

New Cognitive Approaches to Religious Ritual: An RCC-CFIN-MIND*Lab* panel, Aarhus University

Chairs

Prof., Dr. Phil. Armin W. Geertz

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This panel will serve as a showcase for the newest results coming out of the cognitive and neurobiological synergies generated by three research units and centers: the Religion, Cognition and Culture (RCC) research unit, the Center for Functional Integrative Neuroscience (CFIN) and the research coalition under the NeuroCampus at Aarhus University known as MIND*Lab*. These research units cover a wide variety of projects and methods in the study of the brain and the mind. Our panel will focus on collaborative projects dealing with religious ritual, not only with preliminary results from the RCC-CFIN-MIND*Lab* firewalking expeditions to Spain and Mauritius, but also results from other projects dealing with ritual.

The RCC-CFIN-MIND*Lab* coalition will also be co-hosting a reception on August 16th together with the International Association for the Cognitive Science of Religion (IACSR) and Explaining Religion (EXREL), a FP6-2006-NEST-PATH, Sixth Framework Programme, under the European Commission.

Program

Day 1

- 09:00-09:20 Joseph Bulbulia, Paul Reddish, Ronald Fischer: “Ritual Effervescence and Experimental Psychology”
- 09:20-09:30 Discussion
- 09:30-09:50 Dimitris Xygalatas: “The Cognitive Study of Religion in the Wild”
- 09:50-10:00 Discussion
- 10:00-10:20 Uffe Schjoedt: “A Social Cognitive Account of Charismatic Authority”
- 10:20-10:30 Discussion
- 10:30-10:50 Jesper Oestergaard: “The Topographic Mind: A Cognitive Approach to Pilgrimage”
- 10:50-11:00 Discussion
- 11:00-11:30 Break
- 11:30-12:30 Morning Congress plenary speaker
- 12:30-14:00 Break
- 14:00-14:20 Jesper Sørensen: “Action Parsing in Ritual and Non-ritual Behavior”
- 14:20-14:30 Discussion

- 14:30-14:50 Kristoffer Laigaard Nielbo: “Prediction Errors and Environmental Updating in Ritualized Action – A Computational Approach to Cognitive Processing of Different Behavioral Forms”
- 14:50-15:00 Discussion
- 15:00-15:20 Panagiotis Mitkidis: “Ritualistic Actions and Social Cohesion: A Game Theoretical Approach”
- 15:20-15:30 Discussion
- 15:30-15:50 Lars Madsen: “Ritual, Rules and Social Meaning”
- 15:50-16:00 Discussion
- 16:00-16:30 Break
- 16:30-17:30 Afternoon Congress plenary speaker

Day 2

- 09:00-09:20 Jeppe Sinding Jensen: “Rituals as Cognitive Governance Tools”
- 09:20-09:30 Discussion
- 09:30-09:50 Gabriel Levy: “Blood and Wine: Notes on the Role of the Heart and Noise in Ritual Processes”
- 09:50-10:00 Discussion
- 10:00-10:20 Armin W. Geertz: “Ritualized Ecstatic Behavior: On Mysticism and ‘Direct Experience’ of the Transcendent World”
- 10:20-10:30 Discussion
- 10:30-11:00 Donald M. Braxton: “Mapping Emotional Arousal of Jews, Christians, and Muslims in the Old City of Jerusalem: Report on Mobile GSR Monitor Field Trials”
- 11:00-11:30 Break
- 11:30-12:30 Morning Congress plenary speaker

ABSTRACTS

Joseph Bulbulia, Senior Lecturer, Victoria University of Wellington, New Zealand

Paul Reddish, Ph.D. Fellow, Victoria University of Wellington, New Zealand

Ronald Fischer, Senior Lecturer, Victoria University of Wellington, New Zealand

RITUAL EFFERVESCENCE AND EXPERIMENTAL PSYCHOLOGY

Experimental psychologists study cognition in stripped-down, controlled environments. Yet what do experimental methods tell us about cognition in natural ecologies? The question of relevance is important to the psychology of religious rituals, where laboratory mismatch appears extreme. Using examples from our experiments on ritual body movement, we argue:

- (1) Laboratory experiments do not explain ritual cognition in the wild.
- (2) Laboratory studies are nevertheless indispensable to such explanations.

A proper characterization of the specific knowledge that experimental science brings to ritual studies reveals exciting new prospects for collaborate team-work in the scholarly study of

religion, as a human phenomenon.

Donald M. Braxton, Professor

Department of Religious Studies, Juniata College, Huntingdon, Pennsylvania

In October 2010, Braxton and student researcher Caleb Gwinn will pilot the field-deployment of a new mobile GSR device. Developed with Greg Link of York College of Pennsylvania, the monitor samples GSR readings at six-second intervals and locates the responses in space and time with a built-in GSR device. The device is accurate to within three feet. Field trials are to determine an optimal route for a three-year study of Jews, Christians and Muslims as they navigate culturally discrete spaces in the Old City of Jerusalem. Optimality is defined as positive GPS lock, plentiful indicators of cultural identity in the four quarters of Jerusalem, roughly equal lengths of time of exposure for a casual stroll. In a three-year study, we will run 400 test subjects (100 from each religion and 100 secular controls) along the same course plotting their emotional arousal rates. These data points will be mapped into a GIS system so that a map of the emotional terrain can be generated from the averages of the participants and subjected to statistical regressions for age, gender, degrees of religious affiliation, and religious orientation. Our expectation is that emotional arousal will peak in culturally alienating and conflicted spaces. We hypothesize that areas where two or more religious groups generate high arousal rates will be sites with greater potential for Religiously Motivated Violence.

Armin W. Geertz, Professor

Director of Religion, Cognition and Culture (RCC), Department of the Study of Religion, Aarhus University

RITUALIZED ECSTATIC BEHAVIOR: ON MYSTICISM AND “DIRECT EXPERIENCE” OF THE TRANSCENDENT WORLD

It is often claimed that ecstatic experiences offer devotees unique and privileged access to the world of the sacred. Through ascetic practices, rituals, music and dramatic dance, participants work themselves into a frenzy or reduce activity to calmness or some other emotional or mental state, followed by distinct feelings of spirit possession, ecstasy, soul flight, oneness and/or union with God or the universe. My hypothesis is that such rituals do not, in fact, offer direct or privileged access to God or the universe for two reasons. First, because the rituals employed and the traditions within which such experiences are understood, are the primary source of the meaning and interpretation of them. In other words, possession and ecstasy are socialized practices. Second, our biology and cognition offer no direct access to anything. Even though we think that we do have direct access, this is an illusion created by our brain. There are good evolutionary reasons for this, which reveal themselves to be quite remarkable achievements.

Jeppe Sinding Jensen, Associate Professor

Coordinator of Religion, Cognition and Culture (RCC), Department of the Study of Religion,

Aarhus University

RITUALS AS COGNITIVE GOVERNANCE TOOLS

Humans are the only species that (as far as we know) are able to cognize, i.e., to process symbolically mediated normative information. Humans can acquire, produce, distribute and implement social norms and concepts. To be able to do so is to have certain cognitive skills and so be able to use symbols, concepts and norms as normative cognitive tools. Knowing what is right and wrong, pure and impure, etc. is to be guided in cognizing and an aid in predicting probable ranges of behavior in self and others. As a primary cognitive tool, humankind has depended upon ritual for normative cognitive skills and governance. Ritual practice draws on many kinds of objects, and their semiotic properties are used to deploy emotional valence, conative direction and cognitive salience. In the presentation some cases will be presented from the history of religions and from anthropology as tools for further discussion.

Gabriel Levy, Assistant Lecturer

Religion, Cognition and Culture (RCC), Department of the Study of Religion, Aarhus University

BLOOD AND WINE: NOTES ON THE ROLE OF THE HEART AND NOISE IN RITUAL PROCESSES

I first reconsider the role that the heart plays in cognition. Until quite recently many cultures considered the heart to be the “seat” of the mind. More recently, cognitive science has tended to see the brain as the seat of the mind. The mind, it is thought, is in the head. I argue that the mind is definitely not in the head, and if it is in the body, it is probably better to think of it as the heart. I thus challenge the dichotomy in cognitive science between heart and brain. Second, I explore the concept of noise in individual and social cognition. Neurological processes are noisy, chaotic processes; similarly, social cognitive processes are noisy and chaotic. Following Glass’ studies of normal vs. pathological bodily rhythms, I will investigate the analogy between bodily and social rhythms using heartbeat and noise as my two basic paradigms.

Lars Madsen, Ph.D. Fellow

Religion, Cognition and Culture (RCC), Department of the Study of Religion, Aarhus University

RITUAL, RULES AND SOCIAL MEANING

In his reading of James Frazer’s *The Golden Bough*, the Austrian Philosopher Ludwig Wittgenstein is commonly assumed to have launched an attack on the instrumental or intellectualist approach to religious rituals of magic. Instead Wittgenstein is said to endorse an “expressivist” approach that holds rituals to be an expressions of an attitude towards life. By bringing into play Wittgenstein’s analyses of rule-following and private language, I want to argue that rituals primarily are neither instrumental nor expressive behavior. Rather, in light

of Wittgenstein's philosophy, I want to suggest that the approach to rituals needs to be shifted from an individualistic to a social approach and that, as inherently social, ritual displays the bedrock for a social conception of meaning based on rule-governed behavior. Thus, I hope this analysis can help clear the philosophical grounds for a social cognitive science of religion.

Panagiotis Mitkidis, Ph.D. Fellow

Religion, Cognition and Culture (RCC), Department of the Study of Religion, Aarhus University

RITUALISTIC ACTIONS AND SOCIAL COHESION: A GAME THEORETICAL APPROACH

The goal of this paper is to develop a model that relates and evaluates the power of ritualistic action and the power of ordinary action in relation to group cohesion and social solidarity, namely to find a way to analyze the relationship between religious or non-religious ritualistic actions, ordinary instrumental actions, and intra-group or extra-group cohesion, cooperation, and trust. Using Game Theory, I will build a data set by recruiting participants from different contemporary religious systems in Denmark to participate in a series of experiments. Their decisions will be used to demonstrate that ritual's information channel is not as strong as it has been suggested by several researchers, but on the contrary ordinary action offers a better communication channel, and therefore stronger group cohesion. Since the project is work in progress, there is no actual experiment yet. Therefore the presentation will be in three parts: first on the importance of the method itself, second on the practical details of the project, and third future plans and considerations. In viewing ritual as a "memory-free" mechanism, in combination with Game Theory, developmental psychology, and social decision making, the results should have important implications for modeling cooperation, team-building, and group solidarity.

Kristoffer Laigaard Nielbo, Ph.D. Fellow

Religion, Cognition and Culture (RCC), Department of the Study of Religion, Aarhus University

PREDICTION ERRORS AND ENVIRONMENTAL UPDATING IN RITUALIZED ACTION – A COMPUTATIONAL APPROACH TO COGNITIVE PROCESSING OF DIFFERENT BEHAVIORAL FORMS

The majority of ritual models and theories share the assumption that ritualized actions can be distinguished from instrumental actions according to an opaque contra clear relation between the temporal sequence and the goal structure of the action. However, most of these models lack a proper understanding of: a) How actions in general are processed by cognitive systems, and b) how different forms of action constrain human information processing. To remedy this, two in progress computational models are presented, based on the concepts of prediction error and rapid environmental updating in action processing, that will be used to simulate earlier experimental results concerning causal under-determination in ritual action, strengthen our

current model of ritualized behavior, and explore different theoretical trajectories for future research in the area of action cognition.

Jesper Oestergaard, Ph.D. Fellow

Religion, Cognition and Culture (RCC), Department of the Study of Religion, Aarhus University

THE TOPOGRAPHIC MIND: A COGNITIVE APPROACH TO PILGRIMAGE

The theory of externalism is a promising approach in the cognitive science of religion. Externalism claims that important aspects of human cognition are situated in an intersubjective, symbolic and material world. One particular idea is that material objects can become epistemic tools through which cognition is augmented in different ways. I propose that the landscape is just such an epistemic tool, and, furthermore, that the mind is a topographic mind. Landscape is also an important aspect in certain religious rituals: through ritual interaction with the physical landscape, the otherwise unapproachable, transempirical cosmos can be approached and interacted with. In this paper, I shall illustrate how the landscape at a Buddhist pilgrimage site in Nepal is in different ways an integral part of the cognitive processes involved in pilgrimage and why a cognitive approach to religious ritual will benefit from a topographic turn in the study of religion.

Uffe Schjoedt, Post Doc Fellow

Religion, Cognition and Culture (RCC), Department of the Study of Religion, Aarhus University

A SOCIAL COGNITIVE ACCOUNT OF CHARISMATIC AUTHORITY

In this paper, I present a recent neuroimaging study on charismatic authority. In many religious practices, it is not the direct relation between subject and supernatural entity which is the most central relation. In fact the majority of practices around the world are communal events, and in most instances, subjects participate as passive spectators or as recipients of actions performed by a religious authority. In such practices, it is the participants' representation of the supernatural competencies entertained by priests, shamans, healers and witches that separate effective rituals from meaningless actions. In contemporary Christianity, this phenomenon is clearly exemplified in the context of the Charismatic healing practices. In the study, we used functional magnetic resonance imaging (fMRI) to investigate how assumptions about speakers' abilities changed the neural response in secular and Christian participants who received intercessory prayer. We found that recipients' assumptions about senders' charismatic abilities had important effects on their executive network. Most notably, the Christian participants deactivated the frontal network consisting of the medial and the dorsolateral prefrontal cortex bilaterally in response to speakers who they believed had healing abilities. An independent analysis across subjects revealed that this deactivation predicted the Christian participants' subsequent ratings of the speakers' charisma and experience of God's presence during prayer. These observations point to an important mechanism of authority that may facilitate charismatic influence, a mechanism which is likely

to be present in other interpersonal interactions as well.

Jesper Sørensen, *MINDLab* Associate Professor, Ph.D.

Religion, Cognition and Culture (RCC), Department of the Study of Religion, Aarhus University

ACTION PARSING IN RITUAL AND NON-RITUAL BEHAVIOR

In this paper I will present a theoretical model as well as preliminary results from a number of experiments on the fundamental cognitive processing of ritual action sequences. It has been an old tradition in the scientific study of religion and anthropology that ritual actions are distinct from instrumental actions in a number of ways (Boyer & Liénard 2006; Humphrey & Laidlaw 1994; Staal 1979). They expose an opaque relationship between cause and purported effect; they are stipulated and thus not intentionally specified by the agents; and they contain a number of non-instrumental features such as extreme iteration, redundancy, and exaggeration. Building on the theoretical model of Sørensen (2007), I will argue that in ritual actions two basic cognitive systems used to understand instrumental actions are disconnected: (a) a system that perceives and classifies actions based on recognition of basic action gestalts specified by local causal and intentional structures; (b) a system that organizes such basic representations into more comprehensive schematic action representations defined by comprehensive causal frameworks as well higher-level intentional specifications. This will be discussed based on experiments on the difference between action parsing in instrumental and non-instrumental actions.

Dimitris Xygalatas, Post Doc Fellow

Religion, Cognition and Culture (RCC), Department of the Study of Religion, Aarhus University

THE COGNITIVE STUDY OF RELIGION IN THE WILD

This paper will explore the application of experimental methods in the study of religious behavior. It will discuss two particular case studies, based on ethnographic research conducted by researchers at Aarhus University, in an attempt to bring laboratory methods into the field. The first study is an expedition to the Spanish village of San Pedro Manrique, where biometric measurements (heart rate) were used to study synchronous arousal during the performance of a fire-walking ritual. The second study is an expedition to the island of Mauritius, where the use of game-theoretical models in the field was explored as a paradigm for further field research.