THE

JOURNAL OF SYMBOLIC LOGIC

EDITED BY

ALONZO CHURCH ALICE A. LAZEROWITZ HARTLEY ROGERS, JR

ARTHUR N. PRIOR JULIA ROBINSON

Managing Editor: ALFONS BORGERS

Consulting Editors:

ALAN ROSS ANDERSON **ABRAHAM ROBINSON** HANS HERMES C. A. BAYLIS GENE F. ROSE E. J. LEMMON BARKLEY ROSSER JONATHAN F. BENNETT RICHARD MONTAGUE H. ARNOLD SCHMIDT PAUL BERNAYS ANDRZEJ MOSTOWSKI GERT H. MÜLLER MARTIN DAVIS KURT SCHÜTTE FREDERIC B. FITCH STEVEN OREY DANA SCOTT RÓZSA PÉTER J. F. THOMSON G. HASENJAEGER LEON HENKIN A. R. TURQUETTE

> VOLUME 28 1963

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

Copyright 1964 by the Association for Symbolic Logic, Inc.
Reproduction by photostat, photo-print, microfilm, or like process by permission only.

THE

JOURNAL OF SYMBOLIC LOGIC

EDITED BY

ALONZO CHURCH HARTLEY ROGERS, JR ALICE A. LAZEROWITZ ARTHUR N. PRIOR JULIA ROBINSON

Managing Editor: ALFONS BORGERS

Consulting Editors:

ALAN ROSS ANDERSON
C. A. BAYLIS
JONATHAN F. BENNETT
PAUL BERNAYS
MARTIN DAVIS
FREDERIC B. FITCH
G. HASENJAEGER
LEON HENKIN

Hans Hermes
E. J. Lemmon
Richard Montague
Andrzej Mostowski
Gert H. Müller
Steven Orey
Rózsa Péter

ABRAHAM ROBINSON GENE F. ROSE BARKLEY ROSSER H. ARNOLD SCHMIDT KURT SCHÜTTE DANA SCOTT J. F. THOMSON A. R. TURQUETTE

VOLUME 28

1963

Published quarterly by the Association for Symbolic Logic, Inc with support from UNESCO through ICSU and from institutional

MEMBERS

Copyright 1964 by the Assocation for Symbolic Logic, Inc.
Reproduction by photostal, photo-print, microfilm, or like process by permission only

THE

JOURNAL

OF

SYMBOLIC LOGIC

EDITED BY

ALONZO CHURCH HARTLEY ROGERS, JR ALICE A. LAZEROWITZ

ARTHUR N. PRIOR JULIA ROBINSON

Managing Editor: ALFONS BORGERS

Consulting Editors:

ALAN ROSS ANDERSON
C. A. BAYLIS
JONATHAN F. BENNETT
PAUL BERNAYS
MARTIN DAVIS
FREDERIC B. FITCH
G. HASENJAEGER
LEON HENKIN

HANS HERMES
E. J. LEMMON
RICHARD MONTAGUE
ANDRZEJ MOSTOWSKI
GERT H. MÜLLER
STEVEN OREY
RÓZSA PÉTER

ABRAHAM ROBINSON GENE F. ROSE BARKLEY ROSSER H. ARNOLD SCHMIDT KURT SCHÜTTE DANA SCOTT J. F. THOMSON A. R. TURQUETTE

VOLUME 28

1963

PUBLISHED QUARTERLY BY THE ASSOCIATION FOR SYMBOLIC LOGIC, INC WITH SUPPORT FROM UNESCO THROUGH ICSU AND FROM INSTITUTIONAL MEMBERS

The four numbers of Volume 28 were issued at the following dates:

Number 1, pages 1-112, January 22, 1964.

Number 2, pages 113-176, March 4, 1964.

Number 3, pages 177-272, May 1964,

Number 4, pages 273-346, July 1964,

All numbers of this volume are copyrighted by the Association for Symbolic Logic, Inc. Reproduction of copyrighted numbers of the Journal by photostat, photo-reprint, microfilm, or like process is forbidden, except by written permission of the Managing Editor.

Reprinted 1983

TABLE OF CONTENTS

Recursive real numbers. By A. H. LACHLAN	1
Functions which remain partial recursive under all similarity transformations. By Norman Shapiro	17
A method of modelling the formalism of set theory in axiomatic set theory. By A. H. Kruse	20
A note on many-one reducibility. By Shih-Chao Liu	35
A weak completeness theorem for infinite valued first-order logic. By L. P. Belluce and C. C. Chang	43
What is strict implication? By IAN HACKING	51
Some remarks concerning theories with recursively enumerable complements. By Alan Cobham	72
Remark on a system of Bernays. By JOHN MYHILL	75
Axiomatization of the infinite-valued predicate calculus. By Louise Schmir Hay	77
The system CΔ of combinatory logic. By Frederic B. Fitch	87
Reviews	98
Policy announcement	111
The Aristotelian Society prize for an essay in the philosophy of mathematics	111
Notice of fellowship and research opportunities in mathematics	112
Relative necessity. By Timothey Smiley	113
A logical analysis of some value concepts. By Frederic B. Fitch	135
On many-one degrees. By Shih-Chao Liu	143
An addendum. By S. C. KLEENE	154
Descriptive completeness and inductive methods. By Keith Lehrer	157
On n-adic representation of numbers. By Thomas E. Patton	161
Reviews	164
Tensor products of polyadic algebras. By Aubert Daigneault	177
An extension of the Craig-Lyndon interpolation theorem. By Leon Henkin	201
Independent axioms for infinite-valued logic. By ATWELL R. TUR- QUETTE	217

TABLE OF CONTENTS

Separation principles in the hierarchy theory of pure first-order logic. By M. R. Krom	222
On the solvability of a subclass of the Surányi reduction class. By RICHARD GOLDBERG	237
Reviews	245
Meeting of the Association for Symbolic Logic	262
Notice of the 1964 international congress for logic, methodology and philosophy of science	270
Elections	272
Notice of a meeting of the Association for Symbolic Logic	272
A theorem on hyperhypersimple sets. By Donald A. Martin	273
Addendum to early history of the Association for Symbolic Logic. By C. J. Ducasse and Haskell B. Curry	279
Persistence and Herbrand expansions. By Joseph S. Wholey	280
Reviews	283
Twenty-eighth annual meeting of the Association for Symbolic Logic.	
By Carol R. Karp	297
Abstracts of papers	297
List of officers and members of the Association for Symbolic Logic .	309
Index of reviews	333