

Today

- ❑ What is phonology?
- ❑ Contrastive vs. non-contrastive sounds
- ❑ Phonemes vs. allophones
- ❑ Complementary distribution

Readings: 4.1- 4.2



Phonology

- The study of the inventory of sounds in a language; of how speech sounds may pattern together, or contrast.

Questions of interest to a phonologist:

- How do speech sounds pattern in this language?
- How are they organized? How do they function?

...to a phonetician:

- What is a possible human speech sound?
- How do humans manipulate our articulatory physiology to produce speech?
- How are different articulatory configurations heard as speech? One area of overlap with phonology: What properties of speech sounds does Language X use to achieve contrast?



Function

□ Contrastiveness vs. noncontrastiveness

Do the sounds function to distinguish meaning?

Contrastive

- 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^hə1] 'fruit' vs. [pə1] 'moment'

Types of Transcription

- Hindi /p^h/~ /p/:

[p^hə1] 'fruit' vs. [pə1] 'moment'

Need to represent more than just the phoneme
/p/ to show how contrast works

How?

Add a diacritic [h] to the phoneme symbol [p]



Types of Transcription

/ / *Broad phonetic transcription:* representation of the basic sound units used to pronounce words

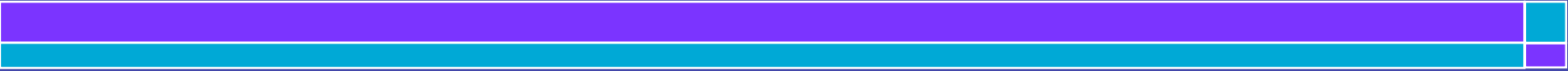
[] *Narrow phonetic transcription:*

-- phonetics: representation of the phonetic detail of a sound, necessary for understanding crucial features of sounds, below the level of contrast

-- phonology: all phonetic detail necessary for *contrast*.

Minimal pair

- 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. [mɛʃɪ] 'meshy'
 - i/ɪ/ɛ: [fi:l] 'feel' vs. [fɪl] 'fill' vs. [fɛl] 'fell'

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- While whole sounds can contrast, so can parts of sounds (i.e., features):
 - Voicing: [t_Il] ‘till’ vs. [d_Il] ‘dill’
 - Place: [s^Λm] ‘sum’ vs. [s_ŋ] ‘sung’
 - Manner: [mεs] ‘mess’ vs. [mεt] ‘met’



□ Sounds in a minimal pair...

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



Phoneme vs. allophone

□ **Phoneme:**

- A minimal unit of sound that serves to distinguish meaning between words
- May be composed of a set of sounds ('allophones') that are considered by native speakers to be the 'same' sound

□ **Allophone:** the different phonetic realizations of a phoneme

top

[t^hap]

stop

[stap]

little

[lɪrɪl]

kitten

[kɪtən]

phoneme →

/t/

allophones →

[t^h]

[t]

[ɾ]

[ʔ]

Distribution

- **Contrastive distribution:** When sounds can occur in the exact same phonetic environment (thereby forming a minimal pair), e.g.,
 - Initial: [su] 'sue', [zu] 'zoo'
 - Medial: [bʌsɪŋ] 'bussing', [bʌzɪŋ] 'buzzing'
 - Final: [kloʊs] 'close', [kloʊz] 'clothes'

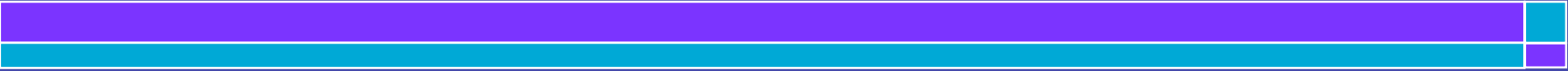
Distribution

- **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' [p^hæt] 'pat'
 - [spu:l] 'spool' [p^hu:l] 'pool'
 - [spik] 'speak' [p^hik] 'peak'



Distribution

- **speech/beach/peach demonstration**

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

Real-life analogy of complementary distribution





Two people or one person?

- Do you ever see Superman and Clark Kent in the same environment?

Emergency



Superman is always found in the environment of an emergency.



No Emergency



Clark Kent is seen in the environment when there is no emergency.

We can conclude:



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



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*.

