Editorial: Causal cognition
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Editorial: Causal Cognition
Aaron P. Blaisdell and Tom Beckers

Rats Distinguish Between Absence of Events and Lack of Information in Sensory Preconditioning
Aaron P. Blaisdell, Kenneth J. Leising, W. David Stahlman, and Michael R. Waldmann

Contingency and Contiguity Trade-Offs in Causal Induction
Marc J. Buehner and Stuart J. McGregor

Assessing Generalization Within and Between Trap Tasks in the Great Apes
Gema Martin-Ordas and Josep Call

Covariation, Structure and Generalization: Building Blocks of Causal Cognition
Robin A. Murphy, Esther Mondragón, and Victoria A. Murphy
Editorial: Causal Cognition

The four papers of this special issue are derived from an expert meeting on *The Origins of Causal Cognition* that we organized in collaboration with Jan De Houwer and Michael Waldmann in May 2006 in Lignely, Belgium. Investigations of causal reasoning have their origins in philosophy dating as far back as Aristotle. Interest in human causal reasoning witnessed a renaissance in philosophy with the writings of the British Empiricists, in particular by David Hume (1748/1977) in *An Enquiry Concerning Human Understanding*—one of the most important books of Western philosophy.

A scientific framework for thinking about causal cognition recently emerged from the psychology of instrumental action (Killeen, 1981; Mackintosh, 1977; Shanks & Dickinson, 1987, see review by Young, 1995). This framework recognizes the relationship between a goal-directed instrumental action and an outcome to be a causal one. It is futile to refute the mountain of evidence demonstrating parallels between instrumental and Pavlovian conditioning phenomena in animals on the one hand, and contingency assessment and causal judgments by humans on the other (see Shanks, 2007 for a recent review). Nevertheless, despite the extensive evidence that bottom-up processes such as instrumental and Pavlovian learning play a fundamental role in the acquisition of causal knowledge, there is also accumulating evidence for the involvement of top-down processes of causal induction (see Blaisdell, in press; Waldmann, Hagmayer, & Blaisdell, 2006). Evidence for top-down processes comes from both human (e.g., Beckers, De Houwer, Pineño, & Miller, 2005; Cheng, 1997; Gopnik et al., 2004; Sloman, 2005; Waldmann, 1996; Waldmann & Holyoak, 1992) and animal (e.g., Beckers, De Houwer, Miller, & Urushihara, 2006; Blaisdell, 2008; Blaisdell, Sawa, Leising, & Waldmann, 2006; Leising, Wong, Waldmann, & Blaisdell, 2008; Wheeler, Beckers, & Miller, 2008) experiments. Similar developments have occurred in the fields of statistics, computer science, and philosophy (e.g., Pearl, 2000; Spirtes, Glymour, & Scheines, 1993; Woodward, 2003). Two of the papers in this special issue continue to explore psychological approaches to causal discovery in humans (Buehner & McGregor) and rats (Murphy, Mondragón, & Murphy). The paper by Blaisdell, Leising, Stahlman, & Waldmann presents some novel discoveries about the representational and reasoning capacities that underlie causal cognition in rats.

Comparative psychologists have recently been interested in the causal and other representational processes that mediate problem solving behavior during tool use. These studies have employed clever tasks using interesting apparatus, such as the trap tube, to uncover the kinds of reasoning processes that mediate their solution with some tantalizing results in both primates (e.g., Limongelli, Boysen, & Visalberghi, 1995; Mulcahy & Call, 2006; Povinelli, 2000; Visalberghi & Limongelli, 1994) and corvids (e.g., Seed, Tebbich, Emery, & Clayton, 2006; Weir & Kacelnik, 2007). In their contribution, Martin-Ordas and Call present some recent comparative studies involving all of the Great Ape species establishing the generality of knowledge about the effects that traps have on unsupported objects.

Together, this collection of papers attests to the progress that has been made in elucidating causal cognition thanks to rigorous experimental work inspired by various, complementary perspectives. It also serves to illustrate the flourishing state of the field of comparative causal cognition.
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References


