

Preface

Complex automated negotiations have been widely studied and have become an emerging area in the field of autonomous agents and multi-agent systems. Complexity in automated negotiations depends on several factors, including number of negotiated issues, dependency of issues, representation of utility, negotiation protocol, negotiation form (bilateral or multi-party), and time constraints, among others. Complex automated negotiation scenarios are concerned with negotiation encounters where we may have, for instance, a large number of agents, a large number of issues with a strong interdependency, non-monotonic utility functions, or strong time constraints. Many real world negotiation scenarios present one or more of the mentioned elements. Software agents can support automation or simulation of complex negotiations on behalf of their owners provide adequate strategies to their owners in order to achieve realistic, win-win agreements. To provide solutions in such complex automated negotiation scenarios, we need to incorporate different advanced artificial intelligence technologies including search, constraint satisfaction problems, graphical utility models, Bayesian nets, auctions, utility graphs, optimization, and predicting and learning methods. The application of complex automated negotiations could include e-commerce tools, decision-making support tools, negotiation support tools, and collaboration tools.

This book includes extended versions of selected papers from the 5th International Workshop on Agent-Based Complex Automated Negotiation (ACAN 2012), which was held in Valencia, Spain, in June 2012. For the workshop we solicited papers on all aspects of such complex automated negotiations in the field of autonomous agents and multi-agent systems. Researchers are exploring these issues from different communities in autonomous agents and multi-agent systems. They are, for instance, being studied in agent negotiation, multi-issue negotiations, auctions, mechanism design, electronic commerce, voting, secure protocols, match-making and brokering, argumentation, and co-operation mechanisms. The goal of this workshop was to bring together researchers from these communities to learn about one another's approaches, form long-term collaborations, and cross-fertilize the different areas to accelerate progress towards scaling up to larger and more realistic applications.

ACAN is closely cooperating with ANAC (Automated Negotiating Agents Competition), in which automated agents that have different negotiation strategies and are implemented by different developers compete against one another in different negotiation domains in a tournament setting. Based on the great success of ANAC 2010 and ANAC 2011, ANAC 2012 was also held within the International Conference on Autonomous Agents and Multi-Agent Systems (AAMAS) 2012 in Valencia. This book includes an ANAC special section, where authors of selected agents explain the strategies used.

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Novel Insights in Agent-based Complex Automated
Negotiation

Marsa-Maestre, I.; Lopez-Carmona, M.A.; Ito, T.; Zhang,
M.; Bai, Q.; Fujita, K. (Eds.)

2014, X, 204 p. 50 illus., 15 illus. in color., Hardcover

ISBN: 978-4-431-54757-0