Lecture Notes in Computer Science 2561

Edited by G. Goos, J. Hartmanis, and J. van Leeuwen

Springer
Berlin
Heidelberg
New York
Barcelona
Hong Kong
London
Milan
Paris
Tokyo

Harrie C.M. de Swart (Ed.)

Relational Methods in Computer Science

6th International Conference, RelMiCS 2001
and 1st Workshop of COST Action 274 TARSKI
Oisterwijk, The Netherlands, October 16-21, 2001
Revised Papers

Springer

Volume Editor

Harrie C.M. de Swart
Tilburg University
P.O. Box 90153
5000 LE Tilburg
The Netherlands
E-mail: H.C.M.deSwart@uvt.nl

Cataloging-in-Publication Data applied for

A catalog record for this book is available from the Library of Congress.

Bibliographic information published by Die Deutsche Bibliothek
Die Deutsche Bibliothek lists this publication in the Deutsche Nationalbibliografie;
detailed bibliographic data is available in the Internet at http://dnb.ddb.de

CR Subject Classification (1998): F.4, I.1, I.2.3, D.2.4

ISSN 0302-9743
ISBN 3-540-00315-0 Springer-Verlag Berlin Heidelberg New York

Springer-Verlag Berlin Heidelberg New York
a member of BertelsmannSpringer Science+Business Media GmbH

http://www.springer.de

Printed in Germany

Typesetting: Camera-ready by author, data conversion by PTP Berlin, Stefan Sossna e. K.
Printed on acid-free paper SPIN: 10871819 06/3142 5 4 3 2 1 0

Preface

This volume contains the papers presented at **RelMiCS 2001**, the 6th International Conference on Relational Methods in Computer Science, and the First Workshop of COST Action 274 **TARSKI**, Theory and Application of Relational Structures as Knowledge Instruments. The conference was held in conference centre Boschoord, Oisterwijk near Tilburg, The Netherlands, from October 16 till October 21, 2001. The conference attracted interest from many parts of the world with contributions from many countries.

This conference was a continuation of international conferences/workshops on Relational Methods in Computer Science held in: Schloss Dagstuhl, Germany, January 1994; Parati near Rio de Janeiro, September 1995; Hammamet, Tunisia, January 1997; the Stefan Banach Center, Warsaw, September 1998; and Quebec, Canada, January 2000.

The purpose of these conferences/workshops is to bring together researchers from various subdisciplines of Computer Science, Mathematics, and Philosophy, all of whom use relational methods as a conceptual and methodological tool in their work. Topics include, but are not limited to: relational, cylindric, fork, and Kleene algebras; relational proof theory and decidability issues; relational representation theorems; relational semantics; applications to programming, databases, and analysis of language; and computer systems for relational knowledge representation. With respect to applications one can think of: relational specifications and modeling; relational software design and development techniques; programming with relations; and implementing relational algebra.

The RelMiCS'6 conference had three *invited lectures*, one of which has been included in these Proceedings. In addition, three *tutorials* were presented: Ivo Düntsch and Günther Gediga, Rough' Sets: tools for non-invasive data analysis; Wolfram Kahl and Eric Offermann, Programming with and in relational categories; Gheorghe Ştefănescu, An introduction to network algebra.

After a thorough refereeing process the Program Committee selected 21 papers for inclusion in these Proceedings. The papers have been classified into the different Work Areas (WAs) of Cost Action TARSKI: WA 1, Algebraic and logical foundations of "real-world" relations; WA 2, Mechanization of relational reasoning; WA 3, Relational scaling and preferences.

September 2002 Harrie de Swart

Organization

Program Committee

Harrie de Swart (Chair):	Tilburg University (The Netherlands)
Ewa Orlowska:	Institute of Telecommunications (Warsaw)
Gunther Schmidt:	Universität der Bundeswehr (München)
Chris Brink:	University of Wollongong (Australia)
Ivo Düntsch:	Brock University (St. Catharines, Canada)

Invited Speakers

Michel Grabisch:	Université Pierre et Marie Curie (Paris)
Wendy MacCaull:	St. Francis Xavier University (Antigonish, Canada)
Wolfram Kahl:	Fakultät für Informatik (UniBw, München)

Referees

Philippe Balbiani	Wendy MacCaull	Gunther Schmidt
Wojchiech Buszkowski	Larisa Maksimova	Bruce Spencer
Anthony Cohn	Bernhard Möller	Harrie de Swart
Stephane Demri	Eric Offermann	Dimiter Vakarelov
Thorsten Ehm	Ewa Orlowska	Michael Winter
Melvin Fitting	Jochen Pfalzgraf	Andrzej Wronski
Günther Gediga	Anna Radzikowska	
Wolfram Kahl	Anna Romanowska	
Joachim Lambek	Marc Roubens	

Sponsoring Institutions

Faculty of Philosophy of Tilburg University
COST Action 274: TARSKI
Royal Netherlands Academy of Arts and Sciences
Dutch Research School in Logic
TUE-UvT Research Group on Logic and Information Systems

Table of Contents

Invited Lecture

Contributed Papers

WA 1: Algebraic and Logical Foundations of 'Real World' Relations