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Faculty of Arts

First year Arts

English Dept.

English Phonetics

AY 2022-2023

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English Phonetics

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ENGLISH PHONETICS

(A COMPILED COURSE-BOOK FOR TEACHING AND EDUCATIONAL PURPOSES ONLY)

LEVEL ONE

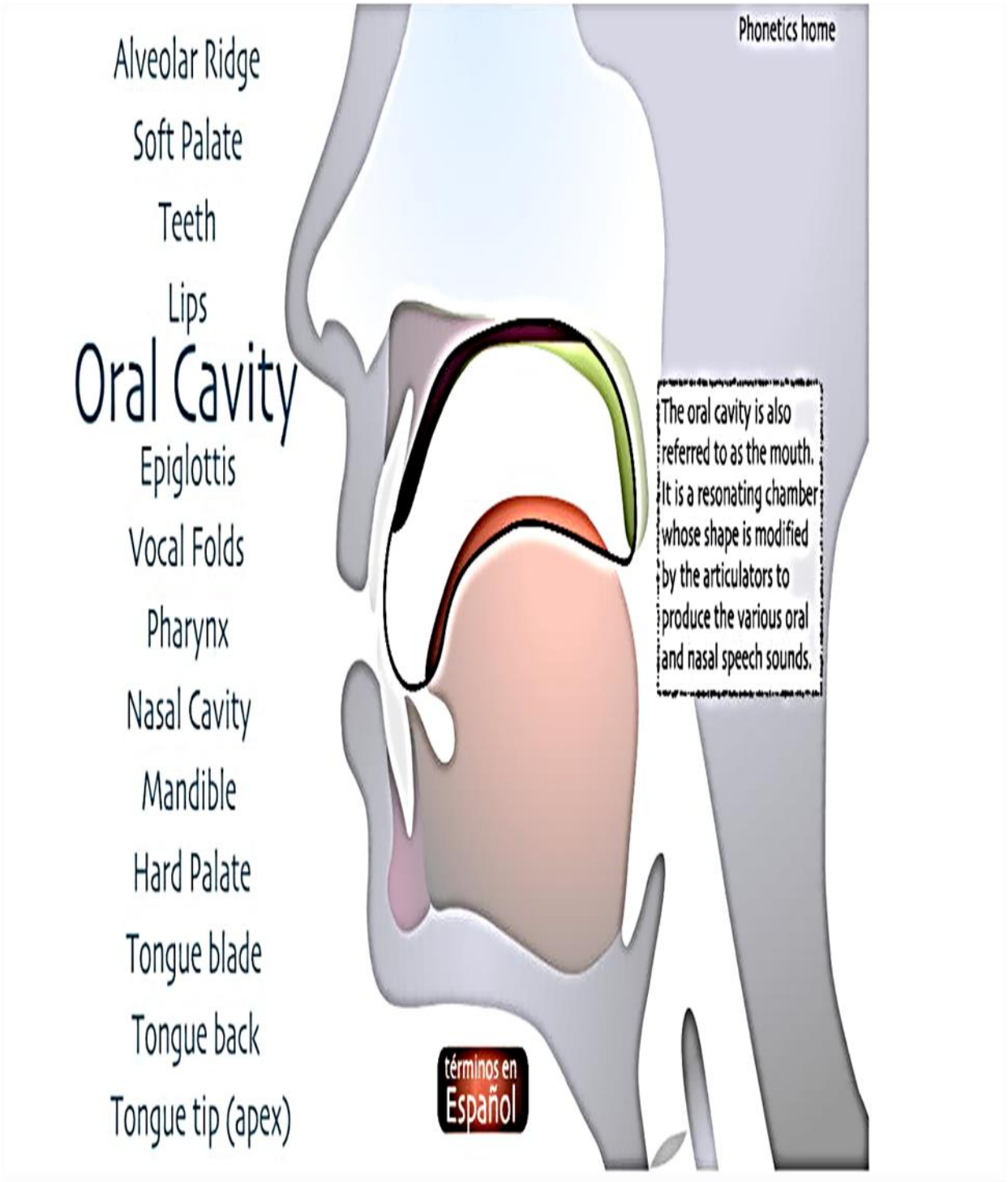
1ST YEAR Arts

Compiled by Dr. Heba Abdelraheim Alkady

A Y (2022-2023)

Organs of Speech

Articulators


Phonetics home
Alveolar Ridge
Soft Palate
Teeth
Lips
Oral Cavity
Epiglottis
Vocal Folds
Pharynx
Nasal Cavity
Mandible
Hard Palate
Tongue blade
Tongue back
Tongue tip (apex)
The oral cavity is also referred to as the mouth. It is a resonating chamber whose shape is modified by the articulators to produce the various oral and nasal speech sounds.
términos en Español

Phonetics

From Wikipedia, the free encyclopedia

(pronounced /fəˈnɛtɪks/, from the Greek: φωνή, phōnē, 'sound, voice') is a branch of linguistics that comprises the study of the sounds of human speech, or—in the case of sign languages—the equivalent aspects of sign.[1] It is concerned with the physical properties of speech sounds or signs (phones): their physiological production, acoustic properties, auditory perception, and neurophysiological status. Phonology, on the other hand, is concerned with the abstract, grammatical characterization of systems of sounds or signs.

The field of phonetics is a multilayered subject of linguistics that focuses on speech. In the case of oral languages there are three basic areas of study:

 Articulatory phonetics: the study of the production of speech sounds by the articulatory and vocal tract by the speaker.

 Acoustic phonetics: the study of the physical transmission of speech sounds from the speaker to the listener.

 Auditory phonetics: the study of the reception and perception of speech sounds by the listener.

In physics, sound is a vibration that propagates as a typically audible mechanical wave of pressure and displacement, through a medium such as air or water. In physiology and psychology, sound is the reception of such waves and their perception by the brain.

PHONETICS AND PHONOLOGY

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Speech Production

Cox (2012) (pages 20-26)

Speech is achieved by compression of the lung volume causing air flow which may be made audible if set into vibration by the activity of the larynx. This sound can then be made into speech by various modifications of the supralaryngeal vocal tract.

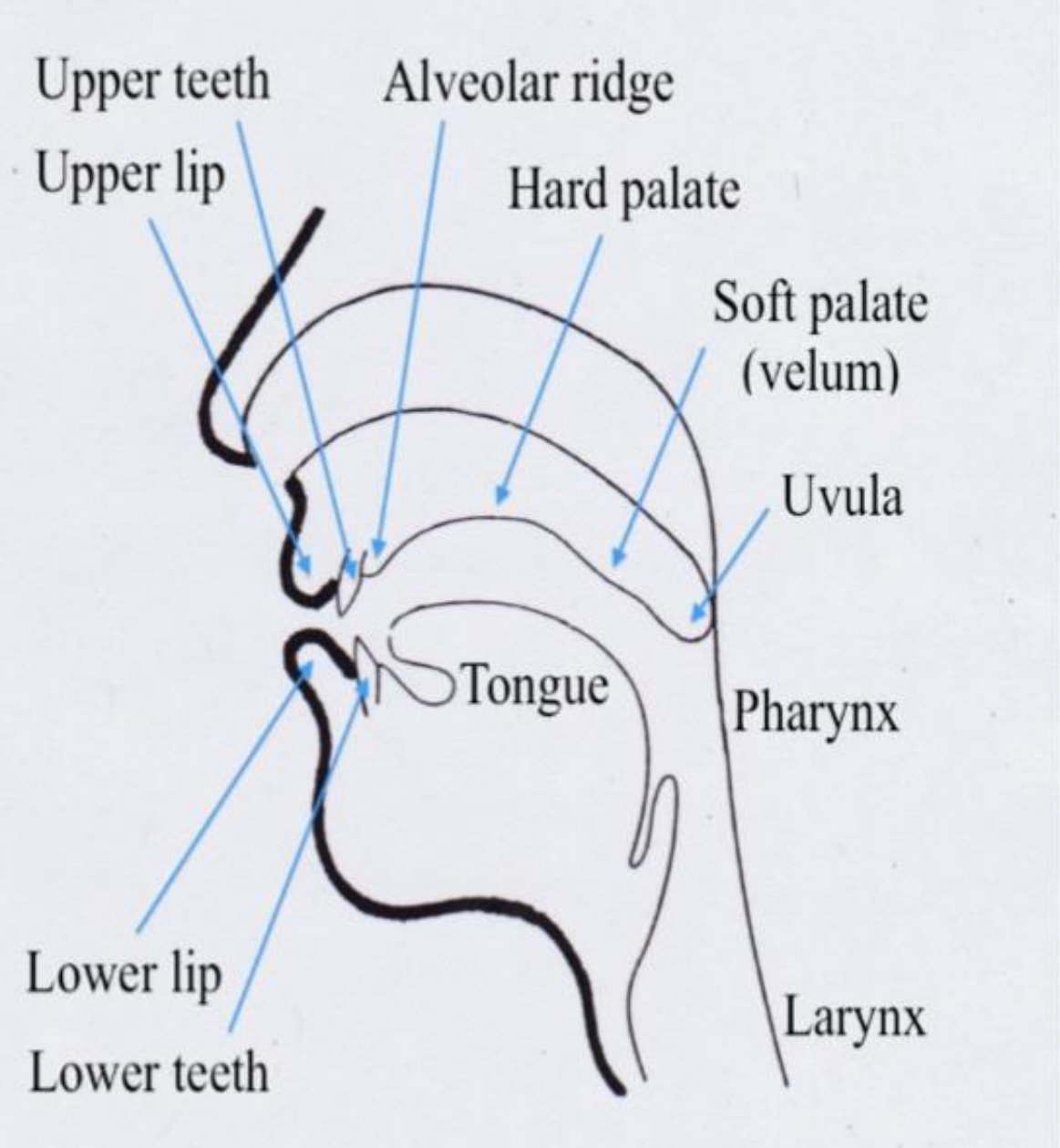
a. Lungs provide the energy source - Respiration

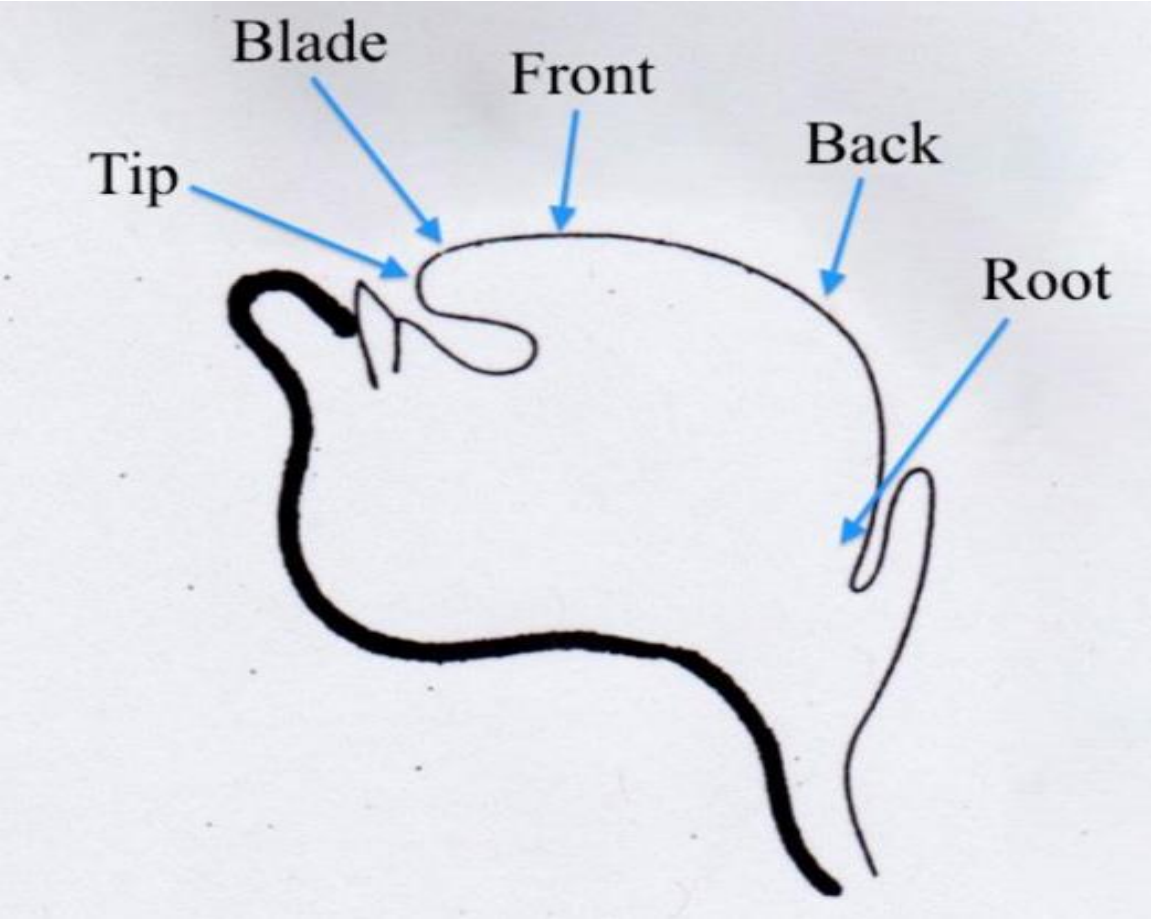
b. Vocal folds convert the energy into audible sound - Phonation

c. Articulators transfor

m the sound into intelligible speech - Articulation

Organs of Speech



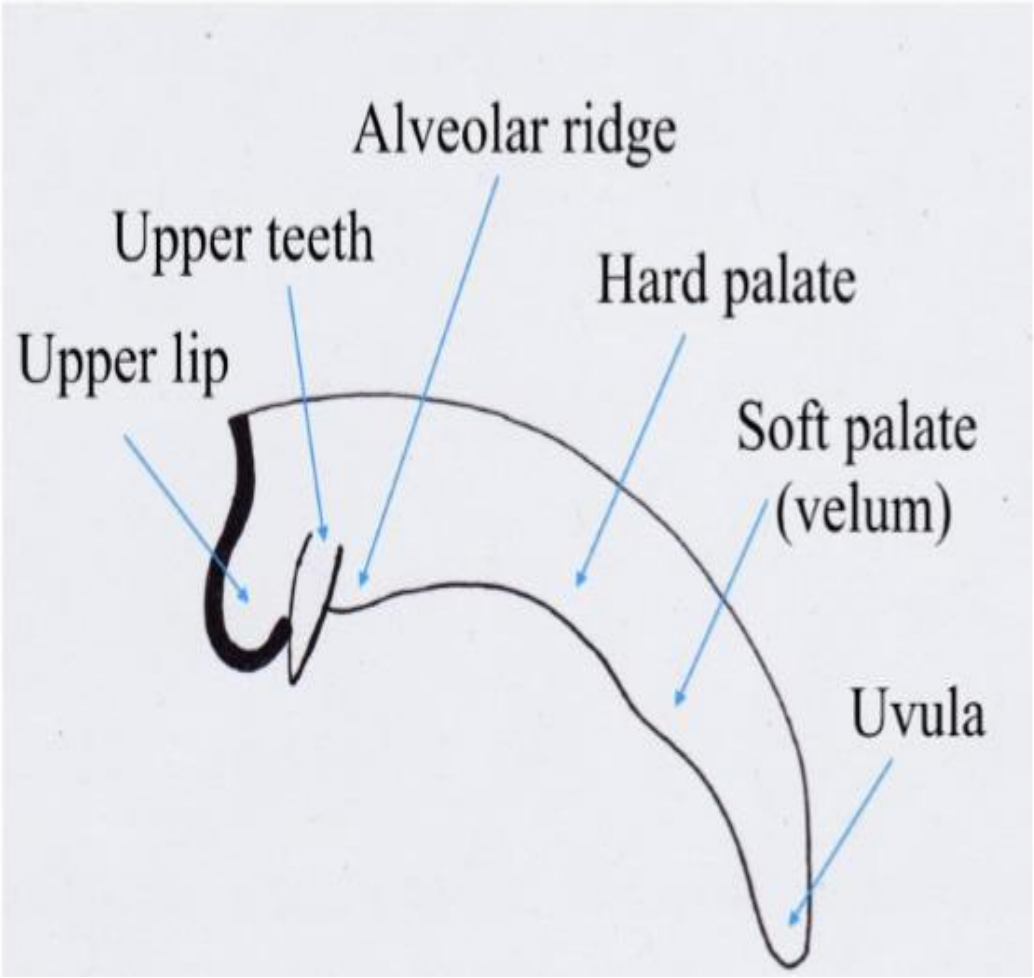


Thes subdivisions of the tongue

The upper surface of the tongue, which comes into contact with other organs of speech is called the dorsum. For purposes of phonetic description, the dorsum is subdivided into several parts. Because there are no clear boundaries on the tongue itself, this division is somewhat arbitrary. The basic subdivisions of the dorsum are the tip, the blade, the front, the back, and the root.

The tongue comes into contact with several other articulators, which are either flexible and mobile or are stable and immobile. The palate is a smooth curved surface in the upper part of the mouth and consists of two parts: the hard palate and the soft palate or velum (with its pendent uvula). The hard palate is a stable articulator and is essentialfor the production of several consonants when in contact with the tongue. The soft palate and uvula are flexible and take place in the oronasal process of sound production. The lips (upper and lower) are quite mobile and may be shut or held apart to give a shape to the oral cavity. The upper teeth and alveolar ridge (located behind the upper teeth) are stable (immobile) articulators,

while the lower teeth and lower jaw are mobile. Many organs of speech are located in the upper part of the oral cavity, a region deemed the roof of the mouth



The roof of the mouth

From this discussion, we can see that numerous organs of articulation or articulators are involved either actively or passively in the production of speech, thus are referred to as active or passive (see Roach 2009a).

Active and passive organs of speech

Active (flexible) organs of speech (because they can be moved into contact with other articulators)

the lungs

the vocal folds

the tongue

the soft palate (velum)

the uvula

the upper lip

the lower lip

the lower jaw

the lower teeth

Passive (stable) organs of speech (because they are stable (immobile) in sound production and their most important function is to act as the place of an articulatory stricture)

the upper teeth

the alveolar ridge

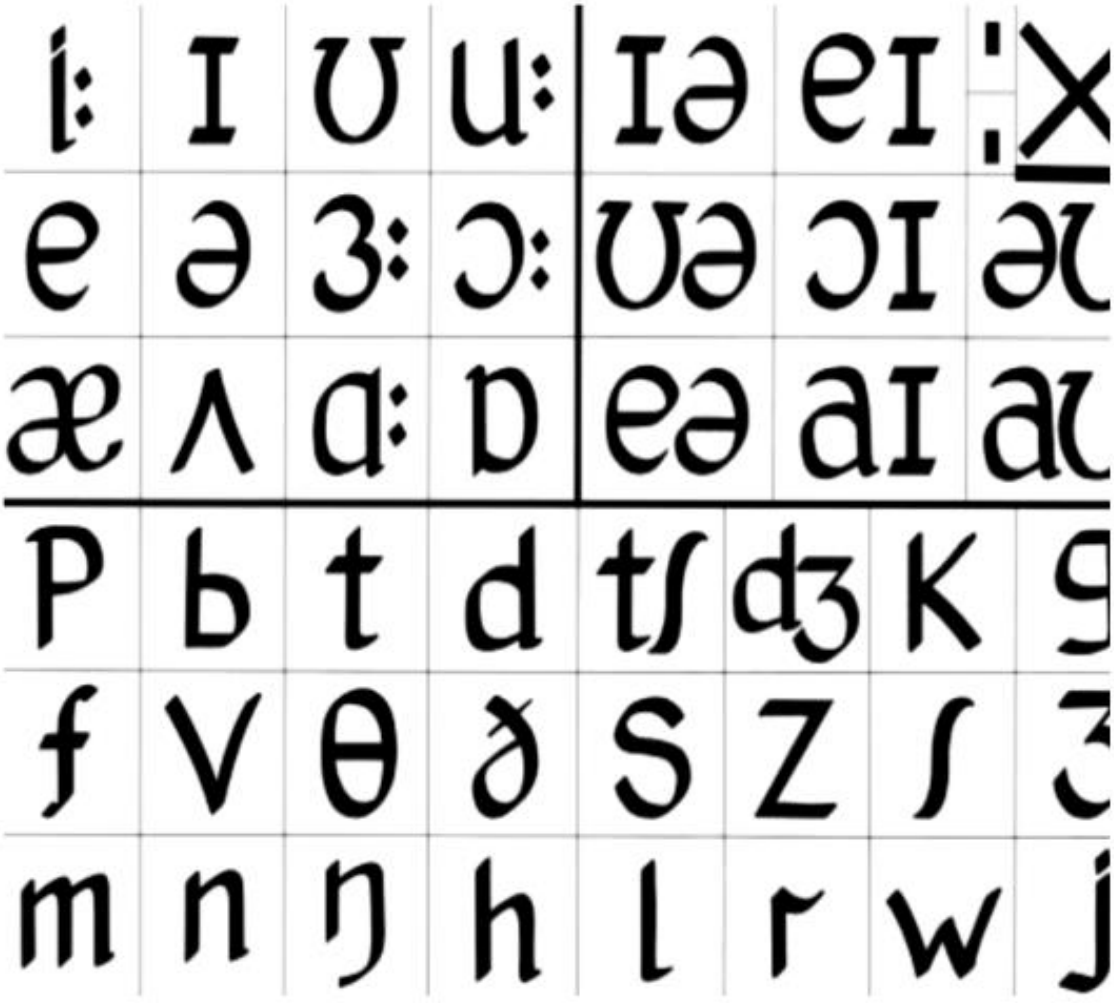
the hard palate

the pharynx

the larynx

the vocal tract defined by Collins and Mees (2003: 221), refer to —the overall way in which the speech organs (i.e. lips, tongue,

mouth and throat muscles, velum, larynx) are held throughout the speech process‖. It is also worth noting that the settings vary not only between languages but also between different varieties of the same language.



Articulation

When sound is produced at the larynx, that sound can be modified by altering the shape of the vocal tract above the larynx (supralaryngeal or supraglottal). The shape can be changed by opening or closing the velum (which opens or closes the nasal cavity connection into the oropharynx), by moving the tongue or by moving the lips or the jaw.

Phonetics is concerned with the physical manifestation of language in sound waves and how they are produced, transmitted, and perceived, and also ―provides methods for their description, classification, and transcription‖ (Crystal 2008: 363).

The Branches of Phonetics

G. B-Kurtinienė

Adopting the different perspectives referred to in the description of phonetics above, it can be viewed as investigating three distinct areas that are represented in the following branches of phonetics:

articulatory phonetics, which studies the ways the vocal organs are used to produce speech sounds;

acoustic phonetics, which investigates the physical properties of speech sounds (duration, frequency, intensity, and quality) that are generally measured by spectrographs to depict waveforms and spectrograms;

auditory phonetics, which is concerned with how people perceive speech sounds, i.e. how the sound waves activate the listener‘s eardrum, and how the message is carried to the brain in the form of nerve impulses.

Sound Production

For practical purposes, of the three main branches of phonetics, articulatory phonetics will be discussed as an enhanced awareness of the articulatory apparatus and the exact production of each sound can help students to form conscious and physically correct articulation.

Articulatory phonetics focuses on the organs of speech and their role in producing speech sounds, which is predominantly based on data provided by other sciences, such as human anatomy and

physiology. Human beings do not possess organs used exclusively in the production of speech sounds.

Instead, these organs primarily serve other functions (digestive,

respiratory, etc). This actually raises an interesting question: whether we were born to speak or whether speech developed

accidentally in the evolution of mankind. Either way, the production of speech sounds happens either simultaneously or alternatively with the physiological processes mentioned above.

The physical production initiates in the lungs and undergoes important modifications in the respiratory tract before it is realised.

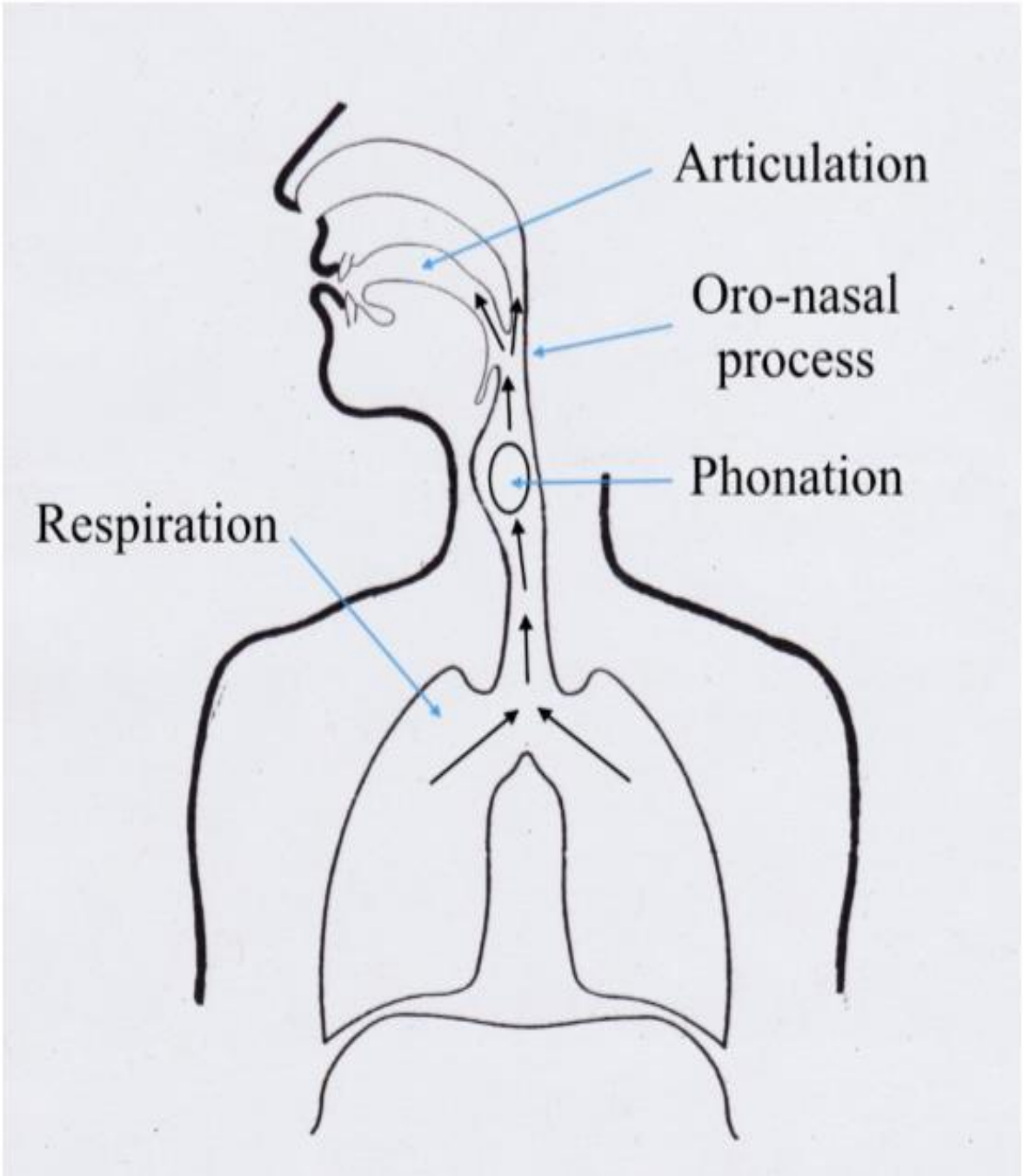
The different stages involved in this process are referred to as a speech chain. Clark and Yallop (1992) view this process as a kind of speech mechanism involving the active or passive functioning of the organs of speech. The stages in physical speech mechanism are listed as follows:

1. Initiation or Respiration (the lungs provide the energy source);

2. Phonation (the vocal folds convert the energy into an audible sound);

3. The Oronasal Process (the soft palate distributes the audible sound into the oral cavity or nasal cavity);

4. Articulation (the organs of speech transform the sound into an intelligible speech sound).



According to the manner of articulation (how the breath is used) the consonants are: stops, also known as plosives, fricatives, affricates, nasals, laterals, and approximants.

Nasals, laterals and approximants are always voiced;

stops, fricatives and affricates can be voiced or unvoiced.

Stops /Plosives/	During production of these sounds, the airflow from the lungs is completely blocked at some point, then released. In English, they are /**p**/, /**b**/, /**t**/, /**d**/, /**k**/, and /**g**/.
Fricatives	The flow of air is constricted, but not totally stopped or blocked. In English, these include /**f**/, /**v**/, /θ/, /ð/, /**s**/, /**z**/, /ʃ/, /ʒ/, and /**h**/.
Affricates	These sounds begin like stops, with a complete blockage of air/closure of the vocal tract, and end with a restricted flow of air like fricatives. English has two affricates - the /ʧ/ sounds of "**ch**u**rch**" and the /ʤ/ of "**j**u**dg**e".
Nasals	Nasals are sounds made with air passing through the nose. In English, these are /**m**/, /**n**/, and /ŋ/.
Laterals	Lateral consonants allow the air to escape at the sides of the tongue. In English there is only one such sound - /**l**/
Approximants	In the production of an approximant, one articulator is close to another, but the vocal tract is not narrowed to such an extent that a turbulent airstream is produced. In English, these are /**j**/, /**w**/ and /**r**/.

	Approximants /**j**/ and /**w**/ are also referred to as **semi-vowels**.

According to the **place of articulation** (where in the mouth or throat the sound is produced) the consonants are:

Bilabial: with both lips	/p/, /b/, /m/
Labiodental: between lower lip and upper teeth	/f/, /v/
Dental/Interdental: between the teeth	/θ/, /ð/
Alveolar: the ridge behind the upper front teeth	/t/, /d/, /s/, /z/, /n/, /l/, /r/
Alveo-palatal (or post-alveolar): it is the area between the alveolar ridge and the hard palate	/ʃ/, /ʒ/, /ʧ/, /ʤ/
Palatal: hard palate, or 'roof' of the mouth'	/j/
Velar: the soft palate or velum	/k/, /g/, /ŋ/
Glottal (laryngeal): space between the vocal cords	/h/

Phonation

The airflow passes from the lungs into the vocal tract and then to the larynx. In the larynx, some of the essential features of the sound production take place as they contain the vocal folds (vocal cords). Clark and Yallop (1992) describe the larynx as a skeletal frame situated at the top of the trachea and made of a series of cartilages, with the two main cartilages (the thyroid and the cricoid) playing the crucial role in the process of phonation. Inside

the thyroid cartilage, there is a so-called voice box, which consists of two plates joined together at an angle at the front.

The vocal folds are two plates, or rather two thick flaps of tissue and are made of the so-called vocal ligament and a vocal muscle. At the back, the vocal folds are attached to a pair of arytenoidcartilages which move in rotational and sliding motions that shape the position of the vocal folds.

The Vocal Folds

The vocal folds play a crucial role in one of the most important phonetic processes, which is that of voicing. The vocal folds can be brought together and when the airstream is forced between them, they vibrate and produce voice.

When the vocal folds are wide apart, the airstream passes between them freely, meaning that the vocal folds do not vibrate and no voice is produced. This position is set for breathing, so that air can pass in and out of the lungs unimpeded. The laryngeal aperture (or space) between the vocal folds is called the glottis. Clark and Yallop (1992: 32) characterise the glottal opening as being approximately 17 to 22 mm long in males and about 11 to 16 mm long in females. Vowels, vowel-like sounds (sonorants), and a number of consonants are produced by the vibration of the vocal folds, and consequently, they are defined as voiced.

The open glottis with an absence of vibration in the vocal folds is characteristic for voiceless sounds.

Clark and Yallop (1992: 37) describe the phonation cycle in the following stages:

1. the vocal folds are drawn together fairly tightly;
2. the expiratory airflow builds up the pressure and forces the vocal folds apart;
3. as the airflow escapes through the glottis, the pressure is reduced, and the focal folds close again.

By varying the status of the vocal folds (more tense or relaxed, longer or shorter, higher or lower rate of vibration, etc.), we can change the quality of the voice (from loud to quiet, clear, harsh, creaky, etc.).

Consonants

Voiceless			*Voiced*		
Plosives					
p	*pet, lap*	pɛt, læp	b	*bet, lab*	bɛt, læb
t	*town, mat*	taʊn, mæt	d	*down, mad*	daʊn, mæd
k	*cap, luck*	kæp, lək	g	*gap, lug*	gæp, ləg
Affricates					
ʧ	*chin, batch*	ʧɪn, bæʧ	ʤ	*gin, badge*	ʤɪn, bæʤ
Fricatives					
f	*fast, safe*	fæst, seɪf	v	*vast, save*	væst, seɪv
θ	*thigh, breath*	θaɪ, brɛθ	ð	*thy, breathe*	ðaɪ, brið
s	*sink, face*	sɪŋk, feɪs	z	*zinc, phase*	zɪŋk, feɪz
ʃ	*shy, wish*	ʃaɪ, wɪʃ	ʒ	*measure*	ˈmɛʒər
h	*hat*	hæt, –			
Nasals			*Voiced*		
			m	*meet, team*	mit, tim
			n	*nice, fine*	naɪs, faɪn
			ŋ	–, *sing*	–, sɪŋ
Approximants					
Lateral (approximant)			l	*late, sail*	leɪt, seɪl
(Median)**approximants**			j	*yes,* –	jɛs, –
			w	*wait* –	weɪt, –
			r	*red, dare*	rɛd, dɛr

..

Vowels, Consonants, and Sonorants

Speech sounds are generally divided into two classes:

vowels and consonants.

Vowels are produced with a comparatively open vocal tract for the airflow to pass unimpeded. As a result, vowels are considered to be open sounds, whereas consonants are produced with a certain constriction in the vocal tract. Roach (2009a) gives the following characterisation of the sounds:

Vowels are the class of sounds that are associated with the least obstruction to the flow of air during their production.

Consonants are the class of sounds that are associated with obstructed airflow through the vocal tract during their production. Vowels can also be distinguished from consonants as they display a different acoustic energy:

vowels are highly resonant and intense and have greater sonority than do consonants. Vowels also have the function to be syllabic (a syllable can

contain a minimum of one vowel), while consonants are units that function at the margins of syllables, either singly or in clusters, and are optional.

Vowels typically involve the vibration of vocal folds, so they are voiced, while consonants split into voiced and voiceless forms.

A special set of consonants that demonstrate reduced levels of obstructed airflow during their production are called sonorants (sonants, semivowels). According to Roach (2009)

Sonorants are sounds that are voiced and do not cause sufficient obstruction to the airflow to prevent normal voicing from continuing.

A list of the 20 vowel phonemes in English with word examples is given in the following table:

/ɪ/	as in *sit*	/eɪ/	as in *may*
/iː/	as in *speak*	/aɪ/	as in *kite*
/ʊ/	as in *book*	/ɔɪ/	as in *toy*
/uː/	as in *tool*	/ɪə/	as in *near*
/ʌ/	as in *cup*	/eə/	as in *dare*
/ɑː/	as in *heart*	/ʊə/	as in *cure*
/ɒ/	as in *box*	/əʊ/	as in *cold*
/ɔː/	as in *door*	/aʊ/	as in *mouth*
/e/	as in *bed*		
/æ/	as in *cat*		
/ɜː/	as in *bird*		
/ə/	as in *ago*		

What is a consonant?

A consonant is a speech sound that involves an obstruction of the airstream as it passes through the vocal tract. Describing a consonant involves describing the nature of the obstruction, and there are three factors to be taken into consideration: voicing, place of articulation, and manner of articulation.

Voicing

Voicing refers to the actions of the vocal folds during the articulation of a consonant. Different actions of the vocal folds produce voiced and voiceless sounds.

-For voiced sounds (i.e., vowels and the voiced consonants /b d g ʤ v ð z ʒ m n ŋ l r j w/), the vocal folds are held gently together so that the airflow from the lungs causes them to vibrate.

- For voiceless sounds (i.e., the voiceless consonants /p t k ʧ f θ s ʃ h/), the vocal folds are held apart as in the position for normal breathing.

It's easiest to appreciate the voicing in sounds like /v ð z ʒ m n ŋ l r/ because these can be prolonged. Put your hand on your throat as you say them and feel the vibration. Note how the vibration stops and starts as you stop and start the consonant.

A number of English consonants come in pairs, the only difference between them being that one is voiceless and one is voiced.

These pairs are:

/f v/, /θ ð/, /s z/, /ʃ ʒ/, /p b/, /t d/, /k g/, and /ʧ ʤ/.

Take some of the pairs that can be easily lengthened, such as /f v/ and /s z/, and alternate between the voiceless and the voiced consonants, feeling how the vibration in your larynx stops and starts. Note that in our diagrams of consonant articulations, we use a plus sign at the larynx to indicate that

the consonant is voiced and a minus sign if it's voiceless. If both signs are included (±), both voiced and voiceless articulations are possible.

Place of articulation

The second factor to take into account when describing a consonant is where in the vocal tract the obstruction is made. Place of articulation is described in terms of an active articulator that moves toward a passive articulator, which is in a fixed position

Place	*Active articulator*	*Passive articulator*	*Consonants*
Bilabial	Lower lip	Upper lip	/p b m/
Labio-dental	Lower lip	Upper incisors	/f v/
Dental	Tongue-tip	Upper incisors	/θ ð/
Alveolar	Tongue-tip	Alveolar ridge	/t d n s z l/
Post-alveolar	Tongue-tip	Rear of alveolar ridge	/r/
Palato-alveolar	Tongue-tip, blade, and front	Alveolar ridge and hard palate	/ʧ ʤ ʃ ʒ/
Palatal	Front of tongue	Hard palate	/j/
Velar	Back of tongue	Soft palate	/k g ŋ/
Glottal	Vocal folds	Vocal folds	/h/
Labial-velar	Back of tongue Lips	Soft palate Lips	/w/

The lip-rounding of labial-velar /w/ and positioning of the vocal folds for glottal /h/ cannot be analyzed in terms of passive and active articulators because they involve two elements moving toward each other (the corners of the mouth for /w/ and the two vocal folds for /h/). The lips and vocal folds are therefore classified as both active and passive in our table.

Manner of Articulation

Manner of articulation is the term used to describe the kind of obstruction involved in articulating a consonant. The five manners of articulation found in English are

• Plosive: A complete closure is formed in the vocal tract, blocking the airstream, and then released. The GA plosives are /p b t d k g/.

• Fricative: A narrowing is formed in the vocal tract, causing turbulence and fricative noise as the airstream is forced through. The GA fricatives are /f v θ ð s z ʃ ʒ h/.

• Affricate: A complete closure is formed in the vocal tract, blocking the airstream, and then released slowly, resulting in homorganic friction (i.e.,

fricative noise at the same place of articulation). The GA affricates are /ʧ ʤ/.

• Nasal: A complete closure is formed in the oral cavity, the soft palate is in the lowered position, and air exits via the nose. The GA nasals are /m n ŋ/.

• Approximant: A narrowing is formed in the vocal tract, but one not narrow enough to cause turbulence and noise as in the case of a fricative. The GA approximants are /r l j w/.

Explore what these terms really mean by articulating some of the consonants you are confident of and feeling the different manners of articulation.

/p/ voiceless bilabial plosive

/s/ voiceless alveolar fricative

/b/ voiced bilabial plosive

/z/ voiced alveolar fricative

/t/ voiceless alveolar plosive

/ʃ/ voiceless palato-alveolar fricative

/d/ voiced alveolar plosive

/ʒ/ voiced palato-alveolar fricative

/k/ voiceless velar plosive

/h/ voiceless glottal fricative

/g/ voiced velar plosive

/m/ voiced bilabial nasal

/ʧ/ voiceless palato-alveolar affricate

/n/ voiced alveolar nasal

/ʤ/ voiced palato-alveolar affricate

/ŋ/ voiced velar nasal

/f/ voiceless labio-dental fricative

/j/ voiced palatal approximant

/v/ voiced labio-dental fricative

/w/ voiced labial-velar approximant

/θ/ voiceless dental fricative

/l/ voiced alveolar lateral approximant

/ð/ voiced dental fricative

/r/ voiced post-alveolar approximant

	Bilabial	Labio-dental	Dental	Alveolar	Post-alveolar	Palato-alveolar	Palatal	Velar	Glottal	Labial-Velar
Plosives	p b			t d				k g		
Affricates						ʧ ʤ				
Fricatives		f v	θ ð	s z		ʃ ʒ			h	
Nasals	m			n				ŋ		
Approximants				l	r		j			w

Polsives (Stops)

Plosives and affricates make up the category of stops. They have in common a combination of a velic closure and a closure in the oral cavity that results in a complete obstruction to the airstream (hence the term stop). English has three pairs of voiceless and voiced plosives at the bilabial, alveolar, and velar places of articulation.

• For /p/ and /b/, the lips come together and form a complete closure, stopping the air- stream

• For /t/ and /d/, a complete closure is formed by the tip of the tongue against the alveolar ridge and by the sides of the tongue against the upper side teeth.

• For /k/ and /g/, the back of the tongue forms a closure against the soft palate, and the rear of the sides of the tongue form a seal against the rear upper side teeth.

English has a single pair of voiceless and voiced affricates at the palato-alveolar place of articulation.

• For /ʧ/ and /ʤ/, the tip and blade of the tongue form a closure against the rear part of the alveolar ridge, the front of the tongue is raised towards the hard palate, and the sides of the tongue form a seal against the upper side teeth

• The closure is released slowly, resulting in a brief moment of homorganic friction

• The primary articulation is accompanied by a simultaneous secondary articulation – rounding and protrusion of the lips.

Stop Sounds' Production

1 Approach: The active articulator moves toward the passive articulator in order to form the closure.

2 Hold: The closure is made, the airstream is blocked, and pressure builds up.

3 Release: The active articulator moves away from the passive articulator, breaking the closure and releasing the compressed air.

The difference between plosives and affricates is that the release stage of affricates is slower, and therefore, the articulators spend a brief moment in the position for a fricative at the same place of articulation, resulting in audible friction. Another key difference is that the fricative release stage of affricates is always present while the release stage of plosives is very variable

Aspiration

When the voiceless plosives /p t k/ are at the beginning of a stressed syllable, they are released with aspiration. This means that there's a brief period of voicelessness between the release of the plosive and the beginning of voicing for the next sounds. During this period, the vocal folds remain open, and the air rushing through the vocal tract gives the impression of a short [h]; hence, aspiration is shown with the symbol [h] (e.g., [th]).

/p t k/ are not at the beginning of a stressed syllable, they are weakly aspirated or unaspirated. This is the case at the beginning of unstressed syllables and at the end of syllables but also, quite strikingly, when preceded by /s/ at the beginning of a syllable:

[p͡ʰ] peas [p͡ʰiz] palm [p͡ʰɑm] pound [p͡ʰaʊnd] [th] toad [t͡ʰoʊd] tail [t͡ʰeɪl]

[p]	*perform* [pərˈform]	*pacific* [pəˈsɪfɪk]	*pyjamas* [pəˈʤæməz]
[t]	*today* [təˈdeɪ]	*taboo* [təˈbu]	*together* [təˈgɛðər]
[k]	*concern* [kənˈsərn]	*kebab* [kəˈbɑb]	*canal* [kəˈnæl]
[p]	*leap* [lip]	*rope* [roʊp]	*map* [mæp]
[t]	*fight* [faɪt]	*goat* [goʊt]	*rate* [reɪt]
[k]	*like* [laɪk]	*sick* [sɪk]	*cheek* [ʧik]
[pʰ]	*pin* [pʰɪn]	*pot* [pʰɑt]	*pie* [pʰaɪ]
[p]	*spin* [spɪn]	*spot* [spɑt]	*spy* [spaɪ]
[tʰ]	*tone* [tʰoʊn]	*top* [tʰɑp]	*till* [tʰɪl]
[t]	*stone* [stoʊn]	*stop* [stɑp]	*still* [stɪl]
[kʰ]	*core* [kʰor]	*kill* [kʰɪl]	*cool* [kʰul]
[k]	*score* [skor]	*skill* [skɪl]	*school* [skul]

When aspirated /p t k/ are followed by approximants /l r w j/, the aspiration takes place during the articulation of the approximant, partially or fully devoicing the approximant [l̥ r̥ j̊ w̥] and causing turbulence and fricative noise at the place of articulation of the approximant, for example:

/p/ play [pl̥eɪ] print [pr̥ ɪnt] pew [pj̊u] /t/ treat [tr̥ it] twin [tw̥ ɪn] /k/ clay [kl̥eɪ] cream [kr̥ im] cue [kj̊u] queasy [ˈkw̥ izi]

When /s/ precedes these clusters, there's no aspiration and therefore the approximants do not become devoiced or fricative:

/sp/ splay [spleɪ] sprint [sprɪnt] spew [spju] /sk/ scream [skrim] skew [skju] squeezy [ˈskwizi]

As regards aspiration and devoicing, the /str/ cluster is a little irregular. Unlike other /s/ + voiceless plosive + approximant clusters, the /r/ remains somewhat devoiced and frica- tive. Consequently, the /tr/ of strap is not very different from, or even identical to, the /tr/ of trap.

Fricatives

English has four pairs of voiceless and voiced fricatives at the labio-dental, dental, alveolar, and palato-alveolar places of articulation and a single voiceless glottal fricative.

• For /f/ and /v/, the lower lip lightly touches the upper incisors, and the airstream is forced through the gap

• For /θ/ and /ð/, the sides of the tongue form a seal against the side teeth, and the air- stream is forced through a gap between the tongue tip and the rear of the upper incisors.

For some speakers, the articulation of /θ ð/ is interdental, i.e., made with the tongue tip projecting a little between the upper and lower incisors. • For /s/ and /z/, the airstream is forced through a gap between the tongue tip/blade and the alveolar ridge, while the sides of the tongue form a seal against the upper side teeth.

• For /ʃ/ and /ʒ/, the sides of the tongue form a seal against the upper side teeth, forcing the airstream through a narrow gap between the tongue tip/blade and the alveolar ridge and between the front of the tongue and the hard palate.

/h/

During the articulation of /h/, the vocal tract assumes the position for the following sound, usually a vowel, which gives /h/ the quality of a voiceless or fricative version of the following sound. Thus, when isolated, the /h/ in heart is noticeably different from the /h/ in hit, the first having the quality of [ɑ̥] and the second of [ɪ̥]. In the case of a following /j/, as in huge, the /h/ is usually [ç], a voiceless palatal fricative. Fricative realizations of /h/ are also some- times heard before back vowels – pharyngeal before /ɑ/ (e.g., hot), uvular before [o] (e.g., horse), or velar before /u/ (e.g., whose). Between vowels, as in ahead or a house, a voiced glottal fricative [ɦ] is a common, but not obligatory, realization. The [ɦ] articulation involves a brief period of

breathy voice, where the vibrating vocal folds do not fully come together as they vibrate, allowing air to escape between them and resulting in a "breathy" quality.

Nasals

English has three nasals, all voiced, at the bilabial, alveolar, and velar places of articulation:

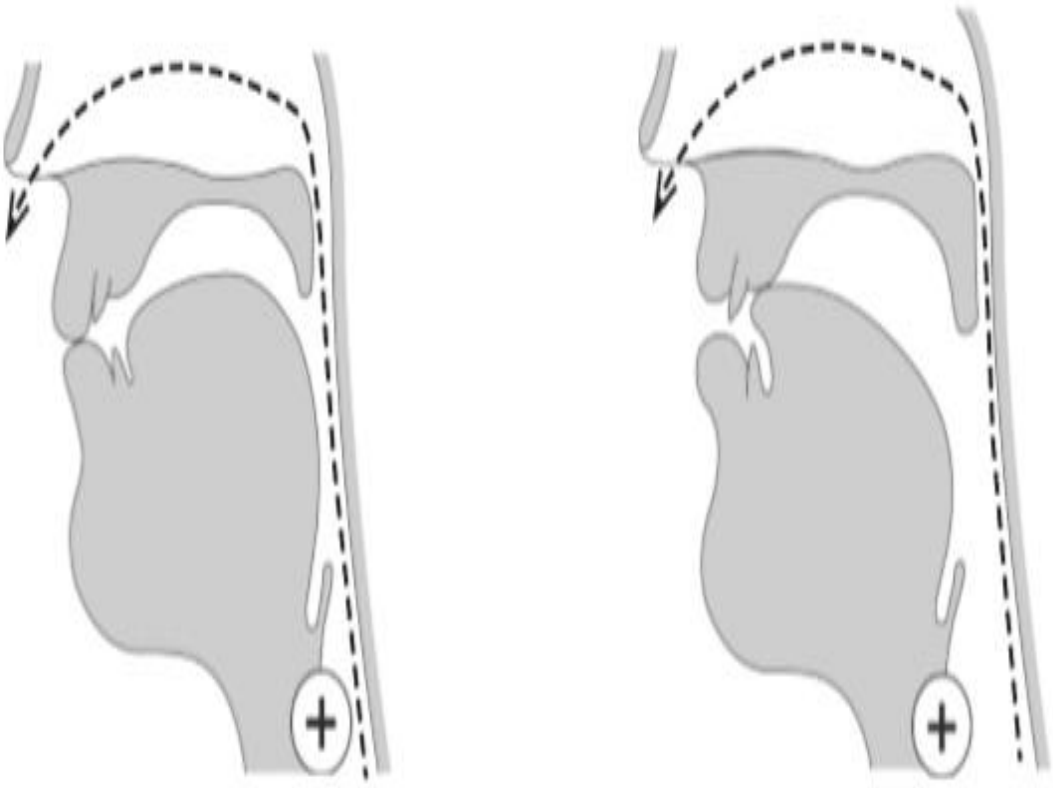
• For /m/, the lips come together and form a complete closure while the soft palate lowers to allow air to exit via the nose (see figure).

• For /n/, a complete closure is formed in the oral cavity by the tip of the tongue against the alveolar ridge and by the sides of the tongue against the upper side teeth. Simultaneously, the soft palate is lowered, allowing air to escape via the nose (see figure).

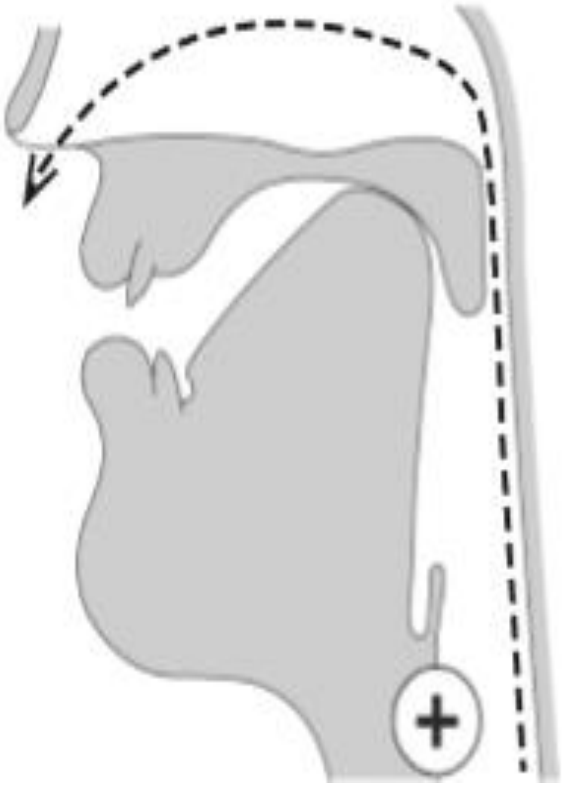
• For /ŋ/, the back of the tongue forms a closure against the soft palate, and the rear of the sides of the tongue form a seal against the rear upper side teeth. The soft palate is in the lowered position, allowing air to exit via the nose (see figure).

Note that these three articulations are the same as those for the bilabial /p b/, alveolar /t d/, and velar /k g/ plosives, only differing in the position of the soft palate – raised for plosives, lowered for nasa

ls.



/m/ /n/



/ŋ/

Approximants

English has four approximants, all voiced, at the alveolar, post-alveolar, palatal, and labial- velar places of articulation:

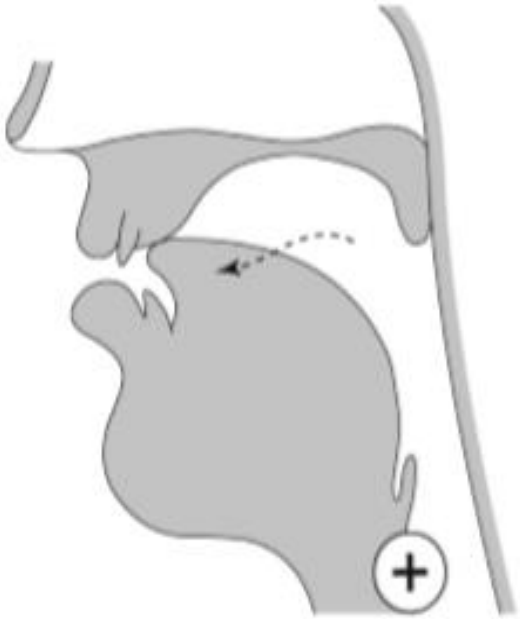
• For /l/, the tongue tip touches the alveolar ridge, while one or both of the sides of the tongue remain lowered, not making a seal with the side teeth and allowing air to flow around the tongue-tip contact (see Figure).

• For /r/, the tongue blade and front hollow while the tongue-tip curls slightly upward toward the rear part of the alveolar ridge (see Figure). The lips are often weakly rounded.

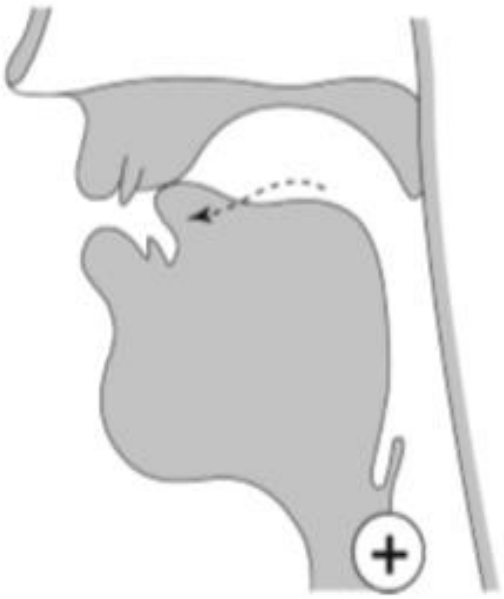
• For /j/, the front of the tongue moves toward the hard palate .

• For /w/, the back of the tongue moves toward the soft palate and the lips round (see Figure).

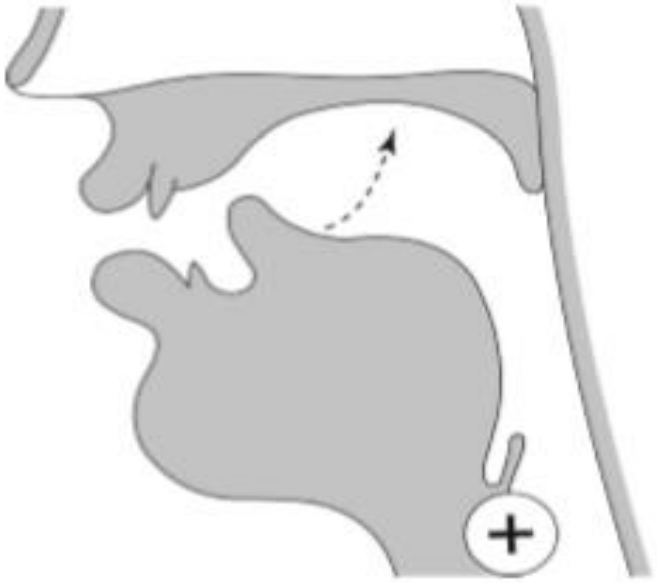
Each approximant is accompanied by the raising of the soft palate, forming a velic closure blocking the entrance to the nasal cavity. The double place name labial-velar reflects the fact that /w/ is a double articulation (i.e., one that involves two simultaneous articulations of equal degree – labial and velar approximants)



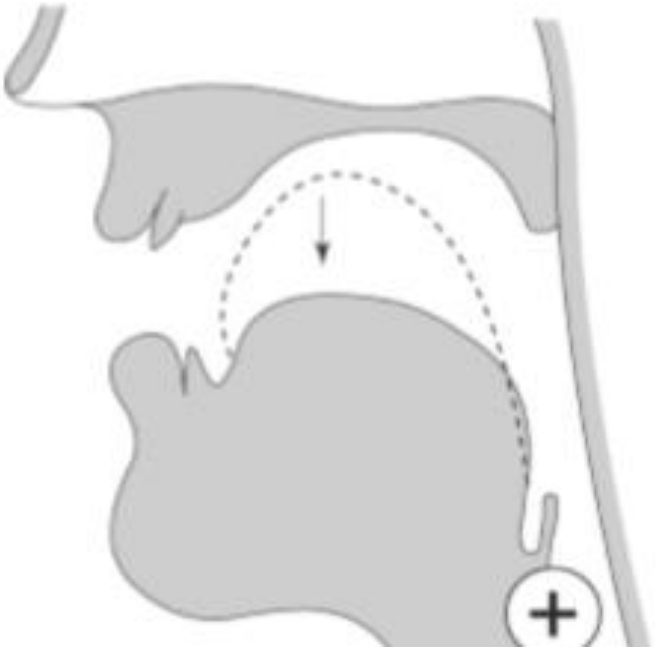
Clear /l/



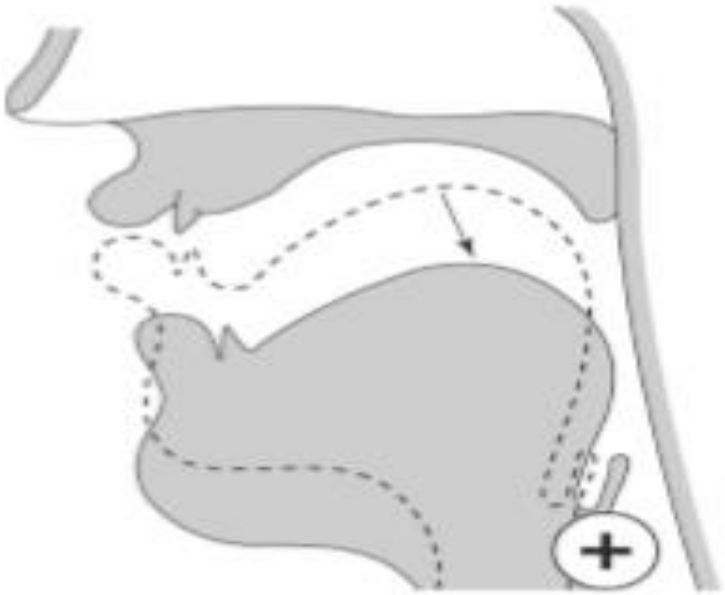
Dark /l/



/r/



/j/



Semi-vowels

Another way of grouping the approximants is according to the part of the tongue involved in their articulation, giving the terms semi-vowel (/j/ and /w/) and non-semi-vowel (/l/ and /r/).

The semi-vowels are articulated with the part of the tongue that is used to articulate vowels – the front, center, and back. The position for /j/ and /w/ are the same as for the [i] and [u] vowels respectively. [j] and [i] both consist of an approximation of the front of the tongue to the hard palate, and [w] and [u] both consist of an approximation of the back of the tongue to the soft palate accompanied by simultaneous lip-rounding. Thus, [j] and [w] are glides from these vowel positions to a vowel of longer duration. The non-semi-vowels /l/ and /r/ involve the tip and blade of the tongue, which are not used in the articulation of vowels.

The semi-vowels /j/ and /w/ only occur in syllable onsets in English (e.g., young /jəŋ/, unit /ˈjunət/, few /fju/, one /wən/, wax /wæks/, twin /twɪn/).

Learners from other language back- grounds may feel that /j/ and /w/ can also occur in syllable codas, but in English, such non- onset glides toward

the [i] and [u] positions are best analyzed as part of the syllable nucleus, forming diphthongs:

face: cake /keɪk/ sail /seɪl/ day /deɪ/

price: like /laɪk/ ride /raɪd/ try /traɪ/

choice: voice /vɔɪs/ coin /kɔɪn/ boy /bɔɪ/

goat: oak /oʊk/ rose /roʊz/ no /noʊ/

mouth: shout /ʃaʊt/ clown /klaʊn/ plow /plaʊ/

In a nutshell

Stops

The stops consist of the plosives /p b t d k g/ and affricates /ʧ ʤ/. Their key features are:

1 With the soft palate raised, a closure is formed in the oral cavity and the airstream is blocked completely;

2 In the case of affricates, the release stage is obligatory and is slower than that of plosives, resulting in homorganic friction;

3 The release stage for plosives is variable. It may be absent when a homorganic stop follows, inaudible when a non-homorganic stop follows, nasal when a nasal follows or lateral when /l/ follows;

4 Together with fricatives, the stops are obstruents and behave similarly in the following ways: a) they come in voiceless and voiced pairs; voiced

stops are typically devoiced when adjacent to voiceless sounds or a pause and only usually fully voiced between voiced sounds; voiceless stops shorten preceding sonorants (nasals, approximants, and vowels) in the same syllable;

5 Aspiration accompanies voiceless plosives /p t k/ at the beginning of stressed syllables. In other contexts, they are weakly aspirated. When preceded by /s/, they are completely unaspirated;

6 Approximants following aspirated /p t k/ become devoiced and fricative. They remain voiced when /p t k/ are preceded by /s/ at the beginning of a syllable;

7 The voiceless stops /p t k ʧ/ can optionally undergo glottal reinforcement;

8 /t/ can optionally undergo glottal replacement;

9 /t/ can be tapped at the end of syllables between sonorants;

Fricatives

Summary

There are nine fricatives /f v θ ð s z ʃ ʒ h/. Their key features are:

1 With the soft palate raised, the articulators move close together to form a narrow gap. Forced through this stricture, the airstream becomes turbulent, resulting in audible friction;

2 Together with stops, fricatives make up the obstruent class of consonants and therefore behave similarly in the following ways: a) they come in voiceless and voiced pairs (except /h/) ;b) voiced fricatives are typically devoiced when adjacent to voiceless sounds and pauses – more so when followed by voiceless sounds or silence than when pre- ceded by them – and are only reliably fully voiced between voiced sounds ;c) voiceless

fricatives shorten sonorants (nasals, approximants, and vowels) preceding them in a syllable .

3 [ɦ], a voiced allophone of /h/, is possible between voiced sounds;

4 The fricatives can be divided into sibilants /s z ʃ ʒ/ and non-sibilants /f v θ ð h/: a) sibilants involve a longitudinal groove in the tongue channeling the airstream into a jet that produces turbulence and fricative noise when it hits an obstruction further along the vocal tract (the teeth) ;b) non-sibilant fricatives involve no grooving of the tongue and consequently their fricative noise is due to turbulence at the stricture itself ;c) the fricative noise produced by the sibilants is strong, while the non-sibilants pro- duce rather weak fricative noise, especially the voiced ones, which sometimes verge on being approximants .

5 During the glottal fricative /h/, friction is not only produced at the glottis but also throughout the whole vocal tract, and since the articulators take

the position for the fol- lowing vowel during the articulation of /h/, there are as many allophones of /h/ as there are vowels.

6 The glottal fricative /h/ only occurs in syllable onsets.

Nasals

Summary

There are three nasals, /m n ŋ/. Their key features are:

1 A complete closure is formed in the oral cavity while the soft palate is in the lowered position, allowing the airstream to exit via the nose;

2 The complete closures formed for /m n ŋ/ are identical to those for the bilabial /p b/, alveolar /t d/, and velar plosives /k g/. The difference is in the position of the soft palate: raised for the plosives, lowered for the nasals

3 Together with approximants (and vowels), nasals are sonorants and act similarly in the following ways:

a) they don't come in voiceless and voiced phonemic pairs

b) they aren't devoiced when adjacent to voiceless sounds or a pause

c) they are shortened by following voiceless consonants in the same syllable

4 In word-final position, the alveolar nasal can be followed by both voiceless and voiced alveolar plosives – /nt/ and /nd/. Bilabial and velar nasals can only be followed by voiceless bilabial and velar plosives in these positions – /mp/ and /ŋk/

5 Within a morpheme, nasals can only be followed by plosives that are homorganic 6 In certain circumstances, nasals, particularly /n/, can become syllabic and form the nucleus of a syllable

7 The velar nasal /ŋ/ doesn't occur in syllable onsets .

8 Apart from a small number of exceptions, /ŋg/ occurs within morphemes and /ŋ/ at the end of morphemes.

Minimal Pairs

/p/ and /b/

a) Word-initial

pack/back, pad/bad, pair/bare, pan/ban, park/bark, pat/bat, patch/batch, path/bath, pay/bay, pea/bee, peach/beach, peak/beak, peg/beg, pest/best, pet/bet, pie/buy, pig/big, pill/bill, pin/ bin, pit/bit,

pole/bowl, post/boast, pride/bride, pull/bull, pump/bump, punch/bunch, push/ bush

b) Word, final

cap/cab, cup/cub, hop/hob, lap/lab, mop/mob, rip/rib, pup/pub, rope/robe, slap/slab, swap/ swab, tap/tab, tripe/tribe

c) Word-medial

ample/amble, crumple/crumble, dapple/dabble, nipple/nibble, simple/symbol, staple/stable

Minimal pairs with /t/ and /d/

a) Word-initial

tangle/dangle, tank/dank, tart/dart, ten/den, tense/dense, tie/die, time/dime, tin/din, tip/dip, tire/dire, toe/dough, tomb/doom, ton/done, town/down, train/drain, trawl/drawl, tread/dread, trench/drench, trip/drip, trout/drought, trudge/drudge, true/drew, trunk/drunk, try/dry, two/do

b) Word-final bat/bad, beat/bead, bent/bend, bet/bed, bit/bid, bright/bride, brought/broad, built/build, cart/ card, court/cord, coat/code, debt/dead, eight/aid, fate/fade, feet/feed, great/grade, greet/ greed, grit/grid, hat/had, heart/hard, height/hide, hit/hid, hurt/heard, knot/nod, mat/mad, rate/raid, right/ride, root/rude, rot/rod, seat/seed, set/said, sight/side, slight/slide, sort/sword, squat/squad, threat/thread, tight/tide, wait/wade, wheat/weed, white/wide, write/ride

Words with /t/ and /d/

accident, astounding, attend, attitude, bandit, bloodshot, contend, contradict, dart, date, debt, decorate, defeat, delicate, dent, department, determined, dictator, diet, dirt, disaster, distant, donate, dot, doubt, dust, edit, gratitude, idiot, instead, intend, introduce, meltdown, modest, standard, teddy, tedious, tidy, timid, tired, toad, today, trade, tradition

Minimal pairs with /k/ and /g/

a) Word-initial cage/gauge, came/game, cane/gain, cap/gap, card/guard, cause/gauze, cave/gave, class/ glass, clue/glue,

coal/goal, coast/ghost, coat/goat, cold/gold, come/gum, cot/got, could/good, crab/grab, craft/graft, crane/grain, crate/great, crave/grave, crease/grease, crew/grew, crime/ grime, crow/grow, curl/girl

b) Word-final back/bag, buck/bug, muck/mug, peck/peg, pick/pig, pluck/plug, rack/rag, sack/sag, snack/ snag, stack/stag, tack/tag, tuck/tug, wick/wig

c) Word-medial anchor/anger, ankle/angle, decree/degree, mucky/muggy, tinkle/tingle, vicar/vigor

Minimal pairs with /ʧ/ and /ʤ/

a) Word-initial chain/Jane, char/jar, cheer/jeer, cherry/jerry, chess/Jess, chest/jest, Chester/jester, chew/Jew, chin/gin, chive/jive, choice/Joyce, choke/joke, chunk/junk

b) Word-final batch/badge, cinch/singe, etch/edge, H/age, larch/large, lunch/lunge, march/Marge, match/ Madge, perch/purge, retch/Reg, rich/ridge, search/surge

Minimal pairs with /f/ and /v/

a) Word-initial fail/veil, fairy/vary, fan/van, fast/vast, fat/vat, fault/vault, fear/veer, ferry/very, feud/viewed, few/view, file/vile, final/vinyl, fine/vine, fuse/views

b) Word-final belief/believe, calf/calve, grief/grieve, half/halve, leaf/leave, proof/prove, safe/save, shelf/ shelve, strife/strive, surf/serve, thief/thieve, wafer/waiver

c) Word-medial confection/convection, infest/invest, reference/reverence, refuse/reviews, rifle/rival, safer/ saver, shuffle/shovel, sniffle/snivel, surface/service, wafer/waiver

Minimal pairs with /θ/ and /ð/

thigh/thy, loath/loathe, sheath/sheathe, teeth/teethe, wreath/wreathe

Phrases with /θ/ and /ð/

gather strength, breathe through your mouth, rather pathetic, further south, gather your thoughts

Minimal pairs with /s/ and /z/

a) Word-initial

sack/Zack, sink/zinc, sip/zip, sown/zone, sue/zoo

b) Word-final

advice/advise, bus/buzz, cease/seize, device/devise, dose/doze, face/phase, fuss/fuzz, grace/ graze, hearse/hers, hiss/his, loose/lose, price/prize, race/raise, rice/rise

b) Word-medial looser/loser, muscle/muzzle

Minimal pairs with /ʃ/ and /ʒ/

Aleutian/allusion, Confucian/confusion

/ʃ/ and /ʒ/

a national treasure, a partial closure, a rash decision, a foolish delusion, social divisions, a population explosion, radiation exposure, a special measure, malicious pleasure, a special regime, an unusual shape, national television, a special occasion

Minimal pairs with /f/ and /θ/

fin/thin, first/thirst, fought/thought, Fred/thread, free/three, freeze/threes, frill/thrill; deaf/ death, oaf/oath, roof/Ruth

/f/ and /θ/

afterbirth, aftermath, afterthought, facecloth, faith, filthy,

footpath, fourth, froth, mouthful, thankful, thief, thoughtful, youthful

Minimal pairs with /v/ and /ð/

vale/they'll, van/than, vat/that, clove/clothe, loaves/loathes, fervor/further

/v/ and /ð/

nevertheless, themselves, weathervane

breathe heavily, a loving father, develop a rhythm, relatively smooth, whatever the weather, rather clever, a smooth curve, leather gloves, further investment, soothe your nerves, a smooth shave, a worthy victory, protective clothing

Minimal pairs with /s/ and /θ/

a) Word-initial sank/thank, saw/thaw, seam/theme, sick/thick, sigh/thigh, sink/think, sin/thin, song/thong, sought/thought, sum/thumb, symbol/thimble

b) Word-final eights/eighth, face/faith, force/forth, frost/frothed, gross/growth, miss/myth, moss/moth, mouse/mouth, pass/path, tense/tenth, truce/truth, worse/worth

c) Word-medial ensues/enthuse, unsinkable/unthinkable

Words with /s/ and /θ/

absinthe, amethyst, anthrax, arthritis, atheist, birthplace, breathless, enthusiastic, faithless, henceforth, hyacinth, hypothesis, locksmith, mathematics, orthodox, pathos, psychopath, sev- enth, south, stealth, stethoscope, strength, sympathy, thanks, thesaurus, thesis, thirsty, thrust

/s/ and /θ/

an assessment method, thrown off balance, birthday celebrations, a death certificate, the thrill of the chase, a thick crust, a lengthy description, a thin face, a thick mist, nothing to say, scared to death, a thin slice, a theme song, speech therapy, a faithful servant, slow growth, a solemn oath, the tenth century, a central theme, stop a thief, a thorough search, a school of thought, a serious threat, a sore throat, suck your thumb, speak the truth, lost youth, a thick sauce

/s/ and /θ/

(1) Sue gave birth to a healthy son last Saturday.

(2) Beth was threatened with expulsion by the principal.

(3) The cathedral's famous for its seventh-century ceiling.

(4) Psychologists now think there is such a thing as a sixth sense.

(5) The discipline of mathematics develops at a breathtaking pace.

(6) The circus got an enthusiastic reception in Plymouth yesterday.

(7) Matthew has produced an in-depth study of the symptoms of apathy.

Minimal pairs with /z/ and /ð/

Zen/then, bays/bathe, breeze/breathe, tease/teethe, wizard/withered

Words with /z/ and /ð/ bothers, brothers, dithers, feathers, mothers, newsworthy, others, otherwise, praiseworthy, Southerners, theirs, these, those

/z/ and /ð/

a worthy cause, rather busy, breathe easily, resemble your father, a further reason, rather bizarre

Minimal pairs with /s/ and /ʃ/

a) Word-initial

said/shed, sake/shake, same/shame, save/shave, sealed/shield, seat/sheet, self/shelf, sell/ shell, sigh/shy, sign/shine, sin/shin,

single/shingle, sip/ship, sock/shock, sort/short, sour/ shower, sun/shun

b) Word-final

fist/fished, gas/gash, lease/leash, mass/mash, mess/mesh, Paris/parish, rust/rushed

/s/ and /ʃ/

ambitious, anxious, assurance, astonish, atrocious, cautious, celebration, censorship, circulation, concession, conscious,

conversation, deception, delicious, discretion, discussion, disruption, distinguish, essential, establish, expression, gracious, horseradish, infectious, malicious, patience, precious, seashell, seashore, section, session, shameless, shoelace, slash, social, spacious, Spanish, special, splash, squash, superstition, sushi, tenacious, vicious

4 /s/ and /ʃ/

a modest ambition, absolutely astonished, a stiff brush, spare cash, a glass of champagne, a personality clash, a serious crash, from start to finish, fish soup, nice and fresh, cast a shadow, a sense of shame, a distinctive shape, a silk sheet, seek shelter, a nasty shock, sensible shoes, show business, a secret wish

Minimal pairs with /z/ and /ʒ/

baize/beige, rues/rouge, Caesar/seizure, composer/composure

/z/ and /ʒ/

a barrage of criticism, cause a collision, lose your composure, cause confusion, a pleasure cruise, a wise decision, an organized excursion, resist an invasion, easy to measure, a casual observer, rise to the occasion, use persuasion, business as usual

Minimal pairs with /n/ and /ŋ/

a) Word-final

b) ban/bang, bun/bung, clan/clang, done/dung, fan/fang, kin/king, pan/pang, pin/ping, ran/rang, run/rung, sin/sing, son/sung, tan/tang, thin/thing, ton/tongue, win/wing

c) Word-medial

d) hand/hanged, wind/winged

/n/ and /ŋ/

anything, beginning, cunning, delinquent, England, evening, fascinating, gardening, hand- writing, interesting, landing, lengthen, lightning, morning, nothing, penguin, warning, wing-span, yearning

Minimal pairs with /r/ and /w/

rage/wage, raid/wade, rail/wail, raise/ways, rake/wake, rare/wear, rate/wait, ray/way, reel/ wheel, rent/went, rest/west, rich/which, ride/wide, right/white, rinse/wince, rip/whip, ripe/ wipe, roar/war, room/womb, run/one, write/white, array/away

/r/ and /w/

aquarium, brainwave, breadwinner, brickwork, crossword, driveway, everyone, framework, inquiry, mouthwatering, quarrel, quarry, query, railway, request, require, reward, runway, squirrel,

warrant, wary, weary, withdraw, worry

Minimal pairs with /l/ and /r/

a) Word-initial

bland/brand, blink/brink, bloom/broom, blush/brush, clamp/cramp, clash/crash, climb/ crime, cloud/crowd, clown/crown, clue/crew, flame/frame, flea/free, flesh/fresh,

flight/fright, flute/fruit, fly/fry, glass/grass, glow/grow, lace/race, lack/rack, lake/rake, lamb/ram, lamp/ ramp, lane/rain, late/rate, law/raw, light/right, list/wrist, liver/river, load/road, lock/rock, long/wrong, loot/root, lot/rot

b) Word-medial

alive/arrive, belated/berated, believe/bereave, belly/berry, collect/correct, collection/correction, pilot/pirate

c) Word-final

bell/bear, fell/fair, hell/hair, shell/share, spell/spare, swell/swear, well/wear, deal/dear, feel/ fear, heel/here, meal/mere, kneel/near, peel/peer, steal/steer

Minimal pairs with /t/ and /ʧ/

a) Word-initial

talk/chalk, tart/chart, tatty/chatty, tease/cheese, test/chest, tick/chick, till/chill, tin/chin, tip/ chip, toes/chose, top/chop, tore/chore, two/chew

b) Word-final

art/arch, bat/batch, beat/beach, belt/belch, bent/bench, cat/catch, coat/coach, eat/each, hat/ hatch, hit/hitch, hut/hutch, it/itch, knot/notch, mat/match, pat/patch, pit/pitch, port/porch, rent/wrench, start/starch

c) Word-medial

jester/gesture

Minimal pairs with /d/ and /ʤ/

a) Word-initial

dab/jab, dam/jam, day/jay, dear/jeer, debt/jet, dental/gentle, din/gin, dog/jog, dot/jot, dug/ jug, dump/jump, dust/just

b) Word-final

aid/age, bad/badge, buddy/budgie, head/hedge, lard/large, paid/page, raid/rage, rid/ridge, wade/wage

Minimal pairs with /ʧ/ and /ʃ/

Word-initial

chair/share, chatter/shatter, cheat/sheet, cheer/sheer, cherry/sherry, chew/shoe, chin/shin, chip/ship, chop/shop, chore/shore

Word-final

batch/bash, butch/bush, catch/cash, crutch/crush, ditch/dish, hutch/hush, latch/lash, leech/ leash, march/marsh, match/mash, much/mush, watch/wash, witch/wish

/ʧ/ and /ʃ/

archbishop, championship, cherish, childish, situation

boyish charm, a butcher's shop, a chain reaction, a chat show, a crucial match, culture shock, a delicious lunch, a distinguishing feature, a fresh approach, a short chat, a special feature

Minimal pairs with /ʤ/ and /ʒ/

lesion/legion

/ʤ/ and /ʒ/

an unusual arrangement, the logical conclusion, a majority decision, a dangerous delusion, a rigid division, a huge explosion, a gentle massage, a visual image, an emergency measure, a joyous occasion, precision engineering, a major revision

Minimal pairs with /v/ and /w/

vale/wail, vary/wary, veal/wheel, veered/weird, vein/wane, vent/went, verse/worse, vest/ west, vet/wet, vine/whine, viper/wiper, vow/wow

/v/ and /w/

driveway, equivalent, everyone, heavyweight, overqualified, overweight, overwork, persua- sive, quiver, reservoir, swerve, twelve, vanquish, wave, weave, whatever, wives

an award for bravery, a lavish banquet, a male-voice choir, solve a crossword, a private dwelling, vital equipment, wave farewell, at frequent intervals, a valid password, a violent quarrel, covered in sweat, the average wage, an evening walk, a civil war, river water, heavy weapons, wedding

vows, vintage wine, a word of advice, alive and well, a worldview, well worth a visit, a live wire

Minimal pairs with /ʤ/ and /j/

gel/yell, Jew/you, jot/yacht, jeer/year, jet/yet

/ʤ/ and /j/

fugitive, genuine, huge, jocular, jugular, junkyard, musicology, refuge, usage

/h/

had/add, hair/air, hall/all, harm/arm, heal/eel, hear/ear, heart/art, heat/eat, hedge/edge, high/ eye, hill/ill, hit/it, hold/old, hotter/otter, hurl/earl

an unhappy childhood, an annoying habit, auburn hair, an abrupt halt, easy to handle, irreparable harm, in absolute harmony, a head injury, intense

heat, afraid of heights, expert help, ancient history, ice hockey, home address, an empty house

/ŋ/

In many languages, the velar nasal [ŋ] only occurs before the velar plosives /k/ or /g/. In English, however, /ŋ/ can occur with or without a following velar plosive. Word-medially, /ŋ/ contrasts with both /ŋk/ and /ŋg/, but word-finally, only /ŋ/ and /ŋk/ are possible.

Minimal pairs with /ŋ/ and /ŋk/

bang/bank, bung/bunk, bring/brink, cling/clink, ping/pink, ring/rink, sing/sink, sling/slink, sting/stink, tang/tank, thing/think, wing/wink; hanger/hanker, singer/sinker, stinger/stinker

/ŋ/ and /ŋk/ or /ŋg/

angling, gangplank, inkling, ranking, scaremongering, tingling, sprinkling, Thanksgiving, twinkling, blinking, warmongering

increasingly angry, a wedding banquet, a strong drink, surprisingly frank, the missing link, shocking pink, a long think, swimming trunks, a knowing wink, mounting anger, my ring finger, matching fingerprints, hunger pangs

Vowels

We saw that a consonant is a speech sound that involves an obstruction to the air- stream on its way through the vocal tract. So what then is a vowel?

A vowel is the opposite of a consonant: a sound made with no obstruction in the vocal tract to the air as it passes through it.

Say a long /ɑ/, the sound doctors ask us to make when they want to look into our mouths, and feel how the air flows out through your mouth without any obstruction. Try the same for /i/, the <ee> of tree, and /æ/, the <a> of cat. You will notice that the lips and tongue take different positions for these different vowels, but in each case, there's no obstruction or block- age of the kind that we find in consonants. If consonants are analyzed in terms of the kind of obstruction involved and where it is in the vocal tract, how can we analyze vowels, which have no such obstruction? Although the tongue and lips assume a wide range of complex shapes for the articulation of

different vowels, a relatively simple system has been developed to describe them.

Tongue shape

In order to understand the system behind the diagram, the first step is to explore the limits of the range of tongue positions used to make vowels, known as the vowel space. There are two fixed articulatory reference points to the system. To find the first, you make a vowel with the front of the body of your tongue pushed as far forward and as far up toward the hard palate as possible. This is the position for the [i] vowel. If you move your tongue any further forward or up, audible friction would result between the tongue and the hard palate, and the sound would no longer be a vowel. The second reference point is found by doing the opposite – opening your mouth and pulling your tongue as far down and back as possible without causing friction between the root of the tongue and the back wall of the pharynx. This is the [ɑ] vowel. A further two positions can be identified by pushing the tongue as far up and back as possible ,which gives us the [u] vowel, and by pushing the tongue as far forward and down as possible,

which gives us the [a] vowel. Note that during the production of all these vowels, the tongue tip and blade remain low in the mouth. They are not involved in vowel production, and this is why the front of the tongue as a technical term is not where non-phoneticians usually expect it to be. The front of the tongue is actually the front of the part used in vowel articulations and is what laypeople would think of as the center or middle of the tongue.

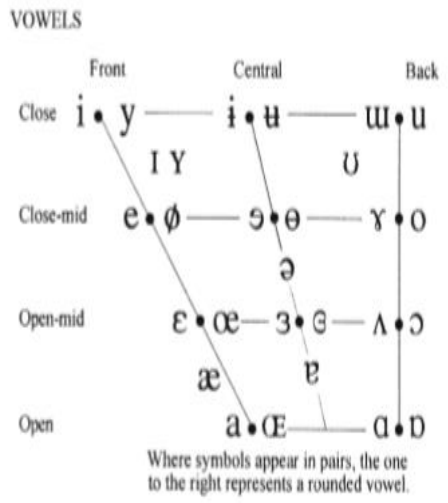


Figure 5.1 Vowel diagram from the IPA chart

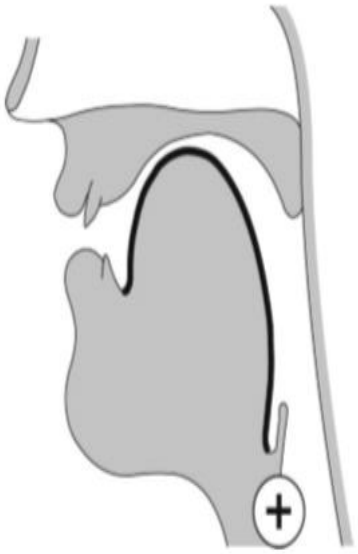


Figure 5.2 Tongue shape for [i]

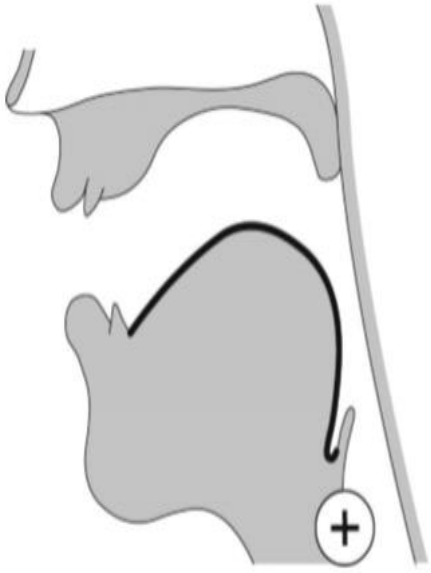


Figure 5.3 Tongue shape for [ɑ]

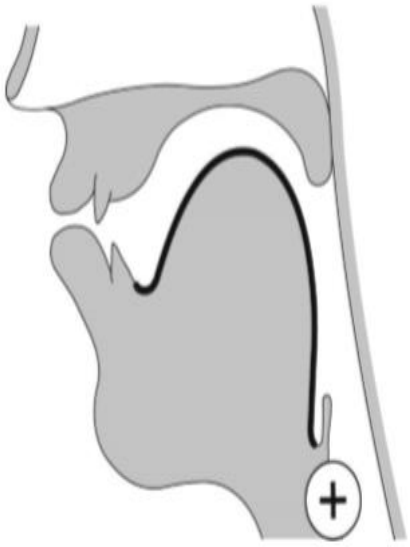


Figure 5.4 Tongue shape for [u]

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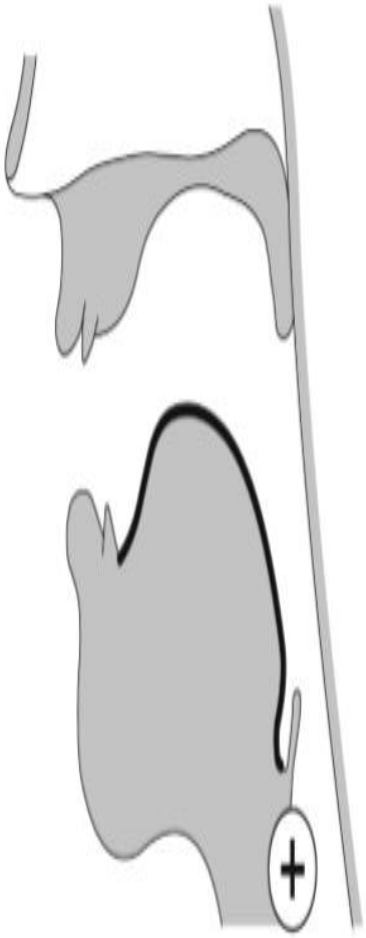


Figure 5.5 Tongue shape for [a]

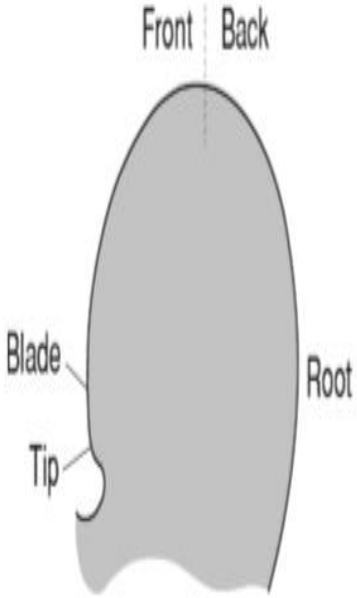
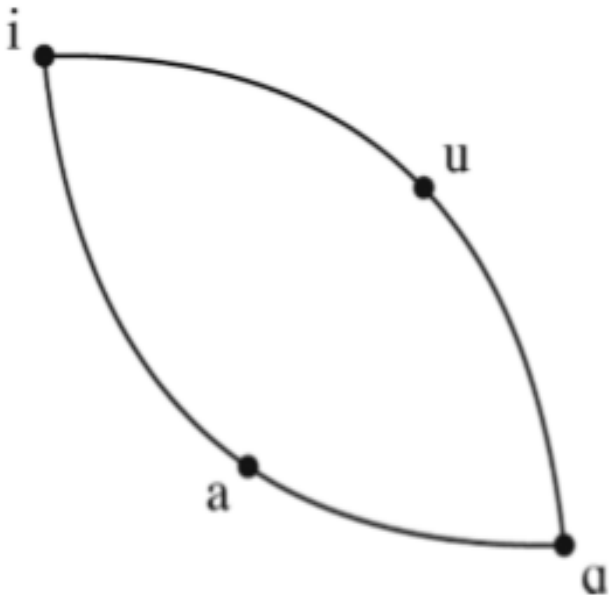
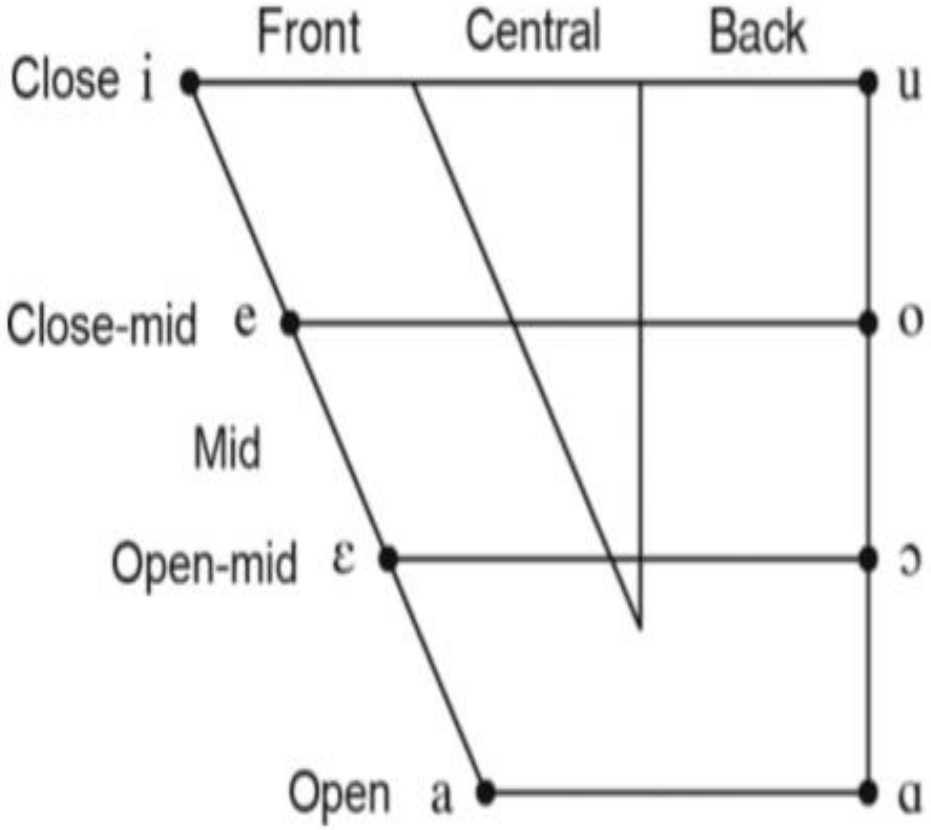


Figure 5.6 Tongue body raised and tip and blade lowered, as for vowel articulations





Vowel	*Keyword*	*Additional spellings*
Checked		
ɪ	KIT /kɪt/	gym, manage, busy, England, guilt
ɛ	DRESS /drɛs/	bread, friend, said, fair, vary, their
æ	TRAP /træp/	plaid
ə	schwa /ʃwɑ/	son, young, blood
ər [ɚ]	schwar /ʃwɑr/	girl, term, heard, word, journey, curry
ʊ	FOOT /fʊt/	put, would, woman
Free monophthongs		
i	FLEECE /fliːs/	neat, these, technique, belief, beer, weird
ɑ	PALM /pɑm/	not, swan, knowledge, start, heart, memoir
u	GOOSE /guːs/	rude, soup, shoe, do, crew, tour, poor
(ɔ	THOUGHT /θɔt/	caught, saw, walk, broad)
Free diphthongs		
eɪ	FACE /feɪs/	laid, may, weigh, they, break
aɪ	PRICE /praɪs/	try, lie, buy, guide
ɔɪ	CHOICE /ʧɔɪs/	boy
oʊ	GOAT /goʊt/	nose, blow, soul, toe
[o]	SPORT /sport/	more, four, oar, door, war
aʊ	MOUTH /maʊθ/	drown
Unstressed vowels		
ə	schwa	comma, ability, useless, bonus, famous
ər [ɚ]	schwar	collar, under, forget, Virginia, capture, martyr
i	FLEECE	happy, money, hippie, mediate

The shape isn't a perfect square, which reflects the fact that there's greater distance between [i] and [u] than between [a] and [ɑ] and also more space between [i] and [a] than between [u] and [ɑ]. The vowel diagram is further elaborated on by providing symbols for four fur- ther positions equally spaced on the left [e ɛ] and right sides [o ɔ]. Finally, lines are added to divide the vowel space into manageable vertical and horizontal areas (see Figure 5.10). Vertically, the positions are called close, mid, and open, with mid being further divided into close-mid and open-mid. Horizontally, they are front, central, and back.

Lips shape

So far, we've only considered the position of the tongue, but the shape of the lips is also important. Since the tongue and lips can move independently of each other, every vowel position can be accompanied by either unrounded or rounded lips. This is why the symbols on the IPA vowel diagram mostly come in pairs, the left symbol having unrounded lips and the right symbol having rounded lips.

Vowel labels

Serendipitously, it turns out that as in the case of consonants, the basics of vowel description can be summarized in terms of three factors: vertical tongue position, horizontal tongue posi- tion, and lip shape. The peripheral vowels (see Figure 5.1), for example, are described thus:

[i] close front unrounded

[ɯ] close back unrounded

[y] close front rounded

[u] close back rounded

[e] close-mid front unrounded

[ɤ] close-mid back unrounded

[ø] close-mid front rounded

[o] close-mid back rounded

[ɛ] open-mid front unrounded

[ʌ] open-mid back unrounded

[œ] open-mid front rounded

[ɔ] open-mid back rounded

[a] open front unrounded

[ɑ] open back unrounded

[ɶ] open front rounded

In its simplest form, the GA vowel system consists of thirteen vowel phonemes. Here, we list them with their phonemic symbol, a keyword, and a selection of examples demonstrating a range of spellings used for them. The keywords (written in small capitals) will be used through- out this work

and are based on those established by Wells (1982) and now widely used in Eng- lish phonetics. The schwa vowel /ə/ needs no keyword because the

name “schwa” is so well established, but note that the word schwa /ʃwɑ/ doesn’t actually contain the schwa vowel /ə/.

/ɪ/ kit gym, busy, pretty, build, sieve, women

/ʊ/ foot book, put, would, woman

/ɛ/ dress bread, friend, leopard, bury, rare, carry, pair, heir, aerial

/æ/ trap cat, meringue

/ə/ schwa above, murder, circus, concern, mustard

/i/ fleece pea, bee, key, even, pizza, field, weird, baby, acne, taxi, coffee, money

/u/ goose food, blue, fruit, move, tour, flew

/ɑ/ palm job, father, heart, knowledge

/eɪ/ face pay, mail, take, break, vein, prey, gauge

/aɪ/ price pie, dry, dye, pi, high, aisle

/ɔɪ/ choice toy, foil /aʊ/ mouth now, loud

/oʊ/ goat blow, hero, nose, hoax, soul open back rounded

Strong and weak vowels

When describing English vowels, a distinction can be made between the vowels that typically occur in stressed syllables and those that typically occur in unstressed syllables. The former are said to belong to the strong vowel system and the latter to the weak vowel sys- tem. There's a striking difference between the sets of vowels that are usually found in these two types of syllable, a distinction that isn't found in most other languages. All vowels are found in stressed syllables, but in unstressed syllables, a much

smaller set of vowels pre- dominates – schwa, fleece, kit, goose, and foot. This isn't to say that the strong vowels cannot occur in unstressed syllables but rather that they are unusual in this context. A number of works on

English phonetics use different symbols for the same GA vowel phonemes depending on whether they appear in stressed syllables as strong vowels or in unstressed syllables as weak vowels. Some writers use the symbol [ʌ] when the schwa phoneme is stressed and [ə] when it is unstressed:

Strong/weak: above /əˈbʌv/, London /ˈlʌndən/, ultra /ˈʌltrə/, gunman /ˈgʌnmən/ Phonemic: above /əˈbəv/, London /ˈləndən/, ultra /ˈəltrə/, gunman /ˈgənmən/

Some writers use the symbol [ɜ˞] when schwar is stressed and [ə˞] when it is unstressed:

Strong/weak: burger /ˈbɜ-gə-/, murmur /ˈmɜ-mə-/, perturb /pə-ˈtɜ-b/, burglar /ˈbɜ-glə-/ Phonemic: burger /ˈbərgər/, murmur /ˈmərmər/, perturb /pərˈtərb/, burglar /ˈbərglər/

Some works, notably the Cambridge English Pronouncing Dictionary and the Longman Pronunciation Dictionary, use the symbols [iː] and [uː] for fleece and goose as strong vowels and [i] and [u] for them as weak vowels:

Strong/weak: easy /ˈiːzi/, devious /ˈdiːviəs/, mutual /ˈmjuːʧuəl/

Phonemic: easy /ˈizi/, devious /ˈdiviəs/, mutual /ˈmjuʧuəl/

Monophthongs and Diphthongs

Vowels can be further divided into diphthongs, which involve a glide from one vowel position toward another during their production, and monophthongs, during which there's no change of vowel position. The

checked vowels are all monophthongs. The free vowel category contains both monophthongs and diphthongs:

Free monophthongs: fleece /i/, goose /u/, palm /ɑ/, (thought /ɔ/)

Free diphthongs: face /eɪ/, price /aɪ/, choice /ɔɪ/, mouth /aʊ/, goat /oʊ/

Monophthongs are written with a single vowel symbol, while the diphthongs have two symbols. The first symbol represents the starting position of the diphthong, and the second gives the direction of the glide. The diphthongs can be categorized according to the direction of the glide. All the GA diphthongs are closing diphthongs, where the tongue moves toward the top of the vowel space as they are pronounced. Closing diphthongs can be divided into the fronting diphthongs – face /eɪ/, price /aɪ/, and choice /ɔɪ/ – which glide toward the front of the vowel space, and the backing diphthongs – mouth /aʊ/ and goat /oʊ/ – which glide toward the back of the vowel space. The GA diphthongs are all falling diphthongs, which means that the first element is longer while the second gliding element is shorter

and weaker. Consequently, the closing diphthongs only glide toward the close front and close back areas but rarely reach them. [ɪ] and [ʊ] are used in the phonemic symbols for the closing diphthongs to represent the general close front and close back areas; it's not meant that [ɪ] and [ʊ] are their actual targets or that they represent the kit and foot phonemes. On our

vowel diagrams, we identify the starting point of a diphthong and represent the glide with an arrow. An alternative way of categorizing the diphthongs is according to the extent of the gliding element. Accordingly, price /aɪ/, mouth /aʊ/, and choice /ɔɪ/ are wide diphthongs, involving a relatively long glide, while face /eɪ/ and goat /oʊ/ are narrow diphthongs, involving a rather short glide. fleece /i/ and goose /u/ can have slightly diphthongal realizations, especially when they have their full length, making them a kind of narrow diphthong in such cases.

The key features of the checked monophthongs are:

1 As checked vowels, they must be followed in stressed syllables by a syllable-final con- sonant (i.e., by one or more consonants)

2 They are of relatively short duration when compared with the free vowels (and therefore are sometimes referred to as “short” vowels). trap /æ/ is an exception. For most speakers, it’s rather long ,

3 They are shortened when followed by a voiceless consonant in the same syllable;

a) The shortening is slight in the case of the checked vowels, as they are already inherently rather short.

b) The shortening is more noticeable when combined with the shortening of another sonorant (nasal or approximant).

c) Shortening of vowels is an important cue for identifying whether a following obstruent is voiced or voiceless.

4 kit /ɪ/ and foot /ʊ/ aren't merely short versions of fleece /i/ and goose /u/

5 Besides its occurrence as a stressed vowel, schwa /ə/ also very frequently occurs as an unstressed vowel

6 Stressed schwa tends to be opener (open-mid) than unstressed schwa (mid);

7 When schwa is followed in the same syllable by /r/, the two phonemes are realized as a single r-colored vowel – schwar [ɚ]

8 When trap /æ/ is followed by /r/, most speakers now replace it with dress /ɛ/, making such pairs as "marry" and "merry" homophones.

Diphthongs Features

The five diphthongs are face /eɪ/, price /aɪ/, choice /ɔɪ/, goat /oʊ/, and mouth /aʊ/. Their key features are:

1 They glide toward the close position at the top of the vowel space

a) The fronting diphthongs, face /eɪ/, price /aɪ/, and choice /ɔɪ/, glide toward the close front position.

b) The backing diphthongs, goat /oʊ/ and mouth /aʊ/, glide toward the close back position.

2 They are falling diphthongs

a) More time is spent at the start position than gliding.

b) The glides rarely reach the close position but finish around close-mid, hence the symbol for the second element.

3 Diphthongs can also be categorized according to the extent of the gl

ide

a) The narrow diphthongs, face /eɪ/ and goat /oʊ/, have short glides.

b) The wide diphthongs, price /aɪ/, choice /ɔɪ/, and mouth /aʊ/, have longer glides. 4 A schwa /ə/ is often inserted between the diphthongs and a following dark /l/ (pre-/l/ breaking)

5 As free vowels, they can appear in syllables with or without a following syllable-final consonant

6 They are of relatively long duration when compared with the checked vowels (and are therefore also “long” vowels)

7 They are shortened when followed by a voiceless consonant in the same syllable (pre- fortis clipping), which is an important cue for identifying whether a following obstruent is voiced or voiceless

8 The sport vowel [o] can be considered an allophone of goat /oʊ/ before /r/ (for speakers who have no thought /ɔ/ phoneme)

Vowels Contrast

dress /ɛ/ vs. kit /ɪ/

price /aɪ/ vs. choice /ɔɪ/

dress /ɛ/ vs. trap /æ/

mouth /aʊ/ vs. goat /oʊ/

schwa /ə/ vs. trap /æ/

dress /ɛ/ vs. face /eɪ/

dress /ɛ/ vs. schwa /ə/

fleece /i/ vs. kit /ɪ/

goose /u/ vs. foot /ʊ/

trap /æ/ vs. palm /ɑ/

The vocal Tract and Tongue

Before we discuss how the 24 English consonant phonemes are made, or articulated, let's familiarize ourselves with the anatomy of the vocal tract (Figure1) and tongue.

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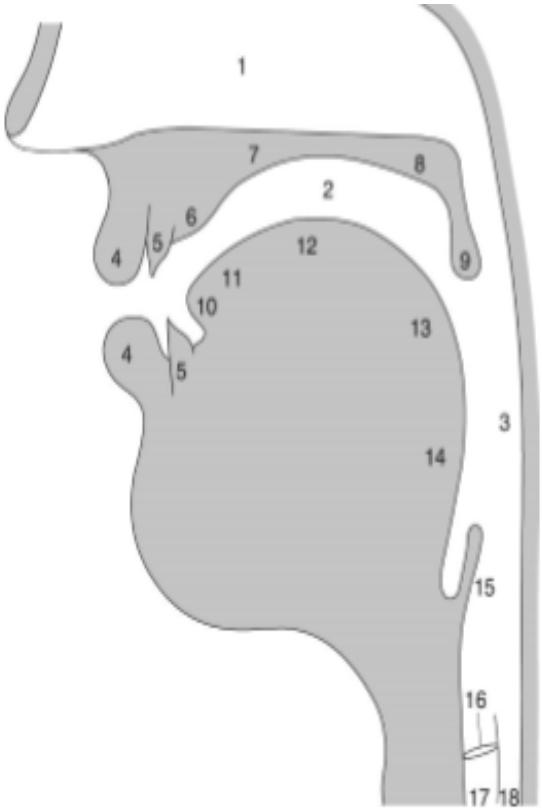


1 Nasal cavity	10 Tip of tongue
2 Oral cavity	11 Blade of tongue
3 Pharynx	12 Front of tongue
4 Lips	13 Back of tongue
5 Teeth	14 Root of tongue
6 Alveolar ridge	15 Epiglottis
7 Hard palate	16 Larynx, containing vocal folds
8 Soft palate (also termed "velum")	17 Trachea
9 Uvula	18 Esophagus

This diagram might appear strange to you at first. The tongue may be larger or smaller than you expected. It's small in the sense that the tip does not extend much further from the place at which it's attached to the lower jaw, and it's large in the sense that it extends deep into the mouth and throat and almost completely fills the oral cavity (mouth). If we start at the bottom of the diagram, we see that there are two passages.

The esophagus /ɪˈsɑfəgəs/ (food passage) leads to the stomach, and the trachea /ˈtreɪkiə/ (windpipe) leads to the lungs. It's the trachea that is of most interest for our purposes. During speech, air flows up from the lungs via the trachea, and the first point of interest that it meets is the larynx /ˈlɛrɪŋks/.

The larynx joins the trachea to the pharynx (throat), and is a box-like structure made of cartilage. It's larger in men than in women and is what makes the "Adam's apple," the lump at the front of the throat. The larynx contains the vocal folds, a pair of lip-like structures that can be brought together to close off the trachea and lungs. If there's a need to expel

something from the lungs or trachea, the vocal folds are brought tightly together, the muscles of the chest and abdomen squeeze the lungs strongly, and then the vocal folds are abruptly separated to let the trapped air below escape in an explosion that hopefully clears the blockage. This is a cough. The vocal folds also seal off the lungs to stabilize the chest during lifting or other types of physical exertion. You will notice that before you pick up something heavy, you take a breath and trap it in your lungs by bringing the vocal folds together, and then when you put the load down, you inevitably let out a gasp as you release the air you had trapped in your lungs.

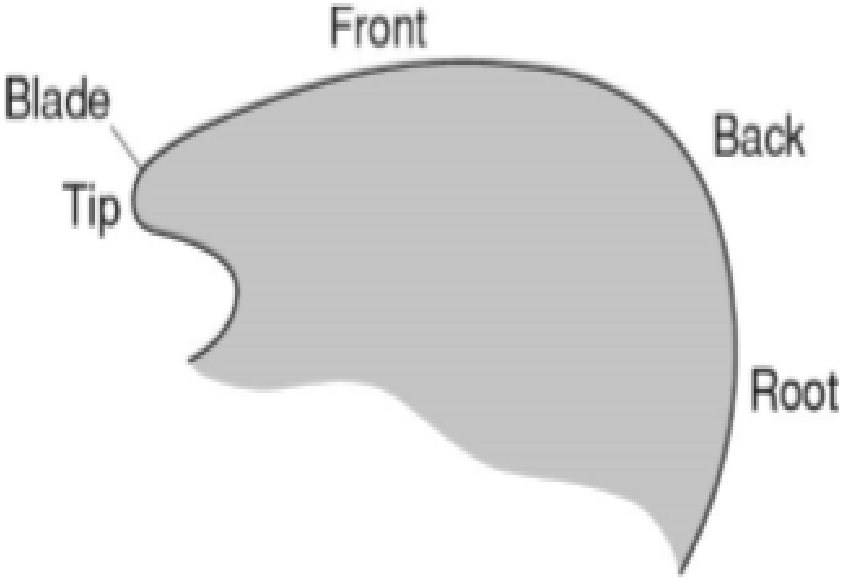
The next feature is the epiglottis /ɛpəˈglɑţəs/, a flap of cartilage at the root of the tongue. It isn't involved in making speech sounds in English. Its biological function is to fold over the entrance to the larynx during swallowing in order to guide food and drink into the esophagus. The space above the larynx and behind the root of the tongue is called the pharynx

/ˈfɛrɪŋks/. It's smaller when the tongue is pulled back in the mouth and larger when the tongue is pushed forward. There is then a possible fork in the road for the airstream.

In this diagram, the soft palate /ˈpælət/ (also termed velum /ˈviləm/) and the uvula /ˈjuvjələ/ at its tip are shown in the lowered position, but it's also possible for the soft palate to form a seal against the back wall of the pharynx and close off the entrance to the nasal cavity (nose). This is known as a velic closure; see, e.g., Figure 3. Thus, the airstream can potentially enter both the oral and nasal cavities or only the oral cavity (when the soft palate is raised and a velic closure is formed). There's little to be said about the nasal cavity itself because its dimensions are fixed; it's only the valve-like action of the soft palate opening and closing the entrance to it that is relevant for speech. The oral cavity is bordered by the tongue at the

bottom, the palate at the top, and the lips, cheeks, and teeth at the front and sides. By opening and closing the jaw and pulling the tongue back and

pushing it forward, the oral cavity can be made larger or smaller. The tongue, lower teeth, and lip move with the lower jaw while the upper teeth and lip are in a fixed position. Behind the upper front teeth is a lumpy area called the alveolar ridge /ælˈviələr/, and to the rear of that is the palate. The palate is divided into the soft palate and the hard palate. If you explore your palate with the tip of your tongue, you'll find that it's indeed hard and bony at the front and soft and fleshy at the back. At the very end of the soft palate is the uvula, which you can see hanging down when you look in the mirror. The position shown in Figure 1 is actually a slightly unusual one, but it's useful for demonstration purposes. It shows the position assumed when breathing through the nose and mouth simultaneously. When not speaking, a healthy person would hold the jaws closer



together with the lips and teeth touching; the tongue would fill the oral cavity, touching the roof of the mouth from the alveolar ridge to the soft palate; and the soft palate would be lowered (as in the diagram) to allow for normal breathing in and out via the nose. The tongue has few obvious natural divisions in the way that the vocal tract does. However, phoneticians find it convenient to divide it into a number of parts when describing sounds and their articulations.

The very point of the tongue is known as the tip. The part of the tongue that narrows to the tip and that lies under the alveolar ridge is the blade of the tongue. The part that lies under the hard palate and the part under the soft palate are called the front and back of the tongue respectively. This may seem strange at first, but front and back refer to the part of the tongue used in the articulation of vowels – the front is the part of the tongue used to form front vowels and the back is the part used to form back vowels. The

tip and blade remain low in the mouth and are not involved in making vowels. Finally, the part of the tongue in the pharynx is the root.

Cardinal Numbers Ordinal Numbers

1 through 10 one [wʌn] first [fəːst] two [tuː] second [ˈsɛk(ə)nd] three [θriː] third [θəːd] four [fɔː] fourth [fɔːθ] five [fʌɪv] fifth [fɪfθ] six [sɪks] sixth [sɪksθ] seven [ˈsɛv(ə)n] seventh [ˈsɛv(ə)nθ] eight [eɪt] eighth [eɪtθ] nine [nʌɪn] ninth [nʌɪnθ] ten [tɛn] tenth [tɛnθ] 11 through 19 eleven [ɪˈlɛv(ə)n] eleventh [ɪˈlɛv(ə)nθ] twelve [twɛlv] twelfth [twɛlfθ] thirteen [ˈθəːtiːn] thirteenth [ˈθəːtiːnθ] fourteen [ˈfɔːtiːn] fourteenth [ˈfɔːtiːnθ]

20 through 100 twenty [ˈtwɛnti] twentieth [ˈtwɛntiːθ] thirty [ˈθəːti] thirtieth [ˈθəːtiːθ] forty [ˈfɔːti] fortieth [ˈfɔːtiːθ] fifty [ˈfɪfti] fiftieth [ˈfɪftiːθ] sixty [ˈsɪksti] sixtieth [ˈsɪkstiːθ] seventy [ˈsɛv(ə)nti] seventieth [ˈsɛv(ə)ntiːθ] eighty [ˈeɪtiː] eightieth [ˈeɪtiːθ] ninety [ˈnʌɪnti] ninetieth [ˈnʌɪntiːθ] hundred [ˈhʌndrəd]

hundredth [ˈhʌndrədθ] 1000 and 1,000,000 thousand [ˈθaʊz(ə)nd] thousandth [ˈθaʊz(ə)ndθ] million [ˈmɪljən] millionth [ˈmɪljənθ]

Vowels:

/ɪ/ pin, English, business

/e/ bed, head, bury, exit

/æ/ cat, bag, apple, black

/ə/ the, a, woman, banana

/ʊ/ look, put, could, cushion

/ɒ/ clock, what, because

/ʌ/ cut, come, mother

/ɜː/ girl, burn, word, heard

/ɑː/ car, art, heart, half

/ɔː/ or, board, door, small

/ɪː/ sea, bee, people, receive

/uː/ too, blue, fruit, fool

Diphthongs:

/eɪ/ take, pay, wait,

ballet

/ɑɪ/ five, sigh,

height, buy

/ɔɪ/ noise, boy,

lawyer

/əʊ/ no, road, sew,

broken

/ɑʊ/ round, renown,

doubt

/ɪə/ here, deer, dear,

fierce

/eə/ care, air,

mayor, prayer

/ʊə/ poor, insure,

tour, moor

Consonants:

/p/ play, stop,

speak, power

/b/ bad, baby, big,

object

/t/ ten, later, little,

pot

/d/ day, advice, bed

/k/ character, quick,

taxi

/g/ got, exam,

ignore, finger

/f/ food, laugh,

telephone

/v/ vain, over,

Stephen

/θ/ thin, earth,

method, both

/ð/ they, father,

breathe, with

/s/ small, since,

scene, psalm

/z/ zoo, goes,

xenophobe

/ʃ/ shell, nation,

machine

/ʒ/ genre, measure,

vision

/h/ hot, hair, whole,

whose

/m/ moon, lamp,

lamb

/n/ can, snow,

pneumonia

/ŋ/ string, singer,

tongue

/tʃ/ chair, match,

future

dʒ/ just, general,

age, soldier

/l/ look, small,

bottle, isle

/r/ real, train,

wrong, write

/j/ yes, Europe,

university

/w/ window, twin,

quick, wh

1. /ʃʌt/ a. later

2. /hɑːt/ b. joke

3. /θɪŋk/ c. heart

4. /wɜːk/ d. there

5. /leɪtə/ e. doubt

6. /bɔːt/ f. work

7. /puːl/ g. shut

8. /dɑʊt/ h. think

9. /dʒəʊk/ i. pool

10. /ðeə/ j. bought

Complete the transcriptions with one of the following dipthongs:

/

eɪ/ /ɑɪ/ /ɔɪ/ /əʊ/ /ɑʊ/ /ɪə/ /eə/ /ʊə/

1. make /m _ _ k/

2. sure /ʃ _ _/

3. bear /b _ _/

4. island /- - lənd/

5. employ /ɪmpl _

_/

6. hear /h _ _/

7. town /t _ _ n/

8. home /h _ _ m/

9. sight /s _ _ t/

10. know /n _ _ /

Write out the correct spelling of these place names.

1. /kæntəbrɪ/ 2. /grenɪtʃ/ 3. /lestə/ 4. /edɪnbrə/ 5. /wɒrɪk/

Underline the words that contain the /ɜː/ sound.

1. Thursday 5. Tuesday 9. birthday 13. ball

2. does 6. work 10. turn 14. hurt

3. skirt 7. ear 11. bun 15. early

4. short 8. nurse 12. werenˈt 16. ward

/ʌ/

There are several letter combinations that produce this sound: mother - /mʌðə/,

country - /kʌntrɪː/, flood - /flʌd/

Underline the word that the transcription represents.

1. bɔːn burn born

2. θɪŋ thing thin

3. fɪːlɪŋz fillings feelings

4. vɑɪn vine wine

5. meɪdʒə major mayor

6. ræm rum ram

7. wɜːd word worried

8. fəget forget forged

9. ɑɪs eyes ice

10. huːz whose house

Difficult vowel combinations Practice saying the following words

u: /ʌ/ - bun, /ʊ/ - put, /ɪ/ - busy, /e/ - bury, /uː/ - rude, /juː/ - huge, /ə/ - focus, /ɜː/

- burn.

ea: /ɪː/ - beach, /e/ - bread, /eɪ/ - break, /eə/ - bear, /ɪə/ - dear.

au: /ɑː/ - aunt, /ɔː/ - author, /ɒ/ - because, /eɪ/ - gauge.

oo: /uː/ - too, /ʊ/ - look, /ʌ/ - flood, /əʊ/ - brooch, /ɔː/ - floor.

ei: /eɪ/ - eight, /ɪː/ - receive, /ɪ/ - counterfeit, /e/ - leisure, /ɑɪ/ - height

ui: /uː/ - fruit, /ɪ/ - build, /wɪː/ - suite, /ɑɪ/ - guide.

ou: /ɑʊ/ - out, /əʊ/ - soul, /ʌ/ - touch, /ʊ/ - could, /uː/ - you, /ɔː/ - pour.

oa: /əʊ/ - road, /ɔː/ - broad.

ow: /ɑʊ/ - now, /əʊ/ - know, /ɒ/ - knowledge.

ough: /əʊ/ - though, /uː/ - through, /ɔː/ - bought, /ɑʊ/ - drought, /ə/ - borough,

/ɒf/ - cough, /ʌf/ - enough.

augh: /ɔː/ - taught, /ɑːf/ - laugh

Circle the word that is pronounced differently from the other three words.

1. accident access accommodate accept

2. sheep beer field people

3. angry jungle English spring

4. shout now round mould

5. cheese chip machine attach

6. signature foreign Gnostic tongue

7. suit fruit cruise biscuit

8. though rough enough tough

9. floor poor flood door

10. author caught laughter daughter

s suffix

The morpheme -s of the 3rd person singular (he works), of the noun plural (books), of the genitive (John‟s) and of the contraction of is or has (he‟s) is pronounced in three different ways depending on the sound of the preceding consonant:

ɪz after sibilant consonants: s ʃ tʃ dʒ

slices /slɑɪsɪz/ brushes /brʌʃɪz/

churches /tʃɜːtʃɪz/ wages /weɪdʒɪz/

s after unvoiced consonants: /f/ /k/ /p/ /t/

packs /pæks/ rates /reɪts/

laughs /lɑːfs/ taps /tæps/

z in other cases

boys /bɔɪz/ girls /gɜːlz/

clothes /kləʊðz/ John‟s /dʒɒnz/

Some unvoiced sounds, θ and f, become voiced when the -s suffix is added.

Compare:

bath /bɑːθ/ baths /bɑːðz/

knife /nɑɪf/ knives /nɑɪvz/

Write the sound /s/, /z/ or /ɪz/ next to the following words.

1. judges _____

2. lives _____

3. plates _____

4. classes _____

5. breathes _____

6. watches _____

7. attends _____

8. tapes _____

9. books _____

10. wives _____

ed suffix

The morpheme -ed of the past tense (or past participle) is also pronounced in three different ways depending on the preceding consonant:

ɪd after t and d

painted /peɪntɪd/ founded /fɑʊndɪd/

wanted /wɒntɪd/ rounded /rɑʊndɪd/

t after unvoiced consonants: /f/ /k/ /p/ /s/ tʃ /ʃ

clapped /klæpt/ brushed /brʌʃt/

laughed /lɑːft/ wished /wɪʃt/

d in other cases

earned /ɜːnd/ carried /kær ɪd/

changed /tʃeɪndʒd/ harmed /hɑːmd/

Pronounce the past form of these regular verbs paying attention to the –ed suffix.

1. study _____

2. judge _____

3. listen _____

4. miss _____

5. work _____

6. answer _____

7. test _____

8. invent _____

9. research _____

10. enjoy _____

-e suffix

Sometimes the addition of the –e suffix to a noun to form a verb changes the

quality both of the vowels sound and of the final –th:

a bath /bɑːθ/ to bathe /beɪð/

a breath /breθ/ to breathe /brɪːð/

Circle the word you hear.

1. Breath/Breathe in deeply and then out again.

2. Suits were usually made of wool cloth/clothe.

3. I really loath/loathe the fashion of the 1980s.

4. The medicine soothes/sooths the pain of the inflammation.

5. The baby‟s teeth/teethe are coming through.

Homographs

Some examples of homographs:

to lead /lɪːd/ lead /led/

to read /rɪːd/ read /red/

to live /lɪv/ live /lɑɪv/

The sound may also change according to the where the stress is on the word:

to record /rɪˈkɔːd/ record /ˈrekɔːd/

to present /prɪˈzent/ present /ˈpreznt/

Circle the transcription that you hear.

1. /haʊz/ /haʊs/

2. /teə/ /tɪə/

3. /kləʊz/ /kləʊs/

4. /wɪnd/ /waɪnd/

5. /ˈkɒntrækt/ /kən ˈtrækt/

Homophones

Some examples of homophones:

son / sun /sʌn/

allowed / aloud /əlaʊd/

minor / miner /maɪnə/

Circle the word that you hear in its context.

1. whose / who‟s

2. there / their

3. sale / sail

4. rode / road

5. steel / steal

6. right / write

7. hear / here

8. rain / reign

9. bare / bear

10. by / buy

Silent letters

a) Some consonants are written but not pronounced. This is either because they

were once pronounced (knock) or come from a foreign language (psychology).

Initial position

cz – czar

kn – knock, knee, knight, knife

gn – gnat, gnaw, gnome

pn – pneumonia

ps – psychology, psychiatry, pseudo

pt – Ptolemy

wr – write, wrong, wring, wrist

wh – who, whom, whose, whole

End position

-mb – lamb, climb, thumb

-ng – king, thing, song, wing

-gm – paradigm, diaphragm

-gn – sign, reign, foreign, resign (but signature, resignation)

-mn – condemn, autumn, column

-pt – receipt (but reception)

Other positions

doubt muscle castle whistle isle viscount sword Norwich

c) Sometimes vowels are written but not pronounced.

Some examples:

government family chocolate

garden reason evil

Mark the silent letters in the following words.

1. answer	6. castle	11. subtle	16. island
2. Greenwich	7. Design	12. vegetable	17. mustn‟t
3. interest	8. know	13. generous	18. Wednesday
4. restaurant	9. comfortable	14. psychosis	19. bomb
5. written	10. honest	15. cupboard	20. Hoped

STRESS PATTERNS IN WORDS

In Italian, a syllable-timed language, uniform stress is given to different

syllables. English, on the contrary, is a stress-timed language in which there exists a distinction between strong (toniche) and weak (atone) syllables.

Syllable division

A syllable consists of a vowel sound or a vowel sound + consonant(s). The

system for syllable division is generally a phonetic one. Most words have the same number of syllables in the written form as in the pronunciation. However, there are a few rules to help divide words up into syllables.

a) Each syllable has only one vowel sound. When a consonant separates two

vowels, divide the word after the first vowel and before the consonant:

stu-dent re-sult ex-a-mine

b) When the vowel is at the end of a syllable, it has a long sound, called an open

syllable: may be-low an-ec-dote

c) When the vowel is not at the end of a syllable, it has a short sound, called a

closed syllable: mad sub-ject con-vent

d) Syllables are divided between doubled consonants, unless the doubled

consonant is part of a syllable that is a base word: din-ner swim-ming tell-er

e) Monosyllabic prefixes and suffixes are not divided:

il-le-gal un-com-mon

gov-ern-ment cou -ra-geous

f) Plurisyllabic prefixes and suffixes are divided:

an-ti-war un-der-take

vel-o-ci-ty hy-po-the-ti-cal