

The cognitive operations between domains in visual metaphor

While most models of visual metaphor focus on how the conceptual domains are physically represented in the visual modality (e.g. Forceville 1996; 2002), the cognitive operations that underlie the functioning of a visual metaphor are still mostly unclear. Only a few studies illustrated some cognitive operations afforded by visual metaphor (McQuarrie, Phillips 2004; Ruiz de Mendoza and Mairal 2007), yet without providing an exhaustive overview of the types of cognitive operation afforded by these visual tropes.

In the present study I will show how visual metaphor works in terms of cognitive operations that need to be performed by the viewer to achieve a successful interpretation, and how visual metaphors differ from verbal metaphors in this regard.

The method used to analyze the conceptual domains is borrowed from conceptual categorization in cognitive psychology (e.g. McRae et al. 2005; Vinson, Vigliocco 2008). In particular, the metaphorical domains of 50 visual and 50 verbal metaphors were first identified through established procedures (VisMip, Sorm, Steen, to appear; and MipVu, Steen et al. 2010); then, for each conceptual domain that appears in a visual or in a verbal metaphor 30 participants produced a list of descriptors, i.e. semantic features that describe that concept (for example, given the domain *car*, the participants produced “has wheels”, “is used for transportation” etc). Later, the semantic features of each pair of source-target domains have been compared and analyzed, in order to see the emergent shared features, or to observe how the mapping are constructed when there are not shared features between the conceptual domains.

The results of the study suggest that visual metaphor affords (at least) 5 different types of mental operations, plus possible derivations. The five main types are: features matching (overlapping features between source and target domain); features projection (from the source onto the target); combined operations (features matching and features projection); blending (features from the source and features from the target compared and merged in a blended space); metonymic anchors (semantic features used as metonymies that cue to the actual domains). The results of the study are supported by different schools of thought in metaphor studies, such as the Conceptual metaphor Theory (Lakoff, Johnson 1980), The Conceptual Blending Theory (Fauconnier, Turner 2008), the metaphonymies combinations (Ruiz de Mendoza, Mairal 2007) and the insights about metaphor and creativity provided by Forceville (2012) .

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