



Selected Topics in Automata and Logic

Exercise Sheet 8

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Notice

The solutions to Exercise 3 and 4 from Exercise Sheet 7 will be discussed during this weeks tutorial session.

Exercise 1

Let $\mathcal{L} = \{L \mid \text{there is some } k \in \mathbb{N} \text{ such that } L \text{ is accepted by a 1-}k\text{DFA}\}$ be the set of all languages that can be accepted by a deterministic one-way automaton with an arbitrary number of heads. Prove or disprove that \mathcal{L} is closed under union and intersection.

Exercise 2

Let \mathcal{A} be a 2- k FA. Show that there is a 2- k FA \mathcal{B} that accepts $L(\mathcal{A})$ and where every transition moves at most one head.