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Lexical analysis of spoken word recognition errors

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In speech perception and spoken word recognition, a lexical "neighbor" of a target word is a phonetically similar word that competes with the target during lexical access. A commonly-used definition is that neighbors differ from one another by a single segment. While this basic definition accounts for many results of lexical decision and word recognition tasks among monosyllabic words, it also suggests that approximately half of the words in the English lexicon are hermits (words without neighbors). To generate a more inclusive definition of neighbor, we created a representative sample of the lexicon (N=1428) to examine spoken word recognition errors, and we used the incorrectly selected competitors as a means of indexing "neighbor" status. Analysis of over 15,000 errors reveals several patterns: (1) Errors tend to be of higher frequency than the target word; (2) Less than 1/3 of the errors were neighbors according to the traditional definition of neighborhood density; and (3) Errors differed in phonetic similarity more as the S/N ratio decreased. We use these data to test several alternative definitions of "neighbor" and their ability to predict actual word recognition errors. [Work supported by NIH-NIDCD R01 00111 and T32 00012]