Phonology III

Forrest Davis

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Fall 2025 FSEM CORE S119: Language as Human Nature
Colgate University

Fostering Community

- Going to mix up the seating every month
- You will work with a consistent partner or small group for the month to work on small problems

Fostering Community

- Here is the chart for September

				Projector Screen		
Grace	1	Table			18	Sadie
Josh	2				17	Idona
Chloe	3				16	Madison
Sofia	4				15	Marino
Stella	5				Forrest	
Daniel	6				14	Zoe
Kate	7				13	Michael
Alyssa	8				12	Hayden
		9	10	11		
		Sammy	Tessa	Laila		

Phoneme and Allophone Motivation

- How do speakers learn to pronounce the words in their language?
- Observation: We systematically pronounce novel words
- We are interesting in uncovering two types of things:
  1. The basic units (like the elements)
  2. The processes

Phoneme and Allophone Motivation

- We believe basic units have greater psychology weight or reality
- This could mean
  - The sound is used to distinguish meanings (minimal pairs)
  - Speakers are aware of the sound
  - The sound occurs in a wide range of phonetic environments
- These sounds comprise the **phonemes** (and the basic allophones)

Phoneme and Allophone Motivation

- We believe processes yield sounds with a secondary psychology reality
- This could mean
  - The sound is not used to distinguish meanings
  - Speakers are not aware of the sound
  - The sound occurs in a restricted range of phonetic environments which can be characterized by a rule
- These sounds comprise the restricted **allophones**

Phoneme and Allophone Example

- Recall, [t] and [t^h]
- In English
  - [t] is the basic allophone and the phoneme /t/ is part of our mental representation of sounds
  - [t^h] is a restricted allophone of /t/ occurring as onsets of stressed syllables
  - [t^hap] and [stul]
- In Hindi,
  - [t] and [t^h] are each basic allophones of the separate phonemes /t/ and /t^h/
  - [tali] 'clap' and [t^ali] 'plate'

Additional Evidence for Phonemes and Allophones

- If you do not have a certain contrast in your language it can be difficult to distinguish minimal pairs
- For example, tone is contrastive in Chinese
- English speakers learning Chinese often struggle to reliably produce and comprehend the differences between tones
- Same thing holds for l and r in Japanese speakers learning English

Process for Uncovering Phonemes

- Consider the following English data

[sit] 'seat'	[siɾəd] 'seated'	[lɛt] 'let'	[lɛɾəɹ] 'letter'
[bɛt] 'bet'	[bɛɾəɹ] 'better'	[bɑd] 'bod'	[bɑɾəl] 'bottle'
[ɹajɾəɹ] 'writer'	[ɹajt] 'write'	[ɹajɾəɹ] 'rider'	[ɹajd] 'ride'

- Are [t] and [ɾ] allophones of the same or different phonemes?

Process for Uncovering Phonemes

- Let's jot down the environments for each segment

[ɾ]	[t]
i _ ə	i _ #
ɛ _ ə	ɛ _ #
aj _ ə	aj _ #

Process for Uncovering Phonemes

- Let's jot down the environments for each segment

[ɾ]	[t]
i _ ə	i _ #
ɛ _ ə	ɛ _ #
aj _ ə	aj _ #

- There are no minimal pairs (no shared environments)
- They are likely allophones of the same phoneme

Phonological Rules

- $[\mathrm{t}]$ is the base phoneme and $[\mathrm{ɾ}]$ occurs between a stressed and unstressed vowel
- How do we notate phonological rules?

Phonological Rules

$$/X/ \rightarrow [Y] \; / \; W \_ Z$$

- $\rightarrow$is "becomes"
- / is "in the context of"
- _ is a placeholder for X
- "X becomes Y in the context of a preceding W and a following Z"

Phonological Rules

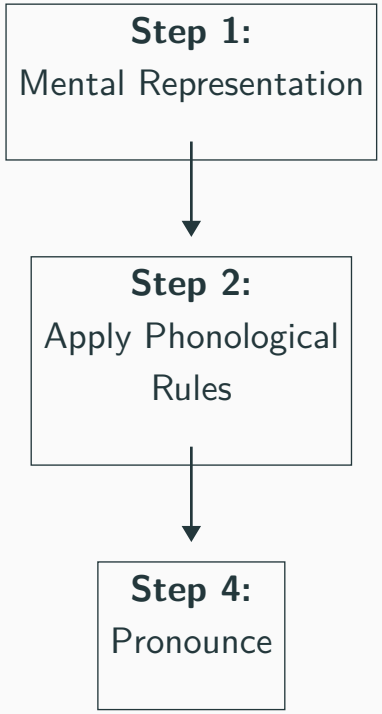
$$/X/ \rightarrow [Y] \; / \; W \_\_ Z$$

- Basically WXZ becomes WYZ
- W and Z are not both required
- By default /X/ $\rightarrow$[Y] in all other cases not specified by a rule (that's why it is called the base allophone)
- W and Z can pick out something broader than one segments

A Phonological Rule for English Flapping

/t/ $\rightarrow$[ɾ] / [stressed vowel] __ [unstressed vowel]

Process of Production



English Vowels

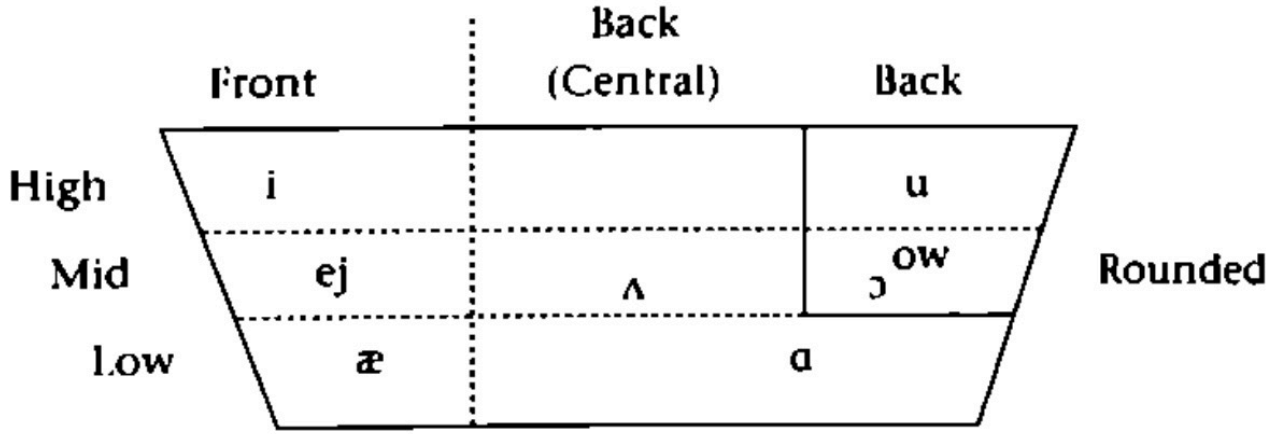


Figure 2.10 Basic tongue positions for English vowels