Handout 4: Articulatory phonetics: Vowels

Terminology

- **phonetics**: the study of language sounds as a physical, measurable phenomenon.
- **articulatory phonetics**: the study of how people produce language sounds.
- **acoustic phonetics**: the study of language sounds as pure sound waves.
- **auditory phonetics**: the study of how people perceive language sounds.
- **International Phonetic Alphabet (IPA)**: a system of phonetic writing that is designed to be adequate to represent the distinctive sounds of all human languages.

Notes

- **vocal tract**: the organs through which language sounds pass, including the larynx (voicebox), pharynx (throat), oral cavity (mouth), and nasal cavity (sinuses).
- **articulators**: the movable parts of the vocal tract (the lips, tongue, jaw, and velum).

- **vowels (a e i o u, etc.)**: are more singable, involve little or no obstruction of the vocal tract, are distinguished mainly by tongue and jaw position, tend to be at the centres of syllables

- **consonants (p t f s m n r l y w, etc.)**: are less singable, involve partial or complete obstruction of the vocal tract, can be distinguished by changes made all along the vocal tract, tend to be at the edges of syllables

- **monophthong**: a single vowel sound. The centre of a syllable.
- **diphthong**: two vowel sounds that are pronounced as one syllable.

The following words illustrate some of the vowels and diphthongs of English, as well as some of the differences between normal spelling and phonetic transcription. These are transcribed as they are pronounced on the west coast of North America. It is customary to write phonetic transcriptions in square brackets.

<table>
<thead>
<tr>
<th>i</th>
<th>beet [bit]</th>
<th>a</th>
<th>but [bʌt]</th>
<th>u</th>
<th>boot [bʌt]</th>
</tr>
</thead>
<tbody>
<tr>
<td>e</td>
<td>bait [bæt]</td>
<td>ι</td>
<td>bah [bɑ]</td>
<td>ou</td>
<td>boat [bɔt]</td>
</tr>
<tr>
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<td>bet [bet]</td>
<td>ι</td>
<td>bite [bɑt]</td>
<td>ι</td>
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This is one way to write the vowels of English and Kwak’wala, using IPA symbols:

- **vowel place (or quality):** the position of the tongue and jaw during a vowel.
- **vowel height:** the height of the tongue relative to the roof of the mouth.
  - **high:** made with jaw high, and tongue close to the roof of the mouth.
  - **mid:** made with jaw at rest, and tongue further from the roof of the mouth.
  - **low:** made with jaw low, and tongue far from the roof of the mouth.
- **vowel backness:** the position of the tongue relative to the hard and soft palates.
  - **front:** made with the tongue closer to the hard palate.
  - **central:** made with the tongue between the hard and soft palates.
  - **back:** made with the tongue closer to the soft palate.
- **rounded:** made with rounded lips.
- **unrounded:** made with unrounded lips.

**Exercises**

1. Transcribe the vowels in the following English words, using IPA symbols.

   - buzz  dune  slow  raft  shrub  great  voice  bough  gift  send  far  shop  put  shears  how  rough  mind  grey  war  snooze  dunk  death  sigh  laugh

2. Compare the transcriptions of these words in the U’mista, Liq’wala, and Boas and Hunt systems. What extra information do Boas and Hunt convey?

<table>
<thead>
<tr>
<th>U’mista</th>
<th>Liq’wala</th>
<th>Boas</th>
</tr>
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<tbody>
<tr>
<td>ḗbāmp</td>
<td>?ēbāmp</td>
<td>ēbē´mp</td>
</tr>
<tr>
<td>ump</td>
<td>?ump</td>
<td>ōmp</td>
</tr>
<tr>
<td>wina</td>
<td>wina</td>
<td>wī´na</td>
</tr>
<tr>
<td>ḡwɨl˚g˚wela</td>
<td>ḣ“What”wela</td>
<td>gwe˚łgwala</td>
</tr>
<tr>
<td>kiyos</td>
<td>kiyos</td>
<td>k!eá´s, k!e˚y˚a´ś</td>
</tr>
</tbody>
</table>