Chapter 3

The sounds of English

As was stated in Chapter 2, phonology has two aspects. We have dealt in general terms with the production, transmission and reception of sounds and we shall now turn our attention to the sound patterns in English. Since Standard English has no official pronunciation, we find considerable variation throughout the world: an American does not sound like an Australian and neither sounds like an Englishman. It would be impossible to cover all the variations found and so the description will be limited to the pronunciation sanctioned in Britain and in the United States by radio and television. What will be described, therefore, are the network norms established by the BBC (British Broadcasting Corporation) in Britain and by the NBC (National Broadcasting Company) and CBS (Columbia Broadcasting System) in the United States.

The phonemes of English

All human beings are alike, yet every human being has a unique set of fingerprints. In a similar way, all languages make use of consonants and vowels yet no two languages have the same set of distinct sounds or phonemes. A phoneme is not one specific sound but it is like the common denominators of all realisations of a specific sound. Let us take an example. If we say the words:

pin spin nip

aloud, we realise that the 'p' sounds are all slightly different. The 'p' in 'pin' is pronounced with a lot of breath, the 'p' in 'spin' has qualities of the 'b' in 'bin' and the 'p' in 'nip' is pronounced as if it were followed by a short vowel. All these 'p' sounds are different and indeed no two people ever pronounce 'p' in exactly the same way, but the differences are not sufficiently great to be used to distinguish meanings in English. We say, therefore, that all the 'p' sounds in English belong to the same phoneme. If, on the other hand, we examine the words:

pin pen

we realise that although these words only differ in their vowel sounds

they refer to distinct objects. Since these vowel sounds can be used to distinguish many words:

din	den
kin	ken
tin	ten

we say that the vowels /ɪ/ and /ɛ/ are different phonemes.

The consonants of English

One method of establishing the phonemes of a language is by means of minimal pairs. An illustration will help to explain this. In English, we have the word *pan* and the word *ban*. These words differ fairly fundamentally in meaning but, as far as the sounds go, they differ only in the initial segment. The sounds /p/ and /b/ can be shown to distinguish meaning in many pairs of words:

pet	bet
pill	bill
post	boast
punk	bunk

We can, therefore, conclude that /p/ and /b/ are distinct phonemes in English. The consonants of British and American English are essentially the same and twenty-four distinct consonants can be distinguished by means of minimal pairs. A list such as:

pie	buy	tie	die	guy	fie	vie	lie
my	nigh	thigh	thy	sigh	shy	rye	high

allows us to isolate the following consonant phonemes: /p, b, t, d, g, f, v, l, m, n, θ, ð, s, ʃ, r, h/.

Lists such as:

chin	sin	win
gin	tin	

add /tʃ, dʒ, w/, while:

simmer	sinner	singer

provide us with /ŋ/ and:

rice	rise

isolate /z/.

	Bilabial	*Labio-dental*	*Dental*	*Alveolar*	*Palato-alveolar*	*Palatal*	*Velar*	*Glottal*
Plosive	p b			t d			k g	
Nasal	m			n			ŋ	
Lateral				l				
Frictionless continuant				ɹ				
Retroflex				r				
Fricative		f v	θ ð	s z	ʃ ʒ			h
Affricate					tʃ dʒ			
Semi-vowel	w					j		

FIG. 8: The consonant phonemes of English

The remaining three phonemes are revealed by the three sets below:

leper letter ledger leisure

which give us /ʒ/ and:

car bar far

which provide /k/, and finally:

bard card yard

which reveal /j/. We can summarise the above data in a table such as Fig. 8. This actually shows twenty-five symbols but both UK and US speakers use only twenty-four. The difference is in the pronunciation of 'r'. Many speakers of English use a different 'r' sound. In BBC English the sound is described as a frictionless continuant, the symbol

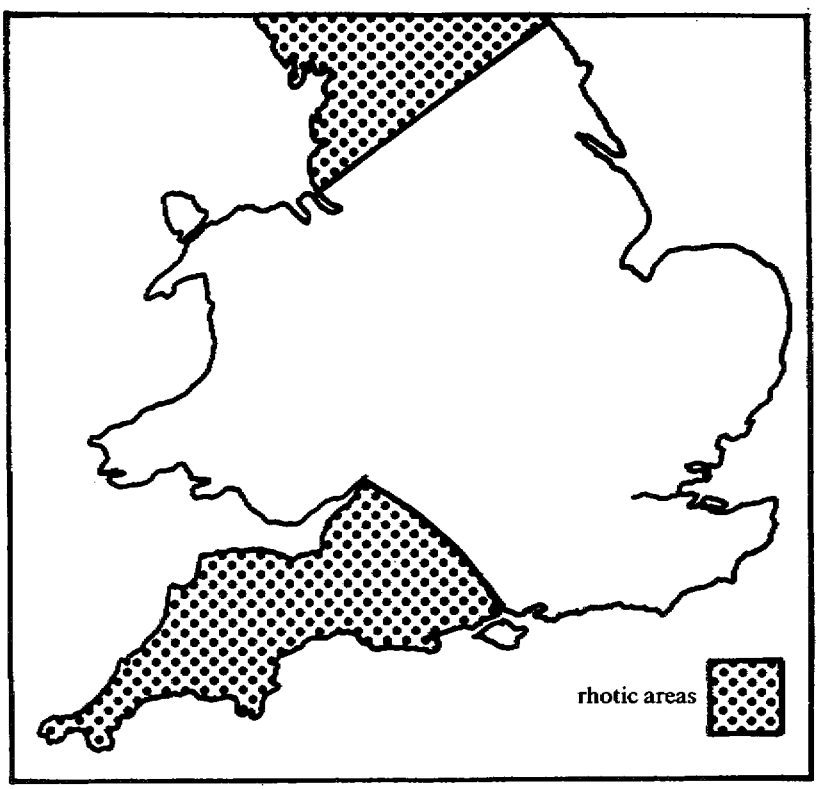

FIG. 9: Approximate locations of rhotic and non-rhotic accents in England (see p. 30)

for which is /ɹ/, whereas in the US the 'r' is called 'retroflex' because the sound is made with the tip of the tongue curling towards the hard palate. There are distinct symbols for these sounds but since the sounds are not used to distinguish meaning, the same symbol /ɾ/ can be used for both. A further point can be made about /r/. Many accents, including that favoured by the BBC, do not pronounce 'r' when it occurs at the end of a word or before a consonant. Thus the 'r' is not pronounced in 'far', 'fear', 'fir', 'for', 'fur' or in 'card', 'pert', 'shirk', 'thorn', 'hurl'. Accents which do not pronounce the 'r' in these positions are called 'non-rhotic' accents. Speakers who do pronounce the 'r' in such contexts have 'rhotic' accents. There are historical and linguistic reasons for the division of world Englishes into 'rhotic' and 'non-rhotic' but the easiest way to remember which areas of the world pronounce post-vocalic 'r' and which do not is to think of a map such as that presented in Fig. 9 (p. 29). Shaded areas to the north and/or west of the drawn lines are rhotic; areas to the south and/or east are non-rhotic. The main rhotic areas of the world are the USA, Canada, Scotland and Ireland. The main non-rhotic areas are Wales, most of England, Australia, New Zealand and Southern Africa.

The vowels of English

As might be expected, there is much greater variation in the pronunciation of vowel phonemes than is the case with consonants. The variety of British English that we have chosen to describe has twelve monophthongs and eight diphthongs whereas our US variety has ten monophthongs and five diphthongs. The systems will be described first of all, and then the differences will be accounted for. Figure 10 illustrates the positions of the twelve monophthongs in British English. (The vowels of any language can be plotted using the Cardinal Vowels as a guide.) They can be described as follows:

Vowel 1 which has the phonetic symbol /i/ is a close, long, front vowel, made with spread lips. It occurs in such words as 'eat', 'seed' and 'see'.

Vowel 2 which has the phonetic symbol /ɪ/ differs from Vowel 1 in both quality and length. It is a half-close, short, front vowel made with spread lips. It is also one of the most frequently used vowels in the English language and one that is often replaced by Vowel 1 in the speech of non-native speakers. This vowel occurs in such words as 'it', 'sit' and 'city'.

Vowel 3 which has the phonetic symbol /ɛ/ is a short, front vowel produced with spread lips. It occurs in words like 'egg' and 'get' but does not occur in word-final position in English.

Vowel 4 which is represented phonetically by /æ/ is a short, front, open vowel. It is made with the lips in a neutrally open position. It occurs in words like 'add', 'sat' and, like /ɛ/, does not occur in word-final position in English.

Vowel 5 is represented by the symbol /ɑ/. It is a long, open, back vowel made with slightly rounded lips. It occurs in words like 'art', 'farther' and 'far'. This vowel does not occur in US English.

Vowel 6 is represented by the symbol /ɒ/. This is a short, open, back vowel made in British English with slightly rounded lips and in the US with neutrally open lips. It is found in words such as 'on' and 'pod' and does not occur in word-final position. In US English words such as 'card' and 'cod' are distinguished by length of vowel and by the pronunciation of 'r' in the former rather than by any intrinsic difference in vowel quality.

Vowel 7 is represented by /ɔ/. This is a long, half-open, back vowel pronounced with lip-rounding. Again, there is more lip-rounding in the British pronunciation of /ɔ/. This sound occurs in 'all', 'sawed' and 'raw'.

Vowel 8 is represented phonetically by /ʊ/. This is a short, half-close, back vowel pronounced with lip-rounding. It does not occur in word-initial position but is found in 'put' and in 'to'.

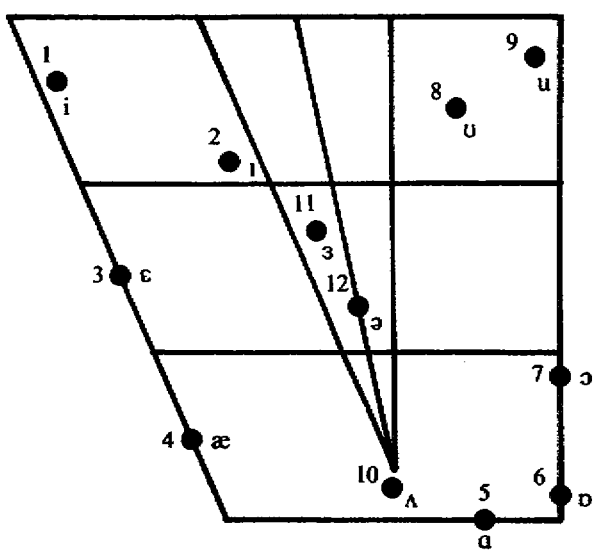

FIG. 10: The positions of the twelve monophthongs in British English

Vowel 9 is transcribed /u/. This is a long, close, back vowel produced with lip-rounding. It is found in words such as 'ooze', 'booed' and 'too'.

Vowel 10 is represented by /ʌ/. This is a short, open, centralised vowel. It does not occur in word-final position but is found in 'up' and 'bud'.

Vowel 11 does not occur in US English. It is represented by the symbol /ɜ/. It is a long, central vowel and occurs in such words as 'err', 'church' and 'sir'.

Vowel 12 is represented by /ə/ and is the only vowel sound in English with a name. /ə/ is called 'schwa'. The schwa is the most frequently occurring vowel sound in colloquial English speech, and all unstressed English vowels tend to be realised as /ə/. This is a short, central vowel which occurs in the unstressed syllables of such words as 'ago' and 'mother'.

All the vowels described above are monophthongs. This means that there is no tongue movement during the production of the vowel sound. A diphthong, however, involves the movement of the tongue from one vowel position to another. Figure 11 illustrates the diphthongs that occur in BBC English. NBC English uses only five of the eight diphthongs found in Britain.

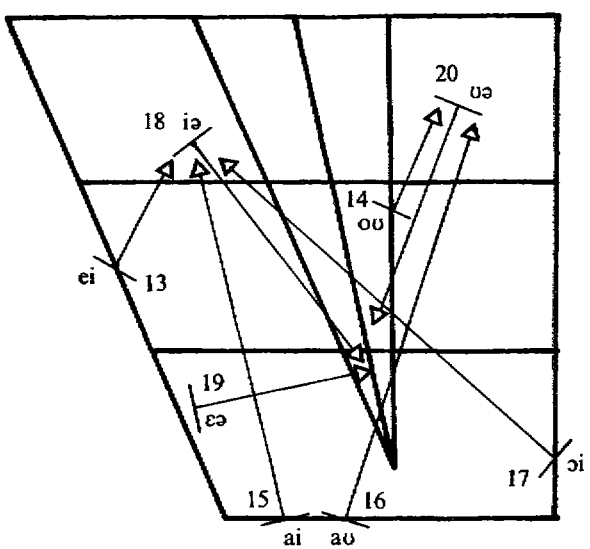

FIG. 11: Diphthongs in BBC English

Vowel	*Word*	*UK pronunciation*	*US pronunciation*
1	bead	bid	bid
2	bid	bɪd	bɪd
3	bed	bed	bed
4	bad	bæd	bæd
5	bard	bɑd	bɒrd
6	God	gɒd	gɒd
7	bawd	bɔd	bɔd
8	good	gʊd	gʊd
9	booed	bud	bud
10	bud	bʌd	bʌd
11	bird	bɜd	bərd
12	above	əbʌv	əbʌv
13	bayed	beid	beid
14	bode	boʊd	boʊd
15	bide	baid	baid
16	bowed	baʊd	baʊd
17	boy	bɔi	bɔi
18	beard	biəd	bird
19	bared	beəd	berd
20	gourd	gʊəd	gʊrd

FIG. 12: A comparison of vowel phonemes in British and American English

Vowel 13 is represented by /ei/. Like all English diphthongs it is long. It starts close to Vowel 3 and moves towards Vowel 2. This sound occurs in such words as 'ail', 'rain' and 'day'.

Vowel 14 is represented by /oʊ/. It starts near the centre of the mouth in British English and moves towards Vowel 8. This diphthong is narrower and is pronounced with more lip-rounding in US English. It occurs in such words as 'oat', 'known' and 'go'.

Vowel 15 is represented by /ai/. This is a wide diphthong which starts in the region of Vowel 4 and moves towards Vowel 2. This diphthong is found in words such as 'aisle', 'fight' and 'high'.

Vowel 16 is represented by /aʊ/. This is a wide diphthong which starts in the region of Vowel 4 and moves towards Vowel 8. It occurs in such words as 'out', 'house' and 'now'.

Vowel 17 is represented by /ɔi/. This diphthong begins in the region of Vowel 7 and moves towards Vowel 2. It occurs in such words as 'oil', 'toyed' and 'boy'.

The above are the five diphthongs shared by British and US English.

Vowel 18 is represented by /iə/. It is a centring vowel in that it starts near Vowel 2 and moves towards Vowel 12. This diphthong is found in such words as 'ear', 'pierce' and 'beer'. You will notice that this diphthong occurs in words which involve post-vocalic 'r'. The sound in such words would be represented by /ir/ in US English.

Vowel 19 is represented by /ɛə/. It is a centring diphthong which starts near Vowel 3 and moves towards Vowel 12. It is found in such words as 'air', 'paired' and 'there'. This sound is usually represented in US English by /ɛr/, that is, by the combination of a vowel similar in quality to Vowel 3 followed by the consonant /r/.

Vowel 20 is represented by /uə/ (/ur/ in the US). It is a centring vowel starting near Vowel 8 and moving towards Vowel 12. This diphthong does not occur in word-initial position but is found in words like 'tour' and 'moor'. With many speakers this diphthong is replaced by the monophthong /ɔ/ so that it is not uncommon to have speakers who pronounce 'Shaw', 'shore' and 'sure' in exactly the same way, as /ʃɔ/.

Until relatively recently in Britain, there was a twenty-first vowel sound, the diphthong /ɔə/. This occurred in words such as 'door' and 'floor'. Nowadays, in Britain, such words are pronounced with the monophthong /ɔ/.

These vowel data, illustrating the UK and US usages, can be summarised in tabular form. This is done in Fig. 12 (p. 33).

Consonant clusters

The English language permits a number of consonant clusters such as /dr/ and /spl/. There are restrictions on the type of combination which can occur. These can be summarised in two groups: consonant clusters in initial position, and consonant clusters in final position.

Consonant clusters in initial position

The maximum cluster of consonants (C) in an initial position in English is three, and they must be followed by a vowel (V), thus: CCCV. If there are three consonants, however, the first must be /s/, the second must come from the set /p,t,k/, and the third must come from the set /l,r,w,j/, but these can only occur in certain patterns, as shown below:

s + { p + l *or* r *or* j (in British English)
t + r *or* j (in British English)
k + l *or* r *or* w *or* j (in British English).

The above possibilities are illustrated by the following words:

splash, sprain, spurious /spjʊərɪəs/

strain, stew /stju/

screech, sclerosis, squander /skwɒndə/ and skew /skju/

If there are only two consonants in the cluster, the first must come from the set /p, t, k, b, d, g, f, v, θ, s, ʃ, h/ in the following patterns. The normal orthography is used but the reader is reminded that sounds and not spellings are referred to:

p + l/r/j	*as in*	play, pray, pure
t + r/j/w	*as in*	tray, tune, twin
k + l/r/j/w	*as in*	climb, crab, cure, queen
b + l/r/j	*as in*	blue, bruise, beauty
g + l/r/j/w	*as in*	glow, grow, argue, Gwen
f + l/r/j	*as in*	fly, fry, fury
v + j	*as in*	view
θ + r/j/w	*as in*	through, thews, thwart
s + l/j/w/p/t/k/m/n	*as in*	slow, suit, sweet, spoil, steal, sky smother, snow
ʃ + r	*as in*	shred
h + j	*as in*	huge

Consonant clusters in final position

English permits up to four consonants in word final position, so we have CCCVCCCC as a possible English word. Such words are uncommon but 'strengths' illustrates the pattern. The following types of clusters can be established, starting with VCC:

p + t/θ/s	*as in*	swept, depth, caps
t + θ/s	*as in*	eighth, puts
k + t/s	*as in*	packed, box
b + d/z	*as in*	rubbed, nibs /nɪbz/
d + z/θ	*as in*	feeds, breadth
g + d/z	*as in*	sagged, rugs
tʃ + t	*as in*	itched /ɪtʃt/
m + p/d/f/θ/z	*as in*	limp, drummed, nymph, warmth, rims
n + t/d/tʃ/dʒ/θ/s/z	*as in*	mint, lined, lunch, hinge, tenth, mince, buns

ŋ + k/d/z/θ	*as in*	mink, longed, bangs, length
l + p/t/k/b/d/tʃ/dʒ/ m/n/f/v/θ/s/z/ʃ	*as in*	help, guilt, bulk, bulb, build, filch, bulge, helm, sullen, elf, shelve, health, else, heels, Welsh
f + t/θ/s	*as in*	left, fifth, oafs
v + d/z	*as in*	loved, gives
θ + t/s	*as in*	earthed, hearths
ð + d/z	*as in*	bathed /beiðd/, oaths
s + p/t/k	*as in*	wasp, waste, rusk
z + d	*as in*	seized
ʃ + t	*as in*	wished
ʒ + d	*as in*	rouged /ruʒd/

The VCCC pattern is quite frequent in English although it is not found as widely in the language as the VCC pattern. It is not necessary to go into the same detail for VCCC as for VCC but it can be claimed that the following list comprehends all forty-nine possibilities:

pts	*as in*	scripts /skrɪpts/
pst	*as in*	lapsed /læpst/
pθs	*as in*	depths /dɛpθs/
tst	*as in*	blitzed /blɪtst/
tθs	*as in*	widths /wɪtθs/
dst	*as in*	midst /mɪdst/
kts	*as in*	facts /fækts/
kst	*as in*	next /nɛkst/
ksθ	*as in*	sixth /sɪksθ/
mpt	*as in*	bumped /bʌmpt/
mps	*as in*	limps /lɪmps/
mfs	*as in*	nymphs /nɪmfs/
ntθ	*as in*	thousandth /θaʊsəntθ/
nts	*as in*	pints /paints/
ndz	*as in*	finds /faindz/
ntʃt	*as in*	lunched /lʌntʃt/
ndʒd	*as in*	lunged /lʌndʒd/
nθs	*as in*	tenths /tɛnθs/
nst	*as in*	minced /mɪnst/
nzd	*as in*	cleansed /klɛnzd/
ŋst	*as in*	amongst /əmʌŋst/

ŋkt	*as in*	linked /lɪŋkt/
ŋkθ	*as in*	length /leŋkθ/
ŋks	*as in*	thanks /θæŋks/
lpt	*as in*	helped /hɛlpt/
lps	*as in*	gulps /gʌlps/
lts	*as in*	wilts /wɪlts/
lkt	*as in*	milked /mɪlkt/
lks	*as in*	silks /sɪlks/
lbz	*as in*	bulbs /bʌlbz/
ldz	*as in*	welds /wɛldz/
ltʃt	*as in*	filched /fɪltʃt/
ldʒd	*as in*	bulged /bʌldʒd/
lmd	*as in*	overwhelmed /oʊvəwɛlmd/
lmz	*as in*	helms /hɛlmz/
lnz	*as in*	gallons /gælnz/
lfs	*as in*	sylphs /sɪlfs/
lfθ	*as in*	twelfth /twɛlfθ/
lvd	*as in*	shelved /ʃɛlvd/
lvz	*as in*	elves /ɛlvz/
lθs	*as in*	health's /hɛlθs/
lst	*as in*	waltzed /wɔlst/
fts	*as in*	lifts /lɪfts/
fθs	*as in*	fifths /fɪfθs/
spt	*as in*	gasped /gaspt/
sps	*as in*	lisps /lɪsps/
sts	*as in*	lasts /lɑsts/
skt	*as in*	asked /ɑskt/
sks	*as in*	risks /rɪsks/

The VCCCC pattern, where four consonants occur at the end of a word or syllable is rare in English and is only found when the inflectional endings /s/ and /t/ are added to a VCCC form as in 'thousandths' /θaʊzəntθs/, exempts /ɛksɛmpts/ or glimpsed /glɪmpst/.

Stress

Information has already been provided on pitch, stress, intonation, and tempo (see pp. 23–4) so here we shall simply emphasise the fact that in English a shift in stress pattern can indicate a shift in the way a

word functions. Thus, when 'permit' functions as a noun, the stress is on the first syllable:

This is your 'permit.

When it is used as a verb, however, the word takes the stress on the second syllable:

Per'mit me to say.

Other words which use a similar stress change to indicate a change of function are:

Noun	*Verb*
'accent	ac'cent
'contract	con'tract
'export	ex'port
'import	im'port
'object	ob'ject
'subject	sub'ject

Adjectives are also sometimes distinguished from verbs by a difference in stress:

Adjective	*Verb*
'absent	ab'sent
con'summate	consum'mate
'perfect	per'fect
'present	pre'sent

Summary

In this chapter, methods of describing the sound system of English have been examined. Each model of grammar has its own preferences and so different descriptions will emphasise different aspects of phonology. The account given above, however, is compatible with all models of grammar for English and will be extended in subsequent chapters where some of the most influential descriptions of English produced in the last fifty years are examined.

Exercises

1. Supply pairs of English words which can be distinguished by the following sets of consonants. (For example, a minimal pair for /p/ and /b/ could be 'pear' and 'bear'. Remember that you are dealing

with *sounds* and not *spellings*, so 'post' and 'boast' would also be a minimal pair.)

(1) /p/ and /b/
(2) /t/ and /d/
(3) /k/ and /g/
(4) /s/ and /z/
(5) /ʃ/ and /tʃ/
(6) /n/ and /ŋ/
(7) /m/ and /p/
(8) /n/ and /d/
(9) /ɹ/ and /l/
(10) /tʃ/ and /dʒ/

2. Transcribe the following words phonemically, using BBC pronunciation.

(1) ghost
(2) among
(3) infiltrate
(4) farmyard
(5) chutney
(6) judging
(7) splendid
(8) underpinned
(9) thousandths
(10) beautiful

3. What English words are represented by the following transcriptions? Where the phonemic notation could represent more than one word, indicate the alternatives.

(1) /ʃɔt/
(2) /treʒə/
(3) /kjut/
(4) /ju/
(5) /mit/
(6) /tʃɜtʃ/
(7) /tʌŋ/
(8) /wɛðə/
(9) /dʒæz/
(10) /ɛvrɪθɪŋ/

4. Transcribe the following words in phonemic notation indicating (*a*) UK and (*b*) US pronunciation.

(1) bird
(2) grass

(3) new
(4) castle
(5) farmyard
(6) bread
(7) fair
(8) steward
(9) hall
(10) whole

5. Indicate where the main stress occurs in the following words by placing a stress mark ′ before the stressed syllable. If more than one stress pattern is possible, provide the alternatives.

(1) apple
(2) division
(3) duly
(4) fashionable
(5) infiltration
(6) lobotomy
(7) photographic
(8) object
(9) university
(10) zoology