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Comment: Acquiring metaphors

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Abstract

Lakoff (current issue) describes an account of conceptual representation based in part on metaphor. Though promising, this account faces several challenges with respect to learning and development.

Keywords

metaphor; emotion; language acquisition; concepts

In “Language and emotion,” Lakoff (2015) describes four decades of research into the cognitive representation of concepts in general and emotions in particular. In this work, he has documented striking patterns in how we talk about different concepts. For instance, an angry person is often described analogously to a container of hot fluid (*she is boiling, fuming, and letting off steam*), whereas love may be described as a journey (they are going different directions, are on the rocks, and are spinning their wheels) (Lakoff, 1990, 2009, 2015).

These phenomena motivate a theory where concepts are embedded in cognitive schemas (e.g., a schema for hot fluid in a container). Many schemas are derived from others through processes such as metaphoric and analogical extension, such as the ANGER-AS-HOT-FLUID-IN-CONTAINER and LOVE-AS-A-JOURNEY schemas. Importantly, schemas may overlap and conflict: In addition to the anger schema based on hot fluids, there is one based on dangerous animals.

The empirical phenomena uncovered by Lakoff are important and must be addressed by any theory. His theory of conceptual knowledge is provocative and should be of interest to any psychologist and to scholars of emotion in particular, where questions of representation are at the fore (Barrett, 2006; Ekman, 1999; Russell, 1980).

Nonetheless, many key predictions have not yet been tested and so the theory’s empirical status remains uncertain. Below, I focus on three issues pertaining to learning and development.

Can all schemas be built from basic schema?

Lakoff’s theory posits a set of basic schemas that are grounded in sensory and perceptual representations and from which all other schemas for all other concepts are derived. Whether all schemas can be so built remains an open question. Worked examples (e.g., LOVE-AS-

JOURNEY) typically involve derivations from abstract, non-basic schemas (LOVE and JOURNEY). How these schemas themselves were derived still requires explanation.

This is no minor concern. Famously, the classical theory of concepts – on which complex concepts like BACHELOR decomposed into UNMARRIED and MAN, which themselves decomposed down to perceptual/motor primitives – was challenged in part because researchers were unable to identify full decompositions for many if any words (Fodor, 1975; Laurence & Margolis, 1999).

Although Lakoff's theory provides more powerful mechanisms for creating new concepts, rigorously testing it requires first identifying a full list of basic schema, which itself requires empirical methods for identifying basic schema. For instance, Lakoff (1990, p. 272) proposes that we could ground a basic schema for CONTAINER by experience with our bodies as containers and as things in containers. It is not immediately clear how to test that claim. To be sure, similar problems arise for all theories of concepts, and remain a major challenge for the field. Here, neuroscientific evidence may be informative (cf. Gallese & Lakoff, 2005).

Finding metaphors

By hypothesis, new, non-basic schemas are motivated either by association (intimacy correlates with physical proximity, giving rise to the INTIMACY-AS-PHYSICAL-PROXIMITY schema) or by structural similarity (similarities between pre-existing schemas for love and journeys motivate a LOVE-AS-JOURNEY schema). A familiar problem with associative learning is that the world is full of correlations, and the ones needed to explain cognitive development are far from the majority (Frank, Goodman, & Tenenbaum, 2009; Mintz, Newport, & Bever, 2002; Pinker, 1984; Quine, 1960). Intimacy correlates with physical closeness but also with similar hair color, arguments, lines outside the bathroom in the morning, and shared bank accounts. None of these other correlations gave rise to new schemas (e.g., INTIMACY-AS-LINE-OUTSIDE-BATHROOM). Perhaps these correlations are less robust or are less readily detected, but this must be assessed empirically. Learning via structural similarity raises similar challenges: The schema for love overlaps heavily with that for journeys, but it may well overlap with other schemas even better. Or perhaps not. Answering this question requires a rigorous accounting of the schemas available to the child learner.

Of course, children also hear adults talk about love in terms of journeys and anger in terms of containers of hot liquid, etc., which may help address some of the developmental issues. However, the question of how those schemas got into the language in the first place would still remain.

Constraining generalization

A key test of any theory is that it not only explains the data we see but also explains why we do not see the data we do not see. In fact, understanding how children avoid overgeneralization is a central topic in developmental psychology, especially in language acquisition (Ambridge, Pine, Rowland, & Chang; Bowerman, 1988; Pinker, 1989).

As already noted, a crucial test for Lakoff's account is whether it can predict the non-existence of schemas like INTIMACY-AS-LINE-OUTSIDE-BATHROOM. A related question is why attested schemas motivate certain expressions but not others. Agnes can sizzle with anger but not fry or broil. Her relationship with Bartholomew may be on the rocks, but it is not delayed due to inclement weather, nor does it need to be towed to the shop. Though interpretable and apparently based on the same metaphors, these unattested expressions seem much clumsier than the familiar ones. Perhaps this is due to familiarity, but that only shifts the problem: Why did the familiar expressions become popular?

Conclusion

Lakoff's seminal work on metaphor and concepts was motivated in part as a reaction to difficulties in the classical theory of concepts. Similar concerns have inspired other proposals that bear interesting similarities and differences to Lakoff's. Theory Theory's theories share much with Lakoff's schema, but allow for abstract concepts that are ground in the theory rather than directly in perceptual/motor representations (Gopnik & Meltzoff, 1997). Hierarchical Bayesian models allow representations in different domains to share structure without one being derived from the other (Tenenbaum, Griffiths, & Kemp, 2006). Understanding the differential developmental consequences of these theories should profitably inform our understanding of conceptual representations.

In summary, while Lakoff's account is compelling, determining its empirical status will require more investigation. However, even should the theoretical proposal prove incorrect, the patterns uncovered by Lakoff and colleagues in how we talk about emotion are striking and must be addressed by any theory.

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