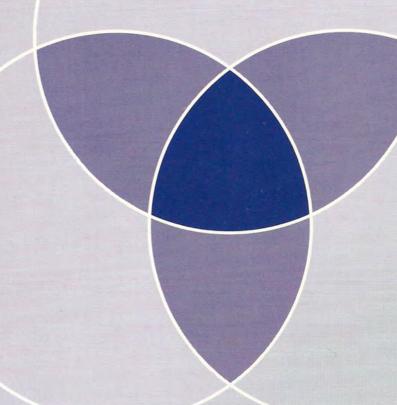
Studies in Logic, Language and Computation

Logic Colloquium '92



edited by László Csirmaz, Dov M. Gabbay, and Maarten de Rijke



The European Association for Logic, Language and Information

Logic Colloquium '92

Studies in Logic, Language and Information

Managing editor: Robin Cooper, University of Edinburgh

Executive editor: Maarten de Rijke, CWI, Amsterdam

Editorial board:

Peter Aczel, Manchester University
Nicholas Asher, The University of Austin, Texas
Jon Barwise, Indiana University, Bloominton
John Etchemendy, CSLI, Stanford University
Dov Gabbay, Imperial College, London
Hans Kamp, Universität Stuttgart
Godehard Link, Universität München
Fernando Pereira, AT&T Bell Laboratories, Murray Hill
Dag Westerståhl, Stockholm University

Logic Colloquium '92

edited by László Csirmaz, Dov M. Gabbay, and Maarten de Rijke

CSLI Publications
Center for the Study of Language and Information
Stanford, California
&
FoLLI
The European Association for
Logic, Language and Information

Copyright ©1995 Center for the Study of Language and Information Leland Stanford Junior University Printed in the United States 99 98 97 96 95 5 4 3 2 1

Library of Congress Cataloging-in-Publication Data

Logic Colloquium '92 (Veszprém, Hungary : 1992)

Logic Colloquium '92 / edited by László Csirmaz, Dov M. Gabbay, and Maarten de Rijke.

p. cm. — (Studies in logic, language, and information) Held Aug. 9-15, 1992. Veszprém, Hungary; sponsored by the Association for Symbolic Logic.

Includes bibliographical references and indexes.

ISBN 1-881526-97-6 (cloth) ISBN 1-881526-98-4 (paper)

1. Logic, Symbolic and mathematical—Congresses. I. Csirmaz, László. II. Gabbay, Dov M., 1945- . III. Rijke, Maarten de. IV. Association for Symbolic Logic. V. Title. VI. Series.

BC135.L576 1995

511.3—dc20

95-24484

CIP

the American National Standard for Information Sciences—Permanence of Paper for Printed Library Materials, ANSI Z39.48-1984.

Contents

Series Foreword vii

Contributors ix
Preface xiii
1 General Algebraic Logic including Algebraic Model Theory: An Overview 1 HAJNAL ANDRÉKA, ISTVÁN NÉMETI, ILDIKÓ SAIN, AND ÁGNES KURUCZ
2 Sahlqvist Formulas are not so Elementary Even above S4 61 ALEXANDER CHAGROV AND MICHAEL ZAKHARYASCHEV
3 Fibred Semantics and the Weaving of Logics. Part 2: Fibring Non-monotonic Logics 75 D.M. GABBAY
4 Irreducible Models and Definable Embeddings SILVIO GHILARDI 95
5 Finitizability Questions for some Reducts of Cylindric Algebras 115 BEN HANSEN
6 Countably Categorical Structures with a Distributive Lattice of Algebraically Closed Subsets 135 A.A. IVANOV
7 On the Derivation of Identities Involving Projection Functions 145 ROGER D. MADDUX
8 Decidable Logics of the Dynamic Trend, and Relativized Relation Algebras 165 SZABOLCS MIKULÁS, ISTVÁN NÉMETI AND ILDIKÓ SAIN

Contributors

HAJNAL ANDRÉKA and ISTVÁN NÉMETI are research scientists in the Mathematical Institute of the Hungarian Academy of Sciences. Their research interests include most aspects of logic and many aspects of computer science, currently they are most active in algebraic logic.

Current address: Mathematical Institute, P.O. Box 127, H-1364 Budapest, Hungary.

E-mail: H2644And@ella.hu and H1469Nem@ella.hu.

ALEXANDER CHAGROV is a professor of mathematics at Tver State University. His research interests are in mathematical logic, general algebra, and computer science.

Current address: Department of Mathematics, Tver State University, 170013 Tver, Russia.

D.M. Gabbay is a SERC senior research fellow and professor of computing at Imperial College London. His research interests include temporal logic, nonmonotonic reasoning, automated deduction for classical and non-classical logics, and labelled deductive systems.

Current address: Department of Computing, Imperial College, 180 Queen's Gate, London SW7 2BZ, UK.

E-mail: dg@doc.ic.ac.uk.

SILVIO GHILARDI is a research fellow at the Mathematics Department of the University of Milano. His research interests include non-classical and modal logics, categorical and algebraic logic.

Current address: Dipartimento di Matematica, Universitá degli Studi, via C. Saldini 50, 20133 Milano, Italy.

E-mail: ghilardi@vmimat.mat.unimi.it.

BEN HANSEN is a graduate student of the Group in Logic and Methodology of Science at the University of California, Berkeley. His research interests include algebraic logic and particularly cylindric algebras.

Current address: Department of Mathematics, Evans Hall, UC Berkeley, Berkeley CA 94720, USA.

E-mail: bhansen@math.berkeley.edu.

A.A. IVANOV is a lecturer at the University of Wrocław. His research interests are in model theory, permutation groups and universal algebra. Current address: Institute of Mathematics, Wrocław University, pl. Grun-

waldzki 2/4, Wrocław 50-384, Poland.

E-mail: ivanov@math.uni.wroc.pl.

ÁGNES KURUCZ is a Ph.D. candidate in the Symbolic Logic Department of Eötvös Loránd University, Budapest. Her research interests include mathematical logic, algebraic logic, and decidability problems.

Current address: Mathematical Institute of the Hungarian Academy of Sciences, P.O. Box 127, H-1364 Budapest, Hungary.

E-mail: kurucz@rmk530.rmki.kfki.hu.

ROGER D. MADDUX is professor of mathematics at Iowa State University. His research interests are in relation algebras, algebraic logic, program semantics, universal algebra, the foundations of mathematics, graph theory and combinatorics.

Current address: Department of Mathematics, 400 Carver Hall, Iowa State University, Ames, Iowa, 50011-2066, USA.

E-mail: maddux@iastate.edu.

SZABOLCS MIKULÁS is a Ph.D. student in logic. His research interests include mathematical and modal logic, and algebra.

Current address: Department of Mathematics and Computation, University of Amsterdam, Plantage Muidergracht 24, 1018 TV Amsterdam, The Netherlands.

E-mail: mikulas@fwi.uva.nl or h3762mik@ella.hu.

ILDIKÓ SAIN is a research mathematician at the Mathematical Institute of the Hungarian Academy of Sciences. Her research interests include most aspects of logic, many aspects of theoretical computers science and universal algebra. Recently she is most active in algebraic logic.

Current address: Mathematical Institute, P.O. Box 127, H-1364 Budapest, Hungary.

E-mail: h1468sai@ella.hu or sain@math-inst.hu.

YDE VENEMA is a research fellow of the Royal Dutch Academy of Sciences. His research interest are modal and algebraic logic, substructural logics and formal systems allowing a dynamic semantics.

Current address: Department of Mathematics and Computer Science, Free University, De Boelelaan 1081, 1081 HV Amsterdam, The Netherlands. E-mail: yde@cs.vu.nl.

MICHAEL ZAKHARYASCHEV is a senior research fellow at the Institute of Applied Mathematics, Russian Academy of Sciences and professor of mathematics at Moscow University. His research interests include non-classical logic, automated theorem proving and logic programming. At present he is an Alexander von Humboldt Foundation research fellow.

Current address: II. Mathematisches Institut, FU Berlin, Arnimallee 3, D-14195 Berlin, Germany.

E-mail: mishaz@math.fu-berlin.de.

Preface

Logic Colloquium '92, the European Summer Meeting of the Association for Symbolic Logic, was held in Veszprém, Hungary, from August 9 to August 15, 1992. Two of the main themes of the event were algebraic logic, and axiomatizability and decidability of logical systems. The present volume contains a selection of invited and contributed papers focusing on these themes. Abstracts of most of the contributed papers may be found in the report of the conference in the Journal of Symbolic Logic.

The conference was organized jointly by the János Bolyai Mathematical Society, the Mathematical Institute of the Hungarian Academy of Sciences, and by the Symbolic Logics Department of the Loránd Eötvös University. Financial support was received from the Association for Symbolic Logic, the Division of Logic, Methodology and Philosophy of Science of the International Union of Historu and Philosophy of Science, from the Hungarian Academy of Sciences, and from OMFB.

The Organizing Committee members were H. Andréka (chair), L. Csirmaz (secretary), J. Demetrovics, G. Fazekas, T. Gergely, F. Gécseg, I. Juhász, P. Komjáth, T. Madarász, I. Németi, I. Rusza, I. Sain, L. Soukop, J. Surányi, M. Szóts, L. Úry (Budapest), and A. Dragálin (Debrecen).

The Program Committee of Logic Colloquium '92 consisted of J. Baumgartner, J. van Benthem, S. Givant, M. Makkai, D. Monk, J. Paris, V. Pratt, P. Pudlak, S. Shelah (international), and H. Andréka, A. Dragalin, T. Gergelyn, T. Madarász, and I. Németi (local).

On behalf of the organizing committee we want to thank the abovementioned institutions for their support. We are indebted to Dikran Karagueuzian of CSLI Publications and Jane Spurr of Imperial College for their help during the preparation of this volume.

> László Csirmaz, Budapest Dov M. Gabbay, London Maarten de Rijke, Amsterdam