THE STRUCTURE OF ICONICITY
IN THE ENGLISH LEXICON

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Many theories of language evolution argue for a trajectory from iconic communication systems, where signals resemble their meanings, towards systems with more arbitrary relationships between words and meanings (e.g., Armstrong & Wilcox, 2007; Imai & Kita, 2014). In spoken languages, the end result of this process is often assumed to be a lexicon that is dominated by arbitrariness, with Indo-European languages, especially English, often cited as examples of arbitrariness par excellence (e.g., Vigliocco, Perniss, & Vinson, 2014). But, to what extent are the lexicons of present-day spoken languages truly arbitrary? Are there particular kinds of meanings that are more prone to being expressed iconically? Finally, are words either iconic or not, or is iconicity a graded quality of words?

Using the methods presented in Perry et al. (2015), we collected iconicity ratings for 1,952 English words from 705 participants who rated each word on a scale from -5 ("words that sound like the opposite of what they mean") to +5 ("words that sound like what they mean"). Overall, the distribution of iconicity ratings skewed towards the iconic end of the scale (+0.9, $t(1951)=35.5$,

p<0.0001). Hartigan's dip test shows no evidence for bimodality in the iconicity ratings (p>0.1), suggesting that iconicity is indeed a continuous rather than categorical notion. In line with Perry et al. (2015), iconicity varied between lexical categories ($F(4,1881)=35.41$, $p<0.0001$), with verbs and adjectives receiving higher iconicity ratings. These results mirror the patterning of ideophones across the meaning space of languages (Dingemanse, 2012), i.e., they preferentially express manner of movement and sensory perceptions.

We further tested whether meanings related to specific sensory modalities are more or less prone to iconicity by using perceptual strength ratings from Lynott and Connell (2009), who asked participants to judge how much an object property such as "yellow" or "loud" is perceived through each of the five senses (seeing, hearing, touch, taste, smell). Overall perceptual strength was positively associated with iconicity ($F(1,415)=6.88$, $p<0.01$). Predominantly auditory words ("rustling", "buzzing", "muffled") received the highest iconicity ratings (+2.3), followed by haptic (+1.8, "sticky", "soft"), visual (+1.21, "shiny", "yellow"), olfactory (+1.04, "fishy", "aromatic") and gustatory words (+0.8, "acidic", "tasty").

These results reveal that the English lexicon harbors a considerable amount of iconicity in its sound structure, something that native speakers can pick up on. Moreover, words rated as the highest in iconicity correspond to meanings that are commonly encoded as ideophones in the world's languages. Vocal iconicity is particularly concentrated in sensory meanings, especially those relating to the auditory, haptic and visual senses, but less to the chemical senses. This suggests that in early communication systems, vocal iconicity may have been more useful for expressing some meaning categories compared to others.

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