

Phonetics & Phonology

Instructor: Nguyen Minh Thien, PhD.

Class regulations

- You are expected to attend all classes.
- Attendance will be checked regularly.
- Being 10 minutes late accounts for one period absence.
- You are permitted no more than 2 class sections during the term.
- You are expected to participate actively in class activities & complete all your homework.
- Cell phones will be turned off or switched to vibrate mode during class time.

Testing & Assessment

Items	Ratio	Note
Participation	5 %	8/10 class sections
Regular tests	15%	Exercise & Assignment
Mid- term test	20%	Written test
Final test	60%	Written test
Total	100 %	

Textbooks

Required textbooks:

- [1] Lê, T.H. & Trần T.P.T. (2020). *Phonetics and Phonology*. Dong Nai Technology University
- [2] Trần, T.P.T. & Lê, T.H. (2020). *Phonetics and Phonology*. Dong Nai Technology University

Recommended textbooks:

- ✓ Peter Roach, 2000. *English Phonetics and Phonology* . Cambridge University Press.
- ✓ Fromkin, V., Rodman, R. and Hyams, N., 2011. *An Introduction to Language*. Wadsworth Cengage Learning

Contents of the course

- **Part 1: Phonetics**
 - *Articulators above the larynx*
 - *Vowels*
 - Vowel description
 - *Consonants*
 - Consonants description
 - + *Voicing*
 - + *Places of articulation*
 - + *Manner of articulation*

Contents of the course

- **Part 2: Phonology**
 - ***Segmental phonology***
 - + Phonemes
 - + Allophones
 - + Phonological rules
 - ***Supra-segmental phonology***
 - + Syllables
 - + Stress
 - + weak forms
 - + Aspects of connected speech
 - + Intonation

Phonetics vs. Phonology

- **Phonetics** is concerned with the physical aspects of speech sounds.
- **Phonology** is concerned with the functional properties (natures) of speech sounds.

Accent vs. Dialects

- Languages have different **accents**: they are pronounced differently by people from different geographical places, from different social classes, of different ages and different educational backgrounds. Difference of accent are **pronunciation difference only**.
- The word *dialect* refers to a variety of a language which is different from others *not just in pronunciation* but also in such matters as *vocabulary, grammar and word order*.

RP vs. GA

- **RP** (or BE – British English) stands for "**Received Pronunciation**", the traditional name for the standard British English accent.
- **GA** (or AE – American English) stands for "**General American**" as the accent spoken by "the majority of Americans".

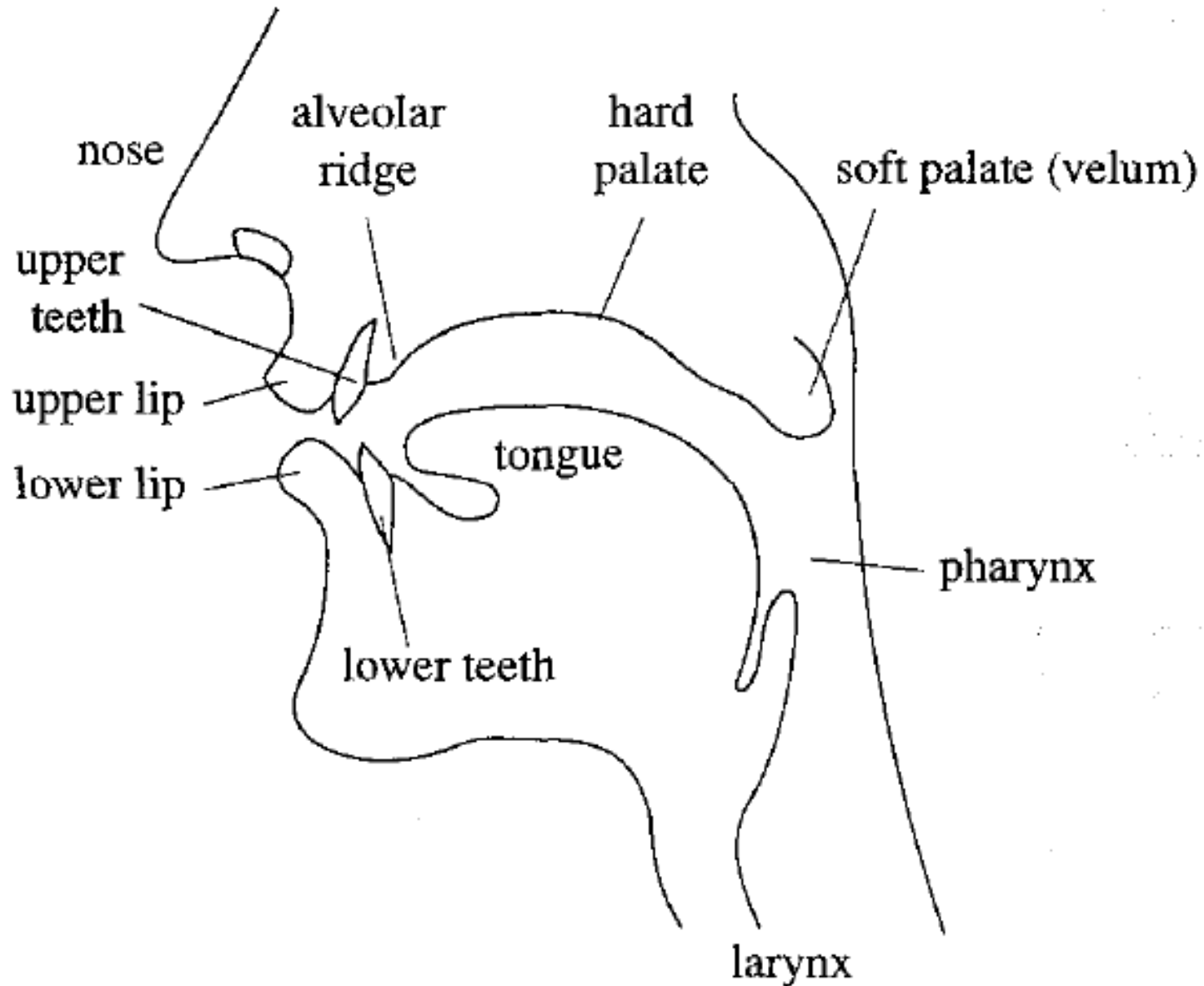
The phonetic alphabet - IPA

A a æ ɐ ǣ	B β ɓ ɔ	C ɕ ɟ	D ɖ ɗ ɬ ɮ	E ə ɘ ɵ ɤ
3 ɛ ɜ ɞ ẽ ɷ	G ɡ ɔ ɠ	H ɥ ɦ ɧ ɨ ɰ	I ɪ ĩ ɨ	J ɟ ʝ ʃ
L ɭ ɮ ɹ ɺ ɻ	M ɱ	N ɳ ɲ ɳ ɴ	O ɔ œ ø ɖ ɔ̃ ɶ	P ɸ
R ɾ ʀ ɹ ɻ ʁ ɺ	S ʃ ɰ	T ʈ ʧ ʦ ʧ	U ʊ ʊ̃ ʉ	V ʌ ʊ ʋ
W ʌ ʍ ʎ	X ɣ	Y ʎ ʏ ʎ ʏ	Z ʒ ʐ ʑ ʒ	2 ʔ ʕ ʖ ʗ
Q ɿ ɿ	3 ɿ ɿ ɿ	F ɸ ɸ	→ ˈ ˌ ˍ ˎ ˏ ː ˑ ˒ ˓ ˔ ˕ ˖ ˗ ˘ ˙ ˚ ˛ ˜ ˝ ˞ ˟ ˠ ˡ ˢ ˣ ˤ ˥ ˦ ˧ ˨ ˩ ˪ ˫ ˬ ˭ ˮ ˯ ˰ ˱ ˲ ˳ ˴ ˵ ˶ ˷ ˸ ˹ ˺ ˻ ˼ ˽ ˾ ˿ ˰ ˱ ˲ ˳ ˴ ˵ ˶ ˷ ˸ ˹ ˺ ˻ ˼ ˽ ˾ ˿	

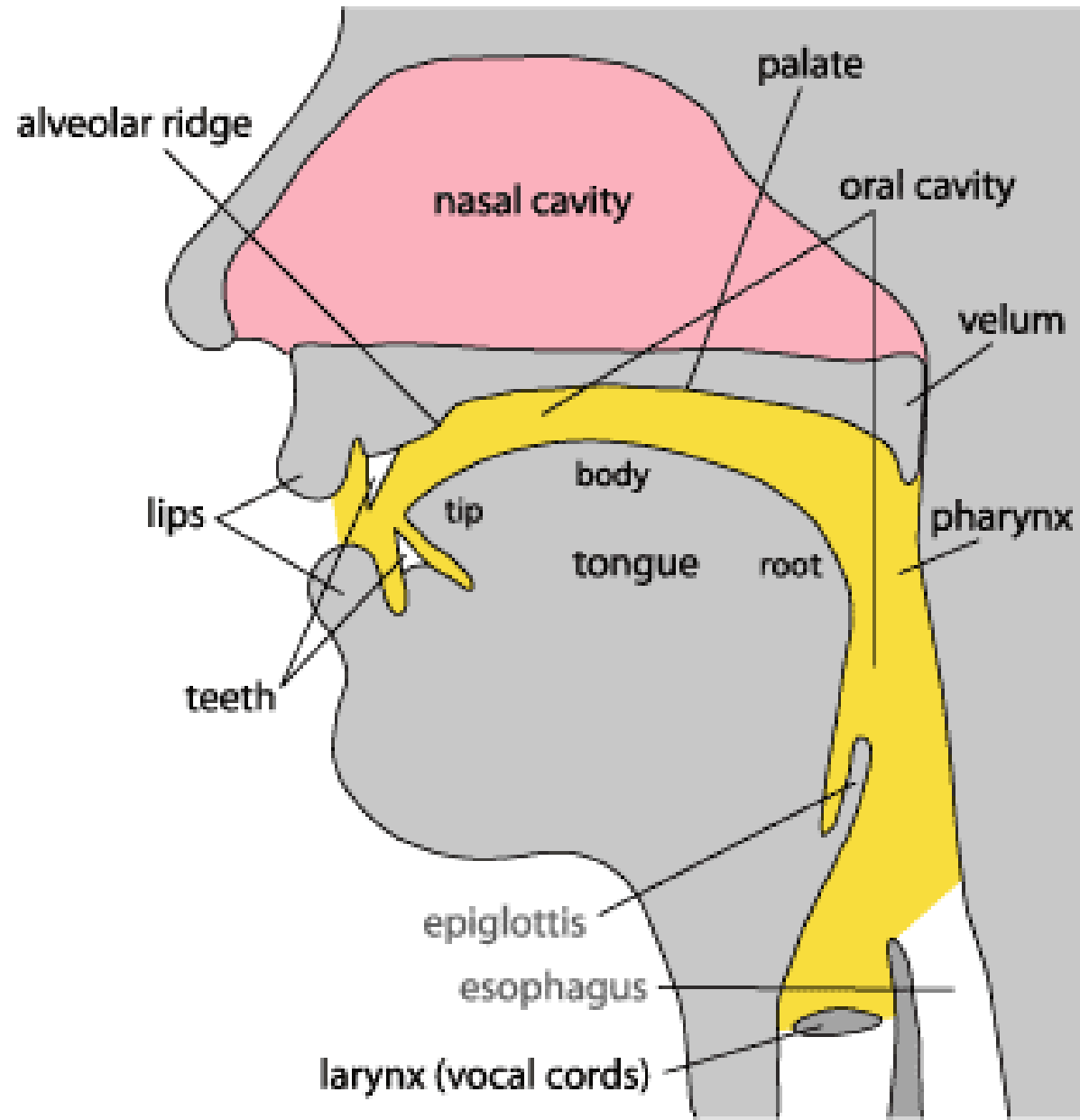
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Part 1 – PHONETICS

Articulators above the larynx

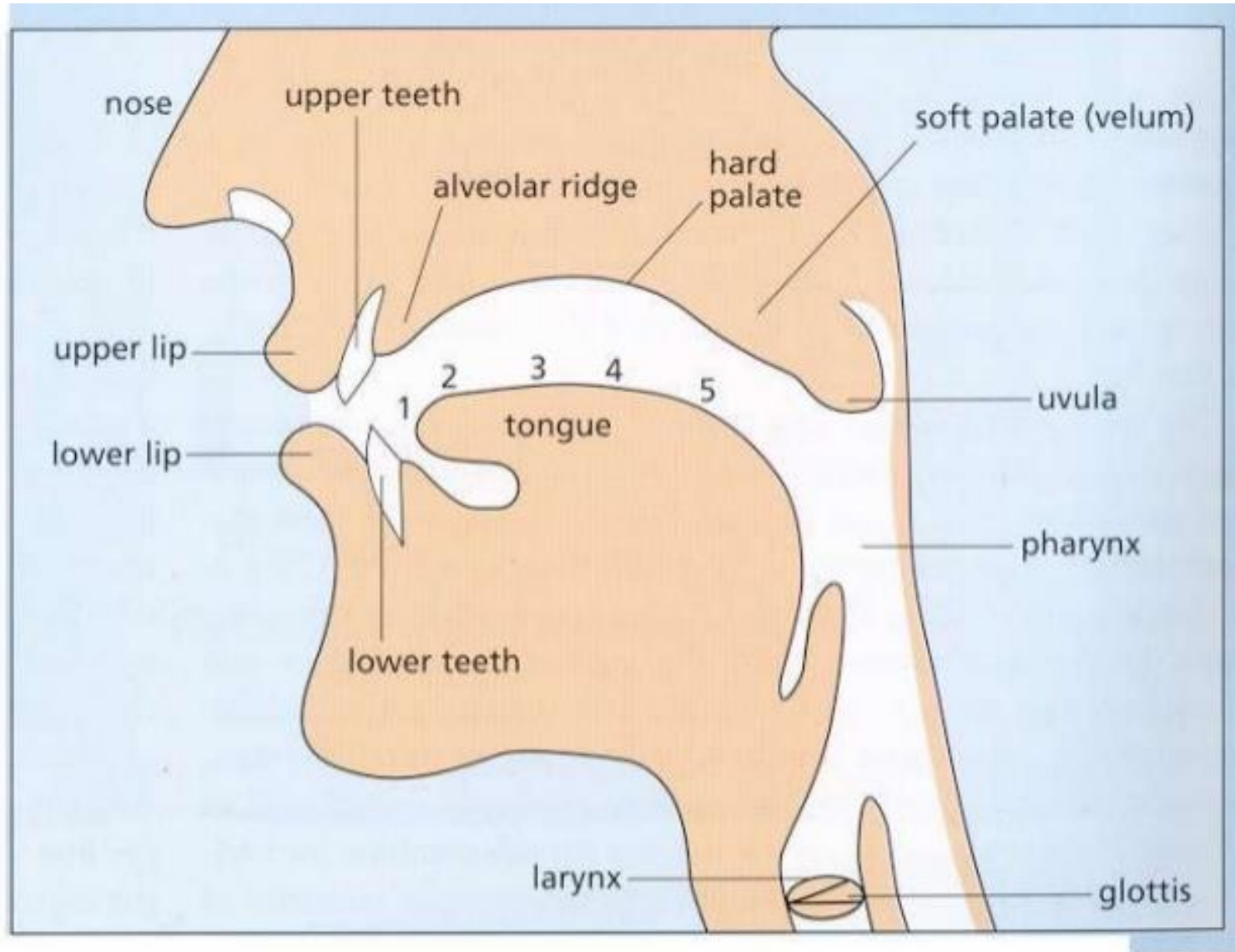


PRINCIPAL ORGANS OF ARTICULATION



**Articulators above
the Larynx**

PRINCIPAL ORGANS OF ARTICULATION



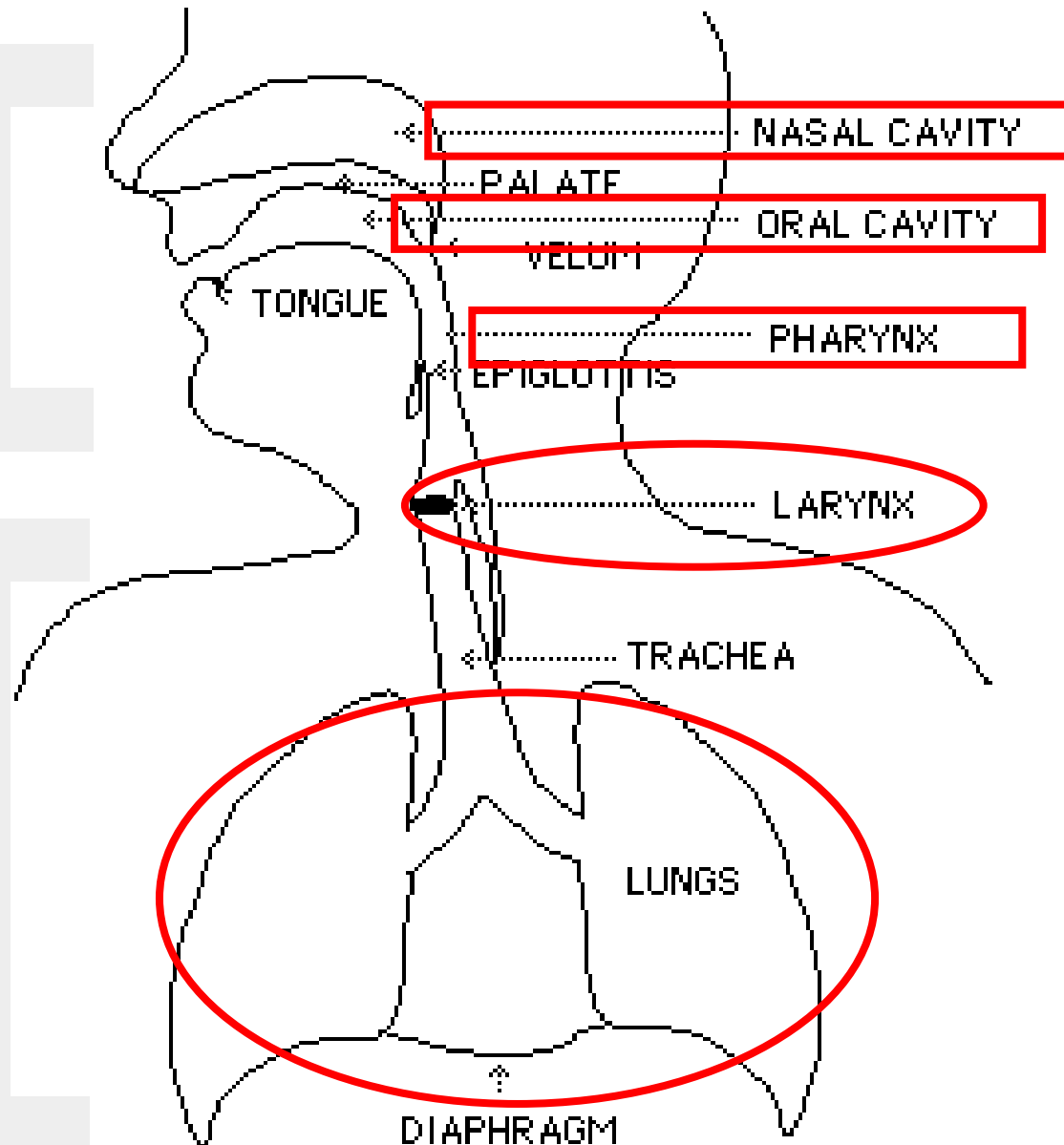
**The major parts of
the oral cavity**

PRINCIPAL ORGANS OF ARTICULATION

SUPRA-
LARYNGEAL
VOCAL TRACT

SUBGLOTTAL
SYSTEM

The vocal tract



The vocal tract

Most speech sounds are produced by pushing **lung** air through the **vocal cords/larynx** up the throat, and into the **mouth** or **nose**, and finally **out of** the body.

The opening between the **vocal cords** is the **glottis** and is located in the voice box or **larynx**. The tubular part of the throat above the larynx is the **pharynx**. What sensible people call “the mouth,” linguists call the **oral cavity** to distinguish it from the **nasal cavity**, which is the nose and the plumbing that connects it to the throat, plus your sinuses. Finally there are the **tongue** and the **lips**, both of which are capable of rapid movement and shape changing. **All of these together comprise the vocal tract.**

(Fromkin, 2011)

Changes in the shape of the vocal tract cause differences in speech sounds.

Vowels & Consonants

- In speaking of the **alphabet**, we may call “a” a vowel and “c” a consonant, but that means only that we use the letter “a” to represent vowel sounds and the letter “c” to represent consonant sounds.
- In **phonetics**, the terms **consonant** and **vowel** refer to types of **sounds**, not to the letters that represent them.

Vowels & Consonants

- **Vowels = vowel sounds** are produced with little restriction of the airflow from the lungs out the mouth and/or the nose.
- **Consonants** are produced with some restriction or closure in the vocal tract that impedes the flow of air from the lungs.

Vowels & Consonants

VOWELS	monophthongs				diphthongs			
	1 i: sheep	2 ɪ ship	3 ʊ good	4 u: shoot	5 ɪə here	6 eɪ wait		
	7 e bed	8 ə teacher	9 ɜ: bird	10 ɔ: door	11 ʊə tourist	12 ɔɪ boy	13 əʊ show	
	14 æ cat	15 ʌ up	16 ɑ: far	17 ɒ on	18 eə hair	19 aɪ my	20 aʊ cow	
CONSONANTS	21 p pea	22 b boat	23 t tea	24 d dog	25 tʃ cheese	26 dʒ June	27 k car	28 g go
	29 f fly	30 v video	31 θ think	32 ð this	33 s see	34 z zoo	35 ʃ shall	36 ʒ television
	37 m man	38 n now	39 ŋ sing	40 h hat	41 l love	42 r red	43 w wet	44 j yes

20 vowel sounds
24 consonant sounds

Vowels

- A vowel is a sound formed where air coming from the lungs is not blocked by the mouth or throat.
- In other words, a vowel is a sound created by the relatively free passage of breath through the larynx and oral cavity, usually forming the most prominent and central sound of a syllabus.

English vowels

- **Pure vowels**

- + Short vowels

- + Long vowels

- **Diphthongs**

- **Triphthongs**

English pure vowel sounds

i: she <u>ep</u>	ɪ sh <u>i</u> p	ʊ g <u>oo</u> d	u: sh <u>oo</u> t
e b <u>e</u> d	ə teach <u>e</u> r	ɜ: b <u>ir</u> d	ɔ: d <u>oo</u> r
æ c <u>a</u> t	ʌ u <u>p</u>	ɑ: f <u>a</u> r	ɒ o <u>n</u>

Vowel classification

The quality of a vowel depends on the shape of the vocal tract as the air passes through:

- *Different parts of the tongue may be high or low in the mouth.*
- *The tongue may be forward or backward in the mouth.*
- *The lips may be spread or pursed.*
- *The articulators may be tense or lax.*

The classification of vowels is based on 4 major aspects:

- *Tongue height: **close, open, mid** (beat – bit – but)*
- *Tongue shape: **front, back, central** (beat – boot – bat)*
- *Lip rounding: **round, spread, neutral** (boot – beat – birth)*
- *Tenseness/laxness: **tense, lax** (beat – bit)*

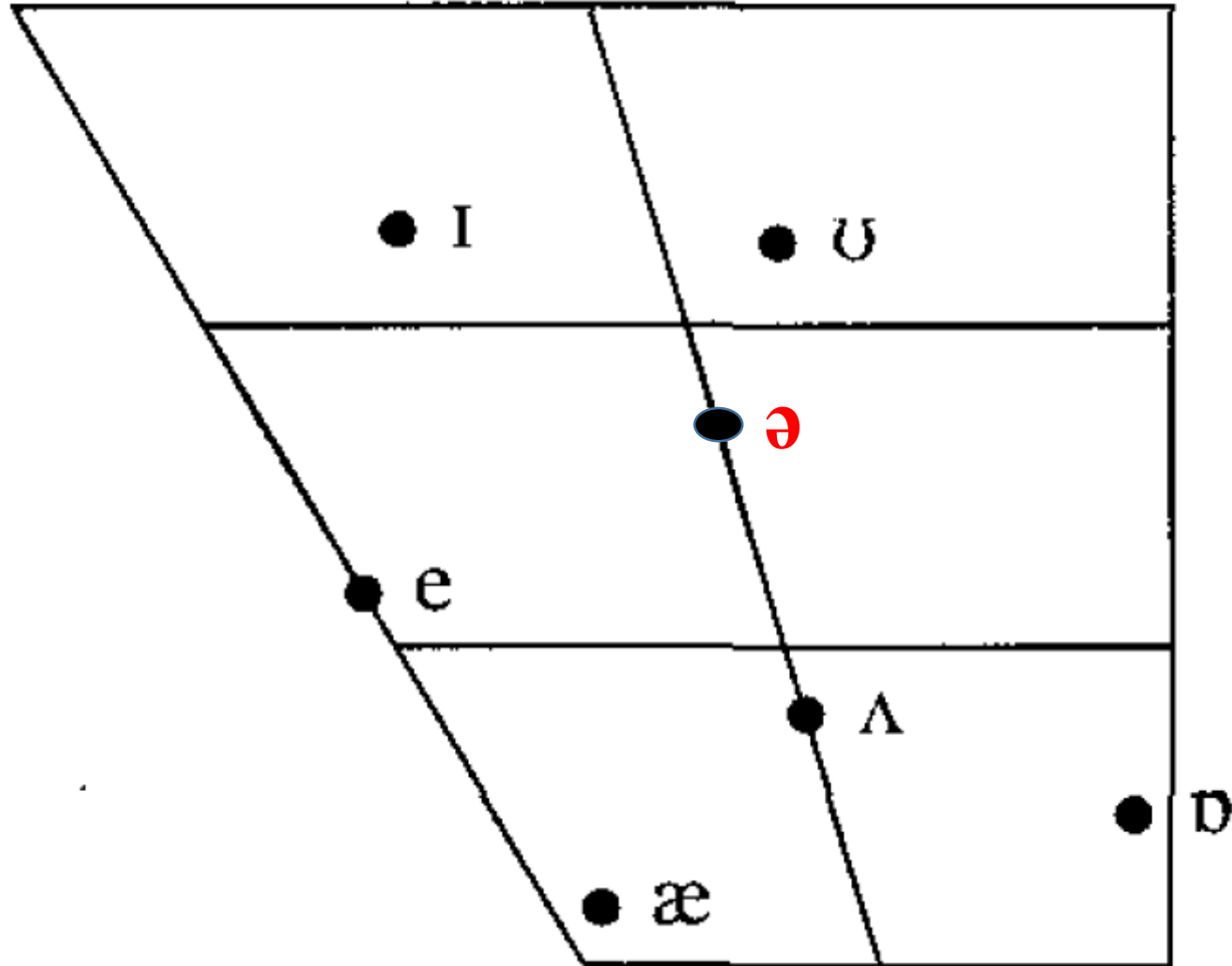
Pure vowels

- Short vowels: /ɪ/, /ʊ/, /e/, /ʌ/, /ɒ/, /æ/, /ə/
- Long vowels: /i:/, /u:/, /ɑ:/, /ɜ:/, /ɔ:/

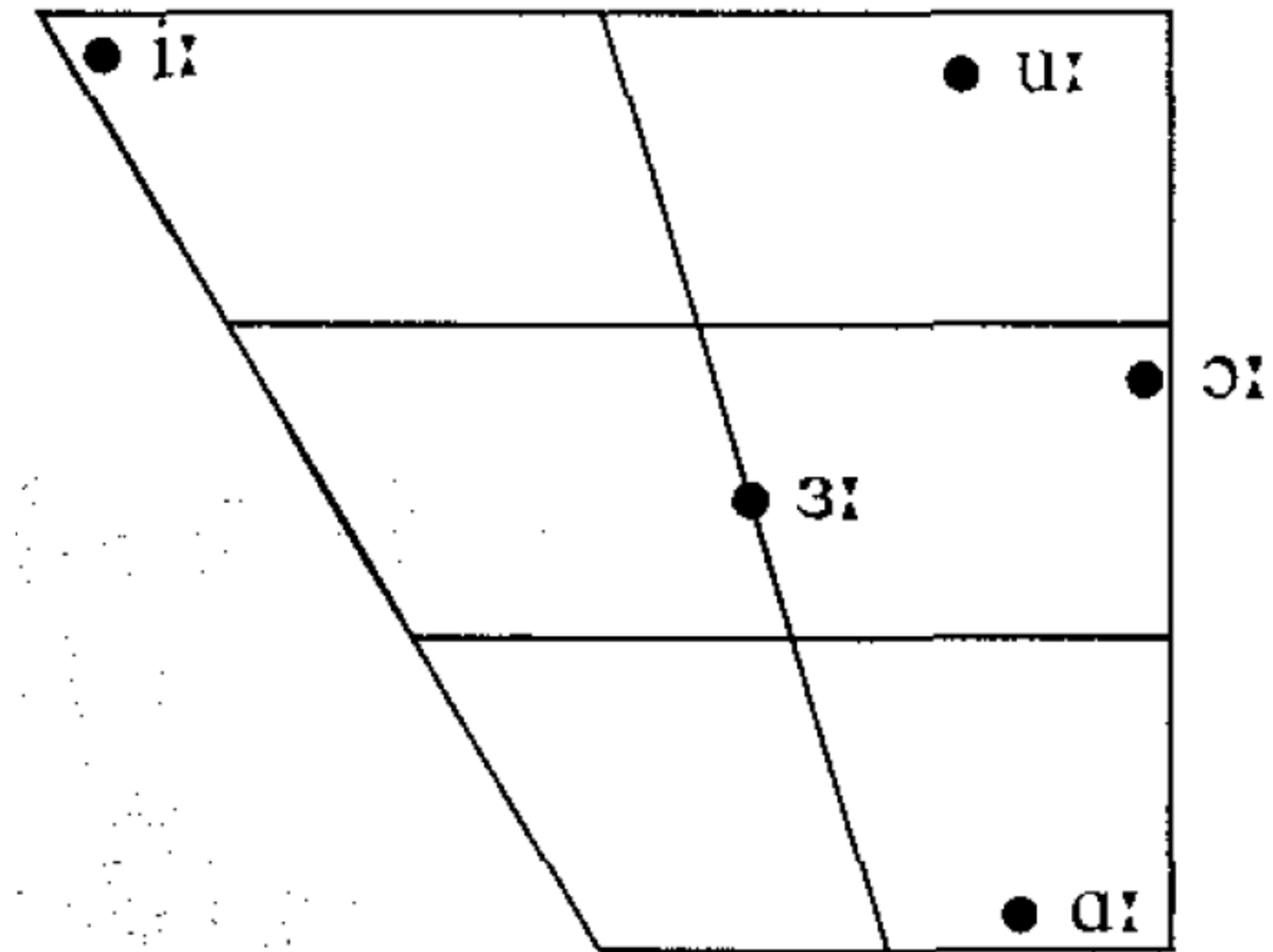
English short vowels



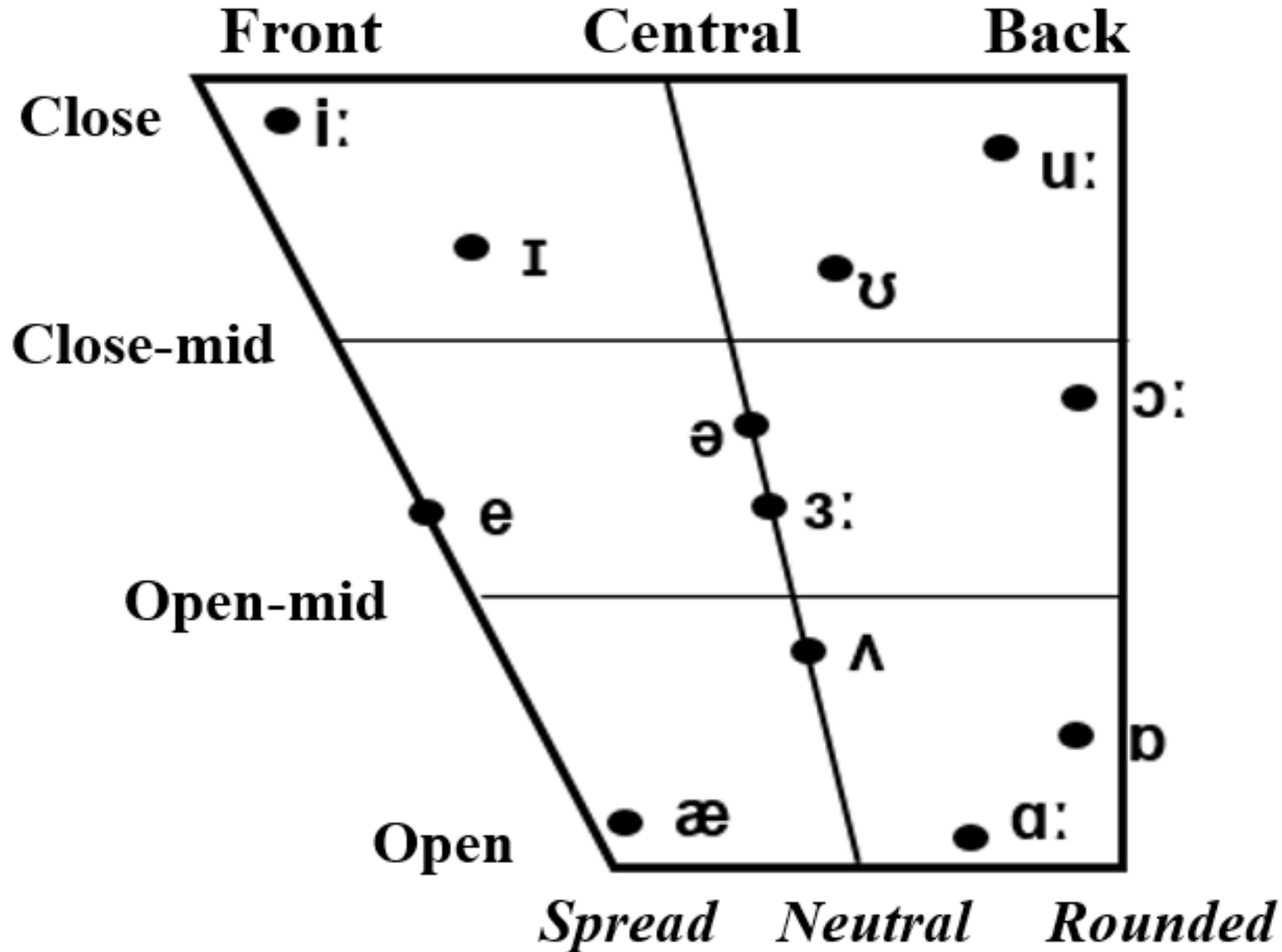
English short vowels



English long vowels



English vowel chart



Example

- /ɪ/: - short,
 - close,
 - front,
 - spread,
 - lax **vowel**.
- /ɜ:/: - long,
 - half-open (bit lower than mid),
 - central,
 - neutral,
 - tense **vowel**

Diphthongs

- Diphthongs are sounds articulated with a glide from one vowel to another.
- 8 diphthongs:
 - Centring diphthongs gliding towards the /ə/ vowel (schwa):
/ɪə/, /eə/, /ʊə/
 - Closing (high) diphthongs gliding towards the /ɪ/ and /ʊ/ vowels: /eɪ/, /aɪ/, /ɔɪ/, /əʊ/, /aʊ/
- The first part of all the diphthong is much longer and stronger than the second part.

Diphthongs

DIPHTHONGS

CENTRING

Ending in ə

ɪə

eə

ʊə

CLOSING

Ending with ɪ

eɪ

aɪ

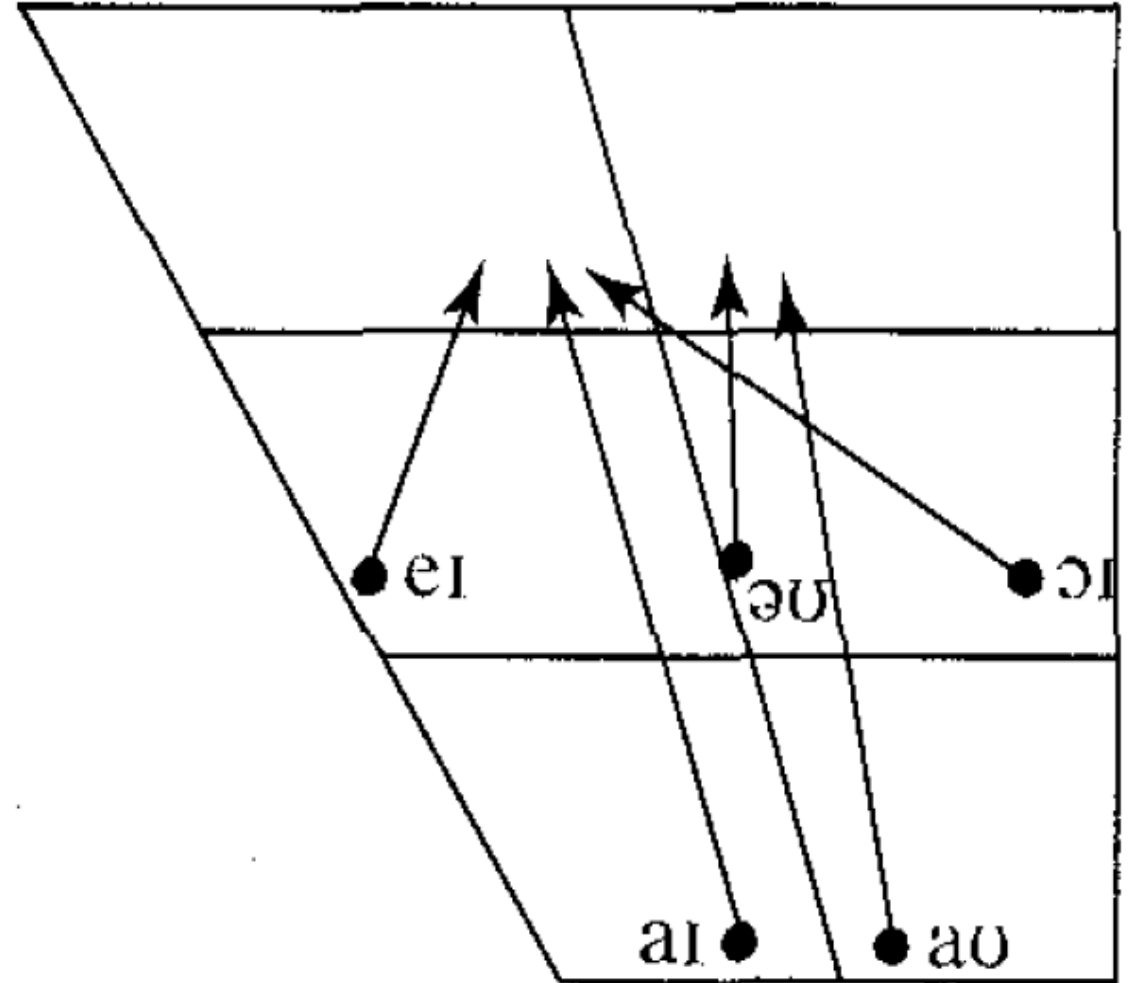
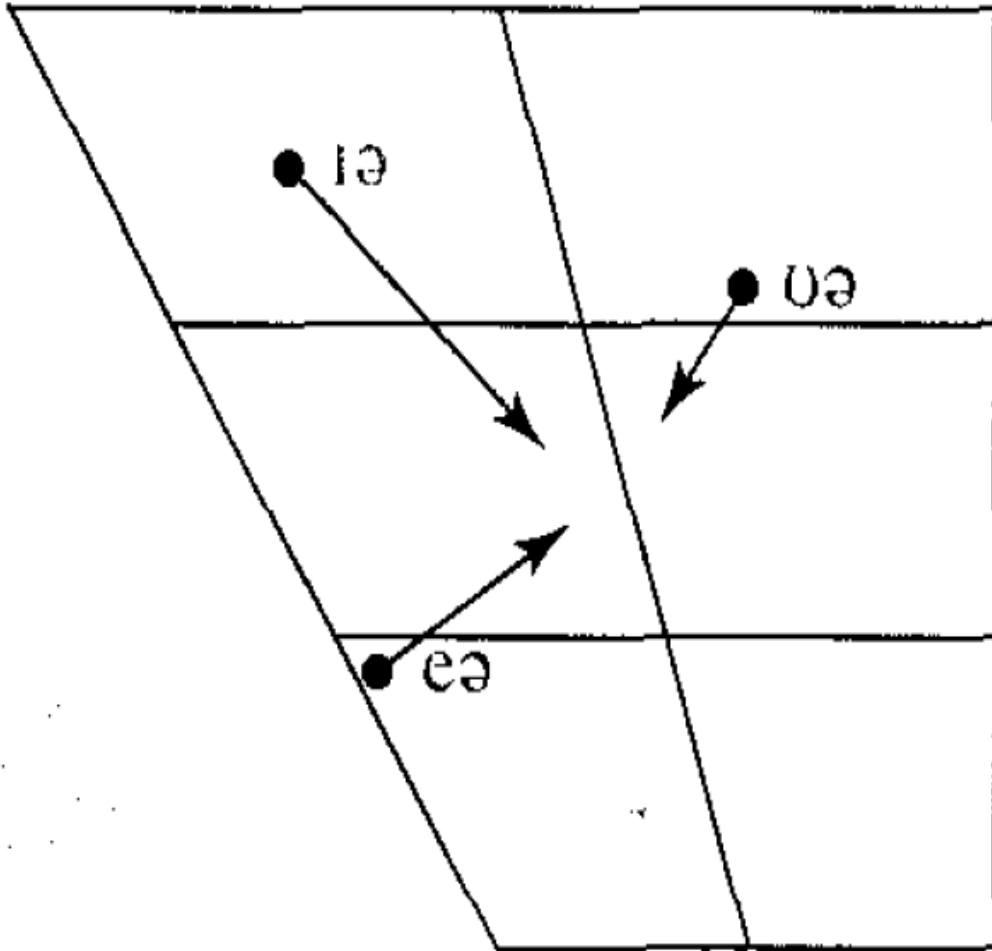
ɔɪ

Ending with ʊ

əʊ

aʊ

Diphthongs



Example

- ɪə : beard, weird, fierce, ear, beer, tear
- eə: aired, cairn, scarce, bear, hair,
- uə: moored, tour, lure, sure, pure
- eɪ : paid, pain, face, shade, age, wait, taste, paper
- aɪ: tide, time, nice, buy, bike, pie, eye, kite, fine
- ɔɪ: void, loin, voice, oil, boil, coin, toy, Roy
- əu: load, home, most, bone, phone, boat, bowl
- au: loud, gown, house, cow, bow, brow, grouse

Triphthongs

- A triphthong is a glide from one vowel to another then to a third, all produced rapidly without interruption.
- Triphthongs can be considered as being composed of five closing diphthongs with /ə/ vowel added on the end.

$$\checkmark \text{eI} + \text{ə} = \text{eIə}$$

$$\checkmark \text{aI} + \text{ə} = \text{aIə}$$

$$\checkmark \text{ɔI} + \text{ə} = \text{ɔIə}$$

$$\checkmark \text{əʊ} + \text{ə} = \text{əʊə}$$

$$\checkmark \text{aʊ} + \text{ə} = \text{aʊə}$$

Example

TRIPHTHONGS

aɪə (fire, tired, flyer)

aʊə (hour/our, power, tower)

eɪə (player, mayor)

əʊə (lower, widower)

ɔɪə (loyal, royal)

Consonants

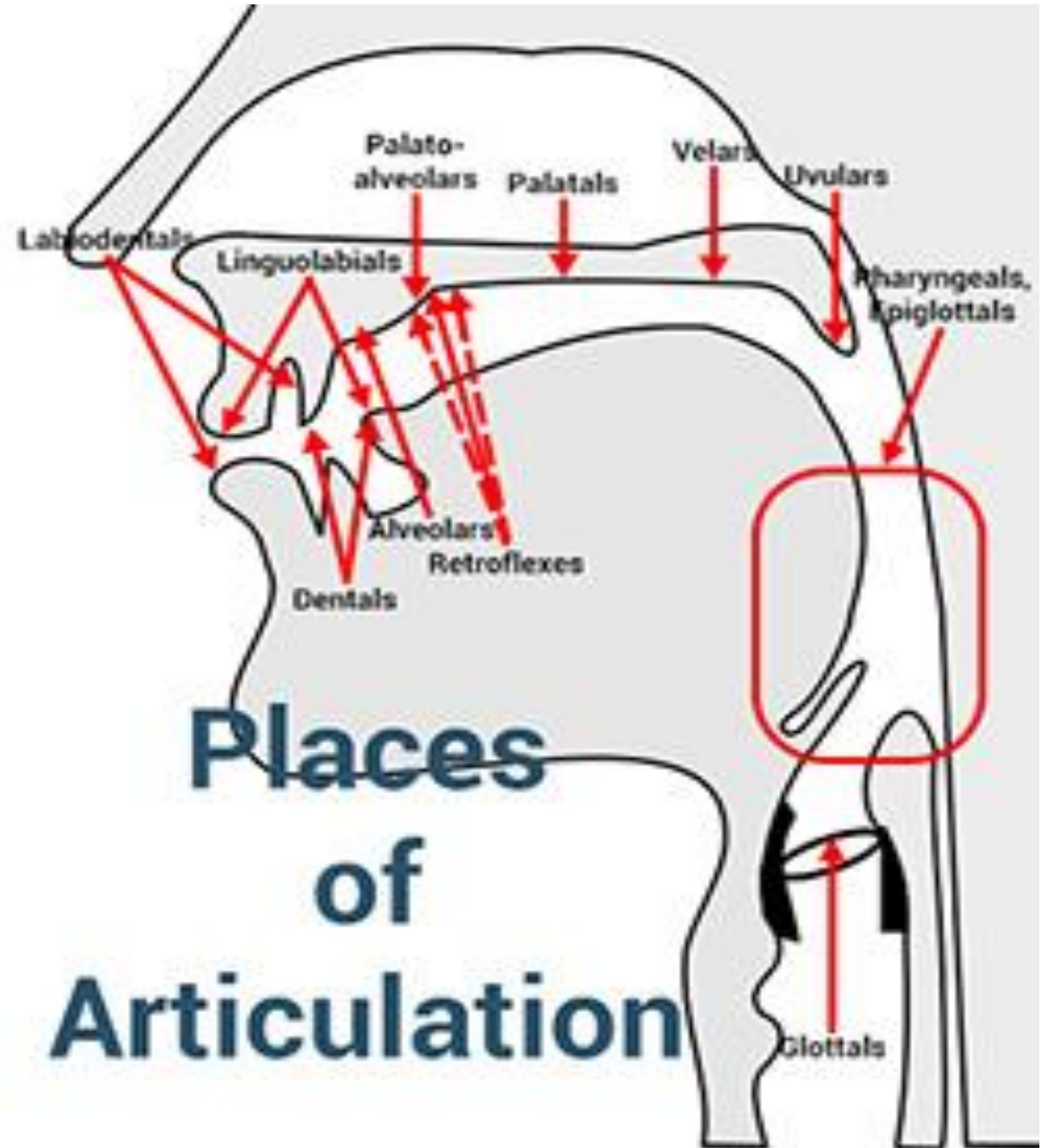
- A consonant is a sound formed by stopping the air flowing through the mouth.
- There are **24 consonants**.
- Consonants are classified according to 3 things:
 - **Voicing**
 - **Place of articulation**
 - **Manner of articulation**

Voicing

- Consonants can differ from each other in terms of voicing. Consonants may be grouped in pairs, both members of a voiceless/voiced (fortis/lenis) pair.
- Voiceless: **[p], [t], [k], [f], [θ], [s], [ʃ], [tʃ]**
- Voiced: **[b], [d], [g], [v], [ð], [z], [ʒ], [dʒ], [l], [m], [n], [ŋ], [w], [r], [j]**

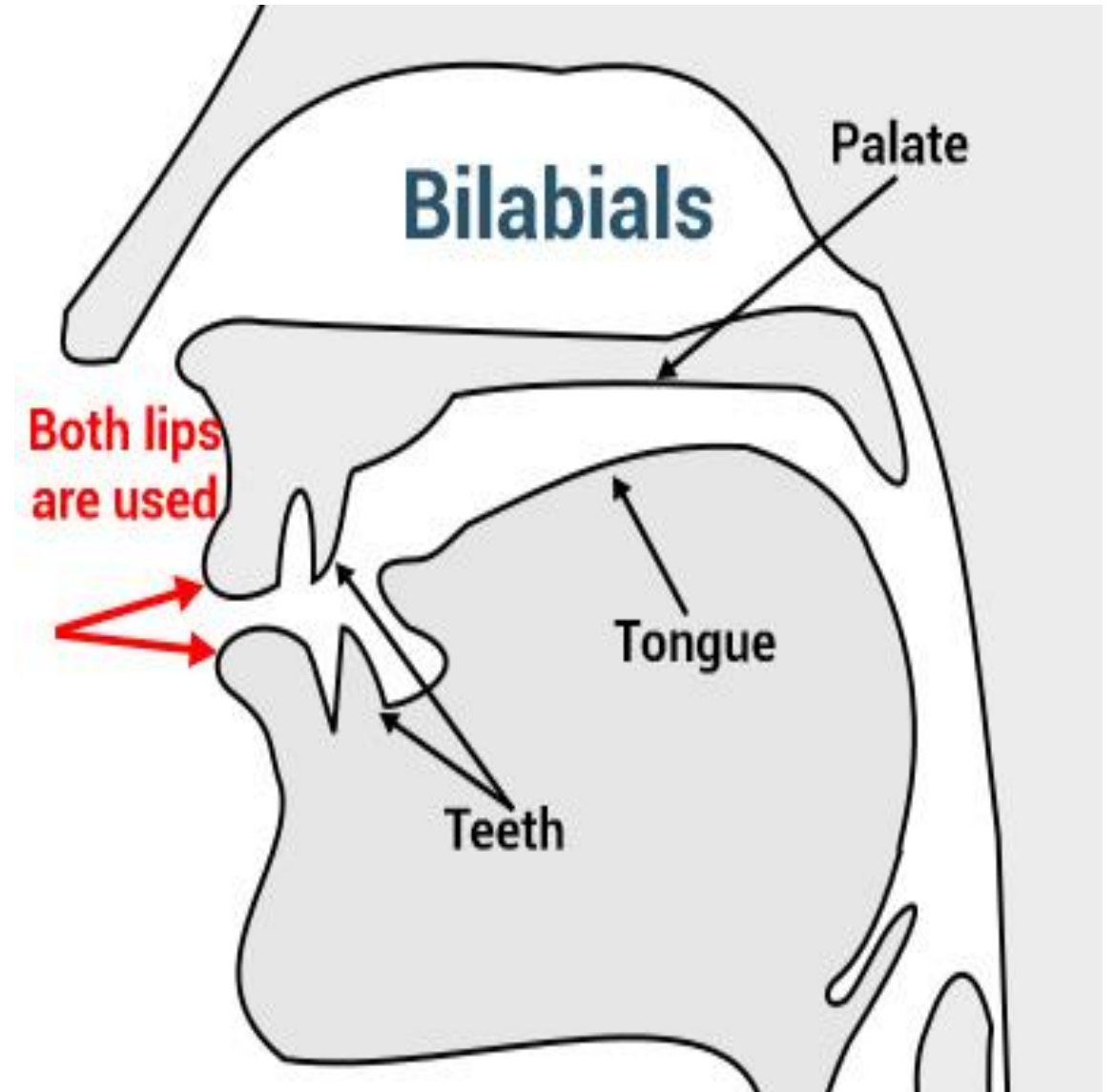
Place of articulation

- Where the articulation happens
- Movement of the tongue and lips creates the constriction, reshaping the oral cavity in various ways to produce the various sounds.



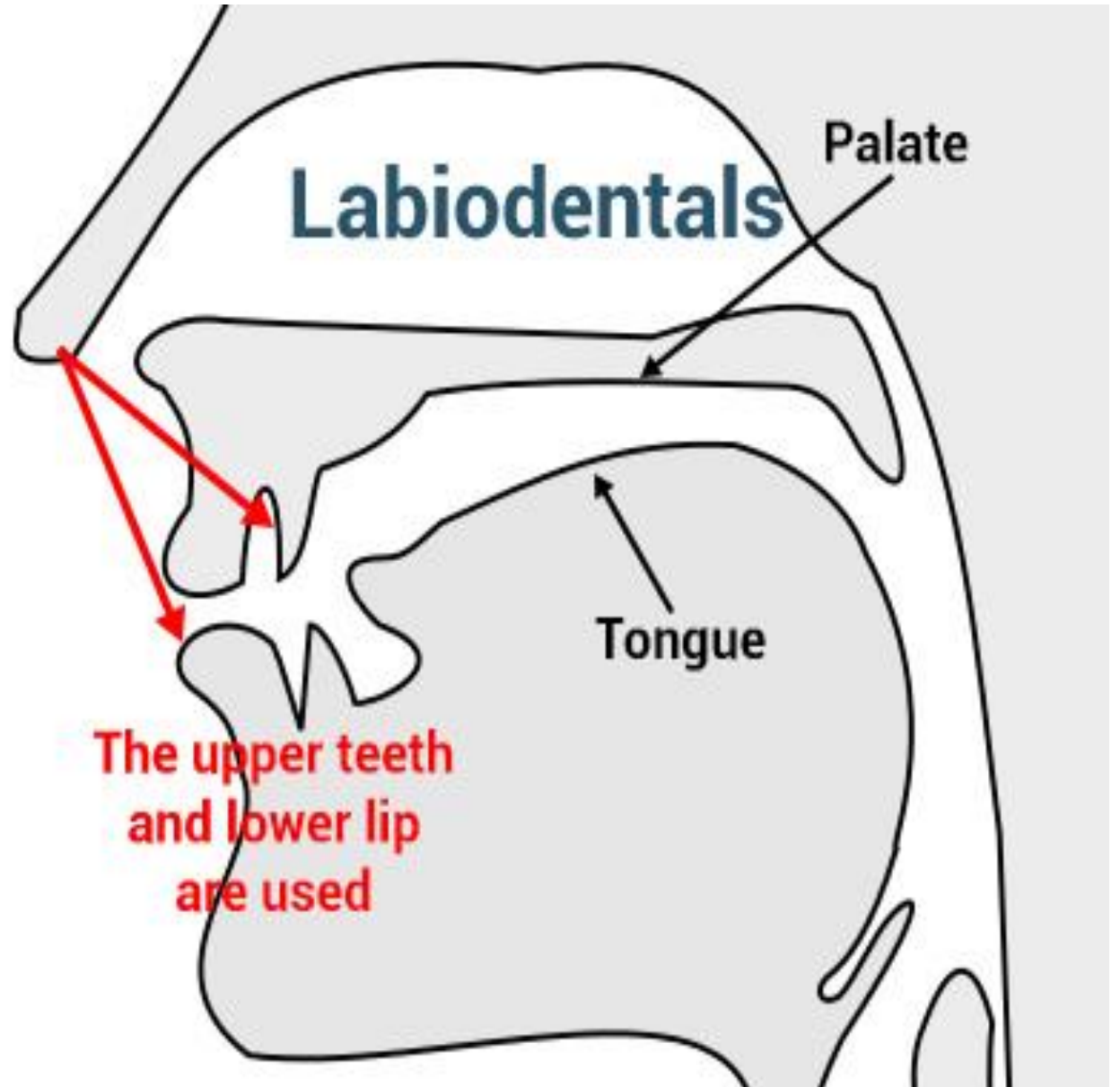
Places of articulation

- ✓ **Bilabials** are consonant sounds produced by using both lips together.
- ✓ Examples: **[b]**, **[p]**, **[m]**, **[w]**



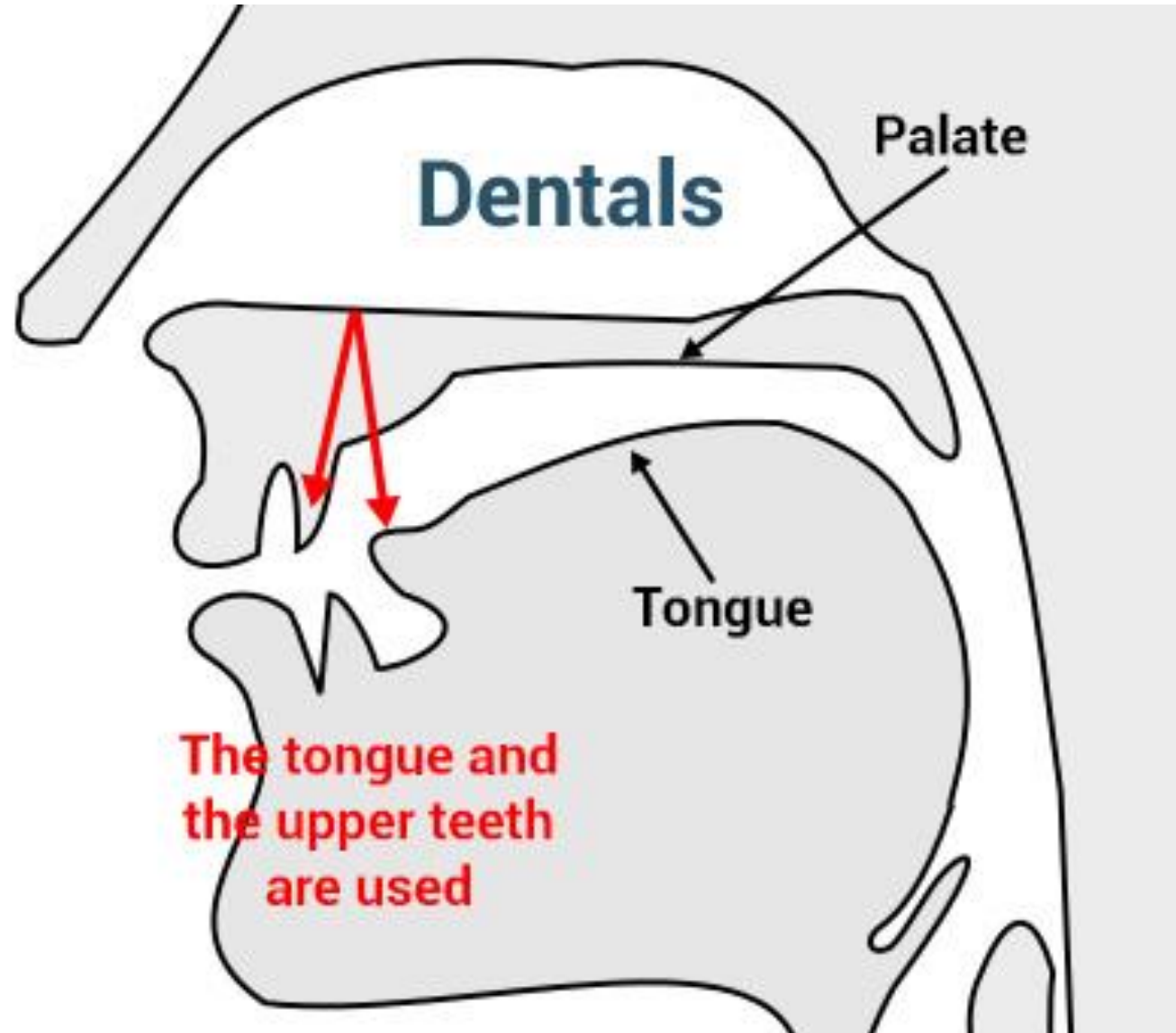
Places of articulation

- ✓ **Labiodentals** are articulated by using both the lower lip and the upper front teeth.
- ✓ Examples: [f], [v]



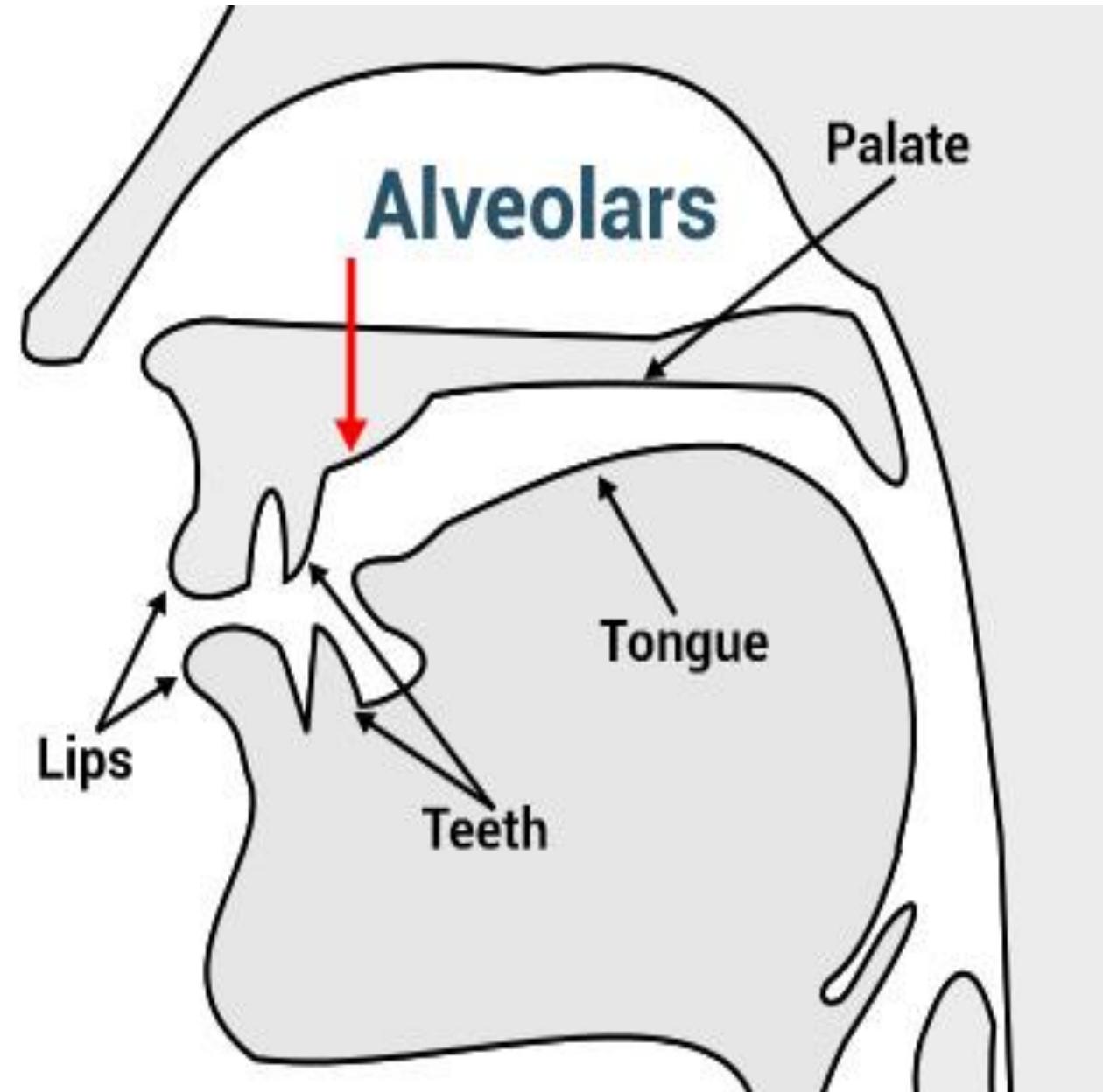
Places of articulation

- ✓ **Dental (Interdental)**
consonant sounds made by
the articulation of the
tongue between the teeth.
- ✓ Examples: [θ], [ð]



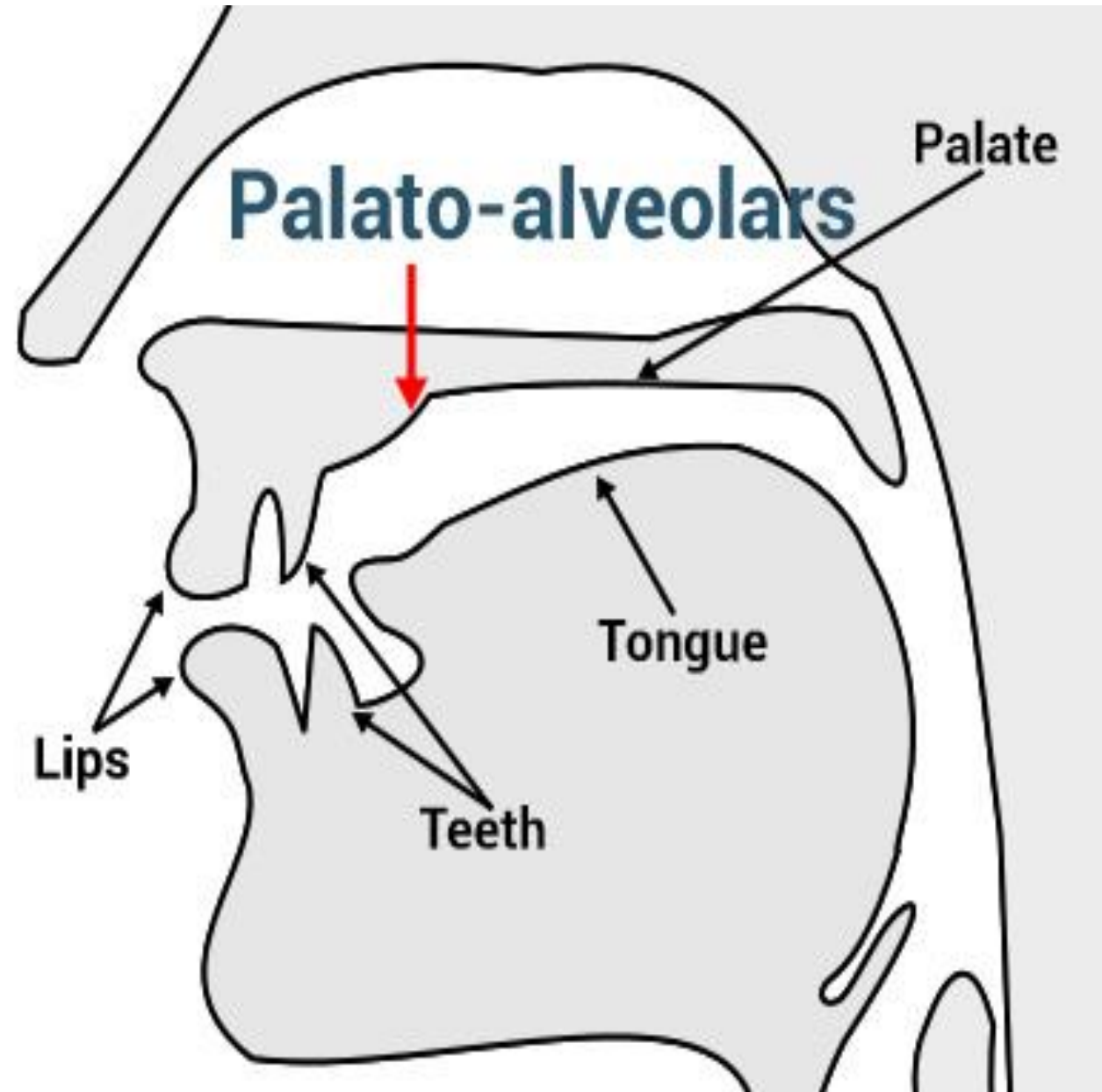
Places of articulation

- ✓ **Alveolar** consonant sounds made by the articulation of the tip of the tongue towards the alveolar ridge, which is the area lying between the upper front teeth and the palate.
- ✓ Examples: [t], [d], [s], [z], [n], [l]



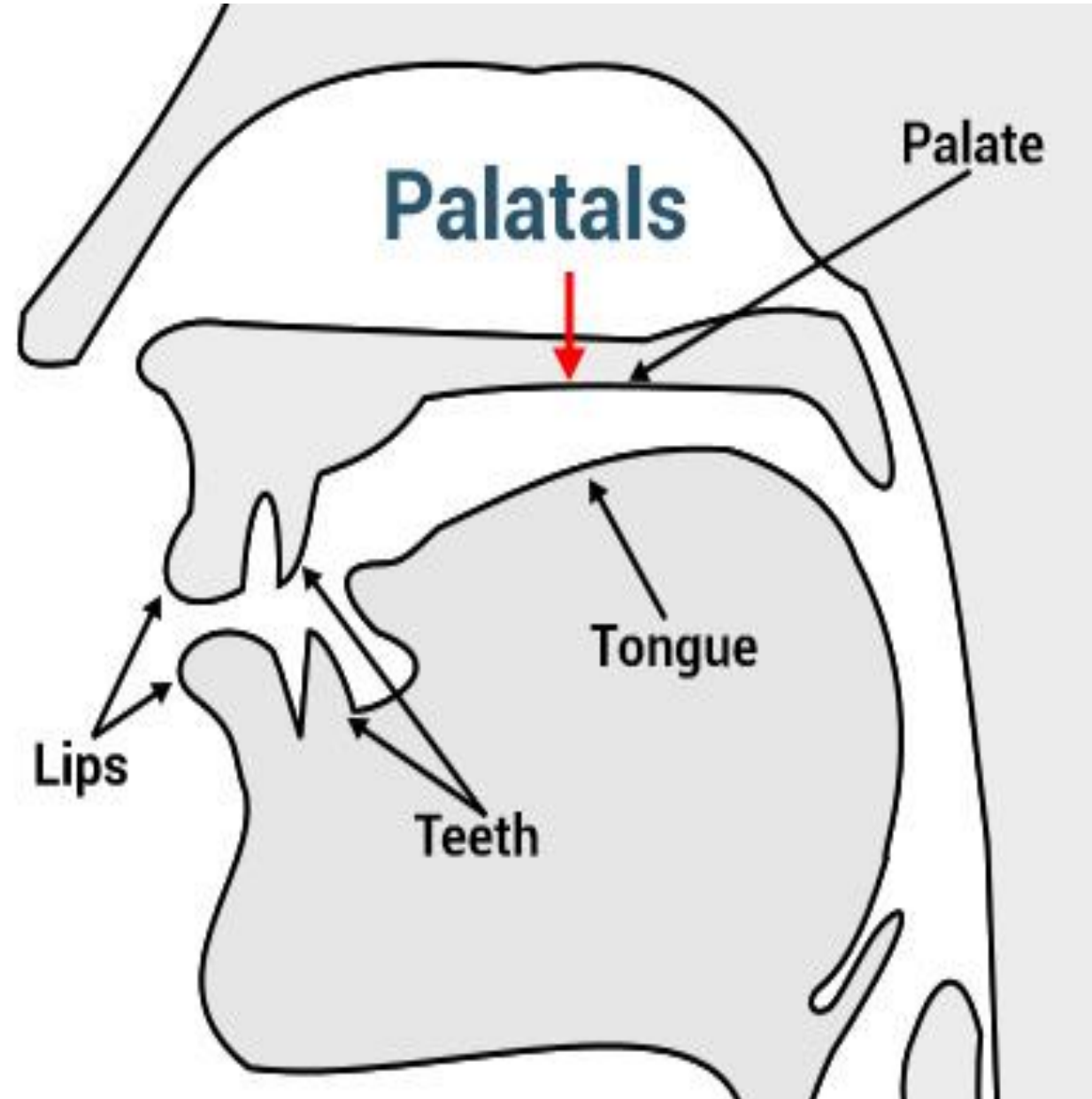
Places of articulation

- ✓ **Post-alveolar/Palatal-alveolar** sounds made by the articulation of the front of tongue towards the area between the alveolar ridge and hard palate.
- ✓ Examples: [ʃ], [ʒ], [tʃ], [dʒ], [r]



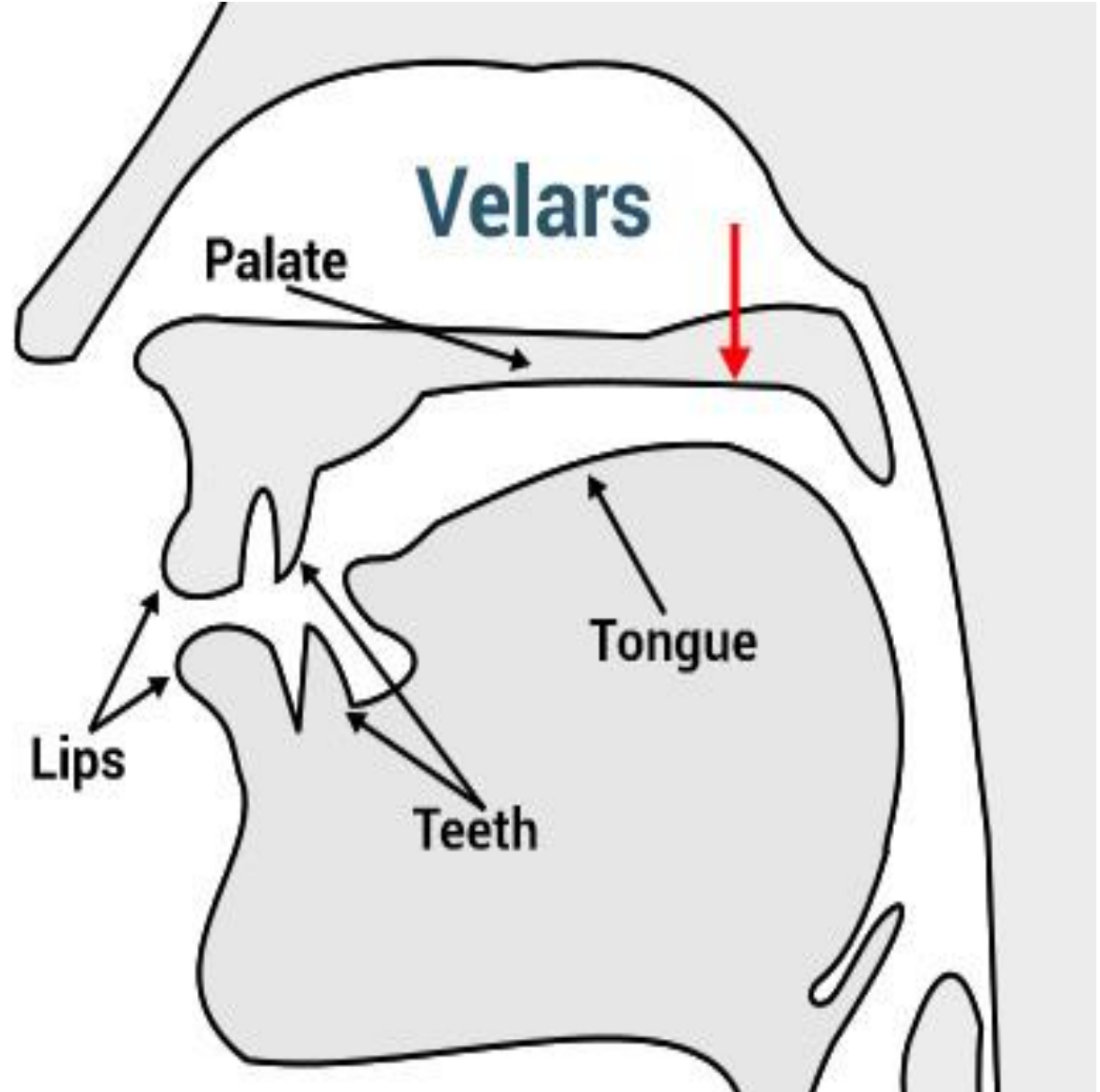
Places of articulation

- ✓ **Palatal** sounds made by the articulation of the body of the tongue towards the hard palate.
- ✓ Example: [j]



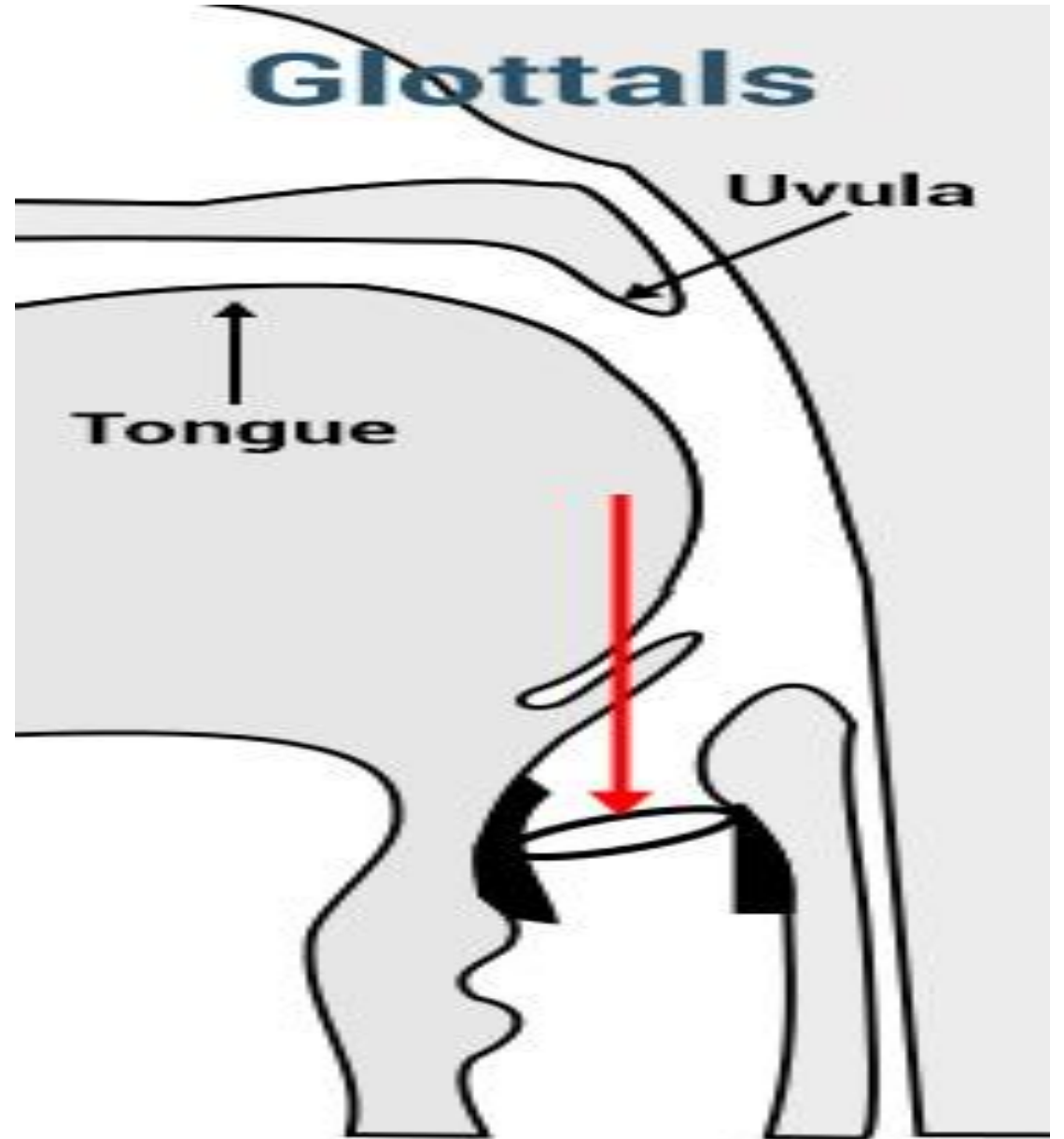
Places of articulation

- ✓ **Velar** sounds made by the articulation of the body of the tongue towards the velum.
- ✓ Examples: [k], [g], [ŋ]



Places of articulation

- ✓ **Glottal** sounds are those sounds made at the glottis.
- ✓ Examples: [h], [ʔ]



Manner of articulation

- How the articulation happens/How the airflow is controlled.
- The way the airstream is affected as it flows from the lungs up and out of the mouth and nose.

Manner of articulation

- **Stops/plosives** are consonant sounds:
 - The airstream is completely blocked in the oral cavity,
 - Then the air is allowed to “explode” out of the mouth.
- Examples: **[b], [p], [d], [t], [k], [g]**

Manner of articulation

- **Fricatives** are sounds:
 - The airstream is partially blocked in the oral cavity
 - Some of the air is allowed to come through out a very narrow opening.
- Examples: [f], [v], [θ], [ð], [s], [z], [ʃ], [ʒ], [h]

Manner of articulation

- **Affricates** are sounds that combine the manners of articulation for the plosive and the fricative.
- Examples: [tʃ], [dʒ]

Manner of articulation

- A **lateral** is a sound formed by allowing the air to escape around the sides of the tongue.
- Examples: [l]

Manner of articulation

- A **nasal** is a sound formed by the obstruction of the vocal tract and the lowering of the velum.
- Examples: **[m]**, **[n]**, **[ŋ]**

Manner of articulation

- An **approximant** is formed by the constriction of the vocal tract but with no obstruction in the vocal tract.
- Examples: [w], [r], [j]

Note: transcribe vowels phonemically

- When a **vowel** is **followed** by a **voiced consonant** ([b], [d], [g], [v], [ð], [z], [ʒ], [dʒ], [l], [m], [n], [ŋ], [w], [r], [j]), it is **shorter** than when it stands at the end of a syllable.

Example: [ɪ] in *bid* is shorter than [ɪ] in *happy*.

- When a **vowel** stands **before** a **voiceless consonant** ([p], [t], [k], [f], [θ], [s], [ʃ], [tʃ]), it is **shortened** by that consonant.

Example: [i:] in *beat* [bɪ:t] is shorter than [i:] in *bead* [bi:d]

Note: transcribe vowels phonemically

- When a **vowel** occurs in an **unstressed** syllable, it is **shorter** than it is in a stressed syllable.

Example: [ɔ:] in *record* (n) /'rekɔ̞d/ is shorter than [ɔ:] in *record* (v) /rɪ'kɔ:d/.

- When a **vowel** stands **before** a **nasal consonant** ([m], [n], [ŋ]), it is **nasalized** by that consonant.

Example: [ɔ:] in *born* [bɔ̃:n] is nasalized by the nasal sound [n] after it.

CHART OF ENGLISH CONSONANT PHONEMES

Manner	Voicing	Place							
		Bilabial	Labiodental	Dental	Alveolar	Palato-alveolar	Palatal	Velar	Glottal
Plosive	Voiceless	p			t			k	ʔ
	Voiced	b			d			g	
Fricative	Voiceless		f	θ	s	ʃ			h
	Voiced		v	ð	z	ʒ			
Affricate	Voiceless					tʃ			
	Voiced					dʒ			
Lateral	Voiced				l				
Nasal		m			n			ŋ	
Approximant	Voiced	w				r	j		

		MANNER	VOICING	PLACE						
				Bilabial	Labiodental	Interdental	Alveolar	Palatal	Velar	Glottal
Obstruent	Stop		Voiceless	p			t		k	ʔ
			Voiced	b			d		g	
	Fricative		Voiceless		f	θ	s	ʃ		h
			Voiced		v	ð	z	ʒ		
	Affricate		Voiceless					tʃ		
			Voiced					dʒ		
Sonorant	Nasal		Voiced	m			n		ŋ	
	Liquid	Lateral	Voiced				l			
		Rhotic	Voiced					r (ɹ)		
	Glide		Voiced	w				j	(w)	