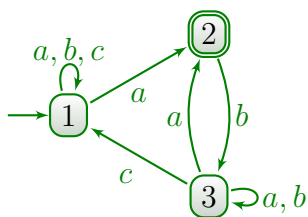


Automata and Formal Languages – Exercise sheet 10

Exercise 9.1

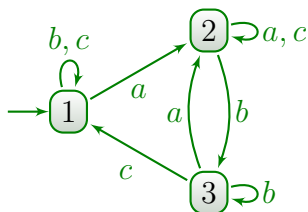
Let \mathcal{A} be the following Büchi automaton over $\Sigma = \{a, b, c\}$:



Apply Safra's construction to give a deterministic Rabin automaton for $L(\mathcal{A})$.

Exercise 9.2

Let \mathcal{B} be the following deterministic Muller automaton over $\Sigma = \{a, b, c\}$ with accepting table $\mathcal{T} = \{\{1\}, \{2\}, \{2, 3\}\}$:



Give an equivalent deterministic parity automaton.

Exercise 9.3

A Büchi automaton with acceptance on transitions is a Büchi automaton except the acceptance condition is modified as follows: Instead of a set of accepting states, we have a set of accepting transitions, and an infinite word is accepted by such an automaton if it admits a run that visits infinitely often an accepting transition.

Show that the acceptance on transitions leads to the same expressive power as the acceptance on states.