

Finite Automaton Examples

The automata shown in this handout were drawn at different times, and hence are not all the same style. I use either λ or ε for a λ -transition of an NFA.

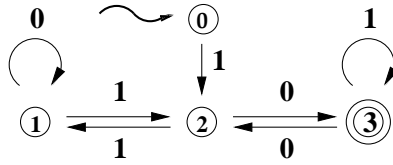


Figure 1: Describe the language accepted by this DFA. The word “numeral” should be in your answer.

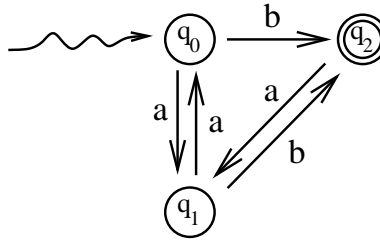


Figure 2: Draw an equivalent minimal DFA

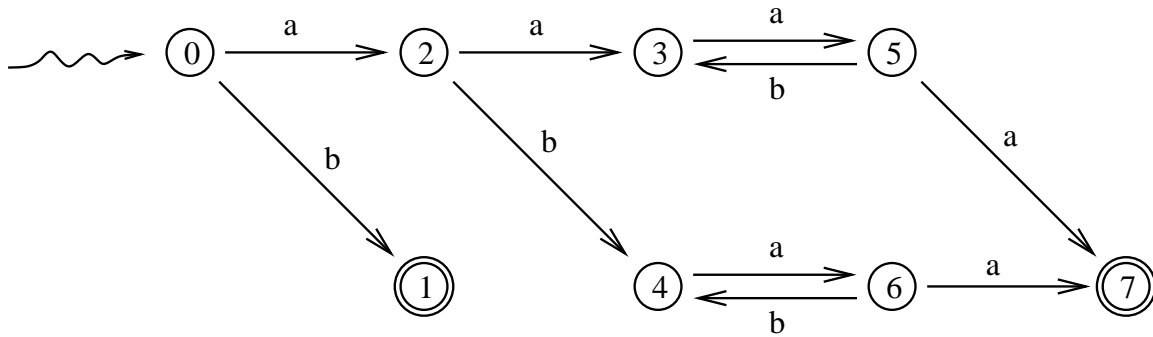


Figure 3: Minimize this DFA.

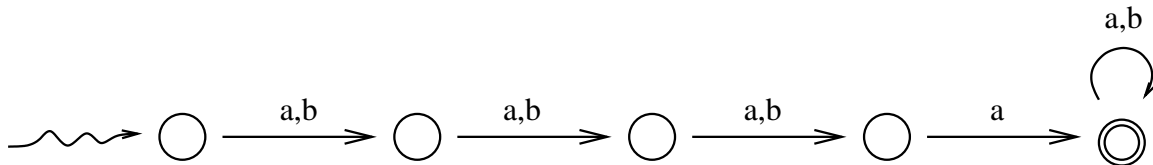


Figure 4: Let L be the language accepted by this DFA. Draw a minimal DFA that accepts L .

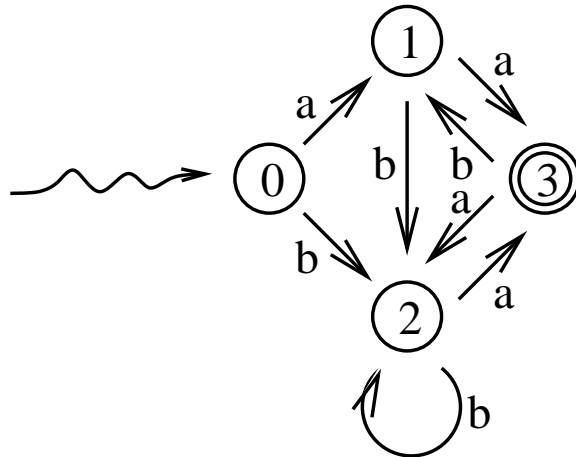


Figure 5: Draw an equivalent minimal DFA.

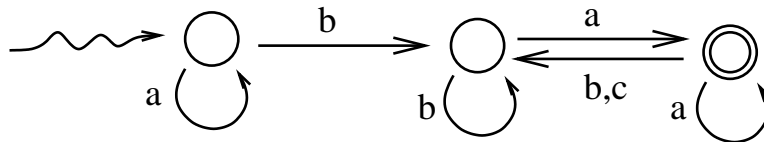


Figure 6: Write a regular expression for the language accepted by this DFA.

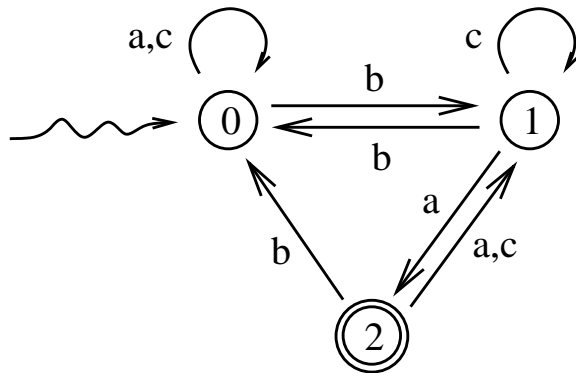


Figure 7: Give a right-linear grammar for the language accepted by this machine.

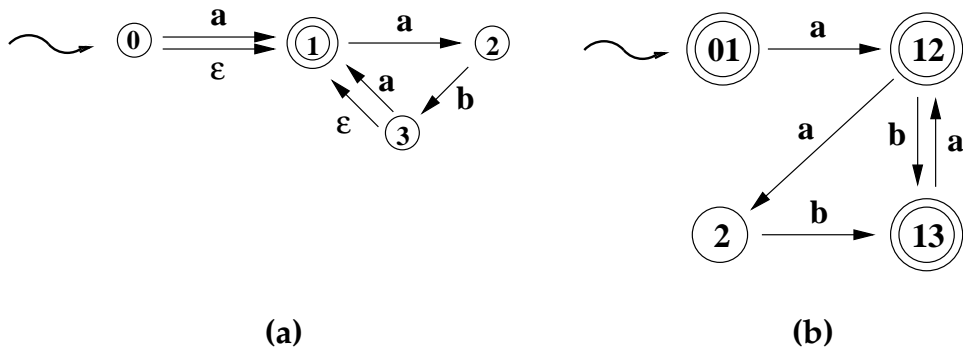


Figure 8: Draw a minimal DFA equivalent to the NFA shown in (a). Your answer should be the same as (b).

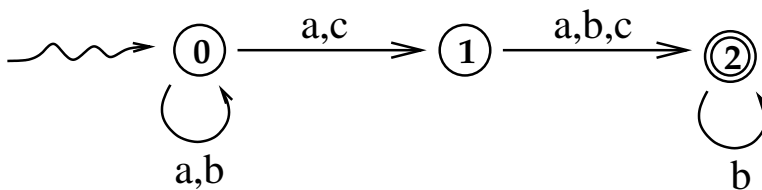


Figure 9: Give a minimal DFA equivalent to this NFA.

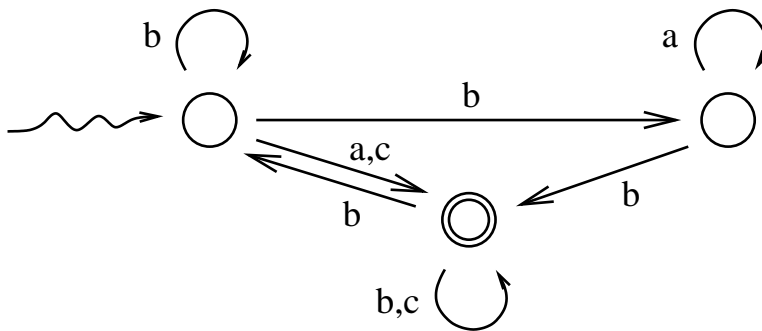


Figure 10: Give a grammar which generates the language accepted by this NFA.

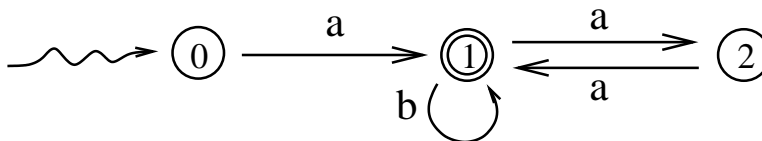


Figure 11: Write a regular expression for the language accepted by this DFA.

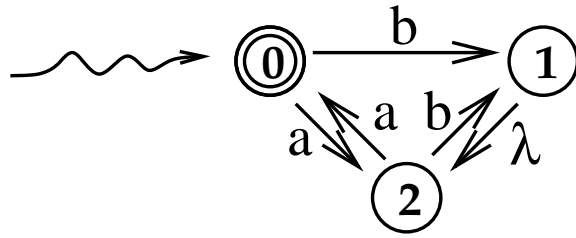


Figure 12: Write a regular expression for the language accepted by this DFA.

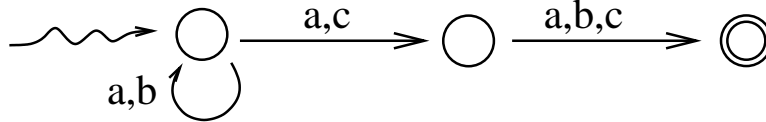


Figure 13: Give a minimal DFA equivalent to this NFA.

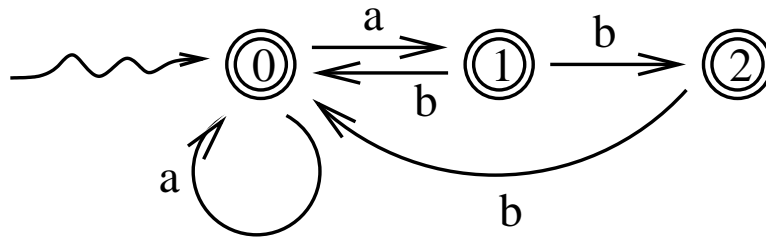


Figure 14: Give a grammar for the language accepted by this NFA.

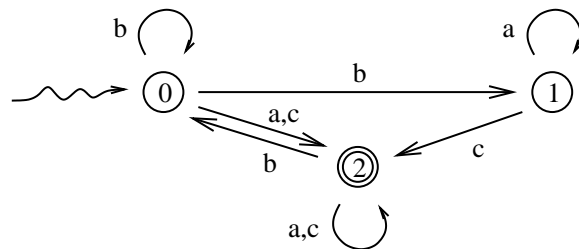


Figure 15: Give a minimal DFA equivalent to this NFA.

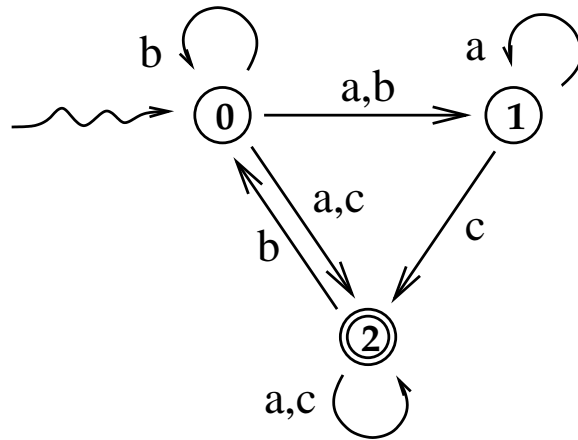


Figure 16: Give a regular expression for the language accepted by this NFA.

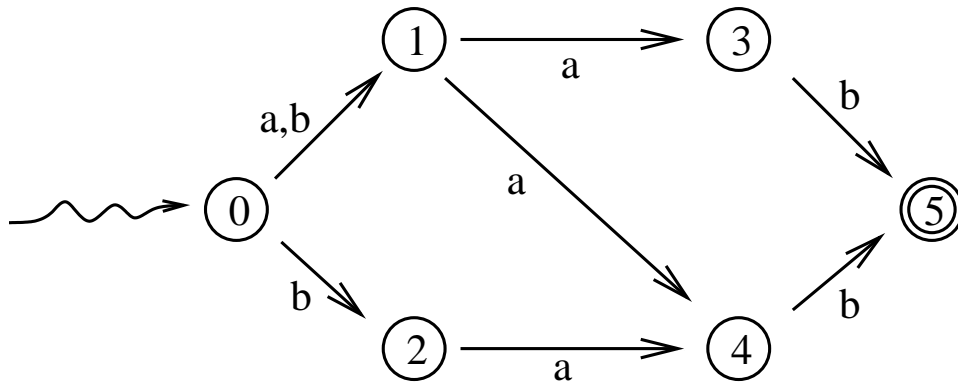


Figure 17: Draw a minimal DFA equivalent to this DFA.

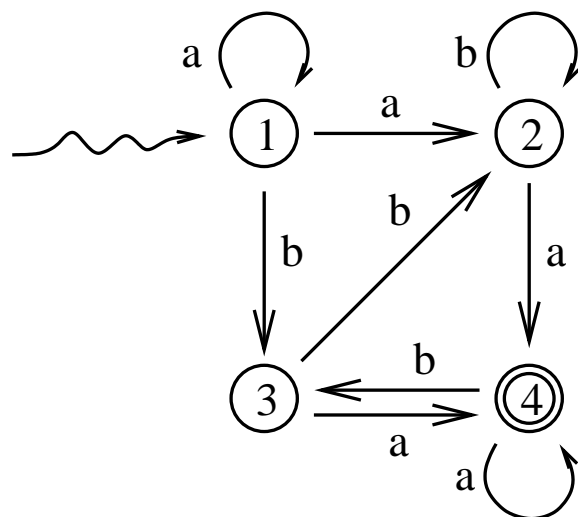


Figure 18: Give a right-linear grammar for the language accepted by this NFA.