Perceptual simulation of temperature-related language: cross-modal facilitation in a sentence-sensibility task

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The past three decades of research on embodied cognition and embodiment semantics have established a substantial body of evidence, showing that brain resources devoted to perceptual and motor processing are involved, and in fact indispensable, in language comprehension and production (see, *inter alia,* Kaschak et. al. 2005, Hauk et al. 2004, Aziz-Zadeh & Damasio 2008, Boulenger et al., 2009; Raposo et al. 2009, Hauk and Pulvermüller 2011). A similar connection has also been hypothesized for temperature perception and emotions (Williams & Bargh 2004, Zhong & Leordelli 2008, Cooper et al. 2014). In this regard, most psychological studies have focused on emotional judgments andnon-linguistic material, while typical linguistic studies of emotions have been predominantly corpus in nature. Behavioral and imaging studies showing a clear link between the linguistic realizations of metaphors for emotions, such as PHYSICAL WARMTH IS INTERPERSONAL WARMTH,and their physical substrateare still scarce and often preliminary. Therefore, by combining the cross-modal facilitation effect withan experimental design similar to the one introduced by the widely cited study on social cognition by Williams and Bargh (2004), this paper strives to provide another piece to the embodied cognition puzzle. It attempts to investigate whethertemperature perception constitutes another component of embodied simulation and whether manipulating physical temperature can affect the processing of temperature-related language. In the experiment, the participants judged the sensibility of a number of sentences (some of them temperature-related, others neutral), after putting their hand into cold or hot water. It was hypothesized that participants would react quicker in matching conditions (e.g. hot water and an expression connected with high temperature) and slower in mismatch conditions (e.g. cold water and an expression connected with low temperature).Preliminary experimental results seem to support this hypothesis.

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