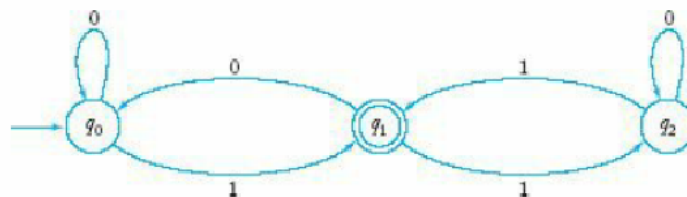


Aceptadores finitos deterministas (DFA) (7.5%)

Resolver el ejercicio 1 del libro de Peter Linz sección 2.1 (ver imagen adjunta)

1. Which of the strings 0001, 01001, 0000110 are accepted by the dfa in [Figure 2.1](#)?

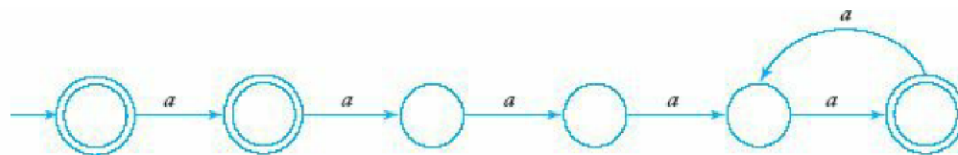
Figure 2.1



Las cadenas que aceptarían el autómata serían 0001 y 01001 ya que 0000110 termina en q2

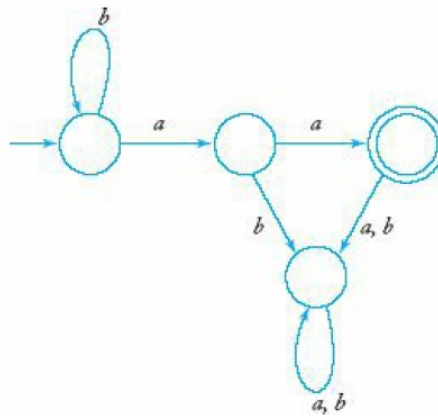
Expresar con notación de conjunto los lenguajes aceptados por los DFA de la imagen Aceptadores.png

A)



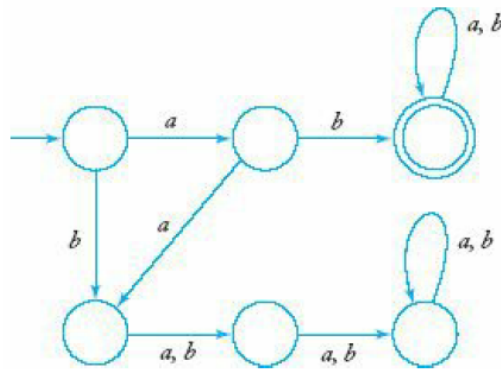
$$L = \{a^n, a^m : 2 > n \geq 0, m > 4, m \text{ es impar}\}$$

B)



$$\{B\} \quad L = \{b^n aa : n \geq 0\}$$

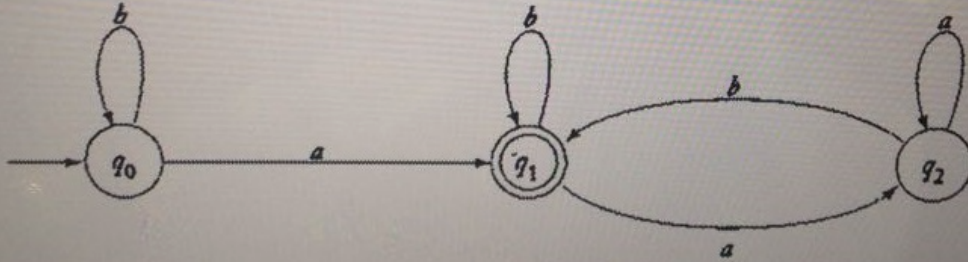
C)



$$C) \quad L = \{ab(ab)^n : n \geq 0\}$$

Resolver el ejercicio de la imagen DFA6.jpg (tomada de la tercera edición del libro de Peter Linz)

6. Give a set notation description of the language accepted by the automaton depicted in the following diagram. Can you think of a simple verbal characterization of the language?

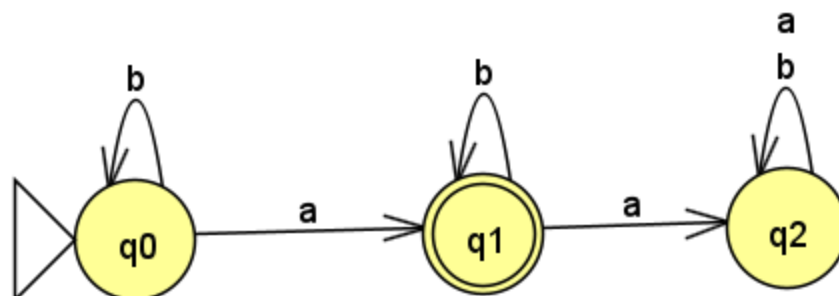


$$L = \{b^n a^c b^m, b^n a, b^n a b^m : n > 0, c > 0, m > 0\}$$

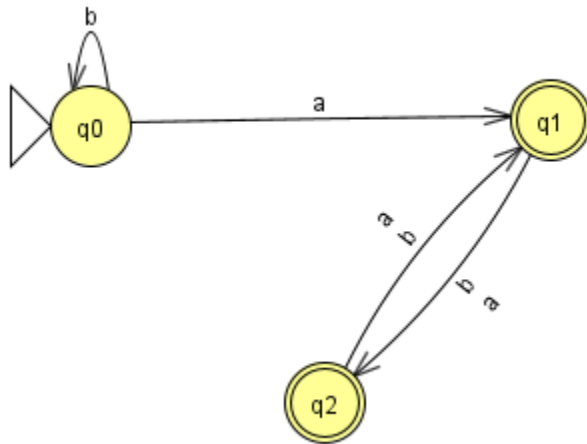
2. For $\Sigma = \{a, b\}$, construct dfa's that accept the sets consisting of

- (a) all strings with exactly one a ,
- (b) all strings with at least one a ,
- (c) all strings with no more than three a 's,
- (d) all strings with at least one a and exactly two b 's,
- (e) all the strings with exactly two a 's and more than two b 's.

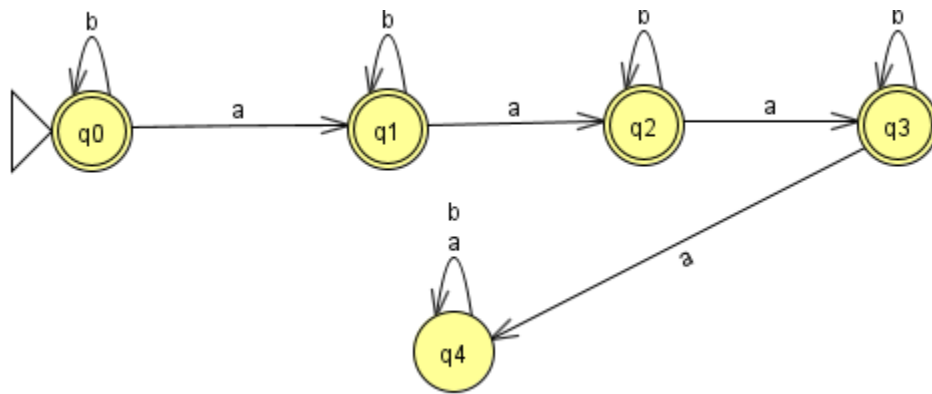
a)



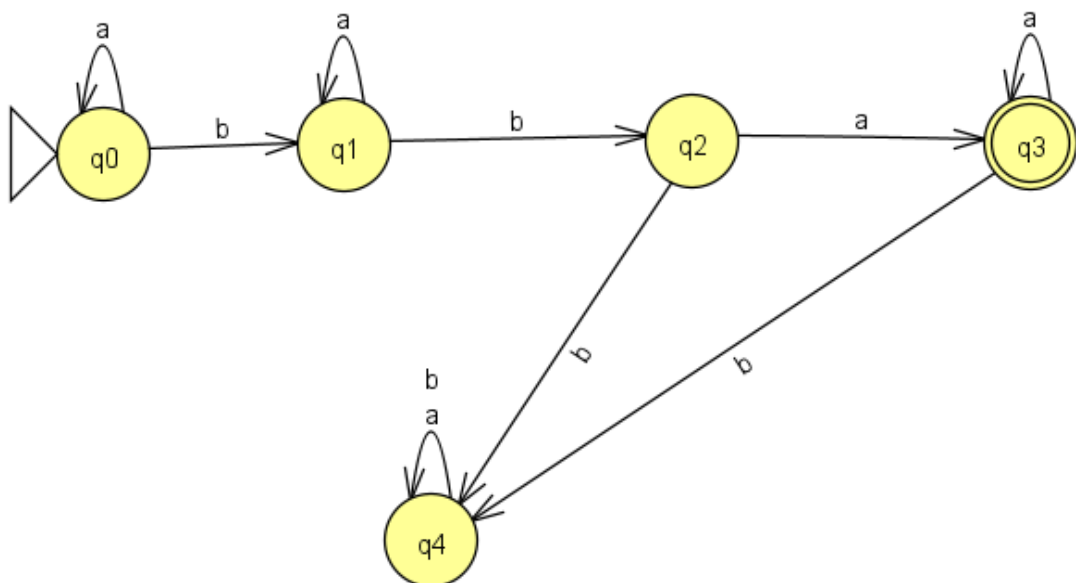
b)



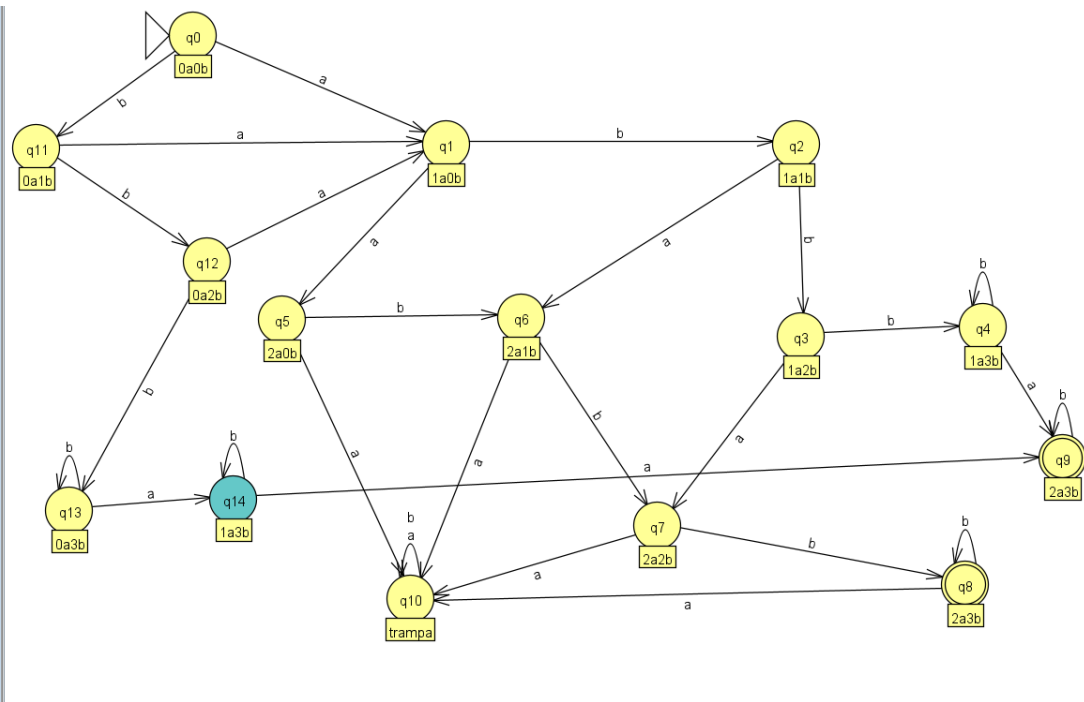
c)



d)

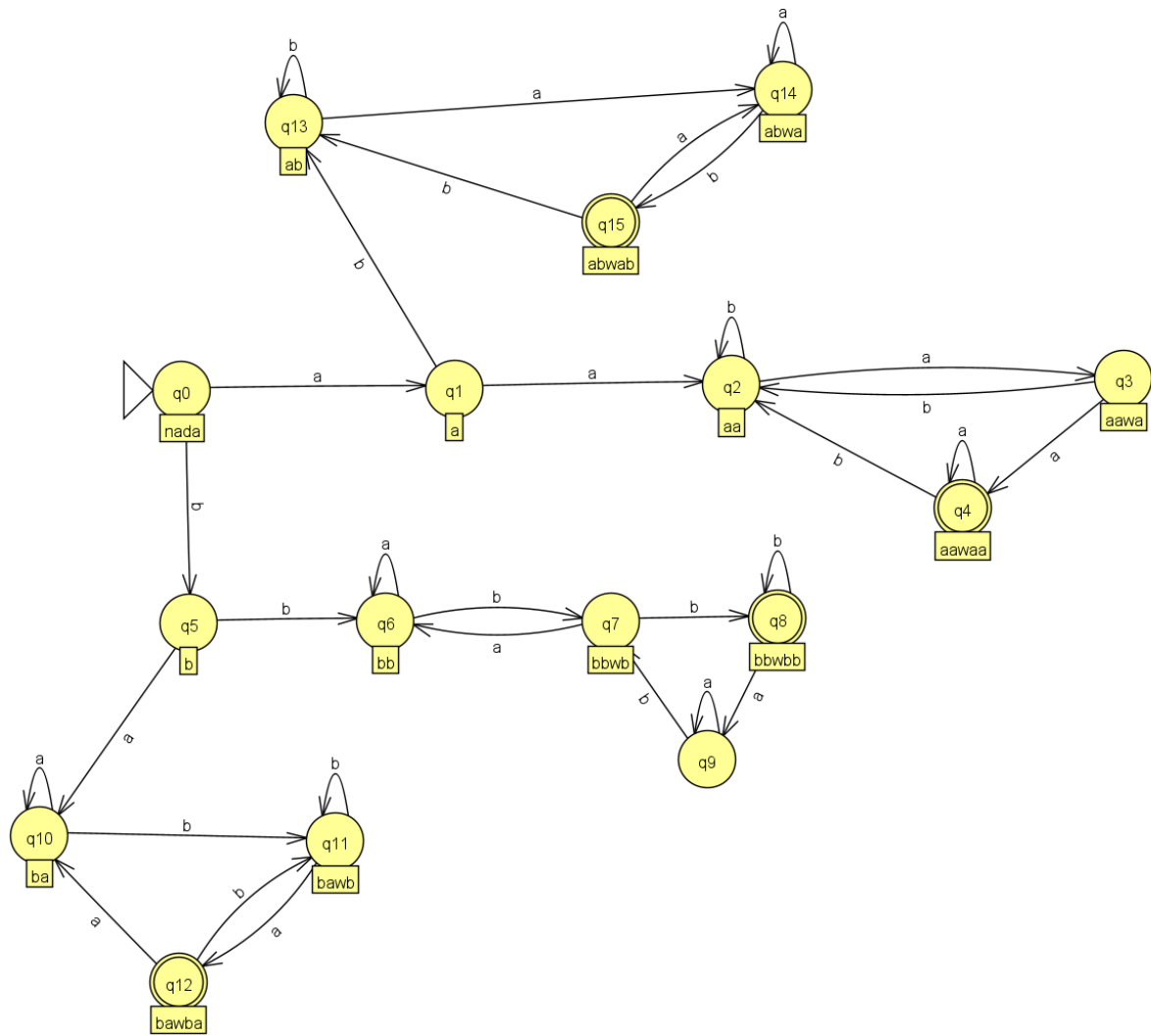


e)



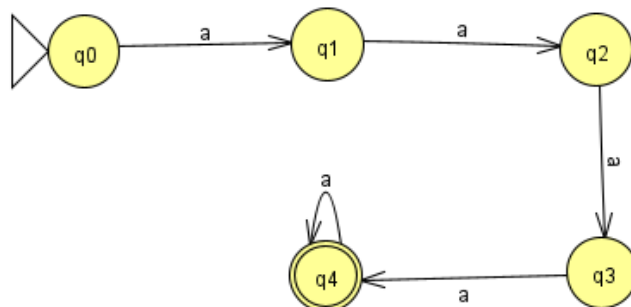
11. Show that the language $L = \{v w v : v, w \in \{a, b\}^*, |v| = 2\}$ is regular.

REGULAR



12. Show that $L = \{a^n : n \geq 4\}$ is regular.

REGULAR



13. Show that the language $L = \{a^n : n \geq 0, n \neq 4\}$ is regular.

REGULAR

