

## The limited power of sound symbolism

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In defiance of the assumed design principle of language of arbitrariness between sign and signified, many languages use ideophones, which are depictive words for sensory imagery. The form-meaning mappings in ideophones have been variably hypothesized to be language-specific, universal, or a mixture of both. We test the claim of universality, and in particular, the claim that ideophones “do the work of representation by phonetic means” (Tedlock, 1999). In support of this claim, recent research shows that naive listeners can consistently map certain sounds to certain meanings in nonce words, leading to claims that such mappings may underlie the evolution of language (Ramachandran & Hubbard, 2001).

Given the theoretical weight ascribed to sound-symbolism in language, it is important to know whether ideophones could live up to this promise. The “recognizability” of these mappings may be due to both segmental and suprasegmental properties of the stimuli. While the segmental properties tend to be singled out, prosodic aspects have not been investigated yet. To critically evaluate the power of lexicalised sound-symbolism in ideophones, we recorded over 200 ideophones from five semantic categories (Sound, Motion, Texture, Visual Appearance, and Shape) and from five languages (Japanese, Korean, Semai, Siwu, Ewe, representing four language families).

Ideophones were presented to Dutch listeners as a natural recording and in three edited forms produced by a Dutch diphone synthesizer. A rich resynthesis made use of the original utterances phoneme durations, as well as pitch and intensity contours. One resynthesis used these suprasegmental properties with different segments (prosody-only), the last used the same diphones but with standard segment durations and a simple falling contour (phones-only).

To test how well these forms represent their meaning, Dutch listeners were asked to choose between the correct and another ideophone's translation. Results showed that participants performed above chance, but performance depended on both category and stimulus version (no interaction). Performance did not differ between the original recordings and the rich resynthesis (both 57% correct), and was better in these two conditions than in the phones-only and prosody-only condition (both 53.5% correct). This suggests that it is the combination of phones and prosody that cue the meaning. As for the different semantic categories, sound ideophones transmitted their meaning better (61% correct) than ideophones from the other four categories (around 54% correct for Shape, Visual Appearance, Texture, and Motion; these were significantly above chance, but not different from each other).

The overall modest performance indicates that previous reports of 95% correct sound-meaning mappings (Ramachandran & Hubbard, 2001) can only be achieved in isolated domains, and may be partly due to the prosodic implementation (e.g., saying “kiki” with long closure durations for the /k/s, to give the impression of something sharp) rather than inherent sound-meaning mappings associated with certain phones. As such, lexicalised sound-symbolism appears to be of limited universal validity, and therefore seems a weak basis for language evolution.

Ramachandran, V. S., & Hubbard, E. M. (2001). Synaesthesia—A window into perception, thought and language. *Journal of Consciousness Studies*, 8, 3-34.

Tedlock, D. (1999). Ideophone. *Journal of Linguistic Anthropology*, 9, 118-120.