PART A

The chapters in Part A of this book take what we have generally called formal (or structural) approach to English grammar, whereas Part B takes a functional approach. Formal grammar focuses on the forms (or the structure) of language. In Part A, we will first examine the primary medium for all language – sound. We will discuss the organs of speech in human beings and provide a description of English sounds, that is, distinctive features of types of vowel and consonant. We will then move on to study English sounds as a system and also units larger than individual sounds, including sequences of phonemes, word stress, rhythm, and intonation in Chapter 1. In Chapter 2, we will examine the structure of English words: types of morpheme, as well as explore various processes of word formation in English. Both Chapter 3 and Chapter 4 focus on syntax. In Chapter 3, we start with the classification of individual words (i.e., word classes) and move on to the combination of individual words into different types of word groups and phrases. In Chapter 4, we study the various combinations of phrases into simple sentence. We will also discuss mood types of a sentence as well as the combination of clauses into compound, complex, and compound–complex sentences. In Chapter 6, we explore the study of meaning in the formal tradition (i.e., semantics) and also meaning in use (i.e., pragmatics). In Chapters 6 and 7, we will examine the language variation and modern Englishes. Then we will move on to the functional approach to study the language phenomenon in Part B.

1 Phonetics and Phonology

Introduction

Human language is primarily oral; that is, humans use combinations of sounds in order to communicate. Each language uses its own set of sounds, and these sounds are combined in different ways to give different meanings. In this chapter, we examine the production of sounds in English; the differences between consonant and vowel sounds; the IPA symbols; the various sounds in the language; the use of stress, rhythm, and intonation; and the relationship between intonation and meaning.

Organs of speech

Generally speaking, phonetics is the study of speech sounds. Like every human language, English uses a limited number of speech sounds out of the large number of different sounds the human vocal organs can produce. Phonetics is concerned with the description and classification of these sounds on the basis of how they are produced by our vocal organs and how they are perceived by our hearing mechanism. The study of how the vocal organs produce the sounds of language is called articulatory phonetics, the study of the way listeners perceive the sounds is called auditory phonetics, and the study of the physical properties of the sound themselves is called acoustic phonetics. In this chapter, we focus on articulatory phonetics, and therefore begin with an examination of the organs of speech.

The main organs of speech used in making English sounds are the lungs, the larynx, and the different parts of the mouth. The lungs are connected to a tube, which goes up to the vocal cords, called the trachea or windpipe. The lungs push out air, which moves up the

trachea to the larynx and the mouth to create sounds. The larynx contains vocal cords, that can affect the quality of the sound produced. The space between the vocal cords is called the glottis (see Figure 1.1 below). The glottis can be closed or open. If it is totally closed, no air can pass through it; if partly open, the vocal folds vibrate, producing 'voiced sounds'; and if wide open, the vibration of the vocal folds is reduced, producing 'voiceless sounds'.

After crossing the larynx, the air goes through the oral or the nasal cavity, where most of the articulation takes place. The uvula controls whether the air flows through the oral or the nasal cavity. The mouth contains a number of parts that impact the sound produced.

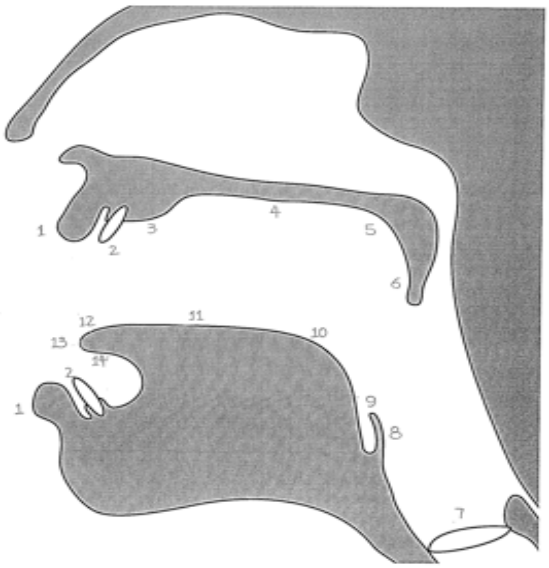

Figure 1.1: Places of articulation

Key: (1) Lips; (2) Teeth (dental); (3) Alveolar ridge; (4) Hard Palate; (5) Velum (soft palate); (6) Uvula; (7) Glottis (vocal folds); (8) Epiglottis; (9) Tongue root; (10) Back of tongue body; (11) Front of tongue body; (12) Tongue blade; (13) Tongue tip; (14) Underside of tongue

Parts of the mouth that produce sound can be classified into 'active articulators' and 'passive articulators'. Active articulators move to make sound during the articulation process, while passive articulators remain static. The active articulators include lower lips,

lower teeth, tongue, and uvula. In speech production, the active articulators typically move toward the passive articulators to shape the air stream, and thus alter the sound quality. The passive articulators include upper lips, upper teeth, alveolar ridge (a ridge on the back of the teeth), hard palate (a hard flat surface further back from the alveolar ridge), and soft palate (also called the velum, a soft surface further back from the hard palate).

Tongue is one of the most active articulators in the mouth. It is a powerful muscle that can take different shapes – flat, convex, or curled. Different parts of the tongue – 'tip', 'blade', 'front', and 'back' – move in different ways and touch or come close to different passive articulators to direct the airflow as it passes and resonates through the oral cavity. Tongue movements open or obstruct the passage of air through the mouth. During speech, the tongue moves rapidly and changes shapes constantly to form partial or complete closure of the vocal tract necessary to create words.

Description of English Sounds

Speech sounds can be divided into two broad categories: vowels and consonants. Vowels are sounds that are made by changing the shape of the oral cavity, but without obstructing air flow. Consonants, on the other hand, are speech sounds where the air stream from the lung is completely blocked by the lips (stop), partially blocked by the tongue (lateral). The air stream escapes with audible friction (fricative), or gets blocked in the mouth escapes through the nose (nasals). In this section, we will examine ways in which the vowel and consonants used in English can be described. Before doing that, we need to explain two topics: first, the International Phonetic Alphabets (IPA) because the IPA is a set of characters that are used to transcribe sounds, and second, the transcription conventions used in this chapter.

Phoneticians use a special set of characters, called the International Phonetic Alphabet (IPA) to transcribe the sounds of human languages, including English. The IPA is essential

because the same letter or alphabet in English can represent different sounds; for example, the letter 'a' has different sounds in the words 'jargon' and 'jasmine'; the letter 'e' has different length in the words 'preclude' and 'prefect'; the letter 'k' is pronounced in the words 'key' but not in the word 'knight'. Conversely, the same sound in a language can be written using different letters; for example, the sound /ɪ/ can be represented by the letter 'o' as in 'women', the letter 'i' as in 'sit', or the letter 'y' as in 'knobbly'. Because human languages use a large number of sounds, the full IPA is quite large. In this section, we focus on the IPA characters that are used to represent sounds in English.

To transcribe a sound phonetically (either an individual sound or a group of sounds), we place the transcription within '/.../'. But, to transcribe a sound phonologically (i.e., the way it is actually pronounced by speakers), we put the transcription within square brackets '[...]'. For example, when we transcribe the word 'kit' phonetically, we write it down as /kɪt/; on the other hand, when we describe how a speaker of British English might say it, we transcribe it phonologically as [k^{h}ɪt].

Vowels

Vowels are produced by modifying the shape of the vocal tract but without appreciably obstructing the air flowing through it. There are 12 primary vowels in English as listed below. Examples are given for each vowel, with its occurrence in word-initial, word-medial and word-final position:

Vowel	**Examples**			
/iː/	each	heat	beef	he
/ɪ/	it	hit	believe	*ability
/e/	ethic	set	head	gourmet
/æ/	accident	hat	basil	---
/ɜː/	earth	hermit	bird	---
/ə/	ago	has	have	vita
/ʌ/	up	unsafe	trust	*coda

/uː/	---	blue	fool	who
/ʊ/	urtext	full	scope	---
/ɔː/	ought	haunt	abort	abhor
/ɑː/	arm	hart	car	yah
/ɒ/	oxen	cot	goggle	---

Figure 1.2: Vowel sounds in English
*unstressed = /ə/

Describing English vowels

In human languages, most vowels are voiced, but there are some that use voiceless vowels (e.g., in Japanese: dekita, ifuku). But in English, all vowels are voiced. Apart from voiced and voiceless, vowels are usually described in terms of three properties: (1) the position of the tongue in relation to the roof of the mouth, (2) the shape of the lips, and (3) the duration of the sound.

Different parts of the tongue are involved in producing vowels. Depending on which part of the tongue is raised to the highest position, we can classify vowels as front vowels, back vowels, and central vowels as shown in Table 1.3.

Vowels	Position of the tongue	Examples
Front vowels	the front part of the tongue is raised	'sheep' /ʃiːp/, 'ship' /ʃɪp/, 'bed' /bed/, 'bad' /bæd/
Back vowels	the back part of the tongue is raised	'pot' /cɒt/, 'caught' /cɒt/, 'boot' /buːt/
Central vowels	the centre of the tongue is raised	'bird' /bɜːd/

Table 1.3: Vowels and position of the tongue

The tongue can be raised to various heights to shape the oral cavity. The three most common positions are high, mid, and low as shown in Table 1.4.

Vowels	Height of the tongue	Examples
High (close)	the tongue is near the roof of the mouth	'sheep' /ʃiːp/, 'boot' /buːt/,

Mid (half close)	the tongue is neither near the roof of the mouth nor in a low position; it is somewhere between the two	'bit' /bɪt/, 'bed' /bed/, 'caught' /cɒt/
Mid (half open)		'cut' /kʌt/, 'bird' /b ɜːd/, 'saw' /s ɔː/
Low (open)	the tongue is in the lowest possible position	'calm' /kɒm/, 'bad' /bæd/

Table 1.4: Vowels and height of the tongue

Table 1.5 tabulates both the position and the height of the tongue during the production of vowel sound in various words.

Tongue height	**Part of the tongue involved**		
	front	**central**	**back**
High/ close	*sheep* *ship*		*Boot*
half-close	*bit* *bed*		*caught*
half-open		*cut bird*	*saw*
Low/ open	*bad*	*calm*	*Pot*

Table 1.5: Vowels and part and height of the tongue

A change in the shape of the lips can also affect the vowel quality. There are three main lip positions that differentiates vowel sounds in English: rounded, spread, and neutral. The spread and the neutral vowels are sometimes grouped together and called unrounded vowels.

Vowels	**Shape of the lips**	**Examples**
Rounded vowels	the lips are relatively round	'bore' /bɔːr/, 'soot' /sʊt/
Spread vowels	the lips are in a relatively spread position	'keep' /kiːp/, 'beat' /biːt/
Neutral vowels	the lips are neither rounded nor spread	'but' /bʌt/, 'about' /əbaʊt/

Table 1.6: Vowels and shape of the lips

Finally, vowels can either be short or long. In English, the difference between short and long vowels is a distinctive feature, meaning that whether a vowel is short or long impacts the meaning of the words. For example, the difference in the words /bɪt/ (bit) and /biːt/ (beat) is that of vowel length. In IPA, the diacritic ':' is used to mark a long vowel.

The vowels that we have described so far are all pure vowels, also known as monophthongs. There are 12 pure vowel sounds in Standard British English, also known as Received Pronunciation (RP). Table 1.7 tabulates the 12 pure vowels in English.

		Front	Central	Back
High/Close	Long	iː		uː
	Short	ɪ		ʊ
Mid	Long		ɜː	ɔː
	Short	e	ə	
Low/Open	Long			ɑː
	Short	æ	ʌ	ɒ

Table 1.7: The IPA table for the English vowels.

Table 1.8 describes each of the 12 primary vowels and provides an example of word that uses them.

Vowel	Description	Examples	
/iː/	A front, high, long vowel	seat	/siːt/
/ɪ/	A front, high, short vowel	sit	/sɪt/
/e/	A front, mid, short vowel	set	/set/
/æ/	A front, low, short vowel	sat	/sæt/
/ɜː/	A central, mid, long vowel	bird	/bɜːd/
/ə/	A central, mid, short vowel	ago	/əgəʊ/
/ʌ/	A central, low, short vowel	cup	/kʌp/
/uː/	A back, high, long vowel	fool	/fuːl/
/ʊ/	A back, high, short vowel	full	/fʊl/
/ɔː/	A back, mid, long vowel	caught	/kɔːt/
/ɑː/	A back, low, long vowel	cart	/kɑːt/
/ɒ/	A back, low, short vowel	cot	/kɒt/

Table 1.8: Description of English primary vowels

Diphthongs

In English, as in many languages, there are vowels that could be moved from one vowel position to another, known as diphthongs. For example, the vowel sound /aɪ/ in the word 'buy' is produced by a movement from the vowel sound /a/ as in the word 'part' toward the vowel sound /ɪ/ as in the word 'pit'. Other examples include the diphthong /eɪ/ in the word 'bay', /ɔɪ/ in the word 'boy', /əʊ/ in the word 'beau' etc.

There are eight diphthongs in English. They are further classified into closing diphthongs and centering diphthongs. Closing diphthongs represent those that involve a gliding toward a closed vowel. There are five closing diphthongs in RP. Centering diphthongs, on the other hand, represent those that involve a gliding toward a central vowel. There are three centering diphthongs in RP. Table 1.9 shows the eight diphthongs in RP.

	Diphthong	**Example**
Closing diphthongs	/eɪ/	bay /beɪ/
	/aɪ/	buy /baɪ/
	/ɔɪ/	boy /bɔɪ/
	/əʊ/	beau /bəʊ/
	/aʊ/	bough /baʊ/
Centering diphthongs	/ɪə/	beer /bɪə/
	/eə/	bear /beə/
	/ʊə/	boor /bʊə/

Table 1.9: The eight diphthongs in English

Consonants

Consonants are produced by appreciably obstructing the flow of air through the vocal tract. There are a total of 24 consonants in English, which are listed below. The examples

below are given for each phoneme, with its occurrence in word-initial, word-medial, and word-final position:

Consonant phonemic symbol	Example		
/b/	ban	cable	cab
/p/	pan	people	zip
/m/	man	memo	seem
/w/	went	beware	---
/d/	dance	daddy	dead
/t/	tan	hasty	hat
/f/	fan	safer	life
/v/	van	saver	live
/g/	gang	bigger	tag
/ŋ/	---	singer	king
/k/	can	hacker	kick
/l/	land	teller	coal
/n/	name	partner	sign
/r/	ran	horror	core
/s/	sand	lacy	peace
/z/	zang	lazy	please
/h/	hand	behead	---
/j/	yank	lawyer	---
/θ/	thank	ether	breath
/ð /	then	either	breathe
/ʃ/	shame	threshold	crush
/tʃ/	chant	sketchy	church
/ʒ/	---	treasure	rouge
/dʒ/	jam	edgy	siege

Figure 1.10: Consonants in English

Describing consonants

Consonants are usually described based on their place of articulation, manner of articulation, and voicing.

The first distinctive feature to describe a consonant is whether it is voiced (i.e. when the vocal cords vibrate) or voiceless (when the vocal cords do not vibrate). In English, a change in voicing can change the meaning of the word (all other features being constant). For example, the difference between the initial sound in the words 'ban' /bæn/ and 'pan' / pæn / is that of voicing, with all other features being identical. This difference in voicing changes the meaning of the two words.

	Consonant phonemes and examples
voiced	/b/ back; /d/ day; /g/ gate; /v/ van; /z/ zero; /m/ map; /n/ night; /l/ light
voiceless	/p/ pan; /t/ tea; /k/ key; /f/ fat; /s/ sip; /h/ hot

Table 1.11: Voiced and voiceless consonants in English

The second distinctive feature to describe a consonant is the place of articulation, that is, the place in the oral cavity where a closure or narrowing takes place. Like voicing, a change in the place of articulation can change the meaning of the word, and therefore also create minimal pairs. For example, the difference between the initial sound in the words 'pin' /pɪn/ and 'kin' /kɪn/ is that in the place of articulation, with all other sounds being identical. This change in the place of articulation changes the meaning of the two words. In English, there are eight places of articulation which can create words with distinctive meanings.

Types	**Places of articulation**	**Consonant phonemes**
Bilabial	Closure or narrowing between the two lips	/p, b, m, w/
Labio-dental	narrowing between the lower lip and the peer teeth	/f, v/
Dental	Closure or narrowing between the tip of the tongue and the upper teeth	/θ, ð /
Alveolar	Closure or narrowing between the tip or blade of the tongue and the teeth ridge	/t, d, s, z, n, l/
Post-alveolar	Narrowing between the blade of the tongue and the area just behind alveolar ridge	/tʃ, dʒ, ʃ, ʒ, r/
Palatal	Narrowing between the front of the tongue and the hard palate	/j/

Velar	Closure or narrowing between the back of the tongue and the soft palate	/k, g, ŋ/
Glottal	The narrowing happens between the vocal cords	/h/

Table 1.12: Consonant and place of articulation

In addition to the place of articulation, the manner in which the sound is made can also be used to describe consonants. The kind of closure or narrowing and the manner in which the air flows is affected by it creates different sound qualities. In English, the manner of articulation is the third distinctive feature to differentiate between two words. For example, the difference between the initial sounds in the words 'teen' /ti:n/ (/t/ is a plosive or stop) and 'seen' /si:n/ (/s/ is a fricative) is in the manner of articulation, with all other features being the same. This change in the manner of articulation changes the meaning of the two words. In English, there are seven manners of articulation, which can create words with distinctive meanings.

Types	Manners of articulation	Examples
Plosive (stop)	There is a complete closure of the air passage. The air is held up and then released with an explosion.	/p, b, t, d, k, g/
Affricate	There is complete closure of the air-passage and then the air is released slowly with friction.	/tʃ, dʒ/
Fricative	There is a narrow passage for the air to pass through. This creates an audible friction.	/f, v, s, z, θ, ð, ʃ, ʒ, h/
Nasal	There is a complete closure of the air-passage in the mouth. The soft palate is lowered to let the air come out through the nose.	/m, n, ŋ/
Frictionless continuants (approximant)	This sound is made with a near closure of mouth, but without any friction.	/r/
Lateral	This sound is made when there is a closure in the middle, but the air is free to come out along the sides.	/l/
Semivowels (glides)	These are vowel-like consonants. They are made in the same way as vowels, but function as consonants.	/j, w/

Table 1.12: Consonant and manner of articulation

Based on these three features – voicing, the place of articulation, and the manner of articulation – all the consonants in English can be tabulated in the following table.

Manner of articulation	Place of articulation															
	Bilabial		Labio-dental		Dental		Alveolar		Postalveolar		Palatal		Velar		Glottal	
	vl	vd	vl	vd	vl	vd	vl	vd	vl	vd	vl	vd	vl	vd	vl	vd
Plosive/stop	p	b					t	d					k	g		
Affricate									tʃ	dʒ						
Fricative			f	v	θ	ð	s	z	ʃ	ʒ					h	
Nasal		m					n							ŋ		
Approximant									r							
Lateral								l								
Semivowel/glide		w										j				

Table 1.13: The consonants used in RP. Note: 'vl' refers to voiceless and 'vd' refers to voiced.

Activity 1.1

Identify the <u>two</u> words that <u>begin</u> with the sound as mentioned before colons.

Example: A palato-alveolar affricate: beach, cello, chef, gander, gypsy, shop, vain

Answers: <u>gypsy, cello</u>

1) A labio-dental fricative: backyard, chick, cab, loose, phrase, stop, vest
2) A dental fricative: feature, holocaust, late, themselves, thesis, Thailand, vivid
3) A velar plosive: chrysanthemum, city, Gerry, judge, knack, pickle, quadruple
4) An alveolar fricative: czar, desert, join, psychiatric, rumple, sure, thesaurus
5) A bilabial plosive: biography, king, multiple, panorama, philosophy, psalm, spirit
6) A palato-alveolar fricative: chauvinism, jubilant, pleasant, pressure, schwa, surly, Zimbabwe
7) An alveolar plosive: blame, dwindle, palace, sobbing, theatre, tortoise, zealot
8) A semi-vowel: honesty, human, onion, union, whenever, whole, whose

9) A velar plosive: chime, choral, gelatinous, gearwheel, gnash, knavish, skulk

10) A glottal fricative: heiress, honor, hourly, humor, khaki, rhetoric, whose

Activity 1.2

Identify the two words that end with the sound specified.

Example: A dental fricative: best, breath, haste, pay, rise, teeth, though

Answers: breath, teeth

1) A velar consonant: case, face, manage, plaque, Prague, recollect, waste
2) A bilabial consonant: bombed, clock, right, scallop, scramble, span, tube,
3) A labio-dental fricative: adhesive, borough, eleventh, frustrate, string, triumph, wise
4) An alveolar plosive: ache, bouquet, mopped, Porsche, stipulated, Sussex, wardrobe
5) A palato-alveolar affricate: ache, aisle, cache, hostage, scratch, spanned, rim
6) An alveolar nasal: autumn, column, condemn, cortisone, deign, headlong, success
7) A palato-alveolar fricative: adze, badge, beige, beads, douche, badge, coach, pledges
8) A voiced alveolar fricative: appease, cease, grasps, goose, heaths, mouths,
9) A voiceless dental fricative: beneath, bequeath, betroth, booth, hearth, smooth, with
10) A voiced velar plosive: destroying, diaphragm, enact, pedagogue, prestige, trough, vague

Activity 1.3

Identify the two words that contain the sound specified.

Example: A glottal fricative: dislevel, father, heirdom, inhibition, Rhine, whosoever

Answers: inhibition, whosoever

1) A schwa: Dublin, gigantic, Malaysia, migration, nursing, recollection, uplift
2) A palatal semi-vowel: farther, hijack, inconsistent, rostrum, tuberculosis, verify, yawn
3) A diphthong: effort, foster, kinship, intensity, share, thrive, timber,
4) A voiced palato-alveolar fricative: differentiate, fossilization, inseparable, inshore precision, pursue, treasure,
5) A voiced velar nasal: Bangkok, banquet, gander, grammatical, nasty, nicotine, trauma
6) A central vowel: abrupt, carriage, nasty, reaping, pursue, soonest, stylish
7) A labio-velar semi-vowel: drowned, follow, lawn, oneness, only, sewed, squirrel
8) A palato-alveolar frictionless continuant: corpulent, dervish, formerly, iron, panther, parish, progress
9) A diphthong: appeal, climbing, flood, village, plait, poster, southern
10) A lateral consonant: folk, helm, palm, salmon, solemn, Stockholm, talkative

Activity 1.4

Write the following paragraph in regular English spelling. "tʃaɪnə ɪz əmerɪkəz bæŋkə" ɪz ə freɪz wʌn ʊfən hɪəz, əlʊŋ wɪð "tʃaɪnə hæz mæsɪv fɔ:rən ekstʃeɪŋdʒ rɪzɜ:vz". həʊld ʊn, ðəʊ. nəʊ ju:-es stɪmələs pækɪdʒ wɪl ni:d ə sent frəm tʃaɪnə. ət ðə rɪsk əv grəʊslɪ əʊvəsɪmplɪfaɪɪŋ, hɪə ɪz haʊ əmerɪkə faɪnænsəs ə stɪmələs pækɪdʒ

laɪk ðə wʌn ɪt niːdz naʊ.

juːzɪŋ əʊnlɪ entriːz ən ɪts bæləns shiːt, ðə fedərəl rɪzɜːv sɪstəm kriːeɪts kæʃ ənd juːzɪz ɪt tə baɪ bɪlz frəm ðə treʒərɪ dɪpɑːtmənt. ðə treʒərɪ spendz ðə mʌnɪ, beɪst ɒn kəngreʃənəl əprəʊprɪeɪʃənz. kɒŋgres ɔːlsəʊ hæz tə reɪz ðə det siːlɪŋ. ðæts ɪt. ɪt hæz nʌθɪŋ tə duː wɪð tʃaɪnə.

Phonemes and minimal pairs

Phonetics is the study of speech sounds, concerning the description and classification of these sounds on the basis of how they are produced by our vocal organs. Phonology, on the other hand, is concerned with how a particular language organizes its sounds into distinctive units (technically known as *phonemes*), how the phonemes are combined into *syllables*, and how the *prosodic* features of *length*, *stress,* and *pitch* are organized into patterns.

Let's compare the words 'pan' and 'ban'. They are different in terms of form and meaning; they also differentiate from each other in terms of sound: the initial consonant of the first word is [p] while the second word is [b]. The two consonants [p] and [b] are distinctive sounds, which can therefore distinguish words in English. Such distinctive sounds are called phonemes. As a matter of fact, these two consonant phonemes distinguish not only the two words 'pan' (/pæn/) and 'ban' (/bæn/) but also other pair of words such as 'park' (/pɑːk/) and 'bark' (/bɑːk/), 'pear' (/peə/) and 'bear' (/beə/), 'peak' (/piːk/)and 'beak' (/biːk/), 'peach' (/piːtʃ/)and 'beach' (/biːtʃ/), 'pill' (/pɪl/) and 'bill' (/bɪl/).

The criterion to determine the phonemes in English is to check if substituting one sound for another will result in a distinctive word. If it does, the two distinctive sounds represent different phonemes. When two distinctive words are identical in every way but one phoneme occurs in the same place in the words, the two words are called a minimal pair. In the above examples, 'pan' and 'ban' is a minimal pair, and also 'park' and 'bark', 'pear' and 'bear', 'peak' and 'beak', 'peach' and 'beach', and 'pill' and 'bill'. So 'pan' (/pæn/) and 'tan' (/tæn/) is a minimal pair, but 'pan' (/pæn/) and 'ant' (/ænt/) is not because [p] and [t] are not located in the same place in the two words. In English, phonemes are not confined to consonants; vowels form phonemes as well. For example, if we substitute the vowel [æ] in 'pan' with another vowel [e], we have another word 'pen' (/pen/). So 'pan' (/pæn/) and 'pen' (/pen/) also form a minimal pair.

Phonemic features

From Table 1.13, we can say that each consonant is in fact a bundle of feature values. For example, /p/ embodies the features of voiceless, bilabial, and stop, whereas /b/ embodies the features of voiced, bilabial, and stop. We can present the feature values as follows:

$$/p/ = \begin{bmatrix} +\text{ bilabial} \\ +\text{ stop} \\ -\text{ voice} \end{bmatrix} \qquad /b/ = \begin{bmatrix} +\text{ bilabial} \\ +\text{ stop} \\ +\text{ voice} \end{bmatrix}$$

The following table describes all the consonant phonemes in English and provides examples of words in which they are used.

Consonant	Description	Example	
p	+ bilabial; + stop; – voice	pan /pæn/	pill /pɪl/
b	+ bilabial; + stop; + voice	ban /bæn/	bill /bɪl/
t	+ alveolar; + stop; – voice	tan /tæn/	till /tɪl/
d	+ alveolar; + stop; + voice	dam /dæm/	dill /dɪl/
k	+ velar; + stop; – voice	can /kæn/	kill /kɪl/
g	+ velar; + stop; + voice	gang /gæŋ/	gill /gɪl/

tʃ	+ post-alveolar; + affricate; – voice	champ /tʃæmp/	chill / tʃɪl/
dʒ	+ post-alveolar; + affricate; + voice	jam /dʒæm/	jill /dʒɪl/
f	+ labio-dental; + fricative; – voice	fan /fæn/	fill /fɪl/
v	+ labio-dental; + fricative; + voice	van /væn/	villa /vɪlə/
θ	+ dental; + fricative; – voice	thank /θæŋk/	thin /θɪn/
ð	+ dental; + fricative; + voice	them / ðem/	then /ðen/
s	+ alveolar; + fricative; – voice	sand /sænd/	silt /sɪlt/
z	+ alveolar; + fricative; + voice	zap /zæp/	zillion /zɪlɪən/
ʃ	+ post-alveolar; + fricative; – voice	sham /ʃæm/	shilling /ʃɪlɪŋ /
ʒ	+ post-alveolar; + fricative; + voice	seizure /si:ʒə/	leisure /leʒə/
h	+ glottal; + fricative; – voice	ham /hæm/	hill /hɪl/
m	+ bilabial; + nasal; + voice	man /mæn/	mill /mɪl/
n	+ alveolar; + nasal; + voice	nap /næp/	nil /nɪl/
ŋ	+ velar; + nasal; + voice	angst /æŋst/	thing /θɪŋ/
r	+ post-alveolar; + approximant; + voice	ram /ræm/	rip /rɪp/
l	+ alveolar; + lateral; + voice	land /lænd/	lilt /lɪlt/
w	+ bilabial; + glide; + voice	wax /wæks/	will /wɪl/
j	+ palatal; + glide; + voice	yank /yæŋk/	yield /ji:ldt/

Table 1.14: English consonants with descriptions and examples

When a feature distinguishes one phoneme from another, it is known as phonemic feature (or distinctive feature). Let's take /p/ and /b/ as an example. Both phonemes are + bilabial and + stop; the only difference between them is voicing: /p/ is – voice (voiceless) but /b/ is + voice (voiced). It is this phonetic feature that distinguishes the words 'pan' and 'ban'. This feature is distinctive in a sense it alone can account for the difference in meaning of the two words.

Sequences of phonemes

As mentioned, English, like every language, uses its own set of sounds, and these sounds are combined in different ways to give different meanings. However, these sounds are not combined arbitrarily. There is a system of rules guiding the ways of combination. This phonological system determines which phonemes can begin a word, end a word, and

follow each other; for example, after a consonant such as /b/, /g/, /k/, or /p/, another stop consonant is not permitted; when a consonant such as /l/ or /r/ occurs at the beginning of a word, it must be followed by a vowel; and there are a maximum of three sequential consonants can occur at the beginning of a word, and they are restricted to /s/ + /p, t, k/ + /l, r, w, y/, e.g., 'scramble' /skræm.bl/.

Restrictions exist to constrain the sequence of phonemes not only in words, but also in syllables. One or more phonemes form a syllable – a unit which is often longer than one sound and smaller than a whole word. For example, the word 'examination' consists of five syllables: ex-am-i-na-tion. The syllable is defined by the way in which vowels and consonants combine to form various sequences. Vowel can form a syllable on their own, such as /ɪ/ in the word 'examination' (/ɪg.zæm.ɪ.neɪ.ʃn/, or they can be the 'centre' of a syllable, such as /□/ in 'bed' (/b□d/). Consonants, on the other hand, do not usually form syllables on their own and are at the beginning, e.g., /f/ in 'five' (/faɪv/), or the end of syllables e.g., /t/ in 'fit' (/fɪt/). When transcribing words that have more than one syllable, we put a '.' between the syllables as shown in the above example.

A word with only one syllable is called a monosyllabic word (e.g., 'cut', 'eye', 'flood', 'work', and 'pray'). A word with two syllables is called disyllabic word (e.g., 'barter', 'lecture', 'tired', and 'bottle'). A word with three syllables is called trisyllabic word (e.g., 'fantastic', 'unhappy', 'cigarette', and 'engineer'). A word with more than three syllables is called polysyllabic word (e.g., 'impossibility', 'mobilization', 'historical', 'examination').

Sequential constraints also occur across syllable boundaries. For instance, only consonants that are articulated at the same place of articulation (i.e., labial, alveolar, palatal, or velar) and non-nasal consonant may occur together in English (technically known as homorganic consonants). Therefore, 'ample' is an English word but not '*amtle' or '*amkle'. Similarly, 'antler' is a word but not '*anpler' nor '*ankler'; 'handle' is a word but not '*hanble' nor '*hangle'.

Word stress

In English, for words that have more than one syllable, only one syllable is stressed. Stressing the right syllable is important or else we risk not being able to communicate efficiently. Worst of all, a shift in word stress can actually change the meaning of a word in some cases. In those words that consist of two or more syllables, one syllable stands out. This syllable is called a stressed syllable (or an accented syllable). The prominence of a stressed syllable can be caused by one of three factors (or a combination of these factors): longer in duration, louder in volume, and higher pitch. Stress in a word is marked by placing a high vertical line, ˈ, before the stressed syllable; for examples, /ˈdeɪ.tə/ in the word 'data', /rɪˈbʌf/ in the word 'rebuff'.

Primary and secondary stress

In English, two syllables might stand out in words that have three or more syllables. Of these two stressed syllables, one is more prominent than the other. In such cases, the more prominent stressed syllable is said to have primary or main stress and marked by a high vertical line, ˈ , before the stressed syllable, whereas the other one receives secondary stress and marked a low vertical line, ˌ ,before the stressed syllable; for example, /ˌædˈvən.ˈteɪ.dʒəs/ the word 'advantageous' has four syllables; the first syllable has secondary stress and the third syllable has primary stress.

Stress patterns and word class

In English, word stress is not fixed to a particular syllable; some words stress on the first syllable, some on the second syllable, yet others on the third or the fourth:

(A) Disyllabic words stressed on the first syllable:

1) 'action	4) 'donkey	7) 'gradual
2) 'better	5) 'encore	8) 'hefty
3) 'copper	6) 'format	9) 'instant

(B) Disyllabic words stressed on the second syllable:

1) a'bove	4) de'gree	7) gre'nade
2) be'hind	5) e'vade	8) hu'mane
3) con'cise	6) for'bid	9) in'stall

(C) Trisyllabic words stressed on the first syllable:

1) 'afterwards	4) 'density	7) 'graduate
2) 'botany	5) 'educate	8) 'hesitate
3) 'calendar	6) 'fluctuate	9) 'imminent

(D) Trisyllabic words stressed on the second syllable:

1) ag'reement	4) de'tergent	7) gra'duation
2) bar'baric	5) e'lastic	8) his'toric
3) con'sistent	6) for'mation	9) in'active

(E) Trisyllabic words taking the primary stress on the third syllable:

1) ˌaddres'see	4) ˌdisre'gard	7) ˌgonor'rhoea
2) ˌbombar'dier	5) ˌexpe'tise	8) ˌHallo'ween
3) ˌchimpan'zee	6) ˌfricas'see	9) ˌimma'ture

(F) Words of more than three syllables — various stress patterns:

1)	'adequacy	4)	ˌdissatis'faction	7)	gym'nasium
2)	ˌbene'diction	5)	ex'penditure	8)	ˌhistri'onic
3)	conˌcessio'naire	6)	ˌfasci'nation	9)	im'penetrable

There are a number of words in English that can be used as both nouns and verbs or adjectives and verbs. For disyllabic words, the stress is generally on the same syllable regardless of whether the word is used as a noun, adjective, or verb. However, there are a few disyllabic words which take the stress on the first syllable if the words are used as nouns or adjectives and on the second syllable if they are used as verbs.

As pointed out above, a number of disyllabic words take the stress on the same syllable whether used as nouns/adjectives or verbs, for example, ad'vance (noun and verb), a'lert (adjective and verb), 'anger (noun and verb), a'ward (noun and verb), bal'lon (noun and verb), com'plete (adjective and verb), damage (noun and verb), 'empty (adjective and verb). However, there are other disyllabic words that take the stress on the first syllable if used as nouns/adjectives and on the second syllable if used as verbs, for example, 'absent as adjective but ab'sent as verb, 'contract as noun but con'tract as verb, 'convert as noun but con'vert as verb, 'present as noun or adjective but pre'sent as verb, 'record as noun but re'cord as verb. In these cases, the stress patterns can be used to differentiate between nouns or adjectives and verbs. Note that there appears to be no particular rule about this. Below, we will first list some disyllabic words that stress the same syllable weather they are nouns/adjectives or verbs; and, then, we will list some words that change the stress pattern based on whether they are nouns/adjectives or verbs.

The addition of some derivational suffixes affects the stress pattern but some do not. Examples of suffixes that do not affect the stress pattern include:

-able (e.g., ad'vise → ad'visable)	*-age* (e.g., 'cover → 'coverage)
-ance (e.g., per'form → per'formance)	*-er* (e.g., re'ceive → re'ceiver)
-ess (e.g., 'waiter → 'waitress)	*-full* (e.g., e'vent → e'ventful)

-fy (e.g., 'terror → 'terrify)	*-ize* (e.g., 'final → 'finalize)
-ly (e.g., 'order → 'orderly)	*-ment* (e.g., enter'tain → enter'tainment)
-ness (e.g., 'bitter → 'bitterness)	*-or* (e.g., di'rect → di'rector)
-some (e.g., 'burden → 'burdensome)	*-ure* (e.g., ex'pose → ex'posure)
-y (e.g., 'winter →'wintry)	

Examples of suffixes that affect the stress pattern include:

-eer (e.g., 'profit → ˌprofi'teer)	*-esque* (e.g., 'picture → ˌpictu'resque)
-ial (e.g., 'essence → es'sential)	*-ian* (e.g., 'music → mu'sician)
-ic, -ical (e.g., 'grammar → gram'matical)	*-ion* (e.g., ap'ply → ˌappli'cation)
-itis (e.g., 'tonsil → ˌtonsi'litis)	*-ity* ('equal → e'quality)

Note that in a large number of cases, an addition of a suffix does not change the stress pattern. Examples of suffixes that do not impact stress pattern on the root word include: *-ed, -s, -ing, -able, -age, -ance, -en, -er, -ess, -ful, -fy, -hood, -ish, -ize, -ly, -ment, -ness, -or, -some, -ship, -ure,* and *-y*.

Activity 1.5

Mark the primary and (if necessary) secondary stresses on the underlined words in the following sentences.

Example: John was <u>absent</u> from school yesterday.

Answer: □<u>absent</u>

1) The Immigration Bureau refused to grant him a work <u>permit</u> to work in Hong Kong.
2) She has <u>extracted</u> a description of the murderer from the newspaper.
3) <u>Manchester</u> is one of the industrial cities in Britain.
4) He was a famous <u>environmentalist</u> before he took up the position of CEO in our company.

5) The police conducted a thorough search for an escaped convict in the forest.
6) The author recapitulated the main points of the paper in the conclusion.
7) There are strict limits on immigration into the United States.
8) The perfume contains extracts from several flowers.
9) The proceeds of today's concert will go to several schools for students with learning disabilities.
10) This report reinforces the findings of the pilot study.

Rhythm in connected speech

When we speak, we stress some words but not others. This creates a rhythm (or a stress pattern). There are three stress patterns amongst the world languages: syllable-timing, mora-timing, and stress-timing. The stress pattern in syllable-timing is that every syllable takes up approximately the same amount of time; syllable-timed languages include Chinese, Spanish, Urdu, etc. The stress pattern in mora-timing is that syllable duration depends on vowel length. In general, each syllable with a short vowel takes up the same time, whereas each syllable with long vowel takes up approximately twice the length. Examples of mora-timed languages include Gilbertese, Hawaiian, Japanese, etc. The stress pattern in stress-timing is that the average amount of time between consecutive stressed syllables is approximately the same, regardless of the number of unstressed syllables in between; stressed-timed languages include German, Russian, etc.

English is a stress-timed language. Thus, in English, the time between two stressed syllables is about the same. The number of unstressed syllables between the stressed syllables does not influence this timing. There are three implications for unstressed syllables in connected speech: vowel reduction, vowel elision, and syllable elision. These are defined and exemplified in Table 1.15 below.

	Meaning	Example

vowel reduction	The vowel in the unstressed syllable is shortened and centralized. Typically, the vowel used in unstressed syllables in English is the central, mid, short vowel, /ə/, (known as the 'schwa'), or the front, high, short vowel, /ɪ/	/e/ in the unstressed syllable 'very' /verɪ/ is reduced to a schwa /vərɪ/
vowel elision	The reduced vowel is elided (deleted)	The unstressed syllable /ə/ of the word 'bottom' is elided all together: /bɒtəm/ → [bɒtm̩]
syllable elision	A whole unstressed syllable is elided	The second syllable of the word ''sen.ten.ces' is elided: [sentənzɪz] → [sen:zɪz]

Table 1.15: Implications for unstressed syllables

Stress in connected speech

In connected speech, we generally stress the content words (i.e., words with content meaning, including nouns, adjectives, main verbs, and adverbs) but not the grammatical words (i.e., words with grammatical function, including articles, pronouns, prepositions, auxiliary verbs, and conjunctions). This is because content words carry meaningful information, whereas grammatical words help organize the content words in a sentence; for example: I 'like 'Jane's 'works. In words that have more than one syllable, only the syllable with primary stress in that word is stressed. Let's take the word 'o,rigi'nality' as an example. In connected speech, only the primary but not the secondary stress is stressed: His 'works 'lacks of origi'nality.

However, we can stress a particular word in connected speech to highlight the meaning that we want to project. For example:

[1] 'I love Susan.

[2] I 'love Susan.

[3] I love 'Susan.

In sentence [1], it is 'I' who love Susan as opposed to other; in [2], I 'love' Susan, as opposed indifferent to her; and in [3], it is Susan that I love instead of other(s).

Intonation

Apart from using stress, we can change the meaning of our utterances by changing the intonation patterns of our speech. Intonation is a variation of pitch, which refers to the frequency of a sound. In connected speech, we vary the pitch to create specific semantic effects. This is known as intonation.

In English, there are three primary tones: falling, rising, and monotone (level). These tones can combine to form additional patterns: fall-rise and rise-fall. Each of these tones carries a specific meaning in English. They are tabulated in Table 1.16.

Tone	Meaning	Context	IPA symbol	Example
falling	Certainty	making statements	ˋ	He is ˋright.
rising	Uncertainty	asking questions	ˊ	ˊAre you sure?
level	utterance not finish	listing things	ˉ	ˉPeter, Paul, Mary…
fall-rise	Reservation	showing reservation	ˇ	ˇPerhaps.
rise-fall	Surprise	suggesting surprise	ˆ	ˆWow!

Table 1.16: Tones and meaning in English

Tone group boundaries typically coincide with the boundaries of major grammatical units. Intonation can therefore be helpful to interpret ambiguous sentences. Let's take the sentence below as an example:

> Put the books by the window in my room.

This sentence can have at least two meanings:

(1) The books are to be put by the window in my room, or

(2) The books by the window are to be put in my room.

While ambiguous in written form, the sentence is disambiguated in speech with the tone group.

[a] | Put the books | by the window in my room |
[b] | Put the books by the window | in my room |

In [a], the tone group boundary comes between 'books' and 'by', showing that it should be interpreted as (1); whereas, in [b], the tone group boundary comes between 'window' and 'in', suggesting that (2) is the meaning.

Furthermore, intonation can also carry pragmatic functions. For example, we might indicate that we want to end a conversation by using a falling tone. In contrast, we could suggest that we want the conversation to continue by using a rising tone.

Finally, intonation can also be used to emphasize or to accentuate a particular meaning. In English, the tonal syllable typically lies on the last syllable of a tone group – which is where the tonal stress is usually placed in an unmarked case. However, we might shift the tonal syllable from the last syllable of a tone group to a syllable (in a word) that we want to accentuate, and hence presenting a difference in the meaning; for example:

[a] | Tom stole everything in my`*room* |
[b] | `*Tom* stole everything in my room |
[c] | Tom `*stole* everything in my room |
[d] | Tom stole everything `*in* my room |

In utterance [a], the speaker uses the regular falling intonation pattern. In [b], the speaker uses a contrastive intonation pattern and places the tonic stress on the subject 'Tom'. By

doing so, the speaker emphasizes that it is 'Tom', not anybody else, who stole everything in the room. In [c], by placing the tonic stress on the verb 'stole', the speaker accentuates that what Tom did is equivalent to stealing, not borrowing or anything else. Finally in [d], by stressing the preposition 'in', the speaker emphasizes that Tom stole everything "in" the speaker's room, not outside it.

Conclusion

In this chapter, we learnt about the sound system of the English language. We started with a description of how sounds in a language are made, and moved on to the smallest units of sounds in a language, phonemes, and then described the various types of vowel and consonants. We also considered how they combine to form words, phrases, and longer texts. We also learnt about the word and sentence stress patterns of English and the meanings that they carry. In short, this chapter introduced us to the sound system of the English language, and how we study it.