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Closure properties of Watson-Crick Petri net (Conference Paper)

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Abstract

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A Watson-Crick Petri net is a model that enhances a Petri net with the Watson-Crick complementarity feature adapted from DNA molecules. The transitions of a Watson-Crick Petri net are labelled with pairs of symbols, and a firing sequence of transitions of the Watson-Crick Petri net is considered as successful if and only if it produces complete double-stranded sequences of symbols. In this research, the closure properties of Watson-Crick Petri net are determined under several operations such as concatenation, union, intersection and concurrent composition. Some new definitions of the closure properties are defined. Also, the generative power of Watson-Crick Petri net languages under the closure properties are discussed by some examples and theorems. It is shown that the family of Watson-Crick Petri net languages is closed under concatenation, union, intersection and concurrent composition. © 2018 Author(s).

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