Cuteness amplifies effects of size sound symbolism: A cute /i/ is smaller than an ugly one

Dominic Schmitz[1], Defne Cicek[2], Anh Kim Ngyuen[2] & Daniel Rottleb[2]
[1] Heinrich Heine University Düsseldorf, dominic.schmitz@uni-duesseldorf.de [2] Heinrich Heine University Düsseldorf

Keywords: sound symbolism, iconicity, perception, cuteness, size

Sound symbolism describes that certain sounds become meaningful when combined with sensory information. One of the most prominent types of sound symbolism is “size sound symbolism”. Some speech sounds, e.g. /i/, are associated with smallness, while other speech sounds, e.g. /a/, are associated with bigness (Knoeferle et al. 2017). While size sound symbolism has been well researched during the last decades (Blasi et al. 2016), there is barely any research available connecting size to other visual dimensions such as cuteness. The present investigation aims to deliver results to fill this research gap.

Cuteness, as from its biological perspective comprised in the so-called “baby schema” (Lehmann, Huis in‘t Veld & Vingerhoets 2013), is not only a fundamental feature of human perception and correlates with size (Kringelbach et al. 2016), but research on Japanese has shown that cuteness is also found as a factor for sound symbolism (Kumagai 2019).

Taking into account both size and cuteness, the present study aims at establishing a relation from “small” to “big” and from “not cute” to “cute” for long vowels of Standard German (i.e. /aː, ɛː, eː, iː, oː, øː, uː, yː/), providing further insight into the multimodal nature of sound symbolism.

Two online forced-choice tasks (a pilot, 21 participants; main study, 80 participants) were conducted using disyllabic pseudowords as auditory stimuli, controlling for potentially confounding lexical (Caselli, Caselli & Cohen-Goldberg 2016) and contextual (Klatt 1976) effects. In either syllable, stimuli’s nuclei consisted of one of the vowels under investigation. The simplex onsets of the open syllables consisted of one consonant, i.e. /d, f, j, k/ or /r/. In total, 96 pseudowords were used. Images of phantasy creatures (van de Vijver & Baer-Henney 2014) were used as visual stimuli. In each trial, participants were shown five differently sized versions of a randomly chosen creature. The participants’ task was to decide which image version matched the audio stimulus of a trial best. As cuteness judgements likely differ by participants, afterwards participants were again shown all creature images to judge them for their cuteness on a five-point scale.

The size response then entered a generalised additive mixed model regression analysis as dependent variable. Cuteness judgements, vowel quality, onset consonant types and phonological neighbourhood density were introduced as independent variables, while participant ID and age were included as random effects. Overall, /aː/ is considered bigger than all other vowels, while /iː, yː/ are considered smallest. Cuteness judgements did not show a significant effect on their own. However, having vowel quality and cuteness judgements interact, it was found that the size response of the open vowel /a:/ increased with cuteness, while the size response of the close vowels /iː, yː/ further decreased.

The present findings demonstrate that cuteness amplifies the effect of size sound symbolism. Sound symbolic effects manifest in an intricate interaction when multiple visual dimensions are considered. The present results contribute to the growing body of evidence for and the nature of sound symbolism and call for the incorporation of multiple dimensions into analyses.

References

Blasi, Damián E., Søren Wichmann, Harald Hammarström, Peter F. Stadler & Morten H. Christiansen. 2016. Sound-meaning association biases evidenced across thousands of languages. *Proceedings of the National Academy of Sciences of the United States of America* 113(39). 10818–10823. https://doi.org/10.1073/PNAS.1605782113.

Caselli, Naomi K., Michael K. Caselli & Ariel M. Cohen-Goldberg. 2016. Inflected words in production: Evidence for a morphologically rich lexicon. *Quarterly Journal of Experimental Psychology* 69(3). 432–454. https://doi.org/10.1080/17470218.2015.1054847.

Klatt, Dennis H. 1976. Linguistic uses of segmental *duration in English: Acoustic and perceptual evidence. The* Journal of the Acoustical Society of America 59(5). 1208. https://doi.org/10.1121/1.380986.

Knoeferle, Klemens, Jixing Li, Emanuela Maggioni & Charles Spence. 2017. What drives sound symbolism? Different acoustic cues underlie sound-size and sound-shape mappings. *Scientific Reports* 7(1). 5562. https://doi.org/10.1038/s41598-017-05965-y.

Kringelbach, Morten L., Eloise A. Stark, Catherine Alexander, Marc H. Bornstein & Alan Stein. 2016. On cuteness: Unlocking the parental brain and beyond. *Trends in Cognitive Sciences* 20(7). 545–558. https://doi.org/10.1016/j.tics.2016.05.003.

Kumagai, Gakuji. 2019. A sound-symbolic alternation to express cuteness and the orthographic Lyman's Law in Japanese. *Journal of Japanese Linguistics* 35(1). 39–74. https://doi.org/10.1515/jjl-2019-2004.

Lehmann, Vicky, Elisabeth M.J. Huis in't Veld & Ad J.J.M. Vingerhoets. 2013. The human and animal baby schema effect: Correlates of individual differences. *Behavioural Processes* 94. 99–108. https://doi.org/10.1016/j.beproc.2013.01.001.

Vijver, Ruben van de & Dinah Baer-Henney. 2014. Developing biases. *Frontiers in Psychology* 5. https://doi.org/10.3389/fpsyg.2014.00634.