



**Phonetics
&
Phonology**



Pronunciation

- ➔ **Poor English pronunciation** may confuse people even if you use advanced English grammar.
- ➔ We can use simple words and simple grammar structures that make people understand you but we cannot use "**simple pronunciation**".
- ➔ **Good English pronunciation** will make people understand you easily and be willing to listen to you!
- ➔ English teachers usually are the only source of L2 input for their students.



What is good English pronunciation?

- ➔ There are three levels of English pronunciation:
- ➔ Level 1: People often don't understand what you want to say. You use the wrong sounds in English words. ([example](#))
- ➔ Level 2: People understand what you want to say, but it is unpleasant to listen to you. ([example](#))
- ➔ Level 3: People understand you, and your English is pleasant to listen to. ([example one](#), [example two](#))
- ➔ Level 3 will be called *good pronunciation*. Notice that *good pronunciation is not "perfect American or British accent"*. You don't have to sound like the Queen of England or the President of the United States of America!!!

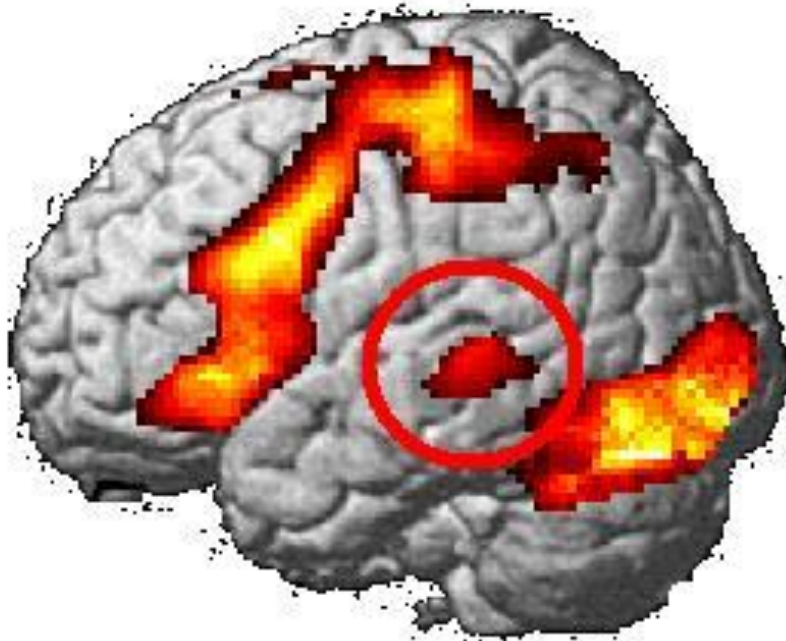


Why do we need to know this?

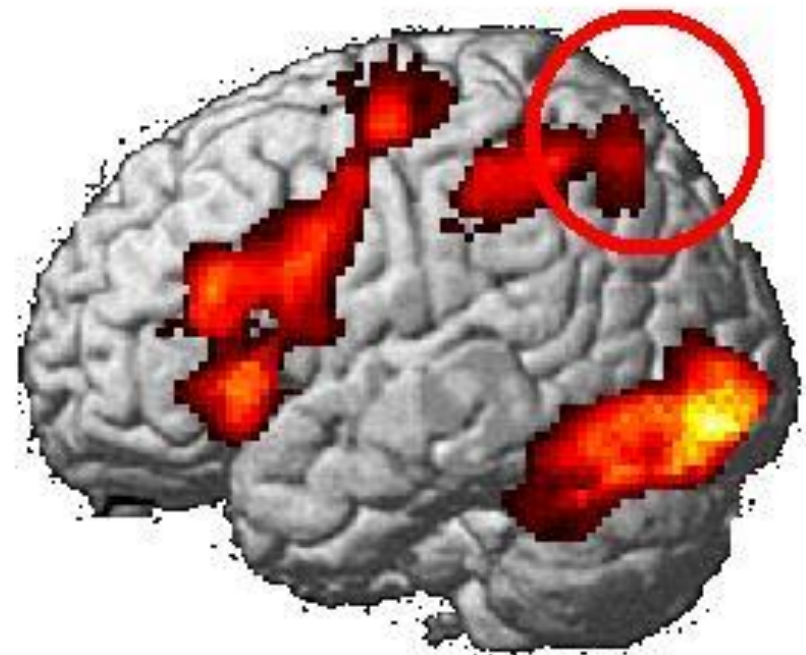


MATT GROENING

LANGUAGE AND THE BRAIN



Mother language



Foreign language



So... what ARE the problems of learning L2 pronunciation?

- Written vs. spoken language; letters vs. sounds.
(orthographic interference!)
- Hearing *what* is said vs. listening to *how* it's said.
(we are very good at decoding meaning; bad at listening!)
- Learning new (complex) articulation patterns
(new gestures are (mostly) easy; but NOT when communicating)



So... what ARE the problems of learning L2 pronunciation?

- Changing established (complex) articulation patterns.
(new sounds that are near to L1 sounds are especially tricky)
- Making new and changed patterns automatic.
(if you want to communicate, you can't think of what your tongue and lips are doing)

Learning new (complex) articulation patterns

- The problem sounds that you identify have to be *produced, articulated, pronounced!*
- That means learning new motor patterns
..... and most of your everyday motor patterns were established when you were between 6 months and 6 years old!
- A speech sound requires fine control of up to 50 muscles.

Making new and changed patterns automatic.

- *Auditory awareness + new articulatory gesture is not the final answer!*
- You speak to express your thoughts and feelings (just as you normally listen to understand someone else's thoughts)
..... so you have no time to pay proper attention to your pronunciation.
- All articulatory gestures have to be „overlearned“; they have to be automatic (with a sub-conscious link between „the feel“ of the articulatory movements and the sound of the utterance)



To sum it all up

- Pronunciation is a difficult thing to get into, because
 - you have to *make conscious* something that you use sub-consciously,
 - something you *learned* to use sub-consciously *many years ago*.
- Pronunciation is difficult to change because
 - ANY established motor pattern is difficult to change
(have you tried to change how you walk?)
- Pronunciation is difficult to learn, because
 - it has to be „**overlearned**“ so that the new patterns can be used in communication just as the old ones are.



Speech Sounds

- ⇒ Anyone who knows a language knows the sounds in that language,
- ⇒ how those sounds are strung together,
- ⇒ and what these different sound sequences mean.



Phonology

- ⇒ **Phonology** deals with the system and pattern of speech sounds in a language.
- ⇒ **Phonology of a language** is the system and pattern of speech sounds.



Phonology

- ⇒ Phonological knowledge permits us to;
- ⇒ produce sounds which form meaningful utterances,
- ⇒ to recognize a “foreign” accent,
- ⇒ to make up new words,
- ⇒ To know what is or is not a sound in one’s language
- ⇒ to know what different sound strings may represent



What is phonetics?

- ➔ Phonetics is the science of speech.
- ➔ We all speak.
- ➔ But how many of us know how we speak?
- ➔ Or what speech is like?
- ➔ Phonetics seeks to answer those questions.



Phonetics vs Phonology

Phonetics

The study of
speech sounds.

Phonology

The study of
the way speech
sounds form
patterns.



Segmental Units of Sound

- ⇒ **Segment** is any discrete unit that can be identified, either physically or auditorily, in the stream of speech.
- ⇒ In phonetics, the smallest perceptible segment is a **phone**.
- ⇒ In phonology, smallest segment is **phonemes**



Phones

- ➔ A speech segment that possesses distinct physical or perceptual properties
- ➔ A particular occurrence of a speech segment
- ➔ The basic unit revealed via phonetic speech analysis



Phonemes

- ➔ In human language, a phoneme is the smallest unit of speech that distinguishes meaning.
- ➔ Phonemes are not the physical segments themselves, but abstractions of them.
- ➔ The /t/ sound found in words like **tip**, **st**and, **wri**ter, and **ca**t are examples of phonemes.



Phones vs Phonemes

- ⇒ We use slashes / / for phonemes
- ⇒ We use brackets [] for phones.
- ⇒ The vowel “phoneme” in the words ***bead*** and ***bean*** is represented as ***/i/***
- ⇒ The “phone” is represented as ***[i]***



Rules of Phonology

⇒ Delete a word-final /b/ when it occurs after a /m/

as in:

bomb
crumb
lamb
tomb

But not!

bombard
crumble
limber
tumble



Sequences of Phonemes

k

b

l

ɪ

b l ɪ k

k l ɪ b

b ɪ l k

k ɪ l b

possible

l b k ɪ

ɪ l b k

b k ɪ l

ɪ b l k

impossible

- “I just bought a beautiful new ***blick***” What is a blick?
- “I just bought a beautiful new ***bkli***” WHAT!!



Sequences of Phonemes

- ⇒ Your knowledge of English “tells” you that certain strings of phonemes are permissible and others are not.
- ⇒ That’s why /bkli/ does not sound like an English word.
- ⇒ It violates the restrictions on the sequencing of phonemes; i.e. it violates the phonological rules of English.



Minimal Pair

- ➔ Minimal pairs are pairs of words or phrases which differ in only one phonological element, such as a ***phone*** or a ***phoneme***, and have a distinct meaning.
- ➔ E.g. bit > pit, tip > dip, fan > van
- ➔ They are used to demonstrate that two phones constitute two separate phonemes in the language.



Orthography and Sounds

- ⇒ Alphabetic spelling represents the pronunciation of words.
- ⇒ However, the sounds of the words in a language are unsystematically represented by ***orthography***, i.e. Spelling.



Orthography and Sounds

- The English language is not ***phonetic***.
- Words are not spelled as they are pronounced
- There is no one to one correspondence between the ***letters*** and the ***sounds*** or ***phonemes***.



Orthography and Sounds

- Did he **believe** that **Caesar** could **see** the **people seize** the **seas**.
- The silly amoeba stole the **key** to the **machine**



Orthography and Sounds

⇒ Mark Twain offered a phonetic alphabet for English.

⇒ fish → ghoti

⇒ the gh = f as in rouGH

⇒ the o = i as in wOmen

⇒ the ti = sh as in naTlon



Vowels and Consonants

- ➔ Phonetically, it is easy to give definitions:
- ➔ a vowel is any sound with no audible noise produced by constriction in the vocal tract,
- ➔ and consonant is a sound with audible noise produced by a constriction.

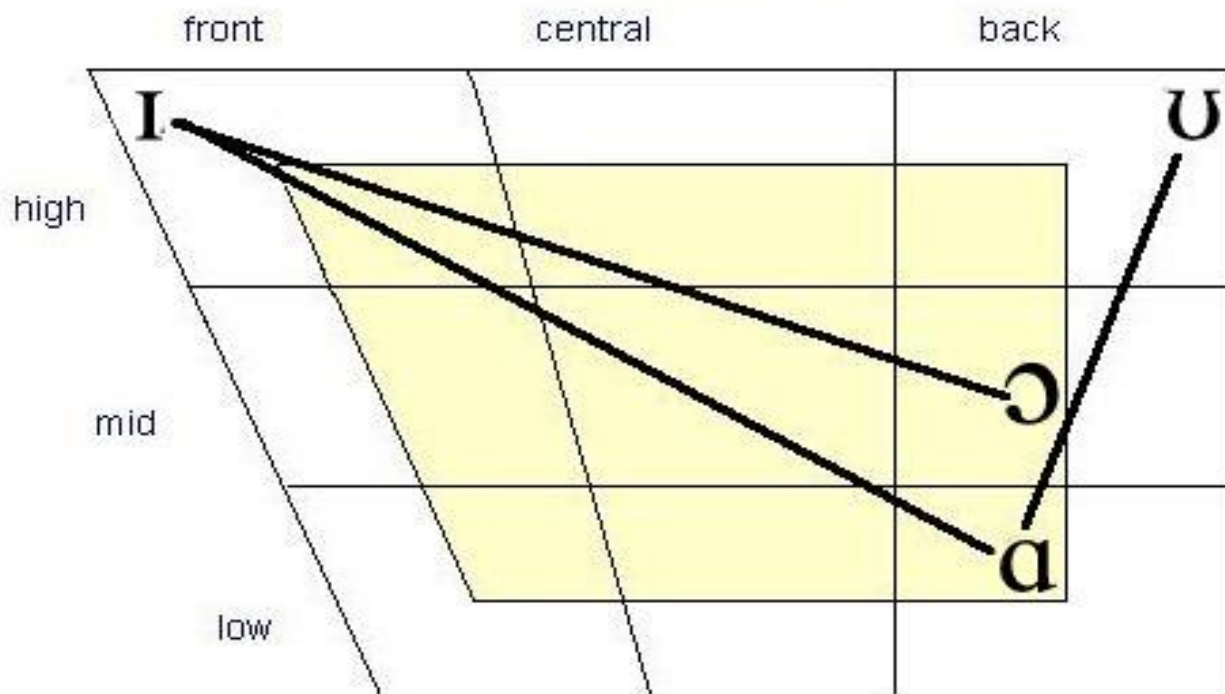
Consonant Phonemes

21	/p/	<i>pit</i>	33	/m/	<i><u>m</u>an</i>
22	/b/	<i><u>b</u>it</i>	34	/n/	<i><u>n</u>ice</i>
23	/t/	<i><u>t</u>ime</i>	35	/ŋ/	<i>ri<u>ng</u></i>
24	/d/	<i><u>d</u>oor</i>	36	/l/	<i><u>l</u>eg</i>
25	/k/	<i><u>c</u>at</i>	37	/r/	<i><u>r</u>at</i>
26	/g/	<i>ge<u>t</u></i>	38	/w/	<i><u>w</u>et</i>
27	/f/	<i><u>f</u>an</i>	39	/h/	<i><u>h</u>at</i>
28	/v/	<i><u>v</u>an</i>	40	/j/	<i>ye<u>t</u></i>
29	/θ/	<i><u>th</u>ink</i>	41	/ʃ/	<i><u>sh</u>op</i>
30	/ð/	<i><u>th</u>at</i>	42	/ʒ/	<i>lei<u>s</u>ure</i>
31	/s/	<i><u>s</u>end</i>	43	/tʃ/	<i><u>ch</u>op</i>
32	/z/	<i>zi<u>p</u></i>	44	/dʒ/	<i><u>j</u>ump</i>

Vowel Phonemes

01	/ɪ/	pit	11	/ɜ:/	girl
02	/e/	pet	12	/u:/	too
03	/æ/	pat	13	/eɪ/	day
04	/ɒ/	pot	14	/aɪ/	sky
05	/ʌ/	luck	15	/ɔɪ/	boy
06	/ʊ/	good	16	/iə/	beer
07	/ə/	ago	17	/eə/	bear
08	/i:/	meat	18	/ʊə/	tour
09	/ɑ:/	car	19	/əʊ/	go
10	/ɔ:/	door	20	/aʊ/	cow

DIPHTHONGS



ɑU cow

ɑI high

ɔI boy

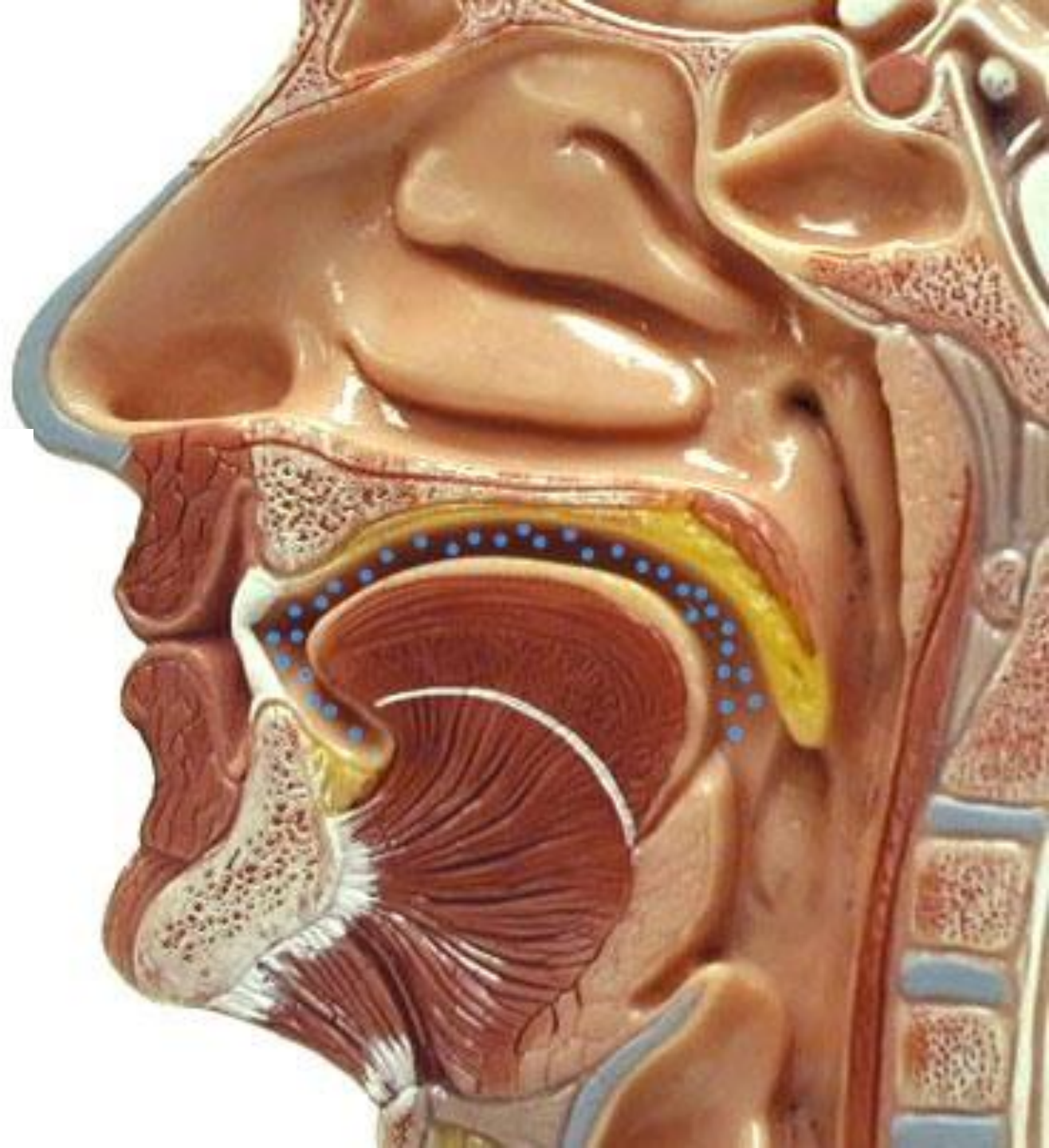


Articulatory Phonetics

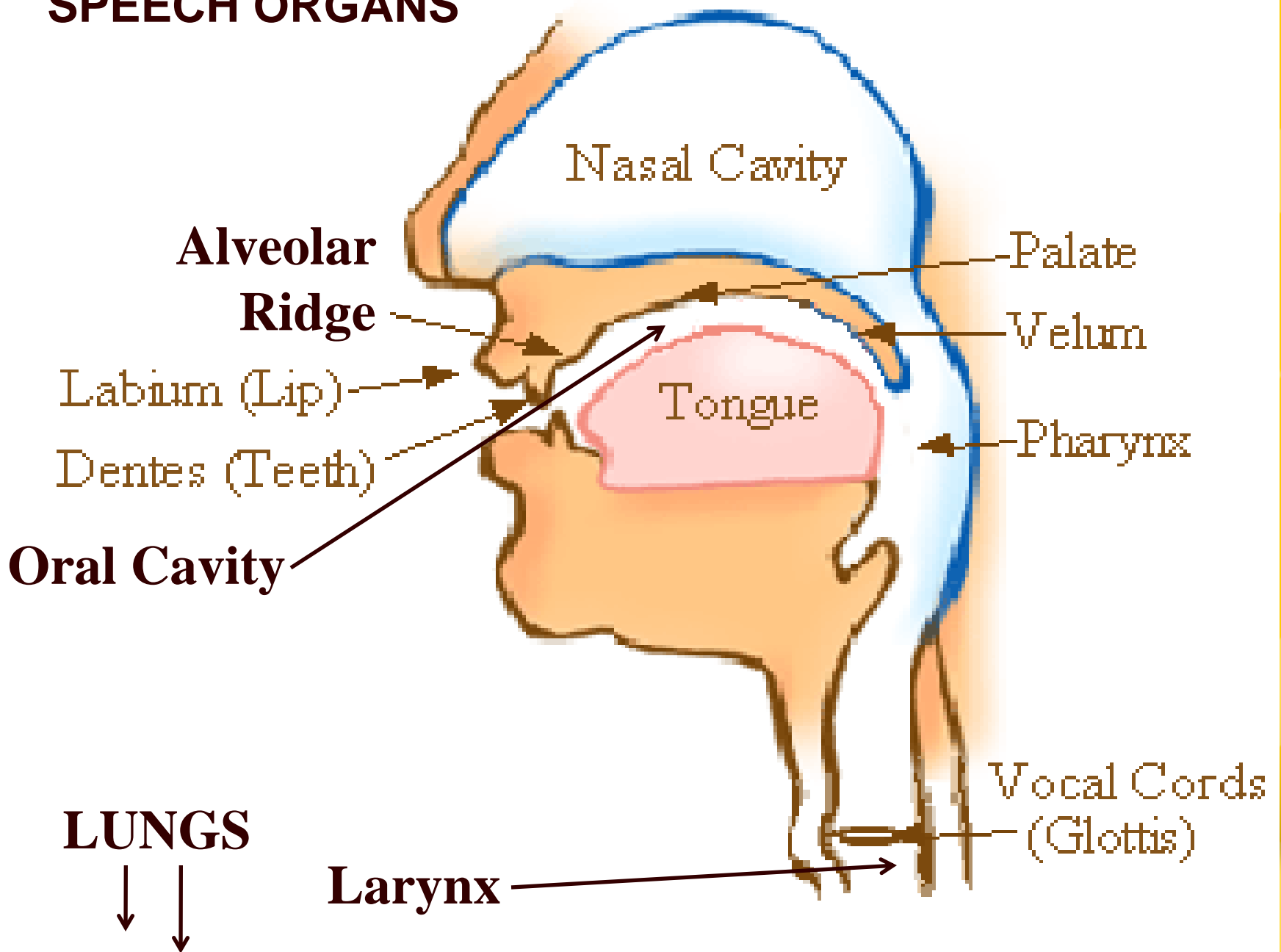
- ➔ The production of any speech sound involves the movement of an air stream.
- ➔ Most speech sounds are produced by pushing the air out of the lungs through the mouth (oral) and sometimes through the nose (nasal).
- ➔ Articulatory Phonetics deals with how the sounds are produced.



SPEECH ORGANS



SPEECH ORGANS





Three Dimensions of Articulation

- ⇒ Voicing
- ⇒ Place of Articulation
- ⇒ Manner of Articulation



Voiced and Voiceless Sounds

- ➔ The air stream from the lungs passes through an opening between the vocal cords, the **glottis**
- ➔ If the vocal cords are apart and the airstream is not obstructed at the glottis, the sounds produced this way are **voiceless**.
- ➔ If the vocal cords are together and the airstream forces its way through, the vocal cords vibrate and the sounds produced this way are **voiced**



Voice Production

➔ Video 1

➔ Video 2

➔ Video 3



Voiced and Voiceless Sounds

- ➔ If you put a finger in each ear and say “zzzzz” you can feel the vibrations.
- ➔ If you put a finger in each ear and say “sssss” you will not feel any vibration.
- ➔ When you whisper, you are actually making all the speech sounds voiceless



Nasal and Oral Sounds

- ➔ When the soft palate or velum is raised to block the passage of air stream through the nose and forced through the mouth, sounds produced this way are called ***oral***.
- ➔ If you force the air out of the nose by closing your lips or blocking the oral passage, sounds produced this way are called ***nasal***.



Three Dimensions of Articulation

- ⇒ Voicing
- ⇒ Place of Articulation
- ⇒ Manner of Articulation



Places of Articulation

- ➔ Labials (bilabials, labiodentals)
- ➔ Alveolars
- ➔ Velars
- ➔ Interdentals
- ➔ Palatals
- ➔ Glottals



Labials

→ [b], [p], [m], [f] and [v]

are *labials*

- When we produce [b], [p], or [m], we articulate them by bringing together both lips. These speech sounds are called *bilabials*
- When we produce [f] and [v], we articulate by touching the bottom lip to the upper teeth. These speech sounds are called *labiodentals*



Alveolars

→ [t], [d], [s], [z], [n], and [l]
are *alveolars*.

When we produce these sounds we raise the tip of our tongue toward the hard palate and touch the alveolar ridge. These speech sounds are called *alveolars*

→ When we produce [f] and [v], we articulate by touching the bottom lip to the upper teeth. These speech sounds are called *labiodentals*



Velars

➔ [k], [g], [ŋ], [w] are *velars*.

➔ When we produce these sounds we raise the back of our tongue toward the soft palate or the velum. These speech sounds are called *velars*.



Interdentals

→ [θ] and [ð] are *interdentals*.

→ When we produce these sounds we insert the tip of our tongue between the upper and the lower teeth. These speech sounds are called ***interdentals***.



Palatals

→ [ʃ] [ʒ] [tʃ] [dʒ] *are palatals.*

→ When we produce these sounds we raise the front part of our tongue to a point on the hard palate just behind the alveolar ridge. These speech sounds are called *palatals*.

		MANNER	VOICING	PLACE						
				Bilabial	Labiodental	Interdental	Alveolar	Palatal	Velar	Glottal
OBSTRUENTS	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			
SONORANTS	Nasal	Voiced	m			n		ŋ		
	LIQUID	Lateral	Voiced			l				
		Rhotic	Voiced				r			
	Glide	Voiced	w				j	w		

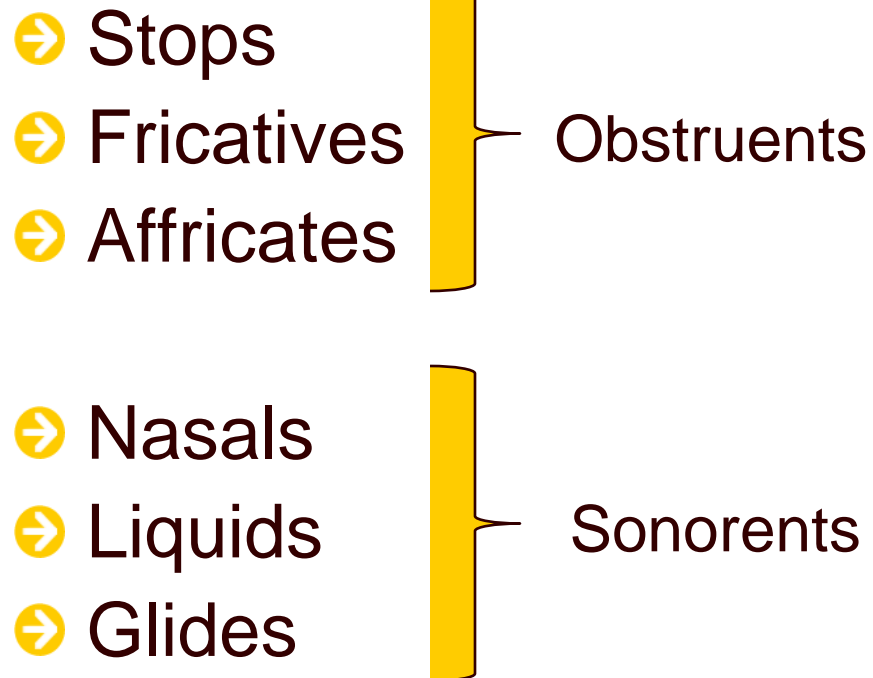


Three Dimensions of Articulation

- ➔ Voicing
- ➔ Place of Articulation
- ➔ Manner of Articulation



Manners of Articulation





Obstruents

- ➔ An obstruent is a consonant sound formed by obstructing the outward airflow, causing increased air pressure in the vocal tract.
- ➔ Obstruents are those articulations in which there is a total closure or a stricture causing friction,
- ➔ Obstruents are subdivided into ***stops, fricatives, and affricates.***

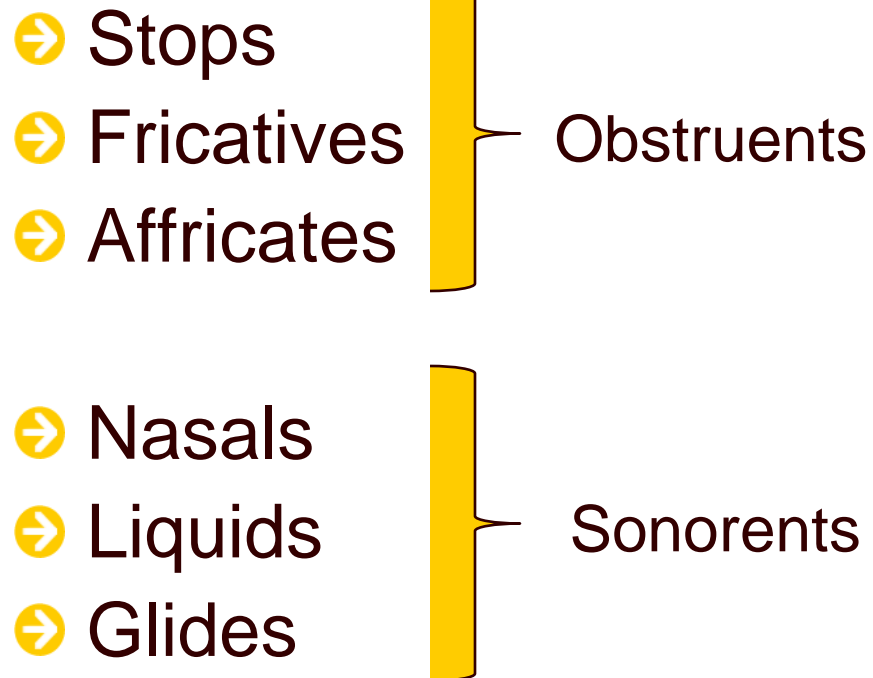


Sonorants

- ➔ **Sonorants** are those articulations in which there is only a partial closure or an unimpeded oral or nasal scape of air.
- ➔ English has the following sonorant consonantal phonemes: /l/, /m/, /n/, /ŋ/, /ɹ/, /w/, /j/
- ➔



Manners of Articulation





Stops (plosives)

- ➔ When the air stream enters the oral cavity it may be stopped, obstructed, or flow freely.
- ➔ When the air is completely stopped for a brief period of time, these speech sounds are called **stops**.
- ➔ [b], [p], [t], [d], [k] and [g] are **stops**.



Fricatives

- ➔ When the air is not stopped completely but is obstructed from flowing freely, these speech sounds are called ***fricatives***.
- ➔ [h], [f], [v], [θ], [ð], [s], [z], [ʃ] and [ʒ] are ***fricatives***.



Affricates

- ➔ Some sounds are produced by a stop closure followed immediately a slow release of the closure as in a fricative. These speech sounds are called ***affricates***.
- ➔ [tʃ] and [dʒ] are ***affricates***.



Nasals

- ➔ A nasal consonant is produced with a lowered velum in the mouth, allowing air to escape freely through the nose.
- ➔ The oral cavity still acts as a resonance chamber for the sound, but the air does not escape through the mouth as it is blocked by the tongue.
- ➔ [m], [n] and [ŋ] are *nasals*.



Liquids

- ➔ When there is some obstruction of the air stream but not enough to cause friction, these speech sounds are called ***liquids***.
- ➔ [l] and [r] are ***liquids***.



Glides

- ➔ When there is little or no obstruction of the air stream in the mouth, these speech sounds are called ***glides*** or ***semi-vowels***
- ➔ [j] and [w] are ***glides***.

		MANNER	VOICING	PLACE						
				Bilabial	Labiodental	Interdental	Alveolar	Palatal	Velar	Glottal
OBSTRUENTS	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			
SONORANTS	Nasal	Voiced	m			n		ŋ		
	LIQUID	Lateral	Voiced			l				
		Rhotic	Voiced				r			
	Glide	Voiced	w				j	w		



Next Week

⇒ *Midterm exam*



⇒ *covering all we have studied so far*





Vowels

- ➔ Vowel sounds are classified in terms of:
- ➔ Tongue height
- ➔ Tongue backness
- ➔ Lip rounding
- ➔ Tenseness

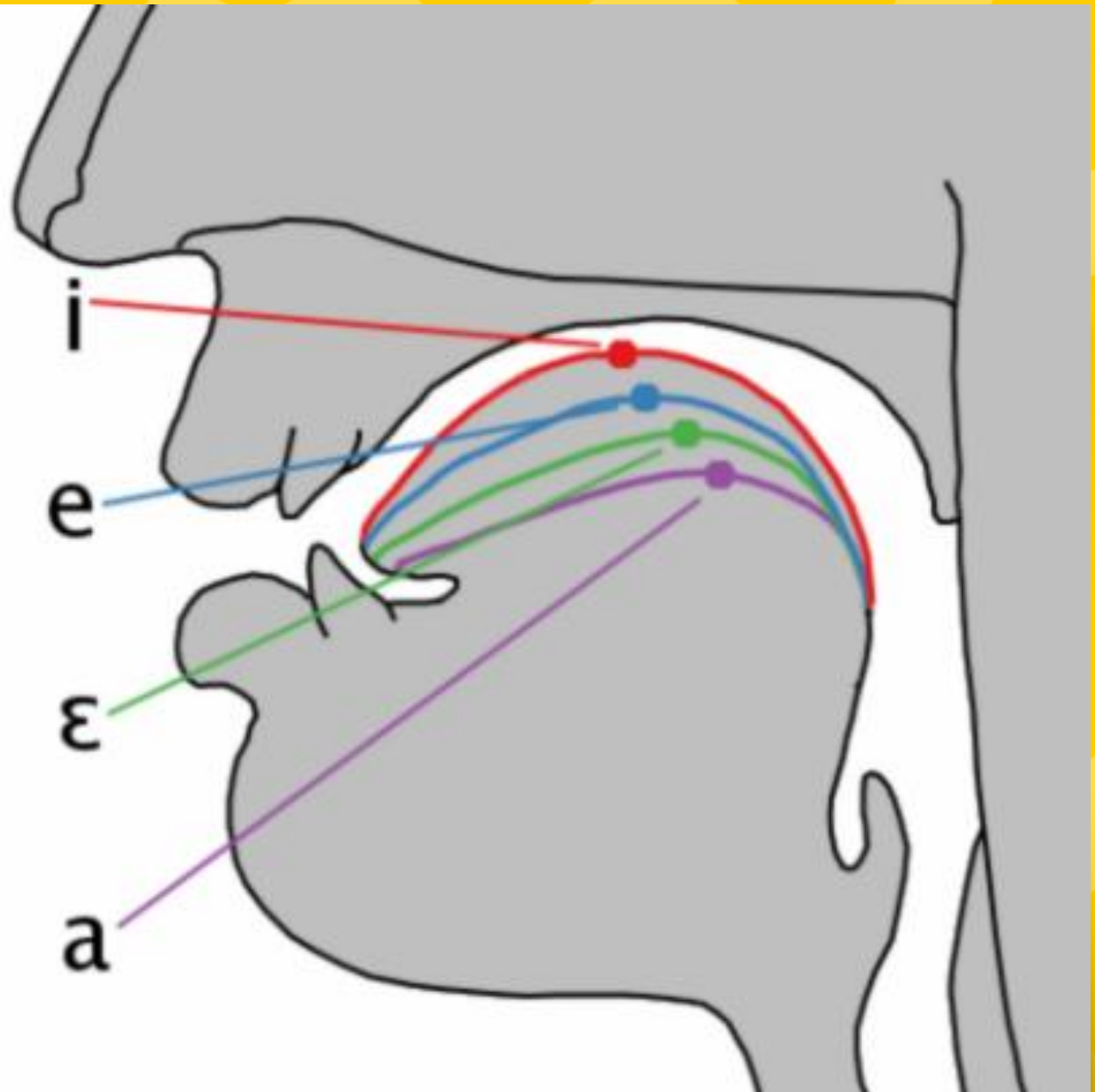


Tongue Height

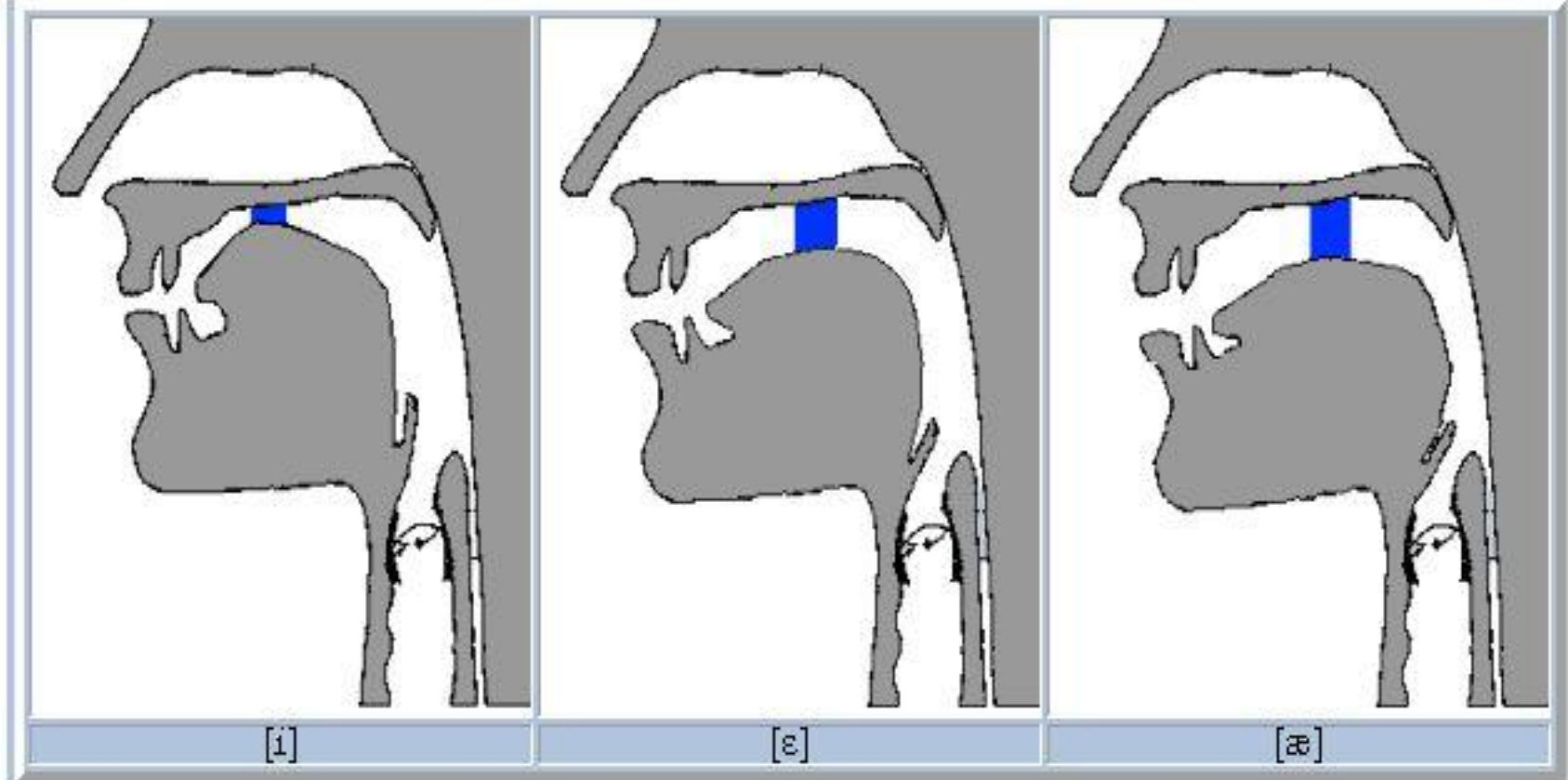
- ➔ Vowels are classified in terms of how much space there is between the tongue and the roof of the mouth, which is determined by the height of the tongue.
- ➔ There are three primary height distinctions among vowels: high, low, and mid.



Vowels



Tongue Height

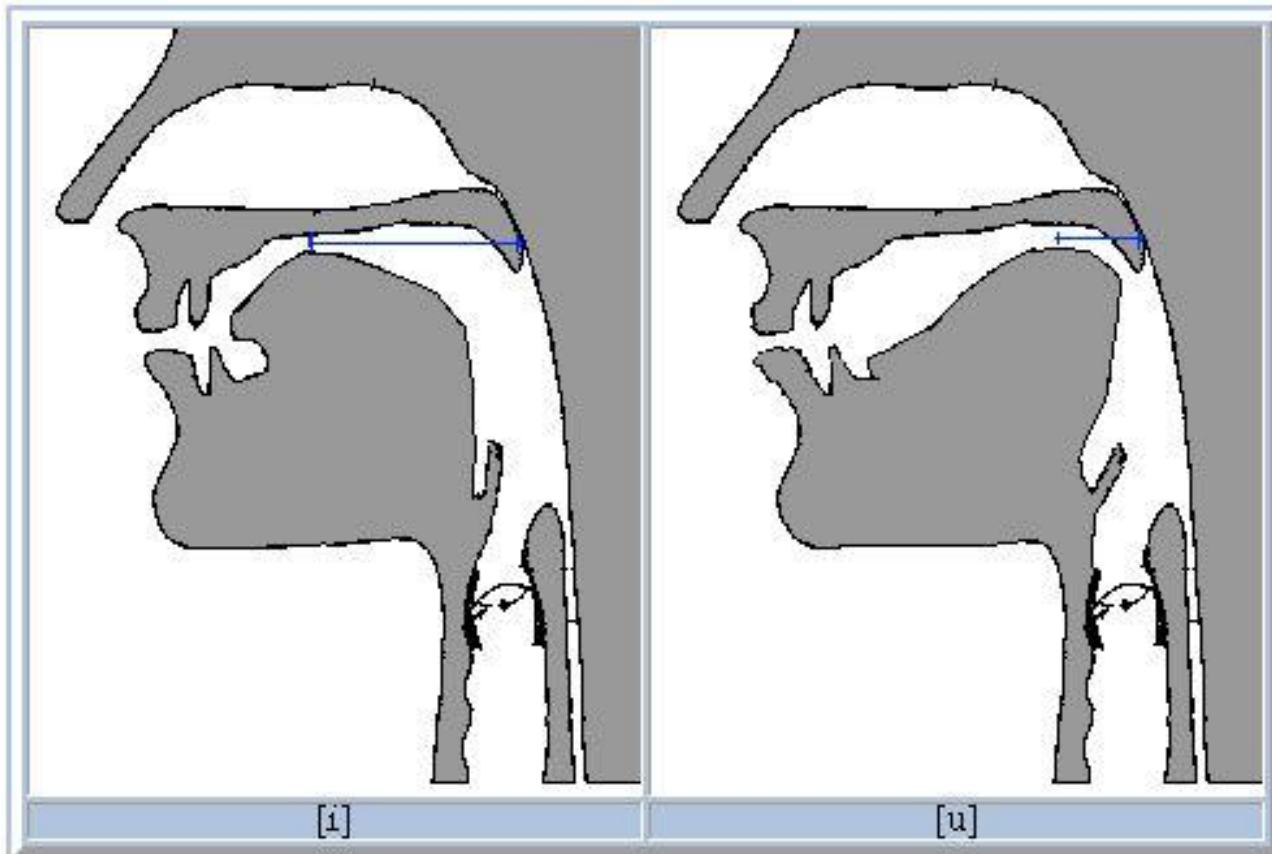




Tongue backness

- ➔ Vowels are classified in terms of how far the raised body of the tongue is from the back of the mouth, which is called the backness of the tongue.
- ➔ There are three primary height distinctions among vowels: front, back, and central.

Tongue backness





Lip Rounding

- ➔ Another aspect of vowel classification is the presence or absence of lip rounding. Some vowels, such as the vowels /u/ and /o/ are formed with a high degree of lip rounding.
- ➔ Such vowels are called rounded vowels. Some vowels, such as /i/ and /ɛ/ are formed without such rounding, and are called unrounded vowels.



Tenseness

- ➔ Another aspect of vowel classification is commonly characterized in terms of the tenseness or laxness of the articulators.



Tense vs. Lax

- ➔ Some vowels, such as the vowels /i/ and /e/, are formed with a high degree of tenseness. Such vowels are called tense vowels.
- ➔ Some vowels, such as /ɪ/ and /ɛ/, are formed without a high degree of tenseness, and are called lax vowels.

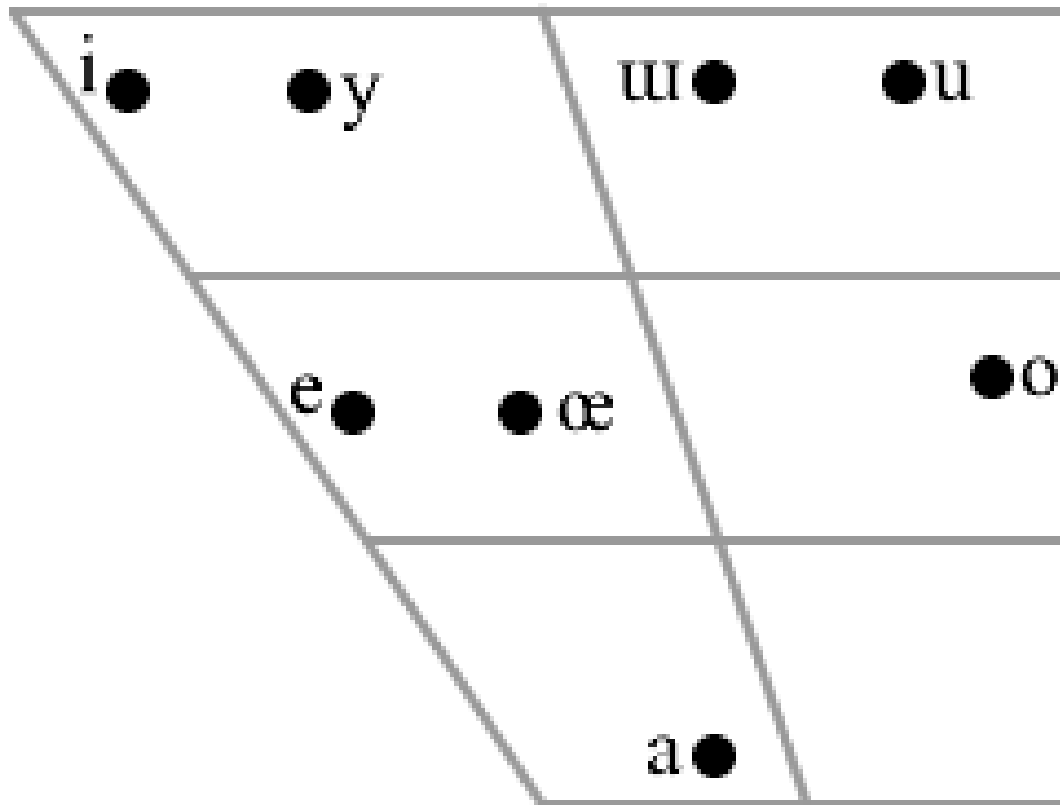


IPA Vowels



ipavowels.swf

Turkish Vowels





IPA [aɪ p^hi: eɪ]

➔ International Phonetic Alphabet

➔ International Phonetic Association

The INTERNATIONAL PHONETIC ASSOCIATION

ði mtə'næʃənəl fə'netɪk əsosi'eɪʃn

Vowel Phonemes

01	/ɪ/	p <u>it</u>	11	/ɜ:/	g <u>ir</u> l
02	/e/	pe <u>t</u>	12	/u:/	to <u>o</u>
03	/æ/	pa <u>t</u>	13	/eɪ/	da <u>y</u>
04	/ɒ/	po <u>t</u>	14	/aɪ/	sky <u>y</u>
05	/ʌ/	lu <u>ck</u>	15	/ɔɪ/	bo <u>y</u>
06	/ʊ/	g <u>oo</u> d	16	/ɪə/	be <u>er</u>
07	/ə/	a <u>g</u> o	17	/eə/	be <u>ar</u>
08	/i:/	mea <u>t</u>	18	/ʊə/	to <u>ur</u>
09	/ɑ:/	ca <u>r</u>	19	/əʊ/	g <u>o</u>
10	/ɔ:/	do <u>or</u>	20	/aʊ/	co <u>w</u>

Consonant Phonemes

21	/p/	<u>p</u> it	33	/m/	<u>m</u> an
22	/b/	<u>b</u> it	34	/n/	<u>n</u> ice
23	/t/	<u>t</u> ime	35	/ŋ/	ri <u>ng</u>
24	/d/	<u>d</u> oor	36	/l/	le <u>g</u>
25	/k/	<u>c</u> at	37	/r/	<u>r</u> at
26	/g/	ge <u>t</u>	38	/w/	<u>w</u> et
27	/f/	<u>f</u> an	39	/h/	<u>h</u> at
28	/v/	<u>v</u> an	40	/j/	ye <u>t</u>
29	/θ/	<u>th</u> ink	41	/ʃ/	<u>sh</u> op
30	/ð/	<u>th</u> at	42	/ʒ/	le <u>is</u> ure
31	/s/	<u>s</u> end	43	/tʃ/	<u>ch</u> op
32	/z/	<u>z</u> ip	44	/dʒ/	ju <u>mp</u>



Minimal Pairs

- ➔ In phonology, minimal pairs are pairs of words or phrases in a particular language, which differ in only one phonological element, such as a phoneme and have a distinct meaning.
- ➔ eg: /pit/ and /bit/



Minimal Pairs

word 1	word 2	IPA 1	IPA 2	note
pin	bin	/pɪn/	/bɪn/	initial consonant
rot	lot	/rɒt/	/lɒt/	
zeal	seal	/zi:l/	/si:l/	
bin	bean	/bɪn/	/bi:n/	vowel
pen	pan	/pɛn/	/pæn/	
hat	had	/hæt/	/hæd/	final consonant