

Lecture Notes in Artificial Intelligence

897

Subseries of Lecture Notes in Computer Science

Edited by J. G. Carbonell and J. Siekmann

Lecture Notes in Computer Science

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Executable Modal and Temporal Logics

IJCAI '93 Workshop

Chambery, France, August 28, 1993

Proceedings



Springer

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CR Subject Classification (1991): I.2.3, D.1.6, F.4.1

ISBN 3-540-58976-7 Springer-Verlag Berlin Heidelberg New York

CIP data applied for

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Printed in Germany

Typesetting: Camera ready by author
SPIN: 10485359 45/3140-543210 - Printed on acid-free paper

Preface

The direct execution of logical statements, through languages such as PROLOG, has been both useful and influential within Computer Science and Artificial Intelligence. Yet, in recent years the requirement for greater expressive power has found languages based on first-order logic wanting. As a logical basis of knowledge representation, classical first-order logic has been superseded by, for example, *modal logics* for representing knowledge, belief, desire, etc, and *temporal logics* for representing temporal information and specifying and verifying reactive systems.

Just as the development of sophisticated theorem-proving techniques for first-order logic led to executable forms, such as PROLOG, so theorem-proving techniques for modal and temporal logics are being used in the development of executable forms of these logics. Each executable logic combines not only a *logical* perspective, but also an *operational* model, drawn from its intended application areas. Thus, though a variety of such languages have appeared, they exhibit a wide range of characteristics and execution mechanisms.

This volume contains updated and extended versions of papers presented at the Workshop on 'Executable Modal and Temporal Logics' held as part of IJCAI'93. These papers describe a range of approaches, not only from a logical point of view, but also from programming language and applications standpoints. As such, we believe this volume provides an indication of the breadth of research activity within this expanding and exciting field.

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