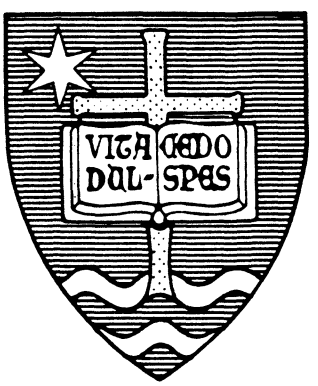
NOTRE DAME JOURNAL OF FORMAL LOGIC

Edited by

Bolesław Sobociński



VOLUME XII 1971

NOTRE DAME JOURNAL OF FORMAL LOGIC

Bolesław Sobociński, *Editor*

Managing Editor
John Thomas Canty

Business Manager
Ann W. Lauer

Editorial Board

Ignacio Angelelli
F. Gonzalez Asenjo
Nuel D. Belnap, Jr.
Ivan Boh
William W. Boone
Karel L. de Bouvère
Robert Bull
George Goe
Hugues Leblanc
Gerald Massey
Elliott Mendelson
Marian B. Pour-El
Luis Elpidio Sanchis
Wilson E. Singletary
Vito F. Sinisi
Ivo Thomas
J. Jay Zeman

Notre Dame Journal of Formal Logic is published quarterly by the University of Notre Dame in January, April, July and October of each year. The Journal is composed by Beljan, Ann Arbor, Michigan and printed by Cushing-Malloy, Inc., Ann Arbor, Michigan. Second-class postage paid at Notre Dame, Indiana 46556.

Authors should consult the "Guide to authors" for editorial information. Articles and editorial correspondence should be sent to *B. Sobociński, Editor, P.O. Box 28, Notre Dame, Indiana 46556, U.S.A.*

Subscriptions are $16.00 per year for institutions and $10.00 for individuals, beginning with Volume 13. Back volumes of the Journal may be ordered at the applicable subscription prices. Offprints of individual articles published after 1969 are available at approximately $0.03 per page (minimum order $1.00). When ordering offprints state article and number of copies desired. Orders for subscriptions, back volumes and offprints (accompanied by payment), and changes of address should be sent to the *Business Manager, P. O. Box 5, Notre Dame, Indiana 46556, U.S.A.*

Copyright © 1971 by the University of Notre Dame. All rights reserved.

NOTRE DAME JOURNAL OF FORMAL LOGIC

VOLUME XII, 1971

CONTENTS

Affine geometry having a solid as primitive. By *Theodore F. Sullivan* 1

Superinductive classes in class-set theory. By *Robert H. Cowen*. . 62

Finite model property for five modal calculi in the neighbourhood of S3. By *Anjan Shukla*. 69

Gentzen-like systems for partial propositional calculi: I. By *E. William Chapin, Jr.* 75

Lattice-theoretical and mereological forms of Hauber's law. By *Bolesław Sobocinski* 81

On Hauber's statement of his theorem. By *Cyril F. A. Hoormann, Jr.* 86

Atomistic mereology I. By *Bolesław Sobociński*. 89

Generalized ordinal notation. By *Frederick S. Gass* 104

On weak and strong validity of rules for the propositional calculus. By *V. Frederick Rickey* 115

Does Ockham accept material implication? By *M. Mullick*. 117

Some remarks on Geach's predicative and attributive adjectives. By *John Donnelly*. 125

In memoriam A. N. Prior (1912-1969). By *Ivo Thomas* 129

Conventionalist and contingency-oriented modal logics. By *R. Routley*. 131

Truth-value semantics for a logic of existence. By *Hugues Leblanc* 153

Two modes of deductive inference. By *John R. Gregg* 169

Gentzen-like systems for partial propositional calculi: II. By *E. William Chapin, Jr.*. 179

Intuitionistic negation. By *W. Russell Belding* 183

Duality in finite many-valued logic. By *Rangaswamy V. Setlur* . . . 188

Quine on translational indeterminacy. By *Laurence Foss*. 195

Atomistic mereology. II. By *Bolesław Sobociński* 203

Independence of the axioms and rules of inference of one system of the extended propositional calculus. By *Nadejda Georgieva* . . 214

A tableau proof method admitting the empty domain. By *Melvin Fitting* 219

A system of modality. By *Louis F. Goble* 225

Isomorphisms of ω-groups. By *Charles H. Applebaum* 238

A note on an axiom-system of atomistic mereology. By *Bolesław Sobociński* 249

Some embedding theorems for modal logic. By *David Makinson* . . 252

Incompleteness via simple sets. By *Erik Ellentuck*. 255

Weak forms of the axiom of constructibility. By *Richard L. Poss* . 257

Measurable cardinals and constructibility without regularity. By *Richard L. Poss*. 300

Combinatorial operators and their quasi-inverses. By *Vladeta Vučković* 305
Matrix satisfiability and axiomatization. By *Robert Ackermann* . . 309
The strong decidability of cut-logics I: Partial propositional calculi. By *E. William Chapin, Jr.* 322
Two notes on vector spaces with recursive operations. By *J. C. E. Dekker* 329
Solutions to four modal problems of Sobociński. By *G. F. Schumm* 335
A study of some systems in the neighborhood of S4.4. By *J. Jay Zeman* 341
A class of models for intermediate logics. By *B. van Rootselaar* . 358
Concerning some extensions of S4. By *Bolesław Sobociński* 363
A new class of modal systems. By *Bolesław Sobociński*. 371
Examination of the axiomatic foundations of a theory of change. IV. By *Laurent Larouche* 378
A proper subsystem of S4.04. By *Bolesław Sobociński*. 381
La science de la logique. By *Anton Dumitriu* 385
The logic of essentially ordered causes. By *R. G. Wengert* 406
Ordinal theory in a conservative extension of predicate calculus. By *John H. Harris* 423
The strong decidability of cut logics II: Generalizations. By *E. William Chapin, Jr.* 429
Some results on generalized truth-tables. By *Ralph C. Applebee* and *Biswambhar Pahi* 435
Elementary logic without referential quantification. By *John Thomas Canty* 441
The consistency of the axioms of abstraction and extensionality in a three-valued logic. By *Ross T. Brady* 447
Copi's method of deduction again. By *M. C. Bradley* 454
A mistake in Copi's discussion of completeness. By *W. C. Wilcox.* 459
Certain counterexamples to the construction of combinatorial designs on infinite sets. By *William J. Frascella* 461
A model for Leśniewski's mereology in functions. By *Robert E. Clay* 467
Some methods of formal proofs. III. By *Juliusz Reichbach* 479
A diagrammatic treatment of syllogistic. By *M. B. Smyth* 483
The extensional pragmatics of commands. By *Nicholas J. Moutafakis*. 489
A generalization of the Gentzen Hauptsatz. By *Luis E. Sanchis* . . 499
Sur une propriété de préservation. By *Jean Drabbe* 505
A proof of a theorem of Łukasiewicz. By *Ivo Thomas* 507
Henkin style completeness proofs in theories lacking negation. By *John L. Pollock* 509
Errata. 512