

# CPSC 313 — Tutorial Exercise #5

## Equivalence of Deterministic Finite Automata and Nondeterministic Finite Automata

### 1 About This Exercise

The following exercise concerns material found in Section 1.2 of *Introduction to the Theory of Computation* and presented in the following lecture.

- Lecture #6: Equivalence of Deterministic Finite Automata and Nondeterministic Finite Automata

This exercise will be discussed in the tutorials on Monday, January 31, Tuesday, February 1, and Wednesday, February 2. Please try to solve the problems in this exercise **before** attending this tutorial, so that participate in discussions about this exercise with other students and ask for the help from the teaching assistant that you need.

### Problems To Be Solved

This question concerns the nondeterministic finite automaton  $M$  that is shown in Figure 1, on page 2, whose input alphabet is the set  $\Sigma = \{a, b\}$ .

1. Design a DFA for the language  $L(M)$  of this nondeterministic finite automaton, and (if possible) confirm that your answer is correct.

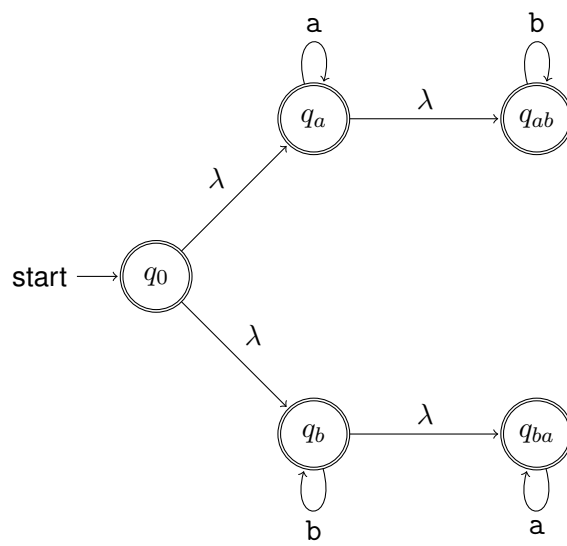


Figure 1: A Nondeterministic Finite Automaton