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Abstract

Consider the problem to design a component that combined with a known part of a system, called the context, conforms to a given overall specification. We cast the problem as solving an abstract equation over languages. In this paper we address only synchronous language equation. We study the most general solutions to the language equation, defining the language operators needed to express them. Successfully we specialize such language equation associated to important classes of automata used for modeling systems; e.g., regular languages and FSM equations. In particular, we show how to compute the largest FSM language that is a solution to the language equation, the largest complete solution, and the largest solution whose composition with the context A yields the language of a complete FSM.