Colloquium on Modal Logic

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edited by

Maarten de Rijke

Dutch Network for

Language, Logic and Information

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A selection of papers presented at the
Seminar on Intensional Logic,
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Correspondence concerning the papers should addressed to their author(s). Communications concerning this volume can be sent to

Maarten de Rijke
Dept. Mathematics and Computer Science
University of Amsterdam
Plantage Muidergracht 24
1018 TV Amsterdam
The Netherlands
email: maartenr@fwi.uva.nl

Preface

This volume contains a selection of papers presented at a Seminar on Intensional Logic held at the University of Amsterdam during the period September 1990–May 1991.

Modal logic, either as a topic or as a tool, is common to most of the papers in this volume. A number of these papers are concerned with what may be called well-known or traditional modal systems; but, as a quick glance through this volume will reveal, this by no means implies that these papers walk the beaten tracks. Indeed, the contributions on more traditional modal systems display new directions, new results, and new techniques to obtain familiar results. Other papers contained in this volume are representative examples of a current trend in modal logic: the study of extensions or adaptations of the standard systems that have been introduced to overcome various shortcomings of the latter, especially their limited expressive power.

The bulk of the papers in this volume deal with theoretical or even foundational aspects of modal systems, rather than applications of these systems. Several authors show that even in the more traditional and well understood modal systems a lot of interesting theoretical work still remains to be done. Van Benthem discusses recent proposals for a new semantics for modal predicate logic; Kracht gives a new proof of the well-know Sahlqvist Theorem for standard modal logic; and Shehtman studies a modal logic with simple and progressive tenses; in her survey paper Spaan systematically explores the complexity of a wide variety of temporal logics; Venema uses known results about the expressive completeness of the modal language with Since and Until to obtain axiomatic completeness results for various logics in that language. Other authors examine theoretical aspects of enriched or non-standard modal systems. Borghuis, for example, incorporates systems for modal natural deduction into type theory; Jaspars introduces non-standard systems, called fused modal logics, to solve the problem of logical omniscience in the possible world analysis of cognitive propositional attitudes; in their paper Gargov and Goranko investigate an enrichment of the propositional modal language with a universal modality and a special kind of propositional variables, called names, that are interpreted as singletons; modalities describing large parts of the first order theory of the semantic structures underlying categorial grammars are studied in Roorda's paper.

In the papers by Blackburn, van der Hoek and de Rijke, and Thijsse a variety of enriched and non-standard modal systems is studied with certain applications in mind; these applications run from language related subjects like Attribute Value Structures and the theory of generalized quantifiers to knowledge representation.

The contributions by Došen, Jonker and Vreeswijk are not about modal logic as such, but in spirit they are close to modal matters. Došen's paper is of a proof-theoretical nature, and shows that nonmodal classical linear predicate logic is a fragment of intuitionistic linear logic. The papers by Jonker and Vreeswijk both deal with nonmonotonic reasoning; Jonker's paper is a technical report in which a new method for resolving conflicts in Truth Maintenance Systems is introduced; in his paper Vreeswijk takes a critical look at nonmonotonic reasoning.

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July 29, 1991 Maarten de Rijke

Contents

Preface iii

Johan van Benthem
Beyond Accessibility: Functional Models for Modal Logic 1

Patrick Blackburn
Modal Logic and Attribute Value Structures 15

Tijn Borghuis
Interpreting Modal Natural Deduction in Type Theory 41

Kosta Došen
Nonmodal Classical Linear Predicate Logic is a Fragment of Intuitionistic Linear Predicate Logic 67

George Gargov and Valentin Goranko
Modal Logic with Names 81

Wiebe van der Hoek and Maarten de Rijke
Generalized Quantifiers and Modal Logic 105

Jan Jaspars
Logical Omniscience and Inconsistent Belief 129

Catholijn Jonker
Cautious Backtracking and Well-Founded Semantics in Truth Maintenance Systems 141

Marcus Kracht
How Completeness and Correspondence Theory Got Married 161

Dirk Roorda
Dyadic Modalities and Lambek Calculus 187

Valentin Shehtman
A Logic with Progressive Tenses 211

Edith Spaan
The Complexity of Propositional Tense Logics 239

Elias Thijsse
On Total Awareness Logics 253

Yde Venema
Completeness via Completeness: Since and Until 279

Gerard Vreeswijk
The Feasibility of Defeat in Defeasible Reasoning 287