



# Supervisory Control of (max,+) Automata: A Behavioral Approach

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Auteur	Komenda, Jan [1], Lahaye, Sébastien [2], Boimond, Jean-Louis [3]
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Mots-clés	(max,+) automata [4], Hadamard product [5], Supervisory control [6], Supremal controllable formal power series [7]
Résumé en anglais	<p>A behavioral framework for control of (max,+) automata is proposed. It is based on behaviors (formal power series) and a generalized version of the Hadamard product, which is the behavior of a generalized tensor product of the plant and controller (max,+) automata in their linear representations. In the tensor product and the Hadamard product, the uncontrollable events that can neither be disabled nor delayed are distinguished. Supervisory control of (max,+) automata is then studied using residuation theory applied to our generalization of the Hadamard product of formal power series. This yields a notion of controllability of formal power series as well as (max,+)-counterparts of supremal controllable languages. Finally, rationality as an equivalent condition to realizability of the resulting controller series is discussed together with hints on future use of this approach.</p>
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