

CHAPTER 2

THE DESCRIPTION AND CLASSIFICATION OF SPEECH SOUNDS

In chapter 1 we discussed how speech sounds are produced. Normally, when we produce speech sounds, we intend them to be transmitted and heard. In this chapter we will talk about the classification of speech sounds in the articulatory terms that we can describe how the organs of speech act in order to produce given sounds. The sounds we will classify are ‘**consonants**’ and ‘**vowels**’ that are best classified in terms of their articulation respectively.

Consonants

What are consonants? And how are they classified and described? Do you know the answers? Phonetically, consonants (Crystal D., 1991) can be defined as “the sounds made by closure or narrowing in the vocal tract so that the airflow is either completely blocked, or so restricted that audible friction is produced.”

In order to produce consonants, the airstream through the vocal tract must be obstructed in some way. Consonants can therefore be classified by the articulations of speech sounds consisting of 1) **the airstream mechanism**; 2) **voicing**; 3) **the place of articulation**; and 4) **the manner of articulation**. We can classify and describe them by answering the following questions:

1. Is the airstream given by lungs or by other organs?
2. Is the air forced out or drawn inwards?
3. Do the vocal cords vibrate or not?
4. Is the soft plate raised or lowered?
5. At what place does the articulation occur?
6. What is the manner of articulation?

(Sethi and Dhamija, 1999)

1. The airstream mechanism

From the questions (1) and (2), for all the sounds of languages, the airstream is given by the lungs, and the air is forced *out*. Such action is called *pulmonic egressive airstream mechanism*. In producing English consonants, the air is forced out from the lungs.

2. Voicing

From the question (3), if the vocal cords vibrate, the sound is **voiced**; if they do not, it is **voiceless**. They are as follows:

2.1 Voiced: There are 15 consonant sounds: /b,d, g, dʒ, m, n, ŋ, l, v, ð, z, ʒ, r, w, j/

2.2 Voiceless: There are 9 consonant sounds: /p,t, k,tʃ, f,θ, s,ʃ, h/.

3. Oral or Nasal (or Nasalized) sounds

From the question (4), if the soft palate is raised, only **oral sounds** can be produced; if it is lowered, there is no such closure, and therefore either **nasal** or **nasalized sounds** can be produced.

4. Place of articulation

From the question (5), the place of articulation is determined by the passive (upper) articulator and active (lower) articulators. In this section, we discuss the major places of articulation, which are now described.

4.1 Bilabial: /p/, /b/, /m/

The active articulator is *the lower lip* and the passive articulator *the upper lip*. When we produce /p/, /b/, /m/ as in *pick* /pɪk/, *buy* /baɪ/, and *man* /mæn/, we articulate by bringing both lips together. These sounds therefore are called bilabial.

4.2 Labio-dental: /f/, /v/

The active articulator is *the lower lip* and the passive articulator *the upper teeth*. When we produce /f/ and /v/ as in *fan* /fæn/ and *van* /væn/, we articulate these sounds by touching the bottom lip to the upper teeth. These sounds are therefore called **labio-dental**, *labio-*referring to lips and *dental* to teeth.

4.3 Dental: /θ/, /ð/

The active articulator is *the tip or blade of the tongue* and the passive articulator *the upper teeth*. When we produce /θ/ and /ð/, which in ordinary spelling these sounds are represented by *th*, as in *think* /θɪŋk/ and *that* /ðæt/, we articulate these sounds by touching the tip of the tongue to the upper teeth. These sounds are therefore called **dental**. To articulate these sounds; however, some speakers insert the tip of the tongue between the upper and lower teeth, called **inter-dental** (between the teeth).

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

The active articulator is *the tip or blade of the tongue* and the passive articulator *the teeth ridge*. When we produce /t/, /d/, /n/, /s/, /z/, and /l/ as in *ten* /tɛn/, *die* /daɪ/, *night* /naɪt/, *sip* /sɪp/, *zip* /zɪp/, and *lie* /laɪ/, we articulate these sounds by raising the tip of the tongue or the blade of the tongue to the teeth ridge or almost to the teeth ridge. These sounds are therefore called **alveolar**. You should feel your tongue touch or almost touch the teeth ridge as you produce the first sounds in these above-mentioned words.

4.5 Post-alveolar: /r/ (BrE)

The active articulator is *the tip of the tongue* and the passive articulator *the back of the teeth ridge*. When we produce /r/ as in *red* /rɛd/, we articulate this sound by using the tip of the tongue to tap against the teeth ridge (or just behind it) several times. It is the commonest variety of the **r**-sound in British English accent. This sound is therefore called **post-alveolar**.

4.6 Retroflex: /r/ (AmE)

The active articulator is *the tip of the tongue* and the passive articulator *the back of the teeth ridge*. When we produce /r/ as in *right* /raɪt/, we articulate this sound by curling the tip of the tongue back behind the teeth ridge. In that case the /r/ is called a **retroflex** sound. In general, the variety of this **r**-sound is found in the American English accent. Speakers who pronounce /r/ in the middles or at the ends of words may also have retroflex consonants with the tip of the tongue raised in *bird* /bɜːrd/ and *hear* /hɪər/.

4.7 Palato-alveolar: /tʃ/, /dʒ/, /ʃ/, /ʒ/

The active articulator is *the tip, blade and front of the tongue* and the passive articulator *the teeth ridge, and hard palate*. The sounds /tʃ/, /dʒ/, /ʃ/, and /ʒ/ as in *chair* /tʃeə/, *jail* /dʒeɪl/, *shop* /ʃɒp/, and *vision* /ˈvɪʒən/ are produced by the simultaneous articulators, that is, the tip of your tongue may be down behind the lower front teeth, or it may be up near the teeth ridge, but the blade of your tongue is close to the teeth ridge, and the front of the tongue is always raised towards the hard palate. These sounds are therefore called **palato-alveolar**.

4.8 Palatal: /j/

The active articulator is *the front of the tongue* and the passive articulator *the hard palate*. When we produce /j/ as in *yes* /jes/, we articulate this sound by raising the front of tongue to a point on the hard palate just behind the teeth ridge. This sound is therefore called **palatal**.

4.9 Velar: /k/, /g/, /ŋ/

The active articulator is *the back of the tongue* and the passive articulator *the soft palate*. The sounds /k/, /g/, and /ŋ/ as in *king* /kɪŋ/, *got* /gɒt/, and *sing* /sɪŋ/ are produced by raising the back of the tongue to the soft palate or **velum**. These sounds are therefore called **velar**.

4.10 Glottal: /h/

The articulators for the glottal sounds are the two *vocal cords*. The sound /h/ as in *house* /haʊs/ is produced by an obstruction, or a narrowing causing friction, but not by vibration, between the vocal cords. Its sound is from the flow of air through the open glottis. This sound is therefore called **glottal**.

4.11 Labio-velar: /w/

The articulators are *the two lips and the back of the tongue* and the passive articulator *the soft palate*. The sound /w/ as in *wet* /wet/ is produced by making the lips rounded, and at the same time the back of the tongue is raised towards the soft palate or velum. This sound is therefore called **labio-velar**.

Active articulators	Passive articulators	Places of articulation	Consonant sounds
lower lip	upper lip	bilabial	/p/, /b/, /m/
lower lip	upper teeth	labio-dental	/f/, /v/
tip or blade of tongue	upper teeth	dental	/θ/, /ð/
tip or blade of tongue	teeth ridge	alveolar	/t/, /d/, /n/, /s/, /z/, /l/
tip of tongue	back of teeth ridge	post-alveolar	/r/ (<i>BrE</i>)
tip of tongue curled back	back of teeth ridge	retroflex	/r/ (<i>AmE</i>)
tip, blade, front of tongue	teeth ridge and hard palate	palato-alveolar	/tʃ/, /dʒ/, /ʃ/, /ʒ/
front of tongue	hard palate	palatal	/j/ (y)
back of tongue	soft palate	velar	/k/, g/, /ŋ/
glottis (vocal cords)	glottis (vocal cords)	glottal	/h/
lower lip and back of tongue	upper lip and soft palate	labio-velar	/w/

Figure 2.1 Classifying English consonants according to the place of articulation

Source: adapted from Sethi & Dhamija (1999)

5. Manner of articulation

From the question (6), the manner of articulation specifies the types of closure or narrowing involved in the production of a sound. The principal terms for these particular types of closure or narrowing, all of which are required in the description of English consonants as follows:

5.1 Plosives : /p/, /b/, /t/, /d/, /k/, /g/

There is a complete closure of articulators so that the airstream cannot escape through the mouth. The air blocked behind the closure explodes when the closure is suddenly released, e.g. the sounds /p/, /b/, /t/, /d/, /k/, and /g/.

These sounds are called **plosives** (are also called **stops** because the air are stopped completely in the oral tract for a brief period).

Manner of articulation:		plosives		
Place of articulation:		bilabial	alveolar	velar
Voicing:	voiceless	/p/	/t/	/k/
	voiced	/b/	/d/	/g/

Figure 2.2 The plosive sounds in English

5.2 Affricates: /tʃ/, /dʒ/

There is a complete closure followed immediately by a gradual release. As in the case of plosives, the sounds /tʃ/ and /dʒ/ that are produced by a complete closure followed suddenly by a gradual release are called **affricates**.

Manner of articulation:		affricates		
Place of articulation:		palato-alveolar		
Voicing:	voiceless	/tʃ/		
	voiced	/dʒ/		

Figure 2.3 The affricate sounds in English

5.3 Nasals: /m/, /n/, /ŋ/

There is a complete closure in the oral tract only; the nasal tract remaining open. The sounds /m/, /n/, and /ŋ/ are produced by a complete closure in the oral tract; the soft palate is lowered and the air flows freely through the nose. These sounds are therefore called **nasals**.

Manner of articulation:		nasals		
Place of articulation:		bilabial	alveolar	velar
Voicing:	Voiced	/m/	/n/	/ŋ/

Figure 2.4 The nasal sounds in English

5.4 Fricatives: /f/, /v/, /θ/, /ð/, /s/, /z/, /ʃ/, /ʒ/, /h/

There is a close approximation of two articulators so that airstream escaping through narrowing is so partially obstructed that it causes audible friction. The sounds /f/, /v/, /θ/, /ð/, /s/, /z/, /ʃ/, /ʒ/, and /h/ are produced when the air passes through a narrow gap between two articulators, it causes audible friction. These sounds are therefore are called **fricatives**.

Manner of articulation:		fricatives				
Place of articulation:		Labio-dental	dental	alveolar	palato-alveolar	glottal
Voicing:	voiceless	/f/	/θ/	/s/	/ʃ/	/h/
	voiced	/v/	/ð/	/z/	/ʒ/	

Figure 2.5 The fricative sounds in English

5.5 Lateral: /l/

There is a partial closure between one or both sides of the tongue and the roof of the mouth.) There is obstruction of airstream at a point along the center of the oral tract with a partial closure, so that the airstream can escape on one or both sides of the tongue and it can pass continuously. This sound is therefore called **lateral**.

Manner of articulation:		lateral
Place of articulation:		alveolar
Voicing:	voiced	/l/

Figure 2.6 The lateral sound in English

5.6 Frictionless continuant (or Approximant) : /r/

There is an intermittent closure: a narrowing is made in the mouth but the narrowing is not quite enough to cause friction. In producing the sound /r/ the articulators do not come so close together; there is no audible friction. The sound in which there is no stoppage in the oral tract is continuant. This sound is therefore called **frictionless continuant**, now more often called an **approximant**.

Manner of articulation:		lateral
Place of articulation:		post-alveolar
Voicing:	voiced	/r/

Figure 2.7 The frictionless continuant sound in English

5.7 Semi-vowels: /w/, /j/

There is a narrowing is made in the mouth but the narrowing is not quite enough to cause friction. Semi-vowels are rapid vowel glides within the same syllable in much the same way as diphthongs are. In this case, they function as consonants; there are two sounds: /w/ and /j/ produced with little or no obstruction of the airstream in the mouth. The articulations represent only rapid glides to a following vowel: Thus, /w/ in *wet* is a glide starting from /u:/ region and /j/ in *yes* is a glide starting from /i:/ region. These sounds are therefore called **semi-vowels**. These sounds are sometimes called **Glides** (เสียงเลื่อน).

Manner of articulation:		semi-vowels	
Place of articulation:		labio-velar	palatal
Voicing:	voiced	/w/	/j/

Figure 2.8 The semi-vowel sounds in English

As mentioned above we can summarize the classification of the consonants in English on the basis of the manner of articulation as shown here:

Manner of articulation	Structure involved	Consonant sounds
Plosives	Complete closure in mouth, air cannot escape through the mouth	/p/, /b/, /t/, /d/, /k/, /g/
Affricates	Complete closure in mouth, then followed suddenly by gradual release	/tʃ/, /dʒ/
Nasals	Complete closure in mouth, air passes freely through nose	/m/, /n/, /ŋ/
Fricatives	Narrowing, resulting audible friction	/f/, /v/, /θ/, /ð/, /s/, /z/, /ʃ/, /ʒ/, /h/
Lateral (approximant)	Partial closure in the centre of mouth, air passes over sides of tongue	/l/
Frictionless continuant (approximant)	Slight narrowing, not enough to cause friction	/r/
Semi-vowels (glides)	Slight narrowing, not enough to cause friction	/w/, /j/

Figure 2.9 Classifying English consonant sounds according to manner of articulation

Source: adapted from Sethi & Dhamija (1999)

6. The description of consonants

At the beginning of this chapter, we can describe some of consonant sounds in the terms listed in six points in the form of questions. Under each of those six points, we now attempt to give the description of some consonants as follows:

6.1 The sound /p/

The sound /p/ represented by the letter *p* in English word *pick* can be described under six points as shown here:

6.1.1 The airstream is *pulmonic*.

6.1.2 The air is forced out. The airstream is *egressive*.

6.1.3 The vocal cords do not vibrate. The sound is *voiceless*.

6.1.4 The soft palate is raised. The sound is *oral*, not *nasal*.

6.1.5 The passive articulator takes place at *the upper lip*. The active articulator is *the lower lip*. The sound is *bilabial*.

6.1.6 There is a complete closure in the mouth. The sound is therefore called *plosive*.

6.2 The sound /k/

The sound /k/ represented by the letter *c* in the English word *cat* can be described under six points as shown here:

6.2.1 The airstream is *pulmonic*.

6.2.2 The air is forced out. The airstream is *egressive*.

6.2.3 The vocal cords do not vibrate. The sound is *voiceless*.

6.2.4 The soft palate is raised. The sound is *oral*, not *nasal*.

6.2.5 The passive articulator takes place at *the soft palate*. The active articulator is *the back of the tongue*. The sound is therefore called *velar*.

6.2.6 There is a complete closure in the mouth. The sound is therefore called *plosive*.

6.3 The sound /tʃ/

The sound /tʃ/ represented by the letter *ch* in English word *chair* can be described under six points as shown here:

6.3.1 The airstream is *pulmonic*.

6.3.2 The air is forced out. The airstream is *egressive*.

6.3.3 The vocal cords do not vibrate. The sound is *voiceless*.

6.3.4 The soft palate is raised. The sound is *oral*, not *nasal*.

6.3.5 The passive articulator takes place at *the teeth ridge* and *the hard palate*. The active articulator is *the tip, blade* and *front of the tongue*. The sound is therefore *palato-alveolar*.

6.3.6 There is a complete closure in the mouth, followed immediately by a gradual release. The sound is therefore *an affricate*.

6.4 The sound /n/

The sound /n/ represented by the letter *n* in the English word *know* can be described under six points as shown here:

6.4.1 The airstream is *pulmonic*.

6.4.2 The air is forced out. Therefore, the airstream is *egressive*.

6.4.3 The vocal cords vibrate. The sound is therefore *voiced*.

6.4.4 The soft palate is lowered. The sound is therefore *nasal*, not *oral*.

6.4.5 The articulation takes place at the teeth ridge. The active articulator is *the tip or blade of the tongue*. The sound is therefore *alveolar*.

6.4.6 There is a complete closure in the mouth; the air passes out through the nose only. The sound is therefore a *nasal*.

In four descriptions given above, we have seen that the answers to questions (1) and (2) are *pulmonic* and *egressive*. With regard to all English sounds we can take these two answers. Besides, for the answer to question (4) the soft palate is raised or lowered—oral or nasal sounds. Thus, in the classification and the description of English consonant sounds, questions (1), (2), and (4) need not be asked.

It is possible to answer questions (3), (5) and (6) in just three term labels to English consonants—*voicing*; *place of articulation*; and *manner of articulation* as follows:

/p/ as in <i>pick</i>	=	voiceless bilabial plosive
/k/ as in <i>cat</i>	=	voiceless velar plosive
/tʃ/ as in <i>chair</i>	=	voiceless palato-alveolar affricate
/n/ as in <i>know</i>	=	voiced alveolar nasal

Vowels

Phonetically, vowels (David, 1991) can be defined as the sounds articulated without a complete closure in the mouth or a degree of narrowing which would produce audible friction. In such a way, vowels are a tone or a “hum”, produced from the glottis, with the vocal cords normally vibrating (because vowels are normally voiced.). In this section, English vowels can be classified into monophthongs, diphthongs, and triphthongs.

1. Monophthongs

A monophthong is a pure vowel sound. In classifying the pure vowel, we can describe it in terms of three factors: 1) **the tongue height**—*high, mid, low*; 2) **the part of the tongue raised**—*front, central, back*; and 3) **the lip-position**—*rounded, and unrounded: spread, neutral*.

1.1 The tongue height

The body of the tongue can be moved up or down within the mouth, but only up or down to a certain point, in order to produce vowels. There are three terms of the tongue-height classified as follows:

1.1.1 High—body of the tongue is moved up.

1.1.2 Mid—body of the tongue is raised between *high* and *low*.

1.1.3 Low—body of the tongue is moved down.

1.2 The part of the tongue raised

The body of the tongue can also be moved toward the front or back of the mouth and the imaginary part where the front and the back are supposed to meet, called the centre, classified as follows:

1.2.1 Front—body of the tongue is moved forward.

1.2.2 Central—body of the tongue is raised between *front* and *back*.

1.2.3 Back—the body of the tongue is moved backward.

The vowels produced when the front of the tongue is raised forward are, therefore, called the *front vowels*; those produced when the central part of the tongue is raised (between the front and the back) are called the *central vowels*, and

those produced when the back of the tongue is raised backward are called the *back vowel*.

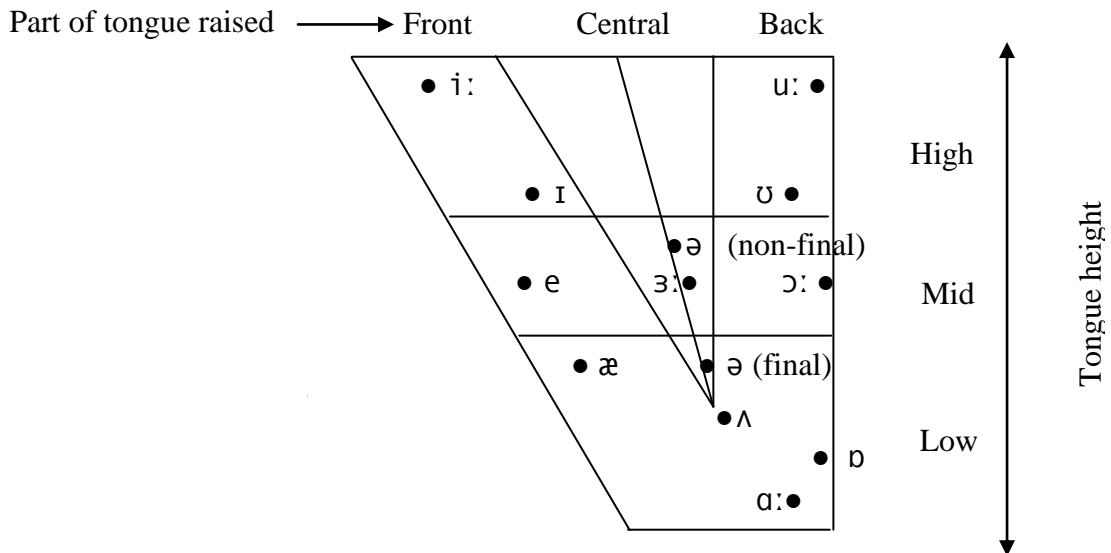


Figure 2.10 The vowel diagram

Source: adapted from Sethi & Dhamija (1999)

1.3 The lip-posture

Although the lips have different shapes and positions, they can be assumed that they have only two possibilities in the positions (Roach, 2010) as follows:

1.3.1 Rounded—the lip postures have rounded shapes, that is, they are brought towards each other and pushed forwards, e.g. /ʊ/ as in *foot*, /u:/ as in *food*, /ɒ/ as in *got*, and /ɔ:/ as in *short*.

1.3.2 Unrounded—the lip postures have no rounded shapes. The unrounded lip postures can be classified into two positions as follows:

1.3.2.1 Spread—they moved away from each other, as for smile, e.g. /i:/ as in *seat*.

1.3.2.2 Neutral—the lip postures are not noticeably rounded or spread, e.g. /ɜ:/ as in *shirt* and /ɑ:/ as in *car*.

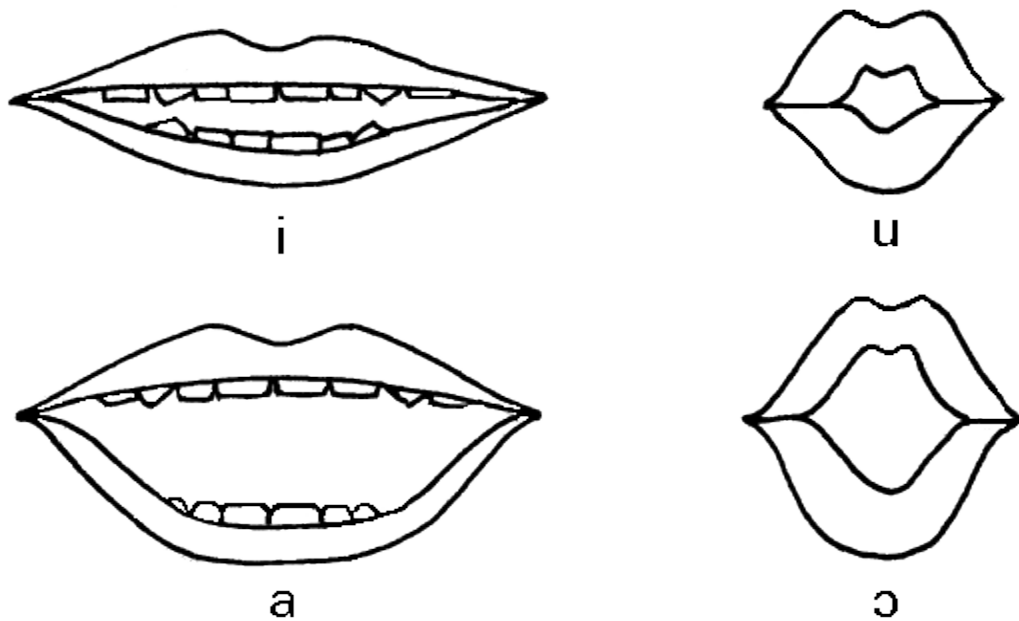


Figure 2.11 The vowel lip postures

Source: Mannell (2014)

2. The description of monophthongs

We can describe some of vowel sounds by using a four-term label, indicating the tongue height; the part of tongue raised; and the position of lips.

2.1 /u:/ in the English word **food**: *a high back rounded long vowel*

2.2 /æ/ in the English word **hat**: *a low front unrounded short vowel*

2.3 /e/ in the English word **set**: *a mid front unrounded short vowel*

2.4 /ɜ:/ in the English word **bird**: *a mid central unrounded long vowel*

To describe the vowel sound we mention (1) whether it is high or mid or low; (2) whether it is front or central or back, long or short; (3) whether lips are unrounded (spread or neutral), or rounded, and while the vowel is being pronounced. All English vowels are voiced. Therefore, for every vowel we must state that it is voiced.

We can summarize English pure vowel sounds, divided into seven short vowels: /ɪ/, /e/, /æ/, /ə/, /ʌ/, /ʊ/, /ɒ/ and five long vowels: /i:/, /ɜ:/, /u:/, /ɔ:/, /ɑ:/, in terms of three factors as shown here:

(2) The part of tongue raised	Front	Central	Back	
	(3) The lip-position			
(1)The tongue height	unrounded	unrounded	unrounded	rounded
high	i:			u:
	ɪ			ʊ
mid	e	ɜ:		ɔ:
		ə		
low	æ	ʌ	ɑ:	ɒ

Figure 2.12 Classifying English pure vowel sounds in terms of three factors

3. Diphthongs

Diphthongs (sometimes referring to **gliding vowels**) have continually moving tongue shape and changing sound quality. They are represented by two vowel symbols but counted as one unit. The two symbols represent the beginning and the end of the sound quality. The jaw, tongue and lips make a gliding movement from the first element of the diphthong to the second.

To pronounce the diphthong /aɪ/ in the English word **my**, for example, the tongue is, at first, raised to a point of a low front vowel /a/, and then it is gradually raised towards a point of a high front vowel /ɪ/. There are altogether 8 diphthongs in English, divided into three glides:

- 3.1 Three closing gliding vowels towards [ɪ]: /eɪ, aɪ, ɔɪ/;
- 3.2 Two closing gliding vowels towards [ʊ]: /aʊ, əʊ/; and
- 3.3 Three centring gliding vowels towards [ə]: /ɪə, eə, ʊə/

4. The description of diphthongs

Diphthongs are described by indicating the position of the tongue and the lips in the beginning and at the end of the glide. The descriptions of the diphthongs are given below.

4.1 Closing gliding vowels towards [ɪ]: /eɪ, aɪ, ɔɪ/

4.1.1 /eɪ/ as in **pay**—closing gliding vowel, the glide begins at the position of /e/ and moves in the direction of /ɪ/. The lips are spread.

4.1.2 /aɪ/ as in **buy**—closing gliding vowel, the glide begins at the position of /ɑ:/ and moves in the direction of /ɪ/. The lips change from a neutral to a loosely spread position.

4.1.3 /ɔɪ/ as in **boy**—closing gliding vowel, the glide begins at the position of /ɔ:/ and moves in the direction of /ɪ/. The lips are open-rounded at the beginning and neutral at the end.

4.2 Closing gliding vowels towards [ʊ]: /aʊ, əʊ/

4.2.1 /aʊ/ as in **now**—closing gliding vowel, the glide begins at the position of /æ/ and moves in the direction of /ʊ/. The lips are neutral in the beginning and weakly rounded in the end.

4.2.2 /əʊ/ as in **coat**—closing gliding vowel, the glide begins at the position of /ə/ and moves towards /ʊ/. The lips are neutral.

4.3 Centring gliding vowels towards [ə]: /ɪə, eə, ʊə/

4.3.1 /ɪə/ as in **hear**—centring gliding vowel, the glide begins at the position of /ɪ/ and moves in the direction of /ə/. The lips are neutral in the beginning and rounded towards t

4.3.2 /eə/ as in **hair**—centring gliding vowel, the glide begins at the position of /e/ and moves towards /ə/. The lips are neutral in the beginning and rounded towards t

4.3.3 /ʊə/ as in **poor**—centring gliding vowel, the glide begins at the position of /ʊ/ and moves towards /ə/. The lips are weakly rounded at the beginning and neutral at the end.

5. Triphthongs

Triphthongs are the most complex English sounds of the types of vowels where there are two noticeable changes in quality during a syllable. It is rather difficult to pronounce and very difficult to recognize them, as in the English words *fire* and *shower* /'f aɪə/ and /ʃ aʊə/.

A triphthong (Roach, 2000: 24) is a glide from one vowel to another and then to a third, all produced rapidly and without interruption.

The triphthongs can be composed of the five closing diphthongs described in the last section, with /ə/ added on the end. Thus we get:

- 5.1 Gliding vowel /eɪ/ + /ə/ = /eɪə/
 5.2 Gliding vowel /aɪ/ + /ə/ = /aɪə/
 5.3 Gliding vowel /ɔɪ/ + /ə/ = /ɔɪə/
 5.4 Gliding vowel /aʊ/ + /ə/ = /aʊə/
 5.5 Gliding vowel /əʊ/ + /ə/ = /əʊə/

To identify these above-mentioned triphthongs, some example words are given here:

- /eɪə/ = 'player', 'layer',
 /aɪə/ = 'fire', 'tire',
 /ɔɪə/ = 'loyal', 'royal'
 /aʊə/ = 'power', 'hour'
 /əʊə/ = 'lower', 'mower'

Summary

Speech sounds can be classified and described in the articulatory terms—the organs of speech. The best terms of classifying speech sounds are **consonants** and **vowels**.

Consonants are the sounds made by closure or narrowing in the vocal tract so that the airflow is either completely blocked, or so restricted that audible friction is produced. In the classification and description of English consonant sounds, there are just three terms that suffice it to say—**voicing**; **place of articulation**; and **manner of articulation**.

Vowels are the sounds articulated without a complete closure in the mouth or a degree of narrowing which would produce audible friction. English vowels can be classified into 1) a **monophthong** or a pure vowel. In classifying and describing the pure vowel, we can describe it in terms of three factors: 1) **the tongue height**; 2) **the part of the tongue raised**; and 3) **the lip-position**; 2) a **diphthong** or a gliding vowel; and 3) a **triphthong**.

Question reviews

1. What are consonants?
2. Describe the air-stream mechanism used in producing consonants.
3. Explain the difference between a voiced and a voiceless sound?
4. Give three examples of words in English in the following terms:
 - 4.1 bilabial sounds;
 - 4.2 alveolar sounds; and
 - 4.3 velar sounds from English consonants.
5. Describe the sounds: /f/ as in the word *friend* and /ʃ/ as in the word *shop* in the following terms:
 - 5.1 voicing
 - 5.2 place of articulation and
 - 5.3 manner of articulation
6. Give the phonetic symbols for the description of English consonants in the following terms:
 - 6.1 a voiceless dental plosive
 - 6.2 a voiced velar nasal and
 - 6.3 a voiced labio-dental fricative
7. What are vowels?
8. What is meant by the parts of the tongue raised—a *front* vowel; a *central* vowel; and a *back* vowel? Give examples for each.
9. What is meant by the lip-position—a *rounded* vowel and an *unrounded* vowel?
10. What is the difference between a *pure vowel* and a *diphthong*?