

THE
JOURNAL
OF
SYMBOLIC LOGIC

EDITED BY

ROBERT GOLDBLATT, Coordinating Editor

TOSHIYASU ARAI PETER CHOLAK

MARTIN GROHE GREG HJORTH MICHAEL C. LASKOWSKI

SIMON THOMAS STEWART SHAPIRO

VOLUME 71 · NUMBER 1 · MARCH 2006
ISSN 0022-4812

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

*Copyright ©2006 by the Association for Symbolic Logic. All rights reserved.
Reproduction by photostat, photo-print, microfilm, or like process by permission only.*

TABLE OF CONTENTS

Properties and consequences of Thorn-independence, by ALF ONSHUUS	1
Converse dual cardinals, by JÖRG BRENDLE and SHUGUO ZHANG	22
Normalized natural deduction systems for some relevant logics I: The logic DW, by ROSS T. BRADY	35
The generalised type-theoretic interpretation of constructive set theory, by NICOLA GAMBINO and PETER ACZÉL	67
On weak and strong interpolation in algebraic logics, by GÁBOR SÁGI and SAHARON SHELAH	104
On a conjecture of Dobrinen and Simpson concerning almost everywhere domination, by STEPHEN BINNS, BJØRN KJOS-HANSSSEN, MANUEL LERMAN, and REED SOLOMON	119
Effectiveness and multivalued logics, by GIANGIACOMO GERLA	137
An alternative semantics for quantified relevant logic, by EDWIN D. MARES and ROBERT GOLDBLATT	163
The hierarchy theorem for second order generalized quantifiers, by JUHA KONTINEN	188
Automorphism groups of arithmetically saturated models, by ERMEK S. NURKHAIDAROV	203
Associativity as commutativity, by KOSTA DOŠEN and ZORAN PETRIĆ	217
Permutations and wellfoundedness: the true meaning of the bizarre arithmetic of Quine's NF, by THOMAS FORSTER	227
Iterates of the core model, by RALF SCHINDLER	241
Jump operator and Yates degrees, by GUOHUA WU	252
Orbit equivalence and actions of \mathbb{F}_n , by ASGER TÖRNQUIST	265
Computable trees of Scott rank ω_1^{CK} , and computable approximation, by WESLEY CALVERT, JULIA F. KNIGHT, and JESSICA MILLAR	283
Completeness and Herbrand theorems for nominal logic, by JAMES CHENEY	299
Structure with fast elimination of quantifiers, by MIHAI PRUNESCU	321
Bounded modified realizability, by FERNANDO FERREIRA and ANA NUNES	329
Geometry of forking in simple theories, by ASSAF PERETZ	347

THE JOURNAL OF SYMBOLIC LOGIC (ISSN 0022-4812) 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 JOURNAL is distributed with THE BULLETIN OF SYMBOLIC LOGIC; the 2006 annual subscription price for the two journals is US\$515. Online subscription is available from Project Euclid; visit <http://projecteuclid.org/jsl>. **Postmaster:** Send address changes to *The Journal 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 and the JOURNAL are the official organs of the Association for Symbolic Logic, an international organization for furthering research in symbolic logic and the exchange of ideas among mathematicians, philosophers, computer scientists, linguists, and others interested in this field.

The JOURNAL invites submission of (1) original technical papers in the field of symbolic logic, (2) expository papers in this field, (3) papers whose main point is philosophical and which either bear upon logic or make use of its methods, and (4) studies in the history of logic in which modern technical developments are taken into account.

Continued on inside back cover

10 9 8 7 6 5 4 3 2 1 11 10 09 08 07 06