Working Notes of the 2001 International Description Logics Workshop (DL-2001)

Deborah L. McGuinness (co-chair)
Knowledge Systems Laboratory
Stanford University
Stanford, CA, USA

Peter F. Patel-Schneider (co-chair)
Bell Labs Research
Murray Hill, NJ, U.S.A.

Carole Goble
Department of Computer Science
University of Manchester
Manchester, UK

Ralf Möller
Computer Science Department
University of Hamburg
Hamburg, Germany

July 5, 2001

This collection of papers forms the permanent record of the 2001 International Description Logic Workshop (DL-2001) DL-2001 was held at Stanford University from 1 to 3 August 2001. It continued the tradition of international workshops devoted to discussing developments and applications of knowledge representation formalisms based on Description Logics. It was the 14th in the series of international workshops. A listing of workshops can be found at: http://www.dl.kr.org/workshops/index.html .

A focus of DL-2001 was on applying description logics to the Semantic Web including description logic formalisms for ontologies, description logic systems for reasoning with information in or about the web, and other relationships between description logics and the WWW.

DL-2001 was held in conjunction with International Semantic Web Workshop (SWWS) and the International Conference on Conceptual Structures (ICCS2001). DL-2001 was held in cooperation with the DARPA DAML Program. Student support was provided by AAAI.

Contents

Description Logics and the Semantic Web

OilEd: a Reason-able Ontology Editor for the Semantic Web . 1
Sean Bechhofer, *Ian Horrocks*, *Carole Goble*, and *Robert Stevens*, University of Manchester, UK

Ontology of Integration and Integration of Ontologies 10
Diego Calvanese, *Giuseppe De Giacomo*, and *Maurizio Lenzerini*, Università di Roma "La Sapienza", Italy

Preserving Modularity in XML Encoding of Description Logics 20
Jérôme Euzenat, INRIA Rhône-Alpes, Montbonnot, France

The Generation of DAML+OIL 30
Ian Horrocks, University of Manchester, UK and *Peter F. Patel-Schneider*, Bell Labs Research, Murray Hill, NJ, USA

Theoretical Foundations

Unification in a Description Logic with Transitive Closure of Roles 36
Franz Baader, RWTH Aachen, Germany; and *Ralf Kuesters*, CAU Kiel, Germany

TBoxes do not Yield a Compact Representation of Least Common Subsumers 46
Franz Baader and *Anni-Yasmin Turhan*, RWTH Aachen, Germany

On Expressive Number Restrictions in Description Logics . . . 56
Fabio Grandi, University of Bologna, Italy

Description Logics and the Two-Variable Fragment 66
Carsten Lutz and *Ulrike Sattler*, RWTH Aachen, Germany; and *Frank Wolter*, University of Leipzig, Germany

On Attributes, Roles, and Dependencies in Description Logics and the Ackermann Case of the Decision Problem 76
David Toman and *Grant Weddell*, University of Waterloo, Canada

Using Lazy Unfolding for the Computation of Least Common Subsumers 86
Anni-Yasmin Turhan, RWTH Aachen, Germany; and *Ralf Molitor*, Swiss Life, Zürich, Switzerland

Extensions

The $\mathcal{DLR}_{\mathcal{US}}$ Temporal Description Logic 96
Alessandro Artale, UMIST, Manchester, UK; *Enrico Franconi*, Univ. of Manchester, UK; *Milenko Mosurović*, Univ. of Montenegro, YU; *Frank Wolter*, Univ. of Leipzig, Germany; and Michael Zakharyaschev, Kings College, London, UK

Diachronic Description Logics 106
Alex Borgida, Rugters University, New Brunswick, NJ, USA

A Note on Concepts and Distances 113
Oliver Kutz and *Frank Wolter*, University of Leipzig, Germany; and *Michael Zakharyaschev*, King's College, London, UK

Obstacles on the Way to Qualitative Spatial Reasoning with Description Logics: Some Undecidability Results 122
Michael Wessel, University of Hamburg, Germany

Reasoning Mechanisms and Systems

Description of the RACER System and its Applications 132
Volker Haarslev and *Ralf Möller*, University of Hamburg, Germany

Optimizing Reasoning in Description Logics with Qualified Number Restrictions 142
Volker Haarslev and *Ralf Möller*, University of Hamburg, Germany

Combining Tableaux and Algebraic Methods for Reasoning with Qualified Number Restrictions 152
Volker Haarslev, *Martina Timmann*, and *Ralf Möller*, University of Hamburg, Germany

Towards an Implementation of the Temporal Description Logic $\mathcal{TL}_{\mathcal{ALC}}$ 162
Christian Günsel and *Marco Wittmann*, University of Leipzig, Germany

Querying expressive DLs 170
Sergio Tessaris University of Manchester, Manchester, UK

Position Papers

Description Logics Emerge from Ivory Towers 180
Deborah L. McGuinness Stanford University, Stanford, CA, USA