

谓词(演算和模态图的语义一致性

刘 剑, 林惠民

[Full-Text PDF](#) [Submission](#) [Back](#)

刘 剑, 林惠民 (中国科学院 软件研究所 计算机科学重点实验室,北京 100080)

第一作者: 刘剑(1976—),男,云南石屏人,博士生,主要研究领域为并发系统的自动验证,模型检测方法的理论和应用.

联系人: 刘剑 Telephone: 86-10-62562796, Fax: 86-10-62563894, E-mail: ljian@ios.ac.cn

Received 2003-01-03; Accepted 2003-05-27

Abstract

The modal graphs are effective graph forms for the predicate (-calculus. The consistency between the predicate (-calculus and the modal graphs is strictly established. Moreover, the relationship among the predicate (-calculus, nested predicate equations and the modal graphs is discussed in detail. An optimized transformation algorithm from predicate (-calculus formulae to nested predicate equations is presented.

Liu J, Lin HM. Consistency between the predicate (-calculus and modal graphs. *Journal of Software*, 2003, 14(10):1672~1680.

<http://www.jos.org.cn/1000-9825/14/1672.htm>

摘要

模态图是谓词(演算的一种有效的图形表示形式.证明了谓词(演算和模态图的语义一致性,详细讨论了谓词(演算公式、嵌套谓词等式系和模态图之间的关系,并给出了一种优化的从线性公式到嵌套谓词等式系的转换算法.

基金项目: Supported by the National Natural Science Foundation of China under Grant No.69833020 (国家自然科学基金)

References:

- [1] Lin HM. Model checking value-passing processes. In: Proceedings of the 8th Asia-Pacific Software Engineering Conference. Macao: IEEE Press, 2001. 3~10.
- [2] Lin HM. Symbolic transition graphs with assignment. In: Montanari U, Sassone V, eds. Proceedings of the CONCUR'96. LNCS 1119, Heidelberg: Springer-Verlag, 1996. 50~65.
- [3] Mader, A. Verification of modal properties using Boolean equation systems [Ph.D. Thesis]. TMU, 1997.
- [4] Cleaveland R, Klein M, Steffen B. Faster model checking for the modal Mu-calculus. In: Bochmann GV, Probst DK, eds. Proceedings of the CAV'92. LNCS 663, Heidelberg: Springer-Verlag, 1992. 410~422.
- [5] Andersen HR. Model checking and Boolean graphs. Theoretical Computer Science, 1994, 126(1):3~30.
- [6] Andersen HR. Verification of temporal properties of concurrent systems [Ph.D. Thesis]. Aarhus: Aarhus University, 1993.

- [7] Liu X, Ramakrishnan CR, Smolka SA. Fully local and efficient evaluation of alternating fixed points. In: Steffen B, ed. Proceedings of the TACAS'98. LNCS 1384, Heidelberg: Springer-Verlag, 1998. 5~19.
- [8] Bhat GS, Cleaveland R. Efficient model checking via the equational λ -calculus. In: Clarke EM, ed. Proceedings of the 11th Annual Symposium on Logic in Computer Science. New Jersey: IEEE Computer Society Press, 1996. 304~312.
- [9] Vergauwen B, Lewi J. Efficient local correctness checking for single and alternating Boolean equation systems. In: Abiteboul S, Shamir E, ed. Proceeding of the ICALP'94. LNCS 820, Heidelberg: Springer-Verlag, 1994. 304~315.