

THE JOURNAL OF SYMBOLIC LOGIC

Edited by

Philip Welch, *Coordinating Editor*

Matthias Aschenbrenner

Veronica Becher

Enrique Casanovas

Bakhadyr Khoussainov

Jan Krajčiček

Stephan Kreutzer

Colin McLarty

Thomas Strahm

Boban Velickovic

VOLUME 83 • NUMBER 3 • SEPTEMBER 2018 • ISSN 0022-4812

Copyright © 2018 by the Association for Symbolic Logic. All rights reserved.
Reproduction by photostat, photo-print, microfilm, or like process by permission only.



PUBLISHED BY CAMBRIDGE UNIVERSITY PRESS FOR
AND ON BEHALF OF THE ASSOCIATION FOR SYMBOLIC LOGIC.

The BULLETIN, the JOURNAL and the REVIEW OF SYMBOLIC LOGIC are the official organs of the Association for Symbolic Logic, an international organization for furthering research in logic and the exchange of ideas among mathematicians, computer scientists, linguists, and others interested in this field. The JOURNAL invites submission of original scholarly work in mathematical logic and its applications.

Editors

Philip Welch (Coordinating Editor)

School of Mathematics, University of Bristol, Clifton, Bristol, BS8 1TW, UK
(P.Welch@bristol.ac.uk);

Matthias Aschenbrenner

Department of Mathematics, University of California, Los Angeles, Box 951555, Los Angeles, CA 90095-1555, USA
(matthias@math.ucla.edu);

Veronica Becher

Departamento de Computación, Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires, Pabellón I, Ciudad Universitaria C1428EGA, Buenos Aires, Argentina
(vbecher@dc.uba.ar);

Enrique Casanovas

Department of Mathematics and Computer Science University of Barcelona Gran Via 585, 08007 Barcelona, Spain
(e.casanovas@ub.edu);

Bakhadyr Khoussainov

Department of Computer Science, University of Auckland, Private Bag 92019, Auckland, New Zealand
(bmk@cs.auckland.ac.nz);

Jan Krajíček

Department of Algebra, Faculty of Mathematics and Physics, Sokolovska 83, Prague, CZ-186 75, The Czech Republic
(krajicek@karlin.mff.cuni.cz);

Stephan Kreutzer

Technische Universität Berlin, Institut für Softwaretechnik und Theoretische Informatik, Lehrstuhl für Logik und Semantik, Sekr TEL 7-3, Ernst-Reuter-Platz 7, 10587 Berlin, Germany
(stephan.kreutzer@tu-berlin.de);

Colin McLarty

Department of Philosophy, Case Western Reserve University, Clark Hall, 11130 Bellflower Road, Cleveland, OH 44106-7719, USA
(colin.mclarty@case.edu);

Thomas Strahm

Institut für Informatik, Universität Bern, Neubrückstrasse 10, CH-3012 Bern, Switzerland
(strahm@iam.unibe.ch);

Boban Velickovic

Équipe de Logique Mathématique, Université Paris Diderot – Paris 7, UFR de Mathématiques (case 7012), 2 place Jussieu 75251 Paris, France
(boban@math.univ-paris-diderot.fr).

Manuscripts should be submitted using the ASL's online system at <http://asljournals.org> where instructions directed specifically at using the system can also be found.

Authors should keep a complete copy of their submission and all electronic files from which it was created. They should also consult the more general guidelines for the submission of manuscripts at <http://www.aslonline.org/journals-journal-guide.html>. These instructions include the Association's standards about previous publication and plagiarism as well as information about copyrights and electronic copies of published papers.

No print offprints will be supplied but authors will receive a link to a freely accessible electronic pdf of their published article. Print offprints may be purchased if required.

TABLE OF CONTENTS

The temporal logic of two dimensional Minkowski spacetime is decidable ROBIN HIRSCH and MARK REYNOLDS.....	829
Truths, inductive definitions, and Kripke-Platek systems over set theory KENTARO FUJIMOTO.....	868
A logical and algebraic characterization of adjunctions between generalized quasi-varieties TOMMASO MORASCHINI.....	899
The solidity and nonsolidity of initial segments of the core model GUNTER FUCHS and RALF SCHINDLER.....	920
On the structure of groups endowed with a compatible C-relation GABRIEL LEHÉRICY.....	939
Truncation and semi-decidability notions in applicative theories GERHARD JÄGER, TIMOTEJ ROSEBROCK, and SATO KENTARO.....	967
Interrelation between weak fragments of double negation shift and related principles MAKOTO FUJIWARA and ULRICH KOHLENBACH.....	991
Towers in filters, cardinal invariants, and Luzin type families JÖRG BRENDLE, BARNABÁS FARKAS, and JONATHAN VERNER.....	1013
Consistency proof of a fragment of PV with substitution in bounded arithmetic YORIYUKI YAMAGATA.....	1063
Proof-theoretic strengths of weak theories for positive inductive definitions TOSHIYASU ARAI.....	1091
On $C^{(n)}$ -extendible cardinals KONSTANTINOS TSAPROUNIS.....	1112
From multisets to sets in homotopy type theory HÅKON ROBBESTAD GYLTERUD.....	1132
An algebraic approach to MSO-definability on countable linear orderings OLIVIER CARTON, THOMAS COLCOMBET, and GABRIELE PUPPIS.....	1147
The complexity of topological group isomorphism ALEXANDER S. KECHRIS, ANDRÉ NIES, and KATRIN TENT.....	1190
Undecidability of the first order theories of free noncommutative lie algebras OLGA KHARLAMPOVICH and ALEXEI MYASNIKOV.....	1204
Simple groups of Morley rank 5 are bad ADRIEN DELORO and JOSHUA WISCONS.....	1217
Provability logics relative to a fixed extension of Peano Arithmetic TAISHI KURAHASHI.....	1229
Infinite combinatorics plain and simple DÁNIEL T. SOUKUP and LAJOS SOUKUP.....	1247
Subcomplete forcing, trees, and generic absoluteness GUNTER FUCHS and KAETHE MINDEN.....	1282