LOGIC AND FOUNDATIONS OF MATHEMATICS

Selected Contributed Papers of the Tenth International Congress of Logic, Methodology and Philosophy of Science, Florence, August 1995

Edited by

ANDREA CANTINI University of Florence, Italy

ETTORE CASARI Scuola Normale Superiore, Pisa, Italy

> PIERLUIGI MINARI University of Florence, Italy



SPRINGER-SCIENCE+BUSINESS MEDIA, B.V.

Library of Congress Cataloging-in-Publication Data is available.

ISBN 978-90-481-5201-8 ISBN 978-94-017-2109-7 (eBook) DOI 10.1007/978-94-017-2109-7

Printed on acid-free paper

All Rights Reserved

© 1999 Springer Science+Business Media Dordrecht Originally published by Kluwer Academic Publishers in 1999 Softcover reprint of the hardcover 1st edition 1999 No part of this publication may be reproduced or utilized in any form or by any means, electronic, mechanical, including photocopying, recording or by any information storage and retrieval system, without written permission from the copyright owner.

TABLE OF CONTENTS

Preface		vii
1.	MARCO FORTI, FURIO HONSELL, MARINA LENISA / Opera- tions, Collections and Sets within a General Axiomatic Framework	1
2.	GEOFFREY HELLMAN / Some Ins and Outs of Indispensability: A Modal-Structural Perspective	25
3.	THOMAS FRUCHART, GIUSEPPE LONGO / Carnap's Remarks on Impredicative Definitions and the Genericity Theorem	41
4.	WILFRIED SIEG, JOHN BYRNES / Gödel, Turing, and K-Graph Ma- chines	57
5.	ALESSANDRO BERARDUCCI, BENEDETTO INTRIGILA / Linear Recurrence Relations are Δ_0 Definable	67
6.	GERHARD JÄGER, REINHARD KAHLE, THOMAS STRAHM / On Applicative Theories	83
7.	ULRICH KOHLENBACH / The Use of a Logical Principle of Uniform Boundedness in Analysis	93
8.	GRIGORI MINTS, SERGEI TUPAILO / Epsilon-Substitution Method for the Ramified Language and Δ_1^1 -Comprehension Rule	107
9.	XAVIER CAICEDO / The Abstract Compactness Theorem Revisited	131
10.	WIM VELDMAN / On Sets Enclosed Between a Set and Its Double Complement	143
11.	J. LAMBEK / Binary Relations in the Social and Mathematical Sciences	155
12.	GIULIA BATTILOTTI, GIOVANNI SAMBIN / Basic Logic and the Cube of its Extensions	165

TABLE OF CONTENTS

13.	HIROAKIRA ONO / Some Observations on Noncommutative Sub- structural Logics	187
14.	DAG WESTERSTÅHL / On Predicate Logic as Modal Logic	195
15.	A.V. CHAGROV / A First-Order Effect and Modal Propositional Formulas	209
16.	MELVIN FITTING / Herbrand's Theorem for a Modal Logic	219
17.	FRANK WOLTER, MICHAEL ZAKHARYASCHEV / Intuitionistic Modal Logic	227
18.	HERMAN R. JERVELL / Dynamic Datastructures	239
19.	ALEXANDER LEITSCH / Resolution and the Decision Problem	249
20.	STEFANO GUERRINI, SIMONE MARTINI, ANDREA MASINI / Modal Logic, Linear Logic, Optimal Lambda-Reduction	271

vi