Watson-Crick Jumping Finite Automata

Compiler Construction (VYPa) Lecture Project

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1 Abstract

A jumping finite automaton is defined as a variant of the finite automaton where the reading head can jump to different positions of the tape and therefore not read its terminal symbols necessarily in a straight-forward manner. A Watson-Crick finite automaton is another variant of the finite automaton. It features a double tape (and therefore two reading heads) and a correlation between the symbols on these, simulating the double DNA strand and the correlation between its nucleotides. We will discuss the combination of these two variants of finite automata giving birth to the Watson-Crick jumping finite automaton, as defined in the models by Kocman et al., and later by Mahalingam et al. We will illustrate the differences between these two models and compare their main features, including their accepting power and other relevant properties of both models.