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Argumentation in Multi-Agent Systems

8th International Workshop, ArgMAS 2011
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Revised Selected Papers

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Preface

This volume contains revised versions of the papers presented at the eighth edition of the International Workshop on Argumentation in Multi-Agent Systems, (ArgMAS 2011), held in Taipei, Taiwan, in association with the 10th International Conference on Autonomous Agents and Multi-Agent Systems (AAMAS 2011) in May 2011. Previous ArgMAS workshops have been held in New York City, USA (2004), Utrecht, The Netherlands (2005), Hakodate, Japan (2006), Honolulu, USA (2007), Estoril, Portugal (2008), Budapest, Hungary (2009) and Toronto, Canada (2010). The event is now a regular feature on the international calendar for researchers in computational argumentation and dialectics for multi-agent systems.

We start with a few words to explain these topics. Different agents within a multiagent system (MAS) potentially have differential access to information and different capabilities (including reasoning capabilities), different beliefs, different preferences and desires, and different goals. A key aspect of the scientific and engineering study of multiagent systems, therefore, has been the development of methods and procedures for identifying, assessing, reconciling, arbitrating between, managing, and mitigating such differences. Market mechanisms and voting procedures are two methods for dealing with these differences. Argumentation is another. Argumentation can be understood as the formal interaction of different arguments for and against some conclusion (e.g., a proposition, an action intention, a preference, etc). An agent may use argumentation techniques to perform individual reasoning for itself alone, in order to resolve conflicting evidence, or to decide between conflicting goals it may have. Two or more agents may also jointly use dialectical argumentation to identify, express, and reconcile differences between themselves, by means of interactions such as negotiation, persuasion, inquiry, and joint deliberation.

In recent years, formal theories of argument and argument interaction have been proposed and studied, and this has led to the study of computational models of argument. The ArgMAS series of workshops has focused on computational argumentation for agent reasoning and for multiagent systems. The ArgMAS workshops are of interest to anyone studying or applying: default reasoning in autonomous agents; single-agent reasoning and planning under uncertainty; strategic single-agent reasoning in the context of potential competitor actions; and the rational resolution of the different beliefs and intentions of multiple agents within multiagent systems. There are close links between these topics and other topics within the discipline of autonomous agents and multiagent systems, particularly: agent communications languages and protocols; game theory; AI planning; logic programming; and human–agent interaction.

The papers in this volume were among those selected for inclusion in the ArgMAS 2011 workshop following a peer-review process undertaken by anonymous reviewers, a process which resulted in ten papers being presented at the workshop. We thank all authors who made submissions to ArgMAS 2011, and we thank the members of the Program Committee listed here for their efforts in reviewing the papers submitted. We also thank the two reviewers of the paper submitted by two of the co-editors who undertook their reviews anonymously through a process of indirection, arranged and decided by the third co-editor. Of these ten papers, post-workshop versions of eight papers appear in this volume. We are grateful once again for Springer's willingness to publish these proceedings.

As in collections of papers at the previous ArgMAS workshops, we have also invited several papers from the main AAMAS Conference of relevance to argumentation in multi-agent systems. There are five invited papers here: the papers by Kido; by Bonzon and Maudet; by van der Weide et al.; by Emele et al.; and by Pardo et al. The volume thus presents a comprehensive snap-shot of the current state of the art of argumentation in multiagent systems. Papers in this volume are listed alphabetically by first author within three thematic topics: Foundations and Theory; Argumentation and Dialogue; and Applications.

We hope that you enjoy reading this collection.

February 2012

Peter McBurney
Simon Parsons
Iyad Rahwan

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