

Day 6: Phonology

Ling L303/L503: Introduction to Linguistic Analysis

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① *Natural Classes*

② *Basic Concepts*

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

③ *Real-life example*

Natural Classes

Transitioning from phonetics to phonology

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 (nasals, liquids, glides):
[n, m, ŋ, l, ɹ, j, w] (and [r])
- 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]

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)

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 [p^h] / [p]:
 - [p^həl] 'fruit' vs. [pəl] 'moment'

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: [mɛsɪ] 'messy' vs. [mɛʃi] 'meshy'
- i/ɪ/ɛ: [fi:l] 'feel' vs. [fi:l] 'fill' vs. [fɛ:l] 'fell'

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'
 - Vowel backness: [mun] 'moon' vs. [min] 'mean'
 - etc....

Sounds in a minimal pair:

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

Phonemes vs. Allophones

Definition (Phoneme)

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

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

Definition (Allophone)

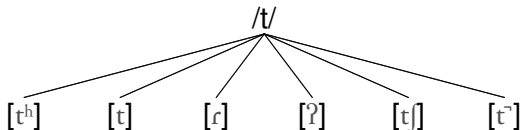
The different phonetic realizations of a phoneme

Phonemes and Allophones

Allophones of /t/

top	[t ^h ap]
stop	[stap]
got, eat	[gat̚], [it̚]
gotten	[gaʔn]
eater	[iɾɪ]
got you	[gatʃə]

- Allophones of /t/



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)

= separate phonemes

- /s/ vs. /z/:
 - Initial: [su] 'sue', [zu] 'zoo'
 - Medial: [b_{AS}ɪŋ] 'bussing', [b_{AZ}ɪŋ] 'buzzing'
 - Final: [kloʊs] 'close', [kloʊz] 'close'

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
= allophones of the same phoneme

- p/p^h:
 - [spæt] 'spat' [p^hæt] 'pat'
 - [spul] 'spool' [p^hul] 'pool'
 - [spik] 'speak' [p^hik] 'peak'
- Sounds in complementary distribution
 - are allophones of a single phoneme
 - do not occur in minimal pairs
 - are noncontrastive
 - are predictable (based on context)

“Real-life” analogy of complementary distribution



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Day 6: Phonology

“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



“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

- 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**.

