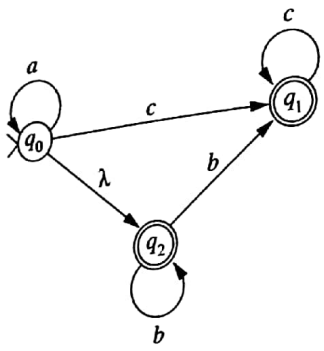


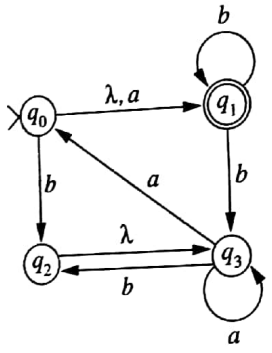
a) Compute λ-$closure(q_i)$ for $i = 0, 1, 2$.

b) Give the input transition function t for M.

c) Use Algorithm 6.6.3 to construct a state diagram of a DFA that is equivalent to M.

d) Give a regular expression for L(M).

30. Let M be the NFA-λ



a) Compute λ-$closure(q_i)$ for $i = 0, 1, 2, 3$.

b) Give the input transition function t for M.

c) Use Algorithm 6.6.3 to construct a state diagram of a DFA that is equivalent to M.

d) Give a regular expression for L(M).

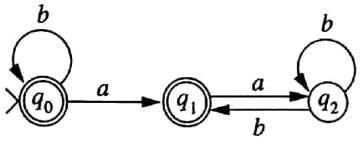
31. Give a recursive definition of the extended transition function $\hat{\delta}$ of an NFA-λ. The value $\hat{\delta}(q_i, w)$ is the set of states that can be reached by computations that begin at node q_i and completely process the string w.

32. Use Algorithm 6.6.3 to construct the state diagram of a DFA equivalent to the NFA in Example 6.5.2.

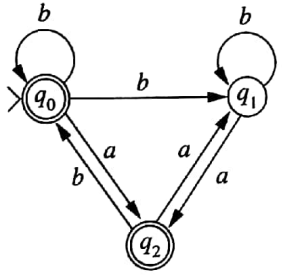
33. Use Algorithm 6.6.3 to construct the state diagram of a DFA equivalent to the NFA in Exercise 17.

34. For each of the following NFAs, use Algorithm 6.6.3 to construct the state diagram of an equivalent DFA.

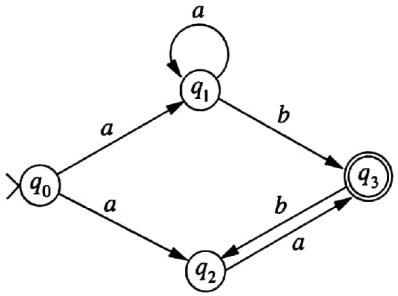
a)



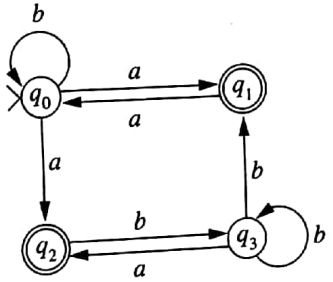
b)



c)



d)



35. Build an NFA M_1 that accepts $(ab)^*$ and an NFA M_2 that accepts $(ba)^*$. Use λ transitions to obtain a machine M that accepts $(ab)^*(ba)^*$. Give the input transition function of M. Use Algorithm 6.6.3 to construct the state diagram of a DFA that accepts L(M).