Foreword

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Foreword

The present double issue contains selected papers from the 9th Conference on Logic and the Foundations of Game and Decision Theory (LOFT 2010) that took place on 5–7 July in Toulouse, France. LOFT 2010 was the ninth in a series of conferences on the applications of logical methods to foundational issues in the theory of individual and interactive decision-making. The papers that were presented brought together the work and problems of several fields, such as game and decision theory, logic, computer science and artificial intelligence, philosophy, cognitive psychology, mathematics and mind sciences.

Two topics were the focus of the 2010 issue of LOFT: on the one hand, problems of social choice such as fair division, voting and judgement aggregation, as well as their computational versions, and on the other hand logics of knowledge and belief and their applications to game theory (in particular dynamic epistemic logics). It was consequently decided to organise two special issues, one of the International Journal of Game Theory and one of the Journal of Applied Non-Classical Logics, both guest-edited by the program committee chairs of LOFT 2010. The present special issue contains the latter papers.

The paper “Question-answer games” by Thomas Ågotnes, Johan van Benthem, Hans van Ditmarsch and Stefan Minica proposes an integration of the logic of questions in the style of Groenendijk and Stokhof and game theory and provides interesting perspectives for the modelling of communication and dialogue.

The paper “Towards a logic of update” by Guillaume Aucher describes a dynamic epistemic logic with a language allowing to explicitly talk about events (that is interpreted in event models). This allows one to reason about situations that realize after certain events have occurred.

The paper “On interactive knowledge with bounded communication” by Ido Ben-Zvi and Yoram Moses analyses the causality conditions required in order to capture various notions of epistemic gain by synchronous communication. The main result shows that interactive knowledge and common knowledge gain can be characterized in terms of causal structures that are respectively referred to as ‘centipede’ and ‘centibroom’.

The paper “Dominance plausible rule and transitivity” by Franklin Camacho and Ramón Pino Pérez is about the dominance plausible rule, which is a particular binary relation that is defined over the set of policies, the latter being the set of all functions from a set of states to a set of consequences. It provides a characterisation of transitivity of that decision rule.

The paper “Some remarks on the model theory of epistemic plausibility models” by Lorenz Demey investigates the notion of conditional belief that is interpreted by means of an ordering on a set of possible worlds, as well as various ways that these orderings are changed as new information comes in. The author studies the properties of two different definitions that were respectively proposed by van Benthem and by Baltag and Smets.

The paper “Composing models” by Jan van Eijck, Floor Sietsma, and Yanjing Wang introduces a composition operation on models in dynamic epistemic logic. The operation combines given models, each of which is supposed to represent the corresponding agent’s observational power, and produces the model representing the entire epistemic situation involving the agents. The construction is illustrated with the muddy children puzzle, constructing the model child by child. The paper then studies various properties of the operation.

The paper “Updating knowledge using subsets” by Konstantinos Georgatos studies a logic generalising the topological subset semantics of Moss and Parikh. The logic has two modal operators, a knowledge operator and an effort operator, both having semantics in terms of neighborhoods (subsets) of worlds. The author provides a complete axiomatisation and proves decidability.

The paper “From individualistic to social rationality in strategic games: a logical analysis” by Emiliano Lorini proposes a logic allowing one to reason about both individual rationality and several forms of group rationality. The approach is based on modal operators of belief, group preference, ability, and joint action and provides a complete axiomatisation of the logic.

The paper “A logic for extensional protocols” by Ben Rodenhäuser proposes a logic for reasoning about message passing agents, building upon work by Parikh and Ramanujam. Messages are opaque entities whose meaning arises by the way in which they are used. A protocol specifies a set of sequences of messages that may be sent successively. While in many previous approaches the protocol is taken as the basic (temporal) structure to which epistemic structure is added, the current work uses a standard Kripke structure reflecting an epistemic situation, and the protocol specifies, for each possible world, what sequences of messages may be sent in that particular state of the world.

The paper “Deceit and nondefeasible knowledge: the case of dubitatio” by Sara L. Uckelman develops a version of epistemic dynamic logic that allows for loss (or intentional reduction) of knowledge. It motivates the resulting system by appealing to dubitatio games from mediaeval philosophy. The author argues that such games have natural counterparts in ordinary discourse.

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