Editorial

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Studying information, first and foremost, means studying information exchange. This acknowledgement of the inherently social character of information shows up at many places in modern logical theories. More generally, information exchange is a form of interaction where agents act together in strategic ways. This new perspective has led to contacts between logic and game theory, bringing a new set of disciplines into the scope of logic: viz., economics, and the social sciences.

New interfaces are arising, such as epistemic studies of rational behavior in games. Another interesting development in this area is the rise of the notion of 'social software', the idea of using computational techniques for analyzing patterns of social behavior. And finally, interaction is also crucial to intelligent behavior in the field of natural language. Here pragmatics, the study of the actual use of language between different agents, has become the primary focus of research.

All the papers in this special issue of *Knowledge, Rationality and Action* can be subsumed under one of the themes mentioned above, and all of them present new theories that extend the coverage of the theories developed so far. Earlier drafts were presented at the *Workshop on Logic, Rationality and Interaction,* held between August 5 and 9, 2007 in Beijing, and organized in a joint effort by the Institute of Logic and Cognition of the Sun Yat-sen University in Guangzhou and the Institute for Logic, Language and Computation of the University of Amsterdam. They contribute

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to the ultimate goal of the research programme behind this workshop: to arrive at an integrated perspective on knowledge acquisition, information exchange, and rational action.

There are two papers dealing with topics in knowledge acquisition. Natasha Alechina, Mark Jago, and Brian Logan look at preference-based belief revision. Ideally, a revision algorithm should be rational, should respect any preference ordering over the agent's beliefs and should be fast. However, it is impossible to achieve the latter if the agents speak full first order logic. In this paper, belief revision is studied for rule-based reasoners, i.e. agents with a knowledge base consisting of rules (Horn clauses) and facts (ground literals). This way a preference-based revision operator can be defined that can be computed in polynomial time.

In *Probabilistic Dynamic Belief Revision* Alexandru Baltag and Sonja Smets combine three well known approaches to believe change (The Bayesian approach, AGM-style Belief Revision, and Dynamic Epistemic Logic) to arrive at a 'qualitative' dynamic logic of conditional beliefs and belief updating actions, which is decidable and complete with respect to conditional-probabilistic models.

The remaining four papers are concerned with information exchange and rational behavior. *Majority Merging by Adaptive Counting* is a contribution to the field of belief merging techniques, relevant to everyone interested in judgement aggregation. The authors, Giuseppe Primiero and Joke Meheus, introduce a belief merging procedure by majority using the standard format of Adaptive Logics. The core structure of the resulting logic consists in the formulation of the conflicts arising from the belief bases of the agents involved in the procedure. A strategy is defined, both semantically and proof-theoretically, which selects the consistent content, satisfying a majority principle.

In *Public and Private Communication are Different: Results on Relative Expressivity* Bryan Renne studies the relative expressivity of certain fragments of the language of Dynamic Epistemic Logic for public and private communication. The central results shows that public and private communication are fundamentally different in the presence of common knowledge.

The paper by Johan van Benthem, Sujata Ghosh, and Fenrong Liu extends the dynamic logic perspective on games to the case of simultaneous games. They propose to formalize simultaneous games at the abstraction level of player's powers, combining ideas from dynamic logic of sequential games and concurrent dynamic logic and they prove completeness for the resulting system of 'concurrent game logic' with respect to finite non-determined games.

Thomas Ågotnes, Wiebe van der Hoek, and Michael Wooldridge present a new useful modal logic for social software, extending Marc Pauly's Coalition Logic with a limited form of quantification over coalitions. The resulting system is not more expressive (or computationally complex) than Pauly's, but it is—in a precise sense—much more succinct.

Finally, in the paper *Logical Dynamics of Some Speech Acts that Affect Obligations and Preferences* Tomoyuki Yamada uses the framework of dynamic semantics to give a formal explication of speech act theory. He extends the system of dynamic epistemic preference upgrade logic developed by Van Benthem and Liu with a modified version of his own logic of commands and shows how in the resulting system Austin's

distinction between illocutionary effects and perlocutionary effects of speech acts can be captured.