Phonetics and Phonology: An Overview

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Outline

● What is Phonetics?
● What is Phonology?
● What can we gain from an understanding of phonetics and phonology?
Phonetics = the study of speech sounds

3 Areas of Phonetics

- Articulatory Phonetics
  - The study of how speech sounds are produced

- Acoustic Phonetics
  - The study of the physical properties of speech sounds

- Auditory Phonetics
  - The study of how sounds are perceived by the ear and brain
Articulatory Phonetics

- What’s the difference between the vowel in *see* and *sue*.

- How is the production of these two sounds different? The s-sound in *sue* vs the sh-sound in *shoe*.

- Are the p-sounds in *pit* and *spit* produced the same way?
Articulatory Anatomy

Alveolar Ridge
Soft Palate
Teeth
Lips
Oral Cavity
Epiglottis
Vocal Folds
Pharynx
Nasal Cavity
Mandible
Hard Palate
Tongue blade
Tongue back
Tongue tip (apex)

términos en Español

Source: University of Iowa
Acoustic Phonetics

- Investigates physical properties of speech sounds
  - Waveforms
  - Frequency
  - Amplitude
  - Intensity
  - Duration

- Popular computer analysis software
  - PRAAT (created by Paul Boersma and David Weenick)
Waveforms and Spectrogram for sit
Auditory Phonetics

- Investigates how speech sounds are perceived
- Do we hear with our ears?
- Do we hear with our minds?

- Example of a perception experiment (Dupoux et al, 1999)
  - ebzo vs ebuozo
    - Japanese → same
    - French → different
  - ebuzo vs ebuuzo
    - Japanese → different
    - French → same
Phonology studies how speech sounds are organised in our mind

Q: How do we study organisation in the mind?

A: By observing differences in production and perception of speech sounds (contribution of phonetics – observable)
Example 1
Inventory differences

Observation:
Arabic speakers often pronounce *paper* as [beɪbə]

Explanation:
- No /p/ sounds in Arabic
- English has both /b/ and /p/
  - /b/ in *bit* vs /p/ in *pit*
Example 2
Distributional differences

Explanation:
In Korean, the sh-sound is always followed by [i]

Question:
How do Koreans pronounce Bush?

Question:
If you say bush and bushy and ask Koreans if the two words are the same or different. What answer would you get?
Example 3
Structural Differences

Example: syllable structure

- English: CCCVCCCCC  \(C=\) consonant
- Malay: CCVC  \(V=\) vowel
- Korean: CVC

- What happens when words are borrowed?
  E.g. orange juice
What about Malaysian speech?

- Have you observed any differences in the way Malaysians speak?

- What clues do our speech hold on the way our minds are organised?

- Example: My current research work
What can we gain?

- Differences in speech → a window to our minds
- Helps explain and predict errors/accents in pronunciation  
  (L1 effects on L2 pronunciation)
- Basis for examining language choices at home
- Basis for language policies in the country
Vowels in Malay
Vowels in English
What do Malaysian speakers do?

- Pronounce and perceive English [iː] and [ɪ] as the same sound

- Consequence: embarrassing miscommunication

- E.g. I love this beach / bitch.
Summary

● Phonetic (physically grounded)
● Phonology (mental phenomenon)
● What do we gain?
   An understanding of how our minds work.