

THE
JOURNAL
OF
SYMBOLIC LOGIC

EDITED BY

ALONZO CHURCH
S. C. KLEENE

ALICE A. LAZEROWITZ
ALAN ROSS ANDERSON

ARTHUR N. PRIOR
JULIA ROBINSON

Managing Editor: ALFONS BORGERS

Consulting Editors:

W. ACKERMANN
ALAN ROSS ANDERSON
C. A. BAYLIS
JONATHAN F. BENNETT
PAUL BERNAYS
MARTIN DAVIS
FREDERIC B. FITCH
G. HASENJAEGER
CARL G. HEMPEL

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
THORALF SKOLEM
J. F. THOMSON
A. R. TURQUETTE

VOLUME 25, NUMBERS 3 – 4
1960

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

Copyright 1962 by the Association for Symbolic Logic, Inc.

Reproduction by photostat, photo-print, microfilm, or like process by permission only

A formalisation of referentially opaque contexts. By L. JONATHAN COHEN . . .	193
A theorem concerning the composition of functions of several variables ranging over a finite set. By ARTO SALOMAA	203
An extension of a theorem of Margaris. By ALAN ROSE	209
On the definition of an infinitely-many-valued predicate calculus. By JOSEPH D. RUTLEDGE	212
Full classes and ordinals. By SHERMAN K. STEIN	217
An unsolvable problem in number theory. By HILARY PUTNAM	220
Degrees of models. By J. R. SHOENFIELD	233
On requirements for conditional probability functions. By HUGUES LEBLANC .	238
Reviews	243
Elections	303
Notices of meetings of the Association for Symbolic Logic	303
Notice of the Society for Industrial and Applied Mathematics	304
Syntactical and semantical properties of simple type theory. By KURT SCHÜTTE	305
On formulas of one variable in intuitionistic propositional calculus. By IWAO NISHIMURA	327
Reviews	332
Twenty-sixth annual meeting of the Association for Symbolic Logic. By NUEL D. BELNAP, JR.	384
Abstracts of papers	384
Preliminary notice of a symposium on the theory of models	392
Announcement to subscribers to the Journal of Symbolic Logic	393
List of officers and members of the Association for Symbolic Logic	394

THE JOURNAL OF SYMBOLIC LOGIC is the official organ of the Association for Symbolic Logic, Inc., published quarterly, in the months of March, June, September, and December. The Journal is published for the Association by *N.V. Erven P. Noordhoff, Publishers, Groningen, The Netherlands*. The subscription price is six dollars and fifty cents annually, for current subscriptions. New subscriptions must begin with the first number of the current volume, as determined by the date of receipt of the subscription. Completed volumes are sold at eight dollars. Members of the Association of three years standing may purchase back volumes of the Journal at reduced rates for their personal use (except volume 1). THE JOURNAL OF SYMBOLIC LOGIC publishes the official notices of the Division of Logic, Methodology and Philosophy of Science of the International Union of History and Philosophy of Science.

Applications for membership in the Association, subscriptions to the JOURNAL, changes of address, and all business correspondence should be addressed to: **The Association for Symbolic Logic, 190 Hope Street, Providence 6, Rhode Island.**

Articles for publication in the JOURNAL should be sent to *S. C. Kleene, North Hall, University of Wisconsin, Madison 6, Wisconsin* or to *Alice A. Lazerowitz, 31 Langworthy Road, Northampton, Massachusetts* or to *Arthur N. Prior, University of Manchester, Manchester, England* or to *Julia Robinson, 243 Lake Drive, Berkeley 8, California*.

All manuscripts should be typewritten with wide margin and wide spacing between the lines, and the author should keep a complete copy; footnotes should be numbered consecutively and should also be typed with wide margin and wide spacing (preferably on a separate sheet). If an article is of more than thirty-two (printed) pages in length, the editors reserve the right to divide it between two or more, not necessarily consecutive, numbers. Authors receive fifty reprints of each article, with covers, and additional reprints may be purchased if desired.

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

Authors and publishers are requested to send, for review, copies of books and reprints of articles in journals to *Alonzo Church, Fine Hall, Princeton University, Princeton, New Jersey*.

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

10 9 8 7 6 5 4 3 2 97 96 95 94 93 92