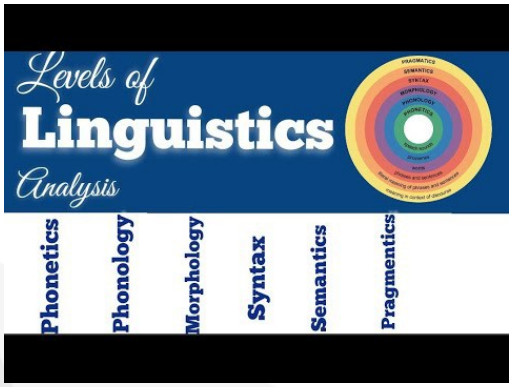
Linguistics



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Objectives

This course, "Linguistics", aims to:

- ***Define*** the different linguistic levels of analysis.
- ***List*** key tools (e.g., IPA, tree diagrams) and techniques used in linguistic analysis.
- ***Explain*** the nature and structure of human language using linguistic terminology.
- ***Explaining*** how linguistic features vary by context
- ***Apply*** the rules of levels of analysis in language.

I Chapter 1: Phonetics and Phonology

1. Objectives

By the end of this chapter, you will be able to:

- ***Define*** key terms and the branches of phonetics.
- ***Classify*** speech sounds by their articulatory features.
- ***Differentiate*** phonetic versus phonological analysis of speech sounds.
- ***Assess*** how phonological rules explain sound patterns in languages.
- ***Construct*** phonological rules for unfamiliar language data.

2. Introduction

Definition: Phonetics

The study** of the ***production***, ***physical properties***, and ***perception*** of speech sounds. It focuses on the ***physiological and acoustic aspects*** of sound.

Example

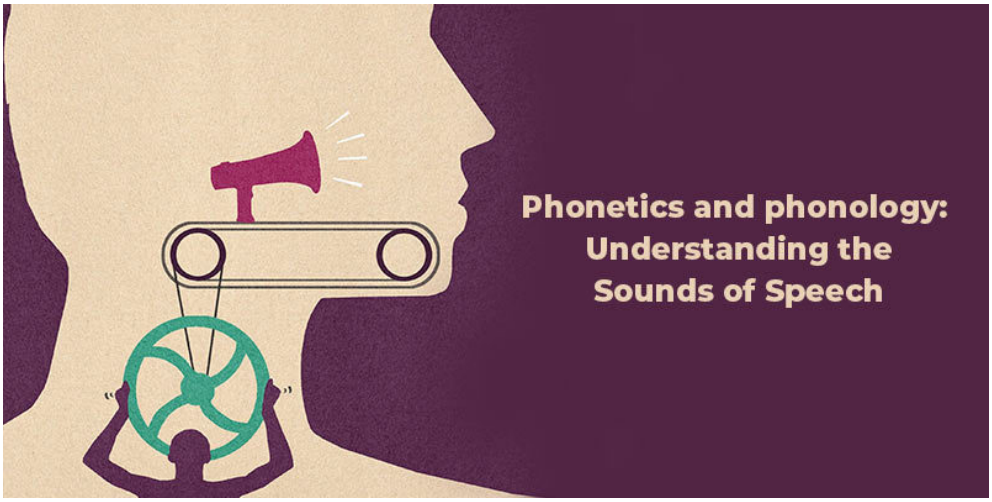
Analyzing the frequencies of specific vowel sounds or the precise movements of the tongue when producing sounds like '***s***'.

Definition: Phonology

The study of how speech sounds are ***organized*** and ***function*** within languages. It examines ***abstract sound patterns*** and their role in communication.

Example

Studying ***how abstract sound patterns*** in a language, such as phonemes, are learned and used by native speakers.



Studying Speech Sounds

Fundamental

Phonetics and ***phonology*** are essential fields in the study of human ***speech sounds***. While phonetics deals with the physical and perceptual aspects of sounds, phonology focuses on their linguistic organization and cognitive processing. Together, they provide insights into the mechanics of speech and the diversity of communication across languages and cultures.

[cf. Phonetics vs. Phonology]

Extra

According to Spencer (1996), phonetics and phonology both study speech sounds but differ in their focus:

- Phonetics examines the physical aspects of speech, such as acoustic properties and physiological processes.
- Phonology explores how native speakers unconsciously control sound production and perception to achieve linguistic effects.

Warning

While phonetics and phonology are ***closely related***, they should not be confused. ***Phonetics*** focuses on the ***physical and perceptual*** aspects of sounds, while ***phonology*** deals with their ***abstract***, ***linguistic*** organization. Misunderstanding this distinction can lead to errors in analyzing speech sounds or language systems.

See "Phonetics vs Phonology"

3. Phonetics Vs. Phonology related concepts

3.1. key concepts

Definition: phoneme

A phoneme is the smallest sound unit that can change a word's meaning

Definition: IPA

IPA* is used to represent these sounds*

Definition: Allophones

Variations of phonemes, called allophones, depend on the context in which the sound is produced.

Definition: The place of articulation

The place of articulation refers to where in the mouth a sound is made1****

Name	*Passive articulator*	*Active articulator*
Bilabial	Both lips	(Both lips)
Labiodential	Lower lip/upper teeth	
(Inter)dental	Teeth	Tongue tip/blade
Alveolar	Gum ridge	Tongue tip/blade
Alveo-palatal/palato-aveolar /Postalveolar	Gum ridge/hard palate	Tongue blade
Retroflex	Hard palate	Tongue tip
Palatal	Hard palate	Tongue blade
Velar	Soft palate (velum)	Tongue body (dorsum)
Uvular	Uvula	Tongue body
Pharyngeal	Pharynx wall	Tongue root
Glottal (laryngeal)	Larynx	_____

Places of Articulation

Example

Lips, teeth, or throat.

Definition: The manner of articulation

The manner of articulation** describes how airflow is controlled to produce sounds

Example

Stops or fricatives

Definition: Voicing

Voicing* shows whether the vocal cords vibrate during sound production.

Voicing

Definition: Phonotactics

Phonotactics are the rules for how sounds can be combined in a language

Definition: syllable structure

Syllable structure* looks at how sounds are grouped into syllables. Stress and intonation help convey meaning and emotion by emphasizing certain words or phrases

Fundamental

In tonal languages, tone* uses pitch to change word meanings**.

Definition: Morphophonemics

Morphophonemics* studies how sounds change when words are modified

Definition: Minimal pairs

Minimal pairs** (words that differ by only one sound) show how specific sounds can alter meaning

Definition: Allophonic rules

Allophonic rules* explain how phonemes become different allophones in various contexts*

Definition: Neutralization

Neutralization* happens when sound distinctions are lost in specific situations.

4. Areas of Study : Phonetics

4.1. Articulatory Phonetics

Definition

Articulatory Phonetics is a branch of phonetics** that focuses on how speech sounds* are produced. It examines the physiological processes involved in generating sounds through the coordination of speech organs, such as the tongue, lips, and vocal cords.

Fundamental

Articulatory phonetics is essential for understanding the mechanics of speech production. It provides insights into how humans use their vocal apparatus to create distinct sounds, which form the basis of spoken language.

Extra

Articulatory phonetics explores key concepts, including:

- ***Places of articulation***: Where sounds are made in the mouth (e.g., lips, teeth, velum).
- ***Manners of articulation***: How airflow is controlled to produce sounds (e.g., stops, fricatives).
- ***Voicing***: Whether the vocal cords vibrate during sound production (e.g., voiced vs. voiceless sounds).

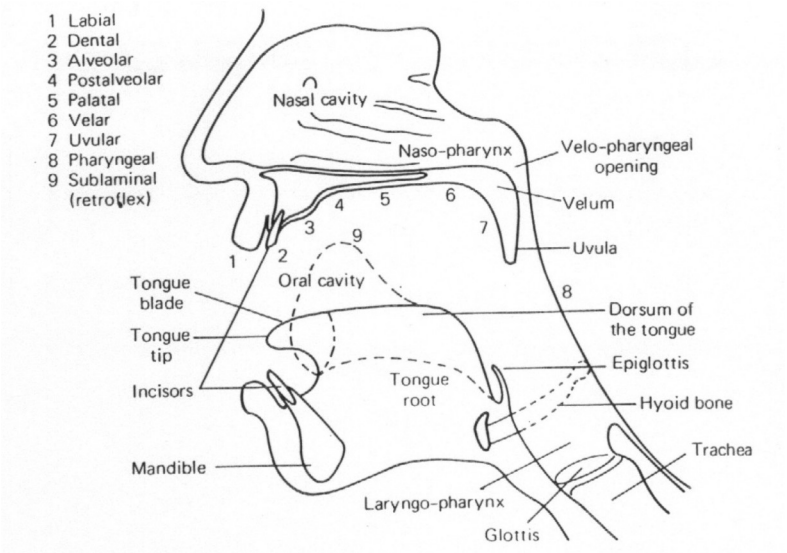


FIGURE 6.9.1 Mid-sagittal oral vocal tract showing major areas of articulation
Adapted from: Minifie, Hixon and Williams 1973, p. 173.

Source: Clark & Yallop (1994). An Introduction to Phonetics and Phonology. Blackwell. p.198

Areas of Articulation

Example

- Place of articulation: The ***/t/*** sound is produced at the alveolar ridge (just behind the upper teeth).
- Manner of articulation: The ***/s/*** sound is a fricative, created by forcing air through a narrow channel.
- Voicing: The ***/z/*** sound is voiced, while ***/s/*** is voiceless.

4.2. Acoustic Phonetics

Definition

Acoustic Phonetics is a branch of phonetics2* that studies the physical properties of speech sounds as they travel from the speaker to the listener. It focuses on analyzing sound waves to understand how speech is transmitted and perceived.

Fundamental

Acoustic phonetics is crucial for understanding the transmission of speech sounds. It examines the measurable characteristics of sound waves, which are essential for studying how speech is produced, transmitted, and heard.

Extra

Acoustic phonetics analyzes key features of sound waves, including:

- ***Frequency***: The pitch of the sound, measured in Hertz (Hz).
- ***Amplitude***: The loudness or intensity of the sound.
- ***Duration***: The length of time a sound lasts.

Example

- Frequency: A high-pitched sound like /i/ (as in "see") has a higher frequency than a low-pitched sound like /u/ (as in "food").
- Amplitude: A shouted sound has greater amplitude (louder) than a whispered sound.
- Duration: Vowels in stressed syllables (e.g., /aː/ in "father") are often longer than in unstressed syllables.

4.3. Auditory Phonetics

Definition

Auditory Phonetics is a branch that studies how speech sounds are heard and perceived by listeners.

Fundamental

Auditory phonetics is essential for understanding how the ear and brain process and interpret speech signals.

Extra

It explores:

- The relationship between speech signals and the auditory system.
- The brain's role in processing and interpreting sound.

Example

- Distinguishing between similar sounds like /p/ and /b/.
- Recognizing intonation patterns in questions vs. statements.

Method

- Psychoacoustic experiments to test sound perception.
- Brain imaging techniques to study auditory processing.

5. Areas of Study : Phonology

5.1. Segmental Phonology

Definition

This branch* studies discrete sound units, known as phonemes, which include consonants (e.g., /t/, /d/, /p/) and vowels (e.g., /a/, /i/). It analyzes how these individual sounds form the basis of speech and contribute to meaning.

Example

The difference between /p/ and /b/ in "pat" and "bat" changes the word's meaning.

5.2. Suprasegmental Phonology

Definition

Suprasegmental Phonology studies features like pitch, intonation, stress, tone, rhythm, juncture, and duration, which operate over syllables, words, or phrases.

Fundamental

Suprasegmental features are crucial for conveying meaning, expressing emotions, and structuring speech.

Extra

Key features include:

- Stress: Alters syllable length and loudness (e.g., "teacher" – /tiː/ is stressed and longer than /tə/).
- Intonation: Adds melody and distinguishes questions from statements.
- Juncture: Affects meaning through sound relationships (e.g., "night rate" vs. "nitrate").

Example

- ***Stress***: In "teacher," the first syllable /tiː/ is stressed.
- ***Intonation***: Rising pitch in questions vs. falling pitch in statements.
- ***Juncture***: "Night rate" (/naɪt.reɪt/) vs. "nitrate" (/naɪtreɪt/).

Method

- Acoustic analysis to measure pitch and duration.
- Phonological rules to describe stress and intonation patterns.

6. Sound patterns

Phonological processes3* are systematic changes* that occur in speech sounds to make communication more efficient and natural. Among these processes, assimilation and elision are two key mechanisms that shape how we speak in everyday conversation.

6.1. Assimilation

Definition

• Assimilation occurs when two sounds blend, and one sound takes on a feature of the other, making speech faster and easier.

Example

- In pin and pan, the vowels [ɪ] and [æ] become nasalized ([ɪ̃], [æ̃]) before a nasal sound.
- In I can go, the [n] in can changes to [ŋ] due to the influence of the following [g] sound, resulting in [aɪkəŋgoʊ].
- In casual speech, and becomes [ən] in you and me instead of [ænd].

Note

Vowels become nasal before a nasal sound.

Extra

Assimilation is a natural and essential part of fluent speech.

6.2. Elision

Definition

Elision refers to the omission of sounds in casual speech to streamline communication.

Example

- In you and me, the [d] in and is often dropped, making it sound like [ən].
- In friendship, the [d] is typically skipped, pronounced as [frɛnʃɪp].
- Sounds like /t/ are frequently omitted, as in aspects [æspɛks] or he must be [himəsbi].

Extra

o Elision is a common feature of natural, everyday speech.

Glossary

Allophonic rules

Allophonic rules are phonological rules that describe how phonemes (the smallest distinctive sound units in a language) are realized as different allophones (variants of a phoneme) in specific contexts. These rules explain the predictable variations in the pronunciation of a phoneme based on its phonetic environment.

Minimal pairs

Minimal pairs are pairs of words or phrases in a language that differ by only one sound (phoneme) in the same position and have different meanings. They are used to demonstrate that two sounds are distinct phonemes in a language because substituting one sound for the other changes the meaning of the word.

Morphophonemics

Morphophonemics (or morphophonology) is the study of the interaction between morphology (the structure of words) and phonology (the sound system of a language). It examines how the pronunciation of morphemes (the smallest meaningful units of language) changes depending on their context or the rules of the language.

Neutralization

Neutralization in phonology refers to the loss of a phonological distinction between two or more sounds in a specific context. This means that sounds that are normally distinct (i.e., separate phonemes) become indistinguishable in a particular environment, often merging into a single sound.

Syllable structure

It refers to the organization of sounds within a syllable, which is a unit of speech that typically contains a vowel sound and may be accompanied by consonants. Syllables are the building blocks of words, and their structure plays a key role in pronunciation, rhythm, and stress patterns in language.

Tonal languages, tone

Tonal languages, tone refers to the use of pitch (the highness or lowness of a sound) to distinguish meaning between words or grammatical forms. In these languages, the same sequence of consonants and vowels can have entirely different meanings depending on the pitch pattern or tone used.

Voicing

In phonetics, it refers to whether the vocal cords vibrate during the production of a speech sound. It is a key feature that distinguishes between different types of consonant sounds.

Abbreviation

IPA: International Phonetic Alphabet

References

1 https://www.researchgate.net/publication/342546986

2 https://www.researchgate.net/publication/383395491

3 https://scholar.harvard.edu/files/adam/files/phonology.ppt.pdf

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