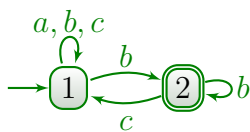


Automata and Formal Languages – Exercise sheet 9

Exercise 9.1

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



- (a) Describe the language accepted by this automaton.
- (b) Apply Klarlund's construction to give a Büchi automaton for $\Sigma^\omega \setminus L(\mathcal{A})$.

Exercise 9.2

Let G be a finite group and let $\varphi : \Sigma^+ \rightarrow G$ be a (semigroup-)homomorphism.

- (a) Show that $\varphi(\Sigma^+)$ is a group.
- (b) What are the languages in Σ^ω recognized by φ ?