Testing “maluma-takete” in humans and great apes

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There has been a long debate in the literature of semantics between the arbitrariness of language proposed by Saussure (1959) and the non-arbitrary associations, known as sound symbolism. A classic example of sound symbolism is the sound-shape correspondence where the non-word “maluma” was judged to be a good match with a round shape whereas the non-word “takete” matched better to a spiky shape. Recent theories have highlighted the relevant role of sound symbolism and that of iconicity for the evolution of language (Ramachandran & Hubbard 2001). Sound symbolism has been proposed as the linkage between language and human sensory-motor experience, playing a determinant role on the evolution of language (Perniss & Vigliocco 2014). Despite this theoretical interest on the phylogenetic origins of sound symbolism, as far as we are concerned there have been no comparative studies in testing sound symbolic associations in humans and great apes. In addition, considering the new evidence on the perception of iconic gestures in chimpanzees (Bohn et al. 2016), the present study aims to explore whether our closest living relatives are able of perceiving sound-shape correspondences. For that purpose, we ran a two-alternatives forced choice (2AFC) task, testing the classic “maluma”-“takete” effect (Köhler 1929). 24 healthy human subjects, four chimpanzees (Pan troglodytes) and two gorillas (Gorilla gorilla gorilla) were tested. During the task the subjects listened to a word followed by the presentation of two shapes, one edgy and one round, and they had to select one of the two shapes. In accordance with previous studies, humans preferred to associate round shapes to words that sounded “round” and vice versa for the edgy shapes. We found no sound-shape correspondences in great apes. Differences in the brain’s neuroanatomical structure for spoken language and verbal working memory between human and non-human primates (Schomers & Pulvermüller 2016) could possible explain the absence of any sound-shape correspondences in great apes.

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