

Effects of lexical frequency and compositionality on phonological reduction in English compounds

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This work investigates the interplay between phonological reduction, lexical frequency effects, and relative compositionality of compounds. That is, are more opaque compounds (*cupboard*) different from more transparent ones (*blueberry*)? We establish a gradient measure for compositionality of a compound by conducting a survey of 24 native American English speakers. As a measure of phonological reduction, we utilize the duration of the final rime of the compound in the Buckeye Corpus compared to the duration of the same rime in monosyllabic nouns. For a measure of lexical frequency, we calculate the Pointwise mutual information (PMI) score for each compound using the frequency data from the Corpus of Contemporary American English.

Using a two-sample t-test we show that compounds with lower ratings of compositionality are significantly shorter in duration than would be predicted given the expected duration of their rimes. Additionally, we show that after controlling for a number of factors, compositionality in 21 compounds is a significant predictor of degree of phonological reduction in a linear regression model. Specifically, the degree of compositionality attributed to a nominal compound in English is a statistically significant factor in predicting the duration of the final rime of a compound. This yields a positive correlation, where the less compositional a compound is the shorter its final rime.

These results provide evidence that semantic opacity in compounds has reflexes in phonological form. We argue that phonological reduction needs to be addressed by both theoretical and empirical aspects of compound representation.