The concept of functional load has been used by various writers in various linguistic fields. It has conveniently received different definitions and methods of calculation. It has, however, been shown to be of value in the study of pronunciation. In this paper are discussed several aspects of functional load and the pronunciation of English.

The main difference between King’s formulation and that of other writers is that it is based on conditional probabilities instead of being an information theory approach. Wonnk [6] (see also [7]) proposes four information theory measures of FL concluding ‘more important than the development of a simple measure that is relatively straightforward is the task of providing empirical justification for the measures’ (p. 50).

The value of the concept of FL has been recognised in other linguistic fields, including general descriptive linguistics, [8], diachronic phonology [9], automatic speech synthesis and recognition [9, 10] and spelling reform [11]. It is not, however, applied to the question of language teaching. In this paper, I therefore wish to explore certain aspects of FL which are of use in the teaching of pronunciation. This discussion owes much to the ideas of Xerox [12].

For illustration, I shall deal in particular with the following pairs of (99) phonemes, which are often confused by learners: [i, e], [t, l], [c, e], [d, t], [d, t], [a, e], [a, e], [a, e], [a, e].

Categorical test frequency

The table below, gives the cumulative frequencies for the pairs based on the figures for connected speech given by Denes [13]. That, for example, the cumulative frequency for the pair /i:/, /a/ (3.15, 5) is the sum of the probabilities of /i:/, /a/ and all pairs having a cumulative frequency of /i:/, /a/.

Probability of occurrence

If one cumulative frequency is much higher than the other, say for example /i:/, /a/ has a cumulative frequency of 2.5, then it is much more probable that this corresponds to /i:/ than to /a/.

It is not clear how much thought has been given to the problem of definition by writers matching speech sounds to the notion. For instance, we could disagree with Brown above, in that phonemes such as /i/ and /a/ do not have BLA in isolation, it is only the contrasts between pairs of phonemes which can be considered functionally different.

The number of minimal pairs

The simplest expression of the FL of a phoneme contrast is the number of minimal pairs which this contrast serves to distinguish. For some English phoneme contrasts this can be as few as two minimal pairs: for others, there are relatively few. For /s/, /z/, /j/ and /w/, the only minimal pairs given in common words are pool, pull, full, spool. Minimal pairs are similarly scarce for /i/ and /a/, /s/ and /z/.

Misunderstanding is therefore very unlikely to occur for these contrasts and on this basis, we may consider them to be relatively unimportant. The following table shows for all the vowel and consonant contrasts introduced earlier, in terms of the amount of stimulus information saliently the contrasts. The criterion has been set, somewhat arbitrarily, at 20 minimal pairs. Fewer than 20 pairs can be found for those contrasts that are difficult to distinguish and the same holds for those marked +. Minimal pairs for consonants in word-initial position and in word-internal position are shown separately.

The number of minimal pairs belonging to the same part of speech

From the previous section, we may note that although there are certain contrasts for which there are only a few minimal pairs involving common words, these minimal pairs involve few words from the lexical set. For example, the contrast /s/ - /z/ is tested by the pairs /sod, /oz/ and /sod, /oz/. Minimal pairs for /s/ and /z/ are unlikely to cause confusion in the context of a sentence. For example, /sod, /oz/ are grammatical words, so that they, then, though. They are thus unlikely to be confused. In conclusion, we may say that all minimal pairs for /s/ and /z/ are virtually all lexical words, such as done, box.
The number of inflections of minimal pairs

One problem in counting the number of minimal pairs relying on particular phonemic contrasts is the use which English makes of inflections such as the suffixes for plural, past tense, -ing forms. Thus, for example, for the /a, e/ contrast, several pairs take /z/, /a/ and /t/ endings, e.g. fear, fare; speak, spare; steer, stare. Whether these should be counted as separate minimal pairs or not in the calculation of FL is a somewhat arbitrary methodological consideration.

The frequency of members of minimal pairs

Minimal pairs for the English contrast /u, u/ are scarce. A few examples exist, further to those quoted above, but in which one member is of such infrequent occurrence that the minimal pair can hardly be said to have any importance. Thus, while the /u/ words would, could, should, look may be considered frequent, the corresponding /u/ words wood, cooed, shoed/shooed, Luke are so infrequent as to be almost contrived.

The number of common contexts in which the members of minimal pairs occur

It is also worthwhile to consider whether the members of minimal pairs belong to the same semantic field or not, i.e. whether contexts can be easily supplied in which both members of a minimal pair are plausible alternatives, both grammatically and semantically. Such contexts are easily supplied for English pairs such as fate, faith; trek, trail; cherry, cherry; chin, cheery; leer, leer, but this is not possible for the majority of minimal pairs in English.

Conclusion

In summary, it should be clear that more advanced analysis than a counting of the number of minimal pairs is involved in the calculation of FL. Avram [12] examines this point succinctly: 'if we suppose that one opposition is illustrated by ten minimal pairs and another by twenty, it does not necessarily mean that the second opposition is twice as important as the first. Starting from minimal pairs, the successive application of certain correlative's is essential if we wish to establish the actual value of an opposition more clearly' (p.42).

On the basis of the above observations on FL, we may propose that the relative importance of the phonemic RP contrasts discussed in this paper can be ranked as follows, most important first: /p, b/; e, ë; i, u; ð, d; n, ñ; /f, d/; u, õ; ð, œ; ŏ, ŕ/.

References