

# Emerging Trends in Culture and Concepts

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## Abstract

The relation between culture and concepts has long been a fascinating topic for layperson and scientist alike. But often this topic has generated more heat than light—strong claims have been paired with weak evidence, and anecdotes have been more common than empirical data. More recently, however, interdisciplinary research programs have begun to demonstrate that interest in the relation between culture and concepts is not misplaced. In this essay, we review prior, emerging, and potential future trends in culture and concepts research. Changing conceptions of culture are in turn affecting how culture is studied as well as our understanding of concepts.

First, we discuss current challenges in cultural research stemming from the fact that cognitive science studies have largely been done by Western researchers attempting to extend observations with Western college students to the world at large. Next, we highlight cultural research on semantic spaces, agency, and causality and note intriguing parallels in their development. These bodies of work refine previous views of concepts as stable units of thought by focusing on how concepts acquire (shifting sets of) meanings within contextual and epistemological systems.

## INTRODUCTION

Having read the title of this review, your first question might be which of the 7-letter C-words is going to be primary and which secondary. A betting person might predict that the focus will be on how studies of culture are modifying our understanding of concepts. The alternative question of how our understanding of concepts has affected the study of culture would be more of a long shot. Of course, there is also the possibility that the thesis will be that changing conceptions of culture are affecting not only how culture is studied but also our understanding of the concepts employed in such studies.

If you are an experienced multiple choice test taker, you may have settled on the correct answer, “all of the above.” Although a great deal of previous

research can be seen as focused on cultural similarities and differences in conceptual spaces (e.g., color terms, folk taxonomies) these domains are themselves being questioned by recent research. These developments, in turn, are affecting conceptions of culture.

In what follows we first provide some methodological and orienting observations on culture and concepts and then turn to a focus on emerging trends and perspectives. Finally, we end with some projections concerning future research and theory.

### CURRENT CHALLENGES

Given the diversity of human thought, a salient issue for cross-cultural study concerns decisions about what the relevant units of similarity or difference might be. Cognitive science has generally approached this problem by treating concepts as the “units of thought” that form the building blocks of folk theories (Barsalou, Wilson, & Hasenkamp, 2010; Carey, 2009). Under this paradigm, comparisons typically are drawn at the level of individual concepts (e.g., do two groups share the same concept of agency?) or a series of related concepts [e.g., do groups share similar folkbiological taxonomies? (Atran, 2002)].

The overwhelming empirical base for cognitive research, including research on concepts, comes from samples of undergraduates attending major research universities, despite evidence that these samples may be especially unrepresentative of people in general (Henrich, Heine, & Norenzayan, 2010). For present purposes our concern is somewhat different. We believe that research and theory tailored to US samples has unfortunate consequences for how cultural research tends to be framed, producing what might be called a *home-field disadvantage* (Medin, Bennis, & Chandler, 2010). That is, there are substantial limitations and opportunities for error associated with research that reflects a single (Western) perspective and employs materials and methods adapted for a single study population (i.e., Western undergraduates).

Consider the following example. It has proved useful to assume that conceptual development and behavior is organized in terms of domain-specific processes and principles (Carey, 2009; Gelman & Legare, 2011; Wellman & Gelman, 1992). Conceptual domains are defined in terms of the ontological kinds they treat: (human) intentional agents are the proper subjects of *folk psychology*; nonhuman animals and plants fall under *folk biology*; and natural inanimates under *naive physics*. But recently there have been signs that this may be a particularly Western way of parsing knowledge into domains. For example, Hirschfeld (2013) has suggested that folk sociology is a coherent

domain—this possibility raises questions about the relations between intuitive social and psychological frameworks.

A critical attitude toward domains is important because domains may affect both what research is done and how it is conducted. For example, Atran & Medin (2008) report a body of work on culture and folk biology, focused on people's understanding of plants and animals. This research included studies of folk ecological knowledge involving plants and animals (including humans). Note, however, that if the initial research framing had been in terms of ecosystems, the researchers likely would have included natural inanimates such as the sun and moon, rocks, soil, and water in their probes. They did not. The category, folk biology, may have led to the focus on living kinds. To their credit, Atran and Medin included human beings in their studies of folk ecology, a species one might overlook from the cultural perspective that humans are not part of nature (Bang *et al.*, 2007).

Another dimension of home-field disadvantage stems from the logic of the comparison space. In practice, the question of whether people "have" the same concepts across cultures has typically been framed as: "Do other people have the same concepts as Westerners?" This approach risks naturalizing Western concepts, as it relies on methods designed to reveal one particular conceptual framework (e.g., folk psychology) over others (e.g., social interactions) (Miller, 2004). For example, a recent theory-of-mind study reported results from three small-scale societies (Barrett *et al.*, 2013). But results from a fourth field site in Kenya were not included because, according to authors, young children "fail at our tasks" (Supplementary Materials S.6, p. 27). That is, Kenyan children did not show the expected preferential-looking patterns on theory-of-mind tasks. The authors suggest that these children may have been attending to "the social demands of the testing situation rather than to the task itself" (p. 27). We suggest that the task failed to tap children's sophisticated social competencies; indeed, the Kenyan data may have been the most fertile ground for exploring cultural theory-of-(social)-mind concepts.

This review of concerns and cautions is not exhaustive, but these challenges are a small price to pay for the fascinating body of work on culture and concepts to which we now turn.

#### EMERGING TRENDS IN CULTURE AND CONCEPTS

*Whorf and Semantic Spaces* If languages differ, do their speakers possess correspondingly different concepts? The idea that they do is commonly known as the *Whorfian hypothesis*, after Benjamin Whorf. Researchers studying the language–thought interface have been of two intuitions. Some suspect that despite surface variation, all languages share similar underlying semantic structures. This view is well aligned with the idea that human conceptual

systems “carve nature at its joints,” implying that languages will do so, too. Others suspect that languages share no universal properties, and argue that linguistic systems are shaped by sociocultural communicative and cognitive constraints (Evans & Levinson, 2009). This view may imply far-reaching conceptual diversity.

When respect to word-concept mappings, these questions have typically been explored through documentation of semantic fields such as ethnobiological names or spatial lexemes. This framework tends to assume that culturally shared semantic structures “reside as localized functional units in the minds of individuals”—words are thoughts (Romney & Moore, 1998). However, two emerging perspectives assert that linguistic and cognitive diversity share a more complex relationship (Enfield & Sidnell, 2013; Malt *et al.*, in press; Malt & Majid, 2013; Núñez & Cornejo, 2012; Sauter, LeGuen, & Haun, 2011).

One approach treats concepts as networks of meaning revealed imperfectly in language. In a study of human locomotion terms, for example, Malt *et al.* (2008) presented action videos to participants and analyzed how speakers of four languages (English, Spanish, Dutch, Japanese) assigned words to movements. Differences were found at the level of single lexical items such as “jumping” versus “hopping” (or what might be identified as “concepts” under common psychological methods). Although each language made unique distinctions at the level of individual words, multidimensional scaling (MDS) showed that languages tracked similar discontinuities in locomotion. All four languages marked sensitivity to a biomechanical dimension as well as a speed/aggressiveness movement dimension. Importantly, this shared conceptual space did not map precisely onto the words of any single language.

Malt *et al.* (in press) propose that concepts do not represent stable “units” of meaning, but should be understood in terms of moving dimensions of thought “experienced as a coherent grouping” (p. 37). Shifting conceptual alignments may form in response to different situations as attention is drawn to different dimensions, depending on the goals in play. This suggests that there is no “most basic” concept for a domain. Furthermore, habitual frames of attention and experiential contexts—cultural life—will be critical to understanding the range of variation in conceptual systems. Most psychological tasks have been conceived with a Western (English) language concept in mind. But as Malt and colleagues caution, “It seems impossible to discern from only a single language what the shared elements will be and which parts of the patterns are idiosyncratic to the language” (p. 30).

While locomotion terms differ lexically but converge on a common conceptual space, one domain in which languages appear to exhibit cognitive divergence is spatial reasoning. Recent investigations focus on how spatial

language and concepts are emergent products of worldviews. Working with the Aymara of the Andes, Núñez & Cornejo (2012) explore the origins of a unique linguistic phenomenon. When Aymara speakers describe things in space, they use an absolute (cardinal) frame but encode it with *intrinsic* lexemes, such that “west/east of” corresponds to “in back/front of.” This intrinsic-for-absolute encoding is robust, expressed in spontaneous co-speech gesture, Andean Spanish, metaphors, and urban layouts. But critically, Aymara language has words corresponding to “east” and “west.”

Why then do Aymara speakers use the intrinsic frame for “back” and “front”? The authors point to the Aymara worldview whereby the entire community—humans, animates, environment, and artifacts—is part of Nature, “the totality of which is canonically oriented toward the location of the sunrise” (p. 24). Aymara do not use absolute terms to describe their spatial layout because doing so “would portray an empty meaningless land, deprived of its constitutive humanity” (p. 24). Núñez & Cornejo’s conclusions resonate with Malt and colleagues’ argument that both concepts and words must be contextualized within larger systems, whether across languages (locomotion terms) or across levels within a culture. As we will see, this same principle holds for conceptions of agency.

*Agency Concepts.* The concept of agency is foundational to cognition, influencing how people think about phenomena ranging from animacy to morality. Agency can be defined as a capacity for intentional action, and cognitive scientists have explored how agency concepts inform one’s sense of self, attributions of causal agency to others, and moral judgments about (mental) intentions underlying behavior. But is the concept of agency the same across cultures? Early foundational work on the social construction of agency suggested not, finding East–West differences in independent versus interdependent agency (Markus & Kitayama, 1991). Studies since have explored how these distinct orientations affect cognition across cultural settings, including social class (e.g., Snibbe & Markus, 2005; Zemba, Young, & Morris, 2006). More radically, recent cultural research has cast new light on what it means to be an agent.

Cultural habits of speaking may relate to how people construct notions of agency, as when ascribing causal agency to the actions of others (Wolff, Jeon, & Yu, 2009). Linguistically, there are different ways to mark agents for intentional versus accidental events. English allows speakers to specify the agent who caused an accidental event (she broke the vase), but Japanese and Spanish tend to omit the agent in such cases (the vase broke) (Fausey, Long, Inamori, & Boroditsky, 2010). These cross-linguistic differences affect eyewitness memory for agents involved in accidental events. For example, Spanish

and Japanese speakers are less likely to remember the agents involved in accidental, but not intentional, events as compared to English speakers (Fausey & Boroditsky, 2011).

The relevance of the intentional, accidental contrast itself may be culturally variable. In many cultures, people are held accountable for their acts, with no apparent distinction made between intentional or unintentional agency (Robbins & Rumsey, 2008). For example, Danziger (2006, 2010) demonstrates that Mopan Maya treat the speaker's intentions as irrelevant to the question of lying: Any false utterance is considered a lie even if the speaker believed it true.

This feature is difficult to reconcile with Western concepts of agency. The tension between Western and Mopan Mayan concepts of agency is linked to broader cultural frameworks. Danziger (2010) argues that the Mopan treatment of agency must be understood within a cultural system where words are seen as having power to affect things directly in the world: "a sacred morality thus inheres in the relationship of spoken word to actual world, and the nature of the transgression involved in speaking falsehood is cosmological at least as much as interpersonal" (p. 214). As agency concepts are fundamental to morality, it is perhaps unsurprising that this trend converges with a systems approach to morality in cultures where the social consequences of an act are more relevant than individual intentions (Sachdeva, Singh, & Medin, 2011). Notably, these findings have yet to be taken up by dominant theories of moral cognition, which rely heavily on the presumed centrality of intention in moral judgments (Cushman, Sheketoff, Wharton, & Carey, 2013; Gray, Young, & Waytz, 2012).

These new perspectives on agency have important implications for related areas of research. For example, they carry over into the understanding of causal concepts.

*Causal Concepts.* Agency is arguably central to causality. Causal reasoning has long been assumed to play a central role in allowing individual agents to make predictions in the service of actions (Glymour, 2003). Perspectives on causality are shifting, however, as new theories emphasize the role of causal interpretation in facilitating social and cultural interaction. On this view, causal inference is geared not toward "input (obtaining information from the environment) or output (the direct control of action)" but toward social coordination (Baumeister & Masicampo, 2010, p. 945; see also Whitehouse, 2011).

The stage was set for such an argument through research demonstrating cultural variation in causal reasoning (Lloyd, 2007). Compared to Western societies, for example, East Asians tend to see a wider variety of indirect,



downstream consequences for causal events (Maddux & Yuki, 2006). This “ripple effect” suggests that perceived causal complexity varies by culture. Consistent with this possibility, other research has demonstrated systems-level causal thinking among nonwestern communities, including Brazilian urban poor communities (Duarte-Olson, 2013).

Much of the relevant evidence comes from studies of ecological reasoning. Compared to Western, majority-culture counterparts, Indigenous Itza' Maya and Native-American Menominee participants tend to focus on more complex interactions spanning multiple entities (e.g., species), contexts (e.g., habitats), and time scales (Atran & Medin, 2008; Unsworth *et al.*, 2012). These insights into systems thinking were made possible by methods that move away from analyzing people's reasoning about individual causal links (does  $x$  cause  $y$ ?) to explore larger systems of causation (how are  $x$  and  $y$  related to each other and to the larger system?).

Similarly, the broader perspective on the social function of causal concepts is contributing new views of cognitive development. Recent research has demonstrated that young children “overimitate” by initially copying causally irrelevant actions toward an instrumental end-goal (Gergely & Csibra, 2006; Lyons, Young, & Keil, 2007; McGuigan, Whiten, Flynn, & Horner, 2007). The backdrop for these studies is an analysis of “causally opaque behaviors.” These behaviors involve action sequences that are culturally dictated (e.g., rituals) rather than empirically self-evident (lacking transparent physical causal mechanisms). Yet their intended relationships to the world (e.g., treating illness) are readily intuited and manipulated, even for young children (Legare & Souza, 2012, 2014). Mundane forms of causal opacity are common to societies in the form of artifacts, norms, and conventions. These observations challenge the idea that people intuitively reason exclusively in terms of (physical) causal mechanisms. How, then, are such actions conceptualized and why are they intuitively appealing?

Part of the answer may lie in the fact that even young children are highly sensitive to contextual cues that guide the interpretation of social behavior (Herrmann, Legare, Harris, & Whitehouse, 2013; Legare, Whitehouse, Wen, & Herrmann, under review). Preschool-aged children will faithfully imitate an adult model who engages in various causally irrelevant behaviors to achieve an instrumental goal, such as retrieving an object from a box. Such “over-imitation” has inspired multiple explanations for the conceptual underpinnings of this development (Nielsen & Tomaselli, 2010). One possibility is that over-imitation results from more general learning processes for physical causality. Children engage in “automatic causal encoding” of an adult model's actions as causally necessary, even if the mechanisms are unknowable to the child (Lyons, Young, & Keil, 2007). Over-imitation thus informs the child's core knowledge of physical causality.

Another possibility is that over-imitation is linked to early ritualistic behavior and the transmission of cultural conventions rather than core causal knowledge (Legare & Herrmann, 2013). People engage in rituals to solve instrumental problems not because they encode actions as causally necessary, but because rituals satisfy intuitive notions of causal efficacy associated with goal-directed actions (i.e., repetitive, intentional action sequences) (Legare & Souza, 2014).

There is mounting evidence that a substantial amount of imitative learning is geared toward social coordination and is not about causal learning at all. Imitation is a means to “affirm a shared state” with a model, to “communicate mutuality” and signify shared identity (Over & Carpenter, 2012, citing Užgiris, 1981). Thus, imitation has social functions: to coordinate with others and to learn social group conventions and not simply the causal structure of the physical world (Kenward, Karlsson, & Persson, 2011).

The social perspective raises the possibility that causal cognition may often track normative systems for understanding reality rather than approximating some acultural model of the “natural” world. Even the very distinction between the natural and the social is not universal (Descola & Pálsson, 1996; Ingold, 2011).

#### KEY ISSUES GOING FORWARD

Recent studies are notable for their move beyond domain-specific approaches to individual concepts. Across various levels of analysis, each research program explores dynamic conceptual systems within larger contexts of thinking, acting, and relating. Building on the view of concepts as networks of meaning, we expect that research on language and thought will increasingly situate questions of cognitive universality or variation within larger cultural systems. Rather than exporting standard methods for testing Western-oriented concepts and domains, we hope to see greater attention to how concepts are uniquely shaped by epistemological frameworks.

We expect that new frameworks will increasingly complicate cultural dichotomies associated with individual concepts (e.g., independent versus interdependent agency) to explore underlying conceptual systems from shifting vantage points. For example, could cognitive signatures of an “interdependent” self-concept reflect attention to multiple loci of agency, as part of a cultural system that values patience and participation in social structures (Rogoff, Paradise, Arauz, Correa-Chavez, & Angelillo, 2003)? Or could it reflect a complex systems-like orientation to causality distributed across actors and environments?

Following new research on complexity of causal concepts, we hope to see that domain-specific claims premised on convenient dualisms (e.g., physical



versus social causality) will be further unpacked. Complex systems (e.g., ecosystems) in the “real” world involve highly diverse interactions across levels and domains. Thus, an important question concerns how people understand complex causal relationships that coevolve through interactions of organisms and environments at multiple levels (White, 2008, Duarte Olson, 2013). Such systems demand causal principles (e.g., cyclical feedback, nonlinear relations) that go beyond those currently afforded in most models of causal reasoning.

### CONCLUSIONS: FROM DOMAINS TO SYSTEMS OF RELATIONS

Emerging trends in semantics, agency, and causal concepts converge on the idea that individual minds are grounded in systems of social relations, from the languages we speak to the (cultural) practices we engage in, and concepts must be understood as elements of those systems (Barsalou *et al.*, 2010; Baumeister & Masicampo, 2010; Chater & Christiansen, 2010; Enfield & Sidnell, 2013; Hutchins, 2010; Mascaro & Csibra, 2012). This perspective sees individuals more as interactive cooperators than isolated problem solvers, by exploring how cognition enables people to respond to and interact with others and their environments. The overarching message is that concepts acquire meaning through relations to larger systems of knowing, speaking, living, and situational contexts (Cole, 1998; Rogoff, 2003).

How do changing views of culture and concepts feed back into one another? Murphy and Medin (1985) argued that concepts are embedded in, and organized by, theories. Although they reviewed a body of research supporting this view in the abstract, they did little by way of specifying what counts as a theory. More recently, these notions about theories have been operationalized (or perhaps replaced) by research programs focused on understanding *epistemological orientations*. Epistemologies are seen as sets of practices that both support and reflect ideas about what is worthy of attention and observation, in need of explanation, and counts as a satisfactory explanation. They are not so much about specific beliefs as they are about ways of relating to the rest of the world, rooted in practices and values (Cajete, 1999; Ingold, 2011; Medin, Ojalehto, Marin, & Bang, 2013). If concepts are no longer unit-like, neither is culture entity-like. Both represent systems that may be better captured on analogy with ecosystems, reflecting how people’s participation in multiple spheres of thought and practice influence dynamic habits of thinking.

Finally, it is only a small step to realize that scientific practices are (cultural) practices, leading us to our concluding comment relating the researchers to those being researched: if the researched have distinctive practices, then surely the researchers also do. Consequently, to the extent that science

incorporates multiple cultural perspectives, it will be the better for it (Medin & Bang, 2014).

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