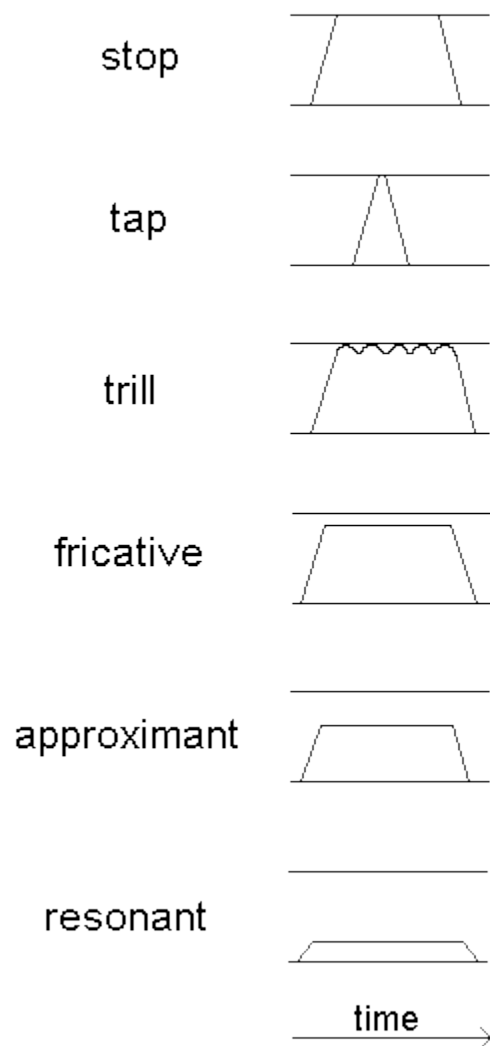
5.2.2 Four dimensions of vocal tract

In lecture 4 we discussed the vocal tract and its cavities. In this section we shall focus on the vocal tract in terms of the four dimensions tube. The E-tivity below will introduce us to the four dimensions of the vocal tract.

E-tivity 5.2.2: The four dimensions of the vocal tract

Numbering, pacing and sequencing	5.2.2
Title	The four dimensions of the vocal tract

Purpose	To help you identify the four dimensions of the vocal tract
Brief summary of overall task	Watch Videos1 and Video2
Spark	DIMENSIONS OF THE VOCAL TRACT ❖ Vertical Dimension ❖ Transverse Dimension ❖ Longitudinal Dimension ❖ Time dimension
Individual task	Using bullet points describe the four dimensions of the vocal tract and save your work in **your unit portfolio** to be accessed by your facilitator when required.
Interaction begins	1. Post your discussion on dimensions on the vocal tract on this forum 5.2.2. 2. Provide feedback on the learners' views dimensions on the vocal tract. Do this on Discussion forum 5.2.2.
E-moderator interventions	1. Ensure that learners are focused on the contents and context of discussion. 2. Stimulate further learning and generation of new ideas. 3 Provide feedback on the learning progress. 4 Close the e-tivity
Schedule and time	This task should take 40 minutes
Next	Types of strictures

❖ The vocal tract is considered a four dimensional tube that runs from the larynx through the mouth to the lips and through the nasal cavity to the nostrils.
❖ This is the tract that contains the vocal organs and the four dimensions indicate – space in relation to the organs and time.
❖ The four dimensions of the vocal tract are :
❖ **Vertical dimension**: represented by the degree of closeness between articulatory organs.

❖ **Transverse dimension:** it is the side to side dimension that specifies the location of the oral air path which can be

   Median: through the centre of the mouth /θ ð

Lateral: through or along both sides

❖ **Longitudinal:** the location of articulation at any of the points in the vocal tract from the lips back down to the larynx. Eg the the fifference between /p, t, k,q/ is longitudinal –all have same manner of articulation but different locations of articulations.

❖ **Time dimensions:** This dimension specifies when an articulation is one of:

A momentary gesture

A maintainable posture.

5.2.3 Stricture types

We now focus our attention to stricture types. They are discussed in terms of manner of articulation as shown by the E-tivity below:

E-tivity 5.2.3: Stricture types/Manner of articulation

Numbering, pacing and sequencing	5.2.3
Title	Stricture types/Manner of articulation
Purpose	To expose you to the description of consonant sounds in terms of manner of articulation
Brief summary of overall task	Watch Videos1 and Video2
Spark	HOW ARE CONSONANT SOUNDS DESCRIBED IN TERMS OF MANNER OF ARTICULATION?
Individual task	a. Using bullet points list the manner of articulation b. Briefly describe each manner of articulation and save your work in **your unit portfolio** to be accessed by your facilitator when required.
Interaction begins	1. Post your discussion on manner of articulation on this forum (5. 2.3). 2. Provide feedback on the learners' views regarding manner of articulation. Do this on Discussion forum 5.2.3.

E-moderator interventions	1. Ensure that learners are focused on the contents and context of discussion. 2. Stimulate further learning and generation of new ideas. 3 Provide feedback on the learning progress. 4 Close the e-tivity
Schedule and time	This task should take 40 minutes
Next	Descriptive elements: Vowel sounds

From the E-tivity below we identify the following description of consonants in terms of Sticture/ manner of articulation:

- Complete closure - stops (plosives, implosives), nasals, trills, taps and flaps;
- Close approximation - fricatives;
- Open approximation - approximants (liquids and semivowels) and vowels.

5.4 Summary

Consonantal sounds are made with a constriction in the vocal tract which is either complete or sufficient to cause friction.

5.5 Further reading

Archangeli, D. (1997). "Optimality Theory: An Introduction to Linguistics in the 1990s" IN Optimality Theory: An Overview. Diana Archangeli and Terry Langendoen, eds. MA: Blackwell. (Blackboard)
Catford, J. C. (2001). A Practical Introduction to Phonetics. Second Edition. Oxford. [JC] (Bookstore)
Chomsky, N., Halle, M. 1968. The Sound Pattern of English. New York: Harper and Row, Publishers.
Hayes, B. (2009). Introductory Phonology. First Edition. Wiley-Blackwell. [BH] (Bookstore)

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Lecture 6

Analysis and classification of vowels

6.1 Introduction

In introduction to phonetics and phonology we learnt the parameters of describing vowels. We noted that vowels are distinguished from consonants in several ways hence they have their own parameters that describe them. As we have seen in lecture 4 and 5, consonants are produced by constricting the airstream to various degrees as it flows through the oral tract. But vowels are the sounds that are produced with an approximation without any obstruction in the air passage Among all articulators, only the tongue is prominent in their production. All vowel sounds are voiced and all of them are `oral' as during the production of them the soft palate is raised and hence the nasal cavity is completely blocked. In this lecture we shall focus on specific parameters that are used to describe vowels.

6.2 Lesson Learning Outcomes

By the end of the lesson, you should be able to:
6.2.1 Describe vowels in terms of tongue and lip position
6.2.2 Distinguish between lax and tense vowels
6.2.3 Describe vowels in multisyllabic words

6.2.1 Tongue and lip position

In this section we shall focus on the vowel sounds. When it comes to vowels, we use a different specification to describe them. We look at the vertical position of the tongue, the horizontal position of the tongue and lip position. As we had noted earlier vowels are made with a free passage of airflow down the mid-line of the vocal tract. They are usually voiced and are produced without friction. The E-tivity below focuses on the position of the tongue and lip rounding.

E-tivity 6.2.1 Horizontal, vertical position and lip position of vowel sounds

Numbering, pacing and sequencing	6.2.1
Title	Horizontal, vertical and lip position of vowel sounds
Purpose	To enable you to describe the vowel sounds following the three parameters above

Brief summary of overall task	Watch Videos1 and Video2
Spark	
Individual task	a) Using bullet points list the three parameters that are used by linguistics to describe consonant sounds. b) Describe vowels basing on i) above and save your work in **your unit portfolio** to be accessed by your facilitator when required
Interaction begins	1. Discuss the three parameters that are used in description of vowels. 2. Provide feedback on the learners' views regarding parts of the vocal tract. Do this on Discussion forum 6.2.1
E-moderator interventions	1. Ensure that learners are focused on the contents and context of discussion. 2. Stimulate further learning and generation of new ideas. 3 Provide feedback on the learning progress. 4 Close the e-tivity
Schedule and time	This task should take 40 minutes
Next	Tense and Lax vowels

From the E chart below we note the following parameters are useful in the classification of Vowels :

Vertical tongue position (close-open):
- ❖ vertical tongue position refers to how close the tongue is to the roof of the mouth in the production of a vowel.

- ❖ Some examples of open vowels: ɪ, ʊ
- ❖ Some examples of close vowels: æ, ɒ,

2) Horizontal tongue position (front, mid, back):
Horizontal tongue refers to where the tongue is positioned in the vocal tract in terms of 'at the front' or 'at the back' when a vowel is produced.

- ❖ Some examples of front vowels: ɪ , e, æ
- ❖ Some examples of mid vowels: ə
- ❖ Some examples of back vowels: ʌ,ɒ
- ❖ The above information is summarized in the chart below. The chart has 8 cardinal vowels.
- ❖ The **eight primary <u>cardinal</u> vowels** occupy the corners and four equidistant points with four cardinals on either vertical leg of the quadrilateral.

VOWELS
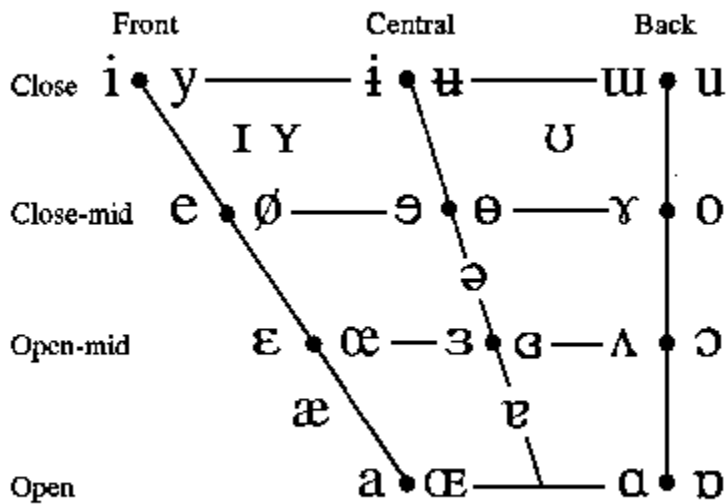
Where symbols appear in pairs, the one to the right
represents a rounded vowel.

Primary and secondary cardinal vowels

3) Lip position: Also called lip rounding.

- ❖ As is inferred, lip position concerns the position of the lips when a vowel is produced.
- ❖ The lips can either be **round, spread** or **neutral.**
- ❖ Note that
- ❖ Cardinal 6 to 8 are produced with round lips: u, o cardinal 9-13

Cardinal 1-5 are produced with spread vowels: eg. ɪ, ɛ, e, 14-16 unrounded

6.2.2 Lax and tense vowels

Vowels can also be described in terms of short (lax) and long (tense) vowels as shown by the E-tivity below:

E-tivity 6.2.2 Lax and Tense vowels

Numbering, pacing and sequencing	6.2.2
Title	Lax and Tense vowels
Purpose	To enable you to describe the vowel sounds as either tense or lax
Brief summary of overall task	Watch Video1 and Video2
Spark	Tense (long)/:/ and lax (short) vowels **Close** i: ɪ ʊ u: **Mid** e ə ɜ: ɔ: **Open** æ ʌ ɑ: ɒ **Front** **Back**
Individual task	a) Using bullet points list the tense vowels b) Give examples of words with five different tense and lax vowels and save your work in **your unit portfolio** to be accessed by your facilitator when required
Interaction begins	1. Discuss Tense and Lax vowels. 2. Provide feedback on the learners' views regarding parts of the vocal tract. Do this on Discussion forum 6.2.1

E-moderator interventions	1. Ensure that learners are focused on the contents and context of discussion. 2. Stimulate further learning and generation of new ideas. 3 Provide feedback on the learning progress. 4 Close the e-tivity
Schedule and time	This task should take 40 minutes
Next	Vowels in multi-syllabic words

From the E-tivity below we learn that vowels can be **lax or tense.**

❖ Lax vowels are also called **short** vowels: generally speaking, they are **shorter** than tense (long) vowels.
❖ Another characteristic of lax vowels is that, when stressed, they are always checked.

The following are the short vowels
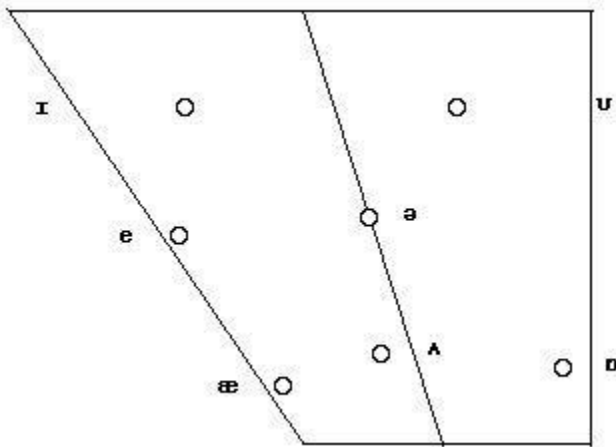
6.2.3 Vowels in multi-syllabic words

Vowels in multi-syllabic words

- Pronounce the words *above*, *soda*, *sofa*, *comma*, *arena*, *patina*, *photograph*, paying particular attention to the vowel represented by the bold letters.

- Then pronounce this vowel in isolation. This vowel is called **schwa** and written [ə].

- Schwa is made at approximately the same place as [ʌ], that is, farther forward than the back

vowels and farther back than the front ones.

- Hence, it is central. In addition, [ə] is mid, lax, and unrounded. It is heard primarily in unstressed syllables, as in the words above.

- It is the vowel we produce if we vocalize as we prepare to speak—*uh*. The tongue is said to be in its neutral position as we pronounce this vowel.

Monophthongs:
❖ Monophthongs are vowels that are produced by a relatively stable tongue position.
❖ A monophthong is a pure vowel/ single vowel sound, one whose articulation at both beginning and end is relatively fixed, and which does not glide up or down towards a new position of articulation.

Examples of monphthongs
Close   i: ɪ   ʊ   u:
Mid   e ə   ɜː   ɔː
Open   æ ʌ   ɑː   ɒ
         ▪ Front   Back

Those that consist of a combination of two vowel sounds are called **diphthongs.**
❖ Diphthongs are a type of vowel sound that is made up of a combination of two single vowels or monophthongs within the same syllable.

❖ Diphthongs are vowels where the tongue moves from one part of the mouth to another.

❖ They can be seen as starting of as one vowel and ending as a different vowel.
❖ A diphthong is a vowel where two different vowel qualities can be heard. For examples are: waist, die, noise, road, house, fierce, bear, sure. Each of these is a different vowel sound.

The monophthongs can be contrasted with diphthongs, where the vowel quality changes within the same syllable, and hiatus, where two vowels are next to each.

Their production involves movement (gliding) of the vocal chords from one position to another.

Diphthong
• English has 8 diphthongs.
Centering diphthong:
1. three (3) ending in 'ə' : ɪə, eə, ʊə
Closing diphthong
2. three (3) ending in 'ɪ': eɪ, aɪ, ɔɪ
3. two (2) ending in 'ʊ': əʊ, aʊ
Examples:
• ɪə : beard, weird, fierce, ear, beer, tear

• eə: aired, cairn, scarce, bear, hair,
• ʊə: moored, tour, lure, sure, pure
• eɪ : paid, pain, face, shade, age, wait, taste, paper
• aɪ: tide, time, nice, buy, bike, pie, eye, kite, fine
• ɔɪ: void, loin, voice, oil, boil, coin, toy, Roy
• əʊ: load, home, most, bone, phone, boat, bowl
• aʊ: loud, gown, house, cow, bow, brow, grouse

- **Triphthongs**
- • A triphthong is a glide from one vowel to another and the to a third, all produced rapidly and without interruption. For example, a careful pronunciation of the word 'hour' begins with a vowel quality similar to 'ɑ:', goes on to 'ʊ' then ends in 'ə'.
  • It says /aʊə/
  • Triphthong : 5 closing diphthongs with 'ə' added on the end.
  - eɪ + ə = eɪə . as in layer, player
  - aɪ + ə = aɪə. as in lire, fire
  - ɔɪ + ə = ɔɪə, as in loyal, royal
  - əʊ + ə = əuə, as in lower, mower
  - aʊ + ə = auə, as in power, hour.

6.3 Summary

In this lecture we have learnt the parameters that are used to describe vowel sounds among them tongue position and shape of lips. We have also learnt how to distinguish between lax and tense, vowels, monophthongs and diphthongs in the next class we shall look at other articulations.

6.4 Further Activity

	i. Provide an articulatory description for the vowels in the words below:
	- Beef
	- Bid
	- Let
	- Cat
	Hoot

	2.Transcribe the vowels in the following words and plot them on the vowel trapezium: ● Hood ● Bean ● Sort ● Tough

6.5 Further Reading

Catford, J. (1964). Phonation types: the classification of some laryngeal components of speech production. In D. Abercrombie, D.B. Fry, P.A.D. MacCarthy, N.C. Scott and J.L.M. Trim (Eds.), In honour of Daniel Jones, pp. 26-37. London: Longmans.

Gordon, M. (1998). The phonetics and phonology of non-modal vowels: a cross-linguistic perspective, Berkeley Linguistics Society 24, 93-105.

Ladefoged, Peter; Maddieson, Ian (1996). *The Sounds of the World's Languages*. Oxford: Blackwell

Ogden (2009). *An Introduction to English Phonetics*, p. 9, 164.

Yadav, R. (1984). Voicing and aspiration in Maithili: a fiberoptic and acoustic study. Indian Linguistics 45, 27-35.

Lecture 7

Other articulations

7.1 Introduction

The description of speech so far has focused on the position of one part of the tongue; for vowels, the location of its highest point; with consonants, the place and manner of the stricture at the point where the constriction is greatest. But in fact it is the configuration of the entire vocal tract which is important.

7.2 Lesson Learning Outcomes

By the end of the lesson, you should be able to:
7.2.1   Distinguish between primary and secondary articulations

7.2.2   Describe coarticulation in sounds

7.2.3 Describe hormoganic articulation

7.2.1 Primary, secondary and double articulations

Multiple articulations involve two (or more) simultaneous strictures.
In cases where both *strictures are of equal degree*, these are referred to as **double articulations**.

More commonly, *one stricture is more open than the other*. In these cases the one with the *greater constriction* is said to be the *primary articulation* and the one with the more open constriction is referred to as a **secondary articulation**.
Note that "secondary" in degree of stricture does not mean "secondary" in importance or linguistic significance. Secondary articulations are often lexically distinctive, just as much as primary articulations.

The E-tivity below will give us an overview about primary and secondary articulation:

E-tivity 7.2.1

Numbering, pacing and sequencing	7.2.1
Title	Primary, Secondary and double articulation
Purpose	To enable you to distinguish between Primary and Secondary articulation
Brief summary of overall task	Watch Video1 and Video2
Spark	PRIMARY, SECONDARY AND DOUBLE ARTICULATION
Individual task	Using bullet points list the types of secondary articulation Describe vowels basing on i) above and save your work in **your unit portfolio** to be accessed by your facilitator when required
Interaction begins	1. Distinguish between primary and secondary articulation. Provide feedback on the learners' views regarding primary and secondary articulation. Do this on Discussion forum 7.2.1
E-moderator interventions	1. Ensure that learners are focused on the contents and context of discussion. 2. Stimulate further learning and generation of new ideas. 3 Provide feedback on the learning progress. 4 Close the e-tivity
Schedule and time	This task should take 40 minutes
Next	Coarticulation

From the E-tivity above we learn that:

Doubly articulated consonants are consonants with two simultaneous primary places of articulation of the same manner (both plosive, and both nasal, etc.).

They are a subset of co- articulated consonants.

They are to be distinguished from co-articulated consonants with underlined secondary articulation, that is, a second articulation not of the same manner.

An example of a doubly articulated consonant is the voiceless labial–velar plosive [k͡p], which is a [k] and a [p] pronounced simultaneously.

On the other hand, the voiceless labialized velar plosive [kʷ] has only a single stop articulation, velar ([k]), with a simultaneous approximant-like rounding of the lips.

In some dialects of Arabic, the voiceless velar fricative [x] has a simultaneous uvular trill, but this is not considered double articulation either.

N. B. In the IPA, double articulations are shown by connecting two symbols with a tie-bar symbol written over them, e.g. k͡p. In these notes, however, a plus sign + will be used to indicate simultaneous articulations.

i) Stops: **double stops** occur as distinctive phonemes primarily in languages of West Africa, though they also occur in the phonetics of more familiar languages, e.g. Katharevousa Greek *ptina*; Russian *ptitsa*, English *outpost* (in fluent speech). Most common of these are labial-velar stops, e.g.:

      Idoma [àg͡bà] "jaw" *vs*. [àbà] "palmnut" *vs*.[à g͡b] "axe"

      Ibibio [èk+pà] "bag" *vs*. [èkà] "mother"

      Igbo [àk+pà] "<u>bag</u>" *vs*. [àg͡bà] "<u>fame</u>"

Double nasal stops [ŋ͡m] also exist, but in most cases these occur only as homorganic to the oral stops.

Labial-alveolar stops are also said to occur, again in W. Africa (e.g. in Bura, Nzema) and in some of the North West Caucasian languages.

ii) Fricatives: a voiceless alveolar-velar fricative [ʃ+x] (for which the IPA has a single symbol, [ɧ]) exists in some varieties of Swedish. For example, *sjok* [ɧuk] "<u>chunk</u>". And Shona (spoken in Zimbabwe) has labial-alveolar fricatives [ɸ+s] - sometimes referred to as "whistling fricatives".

iii) Approximants: two types should be noted in particular, the labial-velar approximant [w] and the labial-palatal approximant which occur in many languages, e.g. French *<u>soin</u>* "care" *vs*. *<u>suint</u>* "grease on sheep's wool".

Secondary articulation: is an articulation with a lesser degree of closure occurring at the same time as another (primary) articulation**.**

The secondary articulation is normally the addition of an approximant or vowel-like articulation to the primary one.

Four major types of secondary articulation are generally recognized:
labialization,
 palatalization,
 velarization, and **pharyngealization**, as well as combinations (e.g. labiovelarization) and other minor types (e.g. rhotacization, faucalization).

7.2.2   Coarticulation

Having looked at Primary, double and secondary articulation we now move to coarticulation. The E-tivity below will enable us describe the word coarticulation

E-tivity 7.2.2

Numbering, pacing and sequencing	7.2.2
Title	Coarticulation
Purpose	To enable you to distinguish between Primary and Secondary articulation
Brief summary of overall task	Watch Videos1 and Video2
Spark	COARTICULATION
Individual task	Using bullet points list the types of secondary articulation Describe vowels basing on i) above and save your work in **your unit portfolio** to be accessed by your facilitator when required

Interaction begins	1. Distinguish between primary and secondary articulation. Provide feedback on the learners' views regarding primary and secondary articulation. Do this on Discussion forum 7.2.1
E-moderator interventions	1. Ensure that learners are focused on the contents and context of discussion. 2. Stimulate further learning and generation of new ideas. 3 Provide feedback on the learning progress. 4 Close the e-tivity
Schedule and time	This task should take 40 minutes
Next	Hormoganic articulation

From the E-tivity above we learn that:

Secondary articulations are an instance of **coarticulation**.
Coarticulation may be generally defined as "the overlapping of adjacent articulations"
(Ladefoged 1993: 55) or as two articulators "moving at the same time for different phonemes"
(Borden and Harris 1984:130).

Common examples from English are:

eight [eIt] vs. eighth [eIt ̪θ̪]

keep [k₊ʲip] vs. cool [kʷul]

where the /t/ in "eighth" is dental (here transcribed [t̪]) when followed by the dental fricative [θ], and the /k/ of "keep" has a front-of-velar (transcribed [k₊]), palatalized articulation when followed by the high front vowel [i]. The /k/ of "cool" is not so advanced, and is labialized.

 All languages exhibit coarticulatory phenomena, though in varying ways.

 One of the ways in which they differ is in **directionality**. Compare English /k/ in:

"peak" /pik/ and "keep" /kip/, "caw" /kɔ/ and "hawk" /hɔk/, then in "peak" and "hawk".

You should find that /k/ undergoes greater influence (alteration of place of articulation) from the following vowel than from a preceding vowel.

This direction of influence is called **anticipatory** or **regressive** coarticulation.

In other languages, such as French and Italian, a preceding vowel will exert greater influence - **perseverative** or **progressive** coarticulation.

Coarticulation occurs because the different speech production processes, and the different articulators involved, combine with one another with different timing patterns.

For example, vowels become nasalized when followed (or preceded) by a nasal consonant (compare English "pit" and "pin") because the timing of the lowering of the velum is not perfectly synchronized with the tongue movement for the alveolar consonant.

In this case, the secondary articulation cannot be attributed to coarticulation. Note the continuous rounding of the lips in the phrase "Who'd choose prune juice?" [hʷudʷt ∫ʷuzʷpʷrʷunʷd ʷusʷ]!

7.2.3: Hormoganic articulation

In phonetics, a **homorganic consonant** (from *homo-* "same" and *organ* "(speech) organ") is a consonant sound articulated in the same place of articulation as another. For example, [p], [b] and [m] are homorganic consonants of each other as they share the place of articulation of bilabial. articulation e.g. the alveolar sounds[n,t,d,s,z,l], labials [p,b,m] and velars [k,g,ng].

Consonants not articulated in the same place are called **heterorganic**.

The homorganic nasal rule requires that a nasal consonant must be homorganic with a following stop e.g. in English i**nt**olerable -[n and t] are both alveolars, i**mp**ossible - [m and p] are both plosives.

Other examples of homorganic sequences are ou**tp**ost and ja**ckp**ot.

7.3 Summary

In this lecture we have other articulations that include primary, secondary, double, coarticulation and homorganic articulations. In the next class we shall introduce Phonemes, phones and allophones.

7.4 Further Activity

	i. Describe with illustrations any four homorganic sequences.
	ii. Explain any four secondary articulations.
	iii. Define coarticulation and give examples.
	iv. Differentiate between secondary articulation and coarticulation.
	v. What are geminates?

7.5 Further reading

Catford, J. (1964). Phonation types: the classification of some laryngeal components of speech production. In D. Abercrombie, D.B. Fry, P.A.D. MacCarthy, N.C. Scott and J.L.M. Trim (Eds.), In honour of Daniel Jones, pp. 26-37. London: Longmans.

International Phonetic Association (1999). *Handbook of the International Phonetic Association*. Cambridge University Press.

Ladefoged, P (2005). *A Course in Phonetics* (5th ed.). Boston: Thomson/Wadsworth.

Lecture 8

Phonemes, phones and allophones

8.0 Introduction

In this lecture we shall focus on terminologies that are used in describing speech sounds. We shall discuss some procedures one can use in determining various types of sounds in language. In other words we shall explore procedures linguists use in establishing phonemes and their variants.

8.1 Lesson Learning Outcomes

By the end of the chapter, the learner should be able to:

8.1.1. Discuss the phoneme's distinctive ability.

8.1.2 Distinguish between phonemes and allophones.

8.1.3 Explain phonetic similarity

8.1.1 The phoneme's distinctive ability

In this section we shall focus on a phoneme as distinctive feature in phonology. We shall start by defining two terms that are important in phonetics and phonology: Phone and phoneme. The E-tivity below will expose us on these two terms and we shall discuss further the phoneme's distinctive ability.

E-tivity 8.1.1: A phone, phoneme, allophone

Numbering, pacing and sequencing	8.1.1
Title	Definition of a phone, phoneme, allophone
Purpose	To enable to define the terms phone, phoneme and allophone
Brief summary of overall task	Watch Video1 and Video2
Spark	SPEECH SOUNDS ❖ PHONE [b]. ❖ PHONEME /p/

	❖ ALLOPHONES/t/ -[t], [tʰ] [r] [?]
Individual task	i. Define the terms phone, phoneme and allophone ii. Give the examples of the above terms save your work in **your unit portfolio** to be accessed by your facilitator when required
Interaction begins	i. Post your discussion on phone, phoneme and allophones here (forum 8.1.1) ii. Provide feedback on the learners' views and ideas regarding Phones, phoneme and allophone. Discussion forum 8.1.1
E-moderator interventions	1. Ensure that learners are focused on the contents and context of discussion. 2 Stimulate further learning and generation of new ideas. 3 Provide feedback on the learning progress. 4 Close the e-tivity
Schedule and time	This task should take 40 minutes
Next	Distinction between a phoneme and allophone

From the E-tivity above we learn that:
A phone

- ❖ A Phone is a speech-sound.
- ❖ Every language consists of speech sounds called phones.
- ❖ Phones are enclosed in square brackets [b].
- ❖ For example, the word bit has three sounds [b] [l] [t].
    - ❖ According to Yule a phoneme may be described as an abstract unit of a sound in a language or the smallest unit by which one can distinguish one word from another; meaning distinguishing units in a language.

For example tar, car, bar, far. The articulation of [t] [k] [b] [f] distinguish the meaning of the words.

A phoneme

- ❖ **P**honeme: The smallest phonetic unit in a language that is capable of conveying a distinction in meaning, as **the _m_ of _mat_ and the _b_ of _bat_** in English.
- ❖ A phoneme is a speech sound that _in_ a given language, if swapped with another phoneme, would change the meaning of the word.

❖ For example, the English words ***kid* and *kit*** end with two distinct phonemes, and swapping one for the other would change the word's meaning.

Allophones (/ˈæləfoʊn/;

❖ The different speech sounds of a phoneme are called allophones.
❖ Allophones are variations of phonemes ie different phones of the same phoneme
❖ Thus the Phoneme: /p/ has the following allophones   Allophones [pʰ] [p] in the words pin and spin.
❖ Another example, the aspirated *t* of *top,* the unaspirated *t* of *stop,* and the *tt* (pronounced as a flap) of *batter* are allophones of the English phoneme /t/

Thus the Phoneme /t/ has the following allophones [t], [tʰ] [r] [glottal stop]

8.1.2   Phonemes and Minimal pairs

We shall now discuss minimal pairs as one method of establishing phonemes in a language.

E-tivity 8.1.2 Minimal pairs

Numbering, pacing and sequencing	8.1.2
Title	**Discovery procedures: Minimal pairs**
Purpose	To enable you understand minimal pairs as a method of establishing phonemes in a language
Brief summary of overall task	Watch Video1 and Video2
Spark	❖ MINIMAL PAIRS ❖ MINIMAL SETS
Individual task	i. Define minimal pairs ii Give examples of minimal sets in English and any other language and save your work in **your unit portfolio** to be accessed by your facilitator when required
Interaction begins	i. Post your discussion on minimal pairs and sets here (forum 8.1.2) ii. Provide feedback on the learners' views and ideas regarding Minimal pairs and sets. Discussion forum 8.1.2

Phonemes

Phonemes are the linguistically contrastive or significant sounds (or sets of sounds) of a language.

Minimal pairs are pairs of words which vary only by the identity of the **segment** (another word for a single speech sound) at a single location in the word (eg. [mæt] and [kæt]).

Allophones

Allophones are the linguistically non-significant variants of each phoneme.

 In other words a phoneme may be realised by more than one speech sound and the selection of each variant is usually conditioned by the phonetic environment of the phoneme.

Occasionally allophone selection is not conditioned but may vary from person to person and occasion to occasion (ie. **free variation**).

A phoneme is a **set** of allophones or individual non-contrastive speech segments.

Allophones are sounds, whilst a phoneme is a set of such sounds.

Allophones are usually relatively similar sounds which are in **mutually exclusive or complementary distribution (C.D.)**.

The C.D. of two phones means that the two phones can never be found in the same environment (ie. the same environment in the senses of position in the word and the identity of adjacent phonemes).

If two sounds are phonetically similar **and** they are in C.D. then they can be assumed to be allophones of the same phoneme. eg. in many languages voiced and voiceless stops with the same place of articulation do not contrast linguistically but are rather two phonetic realisations of a single phoneme (ie. /p/=[p,b],/t/=[t,d], and /k/=[k,g]).

8.1.3 Phonetic similarity

Allophones must be phonetically similar to each other.
In analysis, this means you can assume that highly dissimilar sounds are separate phonemes (even if they are in complementary distribution).

eg. In English, /h/ and /ŋ/ are in complementary distribution. /h/ only ever occurs at the beginning of a syllable (head, heart, enhance, perhaps) whilst /ŋ/ only ever occurs at the end of a syllable (sing, singer, finger).

They are, however, so dissimilar that no one regards them as allophones of the one phoneme.

They vary in place and manner of articulation, as well as voicing. Further the places of articulation (velar vs glottal) are quite remote from each other and
/h/ is oral whilst /ŋ/ is nasal.

i) two sounds differing only in voicing:
[pb] [td] [kg] [ɸβ] [θð] [sz] [ʃʒ] [xɣ] etc...

ii) two sounds differing in manner of articulation only as plosive vs fricative. The sibilant or grooved fricatives [s,z,ʃ,ʒ] are excluded from this category as they are quite different auditorily from the other ("central") fricatives. [pɸ] [kx] [bβ] [gɣ] etc...

iii) Any pairs of consonants close in place of articulation and differing in no other contrastive feature:
[sʃ] [zʒ] [nɲŋ] [ll̪] [lʎ] [mɱ], etc...

iv) Any other pairs of consonants which are close in articulation and differ by one other feature but are nevertheless frequently members of the same phoneme
[lɹ] [cg] [tθ] [dð]

In languages where voicing is non-contrastive, two phones differing in voicing and only slightly in place of articulation might be considered similar eg. [cg] etc.)

Further, for the purposes of this type of analysis, the place of articulation of the apicodental fricatives [θ,ð] is considered to be close enough to that of the alveolar stops [t,d] to be considered phonetically similar.

v) Any two vowels differing in only one feature or articulated with adjacent tongue positions
[æ ɐ] [i ɪ] [ɐː ɐ] [i y] [a ã]

In terms of phonetic similarity, the two unreleased stops may actually be identical and yet be perceived by native speakers to belong to different phonemes.

For example:-
/kɐp/→[kɐpⁱ] ... [kɐp']

/kɐb/→[kɐ▼b] ... [kɐ▼b '] ... [kɐ▼p']

(nb. " ' " means unreleased stop and " ▼ " means partially lengthened vowel)

From an articulatory perspective, these phones seem very dissimilar (bilabial, palatal, and glottal) being produced at the extreme ends of the vocal tract. They are, however, relatively similar acoustically and auditorily (they are all relatively weak voiceless fricatives). This kind of phonetic similarity is listener orientated rather than speaker orientated.

eg.   English   /t/   →   [ʔ] medially and finally in some dialects
                                        eg. Cockney - "butter", "wait"
                          →   [t] initially
nb.   /k/   →   [k,ʔ] does not occur although they are articulatorily closer

8.2 **Phonemic Pattern**

A pair of phones in complementary distribution may sometimes be classified into separate phonemes on the basis of phonemic pattern.

In other words, is there a group of phonemes which exhibit a similar pattern of distribution (eg. clustering behaviour, morphology, etc.) to one of the phones being examined?

In the case of the pair [h], [ŋ] there are some similarities in patterning between [h] and certain fricatives, and between [ŋ] and the nasals.

For example, there is a suffix which when placed before a word commencing with a stop has the effect of negating the original meaning. The suffix has the form /ɪ/ plus the nasal homorganic with the stop.

ie.   "impossible"   [ɪmp...]
          "intolerable"   [ɪnt...]
          "incalculable"   [ɪŋk...] or [ɪnk...]
                               (free variation in citation form, but homorganic predominating
                               in rapid speech)

Clearly, this pattern suggests that [ŋ] behaves in some instances with the same phonological pattern as the other nasals. It does in fact raise the question of [ŋ] being an allophone of /n/. This was indeed the case until the 1600's, but now there are quite a few minimal pairs which have since crept into the language. ("sin"/"sing", "run"/"rung").

Phonological Space

The greater the distance between a phoneme and its nearest neighbours, the greater the scope for allophonic variation. In other words, the larger the number of redundant features (ie. features which when changed will not create another phoneme) the greater the number of

allophones which can actually occur.

8.3 Summary

In this lecture we have discussed the aspect of phoneme and how it relates to a phone and allophones. We have also distinguished between a phoneme and allophone. We have seen how phonemes are the linguistically contrastive or significant sounds (or sets of sounds) of a language.

8.4 Further Activity

	i. Form minimal pairs using the following sounds: W and l L and r n and t g and r y and p l and e ii. Differentiate between a phoneme and allophone. iii. What is phonetic similarity? iv. Define a minimal pair. v. Use the phoneme /t/ to explain the concept of allophones.

8.5 Further Reading

Catford, J. (1964). Phonation types: the classification of some laryngeal components of speech production. In D. Abercrombie, D.B. Fry, P.A.D. MacCarthy, N.C. Scott and J.L.M. Trim (Eds.), In honour of Daniel Jones, pp. 26-37. London: Longmans.

International Phonetic Association (1999). *Handbook of the International Phonetic Association*. Cambridge University Press.

Ladefoged, P (2005). *A Course in Phonetics* (5th ed.). Boston: Thomson/Wadsworth.

Lecture 9

Distinctive oppositions

9.0 Introduction

In lecture 8 we looked at key concepts in phonology such as phone, phoneme and allophones. In this lecture our focus will be on distinctive oppositions. The main focus will to expose you on distinctive features in phonology which will help you in analysis of phonemes. We will particularly focus on a model of phonological features known as distinctive features. This was developed by Jakobson and his colleagues and further elaborated by Chomsky and Halle in their very influential book the *Sound Pattern of English* (Chomsky and Halle, 1968). The set of features that we will be using are based on Chomsky and Halle's features but will incorporate subsequent suggested modifications by a number of phonologists and phoneticians. We will conclude by briefly considering articulatory phonology which describes phonemes in terms of explicitly (and exclusively) articulatory features.

9.1 Lesson Learning Outcomes

By the end of the chapter, the learner should be able to:

9.1.1 Explain Ferdinard Desausure contributions in analysis of phones

9.1.2 Describe the disttinctive oppositions advanced by Ttrubetzkoy (1939)

9.1.3 Analyze distinctive features according to Chomsky and Halle (1968)

9 .1.1 Ferdinand de Saussure (1916)

Saussure made distinctions between signified and signifier and between form and substance.

For example, in his theory the word "dog" (its external spoken and written versions and mental representations of the word's morphology, spelling and pronunciation) is a signifier that relates to our concept of a dog (not to an actual physical dog, but to our idea of what a dog is).

In other words, the word "dog" is a *signifier* and its *signified* is our concept of what a dog is.

What interests us here are his ideas about form and substance.

- Form: an abstract formal set of relations
- Substance: sounds (phonemes) or written symbols (graphemes)
- Word: the union of signified and signifier

Phonetic segments (speech sounds) are elements that have no meaning in themselves. They have, however, non-semantic and non-grammatical rules of combination etc.

Meaningless elements (phonetic segments) can combine to form meaningful entities. ie. words, which are combinations of phonetic segments (or of phonemes) are meaningful.

There is an arbitrary relationship between the Meaningless and the Meaningful. For example, the relationships between the meaningless elements (phonetic segments or written symbols) and meaningful combinations of those elements (words) are arbitrary.

Each language has its own set of distinct rules for the combination of sounds, or **phonotactic rules**. The need to find ways of expressing such rules in a simple manner motivated the development of the idea of phonological features.

9.1.2 Distinctive oppositions as advanced by Nikolai Ttrubetzkoy (1939)

Nikolai Trubetzkoy was a core member of the Prague school of linguistics which was highly influential in developing some areas of linguistic theory (including phonology), particularly in the 1930s. His most influential work was published posthumously in 1939, shortly after his death. One aspect of Trubetzkoy's work examines the idea of different types of "oppositions" in phonology. These oppositions are based on phonetic (or phonological) features. We won't look at all of the types of oppositions that he described, but only a few that are of particular relevance to this topic. That is, we will examine types of opposition that are relevant to the definition of phonological features. The E-tivity will introduce you to Nikolai Trubetzkoy distinctive oppositions.

9.1.2 Distinctive oppositions as advanced by Nikolai Ttrubetzkoy (1939)

Numbering, pacing and sequencing	9.1.1
Title	**Distinctive oppositions**
Purpose	To enable you understand distinctive oppositions

Brief summary of overall task	Watch this Video
Spark	DISTINCTIVE OPPOSITIONS
Individual task	List the distinctive oppositions according to Trubestkoy (1939)
	Describe the oppositions in i) above and save your work in **your unit portfolio** to be accessed by your facilitator when required
Interaction begins	Describe the various distinctive oppositions.
	Provide feedback on the learners' views and ideas regarding Distinctive oppositions. Do this on Discussion forum 9.1.2
E-moderator interventions	Ensure that learners are focused on the contents and context of discussion.
	Stimulate further learning and generation of new ideas.
	3 Provide feedback on the learning progress.
	4 Close the e-tivity
Schedule and time	This task should take 40 minutes
Next	Chomsky and Halle (1968) Distinctive feature

From the E-tivity above we learn that:

- Trubetskoy was a member of The Prague school which was best known for its work on phonology.

- Trubetskoy redefined the **phoneme** functionally as the smallest distinctive unit within the structure of a given language, and he further broke these phonemes into their distinctive features.

- Trubetskoy and his followers did not take the phoneme to be the minimal unit of analysis. Instead, they defined phonemes as sets of distinctive features. For example, in English, /b/ differs from /p/ in the same way that /d/ differs from /t/ and /g/ from /k/.

- Just how they differ in terms of their articulation is a complex question. For simplicity, it may be said that there is just one feature, the presence of which distinguishes /b/, /d/, and /g/ from /p/, /t/, and /k/, and that this feature is voicing (vibration of the vocal cords).

- Similarly, the feature of labiality can be extracted from /p/ and /b/ by comparing them with /t/, /d/, /k/, and /g/; the feature of nasality from /n/ and /m/ by comparing them with /t/ and /d/, on the one hand, and with /p/ and /b/, on the other.

Trubetskoy came up with the following oppositions

i. Bilateral oppositions

- A type of phonological contrast involving only two units distinguished by a single feature.

- An example from English is the pair of phonemes **/k/** and **/g/**. These are the only two units in the system which are plosive and velar and they are distinguished by the voicing feature.

- A bilateral opposition refers to a pair of sounds that share a set of features which no other sound shares fully. For example, voiceless labial obstruents = /p,f/.

- Note that obstruents are defined as having a degree of stricture greater than that of approximants (that is, stops and fricatives).

ii Multilateral oppositions

A group of more than 2 sounds which share common features. For example, labial obstruents, /p,b,f,v/, are both labial and obstruents, so they share two features.

How about /m/ vs. /n/, /m/ vs. /ŋ/, or /n/ vs. /ŋ/? The common base of /m/ and /n/ is "nasal", which is shared by /ŋ/, that of /m/ and /ŋ/ is also "nasal", which recurs in /n/, and that of /n/ and /ŋ/ is again "nasal", which is found in /m/. Therefore, each of /m/ vs. /n/, /m/ vs. /ŋ/, or /n/ vs. /ŋ/ is a multilateral opposition.

iii, Privative (Binary) Oppositions

One member of a pair of sounds possesses a mark, or feature, which the other lacks. Such features are also known as **binary** features which a sound either possesses or lacks. Voicing is such a feature. A sound is voiced or NOT voiced. The sound which possesses that feature is said to be **marked** (eg **[+voice]**) whilst the sound lacking the feature is **unmarked** (eg. **[-voice]**). (nasal, syllabic) etc

iv, Gradual Oppositions

The members of a class of sounds possess different degrees or gradations of a feature or property.

For example, the three short front unrounded vowels in English /ɪ, e, æ/ which are distinguished only by their height.

In this system height would be a single feature with two or more degrees of height.

V, Equipollent Oppositions

The relationship between two members of an opposition are considered to be logically equivalent. Consonant place of articulation can be seen in this sense. Changes in place involve not just degree of fronting but also involve other articulator changes.

Roman Jakobson et al. (1941-1956)

Roman Jakobson was also a member of the Prague school of linguistics and worked closely with Trubetzkoy.
Distinctive feature theory, based on his own work and the work of Trubetzkoy, was first formalised by Roman Jakobson in 1941 and remains one of the most significant contributions to phonology.

Briefly, Jakobson's original formulation of distinctive feature theory was based on the following ideas:-

1. All features are privative (ie. binary). This means that a phoneme either has the feature eg. [+VOICE] or it doesn't have the feature eg. [-VOICE]
2. There is a difference between PHONETIC and PHONOLOGICAL FEATURES
   - Distinctive Features are Phonological Features.
   - Phonetics Features are surface realisations of underlying Phonological Features.
   - A phonological feature may be realised by more than one phonetic feature, eg. [flat] is realised by labialisation, velarisation and pharyngealisation
3. A small set of features is able to differentiate between the phonemes of any single language
4. Distinctive features may be defined in terms of articulatory or acoustic features, but Jakobson's features are primarily based on acoustic descriptions

Jakobson and colleagues (Jakobson, Fant and Halle, 1952, Jakobson and Halle, 1956) devised a set of 13 distinctive features. They are not reproduced here, but they represent a starting point for the set defined by Chomsky and Halle.

9.1.3 Chomsky and Halle (1968) distinctive features

Having looked at Trubetskoy and Jacobson we now focus on **Chomsky and Halle (1968) distinctive features.**

9.1.3 Distinctive features

Numbering, pacing and sequencing	9.1.3
Title	**Distinctive features**
Purpose	To enable you understand distinctive features
Brief summary of overall task	Watch Video1 and Video2
Spark	DISTINCTIVE FEATURES
Individual task	List the distinctive features Describe the oppositions in i) above and save your work in **your unit portfolio** to be accessed by your facilitator when required
Interaction begins	Describe the various distinctive features. Provide feedback on the learners' views and ideas regarding Distinctive features. Do this on Discussion forum 9.1.3
E-moderator interventions	Ensure that learners are focused on the contents and context of discussion. Stimulate further learning and generation of new ideas. 3 Provide feedback on the learning progress. 4 Close the e-tivity
Schedule and time	This task should take 40 minutes
Next	**Segment organization and distribution statements**

From the E-tivity above we learn that:

Distinctive feature theory was first formalised by Roman Jakobson in 1941. There have been numerous refinements to Jakobson's (1941) set of features, most notably with the development of Generative Phonology and the publication of Chomsky & Halle's (1968) *Sound Pattern of English* but also from phoneticians such as Ladefoged (1971), Fant (1973) and also Stevens (Halle & Stevens, 1971).

Regardless of the many differences and controversies, the various kinds of feature systems share the following characteristics.

a) Features establish natural classes (see in the notes)

Distinctive features are grouped into categories according to **the natural classes of segments** they describe: **major class features,**

- ✓ **laryngeal features,**
- ✓ **manner features**
- ✓ **place features.**

b) Economy

In phonology, and particularly in Generative Phonology, we are often concerned to eliminate redundancy from the sound pattern of a language or to explain it by rule.

Distinctive features allow the possibility of writing rules using a considerably smaller number of units than the phonemes of a language.

Consider for example, a hypothetical language that has 12 consonant and 3 vowel phoneme

We could refer to all these phonemes with perhaps just 6 distinctive features - a reduction of over half the number of phoneme units which also allows natural classes to be established amongst them:

[+voice]	b d ɡ m n ŋ i u a
[+nasal]	m n ŋ
[+high]	i u k ɡ ŋ ç
[+labial]	p m b u f
[+anterior]	p t b d m n f s
[+cont] (passage of air through vocal tract f s ç i u a

At the same time, each phoneme is uniquely represented, as shown by the distinctive feature matrix:

At the same time, each phoneme is uniquely represented, as shown by the distinctive feature matrix:

	Voice	nasal	High	labial	anterior	continuant
P	-	-	-	+	+	-
B	+	-	-	+	+	-
T	-	-	-	-	+	-
D	+	-	-	-	+	-
K	-	-	+	-	-	-
ɡ	+	-	+	-	-	-
M	+	+	-	+	+	-
N	+	+	-	-	+	-
ŋ	+	+	+	-	-	-
F	-	-	-	+	+	+
S	-	-	-	-	+	+
Ç	-	-	+	-	-	+
I	+	-	+	-	-	+
U	+	-	+	+	-	+
A	+	-	-	-	-	+

We have assumed that features are binary (a segment is either nasal or it is not) following Jakobson's (1941) original formulation of distinctive feature theory and this premise was adoptedin Chomsky & Halle's (1968) Sound Pattern of English.

There were many reasons why Jakobson (1941) advocated a binary approach.

c) Phonetic interpretation

1. spread glottis / non-spread glottis [spread]: "

2. constricted glottis / non-constricted glottis [constr]: "
3. Voiced / voiceless [voice]: "

9.3 Summary

In this lecture we have looked at the distinctive features from the framework of Jakobson and Chomsky and Hale. We note that distinctive features are described in terms the natural classes of segments which are: major class features, laryngeal features, manner features, and place features.

9. 4 Further Activity

	i. Describe the oppositions advanced by Trubetzkoy.
	ii. What is a distinctive feature?
	iii. Distinctive features are binary. Explain.
	iv. Describe the class of sounds that are:
	        □ +coronal
	        ● -obstruent
	□ +sonorant

9.5 Further Reading

Catford, J. C.: 1988, *A Practical Introduction to Phonetics*, Clarendon Press, Oxford. Chomsky, Noam & Halle, Morris (1968). The Sound Pattern of English. New York: Harper and Row.

Clements, George N. (1985). "The geometry of phonological features". Phonology Yearbook. **2**: 225–252. doi:10.1017/S0952675700000440.

Hall, T. A. (2007). "Segmental features." In Paul de Lacy, ed., The Cambridge Handbook of Phonology. 311–334. Cambridge: Cambridge University Press.

Jakobson, Roman; Halle, Morris (1971). Fundamentals of Language. The Hague: Mouton.

Lecture 10

Segment organization and distribution segments

10.0 Introduction

In lecture 8 and 9 our focus was on a phoneme and how it is the unit of phonological analysis. In this lecture we shall look at Segment organization and distribution statements. We shall therefore discuss distribution statements such as free variation and complementary process.

10.1 Lesson Learning Outcomes

By the end of the lesson the learner should be able to:
- 10.1.1 Define a segment
- 10.1.2 Explain the distribution segments.
- 10.1.3 Organize sounds into segments

10.1.1 Definition of a segment

In phonetics and phonology, a segment is a minimal sound element that can be isolated in the chain of speech, corresponding to a letter in alphabetic representation of speech.

In speech, a segment is any one of the discrete units that occur in a sequence of sounds, which can be broken down into phonemes, syllables or words in spoken language through a process called speech segmentation.

A segment is any discrete unit that can be identified either physically or auditorily in the stream of speech.

Segments are called discrete because they are separate and individual such as consonants and vowels.

In phonetics, the smallest perceptible segment is a phone.

Consonants can be organized into segments based on:

- Place of articulation e.g. bilabials [p,b,m]
- Manner of articulation e.g. stops[p,t,k]

- State of glottis (voicing) e.g. voiced sounds [b,gd,g,z]e.t.c, voiceless sounds [s,f,t,k]e.t.c.
- Distinctive features e.g. +coronal (dentals,

alvoelars) Vowels can be organized into segments based

on:

- Tongue height- high, mid or low
- Tongue position- front, central or back
- Lip shape- rounded or unrounded
  Tensity - tense or lax

10.1.2 Distribution segments

The distribution of an entity is the set of contexts in which it occurs throughout the sentences of a language. In this lecture we shall discuss free variation and complementary distribution as a set of distribution segments.

E-tivity 10.1.2 Free variation and complementary distribution

Numbering, pacing and sequencing	9.2.3
Title	**Free variation and complementary distribution**
Purpose	To enable you identify phonemes in terms of Free variation and Complementary Distribution
Brief summary of overall task	Watch Video1 and Video2
Spark	DISTRIBUTION SEGMENTS ❖ FREE VARIATION ❖ COMPLEMENTARY PROCEDURES
Individual task	i. Define Free variation and complementary procedures ii Give examples of free variations and complementary procedures in English and any other language and save your work in **your unit portfolio** to be accessed by your facilitator when required

Interaction begins	i. Post your discussion on free variation and complementary distribution (forum 10.1.2) ii. Provide feedback on the learners' views and ideas regarding free variation and complementary procedures. Discussion forum 10.1.2
E-moderator interventions	1. Ensure that learners are focused on the contents and context of discussion. 2 Stimulate further learning and generation of new ideas. 3 Provide feedback on the learning progress. 4 Close the e-tivity
Schedule and time	This task should take 40 minutes
Next	Suprasegmental features

From E-tivity below we learn that:

❖ Free variation is the phenomenon of two (or more) sounds or forms appearing in the same environment without a change in meaning.

❖ Thus we say two sounds are in free variation if they can be used interchangeably without changing the meaning of words in question.

❖ Simply put a relationship between the members of a pair of phonemes, words, etc., in which either can occur in the same position without causing a change of meaning.

❖ Free variation is an alternative pronunciation of a word (or of a phoneme in a word) that doesn't affect the word's meaning.

Examples from English include:

- **glottalization** of **voiceless** **stops** in word-final position: for example, the word *stop* may be pronounced with a plain unaspirated [p], [stɑp], or with a glottalized [pˀ], [stɑpˀ]
- the **word** *economics* may be pronounced with **/i/ or /ɛ/** in the first syllable ('eek' or 'eck-').
- The word **issue** can be pronounced as **[isju]** or [i∫ju] they can be used interchangeably
- the comparative of many disyllabic adjectives can be formed either with the word *more* or with the suffix -*er*, for example *more stupid* or *stupider*.
- that *tomato* is pronounced differently in British and American English,

- When the same speaker produces noticeably different pronunciations of the word *cat* (e.g. by exploding or not exploding the final /t/), the different realisations of the <u>phonemes</u> are said to be in **free variation**."
- "**[F]ree variation** however infrequent, can be found between the realizations of separate phonemes (phonemic free variation, as in **[i] and [aI] of** *either*), as well as between the <u>allophones</u> of the same phoneme (allophonic free variation, as **in [k] and [kˡ] of** *back*).

In Kiswahili the phonemes **/l/** and /**r/** can occur in free variation in the word **kuloga** or **kuroga**

meaning *to bewitch*

Complementary distribution

This is the relationship between two different elements, where one element is found in a particular environment and the other element is found in the opposite environment.

It often indicates that two superficially different elements are in fact the same linguistic unit at a deeper level.

Similar phones are usually allophones of the same phoneme e.g. in English [p] and [pʰ] are allophones of the phoneme /p/ because they occur in complementary distribution. [pʰ] always occurs when it is the syllable onset and followed by a stressed vowel (as in the word *pin). [p]* occurs in all other situations (as in the word *spin).*

Contrastive distribution

This is the relationship between two different elements where both elements are found in the same environment with a change in meaning.

In phonology, two sounds are said to be in contrastive distribution if replacing one with the other in the same phonological environment results in a change in meaning. If a sound is in contrastive distribution, it is considered a phoneme in that language.

For example in English, the sounds [p] and [b] can occur word- initially as in the words **pat** and **bat** (minimal pairs), which are distinct morphemes.

Therefore [p] and [b] are in contrastive distribution and thus they are phonemes in English.

Minimal pairs are pairs of words in a particular language which differ only in one phonological element such as a phone or phoneme and have distinct meanings.

They are used to demonstrate that two phones constitute two separate phonemes in the language.

10.1.4 Organization of Segments

Segments in phonology are conceptualized as consisting of bundles of features, or feature-value pairs.

In Feature Geometry, the features show a hierarchical structure; for example root features like *consonantal* or *sonorant* dominate lower features like *continuant* and class nodes like PLACE.

Segments are related to feature

Major features

Consonantal

From SPE: "[Consonantal] sounds are produced with a radical obstruction in the midsagital reagion of the vocal tract; nonconsonantal sounds are produced without such an obstruction."

The feature *consonantal* distinguishes stops, fricatives, nasals and liquids (+*consonantal*) from glides, vowels and laryngeals (-*consonantal*).

+*consonantal*	-*consonantal*
Stops	glides
fricatives	vowels
Nasals	laryngeals
Liquids	

Sonorant

From SPE: "Sonorants are sounds produced with a vocal tract cavity configuration in which spontaneous voicing is possible."

The feature *sonorant* distinguishes stops and fricatives (-*sonorant*) from nasals, liquids, glides, vowels, and laryngeals (+*sonorant*).

+*sonorant*	-*sonorant*
Nasals	Stops
Liquids	fricatives

Glides	
vowels	
laryngeals	

Approximant

Sounds that are +*approximant* have a constriction in the vocal tract that allows frictionless release of air.

+*approximant*	-*approximant*
Vowels	stops
Glides	fricatives
Liquids	nasals

Manner Features

Continuant

The feature *continuant* distinguishes stops from fricatives. Halle and Clements: "Continuants are formed with a vocal tract configuration allowing the airstream to flow through the midsaggital region of the oral tract."

+*continuant*	-*continuant*
fricatives	stops
rhotics	nasals
glides	laterals
vowels	

Strident

From SPE: "strident sounds are marked acoustically by greater noisiness than their nonstrident counterparts."

The *strident* feature is used to distinguish interdental fricatives (-*strident*) from alveolar fricatives (+*strident*); palatoalveolar (+*strident*) from palatal (-*strident*); affricates (+*strident*) from stops (-*strident*).

For example:

+*strident*	-*strident*
/s/	/θ/
/z/	/ð/
/ʃ/	/ç/
/ʒ/	/ʝ/
/t/	/ts/

In feature geometry, *strident* may be located in the root, or as a daughter of CORONAL.

Place Features

The PLACE node is parent to three articulator privative nodes: LABIAL, CORONAL, and DORSAL, covering sounds made with the lips, tongue front, and the tongue dorsum, respectively. The PHARYNGEAL feature is treated separately.

Labial

Round

Coronal

Coronal sounds are those articulated using the front part of the tongue (i.e. the tongue tip, blade, and the forward part of the body). This includes dental, alveolar, retroflex, palatoalveolar, alveopalatal and palatal places of articulation. Some authors consider *coronal* to apply to front vowels, while others use it for consonants only.

In feature geometry, CORONAL is a privative node mother to the *anterior* and *distributed* features.

Anterior

The feature *anterior* distinguishes coronal sounds produced in front of the alveolar ridge from those produced behind it.

+*anterior*	-*anterior*
dental	retroflex
alveolar	palato-alveolar
	Palatal

Distributed

Sagey:

[The feature +*distributed* describes a] constriction formed by the tongue front that extends for a considerable distance along the direction of airflow and [-*distributed*] to a constriction formed by the tongue front that extends only for a short distance along the direction of airflow.

Apical sounds are -*distributed*; laminal sounds are +*distributed*.

+*distributed*	-*distributed*
Dentals	alveolars
palato-alveolars	retroflexes
Palatals	

Some authors have argued to replace *distributed* with *back*, capturing the relationships observed between, for example, retroflex consonants and back vowels.

[**Dorsal**

Dorsal sounds are those involving the body of the tongue; this includes all vowels, velars, and uvulars. In feature geometry, DORSAL is mother to the features *back*, *high*, and *low*.

]**Back**

The *back* feature is mainly used to account for the distinction between front and back vowels.

]**High**

Sagey: +*high* indicates a "raised tongue body" while -*high* indicates a tongue body which is "distinctively not raised".

[edit]**Low**

Sagey: +*low* indicates a "lowered tongue body" while -*low* indicates a tongue body which is "distinctively not lowered."

[edit]**ATR**

The Advanced Tongue Root feature *ATR* is used to capture the distinction between /i e o/ and /ɪ ɛ ɔ/.

Sagey (1986) features for vowels:

	ɪ	ɛ	æ	ɯ	ʌ	a
DORSAL	T	T	T	T	T	T
back	-	-	-	+	+	+
high	+	-	-	+	-	-
Low	-	-	+	-	-	+

Sagey (1986) features for velar and uvular consonants:

	k g x ɣ	q ɢ χ ʁ
DORSAL	T	T
back	+	+
High	+	-
Low	-	-

10.2 Summary

In this lecture we have looked at segments and distribution segments (free variation, complementary distribution and contrastive distribution. We have also looked at what a segment is and how we can describe a segment.

10.3 Further **Activity**

	i. Define a segment. ii. Explain how to carry out a segment organization. iii. What is free variation? iv. Differentiate between contrastive distribution and free variation. v. Exemplify the concept of minimal pairs. i.

10.4 Further reading

Catford, J. (1964). Phonation types: the classification of some laryngeal components of speech production. In D. Abercrombie, D.B. Fry, P.A.D. MacCarthy, N.C. Scott and J.L.M. Trim (Eds.), In honour of Daniel Jones, pp. 26-37. London: Longmans.

International Phonetic Association (1999). *Handbook of the International Phonetic Association*. Cambridge University Press.

Ladefoged, P (2005). *A Course in Phonetics* (5th ed.). Boston: Thomson/Wadsworth.

Lecture 11
PHONOLOGICAL PROCESSES

II.1 Introduction
This lecture will deal with phonological processes (assimilation and non-assimilation processes) that occur when individuals use spoken language. The Phonological processes are common patterns that usually occur when young children simplify the adult speech. These processes are common when children are developing language.

II.2 Lesson Objectives

By the end of the lesson, you should be able to

11.2.1 Define Phonological processes
11.2.2 Describe Assimilation processes
11.2.3 Describe Non-assimilation processes

11.2.1 Phonological Processes

In this section we shall focus on what constitute phonological processes. Phonological processes are simply sound changes. The E-tivity below will further help us understand the definition of Phonological processes.

E-tivity 11.2.1 Phonological processes

Numbering, pacing and sequencing	11.2.1
Title	Definition of phonological processes
Purpose	To enable you understand what phonological processes are in phonology.

Brief summary of overall task	Watch **video 1 and video 2** on these link: https://www.youtube.com/watch?v=1ZpGRUxjMIk
Spark	WHAT IS PHONOLOGICAL PROCESSES?
Individual task	i. Define phonological processes ii List the phonological processes and save your work in **your unit portfolio** to be accessed by your facilitator when required
Interaction begins	i. Post your discussion on phonological processes in the discussion forum 11.1.1 ii. Provide feedback on the learners' views and ideas regarding what phonological processes are. Discussion forum 11.1.1
E-moderator interventions	1. Ensure that learners are focused on the contents and context of discussion. 2 Stimulate further learning and generation of new ideas. 3 Provide feedback on the learning progress. 4 Close the e-tivity
Schedule and time	This task should take 40 minutes
Next	Phonological process: Assimilation

From the E-tivity above we learn that:

- ❖ Phonological processes are sound change.
- ❖ That is they are such kind of changes processes that used at some morphological changes in a word.
- ❖ Phonological processes can occur when the morphemes are combined in a form of word.
- ❖ They are the used by young children to simplify the adult speech.
- ❖ Phonological processes may be context-sensitive or context-free
- ❖ In rapid speech sounds change partially or entirely (Phonological process)

Changes can occur in the following environments:

- ❖ word initial position
- ❖ word final position
- ❖ The relation of a segment vis-à-vis a stressed vowel.

Some of the major processes are:

- ❖ Assimilation
- ❖ Dissimilation
- ❖ Non-assimilation

11.2 .1 Assimilation Processes

The first process of phonological processes is assimilation process. We shall define them and look at the processes of assimilation. The E-tivity below further expands on the concept of assimilation processes as a phonological process.

E-tivity 11.2.2 Assimilation Processes

Numbering, pacing and sequencing	10.2.3
Title	**Assimilation Processes**
Purpose	To enable you describe assimilation processes
Brief summary of overall task	Watch **video 1 and video 2** on these link: i https://www.youtube.com/watch?v=1ZpGRUxjMIk https://www.youtube.com/watch?v=YfQueOZfzUc https://www.youtube.com/watch?v=Kc6UWyurYGM
Spark	ASSIMILATION ❖ REGRESSIVE VS PROGRESSIVE ASSIMILATION ❖ VOICING ASSIMILATION
Individual task	i. Define assimilation processes ii Provide examples of regressive and progressive assimilation processes and save your work in **your unit portfolio** to be accessed by your facilitator when required
Interaction begins	i. Post your discussion assimilation processes in the discussion forum 11.2.2 ii.Provide feedback on the learners' views and ideas regarding assimilation processes. Discussion forum 11.2.2

E-moderator interventions	1. Ensure that learners are focused on the contents and context of discussion. 2 Stimulate further learning and generation of new ideas. 3 Provide feedback on the learning progress. 4 Close the e-tivity
Schedule and time	This task should take 40 minutes
Next	Non assimilation processes

From the E-tivity above we learn that:

- ❖ In assimilation one sound becomes more like a nearby sound.
- ❖ This can occur either within a word or between words.
- ❖ Assimilation is the process of sound change where one sound is influenced or modified/influenced by other sounds.
- ❖ Thus, Assimilation is the process in which a sound takes on characteristics (qualities) of an adjacent (usually) or nearby sound.
- ❖ The process of assimilation can cause a sound to change its place of articulation, its manner of articulation, or its glottal state (voicing).
- ❖ In assimilation processes a segment takes on features from a neighboring segment.
- ❖ A consonant may pick up features from a vowel, a vowel may take on features of consonant one consonant may influence another, or one vowel may have an effect on another.

Assimilation is classified depending on the direction of the influence: Thus we have two types:
- ▪ Regressive Assimilation
- ▪ Progressive Assimilation

11.2.3 Non assimilation Processes

Having looked at assimilation processes we now focus our discussion to non-assimilation processes also called dissimilation. Dissimilation is the opposite of assimilation, and it is much less common than assimilation. The E-tivity below will help us understand non-assimilation processes.

E-tivity 11.2.3 Non assimilation Processes

Numbering, pacing and sequencing	11.2.2
Title	Non assimilation processes
Purpose	To enable you understand non assimilation processes

Brief summary of overall task	Watch **video 1 and video 2** on these links: i.https://www.youtube.com/watch?v=U-xPDHuMhy4 ii.https://www.youtube.com/watch?v=tS3pIvl_fM0
Spark	NON ASSIMILATORY PROCESSES ❖ Apocope ❖ Deletion ❖ Syncope ❖ Metathesis ❖ Epenthesis ❖ Prosthesis ❖ Epenthesis ❖ Procope ❖ Haplology ❖ Vowel reduction ❖ Vowel breaking
Individual task	i. Define the non-assimilatory processes ii Describe any six non-assimilatory processes and save your work in **your unit portfolio** to be accessed by your facilitator when required
Interaction begins	i. Post your discussion on assimilatory processes in discussion forum 11.2.3 ii. Provide feedback on the learners' views and ideas regarding Secondary articulation processes. Discussion forum 11.2.3
E-moderator interventions	1. Ensure that learners are focused on the contents and context of discussion. 2 Stimulate further learning and generation of new ideas. 3 Provide feedback on the learning progress. 4 Close the e-tivity
Schedule and time	This task should take 40 minutes on 16 th November , 2020
Next	TRANSCRIPTION

Non – assimilatory process in phonology

- ❖ Here, the sound segment becomes less similar to neighboring sound segments.
- ❖ That is: a sound becomes less like an adjacent or nearby sound in some respect.
- ❖ Dissimilation typically operates in order to make a sequence of sounds easier to articulate or distinguish.

11.4: Summary

In this lecture we have learnt about phonological processes. We have noted that there are two phonological processes; assimilation and non-assimilation processes. Assimilatory processes are further grouped into regressive and progressive processes while non-assimilatiry processes include Apocope, Deletion, Syncope, Metathesis, Epenthesis, Prosthesis, Epenthesis, Procope, Haplology, Vowel reduction and Vowel breaking.

In the next lesson we shall focus on transcription

11.5 Further Activity

	1. Why do languages undergo phonological processes? 2. Using examples distinguish between regressive and progressive assimilation 3. Describe any five non-assimilation processes

11.6 Further Reading

1. Ladefoged, P. (2001). *A course in phonetics* (3rd Edition). Thomson Learning: Inc.

2. Roach. P. (2009). *English Phonetics and Phonology*. A Practical Course. Cambridge: Cambridge University Press.

3. Trask, R.L. (1996). *A Dictionary of Phonetics and Phonology*. Routledge: CRC Press.

Lecture 12
TRANSCRIPTION

12.1 Introduction

In lesson 9 we define the terms phones and phonemes. Phonetic transcription requires that you understand the term phonemes. In this lecture we shall focus on phonetic and phonemic transcription. This will be done with the view of relating the written form to the spoken form. The lecture will pursue the issue of transcription in detail.

12.2 Lesson objectives

By the end of the lesson, you should be able to

12.2.1 Differentiate between phonetic and phonemic transcription
12.2.2 Phonetically transcribe words
12.2.2 Phonemically transcribe words

12.2.1 Difference between phonetic and phonemic transcription

This section will focus on the differences between phonetic and phonemic transcription. Our focus will therefore be on understanding these two types of transcription. The E-tivity below therefore introduces us to phonetic and phonemic transcription.

E-tivity 12.2.1: Difference between phonetic and phonemic transcription

Numbering, pacing and sequencing	12.2.1
Title	Difference between phonetic and phonemic transcription
Purpose	To enable you to make a difference between phonetic and phonemic transcription

Brief summary of overall task	Watch **videos 1** and **video 2** on these links:
	i https://www.youtube.com/watch?v=zAnt06CfD8k ii
Spark	TRANSCRIPTION PHONETIC TRANSCRIPTION PHONEMIC TRANSCRIPTIOM
Individual task	i. Define the concept phonetic transcription ii. Show how phonetic transcription differ from phonemic transcription and save your work in **your unit portfolio** to be accessed by your facilitator when required
Interaction begins	i. Post your response on phonetic and phonemic transcription in the discussion forum 12.1.1 ii. Provide feedback on the learners' views and ideas regarding Language. Do this on Discussion forum 12.2.1
E-moderator interventions	1. Ensure that learners are focused on the contents and context of discussion. 2 Stimulate further learning and generation of new ideas. 3 Provide feedback on the learning progress. 4 Close the e-tivity
Schedule and time	This task should take 40 minutes on November 23rd , 2020
Next	Phonetic transcription

From the E-lecture above we learn that

- ❖ Phonetic and phonological transcriptions are levels of representing sounds**.**
- ❖ Phonetic transcription is the visual representation of speech sounds (or phones) by means of symbols.
- ❖ The most common type of phonetic transcription uses a phonetic alphabet, such as the International Phonetic Alphabet
- ❖ Transcription using such diacritic markings is referred to as narrow transcription (phonetic)
- ❖ Transcription without these markings is referred to as broad transcription (Broad transcription)
- ❖ Phonetic transcription may be used to transcribe the phonemes of a language, or it may go further and specify their precise phonetic realization.
- ❖ Broad transcription indicates only the most noticeable phonetic features of an utterance.

- ❖ Narrow transcription encodes more information about the phonetic characteristics of the allophones in the utterance.
- ❖ Phonemic transcription is a particular form of broad transcription which disregards all allophonic difference; as the name implies, it is not really a phonetic transcription at all (though at times it may coincide with one), but a representation of phonemic structure.
- ❖ Phonological knowledge is abstract

For example

/ˈtaɪtəl/ (broad, phonemic transcription) or [ˈtaɪɾɫ̩] (phonetic transcription)

12.2.2 Phonetic transcription of words

Having introduced you to phonetic and phonemic transcription we shall now go further and see how to transcribe words phonetically. The E-tivity below will introduce to the basics of phonetic transcriptions.

E-tivity 12.2.2 Phonetic transcription of words

Numbering, pacing and sequencing	**12.2.2**
Title	Phonetic transcription of words
Purpose	To enable you analyze words phonetically
Brief summary of overall task	Watch **videos 1** and **video 2** on these links: i https://www.youtube.com/watch?v=e6NiCWR-2g4 ii https://www.youtube.com/watch?v=Jg4LamXZs5s
Spark	PHONETIC TRANSCRIPTION ❖ Square brackets [ ] ❖ Diacritics eg. [tʷ] [tʲ] [tˠ] ▪ [tˤ] ◌̃
Individual task	i. List the dimensions in the phonetic transcription ii. Provide five words that you have transcribed phonetically and save your work in **your unit portfolio** to be accessed by your facilitator when required

Interaction begins	Post your assignment on phonetic transcription in the discussion forum (12.2.2)
	  Provide feedback on the learners' views and ideas regarding phonetic transcription. Do
	   this on Discussion forum 12.2.2

E-moderator interventions	1.Ensure that learners are focused on the contents and context of discussion. 2 Stimulate further learning and generation of new ideas. 3 Provide feedback on the learning progress. 4 Close the e-tivity
Schedule and time	This task should take 40 minutes on November 23rd , 2020
Next	Phonemic transcription

From the E-tivity above we learn that:

- ❖ There are 26 letters of English language but 44 sounds.
- ❖ Phonetic transcriptions are more detailed and attempt to provide a more faithful representation of speech (Narrow transcription).
- ❖ Phonetic transcription is also sometimes known as 'narrow' transcription.
- ❖ This involves representing additional details about the contextual variations in pronunciation that occur in normal speech.
- ❖ For example: cool will have a phonemic transcription of /kul/ but phonetic transcription [kʷul] to show labialization.

- ❖ Therefore the notations used in phonetic level of analyses include:

Diacritics: Diacritics are extra marks used together with phonetic symbols in order to represent the actual pronunciation of phonemes (i.e., allophones) or represent particular pronunciations (or accents) in a given language

- ❖ [ʰ]-   Aspiration
- ❖ [tJ]- Palatalization
- ❖ [ʷ/] –labiabialization

The square brackets

- ❖ The square bracket is used in the presentation of speech sounds at the phonetic level of analyses.
- ❖ Square brackets indicate **phonetic transcription**.
- ❖ **Phonetic transcription** records the minute details of pronunciation, which are important to give the learner a native-like grasp on pronunciation.
- ❖ For example in two words of 'l' sounds in the words 'light' and 'kill' are not phonemes but are **allophones** of the same phoneme 'l', and so are indicated in *square br*ackets.

❖ Bin [bin] nasalized.

❖ This involves representing additional details about the contextual variations in pronunciation that occur in normal speech. Eg.

'strewn'   [stru:n]
'tenth'   [tʰɛ̃n̪θ]
'clean'   [kl̥i:n]

- 'strewn' has a long vowel, represented by the colon diacritic [:].
- 'tenth' has an aspirated initial [tʰ] shown by the superscript [ʰ]; and the vowel is nasalised, represented by the tilde diacritic above the vowel [ɛ̃], because it immediately precedes a nasal; and the nasal is actually articulated at the interdental place of articulation, represented by the diacritic [n̪], because it immediately precedes an interdental fricative.
- 'clean' has a long vowel, represented by the diacritic [:]; and a voiceless [l̥], represented by the small subscript circle diacritic, because the normal voiced quality of [l] is suppressed by the aspiration of the [k] before it.

❖ Phonetic transcription specifies the finer details of how sounds are actually made.

❖ So a non-English speaker trained in the IPA could look at a phonetic transcription like [tʰɛ̃n̪θ], and know how to pronounce it accurately without knowing the rules about English phonemes.

12.2.3 Phonemic transcription of words

Having discussed phonetic transcription (narrow transcription) we now move to phonemic transcription that entails broad transcription.

E-tivity 12.2.3: Phonemic transcription of words

Numbering, pacing and sequencing	12.2.3
Title	Phonemic transcription of words
Purpose	To enable you transcribe words phonemically
Brief summary of overall task	Watch **videos 1** and **video 2** on these links: https://www.youtube.com/watch?v=VzKtD0hdK2c https://www.youtube.com/watch?v=Jg4LamXZs5s

Spark	PHONEMIC TRANSCRIPTION / /
Individual task	i. Define the term phonemic transcription Describe at five words using phonemic transcription and save your work in **your unit portfolio** to be accessed by your facilitator when required
Interaction begins	a) Post your description of phonemic transcription in this forum (12.2.3). b) Provide feedback on the learners' views and ideas regarding phonemic transcription. Do this on Discussion forum 12.2.3
E-moderator interventions	1. Ensure that learners are focused on the contents and context of discussion. 2 Stimulate further learning and generation of new ideas. 3 Provide feedback on the learning progress. 4 Close the e-tivity
Schedule and time	This task should take 40 minutes November 23rd , 2020
Next	END

From the E-tivity above we learn that:

- ❖ Phonological knowledge has to do with how sounds are combined to produce meaning.
- ❖ Phonological knowledge is abstract. It exists in the mind.
- ❖ Thus, the goal of a phonemic transcription is to record the 'phonemes as mental categories' that a speaker uses, rather than the actual spoken variants of those phonemes that are produced in the context of a particular word.
- ❖ The phonemic transcription records only those 'significant' sounds, which, if substituted one for the other, will change the meaning of the word.

- ❖ Phonemic transcription, also sometimes known as 'broad' transcription, involves representing speech using just a unique symbol for each phoneme of the language.

strewn'   /strun/
'tenth'   /tɛnθ/
'clean'   /klin/

- ❖ Phonemic transcription is placed between /forward slash brackets/.

- ❖ It involves representing not actual sounds, but abstract mental constructs phonemically.

- ❖ Thus the goal of a phonemic transcription is to record the 'phonemes as mental categories' that a speaker uses, rather than the actual spoken variants of those phonemes that are produced in the context of a particular word.

- ❖ An English speaker has internalised a rule that says 'sounds like /t/ are always aspirated when word-initial', so they'll automatically make the /t/ in 'tenth' aspirated.

12.4 Summary

In this lecture we have learnt there are two ways of transcribing sounds; Phonetic and phonemic transcription. That phonemic transcription is placed is placed between [square brackets] and when we transcribe phonetically, we are representing not abstract mental constructs, but rather the actual sounds in terms of their acoustic and articulatory properties. Phonemic transcription on the other hand entails mental representation of sounds and that it is abstract and it is represented in slashes/ forward slashes/. We not that phonetic and phonological transcription are related and neither of the transcription is better than the other.

12.5 Further Activity

	1.Transcribe the following words phonemically and phonetically • Key, • pin • tip 2.Show the difference between phonetic and phonemic transcription

12.6 Further reading

Archangeli, D. (1997). "Optimality Theory: An Introduction to Linguistics in the 1990s" IN Optimality Theory: An Overview. Diana Archangeli and Terry Langendoen, eds. MA: Blackwell. (Blackboard)

Catford, J. C. (2001). A Practical Introduction to Phonetics. Second Edition. Oxford. [JC] (Bookstore)

Chomsky, N., Halle, M. 1968. The Sound Pattern of English. New York: Harper and Row, publishers.

Hayes, B. (2009). Introductory Phonology. First Edition. Wiley-Blackwell. [BH] (Bookstore)