Introduction to Phonetics I
Fall 2012
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3. The Vocal Tract and Places of Articulation

I. Outline for today:
1. US accents
2. A Course in Phonetics: Chapter 1: Articulation and Acoustics
3. Homework

II. Notes

1. US Accents
   a. Which parts of the country have different accents? (Continued from Unit 1 handout)
      - The East Coast: New England
      - The South: starting from Maryland down to Florida and west to Texas
         * Florida: has many immigrant residents from the North, especially older retired people, who do not have a Southern accent
         * Black English: similar to Southern US English
      - Mid-Western: more homogeneous; basis of the “General American” accent favored in broadcasting

   b. How did these variations develop? How does a language change?
      - Immigrants with different backgrounds
      - Time
         e.g. Mandarin in Taiwan and in China: People from all over China moved to Taiwan around 1949
         → Mandarin experienced a relatively independent development on the two sides of the Taiwan Straits from then on
         *What is the time differential between the settling of the East Coast, the South and the West?
            - In the 17th century, the first groups of immigrants from England and elsewhere in Europe settled in the East and then in the South → More time for the language to change in these parts than in the rest of the US, i.e. the Midwestern and Western parts of the country

   c. Related studies:
      - US Dialect survey
        http://www4.uwm.edu/FLL/linguistics/dialect/maps.html
e.g. We can draw isoglosses (imaginary lines dividing the country according to variations in speech) showing, for example, what 汽水 (pop/soda/coke/fizzy drink) is called in which regions

2. *A Course in Phonetics: Chapter 1: Articulation and Acoustics* (p. 4)
   a. The airstream powering speech:   Lungs \( \rightarrow \) trachea \( \rightarrow \) larynx \( \rightarrow \) vocal folds
      \( \rightarrow \) apart: voiceless sounds
      \( \rightarrow \) stretched together tightly \( \rightarrow \) vibration driven by airstream \( \rightarrow \) voiced sounds

   *Terms in Chinese:
   - trachea 氣管
   - larynx 喉
   - vocal folds/vocal cords 聲帶
   - voiced 帶音、濁音、有聲
   - voiceless 不帶音、清音、無聲
   
   Go over course webpage 5. Vocal tract and places of articulation
   [http://homepage.ntu.edu.tw/~karchung/intro%20page%205.htm](http://homepage.ntu.edu.tw/~karchung/intro%20page%205.htm)

b. Places of articulations
   - Look at the figure showing the names of the articulatory organs
     (To remember the terms: Treat it like a game of “Concentration”!)

   *Terms in Chinese:
   - alveolar ridge 齲齦（the full name is 齲齦隆骨）
   - hard palate 硬顎
   - soft palate 軟顎
   - nasal cavity 鼻腔
   - uvula 小舌
   - tip of the tongue 舌尖
   - blade (of the tongue) / the tongue blade 舌葉
   - front (of the tongue) 舌前 (sometimes called 舌尖 in Chinese)
   - center (of the tongue) 舌中
   - back (of the tongue) 舌後 (sometimes called 舌根 in Chinese)
   - root (of the tongue) 舌根
   - esophagus [ˈesəfɑːɡəs] 食道 (the figure uses the British spelling “œsophagus”)
   - epiglottis 會厭 (closes over the top of the trachea when eating, drinking, and swallowing)
   - pharynx 咽 – pharyngeal wall 咽壁 or 咽喉壁
*Why does our voice have a nasal sound when we have a cold and our nose is stuffed up?*

- The nasal cavity is filled with spongy tissue which can hold liquid; and when our nose is stuffed, the resonance pitches of the nasal cavity are changed. We can hear this in our speech even though our nose is stuffed up and we can’t pronounce nasal sounds or breathe normally.

c. Vocal folds

- Where your vocal folds are: the part on the front of your neck (your “throat”) where you can feel the strongest buzzing when making voiced sounds.

  The frequency of vocal fold vibration in ordinary speech is around 200 cps (cycles per second) or 200 Hz (Hertz); the averages are about 120 Hz for men, 235 Hz for women, and 265 Hz for children.

- Vocal fold movements occur without conscious control

- Watch a video of vocal folds vibrating at
  
  http://youtu.be/9Tlpkdq8a8c

- Both whispering and shouting harm your vocal folds

- Coffee and tea are diuretic (they make you urinate a lot); drinking a lot of coffee or tea will dehydrate you (cause you to have less water in your body), and this is not good for your voice.

- People without vocal folds can use a device which generates vibrations that can be used to produce speech, but there is no intonational variation in such speech.

  People without vocal folds also have the option of learning esophageal speech 食道語, in which the patient swallows and then manipulates gulps of air (“burps”) to power their speech.

_relations: Go over course webpages 7a. and 7b.


  http://homepage.ntu.edu.tw/~karchung/intro_page_7b.htm

3. Homework

a. Read two articles (it is actually one article in two parts) on the Echo Method and 10 Minutes a Day


b. Make 12 drawings of the head using the model on p.27 of your textbook; due September 19:

  Use an A4 paper with six drawings on each side. Three of the 12 drawings are to be labeled.

c. Finish links on course webpage 7a

**Pronunciation corrections:**

- Word stress: framed syllables are stressed; * = tonic stress
- *windpipe* \[\text{ˈwɪndpəip}\] → \[\text{ˈwɪndpəip}\]
- *trachea* \[\text{ˈtreɪʃə}\] → *trachea* (\text{ˈtreɪʃə} out of date)
- *larynx* \[\text{ˈlærɪŋks}\] → \[\text{ˈlærɪŋks}\] (in Midwestern US English – learn one consistent variety of English → this trains your ability to imitate any kind of speech)

**two small muscular folds** → pause after each word (content words → pause for the brain to process what’s been said)

- *folds* \[\text{fɔldz}\] (vowel; final affricate) → \[\text{fɔldz}\]
- *opposed* \[\text{əˈpɔʊzd}\] → \[\text{əˈpɔʊzd}\]
- *yours* \[\text{jɔːs}\] → \[\text{jɔːs}\] (word–final s after voiced consonant → [z])
- *in* \[\text{ɪn}\] (vowel and nasal) → \[\text{ɪn}\]
- *free passage* no pause → pause between stressed, monosyllabic content words
- *vibrate* \[\text{vɪˈbreɪt}\] → *vibrate* (word stress) cf. \text{vɪˈbræʃən} (n.)
- *alveolar ridge* \[\text{ælˈvɪlarˈridʒ}\] (BE) \[\text{ælˈvɪlarˈridʒ}\]; in AE sometimes \[\text{ælˈvɪələ}\]

**alveolar ridge** → \[\text{ælˈvɪlarˈridʒ}\] (adjective–noun phrase)

- *hard palate* → *hard* palate (when contrasting with “soft palate”)
- *soft palate* (contrasted with “hard palate”) → \[\text{ˈʃɒft}\]

**pharynx** \[\text{ˈfærɪŋks}\] → \[\text{ˈfərɪŋks}\] (adjective–noun phrase)

- *pharyngeal wall* → \[\text{ˈfərɪŋɡiːəlˈwɔːl}\] (compound noun)

**voiced** \[\text{vɔɪst}\] → \[\text{vɔɪst}\] (length of first vowel in the diphthong)

- *each* \[\text{ɪtʃ}\] → \[\text{ɪtʃ}\] (vowel)
- *them* \[\text{ðɛm}\] → \[\text{ðɛm}\] (closure of the lips when pronouncing “m”)
- *both* \[\text{bəθ}\] → \[\text{bəθ}\] (vowel)
- *these sounds are* no pause → pause after the subject

**name** \[\text{nɛm}\] → \[\text{nɛm}\] (vowel)

- \*vocal fold vibrations* → \*vocal fold vibrations (compound noun)

- \*also* \[\text{ˈɔʊsə}\] → \[\text{ˈɔʊsə}\] (vowel)

- *each of these words* \[\text{ˈdɪz}\] → \[\text{ˈdɪz}\] (vowel; and do not stress *these here*)

- *suggested* \[\text{ˈsædʒəstəd}\] → \[\text{ˈsædʒəstəd}\] (the [g] was missing); (BE) \[\text{ˈsædʒəstəd}\]

\(\text{cf. figure (AE)} \quad \text{ˈfɪɡjərə} \quad \text{vs. (BE)} \quad \text{ˈfɪɡə}\)
* Tonic stress:
The final stress of the utterance (or thought group) is very high and signals the end of the utterance.

* Continuation rise (also mentioned on September 12):
The last stressed syllable before a pause receives a high falling pitch followed by a gentle rise, to signal that the sentence is not finished. It usually occurs before conjunctions, punctuations, and prepositions.

* Stress timing:
English is often described as having a stress-timed rhythm, i.e. there is a relatively fixed interval of time from one stressed syllable to the next stressed syllable; unstressed syllables are relatively shorter, and can be made even shorter when more of them are crowded between two stressed syllables, in order to maintain a regular beat. For example, the time required to say “A BIG BLACK BEAR” is about the same as that required to say “A BEAUTiful exPENSive Overcoat.” On the contrary, French is an example of a language that is said to be syllable-timed, i.e. there is less variation in the length of each syllable, and the rhythm is less governed by the intervals between stressed syllables.
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