

# The Phonemes of English

September 11, 2015

# Oh yeah.

- Desire 2 Learn site.
- Lecture notes: before and after.
- Announcements in general.
  - Check your e-mail!
- New and improved font installation instructions.

# Principles of the IPA

1. The use of a symbol in a transcription is a short hand method to describe the articulation of that sound.
  - It is essentially a claim that the speaker produced a certain combination of gestures.
2. Contrast:
  - “There should be a separate letter for each distinctive sound; that is, for each sound which, being used instead of another, in the same language, can change the meaning of the word.”
  - one symbol  $\Leftrightarrow$  one sound

# Minimal Pairs

- Sound contrasts can be shown to exist in a language by finding **minimal pairs**.

- A minimal pair consists of:

two words that have different meanings, but differ from each other in only one sound.

- Some minimal pairs in English:

**pit** vs. **bit**                      ~ /p/ vs. /b/

**beet** vs. **bead**                      ~ /t/ vs. /d/

**boat** vs. **boot**                      ~ /o/ vs. /u/

**carburetor** vs. **garburator**      ~ /k/ vs. /g/

# More IPA Principles

3. When any sound is found in several languages, the same sign should be used in all. This applies to very similar shades of sound.

E.g. French [u] = English [u] = Korean [u]

4. The alphabet should consist as much as possible of the ordinary letters of the Roman alphabet.

5. In assigning values to the Roman letters, international usage should decide.

E.g. vowel in English “bee” is transcribed with [i]

# Yet More Principles

6. The new letters should be suggestive of the sounds they represent, by their resemblance to the old ones.

Ex: [ŋ] “**sing**”

[ʃ] “**sheep**”

[ʒ] “**vision**”

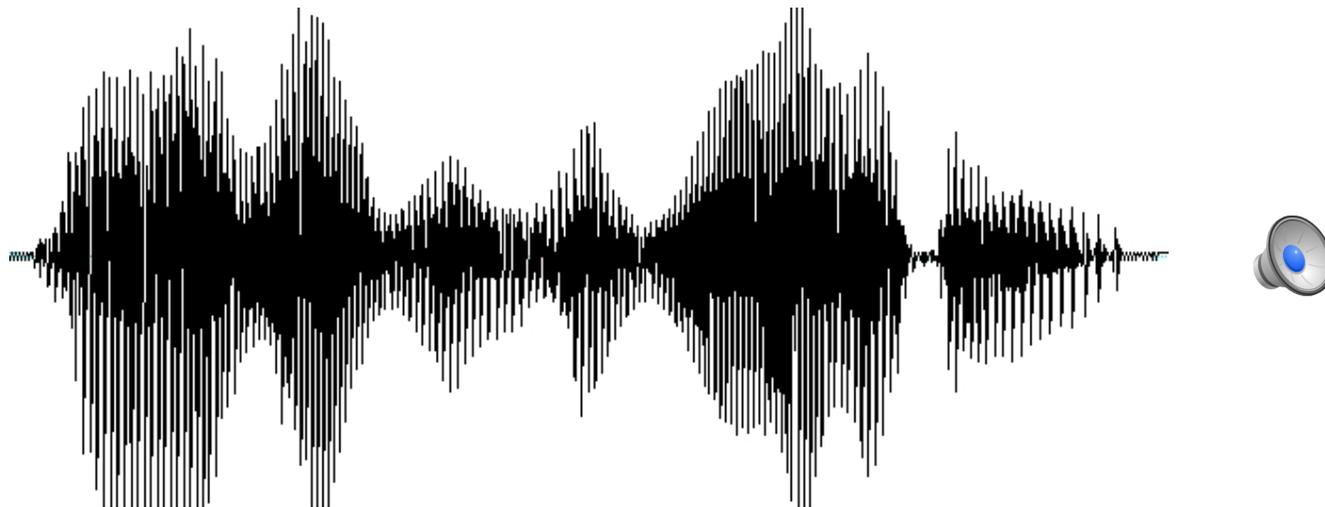
7. Diacritic marks should be avoided, being “trying for the eyes and troublesome to write.”

# Caveats

- The IPA is not perfect.
  - It is a useful tool for representing speech as a sequence of segments.
- Phonetic transcription is an inexact science.
  - Impressionistic
  - Transcribers often disagree
- Perception is molded by your native language background.
- Production, too
  - (Try producing an unfamiliar sound)
- ⇒ Mechanical analysis can come in handy

# Phonetic Reality

- Here is an **acoustic waveform** of a sample of speech:



Where were you a year ago?

- Real speech lacks the discreteness and strict sequentiality of alphabetic representations.
- $\Rightarrow$  Phonetic transcriptions of speech are **always** abstract

# The Problem of Abstractness

- How abstract should a phonetic transcription be?
- The IPA solution: only capture contrastive differences between sounds.
  - Contrast: **bit** vs. **pit**
  - Non-contrast: [bɪt] vs. [bɪt̚]
- How about “Don” and “Dawn”?
- Here’s the catch:
  - The IPA must be able to represent all the sound contrasts in all languages.
    - ...including some which we cannot easily hear.

# Phonemic Analysis

- A **phoneme** is a contrastive sound in a language
  - It may be used to distinguish between words in minimal pairs.
- **Allophones** are phonetic variants of a phoneme
  - Different allophones often occur in specific contexts.
- Phoneme: /t/

Allophone 1: [t<sup>h</sup>]      ‘**top**’

Allophone 2: [t]      ‘**stop**’

Allophone 3: [ɾ]      ‘**metal**’      “*flap*”

(note: ‘**medal**’)

Allophone 4: [ʔ]      ‘**mitten**’      “*glottal stop*”

# Broad and Narrow

- Broad transcriptions
  - Represent only contrastive sounds (*phonemes*)
  - Generally use only alphabetic symbols
- Narrow transcriptions
  - Capture as much phonetic detail as possible (*phones*)
  - Generally require use of diacritics
- Sliding scale between narrow and broad transcriptions
- Note: whenever you write out a phonetic transcription, enclosed the IPA symbols in brackets: [ ]
- If you're spelling out the (abstract) phonemes, use slashes: / /

# Morals of the Story

1. There can be more than one “right” way to transcribe an utterance.
2. The IPA enables us to record all the possibly meaningful phonetic detail in an utterance.
  - It is also useful because:
    - it is portable
    - it does not require electricity
    - it is universal
    - it is traditional
    - it is (relatively) simple
  - It is a very handy **tool** to have at your disposal.

# English Phonemes

Familiar IPA symbols, same sound:

- |                 |                 |                |
|-----------------|-----------------|----------------|
| 1. [p] 'pot'    | 6. [g] 'got'    | 11. [m] 'ma'   |
| 2. [b] 'bought' | 7. [f] 'fought' | 12. [n] 'not'  |
| 3. [t] 'tot'    | 8. [v] 'vote'   | 13. [l] 'lot'  |
| 4. [d] 'dot'    | 9. [s] 'sot'    | 14. [w] 'walk' |
| 5. [k] 'kit'    | 10. [z] 'zit'   | 15. [h] 'hot'  |

# English Phonemes

Familiar IPA symbols, different sounds:

- |              |                    |   |                       |   |   |   |
|--------------|--------------------|---|-----------------------|---|---|---|
| 16. [j]      | 'yacht'            |   | "yod"                 |   |   |   |
| 17. [ɑ]      | 'park' (Bostonian) |   | "script a"            |   |   |   |
| 18. [i]      | 'heed'             |    |                       |    |    |    |
| 19. [e] (eɪ) | 'hayed'            |   | ([eɪ]= a "diphthong") |   |   |   |
| 20. [ɑ]      | 'hod'              |  |                       |  |  |  |
| 21. [o] (oʊ) | 'bode'             |  | ([oʊ]= a "diphthong") |  |  |  |
| 22. [u]      | 'who'd'            |  |                       |  |  |  |

# English Phonemes

Unfamiliar IPA symbols, for consonants:

23. [θ] ‘**thought**’      “*theta*”

28. [ɹ] ‘**rot**’

24. [ð] ‘**though**’      “*edh*”

29. [tʃ] ‘**chop**’

25. [ʃ] ‘**shot**’      “*esh*”

30. [dʒ] ‘**jot**’

26. [ʒ] ‘**vision**’      “*ezh*”

27. [ŋ] ‘**ring**’      “*engma*”

- Note: more than one symbol can be joined with a “tie bar”

[tʃ̄]

[dʒ̄]

- (This works for diphthongs, too.)

# English Phonemes

Unfamiliar IPA symbols, for vowels:

- 31. [ɪ] ‘bid’  “cap-*l*”
- 32. [ɛ] ‘bed’  “epsilon”
- 33. [æ] ‘bad’  “ash”
- 34. [ʌ] ‘bud’  “wedge”
- 35. [ɔ] ‘bawd’  “open O” (Eng.) compare: “bod” (Am.) 
- 36. [ʊ] ‘hood’  “upsilon” 

# More Diphthongs

37. [aɪ] 'bide'    
38. [aʊ] 'bowed'    
39. [ɔɪ] 'Boyd'    

- And one more:

40. [ə] 'about' "schwa"

- [ə] only appears in **unstressed** syllables.
- Also--the following alphabetic symbols do not represent any English sound:

c      q      r      x      y

- However, they are used for sounds in other languages.

# Stress

- A stressed syllable may be denoted by a vertical dash immediately **preceding** the stressed syllable.

- Examples of “contrast”:

- [l<sup>h</sup>k<sup>h</sup>antʃæst] (N) 

- [kən<sup>l</sup>t<sup>h</sup>ʃæst] (V) 

- “Insult”

- [l<sup>h</sup>ɪnsʌlt] (N) 

- [ɪn<sup>l</sup>sʌlt] (V) 

# A Useful Diacritic

- Some English syllables have a consonant peak.
- This can only happen with /n/, /m/, /l/ and /r/.
- When this happens, the consonant is said to be **syllabic** and is denoted with a small vertical dash underneath.
- Examples:

‘chasm’      [ˈkʰæz̩m̩]

‘ribbon’      [ˈrɪb̩n̩]

‘eagle’      [ˈiɡ̩l̩]

‘feature’      [ˈfi:tʃ̩r̩]

# For Monday

- Come to class with a phonetic transcription of your name (first and last).
  - It can be as broad or as narrow as you like.
  - Be prepared to share it with the rest of the class!
- Also write it down on a piece of paper, so that you can hand it to me after class.