

Integrating Analysis Techniques in Möbius: Experiences with Interfaces

Salem Derisavi²

*Coordinated Science Lab, University of Illinois at Urbana Champaign
Urbana Champaign, IL, USA*

Peter Kemper^{1,3}

Informatik IV, Universität Dortmund, Dortmund, Germany

Abstract

A key advantage of the Möbius modeling environment is the ease with which one can incorporate new modeling formalisms, model composition and connection methods, and model solution methods. In this talk, we report on experiences with the state-level abstract functional interface (AFI) to separate numerical analysis techniques from the representation of the state space and generator matrix of the underlying continuous time Markov chain. We implemented several numerical solution algorithms including the method of Jacobi, SOR, and Takahashi's method for steady state analysis and randomization for transient analysis. As internal representations of the state transition system, we experimented with sparse matrices, Kronecker representations [2] and most recently with a symbolic representation based on matrix diagrams [1]. In this talk, we discuss issues related to the definition of an AFI, experiences with implementation and using the AFI, and limits of our approach.

References

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- [2] S. Derivasi, P. Kemper, W.H. Sanders, and T. Courtney. The Möbius state-level abstract functional interface. *Computer Performance Evaluation, Modelling Techniques and Tools*, LNCS 2324, pages 31-50, Springer, 2002. A revised and extended version will appear in *Performance Evaluation*.

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² Email: derisavi@crhc.uiuc.edu

³ Email: peter.kemper@udo.edu