Verilog代数语义研究

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Abstract
In this paper, the algebraic semantics of Verilog is explored, which is a collection of laws associated with Verilog constructs. These laws provide a precise framework for describing and defining the semantics of Verilog. The special features of the semantics of Verilog are shown. All the laws presented above are sound with respect to the operational semantics, i.e., if the two processes are the two sides of a law, then they are bisimilar. At last, the completeness of the algebraic laws with respect to a subset of Verilog and the operational semantics, i.e., are explored, if such programs are bisimilar, then they are algebraically equivalent. For the proof of completeness, this method will be the discovery of a normal form program for any such programs. Each such program will have an equivalent normal form program (through transformation by the algebraic laws), but two normal form programs will be bisimilar in the operational semantics if and only if they are syntactically equivalent in a simple way. These results are of theoretical significance, for the theories of process algebra are concentrated on the channel- communication concurrent languages. But there is little work on the shared-variable concurrent languages, and a general and effective treatment to the research of such kind of complex concurrent languages is proposed in this paper.

摘要
诊断信息自动生成是模型检测方法的基本特征之一,对分析和排错具有重要的意义.讨论了传值进程模型检测中诊断信息的生成问题.引入了两种诊断信息的表示结构:证明图和示例;提出了两种诊断信息构造算法.所采用的方法是从检测过程保存的依赖信息中抽取证明图和示例,这样可以继承已有的信息,从而减少计算量.相应的算法已经实现并用实例作了分析测试.实验结果表明该方法是有效的.

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