THE BULLETIN OF SYMBOLIC LOGIC

Edited by

John Baldwin, *Managing Editor*

Ilijas Farah
Volker Halbach
Deirdre Haskell
André Nies
Martin Otto
Michael Rathjen
Erich Reck

Reviews Editors

Steve Awodey, *Managing Editor for Reviews*

John Burgess
Mark Colyvan
Anuj Dawar
Marcelo Fiore
Noam Greenberg
Rahim Moosa
Ernest Schimmerling
Carsten Schürmann
Kai Wehmeier
Matthias Wille

VOLUME 17 • NUMBER 3 • SEPTEMBER 2011 • ISSN 1079-8986

Copyright © 2011 by the Association for Symbolic Logic. All rights reserved.
Reproduction by photostat, photo-print, microfilm, or like process by permission only.

PUBLISHED QUARTERLY BY THE ASSOCIATION FOR SYMBOLIC LOGIC
WITH SUPPORT FROM INSTITUTIONAL MEMBERS.

https://doi.org/10.1017/S1079898600009203 Published online by Cambridge University Press

TABLE OF CONTENTS

ARTICLES

$V = L$ and intuitive plausibility in set theory. A case study, by TATIANA ARRIGONI ... 337
On arbitrary sets and *ZFC*, by JOSÉ FERREIRÓS 361
Alan Turing and the foundations of computable analysis, by GUIDO GHERARDI 394
Open questions in reverse mathematics, by ANTONIO MONTALBÁN 431

COMMUNICATIONS

A new proof of Friedman's conjecture, by LIANG YU 455

REVIEWS

S. Cook and P. Nguyen, ***Logical foundations of proof complexity***. Reviewed by Albert Atserias 462
M. Lerman, ***A framework for priority arguments***. Reviewed by George Barmpalias .. 464
I. Farah, *All automorphisms of the Calkin algebra are inner*. Reviewed by Ernest Schimmerling 467

IN MEMORIAM

In Memoriam: Gregory Hjorth, 1963–2011, by ALEXANDER S. KECHRIS 471

(Continued on inside back cover)

THE BULLETIN OF SYMBOLIC LOGIC (ISSN print: 1079-8986, ISSN online: 1943-5894) is published quarterly, in the months of March, June, September, and December, by the Association for Symbolic Logic, Inc., 124 Raymond Avenue, Poughkeepsie, NY 12604-0001, USA. Periodicals postage is paid at Poughkeepsie, NY and at additional mailing offices. The BULLETIN is distributed with THE JOURNAL OF SYMBOLIC LOGIC. The 2011 annual subscription price for the two journals, in either print or electronic form, is US$610; visit `http://www.aslonline.org/Journals-subscription.html` for more information. **Postmaster**: Send address changes to ***The Bulletin of Symbolic Logic, c/o American Mathematical Society, 201 Charles Street, Providence, RI 02904-2294, USA.*** Business correspondence should be sent to the Secretary-Treasurer of the Association, Charles Steinhorn (address on inside back cover).

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 all aspects of symbolic logic. The BULLETIN encourages submission of *Articles* and *Communications* in all areas of logic, including mathematical or philosophical logic, logic in computer science or linguistics, the history or philosophy of logic, and applications of logic to other fields. The BULLETIN also publishes reviews of publications in logic.

Articles should be of broad interest and accessible to a wide audience of logicians. They may be purely expository, survey, or historical articles, or they may contain, in addition, new ideas or results or new approaches to old ones.

Communications should be announcements of important new results and ideas in any aspect of logic; they may be short papers in their final form or preliminary announcements (extended abstracts, position papers) of longer, full papers that will be published elsewhere. In any case, they should include, in addition to a description of the new results or ideas, enough history, background, and explanation to make the significance of the work apparent to a wide audience. *Communications* will be quickly refereed and published within six months of the submission of final versions.

Continued on inside back cover

10 9 8 7 6 5 4 3 2 1 16 15 14 13 12 11

https://doi.org/10.1017/S1079898600009203 Published online by Cambridge University Press

6th Conference on Computability in Europe, "Programs, proofs, processes", University of Azores, Ponta Delgada, Azores, Portugal, June 30–July 4, 2010 478
17th Workshop on Logic, Language, Information, and Computation, (WoLLIC 2010), Brasília, Brazil, July 6–9, 2010 480
Notices 482

Articles and *Communications* being submitted for publication in the BULLETIN should be sent to one (and only one) of the following editors: ***John Baldwin*** (Managing Editor), ***Dept. of Math., Stat., and Comp. Sci. (M/C 249), Univ. of Ill. at Chicago, 851 S. Morgan St., Chicago, IL 60607, USA*** (jbaldwin@uic.edu); or ***Ilijas Farah, Department of Mathematics and Statistics, York University, 4700 Keele Street, Toronto, ON M3J 1P3, Canada*** (ifarah@mathstat.yorku.ca); or ***Volker Halbach, New College, Oxford, OX1 3BN, UK*** (volker.halbach@philosophy.ox.ac.uk); or ***Deirdre Haskell, Department of Mathematics and Statistics, McMaster University, 1280 Main St. W, Hamilton ON L8S 4K1, Canada*** (haskell@math.mcmaster.ca); or ***André Nies, Department of Computer Science, University of Auckland, Private Bag 92019, Auckland, New Zealand*** (nies.editor@gmail.com); or ***Martin Otto, Department of Mathematics, Technische Universität Darmstadt, Schlossgartenstr. 7, 64289 Darmstadt, Germany*** (otto@mathematik.tu-darmstadt.de); or ***Michael Rathjen, School of Mathematics, University of Leeds, Leeds LS2 9JT, UK*** (rathjen@maths.leeds.ac.uk); or ***Erich Reck, Department of Philosophy, University of California Riverside, HMNSS Building Room 1604, 900 University Avenue, Riverside, CA 92521, USA*** (erich.reck@ucr.edu). Submissions that are not readily categorized as either *Articles* or *Communications* should be sent to the managing editor.

Books for review in the BULLETIN should be sent to ***ASL, Box 742, Vassar College, 124 Raymond Avenue, Poughkeepsie, NY 12604, USA***. The Managing Editor for Reviews is ***Steve Awodey, Department of Philosophy, Carnegie Mellon University, 135 Baker Hall, Pittsburgh, PA 15213, USA*** (awodey@cmu.edu). The other editors of reviews are ***John Burgess*** (jburgess@princeton.edu), ***Mark Colyvan*** (mcolyvan@usyd.edu.au), ***Anuj Dawar*** (Anuj.Dawar@cl.cam.ac.uk), ***Marcelo Fiore*** (mpf23@cl.cam.ac.uk), ***Noam Greenberg*** (Noam.Greenberg@mcs.vuw.ac.nz), ***Rahim Moosa*** (rmoosa@math.uwaterloo.ca), ***Ernest Schimmerling*** (eschimme@andrew.cmu.edu), ***Carsten Schürmann*** (carsten@itu.dk), ***Kai Wehmeier*** (wehmeier@uci.edu), and ***Matthias Wille*** (matthias.wille@iel.uni-koeln.de).

The editors prefer electronic submissions. The preferred formats for electronic submissions are PDF or postscript, but other formats, such as Word documents, will be accommodated as best as possible. The author should keep a complete copy of the submitted manuscript and the electronic files from which it was created. After the paper is accepted in its final form, an electronic copy will be appreciated and will advance the final publication date of the paper. It is preferred that papers be prepared in LaTeX or other variant of TeX, especially for manuscripts that include extensive symbolic or mathematical notation. The ASL LaTeX style files are available at http://www.aslonline.org, but their use is optional. Fifty offprints of each article are supplied at no charge; additional offprints may be purchased if desired.

Postscript files of articles published in the BULLETIN may be downloaded using a Web browser from http://www.math.ucla.edu/~asl/bsltoc.htm. All volumes of the BULLETIN also are available online in the JSTOR database.

Requests for information, applications for membership, orders for back volumes, business correspondence, and notices and announcements for publication in the BULLETIN should be sent to the Secretary-Treasurer of the Association, ***Charles Steinhorn, ASL, Box 742, Vassar College, 124 Raymond Avenue, Poughkeepsie, NY 12604, USA***. The electronic mail address of the Association's business office is asl@vassar.edu. The ASL Website is located at http://www.aslonline.org. Links from that site provide further information on the BULLETIN and on submitting papers for publication.

Notices of change of address, dues payments, and subscription orders to the JOURNAL and BULLETIN should be sent to: ***Association for Symbolic Logic, c/o American Mathematical Society, 201 Charles Street, Providence, RI 02904-2294, USA***. All orders must be accompanied by payment in US dollars; Visa, MasterCard, Discover and American Express charges are accepted. To receive a replacement copy of the BULLETIN, please report damaged, defective, or missing issues within nine months of the date of publication.

For subscriptions to the REVIEW, contact Cambridge Journals Customer Services at journals@cambridge.org.

The paper used in this BULLETIN is acid-free and falls within the guidelines established to ensure permanence and durability.

https://doi.org/10.1017/S1079898600009203 Published online by Cambridge University Press

THE BULLETIN OF SYMBOLIC LOGIC

Edited by

John Baldwin, *Managing Editor*

Ilijas Farah
Volker Halbach
Deirdre Haskell
André Nies
Martin Otto
Michael Rathjen
Erich Reck

Reviews Editors

Steve Awodey, *Managing Editor for Reviews*

John Burgess
Mark Colyvan
Anuj Dawar
Marcelo Fiore
Noam Greenberg
Rahim Moosa
Ernest Schimmerling
Carsten Schürmann
Kai Wehmeier
Matthias Wille

VOLUME 17 • 2011

Copyright © 2011 by the Association for Symbolic Logic. All rights reserved.
Reproduction by photostat, photo-print, microfilm, or like process by permission only.

PUBLISHED QUARTERLY BY THE ASSOCIATION FOR SYMBOLIC LOGIC
WITH SUPPORT FROM INSTITUTIONAL MEMBERS.

https://doi.org/10.1017/S1079898600009203 Published online by Cambridge University Press

The four numbers of Volume 17 are copyrighted ©2011 by the Association for Symbolic Logic, Inc. Reproduction of copyrighted numbers of the BULLETIN by photostat, photoprint, microfilm, or like process is forbidden, except by written permission, to be obtained from the Secretary of the Association, Charles Steinhorn, ASL, Box 742, Vassar College, 124 Raymond Avenue, Poughkeepsie, NY 12604, USA.

The paper used in this BULLETIN is acid-free and falls within the guidelines established to ensure permanence and durability.

This BULLETIN has been registered with the Copyright Clearance Center, Inc. The appearance of a code at the bottom of the first page of an article indicates the copyright owner's consent for copying beyond that permitted by Sections 107 or 108 of the U. S. Copyright Law, provided that the per-copy fee stated in the code is paid directly to Copyright Clearance Center, Inc., 222 Rosewood Drive, Danvers, MA 01923, USA. This consent does not extend to copying for general distribution, for advertising or promotion purposes, for creating new collective works, or for resale. Specific written permission for such copying must be obtained from the Association.

https://doi.org/10.1017/S1079898600009203 Published online by Cambridge University Press

CONTENTS OF VOLUME 17

Articles

ARRIGONI, TATIANA. $V = L$ and intuitive plausibility in set theory. A case study ... 337
BRATTKA, VASCO and GHERARDI, GUIDO. Effective choice and boundedness principles in computable analysis ... 73
FERREIRÓS, JOSÉ. On arbitrary sets and *ZFC* ... 361
GABBAY, MURDOCH J. Foundations of nominal techniques: logic and semantics of variables in abstract syntax ... 161
GHERARDI, GUIDO. Alan Turing and the foundations of computable analysis ... 394
MONTALBÁN, ANTONIO. Open questions in reverse mathematics ... 431
MOORE, GREGORY H. Early history of the Generalized Continuum Hypothesis: 1878–1938 ... 489
SHLAPENTOKH, ALEXANDRA. Defining integers ... 230
TODORCEVIC, STEVO. Combinatorial dichotomies in set theory ... 1

Communications

THOMAS, SIMON. A descriptive view of combinatorial group theory ... 252
YU, LIANG. A new proof of Friedman's conjecture ... 455

Reviews

S. Todorcevic, ***Walks on ordinals and their characteristics***. Reviewed by Justin Tatch Moore ... 118
C. Franks, ***The autonomy of mathematical knowledge: Hilbert's program revisited***. Reviewed by Juliette Kennedy ... 119
J. Sakarovitch, ***Elements of automata theory***. Reviewed by Jean-Éric Pin ... 122
S. Feferman, C. Parsons, and S. G. Simpson (editors), ***Kurt Gödel. Essays for his centennial***. Reviewed by Matthias Wille ... 125
S. Gao, ***Invariant descriptive set theory***. Reviewed by Samuel Coskey ... 265
M. Leng, ***Mathematics and reality***. Reviewed by Juha Saatsi ... 267
S. Todorcevic, ***Introduction to Ramsey spaces***. Reviewed by Claude Laflamme ... 269
M. Mugnai, *Logic and mathematics in the seventeenth century*. Reviewed by Matthias Wille ... 270
S. Cook and P. Nguyen, ***Logical foundations of proof complexity***. Reviewed by Albert Atserias ... 462
M. Lerman, ***A framework for priority arguments***. Reviewed by George Barmpalias 464
I. Farah, *All automorphisms of the Calkin algebra are inner*. Reviewed by Ernest Schimmerling ... 467
W. D. Hart, ***The evolution of logic***. Reviewed by Kenny Easwaran ... 533

https://doi.org/10.1017/S1079898600009203 Published online by Cambridge University Press

W. J. Mitchell, $I[\omega_2]$ *can be the nonstationary ideal on* $\mathrm{Cof}(\omega_1)$. Reviewed by Martin Zeman 535
L. Patton, *Anti-psychologism about necessity: Friedrich Albert Lange on objective inference*. Reviewed by Matthias Wille 537

IN MEMORIAM

In Memoriam: Gregory Hjorth, 1963–2011. By ALEXANDER S. KECHRIS 471

MEETINGS OF THE ASSOCIATION FOR SYMBOLIC LOGIC

2010 North American Annual Meeting of the Association for Symbolic Logic, George Washington University, Washington, D.C., March 17–20, 2010 127
2010 European Summer Meeting of the Association for Symbolic Logic, Logic Colloquium '10, Paris, France, July 25–31, 2010 272

MEETINGS SPONSORED BY THE ASSOCIATION FOR SYMBOLIC LOGIC

6th Conference on Computability in Europe "Programs, proofs, processes", University of Azores, Ponta Delgada, Azores, Portugal, June 30–July 4, 2010 478
17th Workshop on Logic, Language, Information, and Computation (WoLLIC 2010), Brasília, Brazil, July 6–9, 2010 480

Notices 155, 330, 482, 599
Officers and Committees of the Association for Symbolic Logic 539
Members of the Association 545

https://doi.org/10.1017/S1079898600009203 Published online by Cambridge University Press