

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

What Will Happen During the Lecture

Remember... You Had Homework!

Students were asked to work through the following set of lecture notes before this lecture.

- Lecture Notes — “Equivalence of Deterministic Finite Automata and Nondeterministic Finite Automata”.

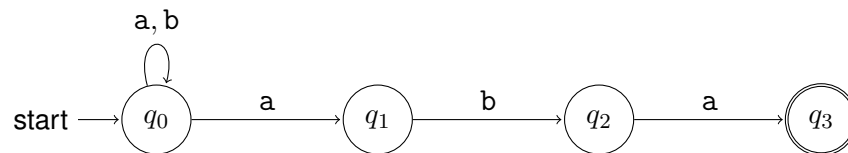
As always, you may attend the lecture presentation if you have not worked through this material ahead of time — but it will not be repeated for you, and you might get a little bit lost, during the presentation, if you haven’t worked through this.

Problem To Be Solved

Let $\Sigma = \{a, b\}$. Let $L \subseteq \Sigma^*$ be the following language:

$$L = \{w \in \Sigma^* \mid w \text{ ends with } aba\}.$$

Consider, the following *nondeterministic* finite automaton $M = (Q, \Sigma, \delta, q_0, F)$ with the above alphabet Σ and the following transition diagram.



The lecture notes described a process that can be used to convert a nondeterministic finite automaton into a deterministic finite automaton with the same language. The application of the above process, to the above NFA, will be discussed in the lecture presentation.

If You Want To Get Started . . .

Try to solve this problem on your own, after completing the required reading (and looking at any supplements that might be helpful). Then you can compare your work to what the instructor is presenting.