How we understand language:

**Phonology**

### International Phonetic Alphabet: consonants

#### Consonants

- **Plosive (stop)**
- **Nasal**
- **Trill**
- **Tap or flap**
- **Fricative**
- **Approximant**
- **Lateral approximant**

US English sounds circled

Paired symbols are [unvoiced, voiced]

### International Phonetic Alphabet: vowels

#### Vowels

- **Close**
- **Close-mid**
- **Open-mid**
- **Open**

Where symbols appear in pairs, the one to the right represents a rounded vowel.

### IPA transcriptions

- ˈkæn ju rɪd ˈdɪz wɜːrdz ?
- hɪdˈlɪzməft ˈsæruhələft
- fɔr
- tʰuθˈpɛərst
- bʌʔn
- ˈbɛzər laɪt dæn nɛʊn
- dʌntʃuˈwɔntəm tʃəkt ?

### IPA website

- [http://www.arts.gla.ac.uk/ipa/ipa.html](http://www.arts.gla.ac.uk/ipa/ipa.html)

### Phonetics & Phonology

- **Phonetics**—etic—study of the physical reality of sound, as can be described by outside observer
- **Phonology**—emic—study of psychological reality of sound, need to know the language to discern phonemes.
Phonology

- Study of which of the possible articulated distinctions are significant (make a difference in meaning) for a specific language
- The significant differences between sounds are defined by distinctive features.
- Analogy: how you divide up available terrain (of sound) into separate plots, with a house on each (house is ideal phoneme pronunciation, plot is variation in pronunciation that still would be heard as that phoneme)

What we say & hear: a picture of the sounds

Phonemes

- Units of sound defined by distinctive features
- Distinctive features are a characteristic of sound whose value (presence or absence, +/-) changes the meaning of a word in a given language
- e.g.: rounded, unrounded; voiced, unvoiced
- Each language uses a subset of the possible distinctions between sounds, and so has its own set of phonemes.

What we say & hear: egg analogy

Imagine a row of Easter eggs carried along a moving belt: the eggs are of various sizes, and variously colored, but not boiled. At a certain point, the belt carries the row of eggs between the two rollers of a wringer, which quite effectively smash them and rub them more or less into each other. The flow of eggs before the wringer represents the series of impulses from the phoneme source; the mess that emerges from the wringer represents the output of the speech transmitter. At a subsequent point, we have an inspector whose task it is to examine the passing mess and decide, on the basis of the broken and unbroken yolks, the variously spread out albumen and the variously colored bits of shell, the nature of the flow of eggs which previously arrived at the wringer.

Peter Frampton

- Song “Do you feel like we do” (1976) [from Greatest Hits album track 14, 10:05-10:45]
  - Guitar sound directed through vocal cavity
  - Can you discern the words in the guitar?
  - Do you feel like I do that’s all right, that’s all right, sheer delight be a good night, good night we’re gonna have a good night. good night, good night, good night, good night.

Phonemes

- A phoneme is a sound-idea: the way it actually comes out, its physical shape, can vary.
- Phonemes do not have absolute values but are defined in relation to other phonemes, based on a specific language system.
- We use IPA symbols to represent an idealized pronunciation.
Languages with 3 to 6-vowel systems

- Arabic
- Amharic
- Bengali
- Chinese
- Malay

Languages with 7 to 20-vowel systems

- Korean
- Thai
- English
- French
- Russian

Consonants:
Rotokas is an Indo-Pacific language with a 6-consonant system

<table>
<thead>
<tr>
<th>ROTOKAS (Indo-Pacific)</th>
<th>Bilabial</th>
<th>Alveolar</th>
<th>Velar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voiceless plosive</td>
<td>p</td>
<td>t</td>
<td>k</td>
</tr>
<tr>
<td>Voiced plosive</td>
<td>ð</td>
<td>ð</td>
<td>ð</td>
</tr>
<tr>
<td>Voiced non-sibilant fricative</td>
<td>ß</td>
<td>ß</td>
<td>ß</td>
</tr>
<tr>
<td>Voiced tap</td>
<td>ð</td>
<td>ð</td>
<td>ð</td>
</tr>
</tbody>
</table>

Consonants:
!Xu is a Khoisan language with a consonant system that includes 47 non-click & 48 click consonants
*check out Miriam Makeba’s click songs

How do we know something is a phoneme?

- Minimal pairs (sets): pairs (sets) of words where one sound makes a difference in meaning
- Examples of minimal sets from English:
  - meet, mitt, met, mat, moat
  - meet, beet, neat, teat, seat
  - thy thigh; (thin, then)
- Mary, merry, marry? (depends on dialect)

3, 2, or 1 phoneme?
Ad illustrating closeness of “merry” and “marry.”
Do you make a distinction?
...How about Mary?

Example from TV show:
In discussing where to seat people at a table, in ordering the seatings a woman tries to get a man to say:“Will,” “you,” “Mary,” “me”
Southern British English minimal pairs

/i:/-/ı/ seat – sit
/i/-/ı/ sit – set
/a/-/ʌ / cat – cut
/a/-/æ / cut – cart
/a/-/ɑ / cart – cot
/I/-/ɔ / cot – caught
/i/-/əʊ / cord – could
/u/-/ʊ / pull – pool
/u/-/ɜ / pool – pearl
/x/-/əʊ / pearl – pale

/eɪ/-/eɪ / day – die
/aʊ/-/ɒ / buy – boy
/əʊ/-/əʊ / hoe – how
/əʊ/-/əʊ / now – near
/æ/-/æ / tear (noun) – tear (verb)
/ɪ/-/ɪ / sure – she
/ɔ/-/ɔ / waiter – wait

Distinctive feature (not in English)

• A minimal set from another language:

  Russian: palatalization of consonants is a distinctive feature
  m’at’ — to crumple
  mat’—mother
  mat—checkmate
  m’at—crumpled

Non-contrastive features

• Sound differences that do not make a difference in meaning are not contrastive
• The various sounds comprise one allophone
• complementary distribution: different sounds occur in different phonetic contexts, like English aspirated /pʰ/ at beginning of words, and unaspirated /p/ after [s]
• In English, aspiration of consonants is not contrastive, in Hindi it is distinctive
  (see Ottenheimer pp. 48-50)

Allophones

• differently produced sounds that are all the same phoneme

The importance of context in understanding what you hear…

Phonological misunderstandings

Differences not significant in one language can result in embarrassing moments…

• in Ukraine, for many people “h” and “g” are allophones—Mr. Gore vs. Mr.’Hor’
• in Japanese, no meaningful distinction between “r” and “l”—
  Clinton’s election vs. Clinton’s erection
Morphology

- study of word structure
  --how phonemes combined into words or word-parts that have referential meaning. Includes:
- bases (roots, stems)
- affixes (prefixes, suffixes, infixes, circumfixes)
- inflection (marking case, plurality, tense, aspect, etc.) & derivation (creating verbs from nouns, etc.)
- free morphemes (can stand alone), bound morphemes (can’t)

Allomorphs

- different manifestations of the same morpheme
- E.g.: il-, im-, in- [meaning ‘not’] illegitimate, improper, intolerable

Another example of allomorphs

in English, 3 possible plural endings:
- s after unvoiced consonants (except alveolar & postalveolar fricatives)
- z after vowels & voiced consonants (except alveolar & postalveolar fricatives)
- Λ after alveolar & postalveolar fricatives
  (s, z, ʃ, ʒ)

E.g. what is plural of Bach?
- the final sound is a velar unvoiced fricative, therefore in the first category