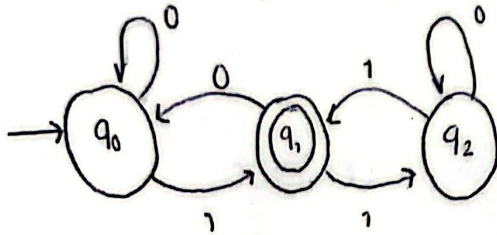


ACEPTADORES FINITOS DETERMINISTAS

① Which of the strings 0001, 01001, 0000110 are accepted by the dfa in figure 2.1?



Cadena 0000110

$q_0 \rightarrow q_0 \rightarrow q_0 \rightarrow q_0 \rightarrow q_1 \rightarrow q_2 \rightarrow q_2$
 0 0 0 0 1 1 0 No es estado final
Rechazada

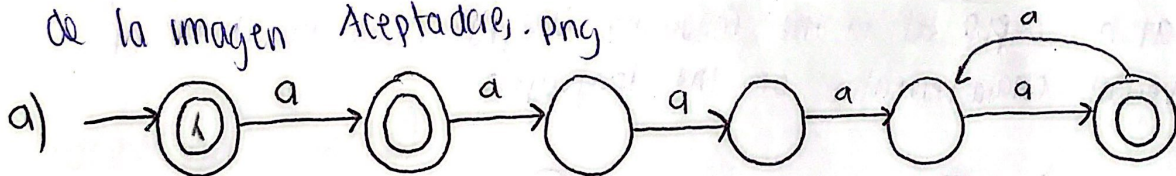
Cadena 0001

$q_0 \rightarrow q_0 \rightarrow q_0 \rightarrow q_1$ = Aceptado
 0 0 0 1 estado final

Cadena 01001

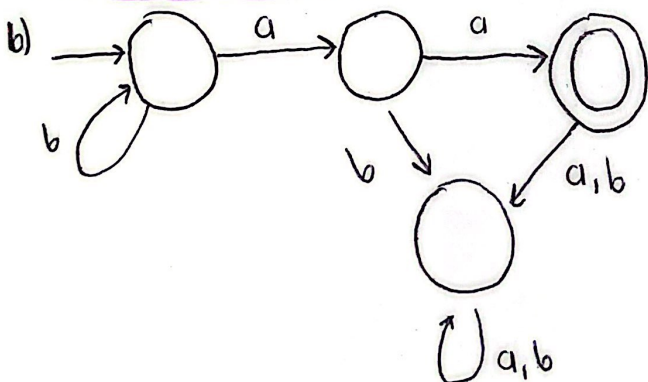
$q_0 \rightarrow q_1 \rightarrow q_0 \rightarrow q_0 \rightarrow q_1$ = Aceptado
 0 1 0 0 1 Edo. final

② Expresar con notación de conjunto los lenguajes aceptados por los DFA de la imagen Aceptadore.png



Cadenas aceptadas: $\{a, a^5\}$

$L(a) = \{a, a^n; n \text{ es impar } \geq 5\}$

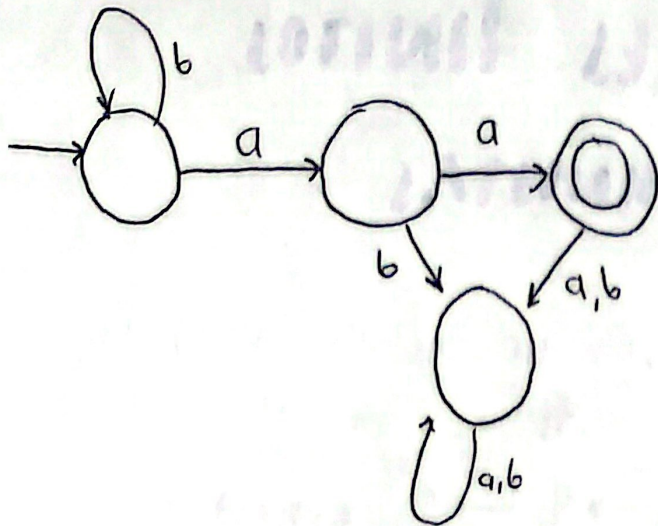


Cadenas aceptadas

$= \{aa, baab, bbbbaa, bbbbaaba, \dots\}$

$L(b) = \{b^n a^x; n \geq 0 \text{ y } x = 2\}$

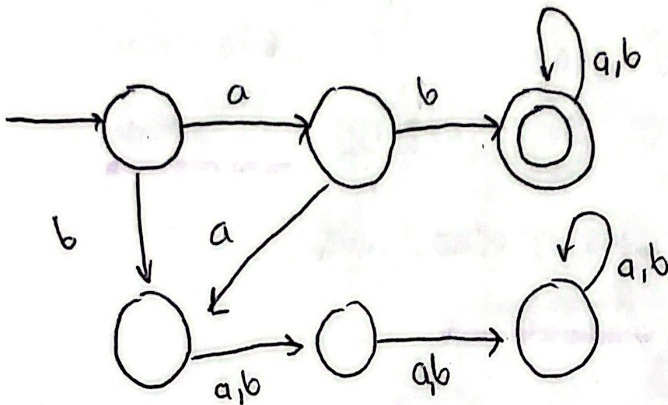
b)



(Cadenas, aceptadas)

 $= \{baa, bbaa, bbbbaa\}$ $L(b) = \{b^n a^2; n \geq 0\}$

c)

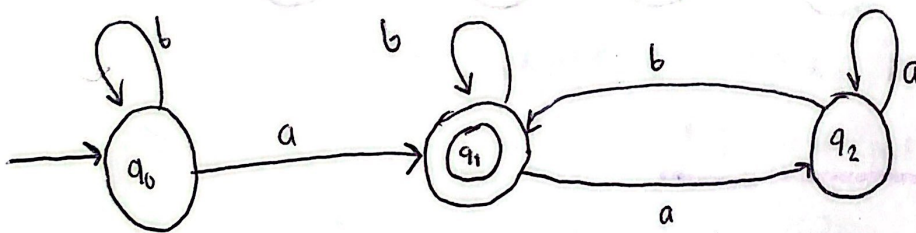


(Cadenas, aceptadas)

 $= \{aba, abb, abaa, abbb, \dots\}$ $L(c) = \{abw; w \in \{a,b\}^*\}$

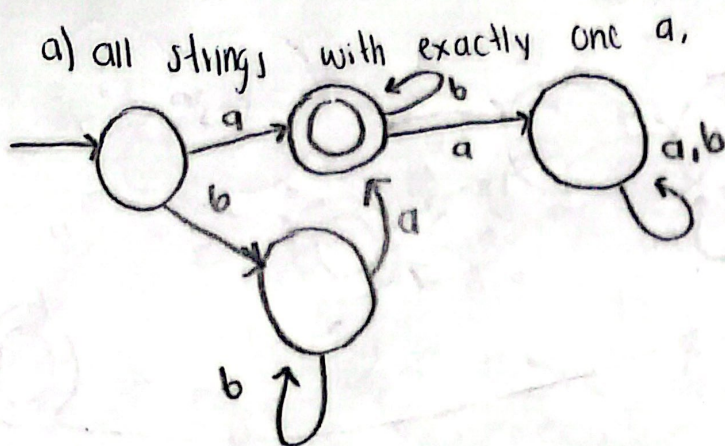
- 3) Give a set notation description of the language accepted by the automaton depicted in the following diagram. Can you think of a simple verbal characterization of the language?

(Cadenas, aceptadas)

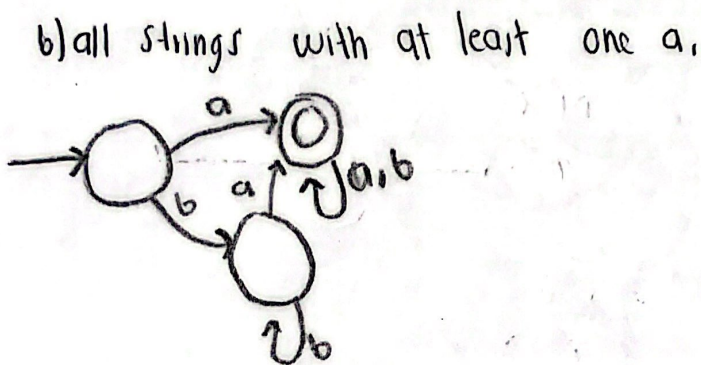
 $= \{a, ba, ab, bab, aab\}$ 

$$L = \{b^n a^x w b; n \geq 0, x \geq 1, w \in \{a,b\}^*\}$$

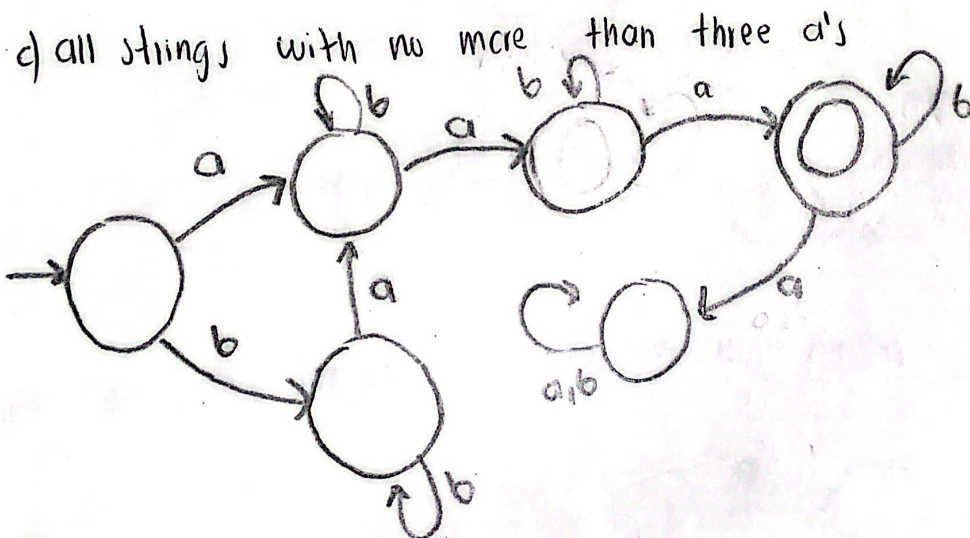
④ For $\Sigma = \{a, b\}$, construct dfa's that accept the sets consisting of



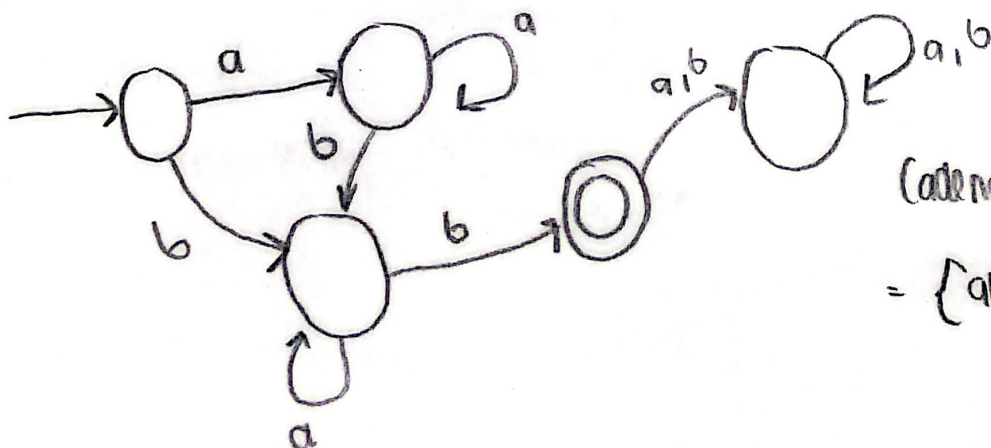
Cadenas aceptadas,
 $= \{a, ab, ba, abbb, \dots\}$



Cadenas aceptadas,
 $= \{a, aa, aad, ab, aba, abba, \dots\}$

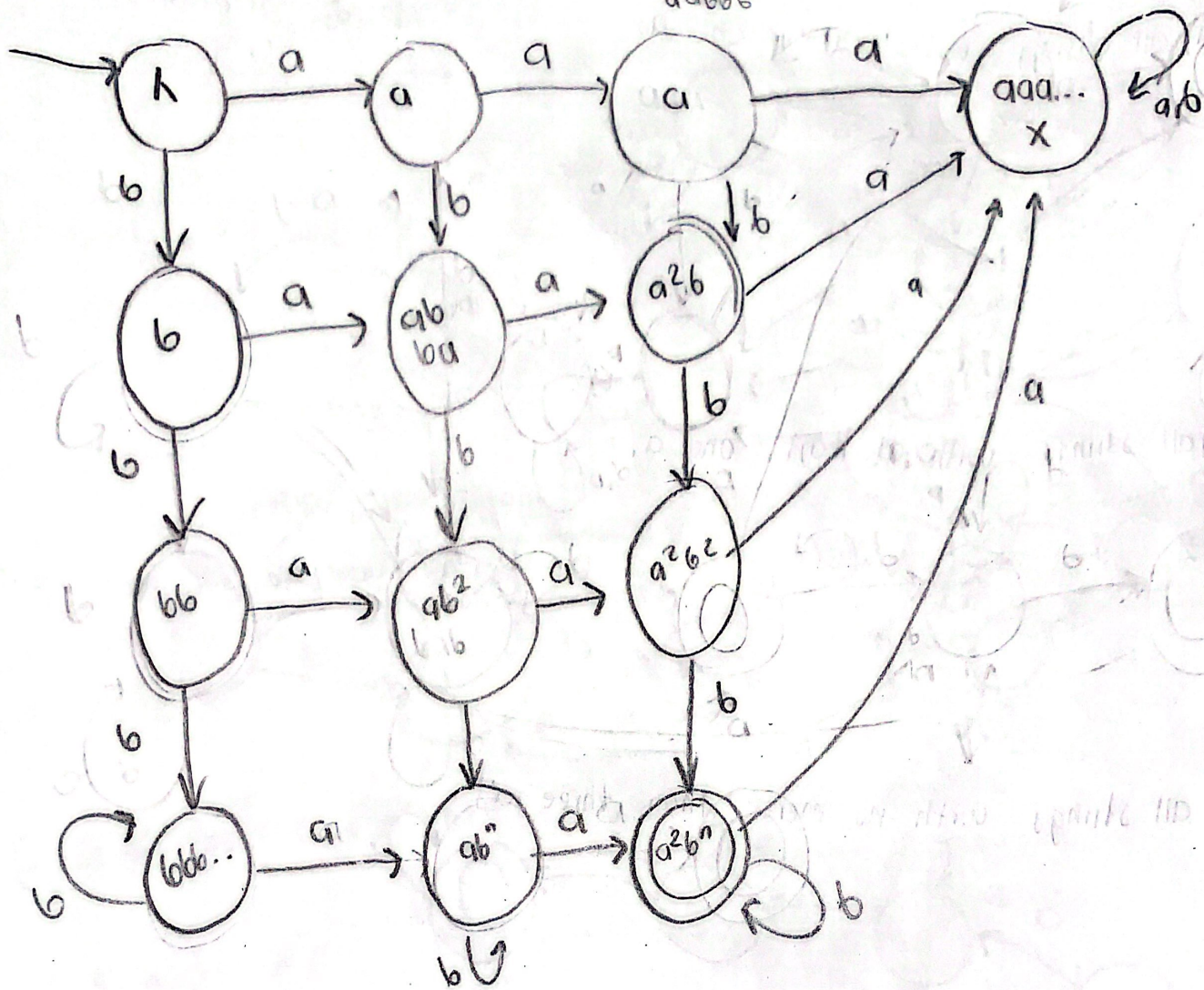


d) all strings with at least one a and exactly two b's

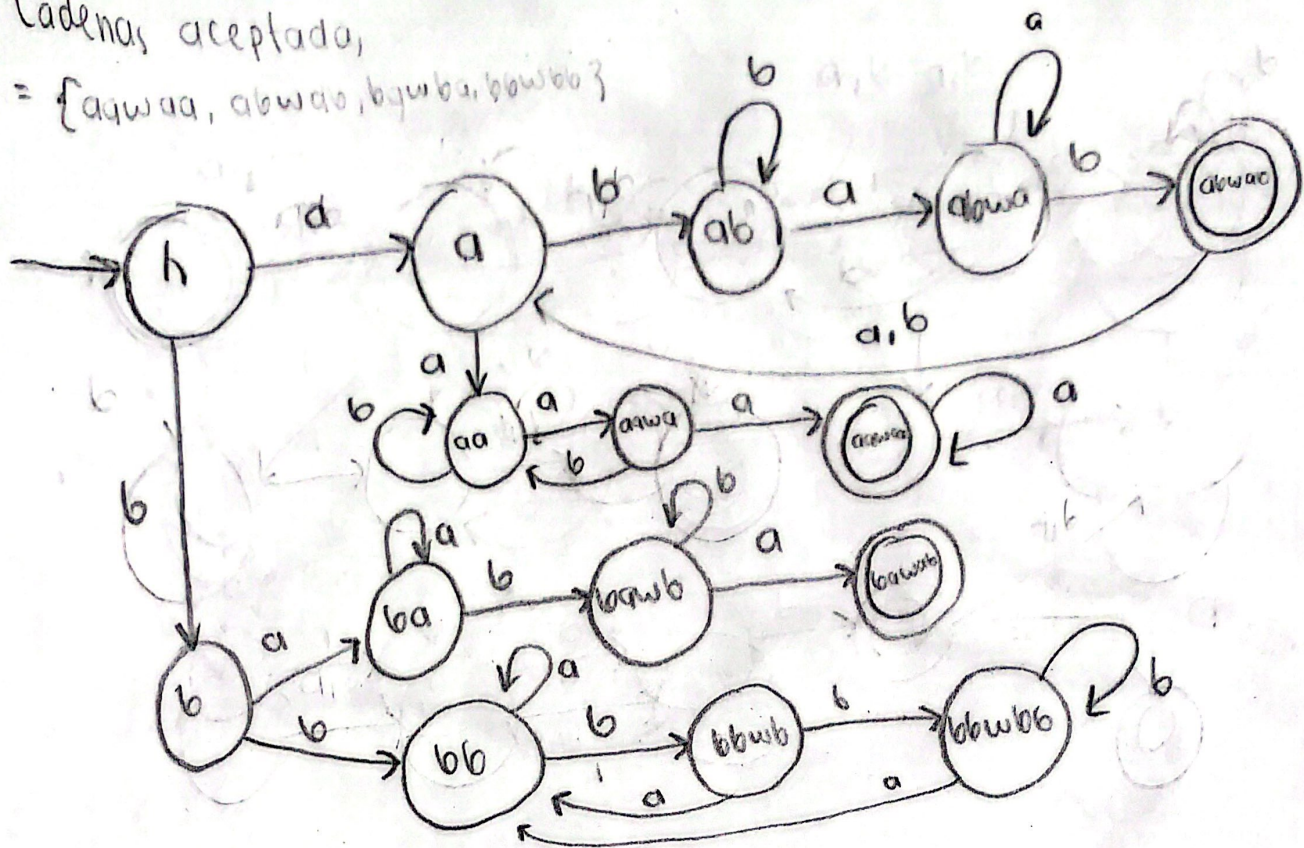


Cadenas aceptadas,
 $= \{abb, aabb, aaabb, bb, bab, \dots\}$

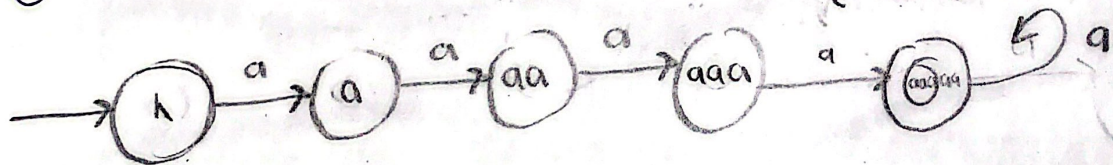
e) all the strings with exactly two a's and more than two b's



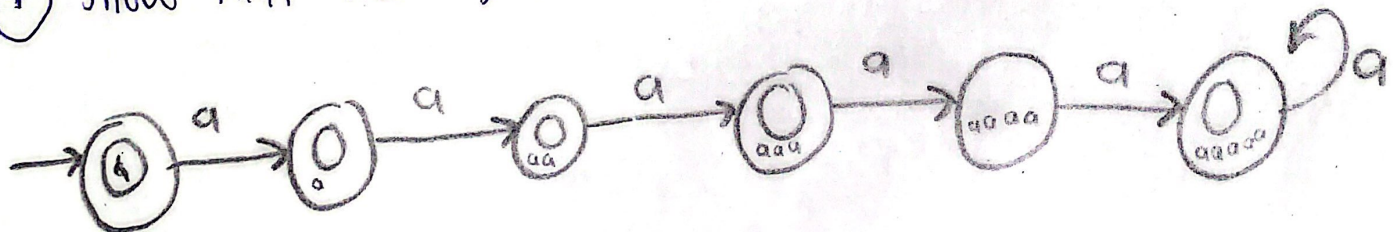
- 5) Show that the language $L = \{vwv : v, w \in \{a, b\}^*, |v| = 2\}$ is regular
- Cadenas aceptadas,
 $= \{aawaa, abwaa, bawba, bbwbb\}$



- 6) Show that $L = \{a^n : n \geq 4\}$ is regular
- Cadenas aceptadas,
 $= \{aaaa, aaaaa, \dots\}$



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



Cadena aceptada,
 $= \{h, a, aa, aaa, aaaaa, aaaaaa, \dots\}$