

Yevtushenko, N., Villa, T., Brayton, R. K., Petrenko, A. and A. L. Sangiovanni-Vincentelli. "Compositionally Progressive Solutions of Synchronous FSM Equations" *Discrete Event Dynamic Systems*. 2008.

Abstract

The paper addresses the problem of designing a component that combined with a known part of a system, called the context FSM, is a reduction of a given specification FSM. We study compositionally progressive solutions of synchronous FSM equations. Such solutions, when combined with the context, do not block any input that may occur in the specification, so they are of practical use. We show that, if a synchronous FSM equation has a compositionally progressive solution, then there is a largest regular compositionally progressive solution including all of them. We provide two different algorithms to compute a largest regular compositionally progressive solution: one deletes all compositionally non-progressive strings from a largest solution, the other splits states of a largest solution and then removes those inducing a non-progressive composition.

Keywords : language equations, finite state machines, progressive solutions, synchronous composition