

- 625 Using sequential runtime distributions for the parallel speedup prediction of SAT local search  
ALEJANDRO ARBELAEZ, CHARLOTTE TRUCHET AND PHILIPPE CODOGNET
- 641 Business process verification with constraint temporal answer set programming  
LAURA GIORDANO, ALBERTO MARTELLI, MATTEO SPIOTTA AND DANIELE THESEIDER DUPRÉ
- 657 *SeaLion*: An eclipse-based IDE for answer-set programming with advanced debugging support  
PAULA-ANDRA BUSONIU, JOHANNES OETSCH, JÖRG PÜHRER, PETER SKOČOVSKÝ  
AND HANS TOMPITS
- 675 Minimal intervention strategies in logical signaling networks with ASP  
ROLAND KAMINSKI, TORSTEN SCHAUB, ANNE SIEGEL AND SANTIAGO VIDELA
- 691 Compiling Input\* FO(-) inductive definitions into tabled prolog rules for IDP3  
JOACHIM JANSEN, ALBERT JORISSEN AND GERDA JANSSENS
- 705 A practical analysis of non-termination in large logic programs  
SENLIN LIANG AND MICHAEL KIFER
- 721 A CLP heap solver for test case generation  
ELVIRA ALBERT, MARÍA GARCÍA DE LA BANDA, MIGUEL GÓMEZ-ZAMALLOA, JOSÉ MIGUEL ROJAS  
AND PETER STUCKEY
- 737 Logic programming with function symbols: Checking termination of bottom-up evaluation  
through program adornments  
SERGIO GRECO, CRI STIAN MOLINARO AND IRINA TRUBITSYNA
- 753 Fuzzy answer sets approximations  
MARIO ALVIANO AND RAFAEL PEÑALOZA
- 769 Probabilistic legal reasoning in CHRiSM  
JON SNEYERS, DANNY DE SCHREYE AND THOM FRÜHWIRTH
- 783 Answer set programming as a modeling language for course timetabling  
MUTSUNORI BANBARA, TAKEHIDE SOH, NAOYUKI TAMURA, KATSUMI INOUE  
AND TORSTEN SCHAUB
- 799 BigYAP: Exo-compilation meets UDI  
VÍTOR SANTOS COSTA AND DAVID VAZ
- 815 A declarative approach to distributed computing: Specification, execution and analysis  
JIEFEI MA, FRANCK LE, DAVID WOOD, ALESSANDRA RUSSO AND JORGE LOBO
- 831 Finding optimal plans for multiple teams of robots through a mediator: A logic-based approach  
ESRA ERDEM, VOLKAN PATOGLU, ZEYNEP G. SARIBATUR, PETER SCHÜLLER AND TANSEL URAS
- 847 Compact serialization of Prolog terms (with catalan skeletons, cantor tupling and Gödel numberings)  
PAUL TARAU
- 863 On the stable model semantics for intensional functions  
MICHAEL BARTHOLOMEW AND JOOHYUNG LEE
- 877 Combining decidability paradigms for existential rules  
GEORG GOTTLÖB, MARCO MANNA AND ANDREAS PIERIS

## SUBSCRIPTIONS

Theory and Practice of Logic Programming (ISSN 1471-0684), is published bi-monthly in January, March, May, July, September and November by Cambridge University Press, The Edinburgh Building, Shaftesbury Road, Cambridge, CB2 8RU, UK/Cambridge University Press, 32 Avenue of the Americas, New York, N.Y. 10013–2473. The subscription price (excluding VAT) of Volume 13, 2013 is £391 net (USA, Canada and Mexico US\$653), for institutions print and electronic or £331 net, (USA, Canada and Mexico US\$525) electronic only, single parts cost £66, \$110 plus postage. Discounted individual rates (print only) are £88, \$142. There is a preferential rate for members of The Association of Logic Programming and The Association of Computing Machinery – please enquire. Six parts form a volume. EU subscribers (outside the UK) who are not registered for VAT should add VAT at their country's rate. VAT registered subscribers should provide their VAT registration number. Orders, which must be accompanied by payment, may be sent to any bookseller, subscription agent or to the publisher: Cambridge University Press, The Edinburgh Building, Shaftesbury Road, Cambridge, CB2 8RU, or in the USA, Canada and Mexico to Cambridge University Press Journals Fulfillment Department, 100 Brook Hill Drive, West Nyack, New York 10994 2133. Prices include delivery by air where appropriate. Periodicals postage paid at New York, NY and at additional mailing offices, Japanese prices are available from Kinokuniya Company Ltd, P.O. Box 55, Chitose, Tokyo, 156, Japan. Postmaster: send address changes in USA, Canada and Mexico to Journal of Theory and Practice of Logic Programming, Cambridge University Press, 100 Brook Hill Drive, West Nyack, New York 10994 2133. Claims for missing issues should be made immediately on receipt of the subsequent issues.

© Cambridge University Press 2013

## INSTRUCTIONS TO AUTHORS

### *Aims and scope*

Theory and Practice of Logic Programming is an international journal that publishes refereed papers covering both the theory and the practice of logic programming. Among the topics covered are AI applications that use logic programming, logic programming methodologies, specification, analysis and verification of systems, inductive logic programming, multi-relational data mining, natural language processing, knowledge representation, nonmonotonic reasoning, semantic web reasoning, databases, implementations and architectures and constraint logic programming.

TPLP is the sole official journal of the Association for Logic Programming (<http://logicprogramming.org/>) and is offered to its members at a preferential rate. It is also endorsed by SPARC, the Scholarly Publishing & Academic Resources Coalition (URL: [www.arl.org/sparc](http://www.arl.org/sparc)).

### *Submission of manuscripts*

Electronic submissions: The preferred form of submission is to send two email messages, the first one with the information containing the title, the author(s), and the abstract of the submission, and the second one with a PDF or a Postscript file. Both emails should be sent to the appropriate Area Editor with a copy to the Editor-in-Chief. If in doubt about the most appropriate area, contact the Editor-in-Chief.

Paper submissions: These are also acceptable, but their handling may be delayed (four copies to the appropriate Area Editor and one copy to the Editor-in-Chief).

The submitted manuscripts should not be published or simultaneously submitted to another journal or to a conference. Full versions of important conference papers are welcome. Upon acceptance of an article by the journal, the author(s) will be asked to transfer copyright of the article to Cambridge University Press.

### *Book Reviews*

Books for review, or suggestions for reviews, should be sent to the book reviews editor.

### *Technical notes*

Technical notes should not exceed 5000 words in length, excluding tables, figures, and the bibliography. They are given quick turnaround and should be submitted, preferably electronically, to the Technical Notes editor. Submissions should include an abstract and a reasonable accurate word count for the paper (excluding tables and figures, and the bibliography).

### *Electronic manuscripts*

The publisher encourages the submission of final manuscripts written in LaTeX which can be used for direct typesetting. Authors can download style files from the CUP anonymous ftp site in a packed or unpacked form. The packed form is available from:

<ftp://ftp.cambridge.org/pub/texarchive/journals/latex/tp-cls> and the unpacked files are in a directory /unpacked.

### *Layout*

Manuscripts should begin with an abstract of not more than 300 words at the end of which are 4 or 5 keywords. Avoid footnotes whenever possible. Papers should conform to a good standard of English prose; please consult a style guide such as 'The Elements of Style' by Strunk and White, Macmillan, New York. Presenting Programs in one of the following two styles is encouraged: either with identifiers in italic and keywords in bold or entirely in a fixed-width teletype font. Do not begin a sentence with a symbol or identifier name.

### *Illustrations*

Supply these as eps files as the publisher cannot use original TeX files of illustrations. A hardcopy printout needs to be supplied of each illustration.

### *References*

The Harvard system of references should be used. See style files.

### *Proofreading*

Be sure to submit papers in their final form. Typographical and factual errors only may be changed at proof stage. The publisher reserves the right to charge authors for extensive changes to their paper. No page charge is made. The spelling policy of the journal is to follow author's American or British spelling as long as it is consistent within the paper.

### *Offprints*

A free pdf of the published article will be supplied to each first named author. Papers offprints may be purchased upon request.

Please contact the editors for additional information or clarification of anything above.

## COPYING

The journal is registered with the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA, 01923, USA. Organisations in the USA who are also registered with the CCC may therefore copy material (beyond the limits permitted by sections 107 and 108 of the US copyright law) subject to payment to CCC of the per-copy fee of \$16.00. This consent does not extend to multiple copying for promotional or commercial purposes. Code 1471-0684/12 \$16.00. Organisations authorised by the Copyright Licensing Agency may also copy material subject to the usual conditions.

ISI Tear Service, 3501 Market Street, Philadelphia, Pennsylvania 19104, USA, is authorised to supply single copies of separate articles for private use only. For all other use, permission should be sought from Cambridge UK or the American Branch of Cambridge University Press.

This journal issue has been printed on FSC-certified paper and cover board. FSC is an independent, non-governmental, not-for-profit organization established to promote the responsible management of the world's forests. Please see [www.fsc.org](http://www.fsc.org) for information.

Printed in the UK by Bell & Bain

# Theory and Practice of Logic Programming

VOLUME 13 PARTS 4–5 JULY 2013

## Contents

### *Regular papers*

- 465 Editorial: 29th International Conference on Logic Programming special issue  
EVELINA LAMMA AND TERRANCE SWIFT
- 471 Detection and exploitation of functional dependencies for model generation  
BROES DE CAT AND MAURICE BRUYNNOOGHE
- 487 The jobs puzzle: Taking on the challenge via controlled natural language processing  
ROLF SCHWITTER
- 503 Lloyd-Topor completion and general stable models  
VLADIMIR LIFSCHITZ AND FANGKAI YANG
- 517 Stable model semantics for founded bounds  
REHAN ABDUL AZIZ, GEOFFREY CHU AND PETER J. STUCKEY
- 533 Delimited continuations for prolog  
TOM SCHRIJVERS, BART DEMOEN, BENOIT DESOUTER AND JAN WIELEMAKER
- 547 ASP with non-herbrand partial functions: a language and system for practical use  
MARCELLO BALDUCCINI
- 563 Disjunctive logic programs with existential quantification in rule heads  
JIA-HUAI YOU, HENG ZHANG AND YAN ZHANG
- 579 Relative expressiveness of defeasible logics II  
MICHAEL J. MAHER
- 593 Failure tabled constraint logic programming by interpolation  
GRAEME GANGE, JORGE A. NAVAS, PETER SCHACHTE, HARALD SØNDERGAARD  
AND PETER J. STUCKEY
- 609 A declarative extension of horn clauses, and its significance for datalog and its applications  
MIRJANA MAZURAN, EDOARDO SERRA AND CARLO ZANIOLO

(Contents continued facing inside back cover)

Endorsed by  SPARC

Cambridge Journals Online

For further information about this journal  
please go to the journal website at:  
[journals.cambridge.org/tlp](http://journals.cambridge.org/tlp)



MIX  
Paper from  
responsible sources  
FSC® C007785

CAMBRIDGE  
UNIVERSITY PRESS