

Phonetics: The vocal tract

Basic framework for describing
speech sounds

Before we start

- Acknowledgment: Geoff Morrison
 - Provided many of the web links and clip art

Before we start

- What is phonetics?

Rogers' definition (p 1)

- Phonetics [is the area of study that] is concerned with:
- The sounds we make in speech
 - How we produce them
 - How they're transferred from speaker to hearer
 - How we hear and perceive them

Our focus: how they're produced

- Traditional articulatory phonetics
- How sounds are made (roughly)
 - Little changed since the mid 19th century
 - (Aside: Who was Henry Huggins?)
 - <http://www.answers.com/topic/henry-sweet>
 - Descriptive system based on:
 - Visual observation
 - Tactile and proprioceptive sense
 - informed introspection

New, more scientific studies

- X-rays, MRI, CT scans
 - Show things are more complex
- But... traditional descriptions are roughly correct at a coarse level of description
- Anyway it's indispensable
 - Can't get by without the terminology
 - Universally accepted way to talk about speech sounds
- We'll mainly pretend it's correct
 - May peek behind the curtain now and then

I.P.A. consonant chart

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Appendix E Rogers p 337

Roughing out the vocal organs (Fig 1.1 , 1.2 p 5, 6)

- Are there ‘vocal organs’
 - Yes, but speech is only a secondary function of each
- Ordinary language: *technical term*
 - Nose (and some sinuses) : *Nasal cavity*
 - Throat: Pharynx (naso-, oro-, laryngeal)
 - Voice box: Larynx
 - Windpipe: Trachea
 - Also bronchi and lungs
- Things below the larynx are serve mainly as ‘air supply’ to power speech
- Mostly concerned with larynx and above

Sagittal section (slicing)

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(slice through middle of the head between ears)

Sagittal section for real

<http://www.umanitoba.ca/faculties/arts/linguistics/russell/138/sec1/anatomy.htm>

[graphic from above web site removed]

Sagittal section... line drawing

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See also Rogers p. 5 Figure 1.2

Upper and lower articulators

- Lower articulators
 - Lower lip (lip = L. *labium*, pl. *labia*)
 - Tongue (= L. *lingua*)
 - (Jaw? Epiglottis?)
- Upper articulators
 - (Upper) lip
 - (Upper front) teeth (= L. *dens*, pl. *dentes*)
 - Alveolar ridge
 - (L. *alveolus*, ‘small hollow’, ‘tooth socket’)
 - (Hard) palate
 - Velum (= soft palate)

Tongue

- See Figure 1.12 Rogers p 9.

Places of articulation (roughly)

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(shows labels for major places of articulation on a
mid-sagittal line drawing)

Also: '3.3' post alveolar

Places of articulation

(refined)

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Rogers (2000) Table 1.1 p 11