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Iyad Rahwan Pavlos Moraitis (Eds.)

Argumentation in Multi-Agent Systems

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Revised Selected and Invited Papers

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Preface

This volume presents the latest developments in the growing area of research at the interface of argumentation theory and multiagent systems. This area has grown tremendously with many papers appearing in the recent special issue of the *Artificial Intelligence Journal* on “Argumentation” and the special issue of IEEE Intelligent Systems on “Argumentation Technologies.”

Over the last few years, argumentation has been gaining increasing importance in multiagent systems, mainly as a vehicle for facilitating rational interaction (i.e., interaction which involves the giving and receiving of reasons). This is because argumentation provides tools for designing, implementing and analyzing sophisticated forms of interaction among rational agents. Argumentation has made solid contributions to the practice of multiagent dialogues. Application domains include: legal disputes, business negotiation, labor disputes, team formation, scientific inquiry, deliberative democracy, ontology reconciliation, risk analysis, scheduling, and logistics. A single agent may also use argumentation techniques to perform its individual reasoning because it needs to make decisions under complex preferences policies, in a highly dynamic environment.

Most papers in this volume appeared in the proceedings of the 5th International Workshop on Argumentation in Multiagent Systems (ArgMAS 2008), which took place in Estoril, Portugal, in conjunction with the International Joint Conference on Autonomous Agents and Multiagent Systems (AAMAS). This continues the success of the ArgMAS workshop series, which took place in tandem with AAMAS in New York in 2004, Utrecht in 2005, Hakodate in 2006, and Honolulu in 2007.

Often we invite additional papers on the topic of argumentation in multiagent systems from the main AAMAS conference for the given year, in order to bring together the very best of the year’s work on argumentation in MAS into a single volume. This time, we invited revised papers on argumentation in MAS from AAMAS 2008. The first invited paper, by Tim Miller and Peter McBurney, describes the specification of protocols as first-class entities for annotation and matching. The second invited paper, by Nils Bulling, Carlos I. Chesñevar and Jürgen Dix, explores the use of argumentation in modeling coalition formation processes. The third invited paper, by Yuqing Tang and Simon Parsons, explores how public and private argumentation policies can be integrated.

In addition, we invited a paper by Angelika Foerst, Achim Rettinger and Matthias Nickles, from the AAMAS International Workshop on Agent-Based Complex Automated Negotiations (ACAN). These additional contributions were selected on the basis of their scientific quality and relevance to the topics emphasized here. Our objective has been to offer a comprehensive and up-to-date overview of this rapidly evolving landscape, as we did in the previous volumes of

this series which were all published by Springer (LNAI 3366, LNAI 4049, LNAI 4766, and LNAI 4946).

We conclude this preface by extending our gratitude to the members of the Steering Committee and members of the Program Committee who together helped make the ArgMAS workshop a success. We also thank the authors for their enthusiasm to submit papers to the workshop, and for revising their papers on time for inclusion in this book.

November 2008

Iyad Rahwan
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