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Embodied Image Schemas in the Polysemy of the Spatial Preposition “On”

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Why do we use the same preposition *on* to describe different physical and figurative relations? For example, what is common between *The fly is on the ceiling*, *Pam is on a diet*, and *Jeff is on time*? The purpose of this work was to experimentally investigate and to describe how different uses of the polysemous spatial preposition *on* are motivated and are related to each other. The hypothesis in the study was that bodily kinesthetic and sensorimotor experiences and interactions, organized into preconceptual meaning structures called *image schemas*, can significantly account for conceptual relatedness of various physical and figurative uses of the spatial preposition *on*. Three experiments were conducted to test this hypothesis.

Experiment 1 identified several image schemas relevant to the bodily experience of the relationship *on*, viz., SUPPORT, PRESSURE, CONSTRAINT, COVERING, and VISIBILITY. Experiments 2 and 3 investigated whether the above image schemas, judged to be particularly salient to the bodily experience of *on*, can account for relations of conceptual similarity between various uses of the preposition *on*. Thirty-seven uses of *on* were used in Experiments 2 and 3 representing a broad range of physical as well as figurative uses. Experiment 2 obtained image-schematic profiles for the uses of *on*. Participants rated the appropriateness of each image-schema to each use of *on* on a scale of 1 to 7. Based on their ratings, a complex image-schematic profile consisting of 5 image-schematic ratings of appropriateness was obtained for each use of *on*. Experiment 3 examined judgments of conceptual similarity for the thirty-seven uses of *on*. An independent group of participants sorted the thirty-seven uses of *on*

into groups according to similarity of uses. On the basis of cluster and multidimensional scaling analyses three groups of conceptually similar uses of *on* emerged. The prediction was that membership in the groups of conceptually similar uses of *on* in Experiment 3 can be significantly accounted for on the basis of the image-schematic profiles of these uses independently obtained in Experiment 2. Candisc and Discrim procedures were employed to perform a direct discriminant analysis and to find a classification function that would predict group membership for the uses of *on* in Experiment 3 from the image-schematic ratings for these uses independently obtained in Experiment 2. Discriminant analysis obtained one significant classification rule. The confusion matrix for classifications revealed that, overall, 82% of the uses of *on* were correctly classified into the groups in Experiment 3 by a classification rule derived from the image-schematic profiles of these uses independently obtained in Experiment 2. Specifically, 78% of group one uses, 88% of group two uses, and 80% of group three uses were correctly classified by the discriminant rule obtained from the image-schematic ratings for these uses.

Psycholinguistic theories of word meaning have yet to acknowledge the role that bodily kinesthetic and sensorimotor experiences play in structuring semantic meaning, including figurative meaning. This work represented a first step in experimental investigation of relations between bodily experiences and linguistic meaning. It provided empirical evidence in support of the embodied image-schematic approach to the polysemy of the spatial preposition *on*.