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Editorial: 29th International Conference on Logic Programming special issue

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The proceedings of the International Conference on Logic Programming (ICLP) have had several publishers, including MIT Press and Springer's Lecture Notes in Computer Science. Beginning in 2010, the proceedings have been published in a dual format: with regular papers contained in a special issue of Theory and Practice of Logic Programming (TPLP), and technical communications as a Dagstuhl LIPics series publication. The reason for the change was that compared to researchers in other fields, computer scientists publish more in conferences or symposia and less in journals. The thinking went that since many ICLP papers are of journal quality – or nearly so – why not publish them in a journal straight away? And why not TPLP?

The association of ICLP and TPLP has proven successful in many ways. In addition to the extra visibility of journal articles, a full second round of reviewing has helped ensure a uniformly high quality of papers. However determining the right balance between the goals of a conference and those of a journal has taken some experimentation, resulting in a format for this issue that has changed in several respects from that of previous years. The papers in this issue contain new, previously unpublished results, as is true in any good conference; and the number of papers is approximately the same as in ICLPs before 2010. To accommodate all of these papers in this special issue, the length of each paper had to be restricted to 12 pages plus bibliography. This limit is admittedly short for a journal article which in addition to presenting results, must discuss related work, and provide proofs of theorems along with details of experimental results. To address this, most papers present such material in appendices that can be found in the on-line should be supplements to this issue.

This year, technical communications are also contained in on-line supplements to this editorial. Rather than restricting their length as in previous years, the authors were given the freedom to decide whether to shorten their papers, or to provide a full 12 pages plus appendix. Whatever their length, each technical

communication represents important new work of interest to the community. Each technical communication is obtainable from a specific URL as follows:

- Paulo Shakarian, Gerardo Simari and Devon Callahan: *Reasoning about Complex Networks: A Logic Programming Approach.*
  www.journals.cambridge.org/tlp2013001.
- Claudia Schulz and Francesca Toni: *ABA-Based Answer Set Justification.*
  www.journals.cambridge.org/tlp2013002.
- Edison Mera and Jan Wielemaker: *Porting and refactoring Prolog programs: the PROSYN case study.*
  www.journals.cambridge.org/tlp2013003.
- Lunjin Lu: *Towards Parametrizing Logic Program Analysis: Two Examples.*
  www.journals.cambridge.org/tlp2013004.
- Werner Nutt, Sergey Paramonov and Ognjen Savković: *An ASP Approach to Query Completeness Reasoning.*
  www.journals.cambridge.org/tlp2013005.
- Davide Ancona and Agostino Dovier: *co-LP: Back to the Roots.*
  www.journals.cambridge.org/tlp2013006.
- Vivek Nigam, Giselle Reis and Leonardo Lima: *Checking Proof Transformations with ASP.*
  www.journals.cambridge.org/tlp2013007.
- Ari Saptawijaya and Luís Moniz Pereira: *Tabled Abduction in Logic Programs.*
  www.journals.cambridge.org/tlp2013008.
- Vernon Asuncion, Yan Zhang, Heng Zhang and Yi Zhou: *Constructive Circumscription.*
  www.journals.cambridge.org/tlp2013009.
- Amira Zaki, Thom Frühwirth and Slim Abdennadher: *Towards Inverse Execution of Constraint Handling Rules.*
  www.journals.cambridge.org/tlp2013010.
- Alejandro Serrano, Pedro Lopez-Garcia, Francisco Bueno and Manuel Hermenegildo: *Sized Type Analysis for Logic Programs.*
  www.journals.cambridge.org/tlp2013011.
- Tony Ribeiro, Katsumi Inoue and Gauvain Bourgne: *Combining Answer Set Programs for Adaptive and Reactive Reasoning.*
  www.journals.cambridge.org/tlp2013012.
- Arne König and Torsten Schaub: *Monitoring and Visualizing Answer Set Solving.*
  www.journals.cambridge.org/tlp2013013.
- Viviana Mascardi and Davide Ancona: *Attribute Global Types for Dynamic Checking of Protocols in Logic-based Multiagent Systems.*
  www.journals.cambridge.org/tlp2013014.
- Jianmin Ji, Fangzhen Lin and Jia-Huai You: *Computing Loops with at Most One External Support Rule for Basic Logic Programs with Arbitrary Constraint Atoms.*
  www.journals.cambridge.org/tlp2013015.

- Lenz Belzner: *Action Programming In Rewriting Logic.*
  www.journals.cambridge.org/tlp2013016.
- Dimitar Shterionov, Theofrastos Mantadelis and Gerda Janssens: *Pattern-Based Compaction for ProbLog Inference.*
  www.journals.cambridge.org/tlp2013017.
- Michael Hanus: *Adding Plural Arguments to Curry Programs.*
  www.journals.cambridge.org/tlp2013018.
- Pieter Van Hertum, Joost Vennekens, Bart Bogaerts, Jo Devriendt and Marc Denecker: *The effects of buying a new car: an extension of the IDP Knowledge Base System.*
  www.journals.cambridge.org/tlp2013019.
- Ana Sofia Gomes and José Júlio Alferes: *Extending Transaction Logic with External Actions.*
  www.journals.cambridge.org/tlp2013020.
- Dalal Alrajeh, Rob Miller, Alessandra Russo and Sebastian Uchitel: *Reasoning about Triggered Scenarios in Logic Programming.*
  www.journals.cambridge.org/tlp2013021.
- Vinay Chaudhri, Stijn Heymans, Son Tran and Michael Wessel: *Object-Oriented Knowledge Bases in Logic Programming.*
  www.journals.cambridge.org/tlp2013022.
- Saadat Anwar, Chitta Baral and Katsumi Inoue: *Encoding Petri Nets in Answer Set Programming for Simulation Based Reasoning.*
  www.journals.cambridge.org/tlp2013023.
- Marcello Balduccini and Yuliya Lierler: *Integration Schemas for Constraint Answer Set Programming: a Case Study.*
  www.journals.cambridge.org/tlp2013024.
- Amir Aavani, Eugenia Ternovska and David Mitchell: *Problem Solving with the Enfragmo System.*
  www.journals.cambridge.org/tlp2013025.
- Said Jabbour, Lakhdar Sais and Yakoub Salhi: *A Pigeon-Hole Based Encoding of Cardinality Constraints.*
  www.journals.cambridge.org/tlp2013026.

The ICLP conference also included the 8th Doctoral Consortium in which Ph.D. students (many of whom are co-authors of papers in this conference) presented their thesis work. The Doctoral Consortium is an important activity which helps ensure that important work in logic programming will continue to be done in the future. In a manner similar to the technical communications, the introduction to the Doctoral Consortium and its papers can each be obtained through a specific URL:

- Marco Gavanelli and Martin Gebser: *The ICLP 2013 Doctoral Consortium.*
  www.journals.cambridge.org/tlp2013027.
- Roberto Amadini: *Evaluation and Application of Portfolio Approaches in Constraint Programming.*
  www.journals.cambridge.org/tlp2013028.

- Michael Bartholomew: *The Role of Functions in the Stable Model Semantics*: www.journals.cambridge.org/tlp2013029.
- Sergio Castro: *LogicObjects: A Portable and Extensible Approach for Linguistic Symbiosis between an Object-Oriented and a Logic Programming Language.* www.journals.cambridge.org/tlp2013030.
- Benoit Desouter: *Implementing LP Systems with CP Techniques*, www.journals.cambridge.org/tlp2013031.
- Carmine Dodaro: *Engineering an Efficient Native ASP Solver*, www.journals.cambridge.org/tlp2013032.
- Jorge Fandinno: *Algebraic Approach to Causal Logic Programs*, www.journals.cambridge.org/tlp2013033.
- Johannes Klaus Fichte: *Backdoors to the Tractability of Answer Set Programming*, www.journals.cambridge.org/tlp2013034.
- Amelia Harrison: *The Semantics of Gringo and Proving Strong Equivalence*, www.journals.cambridge.org/tlp2013035.
- Arne König: *Visualizing Answer Set Programming*, www.journals.cambridge.org/tlp2013036.
- Ari Saptawijaya: *Towards Computational Morality with Logic Programming*, www.journals.cambridge.org/tlp2013037.
- Claudia Schulz: *Argumentation for Answer Set Programming and other Non-monotonic Reasoning Systems*, www.journals.cambridge.org/tlp2013038.
- Laura Titolo: *An Abstract Interpretation Framework for Verification of Timed Concurrent Constraint Languages*, www.journals.cambridge.org/tlp2013039.
- Fangkai Yang: *Representing Actions in Logic-based Languages*, www.journals.cambridge.org/tlp2013040.

The ICLP conference contained presentations beyond the three categories of regular papers, technical communications and doctoral consortium papers discussed above. The following invited talks were also given: Hans von Ditmarsch, *Dynamic Epistemic Logic and Lying*; Pascal Hitzler, *Recent advances concerning OWL and Rules*; C.R. Ramakrishnan, *Probabilistic Tabled Logic Programming with Application to Model Checking*; and Torsten Schaub, *Experiencing Answer Set Programming at Work, Today and Tomorrow*.

As an additional class of invited talk, presentations were made of the most influential papers from the ICLP and ILPS conferences of 10 and 20 years ago (ILPS was another major meeting in logic programming, organized until 1998). As this tradition was begun in 2012, we were able to follow the procedure initiated by last year's program committee co-chairs.This procedure uses bibliometric information as a first stage, and if necessary, personal judgement as a second stage. There were an impressive number of ICLP and ILPS papers published in 1993 and 2013 that today have a high citation count, and that have proven to be influential in the field. Fortunately according to our bibliometrics there was a clear winner in each year,

so that personal judgement did not have to take a part. The most influential paper from 1993 was from the ICLP conference:

- Anthony Bonner and Michael Kifer *Transaction Logic Programming*, pp. 257–279, MIT Press 1993. ISBN 0-262-73105-3.

which was presented in this year's conference by Michael Kifer. In 2003 the most influential paper was:

- Thomas Eiter and Michael Fink *Uniform equivalence of logic programs under the stable model semantics*, pp. 224 – 238, Springer, 2003. ISBN 3-540-20642-6.

presented by Michael Fink. It will be interesting to look back 10 years from now to see whether bibliometrics still indicate the same papers as being the most influential or whether other papers have gained in influence.

As the foregoing discussion indicates, both preparing the program for ICLP and editing this special issue were complex tasks, for which the program committee chairs have received ample help. We would like to thank the members of our program committee: Elvira Albert (Complutense University of Madrid), Roberto Bagnara (University of Parma and BUGSENG srl), Gerhard Brewka (Leipzig University), Mats Carlsson (SICS), Manuel Carro (T.U. Madrid and IMDEA Software Institute), Michael Codish (Ben-Gurion University), Hasan Davulcu (Arizona State University), James Delgrande (Simon Fraser University), Bart Demoen (KU Leuven), Marc Denecker (KU Leuven), Agostino Dovier (University of Udine), Gregory Duck (NICTA), Thomas Eiter (Vienna University of Technology), Esra Erdem (Sabanci University), Wolfgang Faber (University of Calabria), François Fages (INRIA Rocquencourt), Paul Fodor (University at Stony Brook), Thom Frühwirth (University of Ulm), John Gallagher (Roskilde University), Martin Gebser (University of Potsdam), Michael Gelfond (Texas Tech University), Carmen Gervet (German University in Cairo), Laura Giordano (University of Piemonte Orientale), Gopal Gupta (University of Texas at Dallas), Manuel Hermenegildo (T.U. Madrid and IMDEA Software Institute), Joohyung Lee (Arizona State University), João Leite (New University of Lisboa), Yuliya Lierler (University of Nebraska at Omaha), Victor Marek (University of Kentucky), Steven Muggleton (Imperial College London), António Porto (University of Porto), C. R. Ramakrishnan (University at Stony Brook), Fabrizio Riguzzi (University of Ferrara), Ricardo Rocha (University of Porto), Gianfranco Rossi (University of Parma), Chiaki Sakama (Wakayama University), Tom Schrijvers (Ghent University), Hans Tompits (Vienna University of Technology), Francesca Toni (Imperial College London), Paolo Torroni (University of Bologna), German Vidal (MiST, DSIC, Polytechnical University of Valéncia), David Warren (University of Stony Brook), Jan Wielemaker (University of Amsterdam), Roland Yap (National University of Singapore), and Jia-Huai You (University of Alberta). In addition, we would like to thank Fabrizio Riguzzi for his help at several points in this process, including obtaining the bibliometrics for the most influential paper awards. A particular thanks goes to Elena Bellodi and Riccardo Zese for their help in checking Latex formatting of regular papers, technical communications, and their appendices.

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To summarize, after each of us have attended ICLP (and ILPS) conferences for over 20 years, we are delighted to be able to serve as guest editors of this special issue. We believe that these regular papers, technical communications and doctoral consortium papers together provide an excellent representation of logic programming in 2013, along with hints of future directions.

Evelina Lamma and Terrance Swift
Program Committee Chairs and Guest Editors