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

What Will Happen During the Lecture

Review

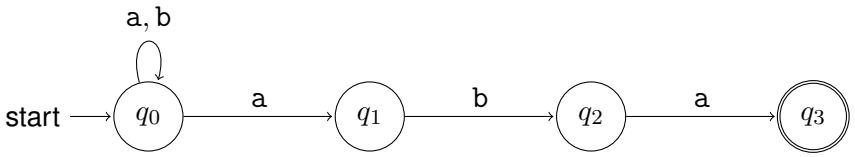
The lecture presentation will begin with a ***brief*** review of the material in the preparatory videos and documents for this lecture — and students will have the chance to ask questions about this.

Problem To Be Solved

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

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

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.