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Introduction

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Editorial

Introduction: Selected Papers from the 4th Workshop on Logic, Rationality and Interaction (LORI-4)

The fourth international workshop on Logic Rationality and Interaction (LORI-4) took place in Hangzhou, China on October 9th–12th 2013, hosted by the Center for the Study of Language and Cognition (CSLC) of Zhejiang University.¹ The event brought together an international group of logicians, computer scientists, decision and game theorists, linguists and AI researchers. Along with the contributed papers and posters, the workshop featured seven invited talks—by Giuseppe Dari-Mattiacci, Valentin Goranko, Hannes Leitgeb, Beishui Liao, Christian List, Sonja Smets and Dongmo Zhang.² The articles in this special issue were selected among the papers of the workshop proceedings [2]. The selected papers were revised and extended, and went through the same extensive review process as all regular submissions to the *JLC*. The result is a collection of papers that accurately represents the width and depth of the ideas contributed to LORI-4. We are confident that you will appreciate them.

Reasoning about values and preferences lies at the heart of logic and rational interaction. The first paper ‘Efficient Minimal Preference Change’ by Natasha Alechina, Fenrong Liu and Brian Logan contributes to the understanding of the theory of preference *change* in the belief-revision tradition of Alchourrón, Gärdenfors and Makinson (AGM) dating back to [1]. Applying the AGM methodology, the authors characterize the minimal contraction of preference sets by means of a set of postulates and then study it by means of a representation theorem and algorithmic and complexity results.

Going from values to norm brings us to the second paper, ‘Commands Changing Obligations’ by Fengkui Ju and Li Liang. It addresses the dynamics of commands and obligations. Deontic logic is a benchmark formalism for the representation of (some aspects of) normative reasoning. But there is comparatively less work on the dynamics of obligations and permissions. This is the question that Ju and Liang address. They propose a dynamic deontic logic interpreted on histories, and show that it can be completely axiomatized.

The third paper stays in the realm of deontic logic and normative reasoning. Xin Sun’s ‘Proof Theory, Semantics and Algebra for Normative Systems’ establishes systematic correspondences between variants of two so far unrelated, but equally influential, formalisms in the normative reasoning literature: input/output logics and the theory of joining-systems.

Non-normal modal logics and neighbourhood models have been important in the development of deontic logic, and are increasingly used in logical models of knowledge and beliefs (see for instance [3]). The fourth paper in this issue addresses model-theoretic questions regarding the dynamics of neighbourhood models. In ‘How to Update Neighborhood Models’ Minghui Ma and Katsuhiko Sano settle the long-standing issue of how the dynamic epistemic logic methodology can be made to fit

¹LORI was kickstarted with a first event (LORI-1) hosted in August 2007 by Beijing Normal University in Beijing. It is by now an established biannual event. See www.golori.org for information on the LORI workshop series.

²For detailed information about LORI-4 see www.golori.org/lori2013.

the weaker—from a modal logic point of view—neighbourhood semantics. They establish reduction axioms and model-theoretic results for two natural ways of updating neighbourhood models.

In the fifth paper ‘Bisimulation Characterisation and Expressivity Hierarchy of Languages for Epistemic Awareness Models’ Fernando Velázquez-Quesada presents a systematic study of established models of awareness used in epistemic logic, game theory and computer science. He establishes expressivity results, exploiting appropriate notions of bisimulation, about static as well as dynamic models of epistemic awareness. The result is a rich snapshot of how such models relate to one another and a nice example of how logic can help in systematizing existing modelling tools.

Without further ado we leave you to these excellent papers. Our final word is a word of thanks to all the authors for contributing to this outstanding collection and to the reviewers for the hard and patient work that made this volume possible.

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