Introduction to Phonetics I
Fall 2012
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5. Places of Articulation I

I. Outline for today:
   1. Phonetic Symbols: KK vs. IPA
   2. A Course in Phonetics: Chapter 1: Articulation and Acoustics
   3. Homework

II. Notes
   1. Phonetic Symbols: KK vs. IPA
      a. The Kenyon and Knott (KK) phonetic symbols KK 音標
         - Most Americans have never heard of the “KK phonetic symbols”
         - KK is a subset of the larger set of IPA symbols, with some specially adapted features for American English
         - Whether learning KK is an advantage is still under debate; as a phonetics teacher, I think it is useful and important; sometimes the teachers who teach it do not teach the correct pronunciations, but knowing the symbols is a huge advantage in any case
         - KK is no longer taught in many Taiwan classrooms
      b. The Daniel Jones (DJ) phonetic symbols
         - The phonetic symbol system that was taught in Taiwan before the mid 1960s, when Standard Southern British (SSB – a variety of English spoken in Southern England; though it now has fewer and fewer native speakers) was the standard for English teaching in Taiwan
         - Differences between KK and DJ:
            DJ posits pairings of “long” and “short” vowels, and uses the length mark [], a diacritic, or diacritical mark 區別發音符號, to mark the “long” vowels, for example:

            | KK  | DJ   |
            |-----|------|
            | foot | [ʊ]  | [u] |
            | food | [ʊ]  | [u:]|

            The two dots are actually triangles, with the top one inverted. A regular colon [:] is often used in handwriting and also on computers for typographical convenience.
Here is a chart with the DJ pronunciation symbols:
http://www.inf.fu-berlin.de/lehre/WS05/19617-K/PhonSymb.jpg

c. The International Phonetic Alphabet (IPA) 國際音標 (also called 萬國音標; this Chinese term has mainly been used to refer to the DJ pronunciation symbol system)
  - IPA can also refer to the International Phonetic Association
  - The IPA has been revised a number of times over history, most recently in May 2005 with the addition of a letter for a labiodental flap. See:
    http://en.wikipedia.org/wiki/International_Phonetic_Alphabet#History
  - There is also an “Americanist” system still in use, especially in works on phonology and in TESOL texts. It uses, for example, the háček symbol: /ʼʃ/ for /ʃ/ and /ɻ/ for /tf/; also /ay/ for /ar/. See this link for details:
    http://en.wikipedia.org/wiki/Americanist_phonetic_notation
  - Key differences between general IPA and KK:

```
        KK   IPA
   no   /o/  [ou]
  day   /e/  [eɪ]
 rain  /r/  [i]
 water /t/  [r]
```

Kenyon and Knott considered the sounds [ou] and [eɪ] less diphthongal than the other diphthongs, so they used only single vowel symbols

* These choices may account for some of the pronunciation mistakes in Taiwan:
  - IPA [eɪ] → KK [e] → the vowel in name is often mispronounced as [æ] or [æ]
  - IPA [ou] → KK [o] → the vowel in no is often mispronounced as [ɔ].

The last symbol is the “tap” symbol, used for a /t/ between two vowels.

* Diphthong 雙母音:
  - Definition: two vowels pronounced quickly, one after the other, within a single syllable
  - Very often the component vowels used in diphthongs do not exist alone in a given language as monophthongs (a single vowel sound)
    e.g. the [a] in [ar] and [au] does not exist as a monophthong (單母音) in English; and [a] is always a monophthong

* “r” sound:
  - The most common “r” sound in the world’s languages is either a tap [ɾ] (e.g. [AmE] water; Spanish pero ‘but’) or a trill [r] (Spanish perro ‘dog”)
- The English “r”, written [ɹ] in IPA, is a relatively rare sound in the world’s languages; however, it is found in Beijing Mandarin, and in the dialect of Dutch spoken in Leiden - KK, and most other pronunciation symbol systems, use a regular [r] for the English “r” for typographical convenience

2. A Course in Phonetics: Chapter 1: Articulation and Acoustics (p. 8-10)
   a. Reviewing the waveform on p. 7
      - A waveform can tell us: 1. whether a sound is voiced or voiceless; 2. its loudness; 3. its manner of articulation. What it can’t tell us: place of articulation
      - The sound [f]: low amplitude → not loud; [θ] is even softer
      - If the amplitude of the two vowels differs it means one is louder than the other, and this is often due to stress vs. lack of stress
      - The vertical lines of the two vowels are evenly spaced → because all vowels are voiced
      - The vertical lines of [f] are irregular because [f] is voiceless noise
      - Pulse: One vibration = one pulse; the result of the air under pressure pushing the vocal cords apart and together one time
        * Definition of noise:
          - Noise: a series of disorganized, random frequencies occurring at the same time; there is no one single identifiable frequency
          Cf. Voicing → an identifiable single, regular frequency over a period of time

   b. Places of articulatory gestures (starting from p. 8)
      - Articulators in the oral tract can be divided into two types:
        i. Passive articulators: the articulators that form the upper part of the oral tract; they hardly move in the articulation process
        ii. Active articulators, e.g. the tongue and the jaw, which belong to the lower part of the oral tract; they can produce different gestures and move toward the upper, passive articulators when speaking
      - Breaking down the word capital ['kæpərəl] as an example
        [k] – passive articulator: velum; active articulator: the back of the tongue
        [æ] – nothing is touching anything
        [p] – the lower (active) lip moves up to the upper (passive) lip
        [ə] – nothing is touching anything
        [r] – passive articulator: the alveolar ridge; active articulator: the tip of the tongue
        [ə] – nothing is touching anything
        [l] – (for most people) passive articulator: alveolar ridge; active articulator: the tip of the tongue
* Two kinds of /l/:
  - There are two kinds of /l/ sound in English, the clear /l/ [l], which occurs before vowels, and the dark /l/ [ɬ], which occurs after a vowel (i.e. it’s “postvocalic”).
  - Clear and dark /l/ are not as clearly distinguished in American English as in British English

- Ways to describe language sounds:
  i. Articulatory description: this is the method most often used for consonants; you describe which organs touch which, and how;
  ii. Acoustic description: this is more often used for vowels and /r/; you describe what you hear, since it is difficult to describe the actual places of articulation

- To review the terms for places of articulation, go back to
  i. course webpage p. 5 at http://homepage.ntu.edu.tw/~karchung/intro%20page%205.htm
  ii. Also refer to the class handout for September 17, 2012

* Terms:
  - frontal incisors: 齦牙 – related to scissors; used to cut food
  - protuberance [prou'tubərəns]: 突出物 – refers to the alveolar ridge in this context
  - velic closure: 軟顎封閉 – describes the state of the velum being raised, thus closing off the nasal tract and allowing the air to go out only through the mouth → to produce oral sounds

- The most mobile articulators belong to the lower surface of the vocal tract, the tip and blade of the tongue in particular

- Breaking down the word peculiar [pə'kjʊljər] to practice describing consonant articulations:
  p – two lips come together; then the back and center of the tongue are raised
  k – (for most people) the back of the tongue touches somewhere between the hard palate and the velum → co-articulation due to the following [j]
  l – (for most people) the tip of the tongue touches the alveolar ridge

- [t] in true and tea: the tongue moves further to the front of the mouth for tea than it does for true → coarticulation due to the following [i]

- [s] vs. [ʃ]: major differences

<table>
<thead>
<tr>
<th>acoustic quality</th>
<th>[s]</th>
<th>[ʃ]</th>
</tr>
</thead>
<tbody>
<tr>
<td>articulation</td>
<td>higher in pitch</td>
<td>louder</td>
</tr>
<tr>
<td></td>
<td>a groove (hollow, channel) down the center of the tongue</td>
<td>V-shaped tongue</td>
</tr>
</tbody>
</table>
- To produce consonants, the airstream must be obstructed in some way as it passes through the vocal tract
  → Consonants can be classified according to the place and manner of this obstruction
  place of articulation 發音點 manner of articulation 發音方法
- Less specific categories of places of articulation, used more often in phonology than in phonetics:
  i. labial 唇音
  ii. coronal 舌頂音 or 舌冠音 or 舌前音
  iii. dorsal 舌背音

**Pronunciation corrections:** [framed] syllables are stressed; * = tonic stress

<table>
<thead>
<tr>
<th>Word</th>
<th>Pronunciation</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>vibration</td>
<td>[ˈvibraʃən]</td>
<td>rush through, flat intonation</td>
</tr>
<tr>
<td>smaller</td>
<td>[ˈsmələr]</td>
<td>pause and rise before punctuation (rhythm and continuation rise)</td>
</tr>
<tr>
<td>variation</td>
<td>[vərəˈeɪʃən]</td>
<td>[ˈvərəˈeɪʃən] (vowel; very little rounding before /l/)</td>
</tr>
<tr>
<td>air pressure</td>
<td>[eər ˈpreʃər]</td>
<td>[eər ˈpreʃər] (compound noun)</td>
</tr>
<tr>
<td>called</td>
<td>[ˈkɔld]</td>
<td>will find out <em>will</em> can’t be followed by a past participle; this error may be a kind of hypercorrection 矯枉過正</td>
</tr>
<tr>
<td>names</td>
<td>[nɛms]</td>
<td>[nɛzmz] (vowel; voicing of /s/ after voiced consonants)</td>
</tr>
<tr>
<td>principal parts</td>
<td>[ˈprɪnsəpl ˈpɑrts]</td>
<td>[prɪnsəpl ˈpɑrts] (phrasal stress)</td>
</tr>
<tr>
<td>figure</td>
<td>[ˈfɪgər]</td>
<td>[ˈfɪgər] (the [j] was missing)</td>
</tr>
<tr>
<td>the</td>
<td>[ðə]</td>
<td>[ðə] (stick out the tongue)</td>
</tr>
<tr>
<td>five</td>
<td>[fæv]</td>
<td>[fæv] (voicing; lengthen the vowel)</td>
</tr>
<tr>
<td>further</td>
<td>[ˈfɜrə]</td>
<td>[ˈfɜrə] (stick out the tongue)</td>
</tr>
<tr>
<td>velum</td>
<td>[ˈvɛləm]</td>
<td>[ˈvɛləm] (vowel)</td>
</tr>
<tr>
<td>pharynx</td>
<td>[ˈfɛrənks]</td>
<td>[ˈfɛrənks] (in Mid–Western AE)</td>
</tr>
<tr>
<td>uvula</td>
<td>[ˈjuːvələ]</td>
<td>[ˈjuːvələ] (the second [j] was missing)</td>
</tr>
<tr>
<td>front</td>
<td>[frʌnt]</td>
<td>cf. uvular [ˈjuːvələr] (adj.)</td>
</tr>
<tr>
<td>center</td>
<td>[ˈsɛntə]</td>
<td>[ˈsɛntə] (tap, or at least no aspiration)</td>
</tr>
<tr>
<td>partly</td>
<td>[ˈpərtli]</td>
<td>[ˈpərtli] (glottal stop)</td>
</tr>
<tr>
<td>position</td>
<td>[pou'siʃən]</td>
<td>→ [pə'aiʃən] (schwa; voiced [z], not [s])</td>
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<td>-------------------</td>
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<td>------------------------------------------</td>
</tr>
<tr>
<td>on</td>
<td>[oʊ]</td>
<td>→ [ən] (alveolar nasal, not velar)</td>
</tr>
<tr>
<td>tip</td>
<td>[tɪp]</td>
<td>→ [tɪp] (vowel)</td>
</tr>
<tr>
<td>ridge</td>
<td>[rɪdʒ]</td>
<td>→ [rɪdʒ] (vowel)</td>
</tr>
<tr>
<td>other consonant</td>
<td>flat</td>
<td>→ rise to signal continuation (continuation rise)</td>
</tr>
<tr>
<td>sounds, ...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>important</td>
<td>[ɪm'pɔːrnt]</td>
<td>→ [ɪm'pɔːrnt] or [ɪm'pɔːrnt] (glottal stop)</td>
</tr>
<tr>
<td>deep</td>
<td>[dɪp]</td>
<td>→ [dɪp] (vowel)</td>
</tr>
<tr>
<td>cannot represent</td>
<td>no stop</td>
<td>→ glottal stop</td>
</tr>
<tr>
<td>that shows</td>
<td>no stop</td>
<td>→ glottal stop</td>
</tr>
<tr>
<td>midline</td>
<td>['mɪdlæɪ]</td>
<td>→ [mɪdlæɪ] (the final “n” was missing)</td>
</tr>
<tr>
<td>But we</td>
<td>no stop</td>
<td>→ glottal stop</td>
</tr>
<tr>
<td>in</td>
<td>[ɪn]</td>
<td>→ [ɪn] (vowel)</td>
</tr>
<tr>
<td>in order</td>
<td>no linking</td>
<td>→ linking (the word–final consonant becomes the word–initial consonant of the following word if it begins with a vowel; also, alveolar, not velar)</td>
</tr>
<tr>
<td>conceptualization</td>
<td>[kən'sɛptjuələ'zɛrʃən]</td>
<td>→ [kən'sɛptjuələ'zɛrʃən] (pronunciation variety: –ization in AE usually [ə]; in BE it’s usually [æ])</td>
</tr>
</tbody>
</table>

*“Five” issues*

- Are the vowel qualities different in *five* and *fife*?

→ *Five* and *fife* share the same phoneme /aɪ/, but the [əɪ] in *five* is longer and the tongue and jaw are lower.

- Three things about *five* to pay attention to:
  
i. voicing of [ʊ]
  
ii. vowels before a voiced sound should be longer.
  
iii. [əɪ] + voiced sound → tongue and jaw lower.

  + **voiceless** sound → tongue and jaw higher; [ʌɪ] → **Canadian raising**, also found in many varieties of US and Scottish English

*About Canadian raising:*

- Another diphthong [aʊ] → [ʌʊ]

  e.g. about the house [ə'baut ə hɔus] (ICRT broadcaster Terry Engel and DFLL instructor Ted Partington both have Canadian raising)

- Not all Canadians have Canadian raising; it is found mainly in the eastern part of Canada.
* Glottal stop 喉塞音:
- In American English, the “t” has many variations, one of which is the glottal stop [ʔ]. One of the environments for it to occur is when the word-final “t” is followed by a word beginning with a consonant.
- To produce a glottal stop, imagine a basketball hitting your tummy hard. What sound do you make? It should be a glottal stop or two, probably with a vowel between: [ʔɑʔ]?! Your tummy will be tensed up when doing this. Your tongue tip doesn’t make the gesture for pronouncing [t], i.e. your tongue tip does not touch the alveolar ridge, or anywhere else, when producing a glottal stop.
  E.g. hit me [hɪʔ mi]
- There’s also a glottal stop in Southern Min:
  E.g. S Min 藥 [jʊʔ] ‘medicine’; this originally had a final /-k/ which later became a glottal stop
  S Min 吃 [tʊʔaʔ] (‘eat’)
  S Min 竔 [aʔ]; this originally had a final /-p/
But these days, whether the final glottal stop is present in these words or not does not seem to affect Taiwanese Southern Min speakers’ perception of the meaning.

Note: The glottal stop final in SM is dropped before a diminutive 仔 or utterance-final 啊 [a], e.g.: i. When saying 藥仔 [jʊ ɑ] (‘medicine’ + diminutive suffix), the glottal stop disappears.
ii. Some people say “我無愛吃啊”; ‘I don’t want to eat it’ – the [a] sound in ‘eat’ is lengthened, with no glottal stop: [ɡua bo ai ʨia:] in order to sound less direct.
  → Start paying attention to the final stops and nasal finals in Southern Min. Do you pronounce a final [−m] or final [−n] in the family name 林 Lin? Taiwan Southern Min is changing!

* About mistakes we make in English pronunciation:
- Most of the errors we make are systematic. To learn English or any language well, the first thing we need is awareness of what we are doing, and then an understanding of what the correct targets are.
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