Parviz Birjandi and Mohammad Ali Salmani-Nodoushan. 2005. *An Introduction to Phonetics*. Teheran: ZABANKADEH PUBLICATIONS

VOWELS

Phonetics and Phonology
Week 5

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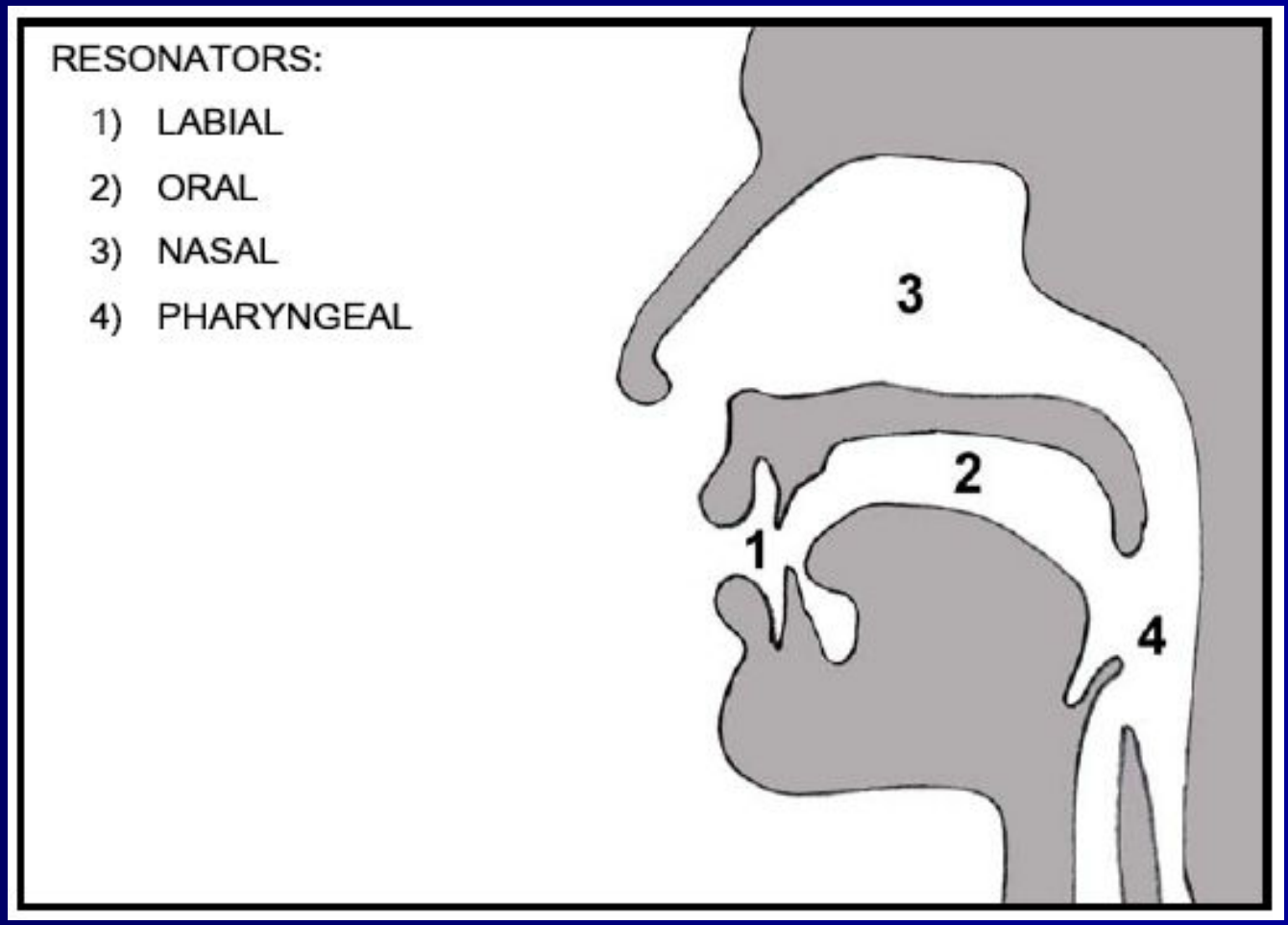
Most sounds in speech are produced by passing a stream of air from the lungs through one or more resonators belonging to the phonetic apparatus. There are four principle resonators.



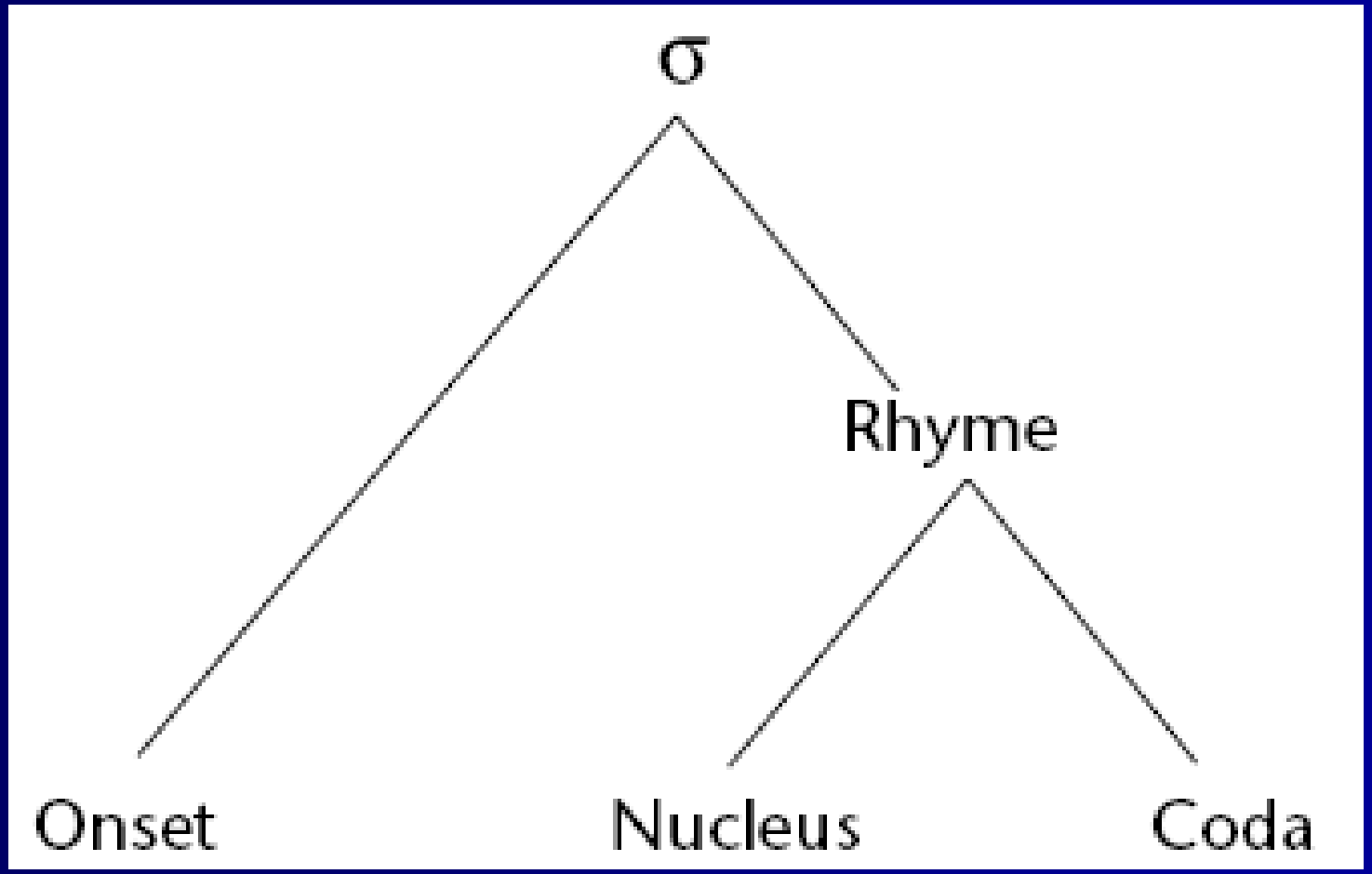
The distinction between consonants and vowels is quite simple.

The *presence or absence of obstructions* in the course of the airstream modifies the nature of the sound produced.

If the air, once out of the glottis, is allowed to pass freely through the oral cavity, the sound is a *vowel*.

If the air, once out of the glottis, is partially or totally obstructed in one or more places in the oral cavity, the sound is a *consonant*.

VOWEL	CONSONANT
produced with no oral obstruction	produced with a narrow or complete closure in the vocal tract
more sonorous	less sonorous
syllabic	non-syllabic


σ
Rhyme
Onset
Nucleus
Coda

In order for a phoneme to be a vowel, it should meet certain ***vowel-hood criteria***.

These criteria include:

- the degree of openness of the oral cavity also known as the degree of aperture,
- the degree of tension or laxity of the vocal tract muscles, and
- amount of duration or length of articulation.

A vowel's timbre (or quality) depends on the following elements:

(a) the number of active resonators,
(b) the shape of the oral cavity, and
(c) the size of the oral cavity.

Ordinarily, English vowels do not involve the nasal cavity. They can, however, become nasalized in certain contexts (e.g., when they follow nasal consonants).

The shape of the oral cavity is determined by the general position of the tongue in the mouth.

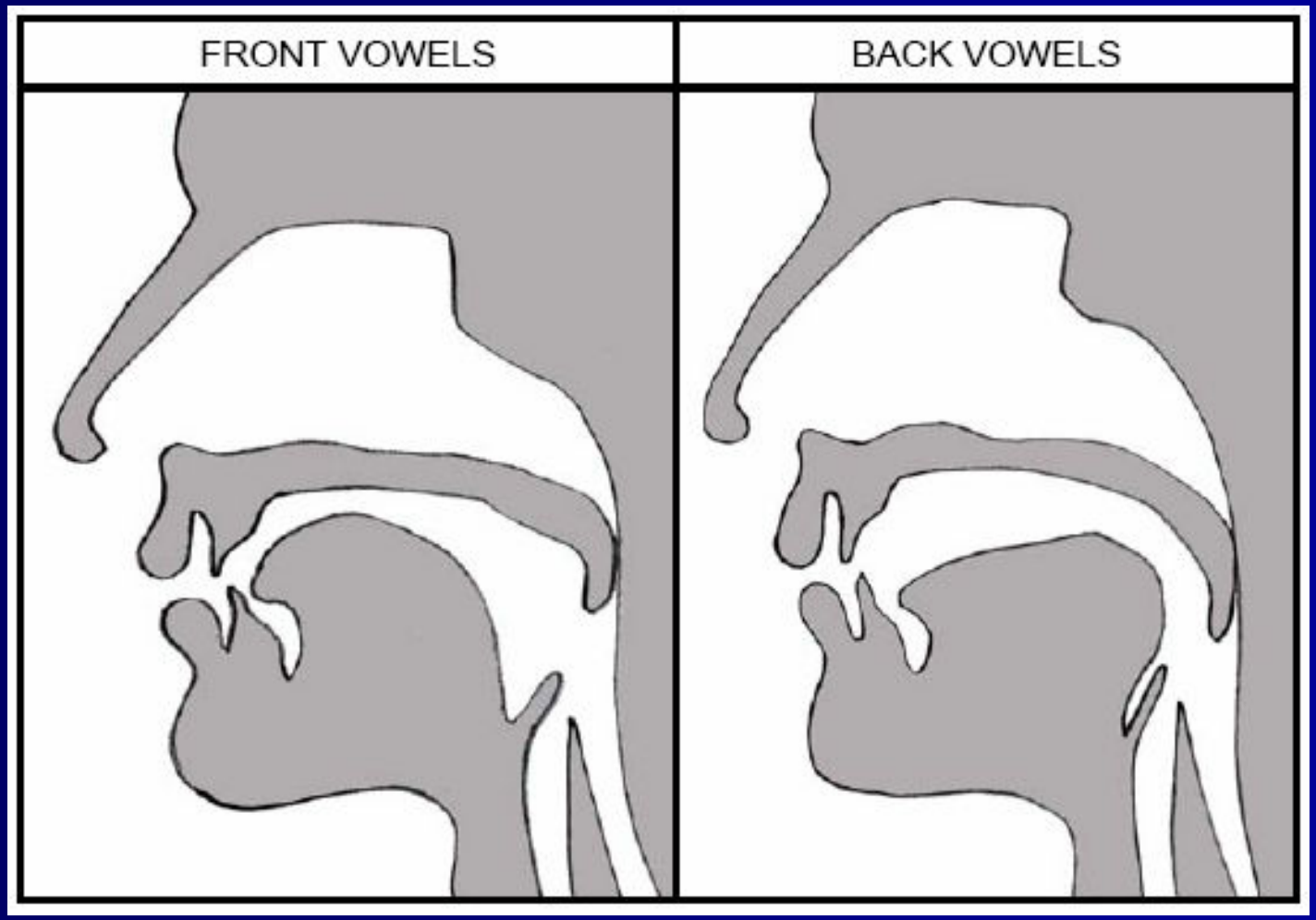
This divides the vowels into three great classes:

(a) front vowels,

(b) back vowels, and

(c) central vowels.

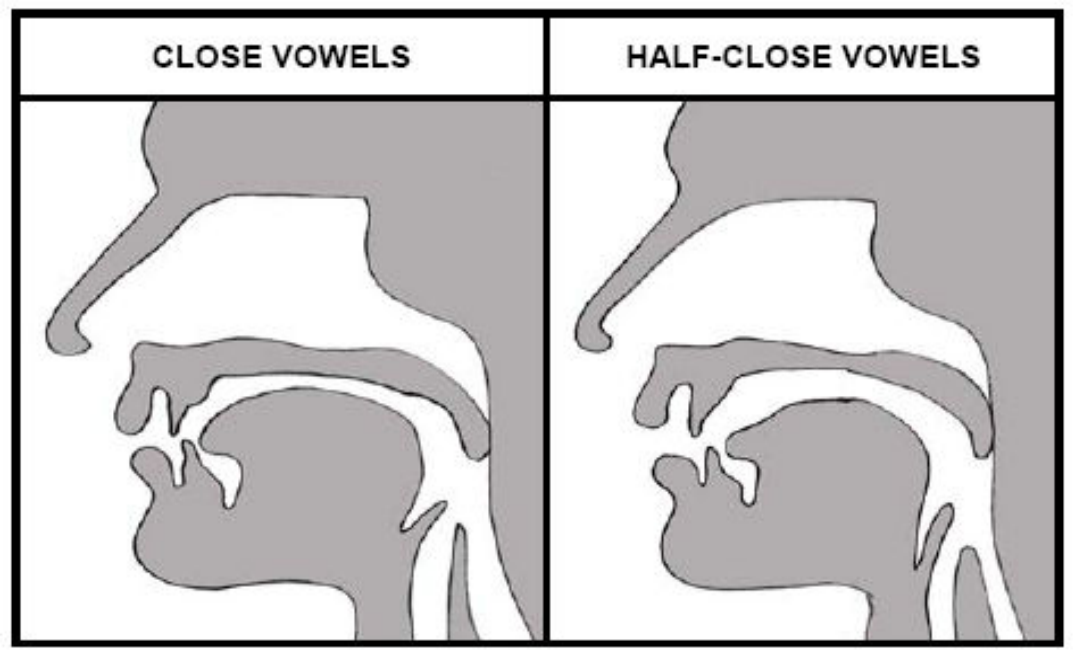
Front vowels vs back vowels



The size of the oral cavity is the last factor considered in the articulatory classification of a vowel.

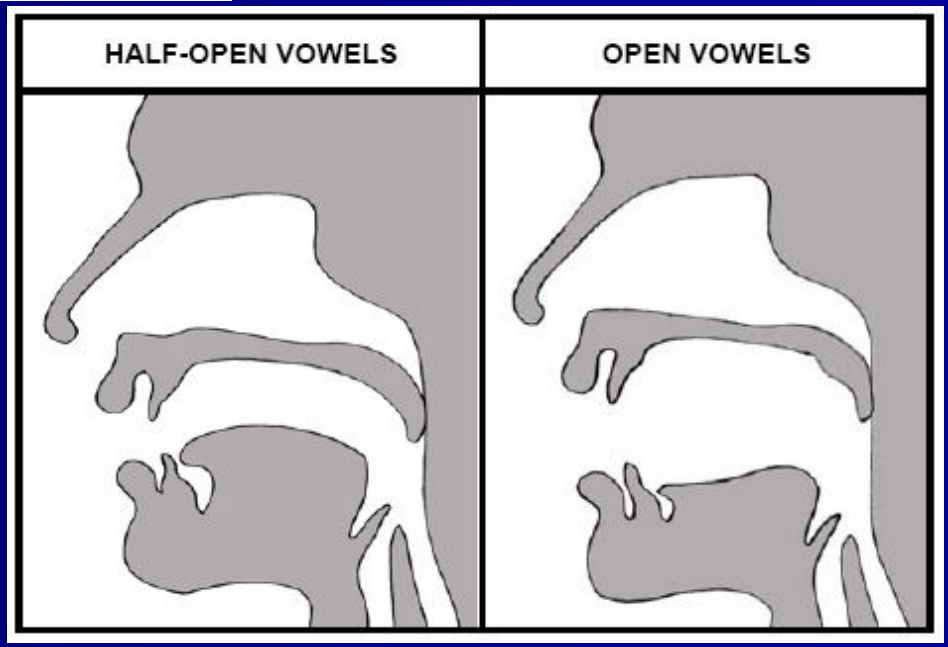
The size of the oral cavity depends directly upon the degree of aperture (of the mouth), that is, upon the distance between the palate and the tongue's highest point.

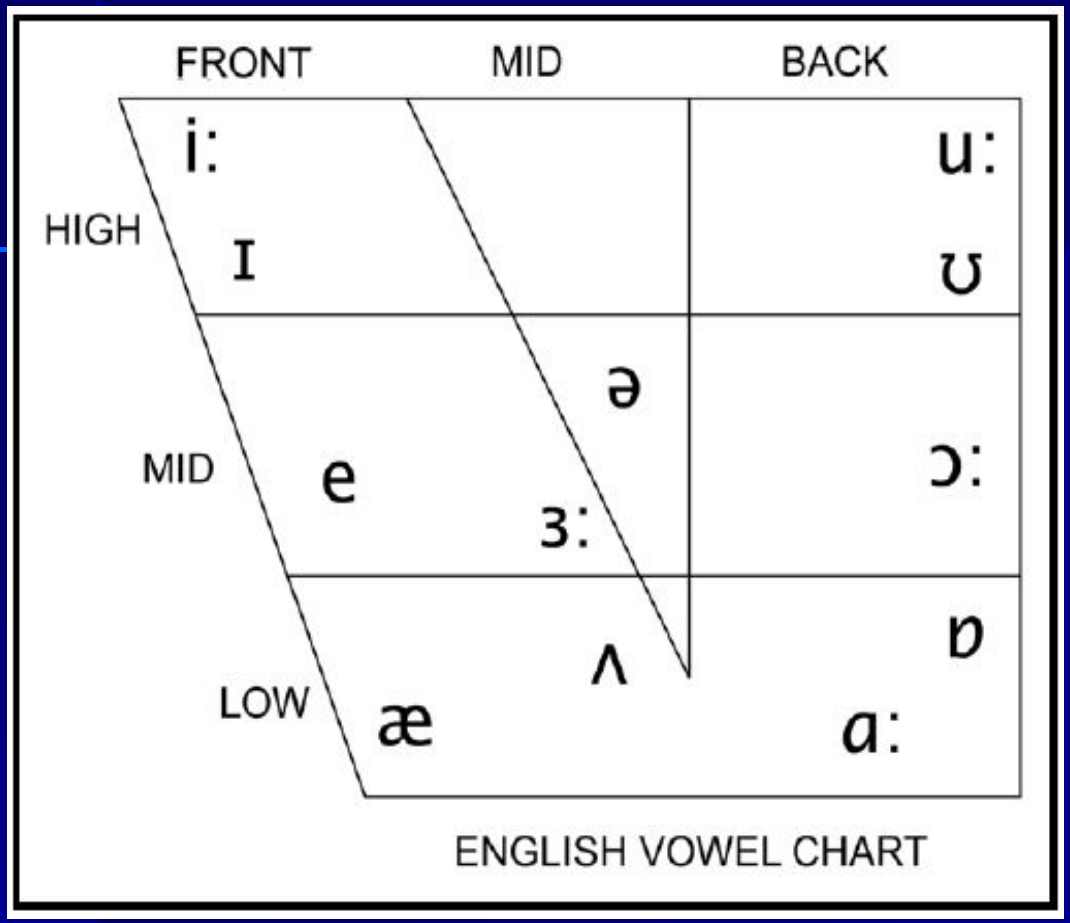
Arbitrarily, four degrees of aperture are distinguished, from the most closed (first degree) to the most open (fourth degree).



Vowels differ from consonants in that there is no noticeable obstruction in the vocal tract during their production. Air escapes in a relatively unimpeded way through the mouth and/or nose.

If you try saying aaaaa, iiiii, uuuuu, eeeeee, oooooo to yourself you should be able to feel that, although your tongue moves about your mouth, it never actually obstructs the airflow.





The relative position of the tongue in the mouth is the most crucial criterion that determines the differences between vowels.

The changes of the tongue position can be very slight and difficult to detect.

Therefore, phoneticians produced what they called the vowel chart to describe these tongue positions.

You should also be able to feel that the position of the tongue changes for each of those vowels.

Typology of Vowels

There are two major types of vowels on the basis of their length: ***long vowels***, and ***short vowels***.

Long vowels are usually distinguished from short vowels in that the duration of time that speakers spend in articulating them is somewhat longer than the time spent for the articulation of short vowels.

This characteristic of long vowels is known as length and is schematically represented by putting a colon (:) after the phoneme which represents the vowel in question.

English Long Vowels

/i:/	as in	sheep	/ʃi:p/
/ɜ:/	as in	fur	/fɜ:/
/ɔ:/	as in	four	/fɔ:/
/ɑ:/	as in	car	/kɑ:/
/u:/	as in	boot	/bu:t/

English Short Vowels

/ɪ/	as in	hit	/hɪt/
/e/	as in	hen	/hen/
/æ/	as in	hat	/hæt/
/ə/	as in	ago	/ə'gəʊ/
/ʊ/	as in	book	/bʊk/
/ʌ/	as in	bus	/bʌs/
/ɒ/	as in	hot	/hɒt/

English Diphthongs

- /ʊə/ as in poor /pʊə/
- /ɔɪ/ as in boy /bɔɪ/
- /ɪə/ as in here /hɪə/
- /əʊ/ as in know /nəʊ/
- /eɪ/ as in day /deɪ/
- /aʊ/ as in cow /kaʊ/
- /aɪ/ or /ʌɪ/ as in my /maɪ/ or /mʌɪ/
- /eə/ or /ɛə/ as in hair /heə/ or /hɛə/

ʊə
ɪə
eə

ɔɪ
əʊ
aɪ aʊ
eɪ

English Triphthongs

- /aʊə/ as in power /paʊə/
- /aɪə/ as in liar /laɪə/
- /eɪə/ as in layer /leɪə/
- /ɔɪə/ as in loyal /lɔɪəl/
- /əʊə/ as in mower /məʊə/

In traditional phonetics, vowels were named on the basis of such criteria as the relative position of the tongue in the mouth, lip rounding, and length.

VOWEL	NAME	VOWEL	NAME
/iː/	High front vowel	/ʌ/	Low mid vowel
/ɪ/	High-mid front vowel	/uː/	High back vowel
/e/	Mid front vowel	/ʊ/	High-mid back vowel
/æ/	Low front vowel	/ɔː/	Mid back vowel
/ə/	Mid mid vowel	/ɒ/	Mid-low back vowel
/ɜː/	Mid-low mid vowel	/ɑː/	Low back vowel