

Speaking to each other is one of the most interesting things that we human beings do. Each of us has a mind, a private world filled with thoughts, feelings, and memories. We have many ways of communicating these in such a way that they enter the minds of other people. Sometimes we find it convenient to communicate by means of writing, and good writing can let us see things clearly from the writer's own perspective. For people who are for some reason unable to speak, it is also possible to communicate by sign language, or by using a pointer and a computer screen. Many art-forms work by conveying the thoughts and feelings of the artist—music, for example, can tell us a great deal about the inner feelings of a composer, even one who has been dead for centuries.

A quite different form of communication is one that we share with many other animals: gestures and facial expressions. We make extensive use of these, and can describe in great detail how people do so: we can talk about someone 'waving his hand dismissively', or 'giving someone an appealing look', or 'turning away in mock anger'. But although there are many different ways of communicating, when it comes to telling other people what we want to tell them, what we use most is speech, and this is something which is only available to human beings.

The speech chain

To describe the process of speaking in the simplest way, we need to look at three main events. To begin with, we produce sounds, using parts of our chest, throat, and head. Then the sounds travel through the air in the form of vibrations. Finally, the sounds are

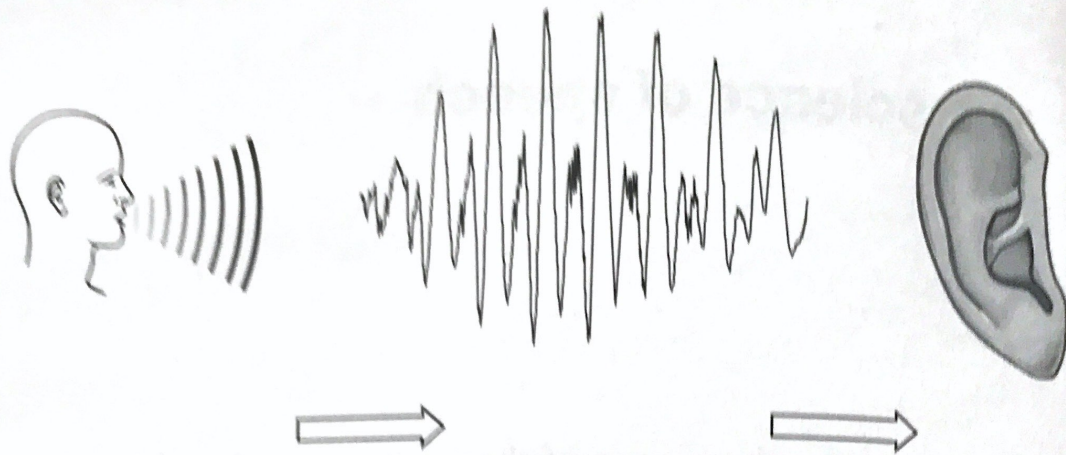


FIGURE 1.1 *The speech chain*

received by the ear of the listener. We show this speech chain in diagram form in Figure 1.1.

However, this is only part of the story. If we look at speech more carefully, we find we must also take into account the fact that the brain of the speaker is involved in controlling the production of speech, and the brain of the listener has to do the job of analysing the sounds that have been heard, and converting them into a meaningful message. You might say of someone, in a joking way, that they were speaking without first connecting their brain, or that what was said to them went 'in one ear and out of the other', but in reality the control by the brain is essential. Not only does the brain send out the commands necessary for producing speech, but it is also constantly receiving feedback in the form of the sound of the speech that is being produced; if we were not able to monitor our speaking in this way, we would find it extremely difficult to speak at all. Until recently, we knew little about what is going on in the brain when people are speaking, and this is why the science of phonetics has concentrated on the three central components of the speech chain, where observation of what is going on is relatively straightforward. However, our understanding of how the brain works in speech communication has grown enormously in recent years. One of the most significant advances in recent research has been the development of safe

and accurate brain-scanning techniques that can show us the activity of different parts of the brain when someone is speaking or listening to speech.

Phonetics

Speech is a complicated process, and to study it requires a whole scientific subject—the science of phonetics. In this book we will look at the main areas of phonetics and see why they are important. Much of the early part of the book is taken up with considering the way in which speech sounds (often called **segments**) are made, and how phoneticians can classify them in a scientific way. This is based on the fundamental distinction between **vowels** and **consonants**. Another fundamental aspect of the subject is the use of symbols. In phonetics, we must be able to use a particular symbol to represent a particular sound. This is quite similar to the principle of alphabetic writing: some writing systems give a very clear indication of the sounds (for example, the writing systems of Finnish and Italian represent almost perfectly the sequence of sounds required to say something in those languages). At the other extreme, it is possible to have what we call an *ideographic* writing system where symbols represent ideas, not sounds. The nearest equivalent for users of alphabetic writing is our number system: the numbers 1, 2, 3 mean the same thing to speakers of Russian, of French, or of English, yet they would pronounce them in completely different ways.

One of the most important achievements of phonetics in the past century has been to arrive at a system of phonetic symbols that anyone can learn to use and that can be used to represent the sounds of any language. This is the **International Phonetic Alphabet (IPA)**. Taking English as an example of a writing system that does not always give a reliable guide to pronunciation, we find that for various purposes (including teaching the pronunciation) it is helpful to use **phonetic transcription** instead of ordinary spelling. Many of the symbols we use are the same as the familiar alphabetic ones. Table 1.1 shows the symbols used to represent one accent of English, and the symbols are given with 'key words' which help you to see which sound is represented. For each of the many different **accents** of English, a slightly

different set of symbols might be needed. The 'standard accent' of English described in this book is similar to one which for much of the twentieth century was known by the name **Received Pronunciation (RP)** for short); an increasing number of modern writers on phonetics (including some whose works appear in the Readings and References sections of this book) now prefer to use the name **BBC accent**, and that is what is done here. I am not, of course, claiming that all speakers on the BBC have the same accent, and an increasing number of professional broadcasters now have Irish, Scottish, or Welsh accents, but it is still possible to identify a reasonably consistent pronunciation used by English-born announcers and newsreaders on channels such as Radio 3 and Radio 4, BBC television news and the World Service of

Vowels

ɪ bit e bet æ bat ʌ cut ɒ cot ʊ put
 ə about, China

i: eat a: palm ɜ: earn ɔ: paw u: too

eɪ day aɪ die ɔɪ boy aʊ how əʊ go ɪə fear
 eə air ʊə poor

The symbols /i/ and /u/ are also used, for weak versions of /i:/ and /u:/, as in the last vowel of 'happy' /hæpi/, or the first vowel of 'whoever' /huevə/.

Consonants

p pin t tin k kin b bin d din g girl

f fin θ thing s sing v van ð this

ʃ shoe h how z zoo ʒ measure

tʃ chin dʒ gin

m more n no ŋ sing

l low r red w wet j yet

TABLE 1.1 IPA symbols used to represent the 'BBC accent' of English or 'Received Pronunciation' (RP)

the BBC. One advantage of this choice is that anyone with a radio can listen to BBC broadcasts as much as they like; tracking down the elusive RP speaker has always been a problem for researchers, since nobody could ever agree on exactly what they should be looking for.

Using these symbols, we can write English in a way that tells you exactly which sounds are pronounced: notice how different this looks from ordinary English spelling in the example sentence:

Spelling: She bought some chairs and a table

Transcription: ʃi bɔ:t səm tʃeəz ən ə teɪbl

The symbols listed above for English represent the distinctive sounds of the language that we call **phonemes**. They are therefore a special kind of phonetic symbol that we call **phonemic** symbols. There is a technical matter concerning the use of symbols that needs to be explained here, since symbols appear through the rest of the book. When the symbols we use are those representing the phonemes of a particular language, it is usual to enclose them in 'slant brackets' (for example, 'book' is transcribed /bʊk/). When we use phonetic symbols to represent a sound that could belong to any language, or a sound which is a special way of pronouncing a phoneme (**allophone**) we enclose them in square brackets (for example, we can say that [y], [o], [u], and [ø] are all vowels made with the lips rounded).

Phonetics has links with many other subjects: when we look at the parts of the body which are used in speaking, we make use of information from anatomy and physiology; the study of the transmission of speech sounds from speaker to hearer is related to **acoustics**, which is a branch of physics; when we look at how we hear and understand spoken messages, we are in the territory of other subjects including audiology (the study of the hearing mechanism) and cognitive psychology (the study of how the brain receives and processes information).