Day 6: Phonology
Ling 200: Introduction to Linguistic Thought

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Today

- Last-minute questions on homework 1, then turn in
- http://archive.phonetics.ucla.edu/Language/GSW/
  gsw.html
- Hand back quiz 2, discuss
- Assign homework 2
- Phonology
  - Transition from phonetics: natural classes
  - Intro
  - Minimal pairs
  - Distribution (Allophones, etc)

Natural Classes

Definition (Natural Classes)

A group of sounds, which have a particular **feature** (or combination of features) in common, that are treated as a group by the phonology of a language.

Example (Natural Classes)

- labial consonants: [p, b, m, w, f, v]
- low vowels: [æ, a]
- sonorant consonants (liquids, nasals, glides):
  [l, ɹ, n, m, ŋ, j, w] (and [ɾ])
- obstruent consonants: (non-sonorants):
  [p, b, f, v, θ, ð, t, d, s, z, ʃ, ʒ, tʃ, dʒ, k, g, ʔ, h]
- sibilants: ("hushing sounds"):   [s, z, ʃ, ʒ]

Outline
Today
Natural Classes
Basic Concepts

What is Phonology?
Contrastiveness
Minimal Pairs
Phonemes and Allophones
Complementary Distribution

Phonology

Phonology

Definition (Phonology)

The study of the organisation of speech sounds in a language

- How they "function"
- How they're distributed
- (How they pattern cross-linguistically)

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Function
Contrastive sounds

- Function of sounds: to differentiate words
- Major question of Phonology:
  Do the sounds function to distinguish meaning?
- Sounds which contrast distinguish meaning;
  sounds which don't, don't.

Definition (Contrastiveness)

Two sounds are **contrastive** if interchanging the two can change meaning of the word.

- English [p] / [b]:
  - [kæp] 'cap' vs. [kæb] 'cab'
- Hindi [pʰ] / [p]:
  - [pʰəl] 'fruit' vs. [pəl] 'moment'

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Minimal Pairs

Minimal Pairs

Definition (Minimal pairs)

Two (or more) words that differ only by a single sound in the same position and that have different meanings

- m/n: [sʌm] 'sum' vs. [sʌn] 'sun'
- k/g: [kɪl] 'kill' vs. [gɪl] 'gill'
- s/ʃ: [mɛsi] 'messy' vs. [mɛʃi] 'meshy'
- i/ɪ/ɛ: [fil] 'feel' vs. [fɪl] 'fill' vs. [fɛl]'fell'

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Minimal Pairs
Features

Minimal pairs

- Whole sounds can contrast
- So can parts of sounds (i.e., features):
  - Voicing: [tɪl] 'till' vs. [dɪl] 'dill'
  - Place: [sʌm] 'sum' vs. [sʌŋ] 'sung'
  - Manner: [mɛs] 'mess' vs. [mɛt] 'met'

Sounds in a minimal pair:

- **contrast**
- are **unpredictable** (i.e., must be learned)
- belong to different **phonemes**

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Phonemes vs. Allophones

Definition (Phoneme)

A minimal unit of sound that serves to distinguish meaning between words.

- Phonemes composed of sets of sounds ('allophones'): considered by native speakers to be the 'same' sound
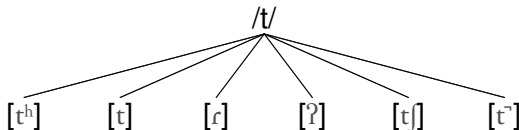
Definition (Allophone)

The different phonetic realizations of a phoneme

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Phonemes and Allophones
Allophones of /t/

top	[tʰap]
stop	[stap]
got, eat	[gat̚], [it̚]
gotten	[gaʔn̩]
eater	[iɾɹ̩]
got you	[gatʃə]

- Allophones of /t/

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Distribution
Contrastive Distribution

- Contrastive Distribution: contrastive phonemes
- Complementary Distribution: complementary environment

Definition (Contrastive Distribution)

When sounds can occur in the exact same phonetic environment
(thereby forming a minimal pair)

- /s/ vs. /z/:
  - Initial: [su] 'sue', [zu] 'zoo'
  - Medial: [bʌsɪŋ] 'bussing', [bʌzɪŋ] 'buzzing'
  - Final: [kloʊs] 'close', [kloʊz] 'close'

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Distribution
Complementary

> *Definition (Complementary Distribution)*
>
> When two (or more) phonetically similar sounds never occur in
> exactly the same environment, but in complementary or
> mutually-exclusive environments

- p/p^h:

  [spæt] 'spat'   [pʰæt] 'pat'
  [spul] 'spool'   [pʰul] 'pool'
  [spik]ɭ'speak'   [pʰik]ɭ'peak'

- Sounds in complementary distribution
  - are allophones of a single phoneme
  - do not occur in minimal pairs
  - are noncontrastive
  - are predictable (based on environment)

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Real-life analogy of complementary distribution

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Real-life analogy of complementary distribution
Two people or one person?

- Two people or one person?
- Do you ever see Superman and Clark Kent in the same environment?

no emergency

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Real-life analogy of complementary distribution
We can conclude…

- Clark Kent and Superman are different identities of the same person.

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Real-life analogy of complementary distribution
The analogy

- Clark Kent and Superman are like **allophones**.
- They are **noncontrastive**.
- They appear in **complementary distribution**.

- Just as **allophones** are different forms of the same **phoneme**, Clark Kent and Superman are different realizations of the same **person**.

/p/   /?/

[pʰ]   [p]   [Superman]   [Clark Kent]