

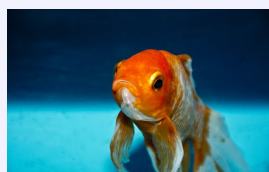
# Articulatory Phonetics: Consonants and Vowels

Nir Segal – September 19, 2025

## 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], [ɹ], [f], [v], [θ], [ð], [s], [z], [ʃ], [ʒ], [h], [ɹ], [j], [l], [w], [ɰ], [ɰ].

### 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!)

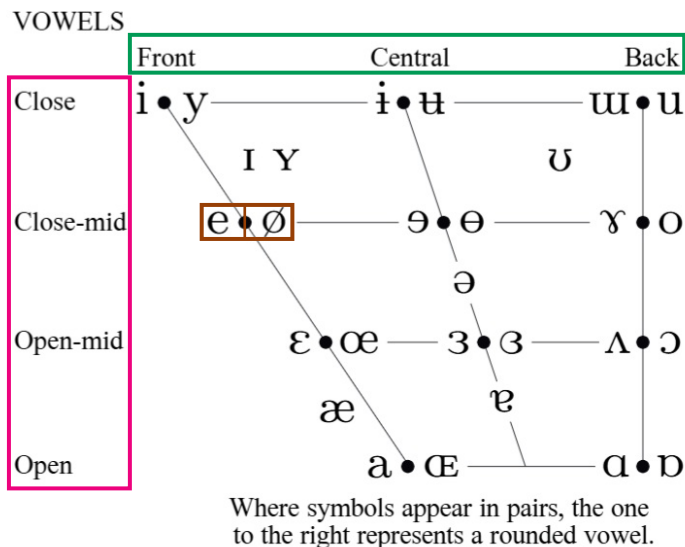
### Voicing

- 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 =
  - Voiceless (oral) velar stop =
  - (Voiced) nasal labiodental (stop) =
  - Voiceless (oral) dental stop =
- What features are represented by the following symbols:
  - [ɰ] =
  - [f] =
  - [b] =
  - [l] =

## 2. Vowels



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

### • 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!:

- Seth Cable ~
- Brynne Wilkinson ~

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

[kʌlərlɪs ɡʌɪn ɑɪdiəz slɪp fɪʊəɪəsli] ~  
[naʊ ɪmædʒən wi ɑɪ ɒl ɪæfənəl pɑɪjɪəts] ~

<sup>1</sup>I 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.