

# DOWNLOAD PDF FORMAL SPECIFICATION AND DESIGN (CAMBRIDGE TRACTS IN THEORETICAL COMPUTER SCIENCE)

## Chapter 1 : CiteSeerX " Citation Query Formal Specification and Design, Cambridge Tracts

*About Cambridge Tracts in Theoretical Computer Science Visit This series offers books on theoretical computer science, that part of computer science concerned with fundamental mathematical questions about computers, programs, algorithms, data, and information processing systems in general.*

Interface specifications should express program properties in a formal, declarative, and implementation-independent way. To achieve implementation-independency, interface specifications have to support data abstraction. Program verification should enable to prove implementations correct w. The presented work bridges the gap between existing specification and verification techniques for object-oriented programs. The integration is done within a formal framework for interface specifications and programming language semantics. Interface specification techniques are enhanced to support the specification of data structure sharing and destructive updating of shared variables. These extensions are necessary for the specification of real life software libraries. Moreover this generalization is needed for intermediate steps in correctness proofs. For verification, Hoare logic is extended to capture recursive classes and subtyping. Based on this extended logic, techniques are presented for proving typing properties, class and method invariants. Evolving Algebras is a specification formalism developed by Y. It is applied in a number of cases, e. This paper presents a formal definition of Evolving Algebras with a clear separation between syntax and semantics, leading This paper presents a formal definition of Evolving Algebras with a clear separation between syntax and semantics, leading among other things to an elaboration of the join operator. The relation with the formal specification language COLD is stressed. Other applications involve the specification of the communication protocol Kermit [Hug94] and various grammar formalisms [JM94]. For more references see [Bor94a]. The essential idea behind it is as foll Show Context Citation Context So the rules correspond with relations on the state space. For axiomatic reasoning about EA formalizations, we need to study the specification formalisms. We adopt a modal logic view, by defining a possible world semantics and then introduce a modal operator ASM gained much attention as a specification method, in particular for the description of the semantics of programming languages, communication protocols, distributed algorithms, etc. Gurevich proved recently that a sequential algorithm must only meet a few, liberal requirements, to be representable as an ASM. A couple of examples support and explain intuition and motivation of ASM. We report on the formalization of knowledge for a support system in the field of anaesthesiology. It is a case study in the use of the formal specification method we are developing. The method consists of guidelines using concepts from object-oriented design methods , language AFSL, Almost Formal Specification Language and tools type-checker, graphical representation of signatures. Case study, Development process, Linking formal and informal methods, Medical systems, Object-orientation. The specification is written in the formal specification language AFSL [26, 27], with modularization, parameterization, and sub-typing. The support systems to be based on FAN include diagnosis and monitoring systems. This case study is part of a larger research effort concerning th Renardel De Lavalette , " This will concretise in the modal change logic MCL, which fits in the tradition of dynamic logics where change is effectuated by programs. The distinguishing feature of MCL, contrast The distinguishing feature of MCL, contrasting with e. QDL quantified dynamic logic, [? Renardel De Lavalette " In this paper, MCL modification and creation logic is presented, a variant of quantified dynamic logic QDL with enhanced expressivity. In MCL, functions and predicates can be modified by actions f: This contrasts with QDL, where only the value assignments of variables can be modified. Models of MCL are collections of worlds which are locally models of first-order logic. There is an axiomatisation which is sound and complete. We investigate the fl rmal specification of the reasoning process of knowledge-based systems in this paper. The essence of these languages is that they integrate a declarative The essence of these languages is that they integrate a declarative specification of inferences with control information. The

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languages differ in the way they achieve this integration and each of them has shortcomings. The main contribution of the paper is not to introduce yet another specification language. Instead we aim at four goals: The semantics is based on the many-sorted partial infinitary logic MPL [see].

Chapter 2 : CiteSeerX " Citation Query Formal Specification and Design, volume 35 of Cambridge Tracts

*Formal specification is a method for precisely modelling computer-based systems that combines concepts from software engineering and mathematical logic. In this book the authors describe algebraic and state-based specification techniques from the unified view of the Common Object-oriented Language for Design.*