

# Preface

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## The workshop theme

This interdisciplinary workshop, 'Reasoning about other minds: Logical and cognitive perspectives' (RAOM), co-located with Advances in Modal Logic (AiML 2014), aims to shed light on models of social reasoning that take into account realistic resource bounds. People reason about other people's mental states in order to understand and predict the others' behavior. This capability to reason about others' knowledge, beliefs and intentions is often referred to as 'theory of mind'.

Idealized rational agents are capable of recursion in their social reasoning, and can reason about phenomena like common knowledge. Such idealized social reasoning has been modeled by modal logics such as epistemic logic and BDI (belief, goal, intention) logics. However, in real-world situations, many people seem to lose track of such recursive social reasoning after only a few levels.

Cognitive scientists build computational models of social reasoning, for example, recently an 'inverse planning' model based on Bayesian inference frameworks has proven successful in modeling human inferences about the goals and beliefs underlying other people's observed behavior. The workshop provides a forum for researchers that attempt to analyze, understand and model how resource-bounded agents reason about other minds.

Researchers from a wide range of fields – from biology and psychology through linguistics to game theory and logic– contribute new ideas and results. The workshop is a follow-up on the 2011 meeting that was co-located with TARK XIII, also in Groningen: <http://www.ai.rug.nl/conf/reasoningminds/>

## Topics of interest include but are not limited to:

- Logics modeling human social cognition;
- Computational cognitive models of theory of mind;
- Epistemic game theory;
- Behavioral game theory;
- Bounded rationality in epistemic game theory;
- Relations between language and social cognition;
- Models of the evolution of theory of mind;
- Models of the development of theory of mind in children;
- Models of the neural implementation of social cognition;
- Bounded rationality in multi-agent systems;
- Formal models of team reasoning;
- Theory of mind in specific groups, e.g., persons with autism spectrum disorder;
- Complexity measures for reasoning about other minds.
- Animal cognition

The program committee received 13 submissions, of which nine are to be presented in the workshop, ranging from theory of mind reasoning in ancient China to strategic reasoning in games.

## Invited talks at the workshop

In addition to the nine contributed lectures, of which the extended abstracts are gathered in this volume, the workshop also presents two invited lectures on Monday, August 4<sup>th</sup>, 2014:

1. Liesbeth Sterck (Animal Ecology, Utrecht University and Ethology Research, BPRC, Rijswijk):

*Primate social cognition: Constructing the evolution of theory of mind*

*Abstract:* Theory of Mind, the capacity to understand mental states of others, may not have emerged de novo in humans. Research on primates can identify precursors to Theory of Mind. To understand others' mental states, one has to understand that others can gather knowledge. Many animal species understand that animals look in a particular direction. Apes and some monkeys understand that others have visual knowledge.

This indicates that Theory of Mind has evolved from simpler precursors and allows the investigation of the selection pressures on Theory of Mind and its precursors.

2. Lisette van der Meer (Lentis, Groningen):

*Knowing me, knowing you. The emotional self in schizophrenia*

*Abstract:* How does one cope with the social world? Which cognitive processes and brain areas are involved? What happens when these processes are hampered? In this presentation, I will discuss two (related) processes that may play an important role in the impairments of people with psychotic disorders: Theory of Mind and self-reflective processing.

I will present our work on Theory of Mind in healthy subjects as well as in people with a vulnerability for the development of psychosis. I will additionally present data on the relationship between self-reflective processing and schizophrenia in the brain, and more specifically the role of self-reflective processing in patients who have impaired insight into their illness.

Additionally, attendees of the workshop 'Reasoning about other minds: Logical and cognitive perspectives' are also welcome to attend the morning session of 'Advances in Modal Logic (AiML)' on Tuesday, August 5<sup>th</sup>, 2014, including another invited lecture:

3. Joe Halpern (Cornell University):

*Reasoning about knowledge of awareness revisited*

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## Program Committee

1. Johan van Benthem (University of Amsterdam and Stanford University)
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8. Bart Hollebrandse (University of Groningen)
9. Eric Pacuit (University of Maryland)
10. Iris van Rooij (Radboud University Nijmegen)
11. Niels Taatgen (University of Groningen)

We would also like to thank our colleagues in the Organizing Committee: Burcu Arslan, Barteld Kooi, Charlotte Vlek, Harmen de Weerd, and Stefan Wierda (all at the University of Groningen).

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