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Introduction to the 26th International Conference on Logic Programming Special Issue

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The Logic Programming (LP) community, through the Association for Logic Programming (ALP) and its Executive Committee, decided to introduce for 2010 important changes in the way the main yearly results in LP and related areas are published. Whereas such results have appeared to date in standalone volumes of proceedings of the yearly International Conferences on Logic Programming (ICLP), and this method –fully in the tradition of Computer Science (CS)– has served the community well, it was felt that an effort needed to be made to achieve a higher level of compatibility with the publishing mechanisms of other fields outside CS.

In order to achieve this goal without giving up the traditional CS conference format a different model has been adopted starting in 2010 in which the yearly ICLP call for submissions takes the form of a joint call for a) *full papers* to be considered for publication in a special issue of the journal, and b) shorter *technical communications* to be considered for publication in a separate, standalone volume, with both kinds of papers being presented by their authors at the conference. Together, the journal special issue and the volume of short technical communications constitute the *proceedings* of ICLP.

This *26th International Conference on Logic Programming Special Issue* is the first of a series of yearly special issues of Theory and Practice of Logic Programming (TPLP) putting this new model into practice. It contains the papers accepted from those submitted as full papers (i.e., for TPLP) in the joint ICLP call for 2010. The collection of technical communications for 2010 appears in turn as Volume 7 of the Leibniz International Proceedings in Informatics (LIPIcs) series, published on line through the Dagstuhl Research Online Publication Server (DROPS). Both sets of papers were presented by their authors at this 26th ICLP.

Papers describing original, previously unpublished research and not simultaneously submitted for publication elsewhere were solicited in all areas of logic programming including but not restricted to: *Theory* (Semantic Foundations, Formalisms, Non-monotonic Reasoning, Knowledge Representation), *Implementation* (Compilation, Memory Management, Virtual Machines, Parallelism), *Environments* (Program Analysis, Transformation, Validation, Verification, Debugging, Profiling, Testing), *Language Issues* (Concurrency,

Objects, Coordination, Mobility, Higher Order, Types, Modes, Assertions, Programming Techniques), *Related Paradigms* (Abductive Logic Programming, Inductive Logic Programming, Constraint Logic Programming, Answer-Set Programming), and *Applications* (Databases, Data Integration and Federation, Software Engineering, Natural Language Processing, Web and Semantic Web, Agents, Artificial Intelligence, Bioinformatics).

Special categories were *application papers* (where the emphasis was on their impact on the application domain) and *system and tool papers* (where the emphasis was on the novelty, practicality, usability and general availability of the systems and tools described). In the shorter *technical communications* the emphasis was on describing recent developments, new projects, and other materials not yet ready for publication as full papers. The length limit for full papers was set at 15 pages plus bibliography for full papers (approximately in line with the length of TPLP technical notes) and for technical communications at 10 pages total.

In response to the call for papers 104 abstracts were received, 81 of which remained finally as complete submissions. Of those, 69 were full papers submitted to the TPLP special issue track (21 of them applications or systems papers). The program chairs acting as guest editors organized the refereeing process with the help of the program committee and numerous external reviewers.[1] Each paper was reviewed by at least three anonymous referees which provided full written evaluations. Competition was high and after the first round of refereeing only 25 full papers remained. Of these, 16 went through a full second round of refereeing with written referee reports. Finally, all 25 papers went through a final, copy-editing round. In the end the special issue contains 17 technical papers, 6 application papers, and 2 systems and tools papers. During the first phase of reviewing the papers submitted to the technical communications track were also reviewed by at least three anonymous referees providing full written evaluations. Also, a number of full paper submissions were moved during the reviewing process to the technical communications track. Finally, 22 papers were accepted as technical communications. A listing of these papers, published in LIPIcs, appears at the end of the special issue. The list of the 25 accepted full papers, appearing in this special issue, follows:

Regular Papers

Automated Termination Analysis for Logic Programs with Cut
Peter Schneider-Kamp, Jürgen Giesl, Thomas Stroeder, Alexander Serebrenik, René Thiemann

Transformations of Logic Programs on Infinite Lists
Alberto Pettorossi, Maurizio Proietti, Valerio Senni

Swapping Evaluation: A Memory-Scalable Solution for Answer-On-Demand Tabling
Pablo Chico de Guzmán, Manuel Carro Liñares, David S. Warren

Threads and Or-Parallelism Unified
Vítor Santos Costa, Inês Castro Dutra, Ricardo Rocha

[1] The LIPIcs volume contains a complete list of referees.

CHR(PRISM)-based Probabilistic Logic Learning
Jon Sneyers, Wannes Meert, Joost Vennekens, Yoshitaka Kameya, Taisuke Sato

Inference with Constrained Hidden Markov Models in PRISM
Henning Christiansen, Christian Theil Have, Ole Torp Lassen, Matthieu Petit

A Translational Approach to Constraint Answer Set Solving
Christian Drescher, Toby Walsh

A Decidable Subclass of Finitary Programs
Sabrina Baselice, Piero Bonatti

Disjunctive ASP with Functions: Decidable Queries and Effective Computation
Mario Alviano, Wolfgang Faber, Nicola Leone

Catching the Ouroboros: On Debugging Non-ground Answer-Set Programs
Johannes Oetsch, Jörg Puehrer, Hans Tompits

Loop Formulas for Description Logic Programs
Yisong Wang, Jia-Huai You, Li-Yan Yuan, Yi-Dong Shen

Towards Closed World Reasoning in Dynamic Open Worlds
Martin Slota, João Leite

A Program-Level Approach to Revising Logic Programs under Answer Set Semantics
James Delgrande

FO(FD): Extending classical logic with rule-based fixpoint definitions
Ping Hou, Broes De Cat, Marc Denecker

A Complete and Terminating Execution Model for Constraint Handling Rules
Hariolf Betz, Frank Raiser, Thom Frühwirth

Decidability Properties for Fragments of CHR
Maurizio Gabbrielli, Jacopo Mauro, Maria Chiara Meo, Jon Sneyers

A Declarative Semantics for CLP with Qualification and Proximity
Mario Rodríguez-Artalejo, Carlos A. Romero-Díaz

Application Papers and Systems and Tools Papers

Logic-Based Decision Support for Strategic Environmental Assessment
Marco Gavanelli, Fabrizio Riguzzi, Michela Milano, Paolo Cagnoli

Test Case Generation for Object-Oriented Imperative Languages in CLP
Miguel Gómez-Zamalloa, Elvira Albert, Germán Puebla

Logic Programming for Finding Models in the Logics of Knowledge and its Applications:
A Case Study
Chitta Baral, Gregory Gelfond, Enrico Pontelli, Tran Son

Applying Prolog to Develop Distributed Systems
Nuno P. Lopes, Juan Navarro Perez, Andrey Rybalchenko, Atul Singh

CLP-based Protein Fragment Assembly
Alessandro Dal Palù, Agostino Dovier, Federico Fogolari, Enrico Pontelli

Formalization of Psychological Knowledge in Answer Set Programming and its Application
Marcello Balduccini, Sara Girotto

Testing and Debugging Techniques for Answer Set Solver Development
Robert Brummayer, Matti Järvisalo

The System Kato: Detecting Cases of Plagiarism for Answer-Set Programs
Johannes Oetsch, Jörg Puehrer, Martin Schwengerer, Hans Tompits

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Manuel Hermenegildo and Torsten Schaub
Program Committee Chairs and Guest Editors

Listing of the Technical Communications of the 26th ICLP

This is a listing of the *Invited Papers* and *Technical Communications* which were also presented at ICLP 2010. These papers constitute Volume 7 of the Leibniz International Proceedings in Informatics (LIPIcs) series, published on line through the Dagstuhl Research Online Publication Server (DROPS). In addition to these invited papers and technical communications the volume also includes the 15 papers presented at the ICLP Doctoral Symposium.

Preface

Introduction to the Technical Communications of ICLP 2010
Manuel Hermenegildo and Torsten Schaub

Invited Papers

Datalog for Enterprise Software: From Industrial Applications to Research (Invited Talk)
Molham Aref

A Logical Paradigm for Systems Biology (Invited Talk)
François Fages

Technical Communications

Runtime Addition of Integrity Constraints in Abductive Logic Programs
Marco Alberti, Marco Gavanelli, Evelina Lamma

Learning Domain-Specific Heuristics for Answer Set Solvers
Marcello Balduccini

HEX Programs with Action Atoms
Selen Basol, Ozan Erdem, Michael Fink, Giovambattista Ianni

Communicating Answer Set Programs
Kim Bauters, Jeroen Janssen, Steven Schockaert, Dirk Vermeir, Martine De Cock

Implementation Alternatives for Bottom-Up Evaluation
Stefan Brass

Inductive Logic Programming as Abductive Search
Domenico Corapi, Alessandra Russo, Emil Lupu

Efficient Solving of Time-Dependent Answer Set Programs
Timur Fayruzov, Jeroen Janssen, Martine De Cock, Chris Cornelis, Dirk Vermeir

Improving the Efficiency of Gibbs Sampling for Probabilistic Logical Models by Means of Program Specialization
Daan Fierens

Focused Proof Search for Linear Logic in the Calculus of Structures
Nicolas Guenot

Sampler Programs: The Stable Model Semantics Abstract Constraint Programs Revisited
Tomi Janhunen

A Framework for Verification and Debugging of Resource Usage Properties
Pedro Lopez-Garcia, Luthfi Darmawan, Francisco Bueno

Contractible Approximations of Soft Global Constraints
Michael Maher

Dedicated Tabling for a Probabilistic Setting
Theofrastos Mantadelis, Gerda Janssens

Tight Semantics for Logic Programs
Luis Moniz Pereira, Alexandre Miguel Pinto

From Relational Specifications to Logic Programs
Joseph Near

Methods and Methodologies for Developing Answer-Set Programs—Project Description
Johannes Oetsch, Joerg Puehrer, Hans Tompits

Tabling and Answer Subsumption for Reasoning on Logic Programs with Annotated Disjunctions
Fabrizio Riguzzi, Terrance Swift

Subsumer: A Prolog Theta-Subsumption Engine
Jose Santos, Stephen Muggleton

Using Generalized Annotated Programs to Solve Social Network Optimization Problems
Paulo Shakarian, V.S. Subrahmanian, Maria Luisa Sapino

Abductive Inference in Probabilistic Logic Programs
Gerardo Simari, V.S. Subrahmanian

Circumscription and Projection as Primitives of Logic Programming
Christoph Wernhard

Timed Definite Clause Omega-Grammars
Neda Saeedloei, Gopal Gupta