Lecture 2

How speech sounds are made
2 important elements

- Airstream mechanism
- Speech organs and what they do to change/shape the airstream
Airstream mechanism

- The air which is used in speech may start from the:
  - Lungs (Pulmonic airstream) – english sounds uses this mainly
  - Tongue and soft palate (Velaric airstream)
  - Glottis (Glottalic airstream)

- Which direction does it travel in?
  - Ingressive (incoming air)
  - Egressive (outgoing air)
Organs of speech

3 major systems:
- Articulatory system
- Phonatory system
- Respiratory system

Supraglottal
Larynx /Glottis
Subglottal
Respiratory system

- Pulmonic eggresive airstream
  - Most common way of making speech sounds

- Pulmonic ingressive airstream
  - Common for non-speech sounds
    e.g. gasping, slurping
Phonatory system

Larynx (voice box)
- Vocal cords: voicing (phonation)
- Glottis (opening between the vocal folds)

Q: What glottal settings do you need for:
   a) voiceless sounds
   b) voiced sounds
   c) a glottal stop
   d) whisper
   e) creaky voice
Articulatory system

- Resonating cavities:
  - Throat (pharyngeal cavity)
  - Mouth (oral cavity)
  - Nose (nasal cavity)

- Analogy to wind instruments
Articulatory system

Major Articulators:
1. Lips:
2. Tongue:
3. Teeth/ Jaw
4. Velum
5. Tongue Root
6. Larynx (phonatory system)

Speech sounds are made with a combination of articulators
Active vs Passive Articulators

- Active articulators: the articulators that move
  - Lips
  - Tongue (Tip, Blade, Front, Back, Root)

- Passive articulators: non-mobile parts
  - Upper lip, teeth,
  - roof of the mouth (alveolar ridge, hard and soft palate, uvula)
  - Pharynx

Q: Why should we care about this?
Online resources

University of Iowa (American English)
anatomy diagram
sound and IPA symbol matching

Ship or Sheep (British English)
online pronunciation practice
beware of simplifications in the symbols used
(particularly for vowels)
Short Quiz

How many sounds are there in these words?

- Judge
- Though

Notice the difference between the phonetic transcription and the spelling of the word.
English spelling is very inconsistent

- **Same sound, different letters**
  - e.g. see, sea, scene, thief, machine
- **Same letters, different sound**
  - e.g. sign, pleasure, resign
- **One sound, multiple letters**
  - e.g. lock [k], shop [ʃ]
- **One letter multiple sounds**
  - e.g. exit [ks], use [ju]
- **Silent letters**
  - e.g. know, doubt, though
International Phonetic Alphabet (IPA)

- One alphabet = one sound
- Can be used to described the speech sounds of any human language

Online Resource: Peter Ladefoged