

## INTRODUCTION

# Sense of Agency: Theory, Methods, and Application

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*Sense of agency* is an area of growing research interest with important implications for our understanding of consciousness; motor control; psychiatric symptoms, such as passivity phenomena; hypnosis; and the neuropsychological basis of moral and legal responsibility. These seemingly disparate research topics all overlap in a push toward increasingly specific models of the subjective phenomenology of action. In December 2013, a group of cognitive scientists, philosophers, and clinicians working on sense of agency gathered for a workshop at Macquarie University in Sydney, Australia. The collection of articles in this special issue presents a selection of ideas that have developed from that meeting and demonstrates some of the latest thinking on the theory, methods, and application of agency research.

The issue begins with discussion and critiques of theoretical accounts of sense of agency, including a proposal for refinements of the comparator model (Caruthers, 2015, pp. 210–221) and a reevaluation of links between ownership and agency (Morgan, 2015, pp. 222–236). These contributions are followed by articles that examine methodological issues in empirical sense of agency research. The intentional binding technique is one of the main methods that contemporary researchers use to assess sense of agency, and a number of contributors focused on the mechanisms that underlie this methodology. A collection of experiments tested the importance of causality (Buehner, 2015, pp. 237–252), identity-specific sensory predictions (Bednark, Poonian, Palghat, McFadyen, & Cunnington, 2015, pp. 253–268), and individual differences in psychosis-like experiences and age (Graham, Martin-Iverson, & Waters, 2015, pp. 269–282) for understanding findings from the intentional binding task. This special issue also provides new empirical and theoretical findings relevant to clinical disorders of agency, including the finding of an association between the variability of intention judgments and schizotypy (Moore & Bravin, 2015, pp. 283–290), a conceptual account of how predictive coding may explain thought insertion (Ger-

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rans, 2015, pp. 291–300), and a comparison of the phenomenology of clinical and hypnotic agency alterations (Polito, Langdon, & Barnier, 2015, pp. 301–314). In the final section of the special issue, contributors explore real-world applications of sense of agency research, including a developmental account of how the capacity for agency emerges during childhood (Deans, McIlwain, & Geeves, 2015, pp. 315–325), an exploration of agency alteration in dreams (Rosen, 2015, pp. 326–339), and a case study of sense of agency in expert skilled behavior (Christensen, Bicknell, McIlwain, & Sutton, 2015, pp. 340–353). The application of sense of agency theory to nonclinical domains is an underrepresented area of cognitive science, and these articles point the way toward promising new directions for future sense of agency research.

Overall, these articles provide a snapshot of the current state of a rapidly evolving field. It is clear from these articles that we are developing increasingly sophisticated and nuanced theories about the mechanisms that underlie sense of agency and the relationships between agency and other constructs. In addition, the articles demonstrate continued refinement of methods for assessing sense of agency and exciting developments for improved clinical understanding. Finally, this special issue highlights new avenues for agency research, including connections with broader psychological theories of development, dreaming, and expertise. Despite these advances, a great deal remains to be discovered. Sense of agency will no doubt continue to be an area of cross disciplinary interest and an important part of understanding the psychology of consciousness.

Sadly, in the short time between the conference that sparked this special issue and its publication, our coeditor, Doris McIlwain, became ill and passed away. Doris possessed a tremendous intellect with an uncanny ability to discern and articulate links across broad domains of research. She approached science and life with a playful, infectious curiosity. These qualities can be seen in the articles she coauthored in this issue, and in the enriching impact her ideas have had on the writing and perspectives of many of the authors represented here. We will miss her deeply. This special issue is dedicated to Doris, with great appreciation for her wise mentorship and the legacy of research she leaves behind.

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