

Contents

Conference Committee / x

Area Chairs and Program Committee / xi

Preface / xiii

Thomas Eiter, Sheila McIlraith, Gerhard Brewka

Lecture in Remembrance of John McCarthy / xv

Leora Morgenstern

Invited Speaker Abstracts / xvi

Craig Boutilier, Maurizio Lenzerini, Vladimir Lifschitz, Moshe Y. Vardi

Answer Set Programming and Logic Programming

Stable Models of Formulas with Intensional Functions / 2

Michael Bartholomew, Joohyung Lee

Efficiently Computable Datalog[∃] Programs / 13

Nicola Leone, Marco Manna, Giorgio Terracina, Pierfrancesco Veltri

Logic Programs with Intensional Functions / 24

Vladimir Lifschitz

Answer Set Programming via Mixed Integer Programming / 32

Guohua Liu, Tomi Janhunen, Ilkka Niemelä

On the Small-Scope Hypothesis for Testing Answer-Set Programs / 43

Johannes Oetsch, Michael Prischink, Jörg Pührer, Martin Schwengerer, Hans Tompits

Argumentation

Complexity-Sensitive Decision Procedures for Abstract Argumentation / 54

Wolfgang Dvorák, Matti Järvisalo, Johannes Peter Wallner, Stefan Woltran

Fixpoints and Iterated Updates in Abstract Argumentation / 65

Davide Grossi

Automated Reasoning and Computation

On Unit-Refutation Complete Formulae with Existentially Quantified Variables / 75

Lucas Bordeaux, Mikolás Janota, Joao Marques-Silva, Pierre Marquis

Fixed-Parameter Algorithms for Finding Minimal Models / 85

Martin Lackner, Andreas Pfandler

A Generic Querying Algorithm for Greedy Sets of Existential Rules / 96

Michaël Thomazo, Jean-François Baget, Marie-Laure Mugnier, Sebastian Rudolph

Belief Revision and Update

Horn Belief Contraction: Remainders, Envelopes and Complexity / 107

Kira Adaricheva, Robert H. Sloan, Balázs Szörényi, György Turán

Credibility-Limited Revision Operators in Propositional Logic / 116

Richard Booth, Eduardo Fermé, Sébastien Konieczny, Ramón Pino Pérez

Belief Revision within Fragments of Propositional Logic / 126

Nadia Creignou, Odile Papini, Reinhard Pichler, Stefan Woltran

Ontology Evolution under Semantic Constraints / 137

Bernardo Cuenca Grau, Ernesto Jimenez-Ruiz, Evgeny Kharlamov, Dmitriy Zheleznyakov

Belief Revision with Sensing and Fallible Actions / 148

James P. Delgrande, Hector J. Levesque

Robust Equivalence Models for Semantic Updates of Answer-Set Programs / 158

Martin Slota, João Leite

Model Based Horn Contraction / 169

Zhiqiang Zhuang, Maurice Pagnucco

Decision Making and Reasoning about Preferences

Paradoxes of Multiple Elections: An Approximation Approach / 179

Vincent Conitzer, Lirong Xia

Strong Equivalence of Qualitative Optimization Problems / 188

Wolfgang Faber, Mirosław Truszczyński, Stefan Woltran

Ranking Sets of Possibly Interacting Objects Using Shapley Extensions / 199

Stefano Moretti, Alexis Tsoukiàs

An Axiomatic Framework for Influence Diagram Computation with Partially Ordered Utilities / 210

Nic Wilson, Radu Marinescu

Description Logics

Query Containment in Description Logics Reconsidered / 221

Meghyn Bienvenu, Carsten Lutz, Frank Wolter

Undecidability of Fuzzy Description Logics / 232

Stefan Borgwardt, Rafael Peñaloza

Acyclicity Conditions and Their Application to Query Answering in Description Logics / 243

Bernardo Cuenca Grau, Ian Horrocks, Markus Krötzsch, Clemens Kupke, Despoina Magka, Boris Motik, Zhe Wang

Rewriting Ontological Queries into Small Nonrecursive Datalog Programs / 254

Georg Gottlob, Thomas Schwentick

Practical Reasoning with Nominals in the *EL* Family of Description Logics / 264

Yevgeny Kazakov, Markus Krötzsch, František Simančík

Conjunctive Query Answering with *OWL 2 QL* / 275

Stanislav Kikot, Roman Kontchakov, Michael Zakharyashev

An Automata-Theoretic Approach to Uniform Interpolation and Approximation in the Description Logic *EL* / 286

Carsten Lutz, Inanç Seylan, Frank Wolter

Non-Uniform Data Complexity of Query Answering in Description Logics / 297

Carsten Lutz, Frank Wolter

High Performance Query Answering over DL-Lite Ontologies / 308

Mariano Rodríguez-Muro, Diego Calvanese

Epistemic and Modal Logics

An Abstraction Technique for the Verification of Artifact-Centric Systems / 319

Francesco Belardinelli, Alessio Lomuscio, Fabio Patrizi

Ambiguous Language and Differences in Beliefs / 329

Joseph Y. Halpern, Willemien Kets

Automated Verification of Epistemic Properties for General Game Playing / 339

Sebastian Haupe, Michael Thielscher

Only-Knowing Meets Nonmonotonic Modal Logic / 350

Gerhard Lakemeyer, Hector J. Levesque

Abstract Normative Systems: Semantics and Proof Theory / 358

Silvano Colombo Tosatto, Guido Boella, Leendert van der Torre, Serena Villata

Ordered Epistemic Logic: Semantics, Complexity and Applications / 369

Hanne Vlaeminck, Joost Vennekens, Maurice Bruynooghe, Marc Denecker

Inconsistency-Tolerant and Similarity-Based Reasoning

Declarative Entity Resolution via Matching Dependencies and Answer Set Programs / 380

Zeinab Bahmani, Leopoldo Bertossi, Solmaz Kolahi, Laks V. S. Lakshmanan

Paraconsistent Hybrid Theories / 391

Michael Fink

Homogeneous Logical Proportions: Their Uniqueness and Their Role in Similarity-Based Prediction / 402

Henri Prade, Gilles Richard

Knowledge Representation and Knowledge-Based Systems

From Knowledge Represented in Frame-Based Languages to

Declarative Representation and Reasoning via ASP / 413

Chitta Baral, Shanshan Liang

Specifying and Reasoning with Underspecified Knowledge Bases Using Answer Set Programming / 424

Vinay K. Chaudhri, Tran Cao Son

Generalized Ontology-Based Production Systems / 435

Riccardo Rosati, Enrico Franconi

Reasoning about Actions and Planning

Abstracting Abstraction in Search with Applications to Planning / 446

Christer Bäckström, Peter Jonsson

Synthesizing Agent Protocols from LTL Specifications
against Multiple Partially-Observable Environments / 457

Giuseppe De Giacomo, Paolo Felli, Alessio Lomuscio

Bounded Situation Calculus Action Theories and Decidable Verification / 467

Giuseppe De Giacomo, Yves Lespérance, Fabio Patrizi

Temporal Composite Actions with Constraints / 478

Patrick Doherty, Jonas Kvarnström, Andrzej Szalas

Conflict-Based Diagnosis of Discrete Event Systems: Theory and Practice / 489

Alban Grastien, Patrik Haslum, Sylvie Thiébaux

Spatial and Temporal Reasoning

Compactness and Its Implications for Qualitative Spatial and Temporal Reasoning / 500

Jinbo Huang

Implicit Constraints for Qualitative Spatial and Temporal Reasoning / 509

Jochen Renz

Uncertainty

Stable Models in Generalized Possibilistic Logic / 519

Didier Dubois, Henri Prade, Steven Schockaert

A Bipolar Framework for Combining Beliefs about Vague Propositions / 530

Jonathan Lawry, Didier Dubois

Reports from the Field

JASP: A Framework for Integrating Answer Set Programming with Java / 541

Onofrio Febbraro, Giovanni Grasso, Nicola Leone, Francesco Ricca

The Winograd Schema Challenge / 552

Hector J. Levesque, Ernest Davis, Leora Morgenstern

Short Papers

Exchanging Description Logic Knowledge Bases / 563

Marcelo Arenas, Elena Botoeva, Diego Calvanese, Vladislav Ryzhikov, Evgeny Sherkhonov

Extending Unification in *EL* towards General TBoxes / 568

Franz Baader, Stefan Borgwardt, Barbara Morawska

Solving Puzzles Described in English by Automated Translation to Answer Set Programming and Learning
How to Do that Translation / 573

Chitta Baral, Juraj Dzifcak

Modelling Time and Reliability in Structured Argumentation Frameworks / 578

Maximiliano Celmo David Budán, Mauro Gómez Lucero, Carlos Iván Chesñevar, Guillermo Ricardo Simari

The Complexity of Explaining Negative Query Answers in *DL-Lite* / 583

Diego Calvanese, Magdalena Ortiz, Mantas Šimkus, Giorgio Stefanoni

Thinking Inside the Box: A Comprehensive Spatial Representation for Video Analysis / 588

Anthony G. Cohn, Jochen Renz, Muralikrishna Sridhar

Weighted Attacks in Argumentation Frameworks / 593

Sylvie Coste-Marquis, Sébastien Konieczny, Pierre Marquis, Mohand Akli Ouali

Efficient Argumentation for Medical Decision-Making / 598

Robert Craven, Francesca Toni, Cristian Cadar, Adrian Hadad, Matthew Williams

Compositional Belief Merging / 603

Patricia Everaere, Sébastien Konieczny, Pierre Marquis

Worst-Case Optimal Reasoning with Forest Logic Programs / 608

Cristina Feier

Stream Reasoning with Answer Set Programming: Preliminary Report / 613

Martin Gebser, Torsten Grote, Roland Kaminski, Philipp Obermeier, Orkunt Sabuncu, Torsten Schaub

Achieving Completeness in Bounded Model Checking of Action Theories in ASP / 618	<i>Laura Giordano, Alberto Martelli, Daniele Theseider Dupré</i>
Justification Masking in Ontologies / 623	<i>Matthew Horridge, Bijan Parsia, Ulrike Sattler</i>
Search Strategy Simulation in Constraint Booleanization / 628	<i>Jinbo Huang</i>
Revising Partial Pre-Orders with Partial Pre-Orders: A Unit-Based Revision Framework / 633	<i>Jianbing Ma, Salem Benferhat, Weiru Liu</i>
Towards Parallel Nonmonotonic Reasoning with Billions of Facts / 638	<i>Ilias Tachmazidis, Grigoris Antoniou, Giorgos Flouris, Spyros Kotoulas</i>
Forgetting in Logic Programs under Strong Equivalence / 643	<i>Yisong Wang, Yan Zhang, Yi Zhou, Mingyi Zhang</i>
Assertion Absorption in Object Queries over Knowledge Bases / 648	<i>Jiewen Wu, Alexander Hudek, David Toman, Grant Weddell</i>
Index / 653	

Conference Committee

General Chair

Gerhard Brewka (University of Leipzig)

Program Chairs

Thomas Eiter (Vienna University of Technology)

Sheila A. McIlraith (University of Toronto)

Local Organization

Giuseppe De Giacomo (University of Rome “La Sapienza”)

Marco Schaerf (University of Rome “La Sapienza”)

Doctoral Consortium Chair

Esra Erdem (Sabanci University)

Frank Wolter (University of Liverpool)

Publicity

Benjamin Johnston (The University of Technology, Sydney)

Mary-Anne Williams (The University of Technology, Sydney)