The Computational Foundations of Religious Cognition:
A Workshop Hosted by the International Association for the Cognitive Science of Religion (IACSR)

Ann Taves (taves@religion.ucsb.edu)
Department of Religious Studies, Mailcode 3130, UCSB, Santa Barbara, CA 93106, USA
University of California, Santa Barbara

Dimitris Xygalatas (xygalatas@uconn.edu)
Department of Anthropology, 354 Mansfield Road, Storrs CT 06269, USA
University of Connecticut

John Shaver (john.shaver@otago.ac.nz)
Religion Programme, P.O. Box 56, Dunedin 9012, New Zealand
University of Otago

Workshop Description

Religion is of global significance, and its study requires explanations from cognitive science. Currently, the cognitive science of religion consists of researchers working in an array of disciplines, employing diverse methods, including, among others: experimental research and modelling in psychology and neuroscience, and historical, archaeological, and comparative studies of religious cognition in anthropology and religious studies. The International Association for the Cognitive Science of Religion (IACSR) seeks to advance the naturalistic and cognitive study of religion by providing settings for productive dialogue across disciplinary boundaries and methodological approaches. This half-day workshop, organized by the IACSR, has three complementary goals: 1) to expose attendees to diverse methodologies for studying the computational foundations of religious cognition, 2) to provide a forum for researchers to present recent empirical findings that bear on our understanding of religious cognition, and 3) to foster new research collaborations.

To achieve these goals, the IACSR has invited three speakers whose recent work represents cutting-edge, yet diverse, methodological approaches to the study of the foundations of religious cognition. The IACSR executive board also solicited poster submissions from members and interested researchers. The first half of this workshop will consist of the three invited lectures, and the second half will involve the presentation and critical discussion of eight posters that were the highest rated by blind peer review.

Invited talks

The Power of Suggestibility: Using Placebo Brain Stimulation Devices to Manipulate Subjective Experience.

Michiel Van Elk, Department of Psychology, University of Amsterdam

Effects of expectancy have been studied widely in both clinical as well as experimental settings and show the powerful effects of expectations on treatment outcomes. However, most studies on expectancy effects have focused selectively on the use of inert treatments for alleviating pain or illness. Less is known about the potential of enhancing cognitive performance or human experience through expectancy manipulations. In this talk I will present a series of studies aimed at investigating the psychological and neurocognitive basis of expectancy effects on human performance and experience. First, in three studies we used a placebo 'God-helmet' to manipulate mystical experiences and to investigate the effects of self-transcendence on self-perception. In a second research line we used a placebo cognitive enhancement device and we found that belief in cognitive enhancement was associated with a stronger externalization of agency and a change in neural responses to errors. Third, in an fMRI study we found that the tendency to get absorbed in external stimuli was associated with a decreased activity of the default mode network (DMN) and the anterior cingulate cortex (ACC), thereby indicating that a process of de-selfing and reduced cognitive control could underlie suggestibility effects. These findings are integrated in the computational framework of predictive processing, which provides a unifying theory to account for religious and spiritual beliefs and experiences.

"I once was blind…" Choice Blindness and Religious Attitude Reversals

Ryan McKay, Department of Psychology, Royal Holloway London

"Choice blindness" refers to the fact that research participants often fail to notice mismatches between an outcome they choose and an outcome they receive, while nevertheless being prepared to offer justifications for choosing the outcome they did not in fact choose. Recently this phenomenon has been demonstrated in the domain of peoples' political and moral attitudes. For example, one study 'magically' exposed participants to a reversal of their previously stated attitudes, and found that many participants not only failed to detect these reversals, but constructed coherent and unequivocal arguments supporting the opposite of their original position. In this talk I will describe some recent research adapting this paradigm to the domain of religion. Our findings reveal a dramatic potential for flexibility in our religious attitudes and beliefs. I will situate this research in the broader context of attempts to manipulate religiosity.

Mind the Text - Retracing Mental States and Cognitive Trajectories in Historical and Text-Heavy Data

Kristoffer Nielbo, Digital Text Laboratory & Interacting Minds Centre, Department of Culture & Society, Aarhus University

Humans exhibit a species-unique capacity for long-term planning and future-oriented cognition. This 'deep temporality' is so fundamental to human behavior, that it can be considered the hallmark of our symbolically mediated environmental interactions. Systems of cultural norms and behavior (e.g., religious groups and traditions) have a long history and develop at a time scale, which can present a challenge to the canonical methods in cognitive and experimental anthropology. How, for instance, can we approach the historical and cognitive trajectories of adherents to a religion codified several thousand years ago? The proliferation of digitized historical and text-heavy data we are currently witnessing holds part of the solution. To illustrate this within the domain of cultural cognition, we present three studies that combine techniques from Natural Language Processing (NLP) and text data mining in order to study cognitive and affective trends at multiple time scales. Study 1 compares cognitive trajectories for historically significant religious experts; study 2 explores semantic change and concepts of mind in classical Chinese literature; and study 3 presents evidence for an evolutionary-based motivational model of religious fundamentalism. We argue that when combined with domain knowledge in language and culture, NLP and text data mining are promising approaches to cultural cognition at long time scales.

Peer-reviewed Posters

Supernatural Agents in Predictive Minds. Marc Anderson, Aarhus University. A description of what is currently regarded as one of the most promising models of perception in cognitive neuroscience, predictive coding, and the results of three experimental studies in which this framework is operationalized.

AVM: Data Structures for the Cognitive Science of Religion. Tamás Biró, Eötvös Loránd University. Describes a method for understanding religion as a complex network of attribute-value matrices (AVMs).

Flag Identity Theory (FIT): A Cognitive Explanation for Large Scale Group Cooperation and Conflict. Michael Gantley, University of Oxford, Justin Lane, Boston University. Describes Flag Identity Theory, which relies upon cognitive mechanisms for social identification and biases of loss avoidance to explain patterns of large scale cooperation.

Culturally and Developmentally Robust Intuitions about Purpose and Intentional Design in Nature: Dual Processing Evidence from China. Deb Kelemen, Boston University, Elisa Järnefelt, University of Helsinki, and Liqi Zhu, Chinese Academy of Sciences. Describes the results of two studies conducted in China: the first replicated earlier Western-based findings of a default teleological bias. In the second, participants revealed marked tendencies to view natural phenomena as created, particularly under speeded conditions and in a non-human-made rather than human-made condition.

Computer Simulation of Large-scale Religious Systems. Justin Lane, Boston University. Describes the use of multi-agent artificial intelligence to simulate individual and group level dynamics of religious cognition.

Do forgiving God Primes Strengthen Support for State Sanctioned Punishment? Katherine O'Lone, Royal Holloway London. Describes the results of a study that investigated whether the manner in which God is believed to intervene affects people's endorsement of state-sanctioned punishment.

Cognitive Foundations of Theodicy. Karolina Prochownik, Jagiellonian University. Describes a dual-process cognitive approach to the study of theodicy.

"I can't believe she's dead": The Effects of Corpse Viewing and Corpse Condition on Vigilance for Deceased Loved Ones. Claire White, UC Northridge, Daniel MT Fessler, UCLA, Pablo Gomez-Forero, UC Northidge. Describes the results of a study that examines the effect of exposure to cues of death on vigilance for agents.