

# Phonology

Amy Reynolds

LING 101 Summer Session II

# Overview

- Homeworks
- Phonology Introduction
- Phonological Processes
- Features
- Natural Classes
  - Practice
- Allophones and Phonemes
- Determining Contrast
  - Practice

# Homeworks

- Exercise 3
- Exercise 5
- Exercise 6

# Review

- Manners of Articulation
- Vowels
  - Height
  - Backness
  - Rounding
  - Tense vs. Lax

# Phonology

- The study of how sounds function and pattern together.
  - “Phonology investigates how sound and meaning are connected” (*CL*, p. 59).
- For example, remember Exercise 3 from Chapter 1:
  - Phonology explains why certain combinations of sounds are not allowed in English, and why some combinations of sounds are only allowed in some locations.
- Phonology, unlike phonetics, will be dealing with the mental representations of sounds, and how various structures influence the production and placement of phones.

# Phonology

- As your book states, there are three key levels of structure that phonology is concerned with below the word level:
  - Syllable level
    - What segments can occur in what syllable positions.
  - Segment level
    - The individual segments and how they pattern and influence each other.
  - Feature level
    - The features of each segment that distinguish them from the others.

(*CL*, p. 60 – 61)

# Phonological Processes

- These are processes where we see segments influencing other segments, and also where we see a difference between the presumed underlying mental representation and the surface physical representation of words.
  - Assimilation
  - Dissimilation
  - Epenthesis
  - Deletion
  - Metathesis
  - Vowel Reduction

# Phonological Processes

- Assimilation
  - When a sound changes to become more like a neighboring sound (changes a feature so that it's shared with a neighboring segment).
  - E.g. **Nasalization** - When a vowel becomes nasalized either preceding or following a nasal segment. (*CL*, p. 48)
- Dissimilation
  - When a sound changes to become less like a neighboring sound (changes a shared feature so that it's no longer shared with the neighboring segment)
  - E.g. [fɪfθs] *fifths* to [fɪfts] (*CL*, p. 49)
- Epenthesis
- Deletion
- Metathesis
- Vowel Reduction



# Phonological Processes

- Assimilation
- Dissimilation
- Epenthesis
  - The insertion of a segment between two previously neighboring segments.
  - E.g. [sʌmθɪŋ] *something* to [sʌmpθɪŋ] (*CL*, p. 50)
- Deletion
  - The deletion of a segment between two previously neighboring segments
  - E.g. [p<sup>h</sup>əreɪd] *parade* to [pɹ,eɪd] (*CL*, p. 49)
- Metathesis
- Vowel Reduction

# Phonological Processes

- Assimilation
- Dissimilation
- Epenthesis
- Deletion
- **Metathesis**
  - A change in the order of segments.
  - E.g. [spəgɛri] *spaghetti* to [pəskeri] ‘*pasketi*’  
(*CL*, p. 51)
- Vowel Reduction

# Phonological Processes

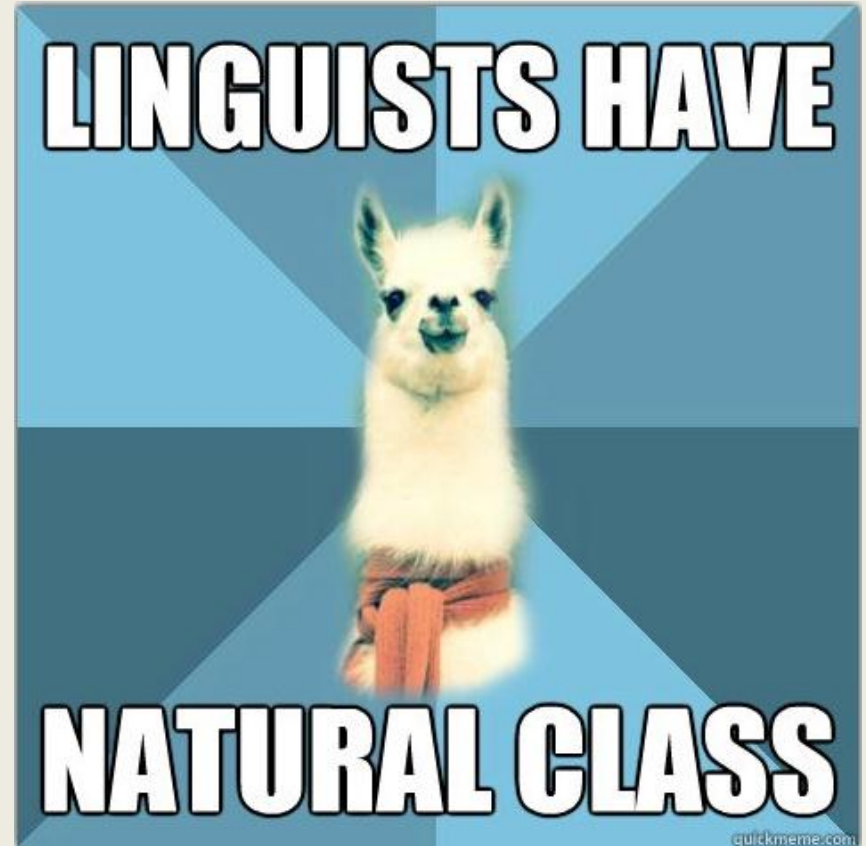
- Assimilation
- Dissimilation
- Epenthesis
- Deletion
- Metathesis
- **Vowel Reduction**
  - When vowels are reduced in articulation so that they are instead pronounced with the lax mid-central vowel [ə]
  - E.g. [k<sup>h</sup>ænədə] *Canada* vs. [k<sup>h</sup>ənɛjdɪən] *canadian* (*CL*, p. 51)

# Features

- Aspects of the various segments that allow them to simultaneously be distinguished from and grouped with other segments.
  - The phonetic features (voicing, manner, place)
  - Other features that come from the tendency of languages to distinguish these groups of segments together.
    - Stridents/Sibilants
    - Labials

# Natural Classes

- Natural Classes are “classes of sounds that share a feature or features and that pattern together in sound systems” (*CL*, p. 88).
- To determine natural classes, you need to figure out what feature a group of segments share to the exclusion of the segments not in that group.



# Natural Class Practice

What properties can we use to describe each group of sounds as a natural class, while excluding the other sounds as specified?

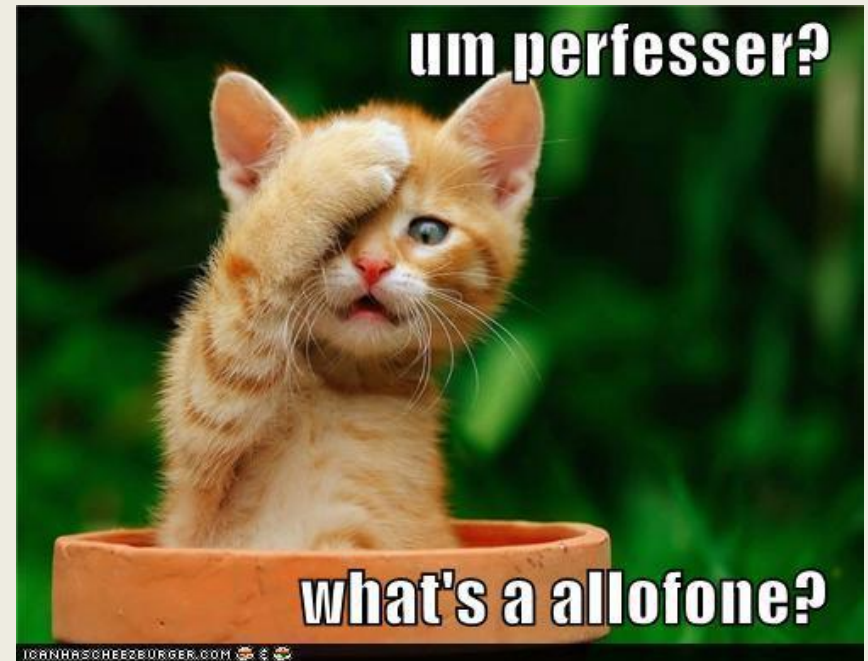
- [p g k d b t] but not [s e j w]
- [f θ s ʃ h] but not [t z v b]
- [i ow u ɑ ej] but not [ɪ æ k m]
- [i u ʊ ɪ] but not [æ ow ε ɨ tʃ]

# Allophones and Phonemes

- Up to now, we have talked about the sounds that we produce in English. We have called these **phones** and they have been presented in brackets [ ].
- We are now going to be considering the difference between the sounds that you produce and their mental representations.

# Allophones and Phonemes

- Phonemes
  - Underlying mental sound category.
  - ‘The **phone** in **me**’
  - //
- Allophones
  - Surface representation/physical realization of the phoneme.
  - What you actually produce.
  - “**Allo, phone!**”
  - [ ]





# Allophones and Phonemes

[æləfəʊn]



/fəʊnɪm/

# Allophones and Phonemes

- There are more allophones in English than there are phonemes.
  - Every sound produced in a language is an **allophone**. And every allophone corresponds to a phoneme.
  - However, there may be multiple allophones that correspond to the same phoneme.
    - i.e. There can be one phoneme that corresponds to more than one allophone.
- Just because two segments are phonetically different does not mean that they **contrast** in every language.

# Allophones and Phonemes

- What does it mean for two segments to contrast?
  - This means that they are treated as separate categories in the mental grammar of a native speaker.
    - i.e. That these sounds represent separate **phonemes**.
- To prove that two segments are in contrast in a language (i.e. that they represent separate **phonemes**), you have to find a **minimal pair** of words for those two sounds (ref. *CL*, Ch.3, sec. 1)
  - A **minimal pair** is two words that differ only in one sound and are otherwise identical (including order of sounds in the word).

# Allophones and Phonemes

- **Minimal pair**
  - Two words that differ only in one sound and are otherwise identical (including order of sounds in the word).
- Is each pair of words below a minimal pair? If so, what sounds does it show to be in contrast?
  1. Sue, zoo
  2. leap, lip
  3. I've, vie
  4. boot, booth

# Allophones and Phonemes

- If there is a **minimal pair**, then those sounds that differ in the minimal pair must be in **contrast**.
- If two sounds are **in contrast**, then they must be separate phonemes (i.e. mental categories).
  - The mental lexicon couldn't use two sounds to distinguish words if they weren't mentally distinct sounds.
- **Remember, this must be proven based on the data. Just because two sounds are physically different does not mean that they are mentally contrastive in any given language!**

# Determining Contrast

- Are the “p” sounds in English words *pan* and *span* the same?
    - First intuitions?
    - Physically/phonetically: **no** (ref. *CL*, Ch. 2, sec. 5.5)
  - Consider the following data from English:
    - English:            [p<sup>h</sup>awt] *pout*  
                              [bawt] *bout*  
                              [spawt] *spout*
- Are [p<sup>h</sup>] and [p] contrastive? How about [p<sup>h</sup>] and [b]?

# Determining Contrast

- Consider the following data from Hindi:
  - Hindi: [p<sup>h</sup>al] ‘hair’
  - [bal] ‘take care of’
  - [pal] ‘knife blade’

Are [p<sup>h</sup>] and [p] contrastive?

What about [p<sup>h</sup>] and [b]?

- More [Hindi examples](#) from Peter Ladefoged’s site

# Determining Contrast

- This means that while Hindi and English share the same **allophones**, they have different distributions to **phonemes**.

Hindi:	English:	
/ p /	/ p /	phonemes
/ p <sup>h</sup> /		
	∧	
[ p ]	[ p ]	allophones
[ p <sup>h</sup> ]	[ p <sup>h</sup> ]	



# Determining Contrast Practice

- Below are some words in English. Based on these words, do [m] [n] and [ŋ] all belong to separate phonemes in the English mental grammar?
  - [mil] *meal*
  - [nil] *kneel*
  - [lin] *lean*
  - [liŋk] *link*

# Homework

- Writing Assignment 2
- Homework Assignment:
  - Ch. 3, Exercise 6
  - Ch. 3, Exercise 7, (a) – (d)
- Reading for tomorrow:
  - *CL*, Ch. 3, Sections 4.1 – 4.2

Have a good day!



Thanks again to Professor Jen Smith who has allowed me to use material from her Spring 2011 LING 101 course.