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# The PronSci Rectangle charts: Layout Diagrams

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Annotated keys to the layout of the British and American English Rectangle charts  
Versions with phonemic symbols for classroom use

*The black and white phonemic charts may be reproduced, at any size, provided (1) that they are not altered and (2) that all the copyright and other information on the title line is retained. Colour versions of the charts, with their corresponding Word and Spelling charts, can be seen on the PronSci website.*

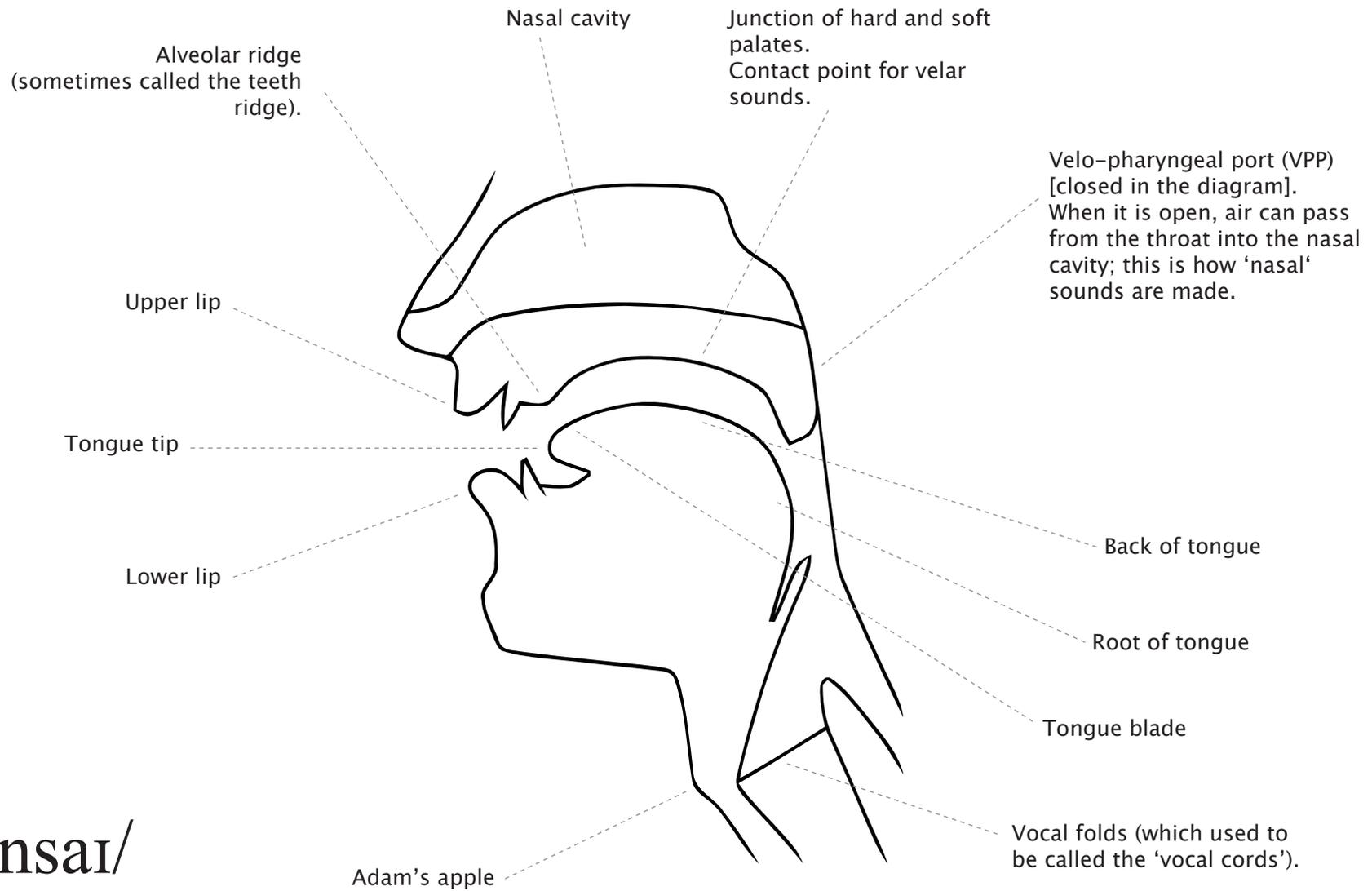
*On the American English phonemic chart, the alternative IPA symbols used by different authors for the vowels in mate and met are given.*

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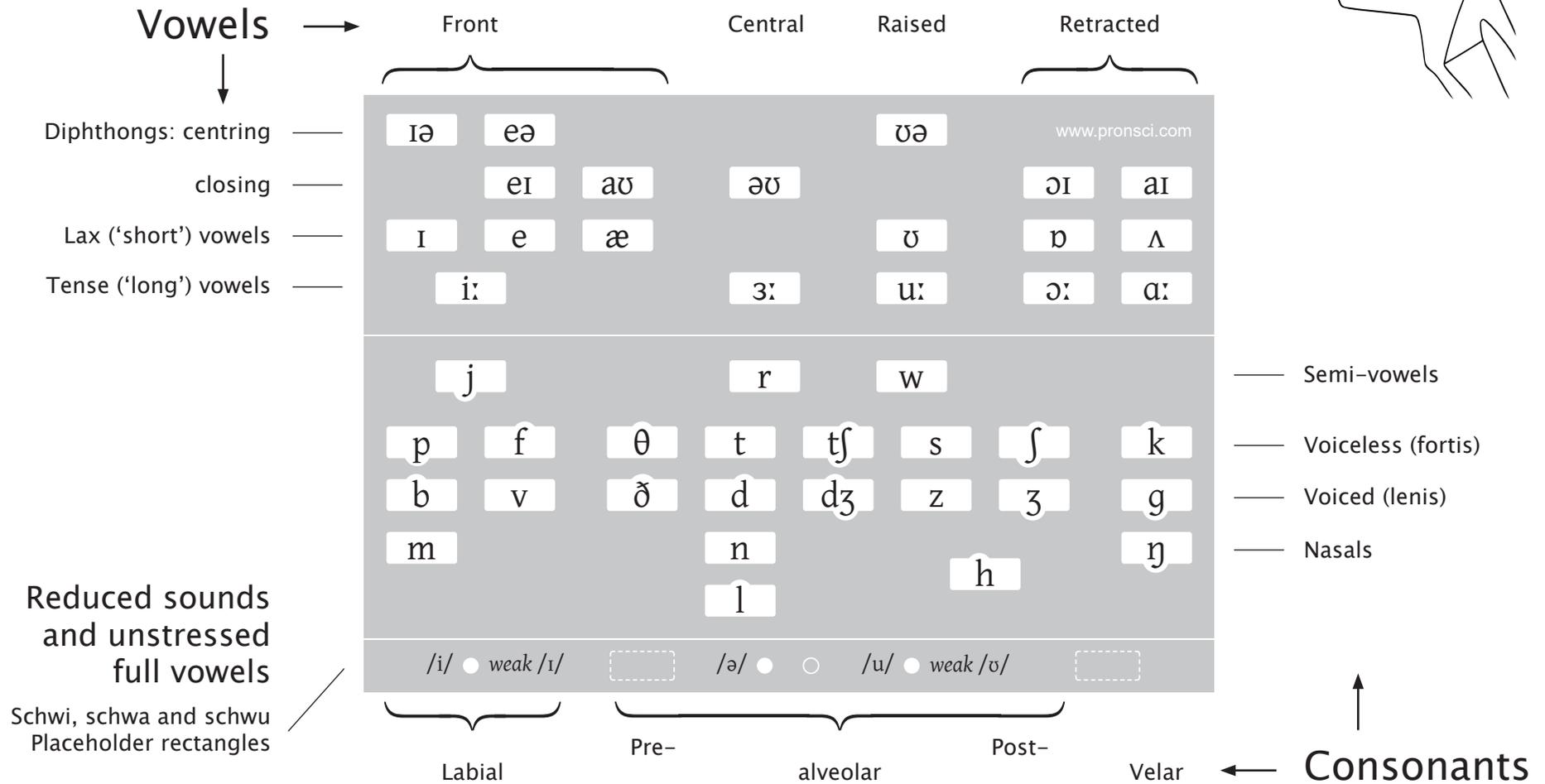
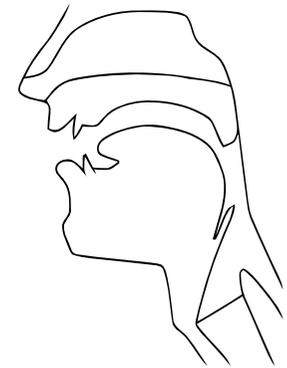
# Speech Articulators



**/prɒnsaɪ/**

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# British English: Layout of the Rectangle chart



# British English: layout notes

English is unusual in having two types of full **vowels**, and in having **diphthongs** (when a vowel sound glides towards one of the reduced sounds of English within a single syllable).

**Lax** vowels (which are felt to be 'short') only appear in syllables which have a final consonant: *bit, head*

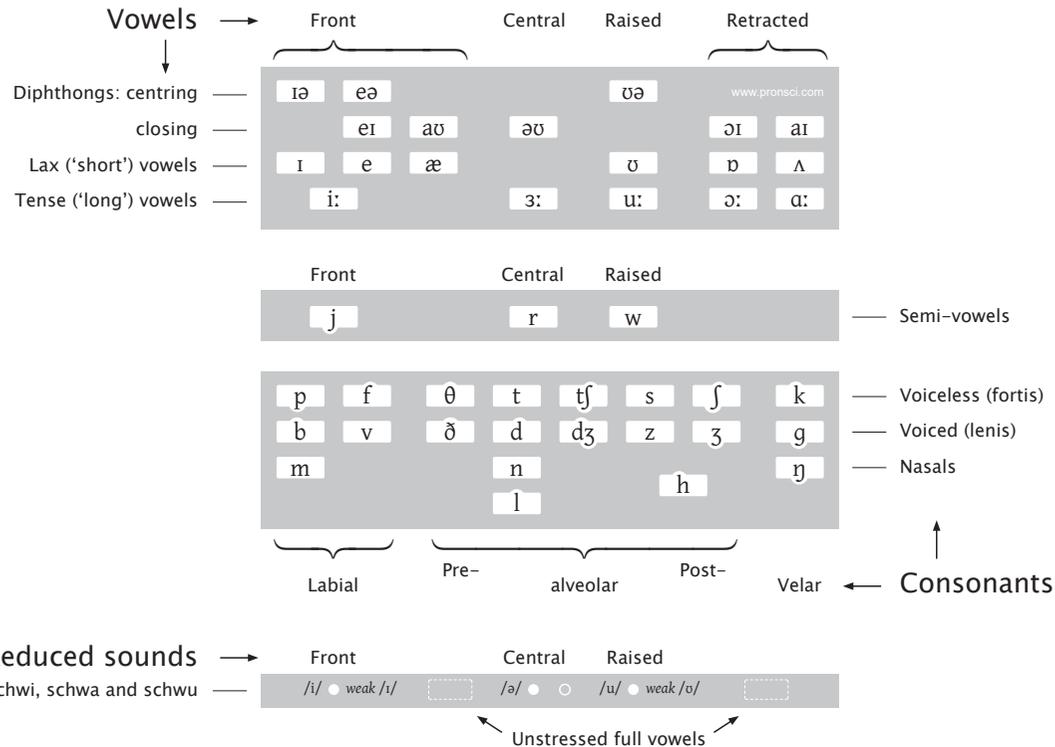
**Tense** vowels (which are felt to be 'long') can appear in syllables with or without a final consonant: *bee, beat, he, heed*

There are two further distinctions portrayed: (1) between full vowels and **reduced sounds** (shown by rectangles and dots, respectively), and (2) between stressed and unstressed syllables (pointed at the top or bottom of the chart).

Examples of words using reduced sounds: **schwi**: *indeed, between, coming, happy*; **schwa**: *about, terrain, caterer, tuna*; **schwu**: *influence, to Italy*

Reduced sounds and the two placeholders for **unstressed full vowels** are found at the bottom of the chart, in an area used for pointing all unstressed syllables.

'**Labial**' means 'with the lips'; either lower lip and upper teeth for /f v/, or lower and upper lips for /p b m/.



For '**raised**' vowels, the back of the tongue approaches the roof of the mouth.

For '**retracted**' vowels, the root of the tongue approaches the back of the throat.

**Semi-vowels** are sounds which are produced like vowels but used like consonants.

Consonants are either **voiceless or voiced** depending on whether the vocal folds are at rest or vibrating while the consonant is being produced. The vibrations can be detected by putting a finger on your Adam's apple (the larynx) while making a long 'zzzz' sound. The noise the vibrations make can be heard by putting your fingers in your ears.

**Nasal** sounds are produced when air is directed through the nose instead of through the mouth.

**Velar** consonants are made by raising the back of the tongue to the area where the hard and soft palates meet. (The exact place varies depending on the vowel.)

/l/ is a '**lateral**' consonant. The tongue tip touches the alveolar ridge and air escapes over the left and right sides of the tongue.

The **alveolar** ridge (or 'teeth ridge') is the 'bump' that you feel when you run your tongue back from the gums of your upper teeth towards your palate.

Many consonant sounds in English are made with the tip of the tongue either touching the alveolar ridge, just forward of it (touching the back of the teeth), just behind it or hovering just below it.

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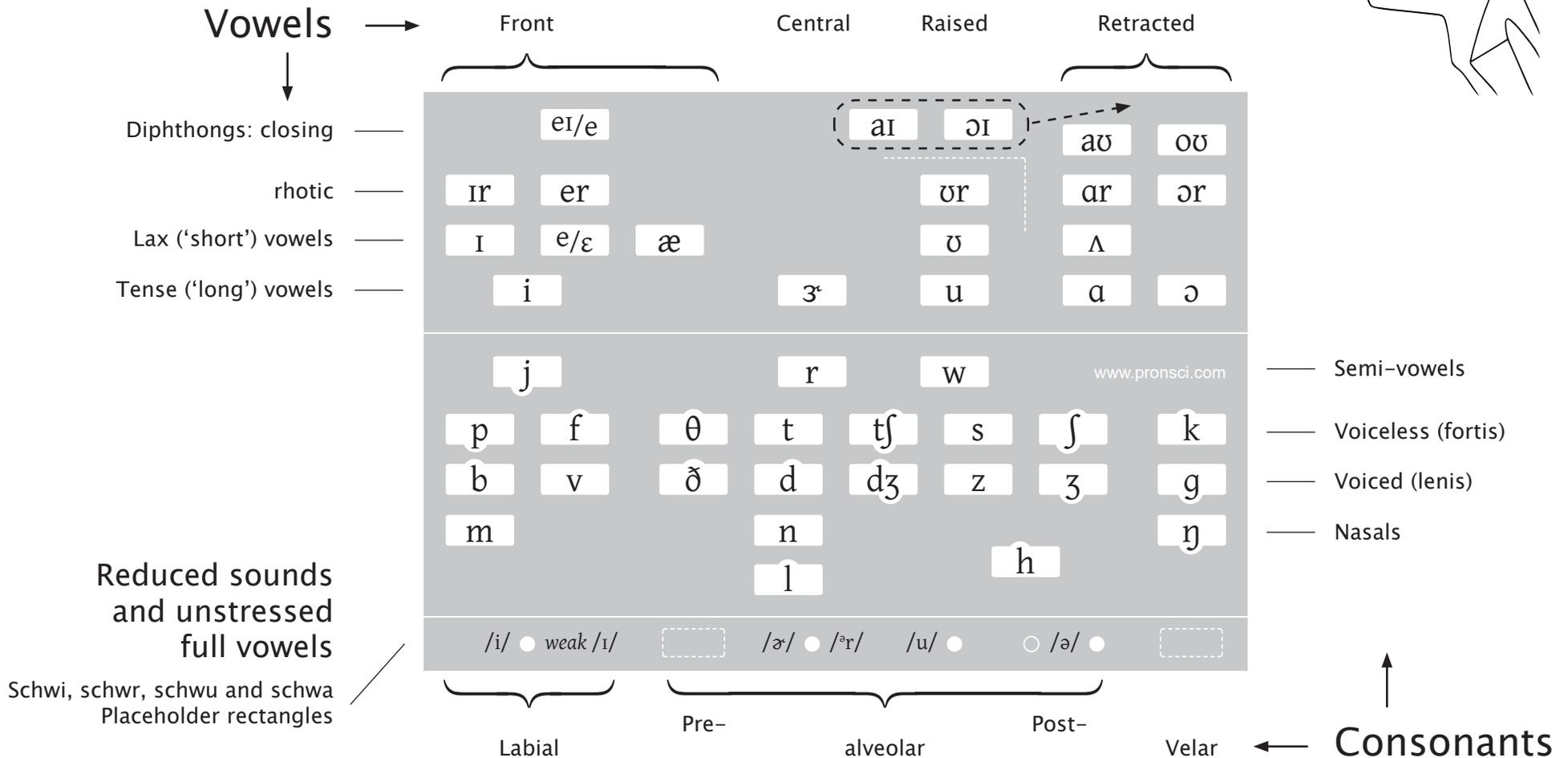
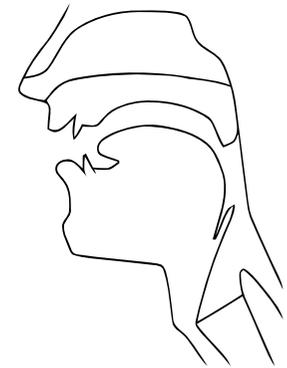


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# American English: Layout of the Rectangle chart



# American English: layout notes

English is unusual in having two types of full **vowels**, and in having **diphthongs** (when a vowel sound glides towards one of the reduced sounds of English within a single syllable).

**Lax** vowels (which are felt to be 'short') only appear in syllables which have a final consonant: *bit, head*

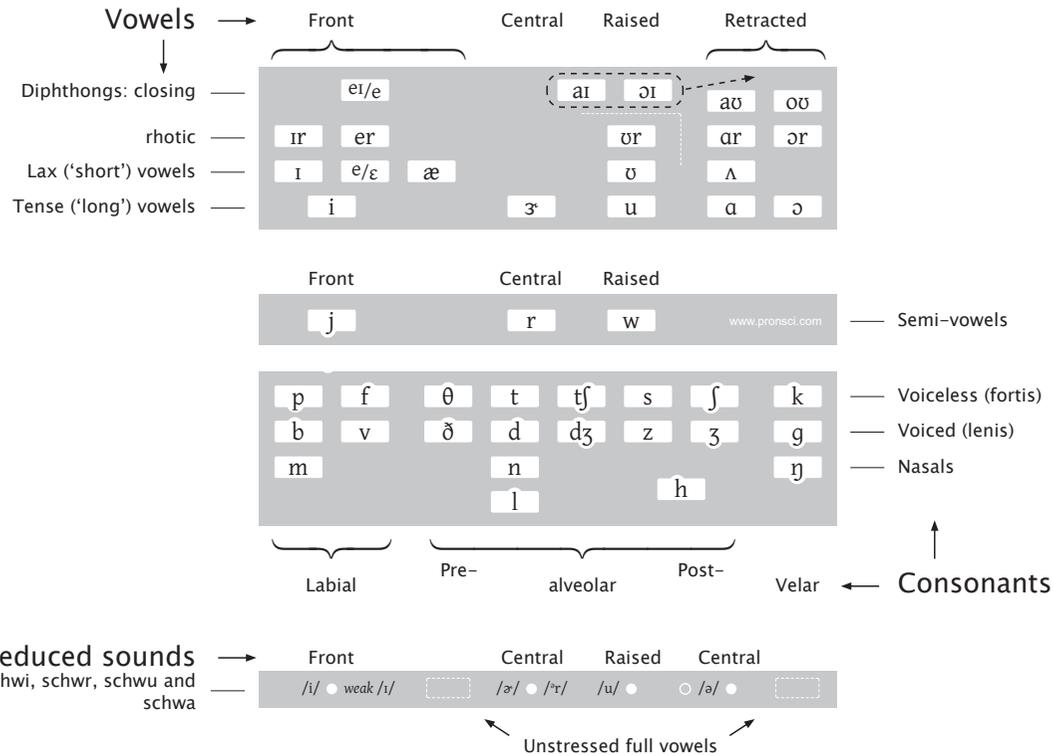
**Tense** vowels (which are felt to be 'long') can appear in syllables with or without a final consonant: *bee, beat, he, heed*

There are two further distinctions portrayed: (1) between full vowels and **reduced sounds** (shown by rectangles and dots, respectively), and (2) between stressed and unstressed syllables (pointed at the top or bottom of the chart).

Examples of words using reduced sounds: **schwi**: *indeed, between, coming, happy*; **schw**: *perhaps, tuner*; **schwu**: *influence*; **schwa**: *about, today, tuna*

Reduced sounds and the two placeholders for **unstressed full vowels** are found at the bottom of the chart, in an area used for pointing all unstressed syllables.

'**Labial**' means 'with the lips'; either lower lip and upper teeth for /f v/, or lower and upper lips for /p b m/.



For '**raised**' vowels, the back of the tongue approaches the roof of the mouth.

For '**retracted**' vowels, the root of the tongue approaches the back of the throat.

/aɪ/ and /ɔɪ/ are diphthongs that start from a retracted position.

**Semi-vowels** are sounds which are produced like vowels but used like consonants.

Consonants are either **voiceless or voiced** depending on whether the vocal folds are vibrating during their production.

The vibrations can be detected by putting a finger on your Adam's apple (the larynx) while making a long 'zzzz' sound, and the result can be heard by putting your fingers in your ears.

**Nasal** sounds are produced when air passes through the nose instead of through the mouth.

/h/ is a 'breathy onset' to the vowel which follows it: that is, the sound made by air coming through the mouth before the vocal folds begin to vibrate. It has no particular relation to the other consonants, so it is placed neither in a row nor in a column.

The **alveolar** ridge (or 'teeth ridge') is the 'bump' that you feel when you run your tongue back from the gums of your upper teeth towards your palate.

Many consonant sounds in English are made with the tip of the tongue either touching the alveolar ridge, just forward of it (touching the back of the teeth), just behind it or hovering just below it.

**Velar** consonants are made by raising the back of the tongue to the area where the hard and soft palates meet. (The exact place varies depending on the vowel.)

/l/ is a '**lateral**' consonant. The tongue tip touches the alveolar ridge and air escapes over the left and right sides of the tongue.

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