Day 6: Phonology

Ling L303/L503: Introduction to Linguistic Analysis

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Natural Classes
Transitioning from phonetics to phonology

Definition (Natural Classes)

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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.

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- labial consonants:

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- labial consonants: [p, b, m, w, f, v]
- low vowels:

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- labial consonants: [p, b, m, w, f, v]
- low vowels: [æ, a]
- sonorant consonants

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- sibilants:

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- sibilants: ("hushing sounds"):

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Definition (Phonology)

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Definition (Phonology)

The study of the organisation of speech sounds in a language

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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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Contrastive sounds

- Function of sounds:

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- Function of sounds: to differentiate words
- Major question of Phonology:

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- Major question of Phonology:
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Two sounds are **contrastive** if

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

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Definition (Minimal pairs)

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

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- i/ɪ/ɛ: [fil] 'feel' vs. [fɪl] 'fill' vs. [fɛl] 'fell'

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Features

Minimal pairs

- Whole sounds can contrast

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- So can parts of sounds (i.e., features):

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  - Voicing:

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    - Voicing: [tɪl] 'till' vs. [dɪl] 'dill'

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  - Manner:

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  - Vowel backness:

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    - etc....

Sounds in a minimal pair:

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Sounds in a minimal pair:

- **contast**

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  - etc....

Sounds in a minimal pair:

- **contast**

- are **unpredictable** (i.e., must be learned)

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  - etc....

Sounds in a minimal pair:

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

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Phonemes vs. Allophones

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Phonemes vs. Allophones

Definition (Phoneme)

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

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- Phonemes are composed of sets of sounds ('allophones'):

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> **Definition (Phoneme)**
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Definition (Allophone)

The different phonetic realizations of a phoneme

Phonemes and Allophones

Allophones of /t/

top

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got, eat

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top	[tʰap]
stop	[stap]
got, eat	[gaɾˀ], [iɾˀ]
gotten	[gaʔn̩]

Phonemes and Allophones

Allophones of /t/

top	[tʰap]
stop	[stap]
got, eat	[gaɾ˺], [iɾ˺]
gotten	[gaʔn̩]
eater	

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stop	[stap]
got, eat	[gaˀt], [iˀt]
gotten	[gaʔn̩]
eater	[iɾɹ̩]
got you	

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got, eat	[gat̚], [it̚]
gotten	[gaʔn̩]
eater	[iɾɹ̩]
got you	[gatʃə]

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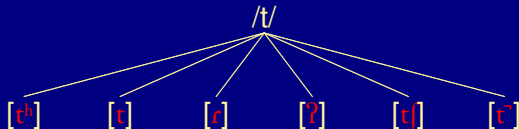Natural Classes
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got you	[gatʃə]

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got you	[gatʃə]

- Allophones of /t/

/t/

[tʰ]   [t̪]   [ɾ]   [ʔ]   [tʃ]   [t˺]

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Definition (Contrastive Distribution)

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

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When sounds can occur in the exact same phonetic environment (thereby forming a minimal pair)
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- /s/ vs. /z/:
    - Initial: [su] 'sue', [zu] 'zoo'

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- /s/ vs. /z/:
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  - Medial:

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  - Final:

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  - Medial: [bʌsɪŋ] 'bussing', [bʌzɪŋ] 'buzzing'
  - Final: [kloʊs] 'close', [kloʊz] 'close'

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Definition (Complementary Distribution)

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Definition (Complementary Distribution)

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

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Definition (Complementary Distribution)

When two (or more) phonetically similar sounds never occur in exactly the same environment, but in complementary or mutually-exclusive environments
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- p/pʰ:

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- p/pʰ:
  [spæt] 'spat'   [pʰæt] 'pat'
  [spul] 'spool'   [pʰul] 'pool'
  [spik] 'speak'   [pʰik] 'peak'

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  - [spik] 'speak'   [pʰik] 'peak'
- Sounds in complementary distribution

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  - [spul] 'spool'   [pʰul] 'pool'
  - [spik] 'speak'   [pʰik] 'peak'
- Sounds in complementary distribution
  - are allophones of a single phoneme
  - do not occur in minimal pairs
  - are noncontrastive
  - are predictable (based or

"Real-life" analogy of complementary distribution

"Real-life" analogy of complementary distribution

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

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

- Two people or one person?

"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?

"Real-life" analogy of complementary distribution
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no emergency

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no emergency

"Real-life" analogy of complementary distribution
We can conclude…

"Real-life" analogy of complementary distribution

We can conclude...

=

"Real-life" analogy of complementary distribution
We can conclude…

=

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

Real-life analogy of complementary distribution
The analogy

Real-life analogy of complementary distribution
The analogy

- Clark Kent and Superman are like **allophones**.

Real-life analogy of complementary distribution
The analogy

- Clark Kent and Superman are like **allophones**.
- They are **noncontrastive**.

Real-life analogy of complementary distribution
The analogy

- Clark Kent and Superman are like **allophones**.
- They are **noncontrastive**.
- They appear in **complementary distribution**.
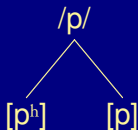
Real-life analogy of complementary distribution
The analogy

- 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**.

Real-life analogy of complementary distribution
The analogy

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/p/

[pʰ]   [p]

Real-life analogy of complementary distribution
The analogy

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- 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]