

Lesson 01: Phonetics and Phonology: Key Concepts

Introduction

Phonetics and phonology are branches of linguistics that study speech sounds (**phonemes**). Studying phonetics will enable you to develop a much better ability at speaking and understanding spoken language (in our case, English).

1. Phonetics vs. Phonology

Both of phonetics and phonology describe the sounds that we use in speaking. **Phonetics** is concerned with how sounds are produced, transmitted and perceived; it also provides classifications of different speech sounds. However, **phonology** is concerned with how sounds function in relation to each other in a language. In other words, **phonetics** is about sounds of language, **phonology** about sound systems of language. Phonetics is a descriptive tool necessary to the study of the phonological aspects of a language. When we talk about how phonemes function in language, and the relationships among the different phonemes, we are in fact studying the abstract side of the sounds of language that we call **phonology**. Only by studying both the phonetics and the phonology of English is it possible to acquire a full understanding of the use of sounds in English speech.

2. Branches of Phonetics

Phoneticians concur that there are three ways to think about phonetics, namely articulatory phonetics, acoustic phonetics and auditory phonetics.

- (a) **Articulatory phonetics** is concerned with speech production or articulation; how speech sounds are made. Specifically, it studies how the human vocal tract produces speech sounds by considering the various configurations (movement and positions) of the speech organs. The questions: How are speech sounds made? and Which speech organs are involved in speech articulation? are usually investigated by any researcher working within the articulatory phonetics realm.

- (b) **Acoustic phonetics** studies the physical properties of the sounds of language. It measures the effects of sounds on the air. In other words, it addresses “the physical properties of speech sound, as transmitted between mouth and ear” (Crystal, 2008, p. 7).
- (c) **Auditory phonetics** examines how speech sounds are perceived by the human ear or how we convert sounds into linguistic information. Auditory Phonetics (or **Speech Perception**) examines how listeners receive and perceive speech sounds (Ashby, 2011). Phoneticians use several ear trainings and technological programs to understand how we hear voices, on the one hand, and to have a clear image about how the brain understands the meanings of such speech segments and discriminates between various types of sounds, on the other.

3. Phonetic Transcription

The speech sounds of English are represented by written symbols or **phonemes**. This representation is usually referred to as the **phonetic transcription** which relies on a system of phonetic writing called **International Phonetic Alphabet (IPA)**. IPA is a standardized set of symbols that describes almost all possible sequences of human speech sounds. The symbols are enclosed in slashes /.../ to indicate that the transcription is phonetic rather than representative of a particular language. That is to say, the symbols mediate between the spelling of a word and its pronunciation (e.g., the word ‘*good*’ is pronounced /**ɡʊd**/).

- The need to use phonemes arises from the fact that, in English, there is no obvious correspondence between the written form of language (letters of the alphabet) and the spoken form.

✚ It is common to find that one sound may have many **graphical representations**. For example, the English vowel /e/ is realized in the following spellings:

- a many, any
- ai said, again
- e end, send, let
- ea dead, spread, health

- eo leopard, Leonard, Geoffrey

- ie friend

- ue guess, guest

✚ It is also possible to find that one letter (**graphical representation**) may refer to many sounds. For example, the vowel 'a' can be pronounced:

- /æ/ as in sat, hand, match

- /ɪ/ as in village, shortage

- /e/ as in any, many

- /ɑː/ as in ask, balm, part, laugh, clerk

- /ɒ/ as in was, want, wash, because

- /ɔː/ as in tall, all, walk

✚ A lot of English words have **silent letters** which are written, but are not meant to be pronounced.

- Silent **B** as in: limb, thumb, comb, numb, womb, debt, subtle, doubt

- Silent **C** as in: muscle, scene, science, abscess

Lesson 02 : Phonemes and Allophones

1. Phonemes

Our speech consists of a continuous stream of sounds which can be divided into small pieces called **segments**. The word '*man*' is made up of 3 segments: /**m**/, /**æ**/ and /**n**/; each of these segments is called a **phoneme**.

1.1 Contrastive Distribution: Phonemes are identified on the basis of contrastive distribution which allows us to distinguish between various speech sounds. In order to contrast sounds, we need to use **minimal pairs**.

✚ A **minimal pair** is a pair of words that differ in only one sound such as *pat* and *pit*, *bag* and *big*, *sap* and *sip*. If replacing one sound with another changes the meaning of the word, we can say that two phones (sounds) are separate phonemes. The examples given above allow us to say that /**e**/ and /**ɪ**/ are different phonemes in English because they form different meanings in different words or minimal pairs.

If we continue contrasting all speech sounds in English, by using minimal pairs, we will be able to establish the phonemic system of English. The BBC accent, in particular, is based on 44 phonemes: 20 vowel phonemes and 24 consonant ones.

The following table illustrates the phonemic system of English

	SYMBOL	EXAMPLE	SYMBOL	EXAMPLE
VOWELS	/i:/	beat	/ə/	an
	/ɪ/	bit	/u:/	boot
	/e/	hen	/ʊ/	book
	/ɜ:/	bird	/ɔ:/	four
	/æ/	hat	/ɑ:/	car
	/ʌ/	cut	/ɒ/	hot
DIPHTHONGS	/uə/	poor	/eɪ/	day
	/ɔɪ/	boy	/aʊ/	now
	/ɪə/	here	/aɪ/	dry
	/əʊ/	go	/eə/	hair
TRIPHTHONGS	/aʊə/	power	/ɔɪə/	loyal
	/aɪə/	liar	/əʊə/	mower
	/eɪə/	layer		
CONSONANTS	/p/	pot	/ʃ/	she
	/b/	bat	/ʒ/	vision
	/t/	top	/tʃ/	chat
	/d/	desk	/dʒ/	judge
	/k/	cut	/m/	man
	/g/	good	/n/	not
	/f/	five	/ŋ/	thing
	/v/	van	/r/	rat
	/θ/	think	/l/	look
	/ð/	this	/w/	one
	/s/	sit	/j/	yard
	/z/	zip	/h/	hat

Table 01. IPA Symbols for British English vowels, diphthongs, triphthongs, and consonants.

a. Free Variation

Each **phoneme** in English is pronounced slightly differently between one speaker and another, but the slight differences are regarded as realizing the same phoneme as long as they **do not result in changing the meaning of a word**. (e.g., the vowel in ‘bad’).

- ✚ When the different realisations of a phoneme are possible in the same environment without changing the meaning of a word, we say they are in **free variation**. They are realisations of the same phoneme.

2. Allophones

The different realisations of a phoneme are referred to as allophones.

2.1 Complementary Distribution

When the different realisations of a phoneme occur at separate places i.e., one can occur where the other cannot, we say that they are in complementary distribution. These similar phones are called **allophones**. For example, aspirated /t/ occurs in the beginning of a stressed syllable (**take** /t^hek/) and unaspirated /t/ occurs at the end of a word or where there is no vowel after (**late** /leɪt/).

✚ On the basis of the discussion of **contrastive distribution**, **complementary distribution** and **free variation**, we can now define what a phoneme is. A **phoneme** is the smallest contrastive or distinctive sound in a language. A single phoneme may be pronounced slightly differently between one speaker and another without changing the same lexical item. It is abstract in nature because it has a number of different realizations depending on its position in the word.

3. Types of Transcription

a) Phonemic Transcription: This is the type of transcription that contains basic information about the features of sounds; it is also called **broad** phonetic transcription. It has no allophones.

b) Allophonic Transcription: It is a transcription which is basically phonemic, but contains additional symbolic information about allophones of phonemes.

Examples:

- b₀, d₀, g₀ (pronounced without voicing)
- p^h, t^h, k^h (pronounced with aspiration)
- ɔ̌, ɑ̌, ǐ, ǔ, ɜ̌ (long vowels shortened by a following fortis consonant)
- æ̌, ɛ̌, ɪ̌, ʊ̌, ʌ̌ (short vowels shortened by a following fortis consonant)

c) Phonetic Transcription: It contains a lot of information about the exact or precise quality of sounds by using a lot of diacritics (marks which add details to symbols to modify them in some way); it is also called **narrow** phonetic transcription.

Lesson 1& 2 Practice

Activity 01: How many sounds (phonemes) do you think there are in the following words?

- a) love b) half c) wrist d) shrink e) ought
-

Activity 02: Read the text below and do the following.

Keep Smiling!

Laughter plays an important part in most people's lives- in fact, an average person laughs at least seventeen times a day. However, contrary to what most people believe, we don't only laugh when something funny happens; we also laugh as a sign of relief or of fear. One philosopher, John Morreal, has a theory that the first ever case of human laughter could have been when ancient men expressed their relief by laughing after they had survived a dangerous situation.

Laughter has many uses. Sometimes people use laughter to reduce tension when others get angry, thus avoiding unpleasant or even violent and dangerous reactions. Moreover, laughter is a means of forming relationships with other people. When they laugh at a common subject, people find it easier to bond with each other. Furthermore, some doctors are convinced that laughter is, as the proverb says, the best medicine. They believe that laughing releases a certain chemical in our bodies which helps relieve pain and makes us feel relaxed. It is now becoming quite common for hospitals to invite clowns to perform in order to cheer patients up and hopefully contribute to the healing process. Finally, laughter is also associated with power and success. Research shows that people who are in a position of power, for example tribal chiefs or bosses in companies, tend to laugh more than people who have less authority than them.

People have recognised the power of laughter for many years. There is an old saying: "Laugh, and the whole world laughs with you; cry, and you cry alone". Modern research would seem to prove that at least the first part of this statement is indeed true.

Valid for Bachillerato 2, p.61

- a. Find words in the text containing vowels or group of vowels which are pronounced in the same way as /ɑ:/ in **laughs**, /ɒ/ in **common**, /u:/ in **prove**, /eɪ/ in **make**, /ɪə/ in **clear**, and /əʊ/ in **go**.
-
-

- b. Find words in the text containing these consonant sounds /ð/, /h/, /dʒ/, /f/, /tʃ/, /j/, /ʃ/ and /z/.
-
-

Activity 03: Below is a list of words.

1. Read the words and state if there are **minimal pairs** or not. **Justify your answer.**

- | | |
|----------|-----------|
| a. skill | g. school |
| b. ask | h. skull |
| c. kill | i. cool |
| d. key | j. cull |
| e. king | k. ink |
| f. ski | |

2. Look at the words **school** and **cool**.

a. Are the aspirated /k^h/ and unaspirated /k/ are different phonemes or allophones of the same phoneme?

.....
.....

b. State the nature of their distribution.

.....
.....

Lesson 03: Speech Sounds' Production

1. Articulators of Speech

In order to learn how the sounds of speech are produced, it is necessary to become familiar with the different parts of the vocal tract (Fig.1, Fig.2, and Fig.3 below). These different parts are called **articulators**.

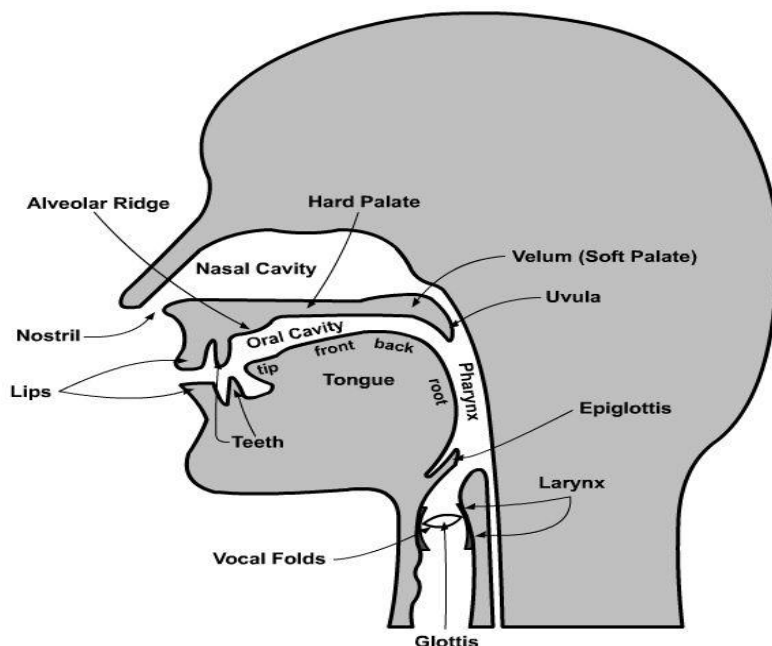


Fig 1. Parts of the vocal tract

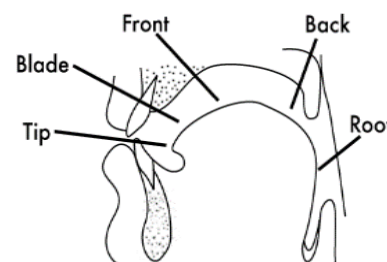


Fig 2. Subdivisions of the tongue

2. Mechanism of Producing Speech Sounds

Speech sounds are created by modifying the volume and direction of a flow of air using various parts of the human respiratory system. In order to describe and classify sounds of English (or other languages), we need to consider the following **aspects**: (1) the airstream mechanism; (2) the state of the vocal cords; (3) the state of the velum, and (4) the place and manner of articulation in the oral tract (the positions of the tongue and the shapes of the lips).

a. The airstream mechanism

The muscles in the chest that we use for breathing produce the flow of air that is needed for almost all speech sounds. The air which is moved out or pushed out of the lungs is called **egressive pulmonic airstream**. It is the most common air direction for producing speech sounds in many languages. The air flows through the trachea

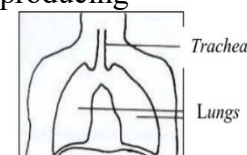


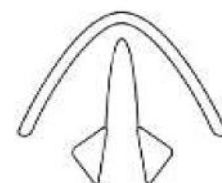
Fig 3. The lungs and Trachea

(wind pipe) and goes through the larynx (Adam's apple) and the vocal tract (mouth and nose).

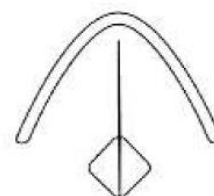
b. The state of the vocal cords

When the air reaches the larynx, it encounters the **vocal cords** which are two folds of elastic (flexible) tissue which are attached to the cartilages in the larynx.

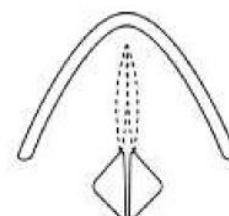
❖ When the vocal cords (flaps) *are apart*, they create an opening called the **glottis**. This is the position of normal breathing since the air passes freely. It is also the position for the production of some speech sounds such as /f/, /p/ and /s/, called **voiceless consonants**, or for speaking in a breathy voice.



❖ When the vocal cords are *completely brought together*, the airstream is cut. If the air is released (like in coughing), a **glottal stop** sound can be produced like in 'what' /wɒt/. If the vocal cords are open at one end only, we can produce **creaky** sounds.



❖ When the vocal cords are brought together (creating a **narrow glottis**), the air that passes through causes the vocal cords to vibrate. These vibrations produce **voicing**. This is how **all vowel sounds** are produced as well as **some voiced consonants** like /b/ and /z/ in 'buzz'.



c. The state of the velum

Right above the larynx, a tube which stretches to the back of the oral cavity and the beginning of the nasal cavity is called the **pharynx**. The air, which goes through the pharynx, may be affected in three different ways according to the position of the **soft palate** or **velum**.

- When the soft palate is in its natural position, the air escapes through the mouth and the nose, as in normal breathing.
- When the soft palate is lowered, it creates a blockage or stoppage in the mouth (**velic closure**) and the air is allowed through the nose. When the velum is lowered, air that flows into both mouth and nose results in English **nasal sounds** such as consonants /m/, /n/ in 'man' and /ŋ/ as in eating.



- When the soft palate is raised, it cuts off the nose or the nasal cavity, the air can only escape through **oral cavity** (the mouth). It is in this way that **oral sounds** are produced; all the sounds in ‘*study*’, ‘*break*’, ‘*low*’ are oral.



d. The place and manner of articulation in the oral tract

The relative position of **active articulators** (*lips, lower jaw, and tongue*) and **passive articulators** (*teeth, alveolar ridge, hard palate, soft palate and uvula*) allows us to specify both the manner of articulation and the place of articulation of the speech sounds.

Manner of articulation refers to how a consonant sound is produced i.e. how the airflow is allowed to release through the vocal tract by the articulators. However, **place of articulation** refers to where the articulators (tongue, teeth, lips or glottis) make contact in the vocal tract to create consonant sounds. The following chart shows how the 24 English consonants are classified according to manner and place of articulation.

Place Manner	bilabial	Labio dental	dental	alveolar	Post alveolar	Palatal	velar	Glottal
Plosives	p b			t d			k g	
Fricatives		f v	θ ð	s z	ʃ ʒ			h
Affricates					tʃ dʒ			
Lateral				l				
Nasals	m			n			ŋ	
Approximants (Semi-Vowels)	w					r	j	

Chart of English Consonants (Roach, 1993, p.62)

Lesson 04: English Vowels

1. Vowels Vs Consonants

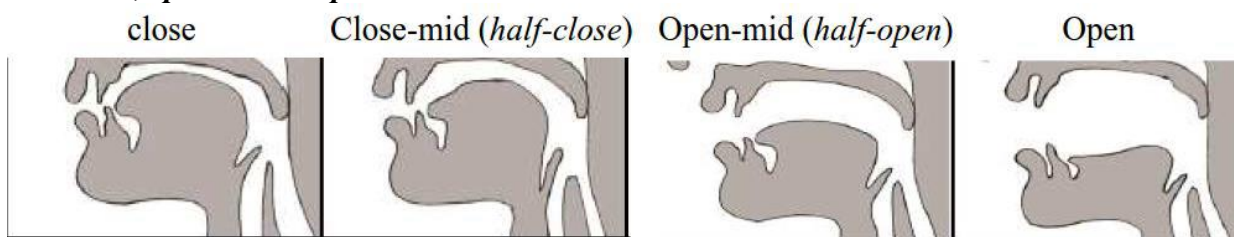
We can differentiate between vowels and consonants in the way they are produced, phonetically. Unlike consonants, vowels are sounds in which *there is no obstruction to the flow of air* as it passes from the larynx to the lips. But this definition is not complete because some phonemes which are considered as consonants do not obstruct air flow such as **w**, **j** and **h**.

2. Description of Vowels

In order to describe how vowels are produced, we need to consider the openness of the mouth, the position of the tongue, the shapes of the lips, and vowel length.

2.1 Openness of the mouth

The vertical distance between the upper surface of the tongue and the palate can be *close*, *close-mid*, *open-mid* or *open*.

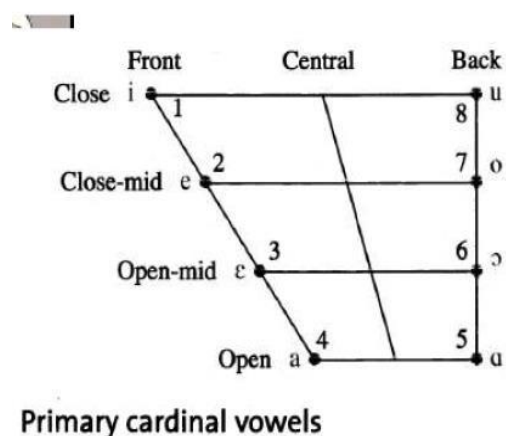


2.2 The position of the tongue

The part of the tongue that is raised highest towards the roof of the mouth is either the *front* or the *back*, creating *front vowels* and *back vowels*.



✚ The **Cardinal Vowel Chart** (or Vowel Quadrilateral) is adopted by the IPA to help locate the vowels in human languages. It contains the extreme positions of the tongue: the highest, lowest, furthest forward and furthest backward vowels. 8 primary **cardinal vowels** are created; they are not part of any language, but they represent the extreme positions that the tongue can go in producing vowels.



2.3 The shapes of the lips

The **lips** can have many different shapes and positions. Generally speaking, we need to discuss three **positions** in order to describe vowels:

- Rounded lips:** where the corners of the lips are brought towards each other and the lips pushed forwards.
- Spread lips:** with the corners of the lips moved away from each other, as for a smile.
- Neutral lips:** where the lips are not noticeably rounded or spread.



Round /u:/



Spread /i:/



Neutral /ɑ:/

2.4 Vowel length

The vowel can be either relatively **long** or **short** according to the duration it takes. Thus, the vowel in '*seat*' is long and the vowel in '*sit*' is short.

N.B: Some vowels are produced with the tongue moving to one place in the mouth and remaining almost steady there (as in *bee*); they are called **monophthongs** or **pure vowels**. Whereas vowels which are the result of quick movement (or **glide**) from one vowel to another are called **diphthongs** (as in *bay*) and a vowel produced by a glide from one vowel to another and then to a third vowel are called **triphthong** (as in *lawyer*).

3. Description of Short Vowels

The symbols for the short vowels in English are:

æ, ɪ, e, ʊ, ʌ, ʊ, ə

ɪ ('bit', 'fish'): it is a vowel which is close to close-mid in height, the part of

the tongue that is raised is that between front and centre, and the shape of the lips is slightly spread.

e ('men', 'yes'): front and quite open-mid vowel. The lips are slightly spread.

æ ('bat', 'gas'): front, open vowel. The lips are slightly spread.

ʌ ('cut', 'come'): central and almost open-mid vowel.

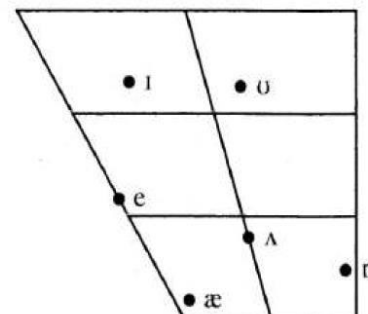
The lips position is neutral.

ɒ ('pot', 'gone', 'cross'): open to open-mid and back vowel. The lips are slightly rounded.

ʊ (example words: 'put', 'push'): close to close-mid, between centre and back. The lips are rounded.

ə (also called schwa 'a/an', 'about'): a centralised vowel. **English short vowels**

The lips are neutral.



4. Description of Long Vowels

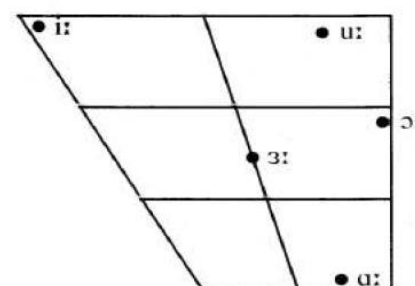
i: ('beat', 'peace'): close front vowel. It is closer and more front than the short vowel **i**. The lips are only slightly spread.

ɜ: ('bird', 'purse') This is a mid-central vowel. The lip position is neutral.

ɑ: ('card', 'half', 'pass') This is an open vowel in the region between back and centre. The lip position is neutral.

ɔ: ('board', 'torn', 'horse') almost close-mid and back vowel and has quite strong lip-rounding.

u: ('food', 'soon', 'loose') close and near the back and the lips are only moderately rounded.



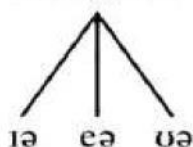
English long vowels

5. Description of Diphthongs

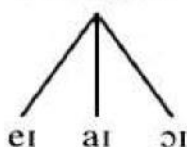
As explained above diphthongs are sounds which consist of a movement or glide from one vowel to another. In making a diphthong, the first part is much longer and stronger than the second part; for example, most of the diphthongs (as /aɪ/ in the words 'eye', 'I') consists of the vowel /a/.

Centring diphthongs end in ə and **closing diphthongs** end in either i or u

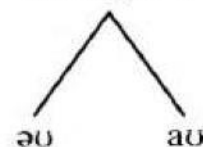
ending in ə



ending in i



ending in u

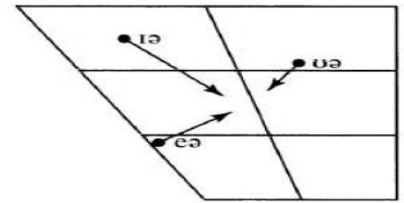


❖ The **centring diphthongs** glide towards the ə (schwa) vowel.

ɪə (as in beard, weird, fierce, near, ear, clear, tear, beer, fear).

eə (as in aired, cairn, scarce, hair, there, care, stairs, pear).

ʊə (as in moored, tour, lure).



Centring diphthongs

❖ The **closing diphthongs** all end with a glide towards a closer vowel.

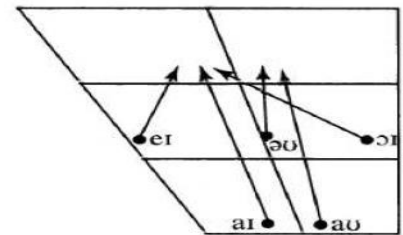
eɪ (paid, pain, face, space, rain, case, eight)

aɪ (tide, time, nice, my, sight, pride, kind, flight)

ɔɪ (void, loin, voice, joy, employ, toy, coil, oyster.)

əʊ (load, home, most, no, don't, stones, alone, hole)

aʊ (loud, gown, house, mouth, house, brown, cow,
, out)



Closing diphthongs

6. Description of Triphthongs

The triphthongs are composed of the five closing diphthongs:

Therefore, careful pronunciation of a triphthong is similar pronouncing a **diphthong** and adding ə to the end.

/eɪ/ + /ə/ = [eɪə] player, layer

/aɪ/ + /ə/ = [aɪə] fire, liar

/aʊ/ + /ə/ = [aʊə] hour, flour, power

/əʊ/ + /ə/ = [əʊə] mower, lower

/ɔɪ/ + /ə/ = [ɔɪə] royal, loyal

Lesson 04: English Vowels (Practice)

Activity 01: Pick out the words containing the sounds /ɒ/, /aʊ/, /ʊ/, /i:/, /æ:/, /eə/, /eɪə/, /ʌ/ from the following list.

pair, clerk, pure, seven, shower, many, cable, gaze, layer,
sisters, tough, mere, doctor, speak, elbow, write, speak

sou	wo	sou	wo
/		/e	
/aʊ		/eɪ	
/ʊ		/i	
/ɑ		/	

Activity 02: Transcribe the following words according to their vowel length.

Wor	Phonemica
harder	
teacher	
leaves	
sir	

Activity 03: Decide if the pronunciation of the vowel sounds in each pair of the following words is 'same' or 'different'

- said – sad
- right – write.....
- pool – pull.....
- mower- power
- pair – there
- war-board.....

Activity 04: Give examples of words that contain the following vowel sounds

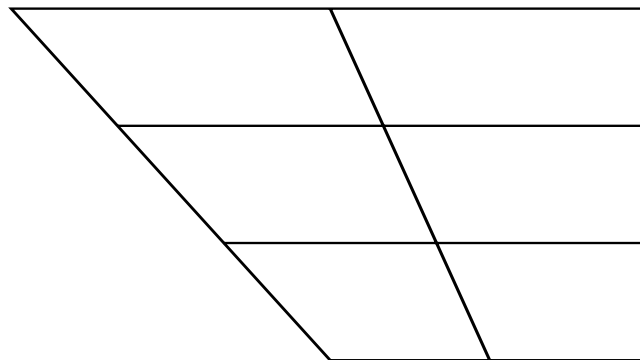
Vowels	Words (one example)
/ɪ/
/ɑ:/
/eɪ/
/ɔɪə/
/aʊə/

Activity 05: Transcribe the following words and circle the one(s) that contain(s) a vowel that fits the description on the left.

Front	river	song	tell	trap	bright
Back	loud	so	left	mud	trip
Rounded	meet	coarse	such	group	sure

Activity 06: Plot the phonemic symbols of vowels or diphthongs in the given words on the cardinal vowel chart.

Fit, may, man, food, hope



Lesson 05: English Plosives

Consonants are made with obstruction of air at the level of the vocal tract. This obstruction may be complete or partial. Taking, for instance, plosives (also known as oral **stops**) are produced with a **complete closure** in the mouth.

5. The articulation of plosives /p, b, t, d, k, g/

The complete articulation of a pulmonic egressive plosive consists of three stages :

- d. The **closing stage**, during which the articulating organs move together in order to form the obstruction.
 - e. 2. The **compression stage**, during which air action compresses the air behind the closure. This stage may or may not be accompanied by voice, i.e. vibration of the vocal cords.
 - f. The **release stage**, during which the organs forming the obstruction part rapidly, allowing the compressed air to escape abruptly (i.e. with an explosion, hence 'plosive').
- ❖ **Remark:** The release of p, t, k is followed by audible plosion - that is, a burst of noise. This stage is referred to as the **post-release stage** during which the air escapes through the vocal folds, making a sound like h. This is called **aspiration**.

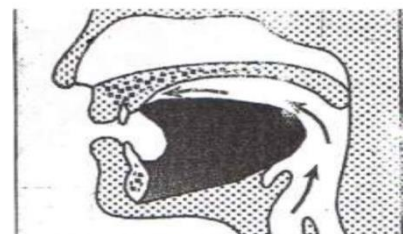
1.1. Bilabial plosives /p, b/

- ❖ The soft palate being raised and the nasal cavity shut off.
- ❖ The primary obstacle to the air stream is provided by the **closure of the lips**. Lung air is compressed behind this closure.
- ❖ The vocal cords are held wide apart for /p/, but may vibrate for /b/ according to its situation in the utterance.
- ❖ The air escapes with force when the lip closure is released.



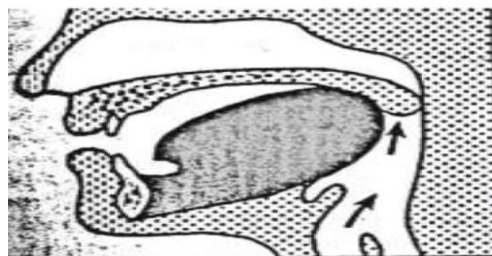
5.2. Alveolar plosives /t, d/

- ❖ The soft palate being raised and the nasal cavity shut off.
- ❖ The primary obstacle to the air stream is formed by a **closure** made between **the tip** and **rim**s of the **tongue** and the **alveolar ridge**. Lung air is compressed behind this closure.
- ❖ The vocal cords are held wide apart for /t/, but may vibrate for /d/ according to its situation in the utterance.
- ❖ The air escapes with force upon the sudden separation of the alveolar closure.



5.3. Velar Plosives/ k, g /

- ❖ The soft palate being raised and the nasal cavity shut off,
- ❖ The primary obstacle to the air stream is formed by a **closure** made between **back of the tongue** and the **soft palate**. Lung air is compressed behind this closure.
- ❖ The vocal cords are held wide apart for /k/, but may vibrate for /g/ according to its situation in the utterance.
- ❖ The air escapes with force upon the sudden separation of the velar closure.



6. Positions of plosives

2.2 Initial position (CV)

- ❖ The most noticeable and important difference between initial **p, t, k** and **b, d, g** is the **aspiration** of the voiceless plosives p, t, k. In initial position, **b, d, g** cannot be preceded by any consonant, but **p, t, k** may be preceded by s. When one of **p, t, k** is preceded by s it is **unaspirated**.

2.2 Final position (VC)

- ❖ The difference between **p, t, k** and **b, d, g** is primarily the fact that **vowels** preceding p, t, k are much **shorter**. This effect is sometimes known as **pre-fortis clipping**.

2.3 Medial position (VCV)

- ❖ In general we can say that a medial plosive may have the characteristics either of final or of initial plosives.

7. Fortis and Lenis Plosives

Some phoneticians say that **p, t, k** are produced with **more force** than **b, d, g**, and that it would therefore be better to give the two sets of plosives names that indicate that fact. So, the voiceless plosives **p, t, k** are sometimes called **fortis** (meaning ‘strong’) and **b, d, g** are then called **lenis** (meaning ‘weak’).

8. Glottalisation of p, t, k

Fortis (voiceless or strong) consonants are usually articulated with open glottis - that is, with the vocal folds separated. An alternative possibility is to produce the plosives **p, t, k** with completely closed glottis. This type of plosive articulation, known as **glottalisation**, as shown in the following examples.

	With glottalisation	Without glottalisation
‘nature’	neɪʔtʃə	neɪtʃə
‘catching’	kæʔtʃɪŋ	kæɪtʃɪŋ
‘riches’	rɪʔtʃɪz	rɪtʃɪz

Lesson 6: English Fricatives and Affricates**fricatives**

/f v θ ð s z ʃ ʒ h/

affricates

/tʃ dʒ/

1. Definition of Fricatives**Fricatives**

A Fricative is a type of consonant which is made by forcing air through a narrow passage (gap) so as to make a hissing sound.

English counts 9 fricative phonemes: 5 voiceless and 4 voiced.

- Voiceless fricatives are /f, ʃ, s, θ, h/. /f/ (fan), /s/ (sap), /ʃ/ (ship), /θ/ (thick), h(ullo)
- Voiced fricatives are /v, ʒ, z, ð/. /v/ (van), /z/ (zap), /ʒ/ (television), /ð/ (this).

Fricatives are **continuant consonants** i.e. you can continue making them without interruption as long as you have enough breath.

2. Description of Fricatives**Labio-dental fricatives**

- /f/, /v/ are labiodental: the lower lip is in contact with the upper teeth. /f, v/ have weak friction noise. The friction noise in /v/ is almost inaudible.

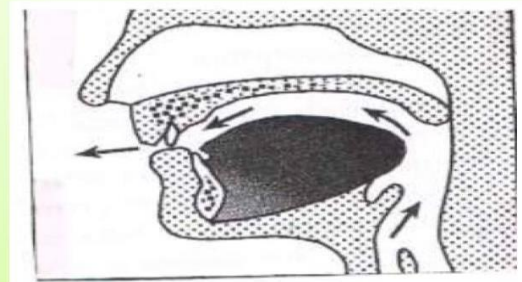
- Examples:

/f/ is spelt :

- F-fork/ frame/ after/ half/ four
- ff- off/ stuff/ afford/ offend/ suffer
- ph- physics/ phonetics/ epitagh/ photograph
- gh- enough/ rough / cough/ laugh/ draught
- **Note** /f/ in 'lieutenant' /leften nt/

/v/ is spelt:

- v- vote/ view / savage/ seven/ clever
- ve- live / love/ glove/ save/ dove
- **Note** / v / in of / nephew/ Stephen

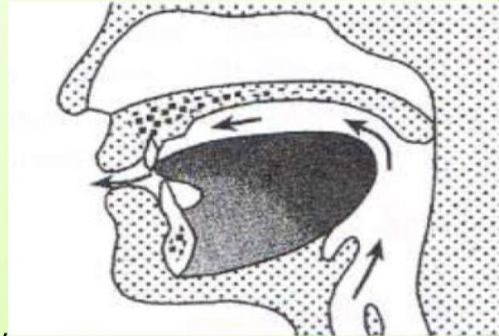


Dental fricatives

/θ /, /ð/ are dental fricatives made with the tongue placed behind the teeth. More precisely, the tip touching the inner side of the lower teeth. The air escapes through the gaps between the tongue and the teeth the fricative noise is weak.

Examples:

- /θ / is always spelt with **th**
(thief/ thick / thought / thumb / ether
/ ethics / method / author /atheist / Smith
/ breath / cloth/ earth / three / throw)
- /ð / is always spelt with **th** (there / this/
though / breathe / leather / gather / although/
southern/ either / with / clothes)

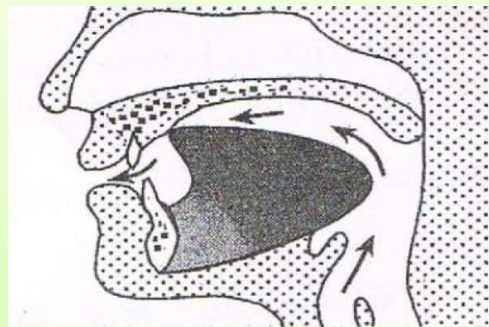


Alveolar Fricatives

- /s/, /z/ are alveolar fricatives. The air escapes through a narrow passage along the centre of the tongue, the fricative noise is strong or intense.

/s / is spelt with:

- s, se – so / single / saw / bus / skin
/ tense / goose/ mouse
- ss-- pass / kiss / class / discuss
/ assist / essential
- c, ce-- receive/ decide / niece
/ licence /advice/ sauce
- sc-- science / descend / scent / obscene
- x (= /ks/)-- axe / climax / six / reflex



- **Note** psychology / answer / sword / psalm / castle, etc.

Note silent s in corps / isle / island / viscount

- /z / is spelt with:

s, se – bars / dogs / plays / news / rose / please / choose/ praise

ss-- scissors / possess / dessert / dissolve

z -- zoo / zero / zeal / zip / quiz / wizard

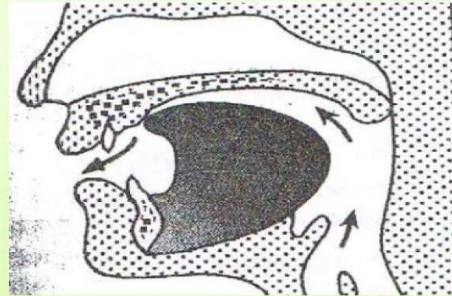
zz-- dizzy / blizzard / buzz / jazz

x (= / z/)-- exact / anxiety / exhaust / exaggerate

Note Xerox / xylophone / xenophobia

Post(Palato)-alveolar Fricatives

- /ʃ/, /ʒ/ are post-alveolar fricatives i.e. made with the tongue in contact with an area slightly further back than that for /s/, /z/. Different from /s/ and /z/, the air escapes through a wider passage and the lips are rounded.
- /ʃ/ is spelt with:
 - sh -- shoe / shed / shape / wish
 - / sheep / brush / washer/ publisher
 - ch-- machine / chef / brochure
 - / parachute / chateau / challet
 - s, ss+ u -- sure / sugar / assure
 - / censure / assurance / issue / tissue
 - ti-, -si-, -sci-, -ci-, -ce- -- nation
 - / mansion / mission / conscience/ special
 - / appreciate / ocean



Note schedule / fascist / conscientious / luxury / fuchsia

Glottal Fricative

- /h/ is a glottal fricative made by the narrowing of the vocal folds in such a way as to produce friction noise.
- /h/ is always spelt with h :

Word-initial—heat / hen / hot/ horse / hate/ high/ how / here/ hair

Word-medial—ahead / behave / perhaps / behind / manhood / adhere

- **Note** who / whom / whose /whole
- **Note** that h is not pronounced initially in hour / honest / honour/ heir/ heiress
- **Note** that h is not pronounced medially in words such as exhaust / exhilarate /exhibit / vehicle/ vehement / shepherd

2. Definition of Affricates

Affricates

An affricate is a type of consonant consisting of a **plosive** followed by a **fricative** with the same place of articulation.

English is considered to have two affricates: /tʃ/ and /dʒ/ (the sounds at the beginning and end of the words: 'church' /tʃɜːtʃ/ and 'judge' /dʒʌdʒ/)

Notes:

- The release of the plosive is not followed by plosion and aspiration, but by a fricative noise.
- The plosive and the fricative in an affricate are made by the same articulators i.e. they are **homorganic**. They are considered as a **consonantal unit or a phoneme**; the word 'charge' has three phonemes not five.
- Other combinations such as ts, dz, tr, dr are not considered so although they are homorganic.

3. Description of Affricates

Affricates

- /tʃ/ and /dʒ/ are **post-alveolar**. The lips are **rounded**.
- /tʃ/ is spelt with:
ch -- chain / choose / chunk / achieve / rich / attach / much
tch -- watch / fetch / bitch / butcher
ti -- question / suggestion /
tu -- nature / statue / furniture / virtuous / actual
Note righteous / cello / concerto
- /dʒ/ is spelt with:
j -- jam / jaw / job / juice / major / pyjamas / enjoy
g -- general / magic / pigeon / fragile / cage / imagine / village
dg -- lodge / judge / edge / fridge / badge / budge
du -- gradual / individual / procedure
Note soldier / suggest / exaggerate / grandeur / sandwich / Greenwich
- The fortis affricate /tʃ/ shortens preceding vowels and consonants such as /l, m, n, ŋ/

Glottalization

- An alternative possibility to produce fortis consonants (plosives and affricates, but not fricatives) is with a **completely closed glottis**. The symbol /ʔ/ represents this glottal closure. It occurs immediately **before** /t, k, tʃ/; it is less frequent with /p/. The most widespread glottalisation is that of /tʃ/ at the end of a stressed syllable.
- nature /'neiʔtʃə/ teacher /'ti:ʔtʃə/
- Petrol /'pɛʔtrəl/ actor /'aʔktə/