

DIAMONDS AND DEFAULTS

Studies in Pure and Applied Intensional Logic

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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 the 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 they walk the beaten tracks. Indeed, such contributions display new directions, new results, and new techniques to obtain familiar results. Other papers 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. Finally, there is another major theme that can be discerned in the volume, a theme that may be described by the slogan ‘representing changing information.’ Papers falling under this heading address long-standing issues in the area, or present a systematic approach, while a critical survey and a report contributing new techniques are also included.

The bulk of the papers on pure modal logic deal with theoretical or even foundational aspects of modal systems. Several authors show that even in the more traditional and well understood modal systems a lot of interesting theoretical work remains to be done. Van Benthem discusses recent proposals for a new semantics for modal predicate logic; Kracht presents a new and profound perspective on modal correspondence theory, unifying definability and completeness theory; Shehtman studies a modal logic with simple and progressive tenses; in her paper Spaan systematically

explores the complexity of a variety of temporal logics; while Venema uses known results about the expressive completeness of the temporal language with *Since* and *Until* to obtain axiomatic completeness results for various logics in that language. Other papers in this volume are more concerned with applications of modal logics and their connections with other areas of logic. This concern leads some authors to cross the boundaries of the more traditional modal systems, and examine aspects of enriched or non-standard modal systems. In the paper by Blackburn, for example, a close correspondence is established between enriched modal languages and the Attribute Value formalisms of computational linguistics; Borghuis, on the other hand, deals with the standard modal language, and shows how to incorporate systems for modal natural deduction into type theory; the paper by Došen lays the foundation for an investigation of certain weak propositional logics that can be embedded in a special class of standard modal systems; and finally, modalities describing large parts of the first order theory of the semantic structures underlying categorial grammars are studied in Roorda's paper.

The authors whose contributions deal with representing changing information, discuss a wide variety of topics. 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; Jonker's paper is a technical report in which a new method for resolving conflicts in truth maintenance systems is introduced; Thijsse aims to provide an adequate description of awareness and actual belief; and Vreeswijk takes a critical look at nonmonotonic reasoning.

Patrick Blackburn's visit to the Seminar was financed by the Science and Engineering Research Council (SERC) of the United Kingdom. Kosta Došen's visit was made possible by funding by the European Community project DYANA. The visits of Marcus Kracht and Valentin Shehtman were paid for by the Dutch Network for Language, Logic and Information (TLI). The Network also provided funds for the preparation of the manuscript, which is gratefully acknowledged.

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Maarten de Rijke