

CHAPTER THREE

DESCRIPTION OF THE PHONETIC AND PHONOLOGICAL SYSTEMS OF ENGLISH

3.1 Introduction

The main sources which have been used for the following description of the English phonetic and phonological systems are Roach (2002), Ladefoged (1993), Cruttenden (1994), Gimson (1964), and Clark (1995). The description of English phonetics, phonology, syllable structure and stress has been mostly extracted from the above sources.

3.2 The English Phonetic System

3.2.1 English Consonants

The English phonetic system consists of 58 phonetic consonants, which can be divided into 7 groups based on their manner of articulation and 8 groups based on the place of articulation as illustrated in the following table.¹

The air stream mechanism used in the articulation of all English consonants is ‘pulmonic egressive’, in which the air stream is created by the lungs and exhaled through the mouth or nose.

As it was done for the Persian language, the cases such as *air stream mechanism*, *articulatory force*, *phonation*, *place of articulation*, *manner of articulation*, *air passageway* and the other related terms explained in 2.2.1 are taken into account in describing the English consonants.

¹These consonants are various realizations of 24 consonant phonemes in the English language.

Table 3.1
English consonants

		bilabial	labio-dental	dental-alveolar	dental	alveolar	post-alveolar	palatal	velar	uvular	glottal
plosives	fortis	p ^h p p _h	ɸ		t̚	t ^h t t _h	t̚		k ^h k k _h		ʔ
	lenis	b b [◦] b̚	ɸ		d̚	d d̚ d̚	d̚		g g̚ g̚		
fricatives	fortis		f		θ	s	ʃ				h
	lenis		v		ð	z	ʒ				ɦ
affricates	fortis						tʃ				
	lenis						dʒ				
nasals	lenis	m	ɱ		ɳ	n	ɲ		ŋ		
laterals	fortis										
	lenis	clear				l l̚ l̚					
		dark					ɫ , ɫ̚				
trills	lenis										
flaps	lenis					r					
approximants	lenis	w̥w̚w̚					ɹ, ɹ̚, ɹ̚	j̚ j̚ j̚			

3.2.1.1 Plosives

The English consonants are normally produced in four sequent phases namely, **closing, compression, release and post-release phase.**

All the English plosives are in complementary distribution and "can occur at the beginning of the word (initial position), between other sounds (medial position) and at the end of a word (final position)" (Roach, 2002: 33).

In producing the English plosives, the velum is raised to keep the air back from escaping through the nasal cavity, in exception with the time when they are followed by nasal consonants, in such cases the nasal cavity is open as well, and air can pass both through the mouth and nose, as in the example '**happen**'. In addition, when the plosives are followed by lateral consonants, the lateral release occurs, that is, the air passes along the sides of the tongue, as in the example, '**apple**'.

(i) **Bilabial fortis plosives** [p^h, p_h, p]

In the production of the bilabial fortis plosives, the lips are pressed together to make a complete closure. The soft palate is raised and blocks the way to the nasal cavity, and the air is compressed behind the lips. The vocal folds are wide apart; therefore, there is no stricture for the air in the glottis and no vibration in the vocal folds. The other articulators are in the position of producing the next speech sound. Finally, the closure is removed and all the air behind the lips is suddenly released.

[p^h]

During the articulation of this plosive, the glottis is open and some part of the air of the lungs escapes immediately after the air behind the lips. The production of this plosive is accompanied with aspiration. This plosive occurs at the beginning of a stressed syllable, as in the examples ‘**pin**’ [pɪn] and ‘**appear**’ [ə'piə].

Phonetic description of [p^h]:

fortis, voiceless, aspirated, oral, bilabial, plosive

[p_h]

In producing [p_h] the vocal folds are wide apart so that some part of the air of the lungs escapes out of the oral cavity immediately after the release of the air behind the lips, but the air released is not so much as that for the aspirated [p^h]. This plosive occurs at the beginning of weakly stressed syllable, such as in [p_h] in the examples ‘**upper**’ [ʌp_hə] and ‘**opportunity**’ [ɒp_hə'tju:nəti].

Phonetic description of [p_h]:

fortis, voiceless, partly aspirated, oral, bilabial, plosive

[p]

This plosive is also produced with the glottis open; but no air from the lungs escapes immediately after the compressed air behind the lips, so there is no aspiration for [p]. This consonant occurs in final position and also when followed by another plosive and after [s] in initial combination [sp], as in the words ‘**lap**’ [læp], ‘**capture**’ [ˈkæptʃə] and ‘**spray**’ [spreɪ].

Phonetic description of [p]:

fortis, voiceless, unaspirated, oral, bilabial, plosive

(ii) Labio-dental fortis plosive [p]

When the bilabial plosive [p] precedes a labio-dental sound such as [f, v] the stop is often made by a labio-dental rather than a bilabial closure in anticipation of the following fricative articulation, as in ‘**cupful**’ [kʌpfʊl].

Phonetic description of [p]:

fortis, voiceless, unaspirated, oral, labiodental, plosive

(iii) Bilabial lenis plosives [b, β, ɸ]

In the production of the bilabial lenis plosives, the lips are pressed together to make a complete closure, the soft palate, is raised and blocks the way to the nasal cavity, compressing the air behind the lips. The compressed air and the articulatory force involved in the production of these plosives are not as much as that for the bilabial fortis plosives. The other articulators are in the position of producing the next speech sound. Finally, the closure is removed and the air behind the lips is suddenly released.

[b]

In producing [b], the vocal folds are in vibration position to produce voice during the articulation of this speech sound; therefore, there is thorough vibration for this plosive. [b] occurs between two voiced speech sounds such as ‘**rubber**’ [ˈrʌbə] and ‘**harbour**’ [ˈhɑ:rbə].

Phonetic description of [b]:

pulmonic, egressive, lenis, voiced, oral, bilabial, plosive

[b̥]

There is no a thorough vibration during the production of this consonant, that is to say, word-initially, it is partly devoiced. The examples are the words ‘**bold**’ [b̥əʊld] and ‘**brain**’ [b̥reɪn].

Phonetic description of [b̥]:

lenis, partly devoiced, oral, bilabial, plosive

[b]

In the production of this bilabial plosive, the glottis is wide open, and no voice is produced during the production of the plosive [b]. It occurs in final position, as in [b] which is fully devoiced in the examples ‘**rib**’ [rɪb̥] and ‘**sob**’ [sɒb̥].

Phonetic description of [b]:

lenis, devoiced, oral, bilabial, plosive

(iv) Labio-dental lenis plosive [ɸ]

When the bilabial plosive [b] precedes a labio-dental sound such as [f, v] the stop is often made by a labio-dental rather than a bilabial closure in anticipation of the following fricative articulation, as in ‘**obvious**’ [ɒbviəs].

Phonetic description of [ɸ]:

lenis, voiced, oral, labio-dental, plosive

(v) Alveolar fortis plosives [t^h, t, t̪]

In the production of these plosives, the tip of the tongue is in contact with the alveolar ridge in a way that the tongue does not touch the teeth. During the production of

these alveolar plosives, the way to the nasal cavity is closed, and the air is compressed behind the alveolar closure. The vocal folds are wide apart, so no voice is produced. The other articulators are in the position of producing the next speech sound. Finally, the tongue abruptly leaves the alveolar ridge to let the air escape through the oral cavity.

[t^h]

In producing [t^h], the vocal folds are wide apart and no voice is produced. While the glottis is open, some part of the air of the lungs escapes just after the release of the air behind the alveolar closure. The production of this plosive is accompanied with aspiration. This plosive occurs at the beginning of a stressed syllable, as in the examples ‘**take**’ [t^heɪk] and ‘**attend**’ [ə't^hend].

Phonetic description of [t^h]:

fortis, voiceless, aspirated, oral, alveolar, plosive

[t_h]

In producing [t_h], the vocal folds are wide apart, so some part of the air of the lungs escapes out of the oral cavity immediately after the release of the air behind the closure, but the air released is not as much as that for the aspirated [t^h]. This plosive occurs at the beginning of weakly stressed syllables as in the examples ‘**entry**’ [ˈentə_h] and ‘**after**’ [ˈæftə_h].

Phonetic description of [t_h]:

fortis, voiceless, partly aspirated, oral, alveolar, plosive

[t]

This plosive is also produced with the glottis open; but no air from the lungs escapes immediately after the compressed air behind the lips, so there is no aspiration for [t]. This consonant occurs in final position and also when followed by another plosive and after [s] initial combination, as in the words ‘**part**’ [pɑ:t], ‘**steak**’ [steɪk] and ‘**postcard**’ [ˈpəʊstkɑ:d].

Phonetic description of [t]:

fortis, voiceless, unaspirated, oral, alveolar, plosive

(v) Post-alveolar fortis plosive [ɮ]

In the production of this plosive, the tip of the tongue is in contact with an area behind the alveolar ridge. During the production of this post-alveolar plosive, the way to the nasal cavity is closed, and the air is compressed behind the post-alveolar closure. The vocal folds are wide apart, so no voice is produced. This consonant occurs before [r], as in the examples ‘**try**’ [traɪ] and ‘**trap**’ [træp].

Phonetic description of [ɮ]:

fortis, voiceless, oral, post-alveolar, plosive

(vii) Dental fortis plosive [t̪]

In the production of this plosive, the tip of the tongue is in contact with the front teeth. The way to the nasal cavity is closed, and the air is compressed behind the dental

closure. The vocal folds are wide apart, so no voice is produced. This consonant occurs before [θ] and [ð] as in the examples ‘cut through’ [kʌtθru:] and ‘but these’ [bʌtði:z].

Phonetic description of [t]:

fortis, voiceless, oral, dental, plosive

(viii) **Alveolar lenis plosives [d, ð, ɖ]**

In the production of the alveolar lenis plosives, the tongue tip is in contact with the alveolar ridge in a way that the tongue does not touch the teeth. During the production of these alveolar plosives, the way to the nasal cavity is closed, and the air is compressed behind the alveolar closure. The soft palate is raised and blocks the way to the nasal cavity. The compressed air and the articulatory force involved in the production of these consonants are not so much as that for the alveolar fortis plosives. The other articulators are in the position of producing the next speech sound.

[d]

The vocal folds are in vibration position to produce voice during the articulation of this speech sound; so, there is a thorough vibration for this plosive. The plosive [d] occurs between two voiced speech sounds as in the words ‘adorn’ [ə'dɔ:n] and ‘leader’ ['li:də].

Phonetic description of [d]:

lenis, voiced, oral, alveolar, plosive

[d̥]

There is no thorough vibration during the production of this consonant. This plosive occurs in the initial position of the word, and the voice produced by the vocal folds accompanies the second part of this consonant. The examples are ‘**date**’ [d̥eɪt] and ‘**duke**’ [d̥u:k].

Phonetic description of [d̥]:

lenis, partly devoiced, oral, alveolar, plosive

[d̥]

In the production of this alveolar plosive, the glottis is wide open, so no voice is produced during the production of the plosive [d̥]. It occurs word-finally, as in [d̥] which is fully devoiced in the example words ‘**bid**’ [bɪd̥] and ‘**mid**’ [mɪd̥].

Phonetic description of [d̥]:

lenis, devoiced, oral, alveolar, plosive

(ix) Post-alveolar lenis plosive [ɖ]

In the production of this plosive, the tip of the tongue is in contact with an area behind the alveolar ridge. During the production of this post-alveolar plosive, the way to the nasal cavity is closed, so the air is compressed behind the post-alveolar closure. This consonant occurs before [r] as in the examples ‘**dry**’ [draɪ] and ‘**drop**’ [drɒp].

Phonetic description of [ɖ]:

lenis, oral, post-alveolar, plosive

(x) **Dental lenis plosive [d̪]**

In the production of this plosive, the tip of the tongue is in contact with the front teeth. During the production of this dental plosive, the way to the nasal cavity is closed, so the air is compressed behind the dental closure. The vocal folds are in vibration position. This consonant occurs before [θ] and [ð] as in the example ‘**good think**’ [gʊd̪θɪŋk].

Phonetic description of [d̪]:

lenis, voiced, oral, dental, plosive

(xi) **Velar fortis plosives [k^h, k, k_h]**

In producing these plosives, the obstacle to the airstream is formed by a closure made between the back of the tongue and the soft palate which prevents the air from escaping through the oral cavity. Simultaneously, the soft palate is raised to block the way to the nasal cavity. As soon as the tongue leaves the velum, the compressed air is suddenly released. The vocal folds are wide apart, so there is no voice during the production of these plosives. The other articulators are in the position of producing the next speech sound.

[k^h]

In producing the plosive [k^h], the vocal folds are wide apart, and no voice is produced in the glottis. Following the release of the air behind the velar closure, some part of the air of the lungs escapes out of the mouth, so the production of this plosive is accompanied with aspiration. This plosive occurs at the beginning of a stressed syllable, as in the examples ‘**cup**’ [k^hʌp] and ‘**according**’ [ək^hɔːdɪŋ].

Phonetic description of [k^h]:

fortis, voiceless, aspirated, oral, velar, plosive

[k]
h

The plosive [k]_h is articulated with an open glottis, and there is partial aspiration.

This consonant occurs in weakly stressed syllables, as in the examples ‘icon’ [’aɪkɒn]_h and

‘baker’ [’beɪkə]_h.

Phonetic description of [k]_h:

fortis, voiceless, partly aspirated, oral, velar, plosive

[k]

This plosive is also produced with an open glottis; but no air from the lungs escapes immediately after the release of the compressed air behind the velar closure, so there is no aspiration for [k]. This consonant occurs in final position, when followed by another plosive and after [s] in initial combination, as the examples ‘bank’ [bæŋk], ‘scar’ [skɑ:] and ‘actor’ [’æktə].

Phonetic description of [k]:

fortis, voiceless, unaspirated, oral, velar, plosive

(xii) **Velar lenis plosives [g, ġ, ɡ]**

In the production of these plosives, the obstacle to the airstream is formed by a closure made between the back of the tongue and the soft palate which prevents the air from escaping through the oral cavity. Simultaneously, the soft palate is raised to block the way to the nasal cavity. As soon as the tongue leaves the velum, the compressed air is suddenly released. The compressed air and the articulatory force involved in the production of these consonants are not so much as that for the velar fortis plosives. The other articulators are in the position of producing the next speech sound.

[g]

The vocal folds are in vibration position to produce voice during the articulation of this speech sound, and there is a thorough vibration for this plosive. The plosive [g] occurs between two voiced speech sounds, as in the words 'fogy' [fɒɡɪ] and 'piggy' [pɪɡɪ].

Phonetic description of [g]:

lenis, voiced, oral, palatal, plosive

[g̊]

There is no thorough vibration during the production of this consonant. This plosive occurs in the initial position of the word. Voice produced by the vocal folds accompanies the second part of this consonant. The examples are 'gate' [ɡeɪt] and 'good' [ɡʊd].

Phonetic description of [g̊]:

lenis, partly devoiced, oral, velar, plosive

[g̥]

In the production of this velar plosive, the glottis is wide open, so no voice is produced during the production of [g̥]. It occurs in final position. [g̥] is fully devoiced in the examples 'vague' [veɪɡ̥] and 'rag' [ræɡ̥].

Phonetic description of [g̥]:

lenis, devoiced, oral, velar, plosive

(xii) **Glottal fortis plosive [ʔ]**

In the case of this glottal plosive, the obstruction to the air stream is formed by the closure of the vocal folds. The air pressure below the glottis is released by the sudden

separation of the vocal folds. The plosive is voiceless, there being no vibration of the vocal cords.

This plosive is widely used by RP speakers in different contexts. The examples are given below.

The most widespread usage of this plosive is before [tʃ] at the end of a stressed syllable as in the examples ‘nature’ [neɪtʃə] and ‘reaches’ [ri:tʃɪz]. This plosive is also used as a syllable boundary marker, when the initial sound of the second syllable is a vowel, as in the examples ‘cooperate’ co[ʔ]operate and ‘reaction’ re[ʔ]action. Any initial accented vowel may be reinforced by a preceding glottal stop, when a particular emphasis is placed on the word as in the examples *It’s [ʔ] empty* and *I haven’t seen [ʔ] anybody*. The plosive [ʔ] is also used to replace the [t] element of final [tʃ], eg. **coach** and **much**. This plosive also happens before **p**, **t**, or **k** when they are followed by another consonant or pause as in the examples ‘actor’ [æktʃə], ‘petrol’ [peʔtrəl] and ‘mat’ [mæʔt]. Some RP speakers replace syllable-final [p,t,k] with [ʔ] when a homorganic consonant follows them, as in the examples ‘that table’ tha[ʔ] table, ‘get down’ ge[ʔ] down, and ‘great joke’ grea[ʔ] joke.

Phonetic description of [ʔ]:

fortis, voiceless, oral, glottal, plosive

3.2.1.2 Fricatives

In the articulation of fricative consonants, two organs are brought and held close together so that they make a narrow passage for the air; then by passing the air through this narrow passage a friction noise is produced. Depending on the articulators making these narrow passages, different speech sounds are produced, which are called fricative

consonants. The RP fricative consonants comprise four pairs [f, v, θ, ð, s, z, ʃ, ʒ] and [h], all of which in exception with [h] can be found in initial, medial and final position; that is, they appear at the beginning of a word, between other speech sounds and at the end of a word before pause. The fricative [h] does not occur in final position.

In producing the **RP** fricatives, the soft palate, or velum, is raised to hold the air back from escaping through the nasal cavity. Therefore, the only way for the air to pass is through the oral cavity.

(i) Labio-dental fortis fricative [f]

The articulators involved in the production of this fricative are the lower lip and the upper front teeth. The inner surface of the lower lip makes a light contact with the edge of the upper front teeth, so that the escaping air produces friction. During the production of [f], the glottis is open and there is no vibration in the vocal folds, so it is a voiceless consonant. The examples are ‘feet’ [fi:t], ‘defend [dr'fend]’ and ‘loaf’ [ləʊf].

Phonetic description of [f]:

fortis, voiceless, fricative, oral, labiodental

(ii) Labio-dental lenis fricative [v]

The articulators involved in the production of this fricative consonant are the lower lip and the upper front teeth. The upper front teeth touch the inside of the lower lip, so that the air can escape through the openings between teeth and lip. The vocal folds are in vibration position to produce voice during the articulation of this speech sound. Examples are ‘vain’ [veɪn], ‘cover’ ['kʌvə] and ‘dove’ [dʌv].

Phonetic description of [v]:

lenis, voiced, oral, labio-dental, fricative

(iii) Dental fortis fricative [θ]

The articulators involved in the production of this fricative are the tongue and the front teeth. The tongue is normally placed behind the teeth, with the tip touching the inside of the lower front teeth and the blade touching the inside of the upper teeth. The air escapes through the gaps between the tongue and the teeth. During the production of [θ], the nasal cavity is closed and the glottis is open and there is no vibration in the vocal folds. This fricative consonant can occur in initial, medial and final position. The examples are ‘**thief**’ [θi:f], ‘**ethics**’ [’eθɪks] and ‘**path**’ [pɑ:θ].

Phonetic description of [θ]:

fortis, voiceless, fricative, oral, dental

(iv) Dental lenis fricative [ð]

As it is with [θ], the tongue is normally placed behind the teeth, with the tip touching the inside of the lower front teeth and the blade touching the inside of the upper teeth. The air escapes through the gaps between the tongue and the teeth. During the production of [ð], the nasal cavity is closed and the vocal folds are in vibration position. This fricative consonant can occur in initial, medial and final position. The examples are ‘**thy**’ [ðɑɪ], ‘**worthy**’ [wɜ:ðɪ] and ‘**soothe**’ [su:ð].

Phonetic description of [ð]:

lenis, voiced, fricative, oral, dental

(v) **Alveolar fortis fricative [s]**

In this case the tongue blade makes a light contact with the upper alveolar ridge. Normally the tongue does not touch the front teeth. The air escapes through a narrow passage along the centre of the tongue and the sound produced is more intense than for [z]. During the production of [s], the nasal cavity is closed. The vocal folds are wide apart and produce no vibration; therefore this consonant is voiceless. This fricative can occur in initial, medial and final position. The examples are ‘**sign**’ [sain], ‘**essay**’ [’eseɪ] and ‘**pass**’ [pɑ:s].

Phonetic description of [s]:

fortis, voiceless, oral, alveolar, fricative

(vi) **Alveolar lenis fricative [z]**

As it is with [s], the tongue blade makes a light contact with the upper alveolar ridge, normally the tongue does not touch the front teeth. The air escapes through a narrow passage along the centre of the tongue. During the production of [z], the nasal cavity is closed and the vocal folds are in vibration position and produce voice. This fricative can occur in initial, medial and final position. The examples are ‘**zinc**’ [zɪŋk], ‘**hesitate**’ [’hezɪteɪt] and ‘**gaze**’ [geɪz].

Phonetic description of [z]:

lenis, voiced, oral, alveolar, fricative

(vii) Post-alveolar fortis fricative [ʃ]

In this case, the tip and blade of the tongue make a light contact with an area slightly further back than that for [s, z]. The air escapes through a passage along the centre of the tongue, but the passage is a little wider than that for [s, z] and the release of the air is diffuse, comparatively. The articulation for [ʃ] is also more lax than that for [s, z]. Most **RP** speakers have rounded lips when producing this consonant. In the production of this fricative the vocal folds are wide apart and play no role in articulating this speech sound, so this consonant is voiceless. During the articulation of this consonant, the nasal cavity is closed and the glottis is open. The examples for this fricative are ‘**shop**’ [ʃɒp], ‘**mission**’ [mɪʃn] and ‘**push**’ [pʊʃ].

Phonetic description of [ʃ]:

fortis, voiceless, rounded post-alveolar, oral, fricative

(viii) Post-alveolar lenis fricative [ʒ]

For the production of this post alveolar fricative, the tip and blade of the tongue make a light contact with an area slightly further back than that for [s, z], and the air escapes through the narrow passage formed along the center of the tongue, but the passage is a little wider than that for [s, z] and the release of the air is diffuse, comparatively. The articulation for [ʒ] is also more lax than that for [s, z]. During the articulation of this speech sound, the lips are rounded, the nasal cavity is closed and the vocal folds are in vibration position. The fricative [ʒ] occurs in initial position. In initial and final position it is found only in French loan words. The examples are ‘**genre**’ [ˈʒɑ:nrə], ‘**confusion**’ [kənˈfju:ʒn] and ‘**garage**’ [ˈgæɑ:ʒ].

Phonetic description of [ʒ]:

lenis, voiced, rounded, post-alveolar, oral, fricative

(ix) Glottal fricative [h]

The articulators involved in the production of this consonant are the vocal folds. The edges of the vocal folds are brought together so that a narrowing is produced between the vocal folds. When the airflow rushes through this narrow passage, a hissing sound is heard. . During the production of this consonant, the nasal cavity is closed and no voice is produced by the vocal folds.

This consonant has the quality of the vowel that follows it. For example, in the word **have**, [h] is followed by [æ] vowel. The tongue, jaw, and lip positions for the vowel are all produced simultaneously with the [h], so that this consonant has an [æ] quality. When [h] is followed by other vowels such as [e], [i], and [u], it receives the quality of those vowels. For this special quality of [h], it is generally said that it is phonetically a voiceless vowel. But, phonologically it is considered a consonant. This fricative occurs only in syllable-initial, prevocalic positions. It does not occur in final position. The examples are ‘**heat**’ [hi:t] and ‘**pent house**’ ['penthaus].

Phonetic description of [h]:

voiceless, oral, glottal, fricative

(x) **Glottal lenis fricative [h]**

This glottal fricative is articulated with the vocal folds. The edges of the vocal folds are brought together, so that a narrowing is formed between them. The strong air stream of [h] is accompanied by vocal fold vibration, the result being a kind of breathy vowel or voiced glottal fricative [ɦ]. During the production of this speech sound, the way to the nasal cavity is closed by the soft palate. This consonant appears between two voiced speech sounds as in the examples ‘behind’ [bɪ'ɦaɪnd] and ‘manhood’ ['mɪnɦʊd].

Phonetic description of [ɦ]:

voiced, oral, glottal, fricative

3.2.1.3 Affricates

In the case of the affricates, the obstacle to the air is formed by a closure between the tip and blade of the tongue and the upper alveolar ridge. At the same time, the front of the tongue is raised towards the hard palate in readiness for the release. The closure is released slowly, the air escaping in a diffuse manner over the whole of the central surface of the tongue with friction occurring between the blade/front region of the tongue and the alveolar/front palatal section of the roof of the mouth. During the production of the affricates, the way to the nasal cavity is closed by the soft palate. The **RP** affricates appear at the beginning, within, and at the end of a word. The lips are rounded.

(i) Post-alveolar fortis affricate [tʃ]

During the articulation of this post-alveolar affricate, the glottis is wide open, and no voice is produced. This consonant is slightly aspirated in the positions where [p, t, k] are aspirated because some part of the air from the lungs escapes through the oral cavity just after the release. The examples are ‘charm’ [tʃɑ:m], ‘orchard’ [ˈɔ:tʃəd] and ‘coach’ [kəʊtʃ].

Phonetic description of [tʃ]:

fortis, voiceless, oral, post-alveolar, affricate

(ii) Post-alveolar lenis affricate [dʒ]

During the production of this affricate consonant, the vocal folds are vibrating and producing voice. The plosion and the friction noise is not so much as it is for the affricate [tʃ] since some part of the air is used for producing vibration. The examples are ‘jar’ [dʒɑ:], ‘fragile’ [ˈfrædʒaɪl] and ‘judge’ [dʒʌdʒ].

Phonetic description of [dʒ]:

lenis, voiced, oral, post-alveolar, affricate

3.2.1.4 Nasals

These nasals are produced when the velum is lowered, allowing air to escape freely through the nose. The oral cavity still acts as a resonance chamber for the sound, but the air does not escape through the mouth as it is blocked by the tongue touching some other articulators in the oral cavity. Thus it is not the nose itself that differentiates between the nasal consonants, but rather the tongue’s articulation, as in oral plosives.

(ii) Bilabial lenis nasal [m]

For the articulation of this nasal, the upper and lower lips are pressed together to prevent the air from passing through the oral cavity. At the same time, the soft palate is lowered to allow the air escape through the nasal cavity. The vocal folds are in vibration position to produce voice during the articulation of this speech sound. [m] occurs in initial, medial and final position as in the examples ‘**march**’ [mɑ:tʃ], ‘**smoke**’ [sməʊk] and ‘**warm**’ [wɔ:m].

Phonetic description of [m]:

lenis, voiced, bilabial, nasal

(ii) Labio-dental lenis nasal [ŋ]

In producing [ŋ], the lower lip is pressed against the upper teeth to block the air from passing through the oral cavity. During the production of this consonant, the vocal folds are producing voice. The air which is blocked by the labio-dental closure escapes out through the nasal cavity. This consonant is articulated when **m** and **n** occur before labio-dental consonants [f, v]. The examples are ‘**triumph**’ [ˈtraɪɹɪŋf], ‘**warm vest**’ [ˈwɔ:mŋvest], ‘**infant**’ [ˈɪŋfənt] and ‘**in vain**’ [ɪŋˈveɪn].

Phonetic description of [ŋ]:

pulmonic, egressive, lenis, voiced, labio-dental, nasal

(iii) Dental lenis nasal [ɹ̃]

For this nasal to be produced, the tip of the tongue is placed between the upper and lower front teeth to make a blockage. The air passes through the nose. This consonant is

articulated when **n** occurs before [θ] and [ð] as in the examples ‘tenth’ [teɪ̯θ] and ‘in the’ [ɪ̯nðə].

Phonetic description of [ŋ]:

lenis, voiced, dental, nasal

(iv) **Alveolar lenis nasal [n]**

For this nasal to be produced, the blade of the tongue touches the alveolar ridge and prevents the air from escaping through the nasal cavity. At the same time, the soft palate is lowered to allow the air to pass through the nasal cavity. During the articulation of this alveolar nasal, the vocal folds are in vibration position, so it is voiced. This nasal consonant can occur in initial, medial and final position. The examples are ‘net’ [net], ‘monitor’ [ˈmɒnɪtə] and ‘melon’ [ˈmelən].

Phonetic description of [n]:

lenis, voiced, alveolar, nasal

(v) **Post-alveolar lenis nasal [ŋ]**

In the production of this plosive, the tip of the tongue is in contact with an area behind the alveolar ridge. During the production of this consonant, the way to the nasal cavity is open, and the air passes through the nose. The vocal folds are in vibration position, so this speech sound is voiced. This consonant occurs before [r] as in the examples ‘unrest’ [ʌ̯ŋˈrest] and ‘Henry’ [ˈheɪ̯nrɪ].

Phonetic description of [ŋ]:

lenis, voiced, post-alveolar, nasal

(vi) **Velar lenis nasal [ŋ]**

For this nasal to be produced, the closure is formed between the back of the tongue and the soft palate, to prevent the air from escaping through the oral cavity. The point of closure will depend on the type of vowel preceding, for example, the contact is more advanced in **sing** than in **song**. During the production of this nasal, the soft palate keeps the way to the nasal cavity open, so the air escapes through the nose. This consonant is articulated when [ŋ] occurs before [k] and [g]. This nasal consonant appears only in medial and final position. Everywhere the sequence of [n] and [k] is pronounced [ŋk], and the sequence of n and g is articulated as [ŋg] within a morpheme and as [ŋ] at the end of a morpheme. To serve the purpose, the comparative and superlative forms have been considered one morpheme. The examples are ‘rank’ [ræŋk], ‘finger’ [fɪŋgə], ‘singer’ [sɪŋə] and ‘longer’ [lɒŋgə].

Phonetic description of [ŋ]:

lenis, voiced, velar, nasal

3.2.1.5 Laterals

The laterals are consonants produced with a closure made by the tip of the tongue and the alveolar ridge, while the air from the lungs escapes at one side or both sides of the tongue. During the production of the lateral consonants, the way to the nasal cavity is blocked by the soft palate. The English laterals can be found in initial, medial and final position.

(i) **Clear laterals** [l, l̥, ɫ]

These lateral consonants are produced with the tip of the tongue touching the alveolar ridge, while the air passes at the sides (or one side) of the tongue and the nasal cavity is closed. For these laterals, the front of the tongue is raised in the direction of the hard palate at the same time as the tip contact is made, thus giving a front vowel resonance to the consonant. These speech sound occur before vowels and [j].

[l]

During the articulation of this lateral, the vocal folds are in vibration position, so it is fully voiced, and it occurs in initial and medial position as well as in word-final position before a vowel or [j]. The examples are ‘**look**’ [lɒk], ‘**collar**’ [ˈkɒlə] and ‘**ugly**’ [ˈʌɡli].

Phonetic description of [l]:

clear, lenis, voiced, oral, alveolar, lateral

[l̥]

This lateral consonant, which is partially devoiced, appears after voiceless fricatives or after voiceless plosives in unaccented syllables or across syllable boundaries. The examples are ‘**fling**’ [fl̥ɪŋ], ‘**aptly**’ [æpt̥li] and ‘**rope ladder**’ [ˈrəʊplædə].

Phonetic description of [l̥]:

clear, lenis, partly devoiced, oral, alveolar, lateral

[ɫ]

During the production of this speech sound, which is fully devoiced, the glottis is wide open; therefore there is no voice for this consonant. The alveolar [ɫ] occurs after voiceless plosives in accented syllables. The examples are ‘**please**’ [pli:z], ‘**climb**’ [kɫaɪm] and ‘**click**’ [kɫɪk].

Phonetic description of [l]:

clear, lenis, devoiced, oral, alveolar, lateral

(ii) **Dark laterals** [ɫ, ɫ̥]

The dark laterals are produced with the tip of the tongue touching the alveolar ridge, while the air passes along the sides (or one side) of the tongue and the nasal cavity is closed. For dark laterals, the back of the tongue is raised in the direction of the soft palate at the same time as the tip contact is made, thus giving a back vowel resonance to the consonant. These speech sounds occur in all contexts but not before vowels and [j].

[ɫ]

During the articulation of this lateral, the vocal folds are in vibration position, so it is fully voiced, and it occurs after vowels, before voiced consonants and in word-final. The examples are ‘canal’ [kə'næɫ] and ‘alpine’ ['æɫpaɪn].

Phonetic description of [ɫ]:

dark, lenis, voiced, oral, alveolar, lateral

[ɫ̥]

This lateral consonant is the syllabic [ɫ̥] that appears after voiceless consonants. It is partly devoiced. The examples are ‘simple’ [sɪmp̥ɫ̥] and ‘little’ ['lɪt̥ɫ̥].

Phonetic description of [ɫ̥]:

dark, lenis, partly devoiced, oral, alveolar, lateral

3.2.1.6 Flap [ɾ]

This speech sound may appear in intervocalic positions, after [θ, ð] and with some speakers after other consonants. It is articulated with a single contraction of the muscles, so that the tip of the tongue briefly strikes the alveolar ridge. During the production of this consonant, the way to the nasal cavity is closed. The examples are ‘very’ [veɾɪ], ‘three’ [θɾɪ], ‘with respect’ [wɪðɾɪs'pekt] and ‘grow’ [gɾəʊ].

Phonetic description of [ɾ]:

lenis, oral, alveolar, flap

3.2.1.7 Approximants

3.2.1.7.1 Palatal Approximants [j, ɨ, j]

These approximants are articulated by the tongue assuming the position for a close-mid to close vowel (depending on the degree of openness of the following sound) and moving away immediately to the position of the following sound; the lips are generally neutral or spread, but anticipate the lip rounding of the following vowel. During the production of these consonants the way to the nasal cavity is closed.

[j]

During the articulation of this approximant, the vocal folds are in vibration position, thus it is fully voiced. This speech sound occurs in initial position of the word and following voiced sounds. The examples are ‘yield’ [ji:ld] and ‘music’ [mju:zɪk].

Phonetic description of [j]:

lenis, voiced, oral, palatal, approximant

[ɹ]

This approximant, which is partly devoiced, occurs after consonant clusters [sp, st, sk], voiceless fricatives or unaccented [p, t, k]. The examples are ‘spurious’ [ˈspjʊəriəs], ‘stew’ [stju:], ‘askew’ [əˈskju:], ‘pursue’ [pərsju:], ‘opulent’ [ˈɒpjʊlənt], ‘spatula’ [ˈspætʃjʊlə] and ‘oculist’ [ˈɒkjʊlɪst].

Phonetic description of [ɹ]:

lenis, partly devoiced, oral, palatal, approximant

[j]

This speech sound, which is fully devoiced, occurs after accented [p, t, k, h], with the result that a voiceless palatal fricative [ç] is produced. The examples are ‘pew’ [pjʊ:], ‘tune’ [tju:n], ‘queue’ [kju:] and ‘huge’ [hju:ɔʒ].

Phonetic description of [j]:

pulmonic, egressive, lenis, devoiced, oral, palatal, approximant

3.2.1.7.2 Bilabial Approximants [w, w, w̥]

This approximant is articulated by the tongue assuming the position of a back close-mid to close vowel (depending upon the degree of openness of the following sound) and moving immediately to the position of the following sound; the lips are generally rounded. During the production of these consonants the way to the nasal cavity is closed.

[w]

During the articulation of this approximant, the vocal folds are in vibration position; therefore it is fully voiced. This speech sound occurs in initial position and between voiced speech sounds. The examples are ‘wood’ [wʊd], ‘away’ [əˈweɪ] and ‘always’ [ˈɔ:lweɪz].

Phonetic description of [w̥]:

lenis, devoiced, oral, Labial-velar, approximant

[w̥]

This approximant, which is partly devoiced, occurs after consonant cluster [sk], accented voiceless fricatives, or unaccented [p, t, k]. The examples are ‘square’ [skw̥eə], ‘swim’ [sw̥ɪm], ‘upward’ [ˈʌpw̥əd], ‘outward’ [ˈaʊtw̥əd] and ‘equal’ [ˈi:kw̥əl].

Phonetic description of [w̥]:

lenis, devoiced, oral, Labial-velar, approximant

[w̥]

This speech sound, which is fully devoiced, occurs after accented [t, k], with the result that a voiceless labial-velar fricative [w̥] is produced for which the friction is bilabial. The examples are ‘twig’ [tw̥ɪg] and ‘queen’ [kw̥iːn].

The pronunciation of [w], amongst careful conservative RP speakers, is a voiceless labial-velar fricative [ɱ], as in the examples ‘which’ [ɱɪtʃ] and ‘white’ [ɱaɪt].

Phonetic description of [w̥]:

lenis, devoiced, oral, Labial-velar, approximant

3.2.1.7.3 Post-alveolar Approximants [ɹ, ɹ̥, ɹ̥]

These consonants are produced when the soft palate is raised to close the nasal cavity, and the tip of the tongue is held in a position near to the rear part of the upper alveolar ridge but not touching. The tongue is in fact usually slightly curled backwards with

the tip raised. The central part of the tongue is lowered, and the air stream is allowed to escape freely, without friction, over the centre part of the tongue. During the production of these consonants, it is usual for the lips to be slightly rounded. These sounds only occur before vowels. Post-alveolar approximants appear in initial, medial and word-final position.

[ɹ]

During the articulation of this approximant, the vocal folds are in vibration position, so it is fully voiced, and it occurs in all positions but not after voiceless accented plosives, voiceless fricatives, unaccented voiceless plosives and accented voiceless plosives preceded by [s] in the same syllable. The examples are ‘royal’ [ˈɹɔɪəl], ‘hurry’ [hʌɹɪ] and ‘far away’ [ˈfɑɹəweɪ].

Phonetic description of [ɹ]:

lenis, voiced, rounded, oral, post-alveolar, approximant

[ɹ̥]

This approximant, which is partly devoiced, occurs after voiceless fricatives, unaccented voiceless plosives and accented voiceless plosives preceded by [s] in the same syllable. The examples are ‘fry’ [fɹ̥aɪ], ‘apron’ [ˈeɪpɹ̥ən] and ‘street’ [stɹ̥i:t].

Phonetic description of [ɹ̥]:

lenis, partly devoiced, rounded, oral, post-alveolar, approximant

[ɹ̥]

During the articulation of this approximant, the vocal folds are wide apart; therefore it is fully devoiced. [ɹ̥] occurs after voiceless accented plosives [p, t, k]. The examples are ‘proud’ [pɹ̥aʊd], ‘try’ [tɹ̥aɪ] and ‘decree’ [dɪˈkɹ̥i:].

Phonetic description of [ɹ̥]:

lenis, devoiced, rounded, oral, post-alveolar, approximant

3.2.2 English Vowel Sounds

As it was done for the Persian language, the cases such as *backness*, *roundedness*, *nasalization*, *phonation*, *length* and the other related terms explained in 1.2 are taken into account in describing the English vowels.

3.2.2.1 Vowels

Phonetically, the English language (RP), according to (Roach, 2002), has 21 vowels, which are classified based on their place of articulation, that is, frontness and backness, as well as the tongue's height, which is close, mid and open, and the shape of the lips, that can be rounded, spread and neutral. The air stream mechanism used in the articulation of all English vowels is 'pulmonic egressive', in which the air stream is created by the lungs and exhaled through the mouth and nose. The English pure vowels are located on the following four sided figure.

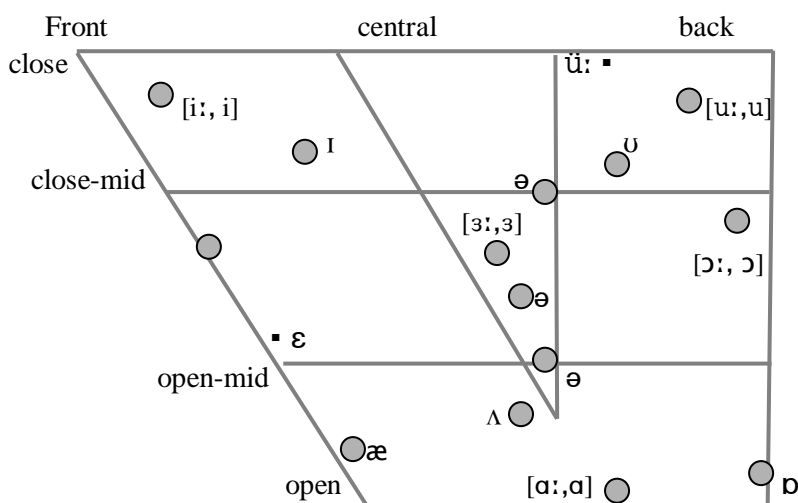


Figure 3.1
English pure vowels

(i) **Long front close vowel [i:]**

For the production of this vowel, the front part of the tongue is positioned high, slightly below and behind the front close position. During the production of this vowel, the lips are spread and the tongue is tense. The vowel [i:] occurs in initial position, medial position before voiced consonants and in final position, as in the examples ‘eel’ [i:l], ‘cheese’ [tʃi:z] and ‘tree’ [tri:]. The reduced form of this vowel, which is represented by the symbol [ɪ] is articulated before voiceless consonants, as in the examples ‘seat’ [si:t], ‘reach’ [ri:tʃ] and ‘beef’ [bi:f].

Phonetic description of [i:]

voiced, oral, long, spread, front, close, tense vowel

(ii) **Short front close vowel [ɪ]**

This short **RP** vowel is pronounced with a part of the tongue nearer to centre than to front, raised just above the close mid position. During the production of this vowel the lips are loosely spread and the tongue is lax. [ɪ] may occur in initial, medial and final position. The examples are ‘ill’ [ɪl], ‘sin’ [sɪn] and ‘pretty’ [prɪti].

Phonetic description of [ɪ]

voiced, oral, short, slightly spread, front, close, lax vowel

(iii) **Short front mid vowel [e]**

For the short **RP** [e], the front part of the tongue is raised between the close-mid and open-mid positions, and closer to close-mid position; the lips are loosely spread and are slightly wider apart than for [ɪ]; the tongue may have more tension than in the case of [ɪ]. This vowel can appear in initial and medial positions in the word. The examples are ‘egg’ [eg] and ‘set’ [set].

There is a variant for this vowel in **RP**, which tends to be closer to open-mid position and is represented with the symbol [ɛ].

Phonetic description of [e]:

voiced, oral, short, slightly spread, front, mid, vowel

(iv) Short front open vowel [æ]

The mouth is slightly open than for [e]; the front of the tongue is raised to a position midway between open and open-mid; the lips are slightly spread. The examples for this short vowel are ‘**and**’ [ænd] and ‘**rash**’ [ræʃ].

Phonetic description of [æ]:

voiced, oral, short, slightly spread, front, open, vowel

(v) Central open vowel [ʌ]

The short **RP** [ʌ] is articulated with a considerable separation of the jaws and with the lips neutrally open; the centre of the tongue is raised just above the fully open position. This vowel may occur in initial and medial position in the word. The examples are ‘**up**’ [ʌp] and ‘**cut**’ [kʌt].

Phonetic description of [ʌ]:

voiced, oral, short, neutral, central, open, vowel

(vi) Long back open vowel [ɑ:]

This normally long vowel is articulated with a considerable separation of the jaws and the lips neutrally open; a part of the tongue between the centre and back is in fully open position. It occurs before voiced consonants. The examples are ‘**arm**’ [ɑ:m] and ‘**palm**’ [pɑ:m].

The reduced form of this vowel, which is represented with the symbol [ɑ] is articulated before the voiceless consonants, as in the examples ‘**dart**’ [dɑt], ‘**last**’ [lɑst] and ‘**calf**’ [kɑf].

Phonetic description of [ɑ:]:

voiced, oral, long, neutral, back, open, vowel

(vii) Short back open vowel [ɒ]

This short vowel is articulated with wide open jaws and slight open lip-rounding; the back of the tongue is approximately in the fully open position. This vowel may appear in initial and medial position. The examples for this vowel are ‘**object**’ [ˈɒbdʒɪkt] and ‘**stock**’ [stɒk].

Phonetic description of [ɒ]:

voiced, oral, short, slightly rounded, back, open, vowel

(viii) Long back mid vowel [ɔ:]

This long **RP** vowel is articulated with full lip-rounding; the back of the tongue is raised between the open-mid and close-mid position, and closer to the latter. This vowel can occur in all positions in the word, but not before voiceless consonants. The examples are ‘**oar**’ [ɔ:], ‘**cord**’ [kɔ:d] and ‘**more**’ [mɔ:].

The reduced form of this vowel, which is represented by the symbol [ɔ] is articulated before the voiceless consonants, as in the examples ‘**sort**’ [sɔ:t], ‘**horse**’ [hɔ:s] and ‘**sauce**’ [sɔ:s].

Phonetic description of [ɔ:]:

voiced, oral, long, fully rounded, back, mid, vowel

(ix) Short back close vowel [ʊ]

The short **RP** vowel [ʊ] is pronounced with a part of the back of the tongue raised just above the close-mid position; the lips are closely but loosely rounded, and the tongue is lax. This vowel mostly occurs in medial position. The examples are ‘**full**’ [fʊl] and ‘**wood**’ [wʊd].

Phonetic description of [ʊ]:

voiced, oral, short, rounded, back, close, lax vowel

(x) Long back close vowel [u:]

The **RP** long [u:] is articulated with the back of the tongue raised between close-mid and close position, and closer to the latter. The lips tend to be closely rounded, and the tongue is tense. This vowel may appear in initial, medial and final position. The consonants following this vowel are always voiced. The examples are ‘**ooze**’ [u:z], ‘**food**’ [fu:d] and ‘**shoes**’ [ʃu:z].

There is a variant for this vowel in **RP**, which tends to be closer to central and close position and is represented by the symbol [ü:]. This vowel is articulated following the consonant [j], as in the examples ‘**youth**’ [jü:θ], ‘**beauty**’ [bjü:tɪ] and ‘**cute**’ [kjü:t]. The reduced form of [u:], which is represented by the symbol [u] is articulated before the voiceless consonants, as in the examples ‘**boot**’ [bu:t], ‘**fruit**’ [fru:t] and ‘**group**’ [gru:p].

Phonetic description of [u:]:

voiced, oral, long, rounded, back, close, tense vowel

(xi) Long central mid vowel [ɜ:]

The **RP** vowel [ɜ:] is articulated with the centre of the tongue raised between close-mid and open-mid. The lips are neutral. This vowel may occur in all positions in the word, but not before voiceless consonants. The examples are ‘**err**’ [ɜ:], ‘**girl**’ [gɜ:l] and ‘**fur**’ [fɜ:]. The reduced form of this vowel, which is represented with the symbol [ɜ] is articulated before the voiceless consonants, as in the examples ‘**first**’ [fɜst], ‘**worse**’ [wɜs] and ‘**church**’ [tʃɜtʃ].

Phonetic description of [ɜ:]:

voiced, oral, long, neutral, central, mid, vowel

(xiii) Short central mid vowel [ə]

This is a central vowel with neutral lip position. The vowel [ə] in non-final position has a tongue raising between open-mid and close-mid as the examples ‘**alone**’ [ə'ləʊn] and ‘**fatigue**’ [fə'ti:g]; in the vicinity of the velar consonants [k], [g] and [ŋ] the tongue may be slightly more raised and retracted, for example, ‘**long ago**’ [lɔŋə'gəʊ]. But in final position, the vowel may be articulated in the open-mid central position, as the examples ‘**mother**’ [ˈmʌðə], ‘**doctor**’ [ˈdɒktə] and ‘**over**’ [ˈəʊvə].

Phonetic description of [ə]:

voiced, oral, short, neutral, central, mid, vowel

3.2.2.2 Diphthongs

Phonetically, the English language has eight diphthongs, which are divided into two groups. The first group is made up of 3 centering diphthongs ending in [ə]. The second group is made up of 5 closing diphthongs ending in [ɪ] and [ʊ]. Three ends in [ɪ] and two in

[ʊ]. The first vowel of these diphthongs is much longer and stronger than the second one.

The English diphthongs are represented in the following diagram

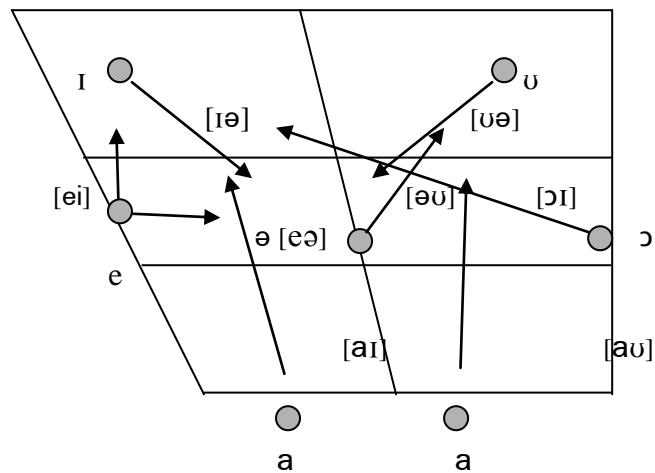
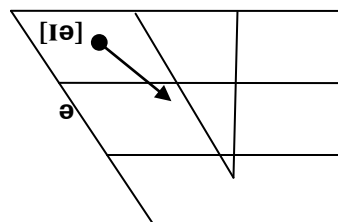


Figure 3.2
English diphthongs
 (Roach, 2000:22)

[ɪə]

The glide of **RP [ɪə]** begins with a tongue position slightly closer than that used for [ɪ], and moves in the direction of the more open variety of [ə], when [ɪə] is final in the word; in non-final positions, e.g. in ‘**real**’ [rɪəl] and ‘**feared**’ [fiəd] the glide may not be so extensive, the quality of the [ə] element being of the mid type. The lips have a slight movement from spread to neutral. It may appear in all positions in the word. The examples are ‘**Ian**’ [ɪən], ‘**dear**’ [diə] and ‘**idea**’ [aɪ’diə].

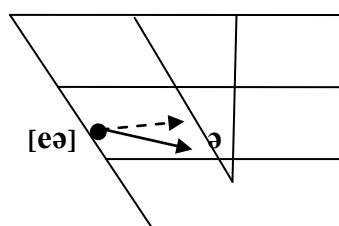
The reduced form of this diphthong occurs before voiceless consonants, as in the examples ‘**pierce**’ [piəs], ‘**fierce**’ [fiəs] and ‘**obvious**’ [’ɒvɪəs].



[eə]

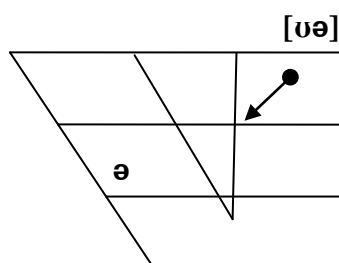
The glide of **RP** [eə] begins at a point between close-mid and open-mid, and moves in the direction of the more open variety of [ə], especially when the diphthong is final; where [eə] occurs in a syllable closed by a consonant, the [ə] element tends to be of a mid type. The lips are neutrally open throughout. It may appear in all positions in the word. The examples are ‘air’ [eə], ‘pear’ [peə] and ‘there’ [ðeə].

The reduced form of this diphthong occurs before voiceless consonants, as the example ‘scarce’ [skeəs].



[ʊə]

The diphthong [ʊə] glides from a tongue position slightly closer than that used for [ʊ] towards the more open type of [ə]. Where [ʊə] occurs in a closed syllable, the [ə] element tends to be a closer variety of this vowel. The lips are weakly rounded at the beginning of the glide, becoming neutrally spread as the glide progresses. The examples for this diphthong are ‘moor’ [mʊə], ‘sure’ [ʃʊə] and ‘cruel’ [kruəl].

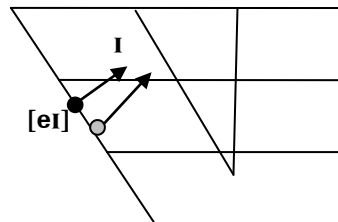


[eɪ]

The glide begins from slightly below the close-mid front position and moves in the direction of RP [ɪ] but the tongue doesn’t reach that position. There is a slight closing

movement of the lower jaw, and the lips are spread. There is a variant for this diphthong in **RP**, which tends to have a starting point closer to open-mid position. It may appear in all positions in the word. The examples are ‘**aim**’ [eɪm], ‘**made**’ [meɪd] and ‘**weigh**’ [weɪ].

The reduced form of this diphthong occurs before voiceless consonants, as in the examples ‘**eight**’ [eɪt], ‘**face**’ [feɪs] and ‘**ache**’ [eɪk].

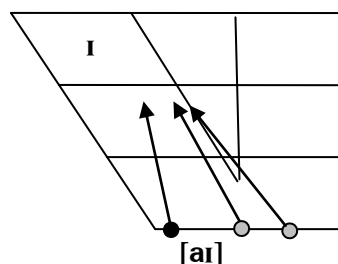


[aɪ]

The glide of the diphthong [aɪ] begins at a point slightly behind the front open position and moves in the direction of the position associated with [ɪ]. The closing movement of the lower jaw is obvious. The lips change from a neutral to a loosely spread position. It may appear in all positions in the word. The examples are ‘**either**’ [aɪðə], ‘**climb**’ [klaɪm] and ‘**by**’ [baɪ].

There are two variants for this diphthong in **RP**, which tend to have a starting point closer to the central and back positions as they are represented in the diagram below.

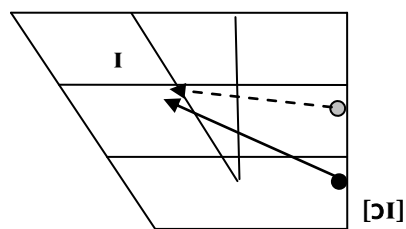
The reduced form of this diphthong occurs before voiceless consonants, as in the examples ‘**ice**’ [aɪs], ‘**might**’ [maɪt] and ‘**like**’ [laɪk].



[ɔɪ]

For the diphthong [ɔɪ], the tongue glide begins at a point between the close-mid and open back positions and moves in the direction of [ɪ] generally not reaching that position.¹ The tongue movement extends from back to centralized front. The lips are open rounded for the first element, changing to neutral for the second. It may appear in all positions in the word. The examples are ‘oil’ [ɔɪl], ‘noise’ [nɔɪz] and ‘toy’ [tɔɪ].

The reduced form of this diphthong occurs before voiceless consonants, as in the examples ‘oyster’ [ɔɪstə], ‘voice’ [vɔɪs] and ‘choice’ [tʃɔɪs].



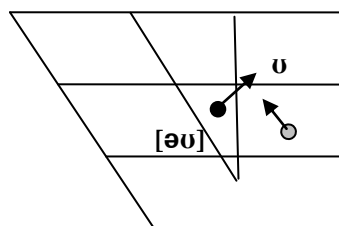
[əʊ]

The glide of [əʊ] begins at a central position, between close-mid and open-mid, and moves in the direction of the vowel [ʊ]. There is a slight closing movement of the lower jaw. The lips are neutral for the first element, but have a tendency to round on the second element. It may appear in all positions in the word. The examples are ‘old’ [əʊld], ‘clone’ [kləʊn] and ‘foe’ [fəʊ].

There is a variant for this diphthong with the starting point at the back position, between close-mid and open-mid, and moves in the direction of the vowel [ʊ].

The reduced form of this diphthong occurs before voiceless consonants, as in the examples ‘oak’ [əʊk], ‘toast’ [təʊst] and ‘soap’ [səʊp].

¹Some phoneticians believe that the starting point for this diphthong is between close-mid and open-mid position as illustrated in the diagram above .

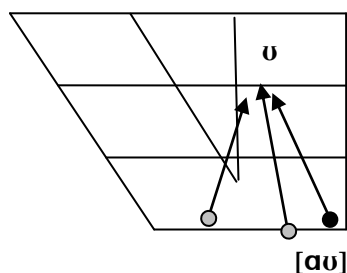


[aʊ]

The glide of the diphthong [aʊ] begins with a vowel similar to [a:] but slightly more fronted, and moves in the direction of [ʊ], but it doesn't reach that position. The lips change from a neutrally open to a weakly rounded position. It may appear in all positions in the word. The examples are 'owl' [aʊl], 'sound' [saʊnd] and 'cow' [kaʊ].

There are two variants for this diphthong in **RP**, one begins with a vowel in the open back area and closer to central, the other one with a vowel in the open front area and closer to central. These two variants are represented in the diagram.

The reduced form of this diphthong occurs before voiceless consonants, as the examples 'out' [aʊt], 'shout' [ʃaʊt] and 'mouth' [maʊθ].



3.2.2.3 Triphthongs

The English language has five triphthongs, which are divided into two groups. The first group, consisting of three members, consist of the closing diphthongs [eɪ, aɪ, ɔɪ]

followed by [ə] and the second group consists of two members [əʊ, aʊ] followed by [ə]. The triphthongs in **RP** pronunciation are in an unstable state; that is to say, there is a tendency in general RP spoken rapidly to omit the second [ɪ] or [ʊ] element, and in the case of some speakers, the second and the third vowel is omitted, and what remains is a long vowel, so that it is not easy to distinguish between for example ‘tyre’ [taɪə] and ‘tower’ [taʊə] and ‘tar’ [tɑ:]. The main English triphthongs are represented in the following diagram.

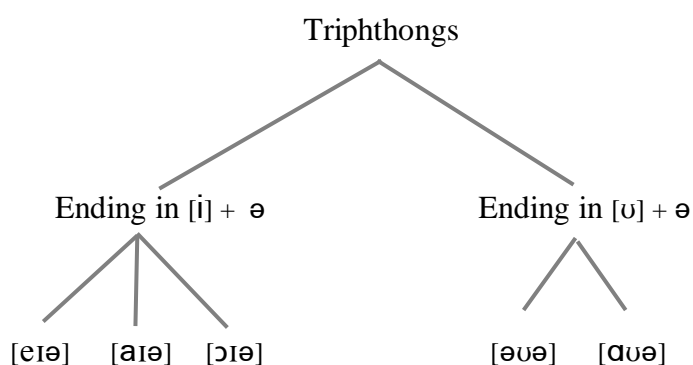
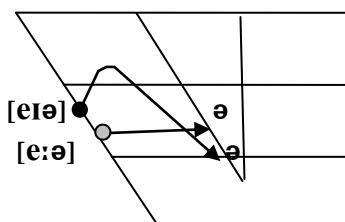


Figure 3.3
English triphthongs

[eɪə]

The triphthong [eɪə] begins from a point similar to the first element in [eɪ], and moves in the direction of [ɪ], but before reaching that position glides to the position of the more open variety of [ə]. The examples are ‘**layer**’ [leɪə], ‘**player**’ [pleɪə] and ‘**prayer**’ [preɪə].

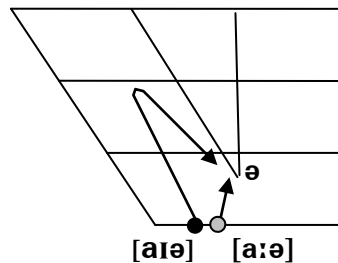
There is a variant for the triphthong [eɪə], when the second vowel is omitted and the result is a diphthongal glide, as it is represented in the diagram below.



[aɪə]

The triphthong [aɪə] begins from a point similar to the first element in [aɪ], and moves in the direction of [ɪ], but before reaching that position glides to the position of the more open variety of [ə]. It may appear in all positions in the word. The examples are ‘**iron**’ [aɪən], ‘**society**’ [səsaɪətɪ] and ‘**choir**’ [kwaɪə].

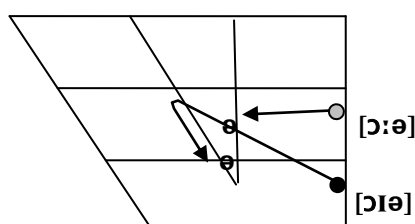
There is a variant for the triphthong [aɪə], when the second vowel is omitted and the result is a diphthongal glide, as it is represented in the diagram below.



[ɔɪə]

The triphthong [ɔɪə] begins from a point similar to the first element in [ɔɪ], and moves in the direction of [ɪ], but before reaching that position glides to the position of the more open variety of [ə]. The examples are ‘**enjoyable**’ [ɪndʒɔɪəbl], ‘**loyal**’ [ləɪəl] and ‘**joyous**’ [dʒɔɪəs].

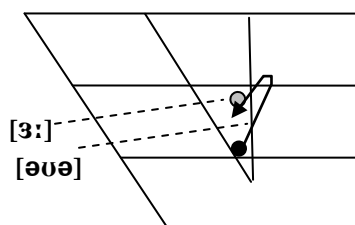
There is a variant for the triphthong [ɔɪə], when the second vowel is omitted and the result is the diphthongal glide [ɔ:ə], as it is represented in the diagram.



[əʊə]

The triphthong [əʊə] begins from a more open [ə] and moves in the direction of [ʊ], but before reaching that position glides to the position of the more close variety of [ə]. The examples are 'lower' [ləʊə], 'mower' [məʊə] and 'slower' [sləʊə].

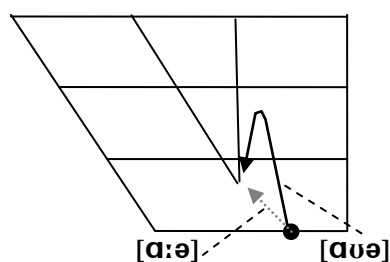
There is a variant for the triphthong [əʊə], when the second vowel is omitted and the result is a long [ɜ:], as it is represented in the diagram.



[aʊə]

The triphthong [aʊə] begins from a point similar to the first element in [aʊ], but closer to central and moves in the direction of [ʊ], but before reaching that position glides to the position of the more open variety of [ə]. The examples are 'our' [aʊə], 'flower' [flaʊə] and 'nowadays' [naʊədəɪz].

There is a variant for the triphthong [aʊə], when the second vowel is omitted and the result is the diphthongal glide [ɑ:ə], as it is represented on the diagram below.



3.3 The English phonological system

3.3.1 English Consonant Phonemes

The English language consists of 24 consonant phonemes. Based on their place of articulation, these consonants are divided into 8 groups. The first group, bilabials, consists of 4 phonemes /p, b, m, w/. The second group, labio-dentals, has 2 phonemes /f, v/. The third group, which is called dental, is made up of 2 phonemes /θ, ð/. The fourth group, known as alveolar, has 7 phonemes /t, d, s, z, n, l, r/. The next group, which is called post-alveolar, consists of 4 phonemes /ʃ, ʒ, tʃ, dʒ/. The next one is palatal with only one phoneme /j/. Then is velar, which has 3 phonemes /k, g, ŋ/. The last group, glottal, consists of only one phoneme /h/. The phonemes are represented in the following table, and examples are given for minimal pairs.

Table 3.2
English consonant phonemes

		bilabial	labio-dental	dental	alveolar	post-alveolar	palatal	velar	glottal
plosives	fortis	p			t			k	
	lenis	b			d			g	
fricatives	fortis		f	θ	s	ʃ			h
	lenis		v	ð	z	ʒ			
affricates	fortis					tʃ			
	lenis					dʒ			
nasals	lenis	m			n			ŋ	
laterals	lenis				l				
approximants	lenis	w			r		j		

Examples

/ p , b /	park	/pɑ:k/	- bark	/bɑ:k/
/ t , d /	cart	/cɑ:t/	- card	/cɑ:d/
/ k , g /	cave	/keɪv/	- gave	/geɪv/
/ f , v /	few	/fju:/	- view	/vju:/
/ θ , ð /	thigh	/θaɪ/	- thy	/ðaɪ/
/ s , z /	sip	/sɪp/	- zip	/zɪp/
/ ʃ , ʒ /	confucian	/kən'fju:ʃən/	- confusion	/kən'fju:ʒən/
/ tʃ , dʒ /	choke	/tʃəʊ k/	- joke	/dʒəʊ k/
/ m , n /	might	/maɪt/	- night	/naɪt/
/ l , n /	light	/laɪt/	- night	/naɪt/
/ n , ŋ /	sin	/sɪn/	- sing	/sɪŋ/
/ w , r /	white	/waɪt/	- right	/raɪt/
/ j , h /	yard	/jɑ:d/	- hard	/hɑ:d/
/ r , j /	rear	/rɪə/	- year	/jɪə/

3.3.2 English Vowel Phonemes

The English language has 11 pure vowel phonemes, which are divided into 3 groups, based on the places of tongue involved in the production of these vowels. The first group, which is known as 'front' consists of 4 vowels /i:/, /ɪ/, /e/, and /æ/. The second group, named 'central', has three vowels /ə/, /ɜ:/, and /ʌ/. The last group is 'back', consisting of 5 vowels /u:/, /ʊ/, /ɔ:/, /ɑ:/, and /ɒ/. Of these 11 vowels, /u:/, /ʊ/, /ɔ:/, and /ɒ/ are rounded, /ə/, /ɜ:/, /ʌ/, and /ɑ:/ are neutral and the front vowels /i:/, /ɪ/, /e/, and /æ/ are spread. The English pure vowels are represented in the following table, and examples are given for each one.

Table 3. 3
English pure vowel phonemes

	front	central	back	
close	i: ɪ		u:	ʊ
mid	e	ə ɜ:		ɔ:
open	æ	ʌ	ɑ:	ɒ
	spread	neutral		rounded

Examples

/ɪ, i:/	ship	/ʃɪp/	-	sheep	/ʃi:p/
/ʊ, u:/	full	/fʊl/	-	fool	/f u: l/
/e, æ/	met	/met/	-	mat	/mæt/
/ɪ, e/	sit	/sɪt/	-	set	/set/
/e, ɜ:/	bed	/bed/	-	bird	/bɜ:d/
/ə, ɜ:/	for	/fə/	-	fur	/fɜ:/
/ɔ:, u:/	bought	/bɔ:t/	-	boot	/bu:t/
/æ, ʌ/	cat	/kæt/	-	cut	/kʌt/
/ʌ, ɑ:/	cuff	/kʌf/	-	calf	/kɑ:f/
/ʌ, ɒ/	buss	/bʌs/	-	boss	/bɒs/
/ɑ, ɒ/	barks	/bɑ:ks/	-	box	/bɒks/
/ɒ, ɔ:/	cop	/kɒp/	-	corp	/kɔ:p/

3.3.3 English Diphthongs

Based on Peter Roach (2002: 21-23), the English language has 8 diphthong phonemes, namely /ɪə/, /eə/, /ʊə/, /eɪ/, /aɪ/, /ɔɪ/, /əʊ/, and /aʊ/. The first 3 diphthongs, which ends in [ə], are classified as centering. The other diphthongs, ending in /ɪ/ and /ʊ/, are classified under closing. The English diphthongs are represented in the following table, and examples are given for minimal pairs.

Table 3.4
English diphthong phonemes

centering	closing
ɪə eə ʊə	eɪ aɪ ɔɪ əʊ aʊ

Examples

- /ɪə , eə/ dear /dɪə/ – dare /deə/
- /ɪə , ʊə/ pear /pɪə/ – poor /pʊə/
- /eə , ʊə/ share /ʃeə/ – sure /ʃʊə/
- /eɪ , aɪ/ bake /beɪk/ – bike /baɪk/
- /aɪ , ɔɪ/ buy /baɪ/ – boy /bɔɪ/
- /əʊ , aʊ/ clone /kləʊn/ – clown /klaʊn/
- /aʊ , aɪ/ cow /kaʊ/ – by /baɪ/
- /əʊ , eɪ/ oak /əʊk/ – ache /eɪk/
- /eə , eɪ/ pair /peə/ – pay /peɪ/
- /əʊ , eə/ pose /pəʊz/ – pairs /peəz/

3.3.4 English Triphthongs

According to Peter Roach (2002: 24) the English language has 5 triphthongs, which can distinct the words by changing their meanings when they are replaced for each other. These triphthongs are the closing diphthongs ending in /ə/. The English triphthongs are represented in the following table, and examples are given.

Table 3.5
English triphthongs

closing diphthongs +ə
eɪə aɪə ɔɪə əʊə aʊə

Examples

/aʊə , aɪə/ bower /baʊə/ - buyer /baɪə/

/eɪə , əʊə/ layer /leɪə/ - lower /ləʊə/

/eɪə , aɪə/ layer /leɪə/ - liar /laɪə/

3.4 The English Syllable

Based on the description given for syllable by Yule (1999:57-58), the syllable is a unit of sound composed of an obligatory syllable nucleus, usually a vowel and sometimes a syllabic consonant, with one, two or three optional initial consonant and one to four optional final consonant(s).

The general structure of a syllable consists of the following segments which are represented in the tree diagram below.

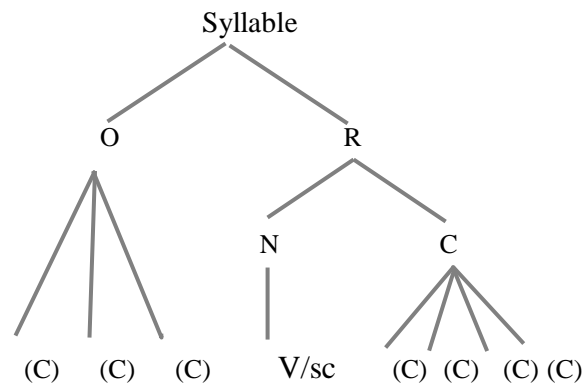


Figure3. 4
Tree representation of the English syllable ¹
 (Yule, 1999:58)

Based on the above tree representation of the English syllable, it can be said that English language has twenty types of syllables:

V	as in	'are'	[a:]	and	'or'	[ɔ:]
CV	as in	'key'	[ki:]	and	'for'	[fɔ:]

VC	as in	‘am’	[æm]	and	‘all’	[ɔ:l]
CVC	as in	‘sat’	[sæt]	and	‘fill’	[fɪl]
CCV	as in	‘blue’	[blu]	and	‘clue’	[klu]
VCC	as in	‘ant’	[ɑ:nt]	and	‘ask’	[ɑ:sk]
VCCC	as in	‘acts’	[æktz]	and	‘ants’	[ɑ:nts]
VCCCC	as in	‘pre_empts’	[ɛmpts]	(the second syllable)		
CVCC	as in	‘post’	[pɒst]	and	‘font’	[fɒnt]
CCVC	as in	‘trap’	[træp]	and	‘plan’	[plæn]
CCCV	as in	‘straw’	[strɔ]	and	‘spray’	[spreɪ]
CCVCC	as in	‘prince’	[prɪns]	and	‘trunk’	[trʌŋk]
CVCCC	as in	‘next’	[nekst]	and	‘first’	[fɜrst]
CVCCCC	as in	‘nexts’	[neksts]	and	‘firsts’	[fɜrstz]
CCVCCC	as in	‘plants’	[plænts]	and	‘blanks’	[blæŋks]
CCCVC	as in	‘strip’	[stri:p]	and	‘scrape’	[skreɪp]
CCCVCC	as in	‘strange’	[streɪndʒ]	and	‘screens’	[skri:ns]
CCVCCCC	as in	‘twelfths’	[twelfθs]	and	‘prompts’	[prɒmpts]
CCCVCCC	as in	‘strength’	[streŋkθ]	and	‘stricts’	[stri:ktz]
CCCVCCCC	as in	‘strengths’	[streŋkθz]			

As illustrated above, the minimum syllable is a single vowel with no onset or coda, e.g. the words ‘or’ [ɔ:], and ‘are’ [ɑ:]. These are preceded and succeeded by silence.

¹In this diagram ‘O’ stands for ‘onset’, ‘R’ for ‘rhyme’, ‘N’ for ‘nucleus’, ‘C’ for ‘coda’, ‘C’ for ‘consonant’, ‘V’ for ‘vowel’ and ‘sc’ for syllabic consonant. The parentheses represent the optional segments

Furthermore, "isolated sounds such as [m], which we sometimes produce to indicate agreement, or [ʃ], to ask for silence, must also be regarded as syllables." (Roach, 2002: 70)

Some syllables have onset and nucleus, but no coda; the onset may be up to three consonants, e.g. 'to' [tu], 'tree' [tri:], 'straw' [strɔ].

Some syllables may have no onset but have a nucleus and a coda; in these syllables the coda can be up to three consonants, e.g. 'at' [æt], 'east' [i:st], 'acts' [æktʃ].

Some syllables have onset, nucleus and coda; the onset can be up to three and coda up to four consonants, e.g. 'strengths' [streŋkθs], in which there are three consonants as onset and four consonants as coda.

3.4.1 The English Syllabification

Although nearly everybody can identify syllables, almost nobody can define them, and the question of how one can decide on the division between syllables when they find a connected sequence of them has remained unanswered.

There are many cases that people do not agree on the number of syllables in a word, and it is not so easy to state a simple and straight method to decide on how many syllables there are in a word.

Some of these are due to differences in pronunciation. For example, some people would say that the word 'predatory' has three syllables because they pronounce it as ['prɛdətɹɪ]. Other people who pronounce it as ['prɛdətɔɹɪ] say that it has four syllables. There are many words such as 'bottling' and 'frightening' that some people pronounce with syllabic consonants in the middle, so that they have three syllables, whereas others pronounce them without syllabic consonant, and the word has only two syllables.

There are many words that do not differ in pronunciation, but differ in the estimates of the number of syllables. As examples, words such as ‘communism’ and ‘mysticism’ may be said to have three or four syllables, depending on whether the final [m] is considered to be syllabic.

"Some disagreements on the number of syllables in the words arise from the point that different people do different things when asked to say how many syllables there are in a word. Thus many people pay more attention to the phonological structure of words than others." (Ladefoged, 1993: 212) Although most people will realize that ‘realistic’ has three syllables, but others will consider it to have four syllables because it is like the word ‘reality,’ which everybody agrees has four syllables.

Some rules and principles have been presented to solve the problems on the way of syllable division, but none of them is of a great help. One of these is ‘maximum onset principles’ which states that "where two syllables are to be divided, any consonants between them should be attached to the right-hand syllable, not the left, as far as possible". (Roach, 2000: 70). If we use this principle to decide on the dividing point between the two syllables in the word ‘extra’ [ekstrə], the result will be e. kstrə, but we know that an English syllable cannot begin with kstr.

“There are two types of theories attempting to define syllables. First, there are those in which the definitions are in terms of sounds, such as sonority (acoustic energy) or prominence (some combination of sonority, length, stress, and pitch). Second, there are theories based on definitions that are in terms of activities of the speaker, such as producing chest pulse or organizing the components of utterances. But as yet none of theories is entirely satisfactory.” (Ladefoged, 1993: 224)

3.4.2 The English Syllable Structure

To study the structure of the English syllable, we start by looking at what can occur in initial position; that is, at the beginning of the syllable. A syllable can begin with a vowel, or with one, two or three consonants. In the same way, by looking at the end of a syllable, we understand that a syllable can end with a vowel, or with one, two, three or four consonants.

"If the syllable begins with a vowel, any vowel phoneme can appear in this position. If the syllable begins with one consonant, that initial consonant can be any consonant phoneme except [ŋ]." (Roach, 2002: 71)

3.4.2.1 Initial Consonant Clusters

When a syllable begins with two consonants, it can be of two types. One type is composed of [s] as pre-initial followed by one of a set of consonants [p, t, k, f, m, n, l, w, j, r] as initial¹. These clusters are shown in the table below.

Table 3.6
Initial two consonant-clusters with pre-initial [s]¹
(Roach, 2002:72)

S plus	p	t	k	f	m	n	l	w	j	r
e.g.	spm	stɪk	skɪn	sfɪə	smel	snəʊ	slɪp	swɪm	sju:	srɪndʒ

The other type begins with one of a set of about fifteen consonants, as initial followed by one of the set [l, r, w, j] as post-initial. These clusters are shown in the table below.

Table 3.7
Initial two consonant-clusters with post-initial [l, r, w, j]
 (Roach, 2002:74)

initials	p	t	k	b	d	g	f	θ	s	ʃ	h	v	m	n	l
^{tsop-laitinis} l	pleɪ	–	k leɪ	blæk	–	glu:	flaɪ	–	slɪp	–	–	–	–	–	–
r	preɪ	treɪ	kræɪ	brɪŋ	drɪp	grɪm	fraɪ	θrəʊ	–	ʃru:	–	–	–	–	–
w	–	twin	kwɪk	–	dwel	–	–	θwɔ:t	swɪm	–	–	–	–	–	–
j	pjɔ:	tju:n	kju:	bju:ti	dju:	–	fju:	–	sju:	–	hju:ɟʒ	vju:	mju:z	nju:z	lju:d

¹The two-consonant cluster [sr] is found only in the words ‘syringe’, which is pronounced as [srɪndʒ] by some people and the proper noun Sri Lanka.

Three-consonant clusters begin with the consonant [s] as pre-initial followed by one of the stops [p, t, k], as initial and with one of the [l, r, w, j] as post initial. These clusters are shown in the table below.

Table 3.8
Initial three consonant clusters
 (Roach, 2002:73)

		Post-initials			
		l	r	w	j
pre-initial	initial				
	p	‘splay’	‘spray’	–	‘spew’
	s + t +	–	‘string’	–	‘stew’
	k	‘sclerosis’	‘screen’	‘squeak’	‘skewer’

3.4.2.2 Final Consonant Clusters

Now we shall continue studying the structure of the English syllable by looking at what can occur in final position; that is, at the end of a syllable.

A syllable can end with a vowel or with one, two, three or four consonants. When a syllable ends with one consonant, it can be any consonant except [h, r, w, j].

There are two kinds of final two-consonant clusters. One of them begins with one of the pre-final consonants [m, n, ŋ, l, s] followed by a final consonant, as in the examples *camp, hand, bank* and *ask*. The other is a final consonant followed by one of the post-finals [s, z, t, d, θ], as the examples *cats, hands, bent, mend* and *fifth*.

There are two types of final three-consonant cluster. The first one is *pre-final + final + post-final*. This is shown in the table below.

Table 3.9
Final three- consonant clusters (1)
(Roach, 2002:75)

		Pre-final	final	post-final
‘helped’	he	l	p	t
‘banks’	bæ	n	k	s
‘bonds’	bɒ	n	d	z
‘twelfth’	twe	l	f	θ

The second kind is formed with a final + post-final 1 + post-final 2. The Post-final consonant 2 is again one of the following: [s, z, t, d, θ]. It is shown in the table below.

Table 3.10
Final three- consonant clusters (2)
(Roach, 2002:75)

		final	post-final 1	post-final 2
‘fifths’	fi	f	θ	s
‘next’	ne	k	s	t
‘lapsed’	læ	p	s	t

Most four-consonant clusters consist of a final consonant preceded by a pre-final and followed by post-final₁ and post-final 2. It has been shown in the table below.

Table 3.11

Final four-consonant clusters (1)
(Roach, 2002:75)

		Pre-final	final	post-final 1	post-final 2
‘twelfths’	twe	l	f	θ	s
‘prompts’	prɒ	m	p	t	s

A small number of syllables with final four-consonant clusters consist of a final consonant with three post-finals, as it is represented in the table below.

Table 3.12
Final four-consonant clusters (2)
(Roach, 2002:76)

		Pre-final	final	post-final 1	post-final 2	post-final 3
‘sixths’	si	–	k	s	θ	s
‘texts’	te	–	k	s	t	s

3.5 Stress

As it was pointed out in the previous chapter, syllables may be characterized by one of the characteristics such as variation of ‘pitch’, ‘loudness’, ‘quality’ and ‘quantity’. According to Gimson (1964: 202), the English language makes use of ‘pitch’ much more than the ‘loudness’, ‘quality’ and ‘quantity’. English is commonly believed to have two levels of stress as in the words ‘**counterfoil**’ [ˈkauntəˌfɔɪl] and ‘**counterintelligence**’ [ˌkauntə ɪnˈtɛlɪdʒəns] and in some treatments stress has even been described as having four levels; primary, secondary, tertiary, and quaternary. To take an example, it has been suggested that “the word ‘*indivisibility*’ shows four different levels: the syllable [bɪl] carries primary stress, the initial syllable [ɪn] carries secondary stress, while the third syllable [vɪz]

has a level of stress which is weaker than those two but stronger than the second, fourth, sixth and seventh (which are all unstressed)" (Roach, 2002: 96). The symbol ˌ is used to mark the tertiary stress but there is no symbol to mark quaternary stress; therefore, the word is represented as [ɪn dɪˌvɪzɪ 'bɪlətɪ]. Phoneticians such as *Peter Ladefoged* believe that these multiple levels are more phonetic detail and not true phonemic stress.

"As is well known, English is not among the languages where word stress can be decided simply in relation to the syllables of the word. Many writers believe that English word stress is so difficult to predict that it is best to treat stress placement as a property of the individual word, to be learned when the word itself is learned." (Roach, 2002: 97)

In spite of the above, a summary of ideas is presented on stress placement in major categories of lexical words such as *nouns*, *verbs* and *adjectives* in *single-syllable*, *two-syllable* and *three-syllable words* as well as *complex words*, *words with suffixes*, *words with prefixes* and *compound words* in the form of a few simple rules. In addition, we will survey *variable*

stress and *word-class pairs*. But, practically all the rules have exceptions and the rules may seem so complex that one prefers to learn the stress for each word individually.

There is a point that should be dealt with here, since it affects some of the rules that will be presented later. The syllables are divided into two basic categories: strong and weak. A strong syllable has a rhyme consisting of a long vowel or diphthong, or a vowel followed by a coda. Weak syllables have a rhyme consisting of a short vowel, and no coda unless the vowel is [ə] or [ɪ].

"The important point to remember is that, although we do find unstressed strong syllables (as in the last syllable of **'dialect'** [**'daɪəlekt**]), only strong syllables can be stressed. Weak syllables are always unstressed. This piece of knowledge does not by any means solve all the problems of how to place English stress, but it does help in some cases." (Roach, 2002: 98)

3.5.1 Single-syllable Words

Single-syllable words present no problems: If they are pronounced in isolation they are said with primary stress. The examples are **'lie'**, **'heart'** and **'mat'**.

3.5.2 Two-syllable Words

The great majority (at least three out of four) of two syllable words have primary stress on the first syllable.

3.5.2.1 Two-syllable Verbs

The basic rule states that if the second syllable of the verb is a strong one, the second syllable is stressed, as in the examples **'arrive'** [**'əraɪv**] and **'assist'** [**'əsɪst**]. If the final syllable is a weak syllable, it is the first syllable that is stressed. The examples are **'open'** [**'əʊpən**] and **'enter'** [**'entə**]. If the final syllable contains [əʊ], it is also unstressed, as the examples **'borrow'** [**'bɒrəʊ**] and **'follow'** [**'fɒləʊ**]. There are exceptions to these rules, for example, **'honest'** [**'ɒnɪst**] and **'perfect'** [**'pɜ:fekt**], both of which have final strong syllables but the first syllable is stressed.

3.5.2.2 Two-syllable Adjectives

As with the verbs, if the second syllable of the adjective is a strong syllable, then the second syllable is stressed, as in the examples ‘**divine**’ [də'vaɪn] and ‘**alive**’ [ə'laɪv]. If the final syllable is weak, the first syllable is stressed. The examples are ‘**even**’ [i:vən] and ‘**lovely**’ ['lʌvli]. If the final syllable contains [əʊ], it is also unstressed, as in the examples ‘**hollow**’ ['hɒləʊ] and ‘**yellow**’ ['jeləʊ].

3.5.2.3 Two-syllable Nouns

If the second syllable has a short vowel, then the first syllable usually receives the stress. Otherwise, the second syllable is stressed. The examples are ‘**progress**’ ['prɒgrəs], ‘**larynx**’ ['lærɪŋks], ‘**balloon**’ [bə'lu:n] and ‘**design**’ [dɪ'zaɪn].

3.5.3 Three-syllable Words

The stress pattern for three-syllable words is more complicated than for single-syllable and two-syllable words.

3.5.3.1 Three-syllable Verbs

If the third syllable is strong, then it will be stressed. The examples are ‘**resurrect**’ [rezə'rekt] and ‘**entertain**’ [entə'teɪn]. If the third syllable is weak, the stress will be placed on the penultimate syllable if it is a strong syllable. The examples are ‘**entire**’ [ɪn'taɪə] and ‘**endeavor**’ [ɪn'dɛvə]. If both the penultimate and final syllable are weak, then the stress will be on the first syllable, as in the examples ‘**tragedy**’ ['trædʒədi] and ‘**property**’ ['prɒpəti].

3.5.3.2 Three-syllable Nouns

If the third syllable is weak, or ends with [əʊ], then it is unstressed; if the second syllable is strong, then stress will be placed on that syllable. The examples are ‘**disaster**’ [dɪˈzɑːstə], ‘**tomorrow**’ [təˈmɒrəʊ] and ‘**synopsis**’ [sɪˈnɒpsɪs]. If the penultimate and third syllables are both weak, then the stress will be placed on the first syllable. The examples are ‘**custody**’ [ˈkʌstədi] and ‘**emperor**’ [ˈempərə]. The stress pattern for three-syllable simple nouns is different. In these cases, if the final syllable is strong, the first syllable will usually be stressed, and the last syllable is usually quite prominent, so that in some cases it could be said to have secondary stress. The examples are ‘**marigold**’ [ˈmæɪrɪɡəʊld] and ‘**intellect**’ [ˈɪntələkt].

3.5.3.3 Three-syllable Adjectives

If the final syllable is strong, the first syllable will usually be stressed, and the last syllable is usually quite prominent, so that in some cases it could be said to have secondary stress. The examples are ‘**anthropoid**’ [ˈænθrəˈpɔɪd] and ‘**opportune**’ [ˈɒpətjuːn].

3.5.4 Complex Words

Complex words are words that are formed with prefixes and suffixes. Prefixes come before the stem and suffixes come after the stem, as in the examples ‘**unpleasant**’ and ‘**pleasantly**’.

3.5.4.1 Words with Suffixes

There are so many suffixes in English that it is not possible to discuss them all here, so we will concentrate on those which are common and productive.

(i) Suffixes carrying primary stress themselves

There are suffixes in English which, when added to the stems, carry the primary stress of the word. If the stem consists of more than one syllable, there will be a secondary stress on one of the syllables of the stem. This secondary stress cannot fall on the last syllable of the stem and is moved to one of the preceding syllables. The following suffixes are the most common suffixes carrying primary stress:

-ese:	journal	[ˈdʒɜːnəl]	→	journalese	[ˌdʒɜːnəlˈiːz]
-ee:	refuge	[ˈrefjuːdʒ]	→	refugee	[ˌrefjuːdʒiː]
-eer:	mountain	[ˈmaʊntɪn]	→	mountaineer	[ˌmaʊntɪˈniə]
-ette:	cigar	[ˈsɪɡɑː]	→	cigarette	[ˌsɪɡrɪˈet]
-esque:	picture	[ˈpɪktʃə]	→	picturesque	[ˌpɪktʃrɪˈesk]

(ii) Suffixes which do not affect stress placement

There are suffixes in English which when added to the stems, do not affect the place of stress in the word. The following suffixes are the most common suffixes of this kind:

-ful:	wonder	[ˈwʌndə]	→	wonderful	[ˈwʌndəfʊl]
-age:	anchor	[ˈæŋkə]	→	anchorage	[ˈæŋkərəɪdʒ]
-ish:	devil	[ˈdevl]	→	devilish	[ˈdevlɪʃ]

-able:	comfort	[ˈkʌmfət]	→	comfortable	[ˈkʌmftəbəl]
-ing:	amaze	[əˈmeɪz]	→	amazing	[əˈmeɪzɪŋ]
-al:	refuse	[rɪˈfjuːz]	→	refusal	[rɪˈfjuːzəl]
-en:	wide	[waɪd]	→	widen	[ˈwaɪdən]
-y:	fun	[fʌn]	→	funny	[ˈfʌni]
-fy:	glory	[ˈɡlɔːri]	→	glorify	[ˈɡlɔːrɪfaɪ]
-ness:	yellow	[ˈjeləʊ]	→	yellowness	[ˈjeləʊnəs]
-ly:	hurried	[ˈhʌrɪd]	→	hurriedly	[ˈhʌrɪdli]
-like:	bird	[bɜːd]	→	birdlike	[ˈbɜːdlaɪk]
wise:	other	[ˈʌðə]	→	otherwise	[ˈʌðəwaɪz]
-ous:	poison	[ˈpɔɪzən]	→	poisonous	[ˈpɔɪzənəs]
-ment:	punish	[ˈpʌnɪʃ]	→	punishment	[ˈpʌnɪʃmənt]
-less:	power	[ˈpaʊə]	→	powerless	[ˈpaʊələs]

(iii) Suffixes which influence stress in the stem

There are suffixes in English which when added to the stems, do not receive the strong stress, but they shift the place of the stress within the stem. The following suffixes are the most common suffixes of this kind:

-eous:	advantage	[ədˈvɑːntɪdʒ]	→	advantageous	[,ædvənˈteɪdʒəs]
-ive:	reflex	[ˈrɪːfleks]	→	reflexive	[rɪˈfleksɪv]
-ty:	tranquil	[ˈtræŋkwɪl]	→	tranquility	[træŋˈkwɪləti]
-graphy:	photo	[ˈfəʊtəʊ]	→	photography	[fəˈtɒgrəfi]
-ial:	proverb	[ˈprɒvɜːb]	→	proverbial	[prəˈvɜːbiəl]
-ious:	injure	[ˈɪndʒə]	→	injurious	[ɪnˈdʒɜːriəs]

-ion: perfect	[ˈpɜːfɪkt]	→	perfection	[pəˈfekʃn]
-ic: climate	[ˈklaɪmɪt]	→	climatic	[klaɪˈmætɪk]

There are three other suffixes; namely, ‘-ance’, ‘-ant’ and ‘-ary’ that function differently. When they are attached to a single-syllable stem, the stress is almost always placed on the stem. When the stem includes more than one syllable, the stress is on one of the syllables in the stem. The rule presented is that: if the last syllable of the stem is strong, that syllable receives the stress, as in the example ‘**importance**’ [ɪmˈpɔːtəns]. If the final syllable is not strong, the syllable before the last receives the stress, as in the example ‘**militia**’ [mɪˈlɪʃə].

3.5.4.2 Words with Prefixes

"The effect of prefixes on stress does not have the comparative regularity, independence and predictability of suffixes, and there is no prefix of one or two syllables that always carries primary stress. Consequently, the best treatment seems to be to say the stress in words with prefixes is governed by the same rules as those for words without prefixes." (Roach, 2002: 107)

3.5.5 Compound Words

Compound words are described as the words which can be analyzed into two words, both of which can occur independently. Some compound words are made up of more than two words, but they are not to be considered here. According to Roach (2002: 108), a few rules can be given for the stress pattern of compound words, although these rules are not completely reliable.

(i) **Compound words consisting of two nouns**

When the compound word consists of two nouns, the primary stress normally falls on the first word and the secondary stress on the second word. The examples are ‘**tea-cup**’ [ˈtiːkʌp] and ‘**car-ferry**’ [ˈkɑːferi].

(ii) **Compounds with an adjectival first element and the –ed morpheme at the end:**

In this case, the primary stress is placed on the second element and the secondary stress on the first element, as in **hard-hearted** [ˌhɑːd ˈhɑːtɪd] and **bad-tempered** [ˌbæd ˈtempəd].

(iii) **Compounds in which the first element is a number**

In these compound words, the second element has the primary stress and the first element receives the secondary stress. The examples are **one-way** [ˌwʌn ˈweɪ] and **second-class** [ˌsekənd ˈklæs].

(iv) **Compounds functioning as adverbs**

In these compound words primary stress falls on the second element and secondary stress on the first element. The examples are **south-west** [ˌsaʊθ ˈwest] and **head-first** [ˌhed ˈfɜːst].

(v) **Compounds with an adverbial first element and functioning as verbs**

In this case, the primary stress is placed on the second element and the secondary stress on the first element, as in **down-load** [ˌdaʊn ˈləʊd] and **ill-treat** [ˌɪl ˈtri:t].

3.5.6 Variable Stress

The stress pattern is not always fixed in English words. The position of stress may vary for one of two reasons: (a) because of the stress on other words adjoined the word in question, and (b) the disagreement of speakers on the placement of stress in some words.

(i) Variable stress because of the stress on the adjacent word

In a final-stressed compound, the stress moves to a preceding syllable when it is followed by a word initiating with a strongly stressed syllable, as in the examples:

hard-'hearted → 'hard-hearted 'woman

bad-'tempered → 'bad-tempered 'husband

(ii) Variable stress because of disagreement among speakers

Speakers have different ideas about the placement of stress in some words. For example the words 'controversy' and 'kilometer' are pronounced as ['kɒntrəvəsi] and ['kɪləmi:tə] by some speakers, while others pronounce them as [kɒn'trɒvəsi] and [kɪlə'mɪtə].

3.5.7 Word Class Pairs

Based on Roach (2002: 110) there are many pairs of two-syllable words with identical spelling which differ from each other in stress placement, apparently according to word class (noun, verb or adjective). They consist of prefix + stem. They are treated as a special type of words with the following rule: if a pair of prefix + stem words exists, both members of which are spelt identically, one of which is a verb and the other one is either a

noun or an adjective; as a verb the stress is placed on the second syllable while as a noun or adjective on the first syllable. The examples are:

object	[ˈɒbʃɪkt] (N)	[əbˈdʒekt] (V)
protest	[ˈprəʊtest] (N)	[prəˈtest] (V)
abstract	[ˈæbstrækt] (Adj)	[æbˈstrækt] (V)
perfect	[ˈpɜːfɪkt] (Adj)	[pəˈfekt] (V)

3.6 Summary

According to the description presented by Gimson (1964) and Clark (1995) for the English phonetics and phonology throughout their books, the English language has 58 main phonetic consonants. Based on their place of articulation, they are divided into 8 groups, namely, bilabial, labio-dental, dental, alveolar, post-alveolar, velar, and glottal, and based on their manner of articulation, they are classified as plosives, fricatives, affricates, nasals, laterals, flaps and approximants. The air stream mechanism used in the articulation of all English consonants is ‘pulmonic egressive’, in which the air stream is created by the lungs and exhaled through the mouth or nose.

Gimson and Clark also believe in 21 pure vowels and 8 diphthongs, which are divided into two groups. The first group, which consists of three members, ends in [ə], and the second group, which has five members ends in [ɪ] and [ʊ]. Furthermore, they represent five triphthongs, which are divided into two groups. The first group are the closing diphthongs [eɪə, aɪə, ɔɪə] and the second group are [əʊə, aʊə]. The triphthongs in **RP** pronunciation are in a unstable state; that is to say there is a tendency in general RP spoken rapidly to omit the second [ɪ] or [ʊ] element, and in the case of some speakers, the second and the third vowel is omitted, and what remains is a long vowel, so that it is not easy to distinguish between, for example, ‘tyre’ [taɪə] and ‘tower’ [taʊə] and ‘tar’ [tɑ:]. The air stream mechanism used in the articulation of English pure vowels diphthongs and triphthongs is also ‘pulmonic egressive’.

Based on the description presented by Roach (2002) for the English language phonemes throughout the book, there are 48 phonemes: 24 consonants, 11 pure vowels, 8 diphthongs and 5 triphthongs in his language.

There are 20 syllable structures in English. Among these, the syllables with initial three-consonant clusters and final three and four-consonant clusters are less common than the other syllable structures.

English has two levels of stress. This language makes use of the 'pitch' much more than the 'loudness', 'quality' and 'quantity'.