

# 3

## CONSONANTS: THE ROLE OF THE LARYNX

In this chapter we introduce the distinction between voiced and voiceless, the glottal stop and phonetic symbols for all the remaining consonants of English.

### VOICE

Voiced  
Voiceless

Consider the words *seal* and *zeal*. While they are not homophones, they are clearly very similar in sound. In fact each is a word of structure CVC and the only difference between the words is in the first C. When a listener detects the difference between *seal* and *zeal*, it can only be done by distinguishing the sound [s] from the sound [z]. Make a good long [sss] (as if hissing the villain in a pantomime) and a long vigorous [zzz] as if imitating the sound of a bee. The two sounds are very similar and in fact differ in only a single property. The sound [z] is a **VOICED** sound, whereas [s] is **VOICELESS**. A voiced sound such as [z] is accompanied by a buzz or tone which can be varied in a musical fashion to produce different pitches. A voiceless sound such as [s] has no musical pitch and can't be used to sing a tune.

As air passes from the lungs on its way out of the body it must travel through the larynx (see Fig. 5.1 on page 31), visible as the 'Adam's apple' in the neck. Within the larynx are the two vocal folds (often, but less accurately, termed vocal 'cords'). The vocal folds operate rather like a valve that can be opened or shut. For normal quiet breathing, of course, the vocal folds must be wide apart, so that air can pass in and out. But if the folds are held gently near together, it is possible to push air through them in such a way as to cause vibration. The vibration takes the form of rapidly succeeding little openings and closings at the edges of the folds. Air that passes through is thus chopped into a series of 'puffs' or pulses, and an audible sound results.

So voice is produced by rapid vibration of the vocal folds when they are adjusted in the right way and air is pushed between them. If you hold the 'Adam's apple' between thumb and forefinger while producing a long, loud [z] you may actually feel the vibration with your fingertips. Alternatively, block your ears with your fingers and contrast [s] and [z]. The buzz of voicing which accompanies [z] but not [s] is greatly magnified.

All vowels are voiced (try some and see) but many consonants come in voiced-voiceless pairs. Here are some other examples from English. Voiced [v] as in *vine* has a voiceless counterpart [f] as in *fine*. The word *shoe* begins with a voiceless sound, symbolized [ʃ]; its voiced counterpart, [ʒ], is heard in the middle of the word *measure*. You should produce and compare the sounds [s]-[z], [f]-[v], [ʃ]-[ʒ] to become aware of the voicing difference.

### EXERCISE

**3.1** Decide whether the consonant which occurs between the two vowels in these words is voiceless or voiced. Remember to think about sounds, not spellings.

- |            |           |             |            |
|------------|-----------|-------------|------------|
| 1. yellow  | 2. easy   | 3. essay    | 4. ladder  |
| 5. leisure | 6. funny  | 7. happy    | 8. brother |
| 9. music   | 10. sugar | 11. present | 12. trophy |

A consonant which is located between two vowels is called INTERVOCALIC.

### Intervocalic

If the vocal folds are pressed together so as to stop the flow of air altogether (as when holding one's breath) the result is called a GLOTTAL STOP. What we hear is actually a brief interval of silence, with a characteristic abrupt termination of the preceding speech sound and a similarly abrupt onset of whatever sound follows (sometimes called a 'hard attack'). A glottal stop (instead of a sound [t]) is heard in typical London pronunciations of words such as *letter*, *bottle*, *getting*. Many people (including some of those who use them) would regard such pronunciations as 'incorrect', although glottal stops are in fact widely used in many other words and phrases without being noticed. For instance in *It was getting dark*, the [t] of *it* is very likely to be replaced by a glottal stop, even by those speakers who would frown on a glottal stop in *getting*. The variability of glottal stops, and the fact that many of them seem to us to have something to do with [t] are just peculiarities of English. In many languages of the world glottal stops are regular consonants just like any other. Because the vocal folds are pressed together in producing a glottal stop, they cannot also be vibrating. Therefore glottal stops are not voiced.

### THE GLOTTAL STOP [ʔ]

#### Glottal stop

**VOICING IN PLOSIVES****Plosive**

The glottal stop could more properly be termed the glottal PLOSIVE. English has six other plosives [b d g p t k]. Like the glottal stop, they also have a momentary interruption of airflow, but the blockage is made in the mouth rather than in the larynx. For example, in [b] and [p] the airflow is stopped by closing the lips. Because plosives involve a rather rapid sequence of events, you may have difficulty deciding whether they are voiced or voiceless (testing by holding your larynx or blocking your ears may not work). In fact [p t k] are voiceless and [b d g] are the corresponding voiced sounds.

**GENERALIZING THE VOICED/VOICELESS DIFFERENCE****Diacritic**

Once we have mastered the voicing difference, we can make voiceless versions of sounds which are familiar to us only in their voiced versions. For instance [m] is voiced, but we can learn to make a voiceless version of it (even though this is never used in regular adult English speech). If there is no separate symbol for a voiceless sound, we simply put the mark [̥] below the symbol for the voiced sound. An extra mark added to a letter-like symbol is called a DIACRITIC. So the voiceless counterpart of [m] is to be written [m̥]. We never add this diacritic to a symbol which already stands for a voiceless sound.

**REMAINING ENGLISH CONSONANT SYMBOLS****Fricative**

There are just four more consonants in English for which we need symbols.

In most kinds of English, the word *thin* begins with a voiceless sound in which breath escapes noisily between the tip of the tongue and the upper teeth, making a voiceless dental FRICATIVE, [θ], and the word *then* begins with the corresponding voiced sound [ð]. Some other types of English don't use these sounds. In the local speech of London, *thin* and *fin* may be homophones, and *mother* may have [v] in the middle rather than [ð].

**Affricate**

The initial sounds of *chocolate* and *jazz* are voiceless and voiced respectively and belong to the class of sounds called AFFRICATES. Affricates can be clearly heard to have two elements in quick succession, so the symbol [dʒ], for instance, really does mean a sequence of something very like [d] followed by something like a rather brief [ʒ]. Compare *leisure*, which has [ʒ], with *ledger*, which has [dʒ]. The question of whether affricates are really one sound or two needn't bother us at the moment (actually both answers are right). For the time being we'll call them single C elements, so *jazz* is CVC, *chocolate* is CVCCVC (or possibly CVCVCVC if you pronounce a V corresponding to the second -o- of the spelling).

Of the symbols introduced so far, the following stand for voiceless sounds: [p t k f θ s ʃ tʃ h ?]. The following symbols represent voiced consonants: [b d g v ð z ʒ dʒ m n ŋ w r l j]. Remember that vowels (we've used [i e a u o y] so far) are all voiced.

 EXERCISES

3.2 Make a list of English words which shows every voiceless consonant in intervocalic position, and another list to show every voiced consonant in intervocalic position.

3.3 Decide whether the consonant at the beginning of the following words is voiced or voiceless.

- |           |            |               |              |
|-----------|------------|---------------|--------------|
| 1. catch  | 2. cello   | 3. bodge      | 4. name      |
| 5. photo  | 6. theme   | 7. scissors   | 8. judgement |
| 9. useful | 10. when   | 11. Xerox     | 12. Zeppelin |
| 13. knock | 14. rhythm | 15. pneumonia | 16. ghetto   |

3.4 Decide whether the sound at the end of the following words is voiced or voiceless.

- |          |               |             |            |
|----------|---------------|-------------|------------|
| 1. as    | 2. cough      | 3. off      | 4. of      |
| 5. youth | 6. some       | 7. church   | 8. once    |
| 9. roll  | 10. apartheid | 11. booth   | 12. risked |
| 13. blah | 14. tax       | 15. through | 16. tomb   |

3.5 Although English spelling makes use of both letters *s* and *z*, the distinction between voiceless sound [s] and voiced [z] is not always shown. Pronounce the following forms, and decide for each one whether it contains the voiceless sound [s] or the voiced sound [z]. Write the appropriate phonetic symbol.

- |   |           |          |            |
|---|-----------|----------|------------|
| 1. zoo  | 2. ooze   | 3. was   | 4. husband |
| 5. easy   | 6. blazer | 7. laser | 8. isn't   |
| 9. ceiling  | 10. rice  | 11. rise | 12. ritz   |
| 13. use (verb, as in <i>Can I use your phone?</i> ) |           |          |            |
| 14. use (noun, as in <i>What's the use?</i> )       |           |          |            |
| 15. advise (verb, as in <i>Who can advise me?</i> ) |           |          |            |

3.6

(a) When nouns are made plural in English, the ending which is added is not always pronounced the same way; compare *cats*, which has [s], with *dogs*, which has [z]. Read the English nouns transcribed below (check any vowels you don't know with the discussion on pages 9 and 10) and then copy out the transcription adding the appropriate plural ending.

- |           |          |            |           |
|-----------|----------|------------|-----------|
| 1. [net]  | 2. [ʃak] | 3. [rif]   | 4. [sta]  |
| 5. [slɪv] | 6. [tri] | 7. [kʃub]  | 8. [leg]  |
| 9. [tʃ]   | 10. [ʃu] | 11. [tʃam] | 12. [sɪn] |



- (b) Find another twenty nouns (for the time being, avoid any which end in the sounds [s], [z], [ʃ], [ʒ], [tʃ] or [dʒ]). Transcribe at least the consonants they contain, and work out how they would form their plurals. Can you see any pattern in the selection of [s] or [z] as the plural ending?

### THE WH-SOUND AND SYMBOL

Note that if you are a speaker with a Scottish English accent, for example, you may also wish to introduce one further symbol which will enable you to note the difference between the sound you make at the beginning of *wear* (a [w]-sound) and the one you make at the beginning of *where*. In the case of words beginning *wh-* you will probably find that you make a voiceless sound which some people described as 'pronouncing the *h*' here. The full name for the sound is a voiceless labial-velar fricative and the symbol you need is [ɸ].

### THE SYMBOL FOR ENGLISH 'r'

So far, we have written the symbol for the English r-sound the right way up, like a normal printed or orthographic letter *r*. This is OK as long as we are only dealing with one language and that language only has one r-sound. However, the real phonetic symbol for English 'r' is much less convenient: it is the same shape, but written upside down, [ɹ]! For the time being, at least, we don't need to worry about this, but later on we will be talking in more detail about precise phonetic values and about r-sounds in other languages and then we will have to be more picky about symbols.

### SUMMARY

- Voice in speech is produced by vibratory activity of the vocal folds in the larynx affecting the egressive pulmonic airstream.
- Sounds accompanied by this vibratory activity are said to be voiced, sounds without it are voiceless.
- All vowels are voiced but consonants vary – some are voiced, some voiceless.
- If the vocal folds are pressed firmly together and prevent the escape of lung air, a voiceless sound called a glottal stop is produced.

### FURTHER EXERCISES

3.7 Every English word contains at least one voiced segment (why?) but not every word contains a voiceless segment. In fact, whole phrases and sentences can be concocted that do not contain any voiceless segments (e.g. *I'm worried by Lilian's wandering around Venezuela alone*). What is the longest all-voiced sequence you can devise?

**3.8** Turn back to the words from Dyirbal given in Exercise 2.2.

1. Make a list of all the voiceless consonants in the words.
  2. Make a list of all the voiced consonants.
  3. Make a list of all the plosives.
  4. What observations can you make about the positions within words where voiceless consonants seem to occur in Dyirbal?
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**3.9** What aspect of English pronunciation is being focused on when a newspaper writes *yooof culture* (for *youth culture*)? Use phonetic symbols to show the two pronunciations, and describe the consonants involved as fully as you can.

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**3.10** In a *Sunday Times* article on changing standards in pronunciation, a cartoon showed *Gatwick* as *Ga wick*, and *football* as *foo ball*. What pronunciations are intended, and why do you think a gap was used to suggest them?

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**3.11** Some practical exercises on speech and breathing.

1. The basis of all normal speech is a controlled outflow of breath from the lungs. To see this, sustain a vowel such as [a] for as long as possible, or count aloud for as long as you can. Sooner or later you have to stop to breathe in.
  2. It is possible to reverse the normal state of affairs and speak on air which is being drawn into the lungs. Most people can do this at once when the possibility is suggested; children often do it for fun. It tends to produce a strange-sounding type of voice, varying out of control between a squeaky high pitch and a very low creaky pitch. Try *Good morning* like this or try to read aloud a few lines from a newspaper. From time to time you'll have to pause – but this time you'll be breathing *out* when you pause.
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