

CHAPTER SEVEN

Phonetics and the International Phonetic Alphabet

In this part of the course we will be concerned primarily with describing the sounds of German. There are several stages involved in such a description. We must make some attempt to isolate the sounds, then we must describe them. We must also find some way of writing them. This last point may seem surprising, but it is vital. The Roman alphabet as used for German is inadequate for a number of reasons, the main one being that there is no one-to-one correspondence between German sounds and the symbols which are used to represent them. One symbol can be used for two different sounds, e.g. the **i** in *wider* and *Widder*. On the other hand, some sounds are represented by different symbols or sequences of symbols, e.g. the same sound is represented by the sequence **sch** in *Tisch* and the letter **s** in *steigen*. Some sounds are represented by combinations of letters, others by only one letter. Sometimes, as we have just seen, the same sound is represented sometimes by one letter, sometimes by a combination. For all of these reasons the German alphabet is too inconsistent to serve as a precise and unambiguous means of representing the sounds we will be discussing.

The English alphabet suffers from the same sorts of inadequacies, so we cannot use it either. It is really not surprising that the English and German versions of the Roman alphabet are inconsistent. After all, the Roman alphabet was designed for Latin, and Latin had a different sound system. Both English and German have sounds which Latin did not have, and the Roman alphabet has therefore had to be adapted in both instances. Latin, for instance, did not have the sound which is represented by *sh* in English, *sch* in German. Nor did it have the two sounds represented by *th* in English nor the two sounds represented by *ch* in German. And even when the alphabet was used for the language it was designed for, the same sorts of inconsistencies showed up as in English and German. One reason for this is that the Roman alphabet has **never** been used in a totally phonetic way, i.e. one sound represented by one symbol and vice versa.

Some years ago a description of an African language appeared. The language had not been written down before, and the author had devised a spelling system based on English. A pronunciation key was provided at the beginning. Included was the following sentence: "*a* represents the vowel of English *bath*." The author, unfortunately, did not designate which variety of English was meant. The majority of English speakers world-wide use in *bath* a vowel similar to the vowel in *cat*, while others use a vowel similar to the vowel in *father*. And there are variations of each of these vowels. Therefore the description of what *a* was supposed to stand for was useless at best and misleading at worst, with the result that it was not possible for other linguists to read the description and to know precisely what was intended.

To overcome difficulties of this sort and to make it possible for one linguist to read another linguist's work and to know precisely what sounds were intended, the **International Phonetic Association** devised a phonetic alphabet in which symbols had consistent values. The International Phonetic Alphabet (IPA) is used to indicate the pronunciations of words in dictionaries like the Oxford English Dictionaries and the Macquarie Dictionary. The IPA contains a number of symbols which are irrelevant for our purposes since they represent sounds which do not occur in German. The symbols which are necessary for our purposes are given later in this chapter. First, however, we will briefly describe how speech is produced.

The main organs of speech are the lungs, the muscles of the rib-cage, the windpipe, the larynx, the pharynx, the tongue, the lips, the roof of the mouth, the teeth and the nose.

Audible speech is impossible without a flow of air. This air is provided by the lungs. In both English and German all speaking is done while exhaling. The air flows from the lungs through the windpipe, the larynx, the pharynx and the mouth and sometimes through the nose. The entire speech tract above the larynx acts as a resonance chamber, and the quality of sound produced is determined by the size and shape of that chamber.

The larynx or voice box plays a special role in speech production, so special that its function will be described in detail here. The larynx contains two small bands of muscle called the **vocal cords**. The space between the vocal cords is called the **glottis**. There are three basic positions into which the vocal cords can be put, all three of which are important for our purposes since all three are used in producing the sounds of German. The three positions are illustrated in the diagrams in Figure 7.1.

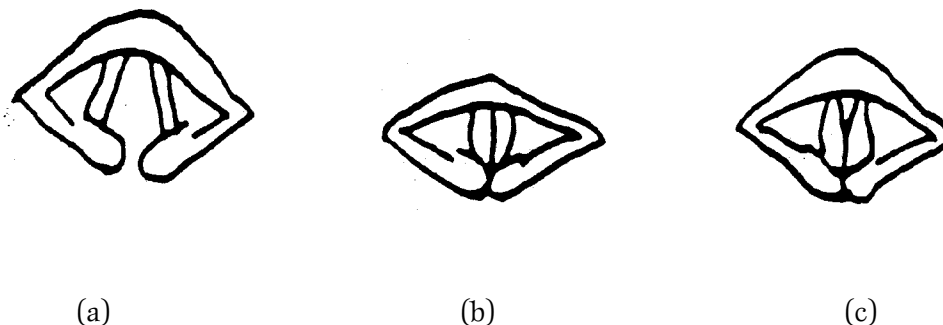


Figure 7.1 - The Vocal Cords

If the vocal cords are relaxed as for normal breathing, they are relatively wide apart, as in figure 7.1a). When the vocal cords are in this position air can pass freely in both directions. When they are pressed together, as in 7.1b), the flow of air is cut off. For instance, if we are about to pick up a heavy weight we take a deep breath and then close the vocal cords to keep the air in the lungs. If the vocal cords are partially closed, as in 7.1c), they are also very taut. The space through which air can pass is very restricted, so that the passage of air causes the vocal cords to vibrate and produce a buzzing sound, just as a guitar string produces a sound when it is plucked and caused to vibrate. This buzzing sound is called **voice**. Speech sounds which are produced with the vocal cords in this position are accompanied by voice and are therefore referred to as **voiced** sounds. If the vocal cords are in the first position they do not vibrate, and no voice is produced. Speech sounds formed with the vocal cords in that position are therefore referred to as **voiceless** sounds. Finally, if the vocal cords are in the position in 7.1b), no air passes through them. Remember that