

SEMESTER TWO

CONSONANT POSSIBILITIES (Part I)

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CONSONANT POSSIBILITIES (Part I)

Lesson 15: The Description of English Consonants

INSTRUCTIONAL OBJECTIVES

After studying this course, students will be able to:

- ❖ Learn the pronunciation of all the consonants used in the English language
- ❖ Learn how to transcribe all the consonants spoken in English

Introduction:

In course 4, we noted that consonants occur either in the initial position or final position of the word, as opposed to vowels which may occur in any possible position in the word. Phonetically, the production of all consonants involves an obstruction of the airflow, though with varying degrees. This

course considers all the transcriptions of all the possible consonants commonly used in both standard varieties of English, namely British English (RP) and American English (GA). The manner, place and force of articulation will be tackled, in details, in the following courses.

Transcription of English Consonants:

A quick glance over the IPA chart reveals that English language contains a various number of consonants with different speech articulations and voicing quality. By voicing, we mean the “auditory result of the vibration of the VOCAL FOLDS” (Crystal, 2008, p. 514). Thus, consonants accompanied by high vibrations of the vocal cords are termed **Voiced** consonants, whereas those which are produced without any vibration are termed **Voiceless** consonants. Table 3 below displays all the possible consonants used in the English language, along with their voicing quality and transcriptions. Some consonants have the same phonetic symbols as their orthographic symbols, such as /t/, /d/.

Table 3

English Consonants and their Voicing Types

Consonants	Voicing	Example	Consonants	Voicing	Example
/ŋ/	voiced	l <u>an</u> guage	/r/	voiced	r <u>id</u> e
/ʃ/	voiceless	sh <u>ap</u> e	/θ/	voiceless	th <u>igh</u>
/tʃ/	voiceless	ch <u>ur</u> ch	/s/	voiceless	s <u>it</u>
/t/	voiceless	t <u>op</u>	/m/	voiced	m <u>ake</u>
/dʒ/	voiced	edg <u>e</u>	/j/	voiced	y <u>ield</u>
/ð/	voiced	th <u>ese</u>	/f/	voiceless	f <u>it</u>
/z/	voiced	z <u>ip</u>	/k/	voiceless	k <u>it</u>
/n/	voiced	n <u>eck</u>	/w/	voiced	w <u>ave</u>
/l/	voiced	l <u>igh</u> t	/p/	voiceless	p <u>ink</u>
/h/	voiceless	h <u>it</u>	/d/	voiced	d <u>ove</u>
/b/	voiced	b <u>eh</u> ind	/v/	voiced	o <u>f</u>
/ʒ/	voiced	pleas <u>ur</u> e			

All the consonants spoken in English contain one single sound, except /dʒ/ and /tʃ/, which consist of two consonants. Each consonant, it must be noted, is a combination of two sounds with the same voicing quality. /dʒ/, by way of example, comprises two voiced sounds, that is, /d/ and /ʒ/.

Task 1: Transcribe the initial sound in each of the following words (see *Answer Keys* section).

1. Paper : /...../
2. Tasks /...../

3. Filter /...../
4. Think /...../
5. Those /...../
6. Gauge /...../

Lesson 16: Active and Passive Articulators

INSTRUCTIONAL OBJECTIVES

After studying this course, students will be able to:

- ❖ Distinguish between Active and Passive Articulators
- ❖ Identify the features of some articulators involved in speech production

Introduction:

A closer look at the vocal tract below shows that the production of one single consonant in any natural language involves an interaction between a set of speech organs. In phonetics realm, specialists distinguish between diametrically two distinct, yet interrelated, groups of organs. Some organs are termed **Active Articulators** whereas other organs are termed **Passive Articulators**. **Active Articulators** are the movable parts of the vocal tract and most of them are parts of the lower jaw. The **lower lip** and **lower teeth** are, unequivocally, the most visible organs in the vocal tract, as opposed to the **uvula**. The latter is a tiny egg-like organ and it can be seen when you open your mouth and look at the mirror. Conversely, **Passive Articulators** are characteristically fixed and are parts of the upper jaw. **Alveolar ridge (hard palate)** and **soft palate** are two passive articulators which form the so called **Roof of the Mouth**.

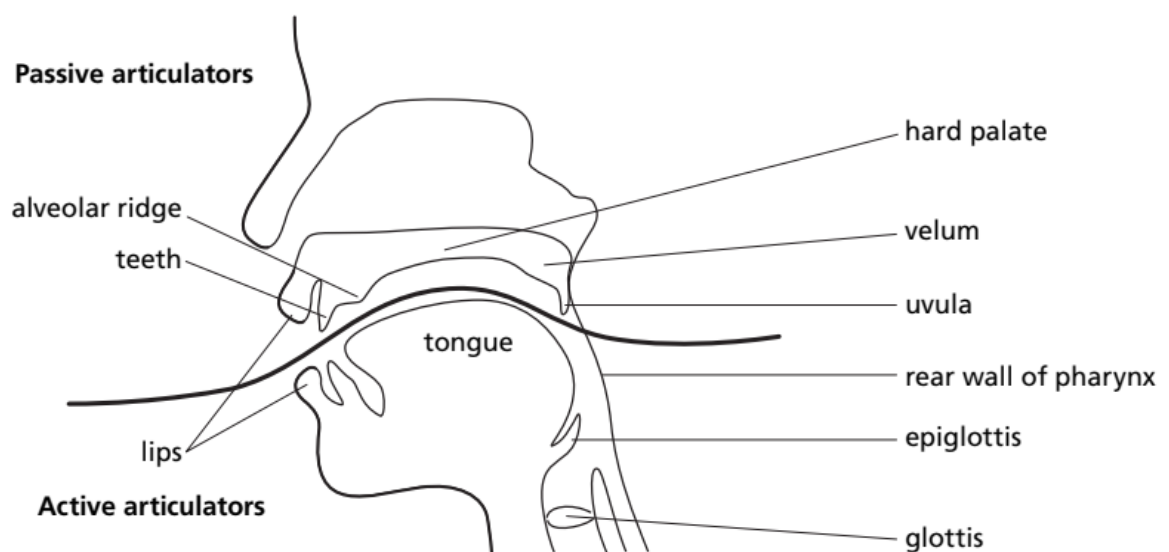


Figure 15. Active and Passive Articulators. From *Understanding Phonetics* (p. 33), Ashby, P.(2011), London, UK: Hodder Education.

Tongue and Articulation:

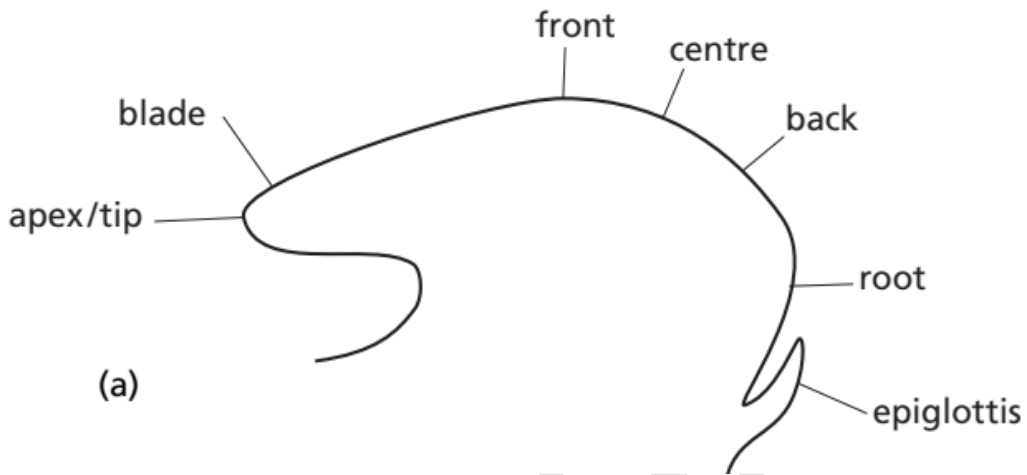


Figure 16. Vocal Tract showing the Six Parts of the Tongue. From *Understanding Phonetics* (p. 34), Ashby, P. (2011), London, UK: Hodder Education.

Of all the Articulators involved in speech production, the tongue seems to be the most active articulator in the vocal tract. It is the most important articulator because it is involved in the production of most consonants. Ashby (2011) points out that the tongue consists of six main parts. As you open your mouth, it is easy to see the two visible parts of your tongue, namely the **Tip** (or **Apex**), and **Blade**, as shown in Figure 16 above. When you push your tongue a little bit forward, you can also see the **Front** part of your tongue. The last three parts of the tongue, **Center**, **Back** and **Root**, are the least visible parts of the tongue and are usually involved in the production of sounds like /g/ and /k/. In some introductory books, the Back part is also termed **Dorsum** (Crystal, 2008).

Study Questions: What is meant by an Active Articulator?

.....

Tasks: List the six main parts of the tongue (see *Answer Keys* section).

1.
2.
3.

4.
5.
6.

Lesson 17: Place of Articulation

INSTRUCTIONAL OBJECTIVES

After studying this course, students will be able to:

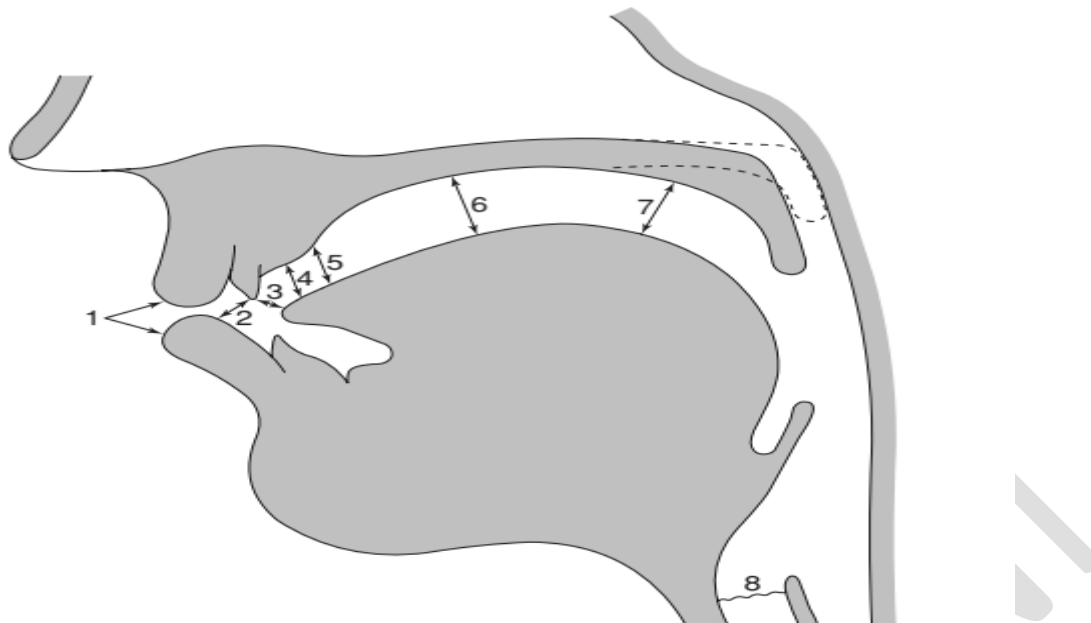
- ❖ Understand the locus of place of articulation
- ❖ Learn where exactly in the vocal apparatus consonants are produced

Introduction:

The previous course, **Active and Passive Articulators**, tackled the speech organs involved in speech productions. This course overviews the place of articulation of the consonants associated with Standard English. That is, it addresses *where* exactly in the vocal apparatus the movable active articulator approaches the fixed passive articulator. When the former moves towards the latter, the space between them becomes very narrow, forming the so called **Stricture** or constriction of the airflow (Knight, 2012).

Places of Articulation:

Figure 12 below displays all the points of contact for all the consonants discussed in this course. It is worth noting that the point of contact is named after the passive articulator. Hence, we label the sound /g/ as velar, simply because the back part of the tongue (active articulator) moves upwardly toward the Velum (passive articulator). This course overviews the most significant places of articulators, starting with the most visible places and gradually moving towards the least visible places in the vocal apparatus.



- 1 Bilabial (lower lip ↔ upper lip)
- 2 Labio-dental (lower lip ↔ upper front teeth)
- 3 Dental (tip of tongue ↔ rear of upper front teeth)
- 4 Alveolar (tip/blade of tongue ↔ alveolar ridge)
- 5 Palato-alveolar (blade/front of tongue ↔ rear of alveolar ridge/front of hard palate)
- 6 Palatal (front of tongue ↔ hard palate)
- 7 Velar (back of tongue ↔ velum)
- 8 Glottal (glottis)

Figure 17. Vocal Apparatus. From *Practical Phonetics and Phonology* (p. 47), Collins, B. & Mees., I. M. (2003), London: Routledge.

Bilabials: /p/, /b/, /m/, /w/

Bilabial is originally a Latin term and it contains two parts. *Bi* means the number *two* and *Labial* refers to the *lip*. In producing Bilabial sounds -/p/, /b/, /m/, /w/- the lower lip raises against the upper lip, forming a complete closure at the level of both lips. It is worth noting that the semi-vowel /w/ is labeled **Labial-velar** in some other references, since the constriction of the airflow is made at two points (**Double articulation**), namely the lips and velum (Collins & Mees, 2013)



Figure 18. Bilabial Sounds. From *English Phonetics and Phonology: An Introduction* (p. 3), Carr, Philip (2013). UK: Wiley-Blackwell Publishing Ltd

Labiodentals: /f/, /v/

In producing the labiodentals /f/ and /v/, the lower lip approaches the upper teeth. Notice that when you utter the sound /f/ and then the sound /v/, you can feel that the lower lip moves a little bit forward.



Figure 19. Labio-dental Sounds. From *English Phonetics and Phonology: An Introduction* (p. 3), Carr, Philip (2013). UK: Wiley-Blackwell Publishing Ltd

Dentals: /ð/, /θ/

Dentals are named after the word *la dent* (a French word for *tooth*). The dental sounds are formed by a contact between the lower teeth and the upper teeth. In some American mainstream dialects, speakers tend to use what is called **Interdentals** (Ashby, 2011), consonants produced by moving the tongue a little bit forward, as in the words *health* and *thrive*.



Figure 20. Dental Sounds. From *English Phonetics and Phonology: An Introduction* (p. 3), Carr, Philip (2013). UK: Wiley-Blackwell Publishing Ltd

Alveolar: /t/, /d/, /r/, /s/, /z/, /l/, /n/

Alveolar consonants are named after the **Alveolar Ridge**, a harsh tissue that is located right behind your teeth. You can easily identify the alveolar ridge by moving your thumb back and forth over the harsh tissue in the roof of the mouth.



Figure 21. Alveolar Sounds. From *English Phonetics and Phonology: An Introduction* (p. 4), Carr, Philip (2013). UK: Wiley-Blackwell Publishing Ltd

Post-Alveolar: /ʃ/, /tʃ/, /ʒ/, /dʒ/

Post alveolar refers to the region behind the bony alveolar ridge zone. In pronouncing the **Post-Alveolar** consonants, the tip (or the blade) of the tongue raises against the region behind the alveolar ridge. The distinction between the Alveolar sounds and post alveolar sounds seems to be, more or less, easy when you utter any word that contains /t/ and /tʃ/. Notice that when you articulate the word *teacher*, your tongue moves a little bit backward as you move from the sound /t/ to /tʃ/. This clearly indicates that the articulation of Alveolar consonants and Post alveolar consonants involves two different points of contact.



Figure 22. Post-Alveolar Sounds. From *English Phonetics and Phonology: An Introduction* (p. 4), Carr, Philip (2013). UK: Wiley-Blackwell Publishing Ltd

Palatal: /j/

Palatal, a word that originally comes from the term palate, is formed by moving the front part of the tongue towards the last region of the hard palate. Examples that illustrate the palatal sound /j/ would be: *yield*, *yes* and *yellow*.



Figure 23. Palatal Sounds. From *English Phonetics and Phonology: An Introduction* (p. 5), Carr, Philip (2013). UK: Wiley-Blackwell Publishing Ltd

Velars: /g/, /k/, /ŋ/

In producing **Velar** sounds, the back of your tongue (**Dorsum**) raises against the **Soft palate** region or **Velum**. Examples that illustrate the velar sounds would be: *g*ate (/g/), *tongue (/ŋ/) and *case (/k/).**



Figure 24. Velar Sounds. From *English Phonetics and Phonology: An Introduction* (p. 5), Carr, Philip (2013). UK: Wiley-Blackwell Publishing Ltd

Glottal: /h/

The aforementioned places of articulation involve contacts at the level of the upper lip, upper teeth or any specific point in the roof of the mouth, be it hard palate or soft palate. Conversely, the production of the glottal sound /h/ involves contact at the level of the Glottis, or the space between the vocal cords inside the larynx (Knight, 2012). The sound /h/ is said to be voiced if it is followed by a voice sound, be it a vowel or a consonant. The same consonant is said to be voiceless (or devoiced) if it is followed by a voiceless sound or the sound /j/, as in the word *humid*. The former is notated with symbol /h/, while the latter is notated with the symbol /h̥/.

Task: State the place of articulation for each initial sound of the words below (see *Answer Keys* section).

Word	Place of Articulation	Word	Place of Articulation
Phone	Sleep
Road	Humid
Wake	Clock

CONSONANT POSSIBILITIES (Part II)

Lesson 18: Manner of Articulation

INSTRUCTIONAL OBJECTIVES

After studying this course, students will be able to:

- ❖ Understand the nature of manner of articulation

- ❖ Learn how speech organs combine to produce consonants

Introduction:

One way to describe consonants is by referring to their manner of articulation. The latter refers to *how* a given speech sound is produced. That is, it focuses on how articulators, both active and passive, approach each other to form a **Stricture** in the vocal tract (Collins & Mees, 2013). Likewise, it focuses on the processes involved in the articulation of consonants. The narrowing of the space between the speech organs admits of varying degrees of strictures in the vocal apparatus. Phoneticians usually talk of three levels of Stricture, namely **Complete Closure**, **Close Approximation** and **Open Approximation**. Each Stricture corresponds with one or more manners of articulation.

Manners of Articulation and Stricture:

The constriction of the airflow corresponds with the manner of articulation of each consonant. Table 4 below displays all the consonants, along with their manners of articulation and degrees of structure. For some consonants, the firm contact between the articulators leads to a *full* blockage of the airflow in the vocal apparatus. This Complete closure is usually well attested for Plosive sounds, namely /**p, t, k, b, d, g**/. The articulation of plosives involves three stages. In the first stage, the air passes through the pharynx to the mouth. In the second stage, the speech organs obstruct the airflow. In the third stage, the airflow is released, so to speak, in an explosive fashion. In producing **Fricatives**, the articulators are held close to one another, but *not* so closely as to prevent the air from moving out of the mouth. In fact, because the organs are very close to each other, the airflow yields a **friction** in the vocal tract (2020). The nine fricatives used in English are /**f, v, θ, ð, s, z, ʃ, ʒ, h**/. The friction voice is almost analogous to the sound made by the rubber band. The articulation of **Affricates**- /**tʃ**/, /**dʒ**/- involves producing one plosive sound (/t/ or /d/) followed by a fricative (/ʃ / or /ʒ/). When the so called **Nasal** sounds-**/n/**, **/m/** and **/ŋ /-** are produced, the velum is lowered such that the airflow can only escape through the nasal cavity.

Table 4

Manners of Articulation

Manners of Articulation	Consonants	Stricture
Plosives	p, t, k, b, d, g	Complete Closure
Affricates	tʃ, dʒ	Complete Closure
Nasals	n, m, ŋ	Complete Closure
Trills	r (Alveolar Trill)	Complete Closure
	R (Uvular Trill)	

Taps	r	Complete Closure
Fricatives	f, v, θ, ð, s, z, ʃ, ʒ, h	Close Approximation
Approximants	l, r, w, j	Open Approximation

When **Trills** are made, the tongue strikes the alveolar ridge with a sequence of fast strikes. This manner of articulation is absent in Standard English, but is commonly used in Spanish-**Alveolar Trill**-and Arabic-**Uvular Trill** (Collins & Mees, 2013). **Taps**, like Trills, are commonly used in Spanish and Castilian (Catalonia). They occur when the tongue strikes the alveolar ridge only one strike, but “not enough time for pressure to build up” (Knight, p. 47). An example of Taps would be the word *cera*, meaning *wax*. It must be noted that, while **Fricatives** correspond to **close approximation**, the articulation of **Plosives, Affricates, Nasals, Trills** and **Taps** involves a complete closure of the vocal tract.

In producing Approximants, the articulators approximate one another, but not close enough to build a friction. Collins and Mees (2013) point out that approximants can be grouped under two main categories. The Lateral approximant/l/ is produced with the airflow moving down through both sides of the tongue. The Central Approximants /r/, /w/ and /j/ are made with the airstream moving through the central part of the tongue.

Task: Identify the manner of articulation for each final sound of the words below (see *Answer Keys* section).

Word	Manner of Articulation
Lake
Spoon
Above
Covid
bill

Lesson 19: Force of Articulation: Fortis vs. Lenis

INSTRUCTIONAL OBJECTIVES

After studying this course, students will be able to:

- ❖ Understand the meaning of Energy (or Force) of articulation
- ❖ Distinguish between Fortis and Lenis
- ❖ Identify the major characteristics of Fortis and Lenis sounds

Force of articulation is generally used by phoneticians to describe the degree of articulatory energy of different speech sounds. Although the articulation force of sounds admits of varying degrees of muscular energy, phoneticians differentiate between two distinct types of articulation force, namely **Fortis** and **Lenis**. Some other labels, such as Tense (or Strong) vs. Lax (or Weak) are also used interchangeably in phonetics and phonology textbooks. These two categories differ in terms of muscular force, voicing and length.

Table 5

Fortis and Lenis Consonants

Sounds	Force	Voicing	Muscular Energy	Length
θ, f, p, k, s, h, t, ʃ, tʃ	Fortis (Strong)	Voiceless	More articulatory energy	Relatively longer than lenis
dʒ, d, b, g, w, r, n, j, l, ð	Lenis (Weak)	voiced	Less articulatory energy	shorter than Fortis

In phonetics realm, Fortis refers to “a sound made with a relatively strong degree of muscular effort and breath force” (Crystal, p. 197). By way of example, the articulatory force of the sounds /s/ and /f/ requires a relatively high degree of pressure and muscular force. Similarly, Fortis sounds are voiceless and longer than Lenis sounds. Conversely, the latter are, by their very nature, voiced consonants and their production involves a relatively less muscular energy. Thus, while the initial sounds in the words *feel* and *paper* require a strong force of articulation, thus Fortis, the initial sounds in words like *gate* and *box* involve weak force articulation, thus Lenis. Table 5 above shows the different Fortis and Lenis sounds in English.

Task: Indicate whether the following words contain Fortis or Lenis sounds (see *Answer Keys* section).

- a. Seat b. vow c. fat d. rough e. aloof f. twitter g. wrath
h. remark i. arrive j. watertight k. throne l. blame

PHONEMES, ALLOPHONES AND MINIMAL PAIRS

Lesson 20: Phoneme and Allophone

INSTRUCTIONAL OBJECTIVES

After studying this course, students will be able to:

- ❖ Understand the meaning of Phoneme and Allophone
- ❖ Distinguish between complementary and contrastive distribution

Introduction:

Laypeople usually pronounce sounds differently in different contexts and make comments, positive and negative, on the way other people utter specific sounds. Unlike phoneticians, however, native speakers cannot easily perceive and distinguish between all the specific differences between phonological pronunciations in many words and utterances. By way of example, a native speaker of English would fail to notice that the sound / p / is pronounced differently in the words *paper* and *split* and *stop*.

In phonetics field, researchers distinguish between the terms Phoneme and Allophone. The terms Phoneme and Allophone (or Phone) are technical words, which represent central concepts in studies of phonology. Researchers working on phonological studies concur that Phonemes are abstract units that represent specific speech sounds. Thus, the sounds (η) and (ð) are English phonemes, whereas (ɣ) and (x) are characteristically Arabic Phonemes. Nevertheless, each phoneme can be realized in different ways or pronunciations, commonly known as **Allophones** or simply **Phones**. The number of allophones, or phonetic realizations, differs from one phoneme into another. By way of example, the phoneme (t) can be realized with many pronunciations, as shown in Table 6 below. English speakers may pronounce the sound /t/ as an alveolar plosive (*tar* or *ten*), a flap sound (*writer*), a silent letter (*international*), and as a glottal sound, as in *butter* /bʌɾə/. In pronouncing the alveolar (t) in the word *eight*, the tongue is brought in contact with the upper incisors, a process commonly known as Dentalization (Yule, 2017). The sound (s) would more or less sound as a dental phone to a speaker's phonetic ear.

Table 6

The Phoneme (t) and its Various Allophones

Phoneme	Allophones
/t/	[th] (<i>tar</i>)
	[r] (<i>wri<u>t</u>er</i>)
	[ʔ] (<i>bu<u>t</u>ter</i>)
	[t̪] (<i>ei<u>g</u>ht<u>h</u>)</i>

Source: Yule, G. (2017). *The Study of Language* (p, 140). Cambridge: Cambridge University Press.

The phonetic environment determines, to a great extent, the allophonic quality of the sound. Said differently, the allophonic variation in a given word is, by and large, affected by the sounds surrounding the consonant. If, for instance, a plosive sound, such as /p/, /t/ or /k/, is used word-initially, chances are that it is aspirated, that is, produced with a puff of air. If the same is used word-finally, chances are that it is pronounced without the release of airstream, that is, without any plosion of the airflow. The aspirated sounds are indexed by the use of the little symbol [^h], as in the word **pink** [p^hɪnk]. Equally, it is worth noting that phoneticians use the parentheses () to indicate that the sound is a phoneme and use the slashes // to indicate that the sound is characteristically an allophone.

In essence, allophones are, by their very nature, in **Complementary Distribution**. Tench (2011) points out that “The distribution of the one variety complements the distribution of the other – they can never occur in exactly the same position as the other.” (p. 60). Put plainly, the substitution of one allophone with another alternative allophone does not affect the meaning of the word. Pronouncing the word *stuck* with an aspiration after the sound /k/ [stʌk^h]*, albeit so odd to an English speaker’s phonetic ear, does not change the word meaning. Phonemes, unlike allophones, are said to be in **Contrastive Distribution**. If the initial sounds in words like *rat* and *bat* are replaced with the sound /h/, the meaning of the word would be completely different. In brief, phonemes, in stark contrast with allophones, contrast with one another in the phonemic system of words.

Study Questions: What is the difference between contrastive distribution and complementary distribution?

.....
.....
.....

Online Resources:

What are phonemes? (Video): <https://www.youtube.com/watch?v=UCeXflfVQ2I>

Recommended Readings:

Crystal, D. (2008). *A Dictionary of Linguistics and Phonetics* (6th ed.). Main Street, Malden, USA: Blackwell Publishing Ltd.

Tench, P. (2011). *Transcribing the Sounds of English: A Phonetic Coursebook for Words and Discourse*. Cambridge: Cambridge University Press

Yule, G. (2017). *The Study of Language* (6th ed). Cambridge: Cambridge University Press.

Lesson 21: Minimal Pairs and Sets

INSTRUCTIONAL OBJECTIVES

After studying this course, students will be able to:

- ❖ Define the concepts of minimal pair and minimal set
- ❖ Identify the basic phonologic rules that pertain to Minimal Pairs

What is meant by Minimal Pair?

Crystal (2008) notes that Minimal Pair refers to “Two words which differ in meaning when only one sound is changed” (p. 307), such as *fight*. *Right* and *dry*. *cry*. The different sound is not an allophone, but a phoneme, such as /k/, /s/ and /z/. That said, two words are considered as an example of a Minimal pair only if the two sounds are in contrastive distribution. If we substitute the aspirated allophone [p^h] with an unaspirated alternative in, say, *park*, the meaning does not change, and thus the two words [p^hɑ:rk] and [pɑ:rk] * are not one minimal pair.

Characteristics of Minimal Pair:

Two words are considered to be one minimal pair only if:

- ❖ The two alternative sounds occur in the same position, word-initially, middle position, or word-finally;
- ❖ The two words should have the same number of sounds;
- ❖ Both words should have ONE different sound only;
- ❖ The replacement of one sound [] with another sound ([allophone]) leads to a change in meaning.

All Minimal pairs, thus, should fit into the aforementioned four phonological conditions. By way of example, the words *bright* and *flight* are minimal pairs, whilst the words *strong* and *gone* are not. In brief, the latter pair are simply considered as different words and not one minimal pair. It is also worth noting that a group of words, commonly known as **Minimal set**, can also fit into the same conditions stated above, such as *hat*, *cat*, *fat* and *rat*; *sigh*, *see* and *saw* (Crystal, 2008)

Task: Make minimal pairs in English by changing the initial consonant in these words (see **Answer Keys** section).

- a. Sit
- b. Lit
- c. Late

- d. Boat
- e. Kit

Home Assignment (Out-Of-Class Activities):

Make minimal pairs by changing the initial consonant in these words: *fate, light, kick, wood, down, lazy, feet, table, cup.*

Lesson 22: Broad Transcription vs. Narrow Transcription and Diacritics

INSTRUCTIONAL OBJECTIVES

After studying this course, students will be able to:

- ❖ Distinguish between Broad Transcription and Narrow Transcription
- ❖ Learn how to transcribe words phonetically and phonemically
- ❖ Understand the meaning of Diacritics and their functions
- ❖ Learn how to add diacritics to the transcription of speech segments

Introduction:

Generally speaking, the transcription *version* we used in the first courses indicates how a given sound is pronounced. However, it does not provide us with any clues about the phonetic details found in the words. This course, then, foregrounds two of the most widely used transcriptions in phonetics, namely **Broad Transcription** and **Narrow Transcription**

Broad Transcription vs. Narrow Transcription:

Touch: / tʌtʃ / vs. [t^hʌtʃ]

Bug: / bʌg / vs. [bʌ[̣]g̊]

Notice the examples stated above. Using your phonetic ear, you can easily notice that the way /t/ in the word *right* is recorded seems to be slightly different from the / t / version you hear in another word, as in *tiny*. The same thing is well attested for the sound /g/ in the word *bug*. The second consonant sounds more like the voiceless plosive / p /. Likewise, you can easily notice that the transcription of the plosive / t / in the word *touch* contains a little angle over the symbol and the transcription of the sound / g / in the word *bug* contains a small angle and a small circle over the symbol (in some other cases, its ok to use it under the symbol, too).

Furthermore, you can notice that each word is transcribed twice and enclosed with different marks, namely slashes (or slants) and square brackets. The aforementioned distinctions reflect two common distinct, yet related, transcriptions called the **Broad Transcription** and **Narrow Transcription**. The former, also termed **Phonemic Transcription**, refers to the use of the phonetic symbols that describe the pronunciation of the phonemes. The latter, also termed **Allophonic or Phonetic Transcription**, refers to the use of the phonetic symbols and markers that indicate the minor changes in the pronunciation of the sound (Crystal, 2008). Said plainly, while broad transcription provides us with the general phonetic information of sounds pronunciation, narrow transcription describes all the phonetic details in the production of speech segments. When transcribing a word phonemically, we enclose the symbols between slashes. However, when we transcribe the word phonetically, we enclose the same symbols between square brackets and add little markers, called **Diacritics**, to mark any small change or detail in its transcription. The section that follows will cast light over some of the well-known diacritics in English phonetics.

What is meant by Diacritics?

Any slight change or detail in the pronunciation of a sound is marked by adding a little symbol to the transcription. This small additional marker is commonly termed **Diacritic** in phonetics and phonology literature. Crystal (2008) defined Diacritic as “a mark added to a symbol to alter the way it is pronounced” (p. 142). We add small markers to the Phonemic transcription to mark a change in pronunciation, indicate a small phonetic detail or a specific way of speaking. We, also, use Diacritics to mark specific minor speech segments associated with dialects and accents.

Table 7

Diacritics used in the Allophonic Transcription of Sounds

DIACRITICS Diacritics may be placed above a symbol with a descender, e.g. $\underset{\cdot}{\underset{\cdot}{\eta}}$

$\overset{\cdot}{}$ Voiceless	$\overset{\cdot}{n}$ $\overset{\cdot}{d}$	$\overset{\cdot\cdot}{}$ Breathy voiced	$\overset{\cdot\cdot}{b}$ $\overset{\cdot\cdot}{a}$	$\overset{\cdot}{}$ Dental	$\overset{\cdot}{t}$ $\overset{\cdot}{d}$
$\overset{v}{}$ Voiced	$\overset{v}{s}$ $\overset{v}{t}$	$\overset{\sim}{}$ Creaky voiced	\tilde{b} \tilde{a}	$\overset{\cdot}{}$ Apical	$\overset{\cdot}{t}$ $\overset{\cdot}{d}$
$\overset{h}{}$ Aspirated	$\overset{h}{t^h}$ $\overset{h}{d^h}$	$\overset{\sim}{}$ Linguolabial	\tilde{t} \tilde{d}	$\overset{\cdot}{}$ Laminal	$\overset{\cdot}{t}$ $\overset{\cdot}{d}$
$\overset{\circ}{}$ More rounded	$\overset{\circ}{}$	$\overset{w}{}$ Labialized	$\overset{w}{t^w}$ $\overset{w}{d^w}$	$\overset{\sim}{}$ Nasalized	\tilde{e}
$\overset{\circ}{}$ Less rounded	$\overset{\circ}{}$	$\overset{j}{}$ Palatalized	$\overset{j}{t^j}$ $\overset{j}{d^j}$	$\overset{n}{}$ Nasal release	$\overset{n}{d^n}$
$\overset{+}{}$ Advanced	$\overset{+}{u}$	$\overset{v}{}$ Velarized	$\overset{v}{t^v}$ $\overset{v}{d^v}$	$\overset{l}{}$ Lateral release	$\overset{l}{d^l}$
$\overset{-}{}$ Retracted	$\overset{-}{e}$	$\overset{\text{Y}}{}$ Pharyngealized	$\overset{\text{Y}}{t^{\text{Y}}}$ $\overset{\text{Y}}{d^{\text{Y}}}$	$\overset{\text{r}}{}$ No audible release	$\overset{\text{r}}{d^{\text{r}}}$
$\overset{\cdot\cdot}{}$ Centralized	$\overset{\cdot\cdot}{e}$	$\overset{\sim}{}$ Velarized or pharyngealized	\tilde{t}		
$\overset{\times}{}$ Mid-centralized	$\overset{\times}{e}$	$\overset{\cdot}{}$ Raised	$\overset{\cdot}{e}$ ($\overset{\cdot}{I}$ = voiced alveolar fricative)		
$\overset{\cdot}{}$ Syllabic	$\overset{\cdot}{n}$	$\overset{\cdot}{}$ Lowered	$\overset{\cdot}{e}$ ($\overset{\cdot}{\beta}$ = voiced bilabial approximant)		
$\overset{\cdot}{}$ Non-syllabic	$\overset{\cdot}{e}$	$\overset{\cdot}{}$ Advanced Tongue Root	$\overset{\cdot}{e}$		
$\overset{\sim}{}$ Rhoticity	$\overset{\sim}{\partial}$ \tilde{a}	$\overset{\cdot}{}$ Retracted Tongue Root	$\overset{\cdot}{e}$		

Source: The International Phonetic Alphabet (Revised to 2005)

The table 7 above is a small section of the full IPA chart. It displays some of the diacritics we put in the allophonic transcription of the symbols. For instance, notice that the velar stop $[\overset{\cdot}{\overset{\cdot}{g}}$] is marked with two diacritics. The angle $[\overset{\cdot}{}]$ indicates that the airstream is unreleased after the production of the plosive sound, and the circle $[\overset{\circ}{}]$ is used to mark the devoicing feature in the consonant (in some cases, it is used over the symbol). In order to mark the aspiration feature in the consonant, the little marker $[\overset{h}{}]$ is added, as in the word *pace* $[p^{\text{h}}e\text{is}]$. Likewise, Breathy and Creaky voices are marked by the diacritics $[\overset{\cdot\cdot}{}]$ and $[\overset{\sim}{}]$, respectively.

Task 1: Transcribe the following words, making sure you add all the diacritics you learned in the course (see *Answer Keys* section).

1. Pitch: [.....]
2. Fake: [.....]
3. Paper: [.....]
4. Dog: [.....]

Task 2: Transcribe narrowly the following words and make sure you add the necessary diacritics (see

1. Stuck: [.....]
2. Jazz club: [.....]
3. Dad: [.....]
4. Talk: [.....]

Home Assignment (Out-Of-Class Activities):

What do we mean by Allophonic Transcription? Do **NOT** exceed 5 lines

.....
.....
.....

SYLLABLES AND CONSONANT CLUSTERS

Lesson 23: Syllables

INSTRUCTIONAL OBJECTIVES:

After studying this course, students will be able to:

- ❖ Understand the nature of Syllable and its structure
- ❖ Learn how to identify the types of syllables
- ❖ Learn how to decide on the syllabic division of words that contain intervocalic consonants.

Introduction:

Syllables represent one of the most important subjects in phonetics. When people asked how many syllables are there in the words *fragility* or *transnational*, chances are that they are unlikely to agree on the exact number. While some of them may hazard a guess about the number of syllables, others would avail themselves of the falling and rising of the voice loudness as a criterion for counting the number of syllables. This course considers the locus of the syllable, its structures and types. The course ends with a brief overview of the **Maximal Onset Principle**.

The Locus of Syllables and its Structure:

Peter Roach (2009) states that syllables are speech units that consist of “a centre which has little or no obstruction to airflow and which sounds comparatively loud; before and after this centre (i.e. at the beginning and end of the syllable), there will be greater obstruction to airflow and/or less loud sound.” (p. 56). As shown in figure 25 below, the most common syllable consists of an **Onset**, a **Nucleus** and a **Coda**. The onset and coda are usually consonants (c), whereas the nucleus is generally represented by a vowel (v). The **Nucleus** and **Coda** are usually termed the **Rhyme**. Comparatively, it is the nucleus which represents the most significant part of the syllable, as noted by Roach (2009) in the definition above.

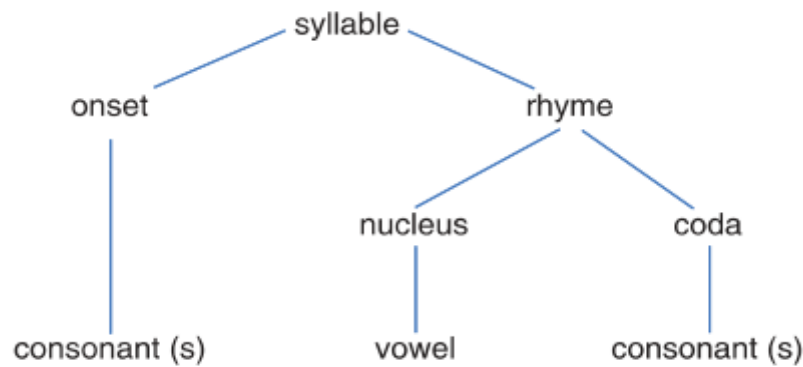


Figure 25. Structure of Syllable. From *The Study of Language* by Georg Yule (2020)

It is worth noting that it is possible to have a syllable without a coda, as in the words *bee* and *sea*. Equally, some syllables do not consist of an onset, such as *off* and *ought*. Words like *eye* and *I* consist of the nucleus only. Nevertheless, it is almost impossible to form a syllable without a nucleus, except for the so called **Syllabic Consonants**, as in the word *cotton*.

Open Syllable vs. Closed Syllable:

In Phonotactics realm, phoneticians distinguish between Open Syllables and Closed Syllables. The former does not contain a coda at the end as in the words *we* and *key*. The latter is usually used to refer to syllables which are enclosed with a coda, such as *sail* and *seat*.

Other Types of Syllables:

The number of syllables varies from one word into another. Some words consist of one syllable (e.g. *meat*, *dog*) and are usually termed **Monosyllabic**. A word is called **Disyllabic** if it contains two syllables (e.g. *English*) and **Trisyllabic** if it consists of three syllables. Words, which are composed of more than three syllables, are commonly called **Polysyllabic**.

Syllabic Division: The Maximal Onset Principle

One of the most confusing issues in syllables pertains to the correct way to divide words that contain intervocalic consonants. By way of example, should we say that the consonant /p/ in the word *happy* is a coda of the first syllable or an onset of the second one? One way to answer this question is by referring to the so called **Maximal Onset Principle**, a well-known rule that postulates that any intervocalic consonant “should be attached to the right-hand syllable, not the left, as far as possible.” (Roach, 2009, p. 61). This means that the intervocalic consonant /p/ can form an onset and thus should be, by principle, treated as an onset of the second syllable /pi/. Knight (2012) notes that the consonants /ŋθ/ occur in the middle of the word *lengthy* /leŋθi/. Using the **Maximal Onset Principle**, one can state that, since the cluster consonant /ŋθ/ cannot work as a perfect onset in any English word, then one should use the velar /ŋ/ as a coda in the first syllable /leŋ/, and add the consonant /θ/ as an onset to the second syllable /θi/.

A detailed description of the syllable division and **Maximal Onset Principle** can be found in Roach (2009), Carr (2013) and Knight (2012).

Task 1: Identify the number of syllables in each of the following words (see *Answer Keys* section).

1. Cake:
2. Language:
3. teacher:

Tasks 2: Say whether each of the words below contain an open or closed syllable (see *Answer Keys* section).

1. tea:
2. bat:
3. fees:

Lesson 24: Consonant Clusters

INSTRUCTIONAL OBJECTIVES

After studying this course, students will be able to:

- ❖ Understand the locus of Consonant Cluster
- ❖ Learn all the permissible and impermissible combinations in the English language.

What is a Consonant Cluster?

Though vowels represent the nucleus of English syllables, there are many other cases in which they are not present in the syllable. Crystal (2008) defined **Consonant Cluster**, **Consonant Compound** or **Consonant Sequence** as “any sequence of adjacent CONSONANTS” (p. 81). Said differently, a syllable, which contains only an onset and a coda, is labeled a Consonant Cluster. Some of these consonant clusters occur word initially, such as sky and light, while others occur at the end of the word as in park and folk.

Some Possible and Impossible Cluster Combinations:

In Phonotactics realm, syllables in all world languages and language varieties are governed by specific phonological constraints. For instance, while the cluster consonant /l/+ /b/ (قلب, /kəlb/, meaning heart) is possible in Arabic, other sequences such as /k/+ /z/ and /f/+ /h/ are not. Similar to Arabic and French, English has its permissible and also impermissible consonant clusters. It is, also, impossible to have cluster consonants in English syllables with consonants such as /dʒ/+ /z/ and /tʃ/. In English, some possible sequences have two adjacent consonants (CC), such as *sp* (e.g., spot and spy), *kr* (e.g.,

*cr*y and *cr*ew), and *pl* (e.g., *pl*ay and *pl*ain). Yule (2017) notes that the same cluster compound may occur word initially, as in *st*ay and *st*one and word finally as in *list* and *fist*. Examples of consonant clusters with more than two consonants are illustrated Table 8 below:

Table 8

Possible Combinations with more than two Consonants

Three Consonants	Syllable Structure	Cluster	Four Consonants	Syllable Structure	Cluster
scream	CCC	/ skr /	Twelfths	CCCC	/ lfθs /
Tasks	CCC	/ sks /	glimpsed	CCCC	/ mpst /
Strange	CCC	/ str /	Texts	CCCC	/ ksts /

Task: Write down three examples for each of the cluster combinations below.

- a. / skr / :,,
- b. / srt / :,,
- c. / sp / :,,

PARAMETERS OF VARIATION IN VOWELS AND CONSONANTS

Lesson 25: Diphthongization and Monophthongization

INSTRUCTIONAL OBJECTIVES

After studying this course, students will be able to:

- ❖ Understand the locus of two allophonic vowel processes, namely Diphthongization and Monophthongization;
- ❖ Learn how to transcribe, phonetically, Diphthongized and Monophthongized vowels

Introduction:

Phoneticians and researchers working within the Historical Linguistics paradigm and dialect change (vowel shift) studies have long been concerned with how dialectal sounds change in quality and length. Diphthongization and Monophthongization represent two of the most widely allophonic vowel processes in English specifically and many world languages more generally. It is worth noting that Diphthongization and Monophthongization are mostly frequently realized in non-standard varieties, such as mainstream dialects and accents. While the former refers to the process in which English sounds display more complexity of sound quality, the latter designates a change of a diphthong into a monophthong.

Diphthongization:

Diphthongization is a process whereby vowels, which are characteristically monophthongs, tend to display a gliding movement from one position into another (Crystal, 2008). In brief, Diphthongization is a process whereby the vowels become more complex. Phonetically, monophthongs, such as /i:/ and /u:/, are articulated with a slight shift of the tongue from one position into another. By way of example, vowels in words like *kit* and *two* are realized as [tɪə] and [təu], respectively.

Monophthongization:

In some other cases, conversely, a diphthong becomes less complex and is realized as a monophthong, such as when we replace the diphthong /ɔɪ/ with the long vowel /ɔ:/. Speakers of Texas dialect, for instance, are more likely to pronounce the words *boy* and *toy* as [bɔ:] and [tɔ:], respectively.

Table 9

Examples of Monophthongization and Diphthongization in English Dialects

Standard Form	Monophthongization	Standard Form	Diphthongization
Toy /ɔɪ/	[tɔ:] (Texas speech)	Tea /tɪ:/	[tɪi]
Time /t aɪ m/	[t a: m] (African American vernacular English)	Two /t u:/	[təu]
oil /ɔɪ l/	[ɔ:l] (African American vernacular English)	See /s i:/	[sɪi]

Task: Write four examples of Diphthongized sounds and Monophthongized sounds used by native speakers of English dialects in the USA (see *Answer Keys* section).

1.
2.
3.
4.

Lesson 26: Pre-fortis Clipping

INSTRUCTIONAL OBJECTIVES

After studying this course, students will be able to:

- ❖ Define the concept of Pre-fortis clipping
- ❖ Identify the differences between Pre-fortis and Pre-lenis

- ❖ Identify the phonetic processes that govern the duration of vowels

Pre-fortis clipping represents one of the pure phonetic processes that may influence the duration of vowels. Tench (2011) defined Pre-fortis clipping as “the shortening of vowels in syllables that are closed with voiceless consonants” (p. 70). Generally speaking, while English vowels have full duration when followed by lenis consonants or placed at the final position, they are usually shortened in word final contexts or when followed by fortis consonants.

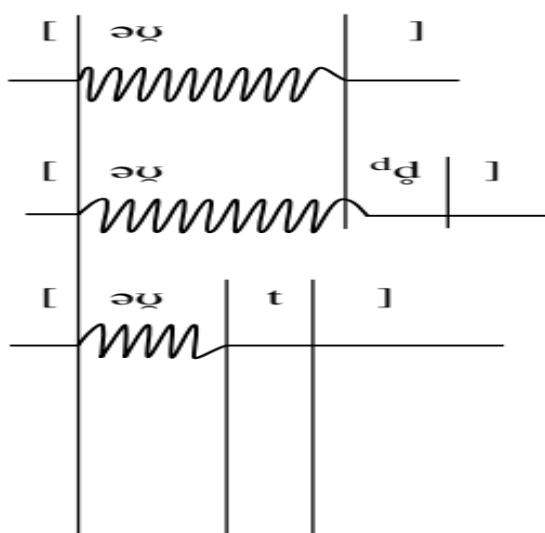


Figure 26. Diagram demonstrating Pre-fortis clipping of the diphthong [əʊ]. From *Understanding Phonetics* (p. 106), Ashby, P.(2011). London, UK: Hodder Education.

The sound context tends to affect the length of vowels in the English words. When placed word finally, English vowels have full length, such as the words *bow*, *cow* and *sea*. Similar to word final position, English vowels have full duration when followed by lenis (voiceless) consonants. For instance, the vowels in the words *ride* and *feed* have full length. However, if a vowel is followed by a fortis consonant, its duration tends to be clipped almost half of the vowels which occur in the final position or followed by a fortis consonant. Figure 26 displayed above demonstrates the three prototypical cases of pre-fortis and pre-lenis positions of the diphthong [əʊ]. The duration of diphthong [əʊ] before fortis consonants tends to be remarkably shorter than that is word finally or placed before lenis consonants. Pre-fortis clipping, Collins and Mees (2013) assert, tends to be so remarkable in monosyllables or single-syllable words, such as *late* and *case* than polysyllabic words.

Marking Pre-fortis Clipping:

Clipped long vowels are usually marked by replacing the diacritics [:] with the diacritics [ː], whereas Clipped diphthongs, triphthongs and short vowels are transcribed by adding the marker [̚] over the phonetic symbol.

Task 1: Choose the correct answer (X)

Word	Pre-fortis	Pre-lenis	Word	Pre-fortis	Pre-lenis
Wheat			Head		
Wide			Tide		
State			Peace		
Seed			Hat		
White			What		
Rough			wave		

Task 2: Transcribe the following words phonetically(see *Answer Keys* section):

1. Kit [.....]
2. Flood [.....]
3. Sue [.....]
4. Knot [.....]

Lesson 27: Devoicing

INSTRUCTIONAL OBJECTIVES

After studying this course, students will be able to:

- ❖ Understand the meaning of devoicing
- ❖ Learn some phonological contexts that constrain the realization of devoiced consonants

Definition of Devoicing:

In the previous course, we have covered a great deal of ground about consonants. We now know that the production of voiced consonants involves vibration of the vocal folds (or cords). Thus, consonants as /z/ and /v/ are phonologically voiced sounds, as opposed to /s/ and /f/, which are regarded as voiceless sounds. However, voiced consonants may also be realized as voiceless or **Devoiced** sounds, depending on their surrounding sound contexts.

Devoicing and Sound Contexts:

Rule ONE: voiced fricatives and affricates + voiceless sounds.

When pronouncing some English words, lenis fricatives and affricates are realized as completely Fortis or devoiced sounds, especially when followed by voiceless sounds (Tench, 2011). For instance, when uttering the formal *received with thanks*, you can feel that the sound voiced fricative /ð/ is realized as /θ/, that is, as a voiceless sound. The same devoicing feature is also well attested when you pronounce the expression *wedge sneakers*.

Rule TWO: voiced plosives tend to be Devoiced when followed by voiceless sounds or silence.

When the voiced stop consonants /b/, /d/ and /g/ are realized before a voiceless sound, they lose their voicing, most notably in connected speech (Tench, 2011). Thus, the consonants /g/ and /b/ seem to be completely devoiced when produced in sentences like *dog species* and *stab proof*. Similarly, the voicing of the voiced stops tends to be devoiced when used at the final position, as in *stab*, *hid* and *frog*.

Rule THREE: has (or have).... + to....

Similar to the lenis fricatives, affricates and stops, the voicing of the verbs has/have tend to lose their voicing when followed by a fortis sound such the plosive alveolar /t/. The following examples elucidate this devoicing pattern:

- She has to be present.
- It has tapped into...
- They have stolen....

Rule FOUR: Aspirated plosives + Approximants

Devoicing seems to be highly remarkable with aspirated plosive sounds which are followed by approximants /l/, /r/, /w/ and /j/. Let us take the example of the words *pray* and *cute*. Notice that, because the central approximants /r/ and /j/ are preceded by the stop sounds /p/ and /k/, their voicing quality vanishes and their articulation becomes fairly close to that of the voiceless sounds.

Other rules on Devoicing:

There are other rules that constrain the devoicing of voiced consonants in the English inventory system. Devoicing affects the glottal, fricative sound /h/ when followed by the palatal approximant /j/, as in *huge* and *humid*. Likewise, a partially devoiced /m/ is realized after the voiceless sound /s/ as in *smack* and *smoke* (Collins & Mees, 2013).

Notes on Narrow Transcription of Devoicing:

It is worth noting that the transcription of devoiced consonants is indicated by a small circle over the symbol. Thus, the devoicing of the second sound of the word *huge* is marked as [j̥] and the last sound of the word *bag* is marked as [g̊] or [g̥].

Task: Indicate the devoiced sounds in each of the following words and sentences (see *Answer Keys* section).

Jazz club:..... queue:..... smooth:.....
 dad:..... he has to be here :.....