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Situating Abstract Concepts

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Roughly speaking, abstract concepts such as *TRUTH* refer to entities that are neither purely physical nor spatially constrained (Wiemer-Hastings, Krug, & Xu, 2001). Such concepts pose a classic problem for theories that ground knowledge in modality-specific systems (e.g., Barsalou, 1999, 2003a,b). Abstract concepts also pose a significant problem for traditional theories that represent knowledge with amodal symbols. Surprisingly, few researchers have attempted to specify the content of abstract concepts using feature lists, semantic networks, or frames. It is not enough to say that an amodal node or a pattern of amodal units represents an abstract concept. It is first necessary to specify the concept's content, before beginning the task of identifying how this content is represented.

Hypotheses

A common assumption is that abstract and concrete concepts have little conceptual content in common, if any. Alternatively, we propose that concrete and abstract concepts share important similarities. In particular, we propose that they share common situational content, namely, information about agents, objects, settings, events, and mental states (Hypothesis 1). Where concrete and abstract concepts differ is in their specific foci within background situations. Whereas concrete concepts focus on objects and settings, abstract concepts focus on events and mental states (Hypothesis 2). As a result of these different foci, the representations of abstract concepts are more complex, being less localized in situational content (Hypothesis 3). Finally, because the content of abstract concepts is grounded in situations, modality-specific simulations could, in principle, represent it (Hypothesis 4).

Method

In an exploratory study, we assessed the content of three abstract concepts: *TRUTH, FREEDOM,* and *INVENTION*. These concepts were compared to three concrete concepts—*BIRD, CAR,* and *SOFA*—and also to three intermediate concepts—*COOKING, FARMING,* and *CARPETING*. We first asked participants to produce properties typically true of these concepts. We then analyzed these properties using two coding schemes, one that coded small protocol units, and a second that coded large ones.

Results

For the complete results, see Barsalou and Wiemer-Hastings (in press). Both coding analyses offered support for Hypothesis 1, namely, common situational content was produced across concrete, intermediate, and abstract concepts. For all concepts, participants tended to describe background situations, including information about entities, settings, events, and mental states. Indeed the similarities between concepts were more striking than the differernces.

Both analyses also offered support for Hypothesis 2, namely, concrete and abstract concepts differed in their situational foci. Whereas concrete concepts focused more on objects, locations, and behaviors, abstract concepts focused more on social aspects of situations (e.g., people, communication, social institutions) and mental states (e.g., beliefs. complex relations). Intermediate concepts lay in between.

Consistent with Hypothesis 3, conceptual structures were most complex for abstract concepts. Abstract concepts were most likely to contain deep hierarchies of large conceptual clusters organized by complex relations.

Regarding Hypothesis 4, we see no reason that the content of abstract concepts cannot be represented in simulations. Because their content is perceived in the situations that involve abstract concepts, it could, in principle, be reenacted later when representing them. Clearly, much further research beyond this exploratory study is necessary.

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