

Sound symbolic correspondences tested in human and non-human primates.

Konstantina Margiotoudi^{1,2}, Matthias Allritz³, Manuel Bohn^{4,5}, and Friedemann Pulvermüller^{1,2,6}

¹ Brain Language Laboratory, Department of Philosophy and Humanities, Freie Universität, Berlin, Germany

² Berlin School of Mind and Brain, Humboldt Universität zu Berlin, Berlin, Germany

³ School of Psychology & Neuroscience, University of St Andrews, St Andrews, Scotland

⁴ Department of Psychology, Stanford University, Stanford, USA

⁵ Leipziger Forschungszentrum für frühkindliche Entwicklung, Universität Leipzig, Leipzig, Germany

⁶ Einstein Center for Neurosciences, Berlin, Germany
konstantina.margiotoudi@fu-berlin.de

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The term sound symbolism describes the phenomenon of nonarbitrary links between the sound of an utterance and its meaning (Hinton et al., 1994). A classic example of sound symbolism is that of sound-shape correspondences described by Köhler (1929). People judge the non-word “maluma” to be a good match with a round shape whereas the non-word “takete” to an angular one. The relevant role of sound symbolism in the evolution of language has been highlighted in the literature (Imai & Kita, 2014; Perniss & Vigliocco, 2014; Ramachandran & Hubbard, 2001). Gestural and vocal iconicity have been proposed to be an achievement for the evolution and acquisition of language (Perniss & Vigliocco, 2014), because they possibly share neural resources with the latter. Despite the theoretical interest on sound symbolism in language evolution, there have been no studies testing sound-shape correspondences in our closest relatives, namely great apes. In the present project, we ran a two-alternative forced choice (2AFC) audiovisual task. 24 healthy human subjects and eight apes were tested. During the task the subjects listened to a pseudoword preceding the presentation of two shapes, one angular and one round. The subjects had to choose one of the two shapes. Both pseudowords and shapes were rated before as “sharp” or “round” via an online questionnaire. Based on our results, humans preferred to associate curved shapes to “round” sounding pseudowords and angular shapes to “sharp” sounding pseudowords. On the contrary, none of the great apes showed this soundshape correspondence. It is possible that sound symbolic effects depend on language and on the cortical wiring of the language network in perisylvian cortex. Neuroanatomical differences between the two species in perisylvian networks of language (Rilling, 2014) and in verbal working memory mechanisms enabled by human-specific connections (Schomers, Garagnani, & Pulvermüller, 2017) could perhaps explain the absence of a sound symbolic effect in great apes. Moreover a possible mechanisms of sound symbolism grounded in action-perception networks is discussed.

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