

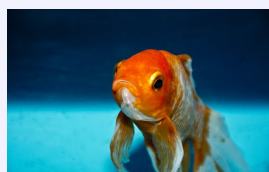
Articulatory Phonetics: Consonants and Vowels

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Articulatory Phonetics & the IPA

What is it good for?

Why do we even need a system to represent the way a *phone* is produced? Why not simply use the English alphabet to represent sounds?



whuiöx u ghoti

Introducing The International Phonetic Alphabet ('IPA'):

- Specialized for representing phones. (General/Universal)
- Each symbol represents exactly one sound and vice versa. (Unambiguous)

Reading the IPA chart

1. Consonants

CONSONANTS (PULMONIC)											© 2018 IPA	
	Bilabial	Labiodental	Dental	Alveolar	Postalveolar	Retroflex	Palatal	Velar	Uvular	Pharyngeal	Glottal	
Plosive	p b		t d			ʈ ɖ	c ɟ	k ɡ	q ɢ		ʔ	
Nasal	m	ɱ	n			ɳ	ɲ	ŋ	ɴ			
Trill	ʙ		r						ʀ			
Tap or Flap		ⱱ	ɾ			ɽ						
Fricative	ɸ β	f v	θ ð	s z	ʃ ʒ	ʂ ʐ	ç ʝ	x ɣ	χ ʁ	ħ ʕ	h ɦ	
Lateral fricative			ɬ ɮ									
Approximant		ʋ	ɹ			ɻ	j	ɰ				
Lateral approximant			l			ɭ	ʎ	ʟ				

Symbols to the right in a cell are voiced, to the left are voiceless. Shaded areas denote articulations judged impossible.

The consonants of English: [p], [b], [t], [d], [k], [g], [ʔ], [m], [n], [ŋ], [ɾ], [f], [v], [θ], [ð], [s], [z], [ʃ], [ʒ], [h], [ɹ], [j], [l], [w], [ɰ], [ɭ], [ʎ], [ʟ].

• Place of articulation

- Where the part(s) in your vocal tract (mouth, throat, etc.) are manipulated when making the sound.
- Represented as the **horizontal axis** in the chart (*front—back*).

• Manner of articulation

- How the part(s) in your vocal tract (mouth, throat, etc.) are manipulated when making the sound.
- Represented as the **vertical axis** in the chart (*no air/stop—more airy*).
- Honorable mention to nasality**, where the air flows through the *nasal* (rather than the oral) cavity. (We categorized it in class as a 4th property of the articulatory phonetics of consonants!)

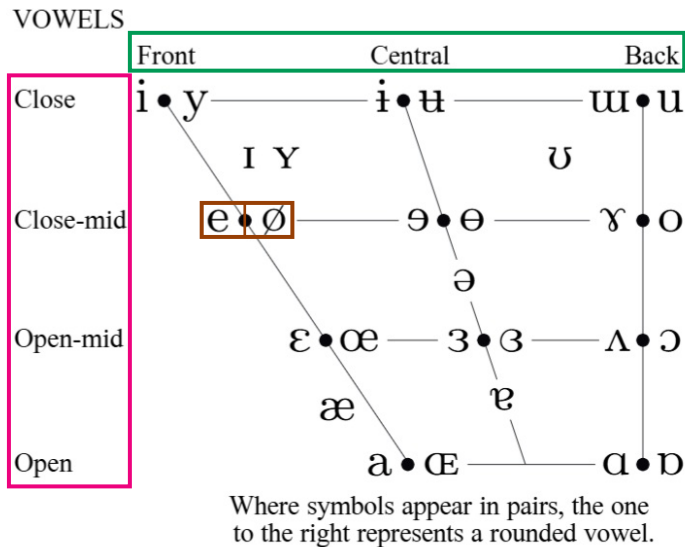
• Voicing

- Whether the vocal folds vibrate when making the sound.
- Represented as being on the **right** in a given cell (*voiced*/non-silent) or on the **left** (*voiceless*/silent).

Practice: Consonants

- What symbol, if any, represents the following features:
 - Voiced (oral) uvular fricative = [ʁ]
 - Voiceless (oral) velar stop = [k]
 - (Voiced) nasal labiodental (stop) = [ɱ]
 - Voiceless (oral) dental trill = N.A.
- What features are represented by the following symbols:
 - [ŋ] = (Voiced) nasal velar (stop)
 - [f] = Voiceless (oral) labiodental fricative
 - [b] = Voiced (oral) bilabial stop
 - [l] = Voiced (oral) alveolar lateral approximant

2. Vowels



The vowels of English: [i], [ɪ], [u], [ʊ], [ɪ], [ʊ], [ə], [ɛ], [ʌ], [ɔ], [æ], [a], [ɑ].¹

• Height

- Tracks the distance between the tongue and the roof of the mouth when making the sound.
- Represented as the **vertical axis** in the chart (*close—close/open-mid—open*).

• Backness/Frontness

- Tracks how far back (/front) in the mouth the tongue is positioned when making the sound.
- Represented as the **horizontal axis** in the chart (*front—central—back*).

• Lip rounding

- Tracks whether the lips are ‘rounded’ when making the sound.
- Represented as being on the **right** on each pair (*rounded*) or the **left** (*unrounded*).

• We also mentioned in class the property of **tenseness**:

- Whether the tongue is “tense” when making the sound.
- This property is not straightforwardly represented in this chart, but in general, the duration of *tense* vowels is extended while that of *lax* vowels is shortened, and the former are more close than the latter.
- The English tense vowels: [i], [e], [u], [o], and [ɑ].
The English lax vowels: All the others.

- We also got those vowels with a noticeable change in quality during production—diphthongs. In English: [aj], [aw], [ɔj] (*major* diphthongs); and [ej], [ow] (*minor* diphthongs).

Practice: Vowels, Then All Together

(3) What vowel goes with what word?

- | | | | |
|----------|-------|----|-----|
| • cut | _____ | a. | [æ] |
| • cat | _____ | b. | [ɪ] |
| • foot | _____ | c. | [ʊ] |
| • sheep | _____ | d. | [ɑ] |
| • cheers | _____ | e. | [ʌ] |
| • caught | _____ | f. | [u] |
| • food | _____ | g. | [i] |

(4) Transcribe the following names into IPA. Use “broad transcription” only!:

- a. Seth Cable ~ [sɛθ keɪbəl]
b. Brynne Wilkinson ~ [brɪn wɪlkɪnsən]

(5) Write the following phonetically transcribed utterances in plain English orthography:

[kʌlərlɪs gaɪn aɪdɪəz slɪp fɪjʊəɪəsli] ~
“Colorless green ideas sleep furiously”
[naʊ ɪmædʒən wi aɪ ɑl ræʃənəl pɑj.əts] ~
“Now, imagine we are all rational pirates”

¹I find transcribing vowels very hard! **A tip:** Try to memorize some common words with those vowels, and compare the word you’re transcribing to them.