

prohibiting onsets made of consonant-liquid-semivowel (see p. 57). If we are able to learn such structures, it is because we have cerebral equipment that makes it possible. It would still be necessary to explain in some way the existence of such equipment, by showing that it fulfils a biological function.

7.7 The biological function of phonological ability

One of the main aims of research in linguistics is to draw up concise descriptions of languages with the aim of delimiting which sequences can be spoken and which cannot. In the process, a model of speakers' linguistic ability is also drawn up. Although this work is far from complete, it has already provided us with hypotheses that give some idea about the phonological ability of human beings. This raises the question why such an ability exists and why it has the form we see in it. Among the aims of Chapter 6 was to show that species are locally optimal. If our species has a predisposition to use a phonological system, then the predisposition must be locally optimal for a biologically adaptive function. What function, though?

A first reply to that question could be that phonetic processing is a coding process that contrives a compromise between the speed of transmission of information and the accuracy of the transmission. And it must be said that this idea is attractive. From an engineering point of view, the possibility of offering maximum contrasts, like those just examined in vowel systems, is one that makes perfect sense within a system of digital transmission of information. The fact that, acoustically, vowels like [a], [i], and [u] are maximally distinct makes it easy for hearers not to mistake one for the other if the signal encounters interference or is distorted. This also provides speakers with a safety margin, in that they can use a higher rate of delivery of speech than if the vowels were acoustically close to each other.

This type of reasoning, however, which favours seeing the phonetic level of language as an optimal transmission code, cannot be accepted at face value. A typical speaker produces ten to fifteen phonemes per second. Why not more than that? Any suggestion that this rate represents an articulatory limit or the limit of hearers' decoding abilities misses the point. What we are talking about is equipment fashioned by natural