

**New developments in the cognitive science of religion.**  
**Hosted by the International Association for the Cognitive Science of Religion**  
**(IACSR)**

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**Keywords:** religion; cognition; cognitive science of religion; neurobiology of religion; experimental science of religion

### **Workshop Abstract**

The International Association for the Cognitive Science of Religion (IACSR) seeks to advance the naturalistic study of religion. The IACSR recognizes that the cognitive sciences encompass a wide array of disciplines and methods, including, among others, experimental research in psychology and neuroscience, computational modeling, ethnographic, historical, archaeological, and comparative studies of religious cognition, and the survey techniques of the social sciences. The main goal of the workshop is to introduce CSS members to topics that are cutting edge in the cognitive science of religion. Religion is obviously of global significance, and its study requires explanations from a variety of perspectives that involve broader issues relevant to cognitive science.

### **Talks, Papers and Posters**

#### **Invited Keynote**

**Richard Sosis** (Department of Anthropology, University of Connecticut). *Evolutionary Signaling Theory and the Cognitive Science of Religion*: Cognitive and evolutionary scholars of religion have employed signaling theory to examine variation in costly religious behaviors and beliefs across societies, and the selective pressures that have shaped these cultural traits. Signaling theory posits that religious costs serve as signals of an individual's commitment to a religious group, and that increased levels of commitment facilitate intra-group cooperation and trust. Evolutionary signaling theory, however, maintains an ambiguous position in the cognitive science of religion. Here I use recent ethnographic and experimental studies that test hypotheses derived from evolutionary signaling theory to explore this debate. These studies demonstrate how evolutionary scholars of religion can benefit from understanding cognitive mechanisms, and how CSR scholars can strengthen their emerging subfield by making use of the rich theoretical insights of evolutionary science.

#### **Submitted Papers**

**Steven Hrotic** (University of Northern Texas). *Cumulative Cultural Evolution of Birdsong in Humans*: A genetic perspective on humanity would understandably study the animals to whom we are most closely related for parallels to our own behavior. However, an ecological view would suggest that instead we observe animals with similar challenges and similar cognitive tools. For example, Bengalese finches have been shown to prefer birdsong that is relatively familiar as an honest signal of relatedness; and also relatively complex birdsong, as an honest signal of fitness. This process - a pleasure-response to limited novelty and intelligible complexity - may describe the social use of music in humans as a marker of identity. Unlike finches, humans also have the capacity to cumulatively evolve culture. Given these two 'soft constraints' (a preference for novelty and for complexity) this presentation examines the cumulative cultural evolution of music in humans as a sequential ratcheting of complexity within a single domain until a 'hard constraint' is reached.

**Natalie A. Emmons, Neil Young & Jesse M. Bering** (Queen's University Belfast). *Adult's Reasoning about Early Life and 'Pre-Life'*: In this presentation, we will introduce findings from a recent study on adults' reasoning about early life and 'pre-life.' This study follows from previous investigations on children's early life and 'pre-life' notions as well as research on children and adults' after-life reasoning. This study extends findings demonstrating that children from two cultural groups in Ecuador differentiate between the types of biological and psychological capacities they believe they had when they were infants and fetuses (i.e., early life) in addition to before they were conceived (i.e., 'pre-life'). The present study sought to determine if adults from the UK reason like older Ecuadorian children. When examined with findings from the Ecuadorian child study, it appears that a developmentally stable strategy for reasoning about pre-life does exist. The findings from this study will be used to help explain why after-life beliefs are pan-cultural whereas pre-life beliefs are only found in certain cultures.

**Paul Reddish, Ronald Fischer & Joseph Bulbulia** (Victoria University of Wellington) *Assessing the Cooperative Effects of Ritual Interactions: Synchrony or*

*Choreography?*: Religion is not merely professed but also enacted - in dancing, marching, singing, and chanting. Social scientists have long proposed that SRIs (Synchronous Rhythmic Interactions) of the kind found in religious rituals serve subtle social-solidarity functions. Until recently, however, causal evidence for cooperative augmentation from SRIs has been scarce. In the past few years experimental studies have offered preliminary support for the SRI hypothesis, but despite these impressive results, the cognitive mechanisms underlying these effects remains unclear. Our study extends previous research by isolating the effects of synchrony on cooperation along three dimensions: 1) body movements, 2) vocalizations, and 3) goal structures. A variety of behavioural and self-report measures were employed to assess cooperative outcomes. Our results found intriguingly mixed support for the SRI hypothesis and suggest a more nuanced approach to ritual is needed.

**Kristoffer L. Nielbo & Jesper Soerensen** (Aarhus University). *Investigating Ritual & Ritualized Behavior: Spontaneous and Hierarchical Processing of Non-functional Events*: Rituals are often highly stipulated actions, the concrete behavioral sequence being specified by tradition. Further, rituals seem to involve actions made distinct by means of such features as formality, repetition, redundancy, stereotypy, invariance, causal opaqueness, goal demotion and intentional underspecification. In our studies we have chosen to focus on the derivedness from instrumental behavior, intentional underspecification and goal-demotion. In contrast to instrumental or functional behavior (i.e. actions that cohere causally and have a necessary integration of subparts), we propose to view ritual and ritualized action as sub-categories of non-functional behavior (i.e. actions lacking causal coherence and a necessary integration between subparts). We propose that this has non-trivial effects on cognitive processing of actions. To investigate this claim we have employed a dual approach, combining behavioral experiments and computer simulations.

**Edward Slingerland** (University of British Columbia). *Weak Folk Dualism in Early China: A Large-Scale Corpus Analysis*: Early China has traditionally served in Western comparative studies as "the Other" par excellence. One frequently cited feature of Chinese thought-or "Eastern" thought more generally is its supposedly "holistic" conception of the self, in contrast to the dualist West. If the strong versions of such claims are true, Chinese holism would represent a significant challenge to arguments concerning the innateness and universality of folk dualism, as well as hypotheses concerning possible connection between folk dualism, religious belief, and prosociality. This talk will present the results of a keyword-focused coding project focused on the word xin ("heart-mind") in the pre-Qin Dynasty (pre-221 B.C.E.). Our results strongly support the claim that early Chinese thought was

characterized by a qualitative contrast between body and mind. However, this dualism is clearly not of the Cartesian variety. This talk will discuss how, along with other historical evidence and some recent work in the cognitive science of culture, these results suggest that the claim that human beings are "natural Cartesians" (Paul Bloom) needs to be slightly modified: folk dualism would appear to be "sloppy" or "weak" rather than consistently Cartesian.

## Submitted Posters

**Konika Banerjee, Omar S. Haque & Elizabeth S. Spelke** (Harvard University). *Melting Lizards and Crying Mailboxes: Children's Preferential Recall of Minimally Counterintuitive Concepts*: The study examines whether children, like adults, also demonstrate superior recall of minimally counterintuitive concepts.

**Tamás Biró** (University of Amsterdam). *Religious Mental Structures: Counterintuitiveness Represented in Optimality Theory*: Making use of optimality theory, this study lays down a formal model of the cognitively optimal representation of counterintuitiveness.

**Bethany Heywood** (Queen's University Belfast). *Tracing the Origins of Religion in Human Prehistory*: This study attempts to trace religious belief by tracing the development of artifacts and subsequent cognition in early humans.

**Else-Marie E. Jegindoe et al.** (Aarhus University). *Prayer Induced Analgesia: A Controlled Effect Study*: This clinical effect study (Task Force Monitor & Biopack system) finds that personal prayer reduces pain for religious but not for non-religious participants.

**Jeppe Sinding Jensen** (Aarhus University). *Normative Cognition: A Uniquely Human Cognitive Capacity*: This study explores how symbolic systems provide governance in cognizing and in predicting behavior in self and others.

**Mette Løvschal** (Aarhus University). *Why the Long-Term Perspective? An Archaeological Approach to Human Conceptualization*: This study explores the impact of time and materialities on human cognition analyzing a spatial phenomenon over a 1000 year period.

**Panagiotis Mitkidis & Jesper Soerensen** (Aarhus University). *For God We Trust and Cooperate. Or Do We? A Game Theoretical Approach to Functional and Non-Functional Behavior*: This study examines the relation that ritualistic and ordinary behaviors have to trust and cooperation enhancement.

**Winston R. Sieck** (Wesleyan University). *Metacognition and Religion: The Case of Islam*: This study examines how metacognitive beliefs instill certitude in religious adherents.

**Konrad Talmont-Kaminski** (Marie Curie-Sklodowska University). *Epistemic Vigilance, Reasoning, and Religion*: This study examines how epistemic trust and epistemic vigilance are counterbalanced in by the protection of religious beliefs.

**Dimitris Xygalatas** (Aarhus University). *Religion and Cognition in the Field*: This poster demonstrates three studies that show the importance of bringing experimental methodologies to ethnographic fieldwork.