Programmation Avancée et Compilation 2001
(Exercises)

4 Finite-State Automata

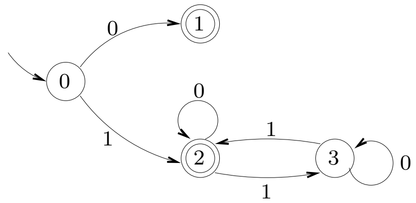
Keywords 4

Give short explanations of the following keywords:

> *Finite-state automaton*(Lexical Analysis 2, 2), *NFA*(Lexical Analysis 2, 3), *DFA*.(Lexical Analysis 2, 2)

Exercise 6

Consider the following finite-state automaton:



(a) Is it *deterministic* or *nondeterministic*?

(b) What is its *start-state*?

(c) What are its *final states*?

(d) Does it accept the string 110100? Which sequence of states does it describe during the analysis?

(e) Which is the shortest string it accepts?

(f) Is there a longest string it accepts?

(g) Describe in your own words which *language* the automaton accepts?

Exercise 7

Consider the following regular expressions:

(a) ["0"|"1"]

(b) {"1"}

(c) "0"|"1"{"0"|"1"}

For each of them, give an NFA accepting their language. Then convert all of the NFAs into DFAs.