

# Lecture Notes in Artificial Intelligence 7205

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# Graph Structures for Knowledge Representation and Reasoning

Second International Workshop, GKR 2011  
Barcelona, Spain, July 16, 2011  
Revised Selected Papers

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# Preface

The development of effective techniques for knowledge representation and reasoning (KRR) is a crucial aspect of successful intelligent systems. Different representation paradigms, as well as their use in dedicated reasoning systems, have been extensively studied in the past. Nevertheless, new challenges, problems, and issues have emerged in the context of knowledge representation in artificial intelligence, involving the logical manipulation of increasingly large information sets (as, for example, in the Semantic Web, bioinformatics, and various other areas). Improvements in storage capacity and performance of computing infrastructure have also affected the nature of KRR systems, shifting their focus toward higher representational power and scalability. Consequently, KRR research is facing the challenge of developing knowledge representation structures optimized for large-scale reasoning. This new generation of KRR systems includes graph-based knowledge representation formalisms such as Bayesian networks, semantic networks, conceptual graphs, formal concept analysis, CP nets, GAI nets, all of which have been successfully used in numerous applications.

The goal of the GKR workshop series is to bring together researchers involved in the development and application of graph-based knowledge representation formalisms and reasoning techniques. The First International Workshop on Graph Structures for Knowledge Representation and Reasoning was held at IJCAI 2009 and well received by the community.

This volume contains the papers presented at GKR 2011, the Second International Workshop on Graph Structures for Knowledge Representation and Reasoning held at IJCAI 2011 on July 16, 2011, in Barcelona, Spain.

We received 12 submissions, each of which was reviewed by at least 3 Program Committee members. The committee decided to accept seven papers. In addition, the proceedings feature one invited paper.

We wish to thank the organizers of IJCAI 2011 who made this workshop possible by hosting it and providing all the necessary facilities. We thank the members of the Program Committee and the additional reviewers for their thorough work which helped to ensure the workshop's high-quality standards.

February 2012

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Sebastian Rudolph  
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