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Familiarity for Nouns and Verbs: Not the Same as, and Better than, Frequency

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Much of the study of language processing has centered on the single word recognition paradigm. Many cognitive theories regarding semantic memory have emerged from this research, and several lexical dimensions (i.e., imageability, frequency) have been found to influence the processing and recognition of nouns (Balota, Ferraro, and Connor, 1991). Indeed, efforts are typically made to balance word stimuli on factors such as length and frequency. However, the importance of different orthographic and semantic dimensions in determining the speed and accuracy with which words are responded to has not been extensively investigated. Moreover, most of this research has either not considered different word types (nouns vs. verbs), or has focused on concrete, imageable nouns, largely because of the lack of word norming corpora available for other word types.

Recently, new measures have been developed (Chiarello, Shears, & Lund, 1999) computing typicality of grammatical class (noun vs verb) and examining grammatical class differences in imageability and frequency, using established corpora such as Francis and Kucera (FK, 1982), as well as using the more contemporary Usenet corpus. While these semantic dimensions and word class comparisons have provided valuable tools for word recognition researchers, most studies have failed to consider word familiarity as an important determinant of speed and accuracy of responding (but see Gernsbacher, 1984, and Balota, Cortese, & Pilotti, 1999).

We report a series of regression analyses using data obtained from 2 lexical decision experiments and other corpora. We investigated the influence of variables identified in Chiarello et al. (1999) [i.e., imageability, length, noun-verb distributional distance (NVDD), FK and Usenet frequency, and recently collected familiarity ratings] on the speed and accuracy of lexical decision responses to nouns and verbs. Familiarity, measured on a 7 pt. scale, was defined as 'common in everyday experience'.

Overall, familiarity was found to be highly correlated with RT ($r = -.70$, $p < .001$), thereby accounting for nearly half of the variance. Although significantly correlated with imageability, NVDD, FK and Usenet frequency ($r = .22$, $.23$, $.39$, and $.40$, all $ps < .005$), regression analyses indicated that much of the RT variance accounted for by familiarity was unique. The importance of these variables in predicting RT also varied by word class (nouns vs verbs). Specifically, familiarity, then frequency, and then imageability were found to be the most important predictors

of noun RT, whereas familiarity, then imageability, then frequency, and finally NVDD were found to be the most important predictors of verb RT.

In conclusion, our results support and extend Gernsbacher's (1984) earlier demonstration of familiarity as a powerful contributor to word recognition, possibly because it is a contemporary metric of actual encounters, related to the variety of contexts a word has been experienced in, and the ease with which individuals can recall those contexts (Audet & Burgess, 1999). Our findings indicate the need for researchers to consider the importance of processing differences based on *the familiarity of stimuli to the subject population* (i.e., controlling only for frequency and imageability may not be enough). Finally, we also demonstrate the need for researchers to carefully consider the issue of word class, as different dimensions appear to be more or less important for the processing of nouns and verbs.

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