Colloquium on Modal Logic

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edited by

Maarten de Rijke

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A selection of papers presented at the
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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 Thijssen 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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