Preface

During the recent decade, handling uncertainty has started to play an important role in ontology languages, especially in application areas like the Semantic Web, Bio-medicine, and Artificial Intelligence. For this reason, there is currently a strong research interest in Description Logics (DLs) that allow for dealing with uncertainty. The subject of the *First International Workshop on Uncertainty in Description Logics (UniDL '10)* was how to deal with uncertainty and imprecision in DLs. This encompasses approaches that enable probabilistic or fuzzy reasoning in DLs, but the workshop was also open for approaches based on other uncertainty formalisms. The workshop focused on the investigation of reasoning problems and approaches for solving them, including especially tractable ones. For classical DL reasoning problems such as subsumption and satisfiability, algorithms that can handle uncertainty exist, but they are still less well-investigated than in the case of standard DLs without uncertainty. For novel reasoning services, such as query answering, computation of generalizations, modules, or explanations, it is not yet clear how to realize them in DLs that can express uncertainty.

Topics of interest included but were not limited to: (1) modeling of uncertain knowledge in DLs; (2) different formalizations of uncertainty for DLs; (3) formal semantics for uncertain information in DLs; (4) extensions of DL reasoning problems to uncertainty; (5) reasoning algorithms for DLs with uncertainty; in particular, (6) tableau algorithms for probabilistic DLs or fuzzy DLs; (7) tractable DLs with uncertainty; (8) complexity of uncertain reasoning; (9) system descriptions for implemented reasoning algorithms in uncertain DLs; and (10) novel applications of DLs with uncertainty.

These proceedings contain the papers presented at the *First International Workshop on Uncertainty in Description Logics (UniDL '10)*, which was held in Edinburgh, UK, July 20, 2010. It contains 5 technical papers and 2 system descriptions, which were selected in a careful reviewing process, where each paper was reviewed by at least three program committee members. These proceedings also contain an extended abstract of the invited talk.

We wish to thank all authors who submitted papers and all workshop participants for fruitful discussions. We are grateful to Ralf Möller for his invited talk at the workshop. We would like to thank the program committee members and external referees for their timely expertise in carefully reviewing the submissions. Many thanks also to the developers of the EasyChair Conference System, which we used for the reviewing process and the preparation of these proceedings.

July 2010

Thomas Lukasiewicz
Rafael Peñaloza
Anni-Yasmin Turhan

Workshop Organization

Program Chairs

Thomas Lukasiewicz (Oxford University, UK)
Rafael Peñaloza (TU Dresden, Germany)
Anni-Yasmin Turhan (TU Dresden, Germany)

Program Committee

Eyal Amir (University of Illinois, Urbana-Champaign, USA)
Fernando Bobillo (University of Zaragoza, Spain)
Simona Colucci (Technical University of Bari, Italy)
Fabio G. Cozman (University of Sao Paulo, Brazil)
Manfred Jaeger (Aalborg University, Denmark)
Pavel Klinov (University of Manchester, UK)
Ralf Möller (Hamburg University of Technology, Germany)
Mathias Niepert (University of Mannheim, Germany)
Guilin Qi (Southeast University, China)
Stefan Schlobach (Vrije Universiteit Amsterdam, The Netherlands)
Luciano Serafini (IRS Trento, Italy)
Giorgos Stoilos (Oxford University, UK)
Umberto Straccia (ISTI-CNR, Italy)

External Referees

Abner Guzman-Rivera (University of Illinois, Urbana-Champaign, USA)

Sponsors