Timing analysis of RL programs*

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Abstract

Predictability is a very important feature of complex real-time systems. For a complex system involving a number of subsystems, the timing properties of each embedded system play an important role since the total system's response depends on temporal behaviour of all the subsystems.

In this paper, we analyze the timing properties of reactive programs written in a rule-based language RL. RL is a relatively simple rule language for programming discrete-response part of embedded applications in a layered architecture. It has been already used in a complex automotive application.

We provide the upper timing bounds for RL programs executed using either of the two evaluation strategies developed earlier. In conclusion we provide some comments on the temporal behaviour of a layered system consisting of a reactive RL program combined with a set of periodic tasks.

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