

**Theme:** Phonology vs. phonetics; basics of phonetics; phonetic transcription  
Based on: Hayes, 2009, chapter 1.

### 1. Phonetics vs. phonology

5 2 7 2 3 4 5 6 5 8 9 4 1 8 3 3 6 7 6 1 8 5 2 7 6 3 8 .

ET1 pronounced: "Five Two Seven Two Three Four..."

ET2 pronounced: "Cinq Deux Sept Deux Trois Quatre..."

ET3 pronounced: "Fünf Zwei Sieben Zwei Drei Vier..."

Same or different languages?	Different sounds,	same structure.
<i>cf.</i>	Parole	Langue (Saussure)
<i>cf.</i> (not exactly the same)	Performance	Competence (Chomsky)
<i>cf.</i>	Phonetics	Phonology

Three aspects of **phonetics**:

- **production**: physiology of the speech organs (interface with biology)
- **acoustics**: physical properties of the sound waves (interface with physics)
- **perception**: physiology of the hearing organs (interface with biology)
- + **neuro-linguistic aspects, etc.**
- + **speech technology**: computerized speech production, automatic speech recognition, etc.
- + **applied linguistics** (L2, speech therapy, analyzing speech for medical purposes, etc.)

**Phonology** is concerned with *structure*: the system of sounds, the sound patterns, etc.

- To what extent are phonetic subtleties relevant? in *a* language vs. in language?
- To what extent should explanatory phonological theories be based on phonetics?

### 2. An introductory chapter on phonetics

Three goals: (1) what are sounds? (2) important *features* of the sounds, (3) how to write down sounds?

Includes:

- **Segments**: consonants, vowels, as well as glides and syllabic consonants in-between.
- **Length** of the segments
- Syllables, stress, tone, intonation.

Does not include (*why?*):

- Fundamental pitch (but include local variation of the pitch: vs. pitch stress, tone, intonation)
- Male vs. female variation. Variation per speakers.

Well... is phonetics really about sounds?

*Levels of abstractions*: physical sound > speech sound > allophone > phoneme

Note the influence of our alphabetical writing system (vs. *biphones*, *triphones* in speech technology).

### 3. Sound is vibration of the air

Three main ways of vibrating air:

1. Create a resonating chamber (cf., a flute) → vowels
  2. Creating a turbulence in a constriction (cf. wind through hole) → fricatives
  3. Creating a momentarily acoustic event (cf. clapping hands) → stops
- + Combining these (stop + fricative = affricate ; vowel + glide = diphthong, etc.)

How are these created? By cleverly moving our speech organs, which modulate the waves.

**Vowels:** the vocal tract as a whole acts as a resonating chamber. By modifying its shape, you modify the first, second, third, etc. formants of the sound resonating in this chamber. Shape can be modified by

- Lips → *rounding*: [i] vs. [y], [e] vs. [ø], [ʊ] vs. [u] etc. (rounded, unrounded)
- Vertical position of the tongue (jaw) → *height* [i] vs. [e] vs. [ɛ] (high, mid, low)
- Horizontal position of the tongue → *backness* [y] vs. [u] (front, central, back)
- (Position of the tongue root)

#### Consonants:

(un)voiced + place + manner

- What happens? → manner of articulation
  - o *Stop = plosive*
  - o *Fricative* (among them: *sibilant fricatives*: [s], [z], [ʃ] and [ʒ])
  - o *Affricate*
  - o *Nasal* [stop]
  - o *Tap, flap, trill*, (lateral and central) *approximants, liquids, glides* (= semivowels)

central approximants			lateral approximant	Tap	Trill
[j]	[w]	[ɹ]	[l]	[r]	[r]
glides (semi-vowels)			liquids (/l-like and r-like sounds)		

- Where does it happen? → place of articulation
  - o Bilabial
  - o Labiodental
  - o Dental
  - o Alveolar
  - o Post-alveolar
  - o Retroflex
  - o Palatal
  - o Velar
  - o Uvular
  - o Pharyngeal
  - o Glottal
  - + multiple places (e.g., [w])
- Do the vocal cords vibrate during that event? → voicing (esp. for non-English speakers)
- Where is the air stream coming from? Pulmonic (egressive) vs. clicks, implosive, ejective
- Aspiration [t<sup>h</sup>]
- Length: **geminate**s = long vowels ([t:] or [tt])
- **Secondary articulation**: primary articulation in *followed* by a closure elsewhere  
labialization [t<sup>w</sup>], palatalization [t<sup>j</sup>], velarization [t<sup>v</sup>], pharyngealization [t<sup>ɕ</sup>].

**Suggested resource:** (beside those mentioned by Bruce Hayes)

*TDS IPA-console*: <http://languagelink.let.uu.nl/tds/ipa/>

**NB:** No meeting on Thursday, September 5 (*Rosh Hashanah*)

**Reading for next week:** Hayes, chapters 2-3. For homework: Saussure, 32-37 (+impression of 38-64).

**Homework** (preferably on paper, ½ to 1 page in total, by Tuesday, September 10):

- (1) Answer shortly Hayes, p. 17, exc. 2: pick 5 from questions *a* to *h* (approx. 1-2 sentences for each).
- (2) Read *Saussure* introducing the term “phonology”. Write a paragraph on: How does he distinguish it from phonetics? Is it the same as our understanding of those terms nowadays?