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Temporal Logic of Programs



Springer-Verlag

Temporal Logic Of Programs

Ben Moszkowski



Temporal Logic Of Programs:

Temporal Logic of Programs Fred Kröger, 2012-12-06 Introduction to the temporal logic of in particular parallel programs Divided into three main parts Presentation of the pure temporal logic language semantics and proof theory Representation of programs and their proper ties within the language of temporal logic Application of the logical apparatus to the verification of program proper ties including a new embedding of Hoare s logic into the temporal framework

Executing Temporal Logic Programs B. C. Moszkowski, 1986-03-06 Temporal logic is gaining recognition as an attractive and versatile formalism for rigorously specifying and reasoning about computer programs digital circuits and message passing systems This book introduces Tempura a programming language based on temporal logic Tempura provides a way of directly executing suitable temporal logic specifications of digital circuits parallel programs and other dynamic systems Since every Tempura statement is also a temporal formula the entire temporal logic formalism can be used as the assertion language and semantics One result is that Tempura has the two seemingly contradictory properties of being a logic programming language and having imperative constructs such as assignment statements The presentation investigates Interval Temporal Logic a formalism with conventional temporal operators such as next and always as well as lesser known ones such as chop This provides the basis for Tempura The design of an interpreter for Tempura is also included as are a variety of sample Tempura programs illustrating how to model both hardware and software Executing Temporal Logic

Programs Ben Moszkowski, 1985 **Temporal Logic of Programs - Lecture Notes** Technische Universität München.

Institut für Informatik, F. Kröger, 1985 *Temporal logic of programs* Fred Kröger, 1985 The Temporal Logic of Reactive and Concurrent Systems Zohar Manna, Amir Pnueli, 1992 Reactive systems are computing systems which are interactive such as real time systems operating systems concurrent systems control systems etc They are among the most difficult computing systems to program Temporal logic is a formal tool language which yields excellent results in specifying reactive systems This volume the first of two subtitled Specification has a self contained introduction to temporal logic and more important an introduction to the computational model for reactive programs developed by Zohar Manna and Amir Pnueli of Stanford University and the Weizmann Institute of Science Israel respectively **The Temporal Logic of**

Programs Amir Pnueli, 1997 **Programming Languages: Implementations, Logics, and Programs** Hugh Glaser, Peter Hartel, Herbert Kuchen, 1997-08-13 This volume constitutes the refereed proceedings of the 9th International Symposium on Programming Languages Implementations Logics and Programs PLILP 97 held in Southampton UK in September 1997 including a special track on Declarative Programming in Education The volume presents 25 revised full papers selected from 68 submissions Also included are one invited paper and three posters The papers are devoted to exploring the relation between implementation techniques the logic of the languages and the use of the languages in constructing real programs Topics of interest include implementation of declarative concepts integration of paradigms program analysis and

transformation programming environments executable specifications reasoning about language constructs etc **Temporal Logics and Their Applications** Antony Galton, 1987 FROM THE PREFACE This book has risen from a conference on Temporal Logic and Its Applications held at the University of Leeds in January 1986 under the auspices of the then newly created Centre for Theoretical Computer Science Temporal logic is a field which having originated within philosophy has now proved to be of relevance to several distinct areas in computer science In this publication all of the aspects of temporal logic are treated together hopefully providing a stimulus to further inter disciplinary collaboration not only as regards temporal logic itself but also in connection with other logical and philosophical issues which lie at the interface between computing and philosophy **Logic-Based Program Synthesis and Transformation** Germán Vidal, 2012-07-20 This book constitutes the thoroughly refereed proceedings of the 21st International Symposium on Logic Based Program Synthesis and Transformation LOPSTR 2011 held in Odense Denmark in July 2011 The 6 revised full papers presented together with 8 additional papers were carefully reviewed and selected from 28 submissions Among the topics covered are specification synthesis verification analysis optimization specialization security certification applications and tools program model manipulation and transformation techniques for any programming language paradigm **Logic-Based Program Synthesis and Transformation** Danny De Schreye, 2010-04-20 This volume constitutes the thoroughly refereed post conference proceedings of the 19th International Symposium on Logic Based Program Synthesis and Transformation LOPSTR 2009 held in Coimbra Portugal during September 9 11 2009 The 14 revised full papers presented together with one invited talk were carefully reviewed and selected for inclusion in the book LOPSTR traditionally solicits papers in the areas of specification synthesis verification transformation analysis optimization composition security reuse applications and tools component based software development software architectures agent based software development and program refinement **Aspects and Prospects of Theoretical Computer Science** Jürgen Dassow, Jozef Kelemen, 1990-11-07 This volume contains the texts of the tutorial lecture five invited lectures and twenty short communications contributed for presentation at the Sixth International Meeting of Young Computer Scientists IMYCS 90 The aim of these meetings is threefold 1 to inform on newest trends results and problems in theoretical computer science and related fields through a tutorial and invited lectures delivered by internationally distinguished speakers 2 to provide a possibility for beginners in scientific work to present and discuss their results and 3 to create an adequate opportunity for establishing first professional relations among the participants *Theories of Programming and Formal Methods* Zhiming Liu, Jim Woodcock, Huibiao Zhu, 2013-07-24 This Festschrift volume dedicated to He Jifeng on the occasion of his 70th birthday in September 2013 includes 24 refereed papers by leading researchers current and former colleagues who congratulated at a celebratory symposium held in Shanghai China in the course of the 10th International Colloquium on Theoretical Aspects of Computing ICTAC 2013 The papers cover a broad spectrum of subjects from foundational and theoretical topics to programs and systems issues and to

applications comprising formal methods software and systems modeling semantics laws of programming specification and verification as well as logics He Jifeng is known for his seminal work in the theories of programming and formal methods for software engineering He is particularly associated with Unifying Theories of Programming UTP the theory of data refinement and the laws of programming and the rCOS formal method for object and component system construction His book on UTP with Tony Hoare has been widely read and followed by a large number of researchers and it has been used in many postgraduate courses He was a senior researcher at Oxford during 1984 1998 and then a senior research fellow at the United Nations University International Institute for Software Technology UNU IIST in Macau during 1998 2005 He has been a professor and currently the Dean of the Institute of Software Engineering at East China Normal University Shanghai China In 2005 He Jifeng was elected as an academician to the Chinese Academy of Sciences He also received an honorary doctorate from the University of York He won a number of prestigious science and technology awards including a 2nd prize of Natural Science Award from the State Council of China a 1st prize of Natural Science Award from the Ministry of Education of China a 1st prize of Technology Innovation from the Ministry of Electronic Industry and a number awards from Shanghai government

Time & Logic Leonard Bolc, Andrzej Szalas, 2019-10-24 Originally published in 1995 Time and Logic examines understanding and application of temporal logic presented in computational terms The emphasis in the book is on presenting a broad range of approaches to computational applications The techniques used will also be applicable in many cases to formalisms beyond temporal logic alone and it is hoped that adaptation to many different logics of program will be facilitated Throughout the authors have kept implementation orientated solutions in mind The book begins with an introduction to the basic ideas of temporal logic Successive chapters examine particular aspects of the temporal theoretical computing domain relating their applications to familiar areas of research such as stochastic process theory automata theory established proof systems model checking relational logic and classical predicate logic This is an essential addition to the library of all theoretical computer scientists It is an authoritative work which will meet the needs both of those familiar with the field and newcomers to it

Handbook of Dynamic System Modeling Paul A. Fishwick, 2007-06-01 The topic of dynamic models tends to be splintered across various disciplines making it difficult to uniformly study the subject Moreover the models have a variety of representations from traditional mathematical notations to diagrammatic and immersive depictions Collecting all of these expressions of dynamic models the Handbook of Dynamic Sy

The Language of Time Inderjeet Mani, James Pustejovsky, Robert Gaizauskas, 2005 Table of contents *Principles of Knowledge Representation and Reasoning* James Allen, Richard E. Fikes, Erik Sandewall, 1991 The proceedings of the Second International Conference on title held in Cambridge Massachusetts April 1991 comprise 55 papers on topics including the logical specifications of reasoning behaviors and representation formalisms comparative analysis of competing algorithms and formalisms and ana

Specification of Software Systems V.S. Alagar, K. Periyasamy, 2013-03-14 This is a textbook on software specification

emphasizing formal methods that are relevant to requirements and design stages of software development The aim of the book is to teach the fundamental principles of formal methods in the construction of modular and verifiable formal specifications The book introduces several formal specification techniques and illustrates the expressive power of each technique with a number of examples General Characteristics Traditional textbooks on software engineering discuss the difficulties and challenges that lie on the path from requirements analysis to implementation of a software product Most of these books describe some techniques in detail and give hints on implementation of these techniques Only a few among them deal with important software engineering principles and techniques and discuss how a particular technique may be used to implement a given principle There is very little exposure in these books to a rigorous approach to or a systematic study of the construction of verifiable software Those who have acquired an understanding of the fundamental principles of software engineering from traditional textbooks will find the following characteristics of this book quite relevant to the practice of software engineering The book deals with specification The principal characteristic of this book is to discuss formalisms that provide a theoretical foundation for the principles of software engineering and are appropriate to the requirements and design stages of software development **Handbook of Philosophical Logic** Dov M. Gabbay, Franz Guenther, 2001-12-31

It is with great pleasure that we are presenting to the community the second edition of this extraordinary handbook It has been over 15 years since the publication of the first edition and there have been great changes in the landscape of philosophical logic since then The first edition has proved invaluable to generations of students and researchers in formal philosophy and language as well as to consumers of logic in many applied areas The main logic article in the Encyclopaedia Britannica 1999 has described the first edition as the best starting point for exploring any of the topics in logic We are confident that the second edition will prove to be just as good The first edition was the second handbook published for the logic community It followed the North Holland one volume Handbook of Mathematical Logic published in 1977 edited by the late Jon Barwise The four volume Handbook of Philosophical Logic published 1983-1989 came at a fortunate temporal junction at the evolution of logic This was the time when logic was gaining ground in computer science and artificial intelligence circles These areas were under increasing commercial pressure to provide devices which help and/or replace the human in his daily activity This pressure required the use of logic in the modelling of human activity and organisation on the one hand and to provide the theoretical basis for the computer program constructs on the other Logic Programs, Norms and Action Alexander Artikis, Robert Craven, Nihan Kesim Cicekli, Babak Sadighi, Kostas Stathis, 2012-04-25 This book is dedicated to Marek Sergot Professor in Computational Logic at Imperial College London on the occasion of his 60th birthday Professor Sergot's scientific contributions range over many different fields He has developed a series of novel ideas and formal methods bridging areas including artificial intelligence computational logic philosophical logic legal theory artificial intelligence and law multi agent systems and bioinformatics By combining his background in logic and computing

with his interest in the law deontic logic action and related areas and applying to all his capacity to understand the subtleties of social interaction and normative reasoning Professor Sergot has opened up new directions of research and has been a reference an inspiration and a model for many researchers in the fields to which he has contributed The Festschrift includes several reminiscences and introductory essays describing Professor Sergot s achievements followed by a series of articles on logic programming temporal reasoning and action languages artificial intelligence and law deontic logic and norm governed systems and logical approaches to policies

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