THE

JOURNAL

OF

SYMBOLIC LOGIC

EDITED BY

ALONZO CHURCH S. C. KLEENE LEON HENKIN ALICE A. LAZEROWITZ

Managing Editor: ALFONS BORGERS

Consulting Editors:

W. Ackermann
Alan Ross Anderson
C. A. Baylis
Jonathan F. Bennett
Paul Bernays
Martin Davis
Andrzej Ehrenfeucht
Robert Feys
Frederic B. Fitch
G. Hasenjaeger

CARL G. HEMPEL
HANS HERMES
JOHN G. KEMENY
E. J. LEMMON
RICHARD MONTAGUE
ANDRZEJ MOSTOWSKI
GERT H. MÜLLER
STEVEN OREY
RÓZSA PÉTER

A. N. PRIOR
ABRAHAM ROBINSON
GENE F. ROSE
BARKLEY ROSSER
H. ARNOLD SCHMIDT
KURT SCHÜTTE
THORALF SKOLEM
CLIFFORD SPECTOR
J. F. THOMSON
A. R. TURQUETTE

Volume 24 Number 1 March 1959

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

UNIVERSITY OF CALIFORNIA UNIVERSITY OF NEBRASKA UNIVERSITY OF PENNSYLVANIA UNIVERSITY OF CHICAGO PENNSYLVANIA STATE UNIVERSITY DARTMOUTH COLLEGE PRINCETON UNIVERSITY DUKE UNIVERSITY RUTGERS UNIVERSITY HARVARD UNIVERSITY SMITH COLLEGE UNIVERSITY OF ILLINOIS STANFORD UNIVERSITY INSTITUTE FOR ADVANCED STUDY UNIVERSITY OF WASHINGTON LEHIGH UNIVERSITY YALE UNIVERSITY UNIVERSITY OF MICHIGAN

Copyright 1959 by the Assocation for Symbolic Logic, Inc. W Reproduction by photostat, photo-print, microfilm, or like process by permission only

TABLE OF CONTENTS

A completeness theorem in modal logic. By SAUL A. KRIPKE	6
A counterexample to a conjecture of Scott and Suppes. By W. W. Tait	15
The problem of simplifying logical expressions. By B. Dunham and R. Fridshal	17
On intermediate propositional logics. By Toshio Umezawa	20
Constructive definition of certain analytic sets of numbers. By P. Lorenzen and J. Myhill	37
Reviews	50
Notice on the 1960 International Congress for Logic, Methodology and Philosophy of Science	96

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 five dollars 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 six 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: Joshua Barlaz, Secretary-Treasurer, Rutgers University, New Brunswick, New Jersey.

It is possible for members of the Association to pay dues in the currency of Belgium or The Netherlands. Information may be obtained from the Assistant-Treasurer of the Association for European funds: J. Dopp, 108 rue Marie-Thérèse, Louvain, Belgium.

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. (between January 15 and August. 15, 1960 substitute Alan Ross Anderson, Department of Philosophy, Yale University, New Haven, Connecticut) 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.