Exercises

Exercise 1

Obtain the position automaton of each one of the following regular expressions:

(a) $r = (ba)^*b$

(b) $r = a(a+b)^*$

(c) $r = a(a+b)^*b$

(d) $r = (a^*b^*)^* + (a+b)^*$

(e) $r = a(ba+b)^*$

(f) $r = a^*ba^*b(a+b)^*$

(g) $r = (a+b)^*bb + (a+b)^*a$

(h) $r = ((ba+a^*)^* + ba)(ab)^*$

Exercise 2

Obtain the follow automaton for each one of the following regular expressions:

(a) $r = (ba)^*b$

(b) $r = a(a+b)^*$

(c) $r = a(a+b)^*b$

(d) $r = (a^*b^*)^* + (a+b)^*$

(e) $r = a(ba+b)^*$

(f) $r = a^*ba^*b(a+b)^*$

(g) $r = (a+b)^*bb + (a+b)^*a$

(h) $r = ((ba+a^*)^* + ba)(ab)^*$

Exercise 3

Consider the Brzozowski's algorithm to obtain a DFA that accepts the language represented by the following regular expressions.

(a) $r = a(ba+b)^*$

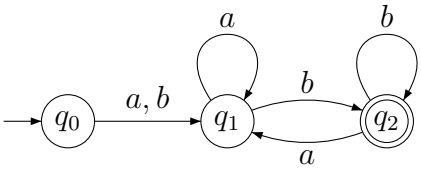
(b) $r = b(ab^*a)^*b$

(c) $r = (ab+b)((aa)^*(a+ba+\lambda))$

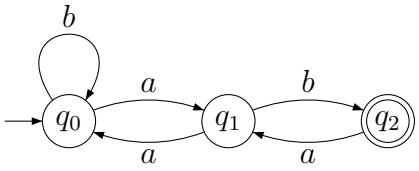
Exercise 4

Analyze the following automata to obtain a regular expression that represents the same language

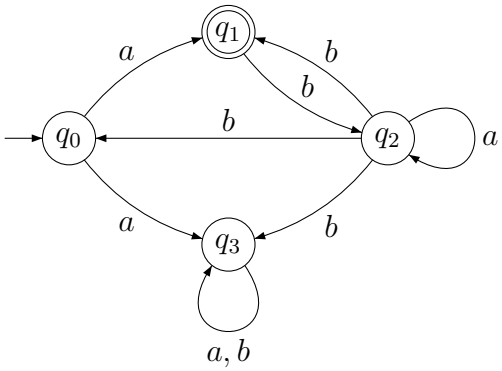
(a)



(b)



(c)



(d)