Exercises to the lecture
Algorithmic Automata Theory
Sheet 1

Dr. Prakash Saivasan   Delivery until 23.04.2019 at 15:00

Exercise 1.1 (Languages and Formulas)

a) Find a WMSO-formula φ such that $L(\varphi) = \Sigma^* a \Sigma^* b^+$.

b) What is the language described by $\exists y \forall x \forall z \colon (x < y \land y < z) \to \neg P_a(x) \land P_b(y)$?

Exercise 1.2 (WMSO to Finite Automata)
Using the method presented in the lecture, construct a finite automaton that accepts the language defined by the formula

$$\varphi = \exists x \exists y \colon x < y \land P_a(x) \land P_a(y) \ .$$

Exercise 1.3 (WMSO Expressiveness)

a) Show that WMSO[<, suc] and WMSO[suc] are equally expressive.

b) Show that WMSO[<, suc] and WMSO[<] are equally expressive.

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