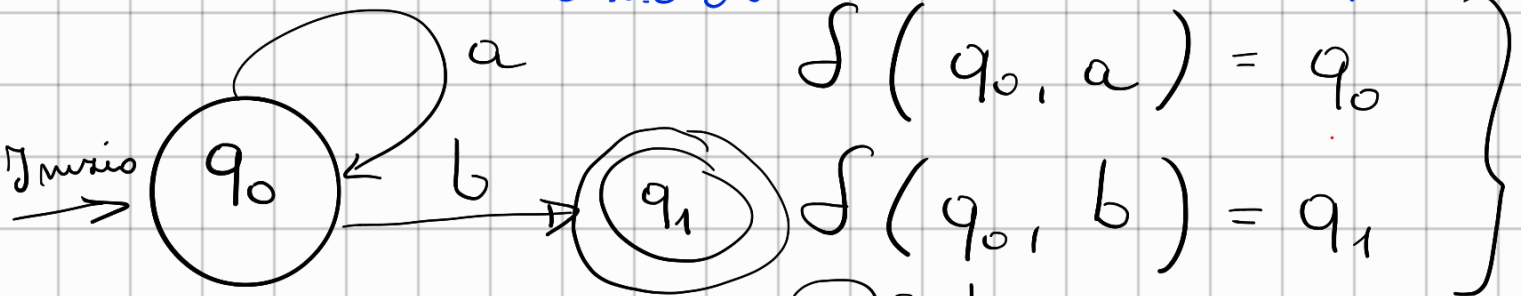


$$S \rightarrow \sigma(S)$$

$$S \rightarrow \sigma S \mid \sigma A \sigma$$

$a \dots \sigma b \sigma b$

parziale



$$\delta(q_0, a) = q_0$$

$$\delta(q_0, b) = q_1$$

Stato iniziale: q_0

alfabeto: $\{a, b\}$

Stato finale: $F = \{q_1\}$

$\{q_0, q_1, q_2\}$

$$S \rightarrow a \underline{\beta} \mid b$$

\uparrow passo ricorsivo \downarrow passo base

$$\delta(q_0, \sigma) = q_0 \quad \delta(q_0, b) = q_1 \leftarrow$$

$$\delta(q_1, \sigma) = q_2 \quad \delta(q_1, b) = q_2$$

$$\delta(q_2, \epsilon) = q_2 \quad \delta(q_2, b) = q_2$$

$q_0 \quad q_0 \quad q_1 \quad q_2 \quad (q_2)$

$\downarrow \downarrow \downarrow \downarrow \downarrow \downarrow$ $q_2 \in F?$ No \rightarrow non accetto
 $aabaa$.

$aaaba \leftarrow X$

$aaab$

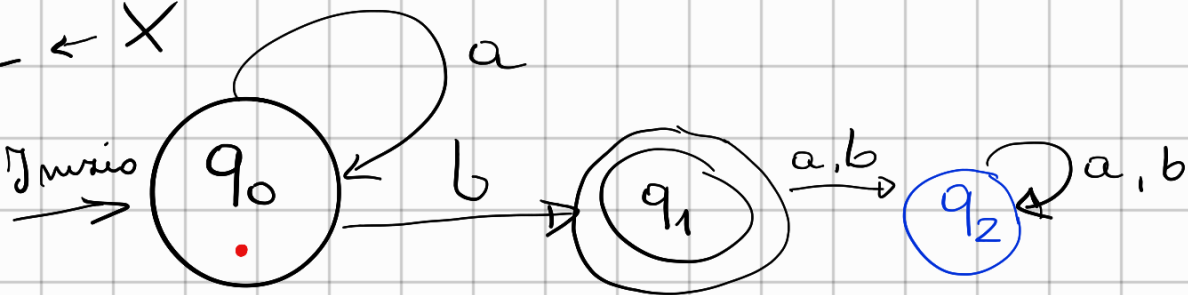
$b \leftarrow \checkmark$

$ab = \checkmark$

$aaa \leftarrow X$

$(b)ba \leftarrow^{q_0} X$

$aba \leftarrow X$



$q_0 \in F?$ No

$$L = \{ a^m b^m \mid m \text{ pari}, m \text{ dispari} \}$$

$$m=0, m=1$$

$$a^0 b^1 = b$$

$$m=2, m=1$$

$$m=2, m=3$$

$$m=0, m=3$$

$$= \{ b, aab, bbb, aabbb \}$$

$$m \text{ pari } \left\{ \overset{2 \cdot 0}{0}, \overset{2 \cdot 1}{2}, \overset{2 \cdot 2}{4}, \overset{2 \cdot 3}{6}, \overset{2 \cdot 4}{8}, 10, \dots \right\}$$

$$= \{2h, h \geq 0\}$$

$$m \text{ dispari } = \{2h+1, h \geq 0\}$$

$$L = \{a^{2h} b^{2k+1}, h \geq 0, k \geq 0\}$$

$$h=0, k=0$$

$$= a^{2 \cdot 0} b^{2 \cdot 0 + 1} = a^0 b^1 = b$$

$$h=1, k=1$$

$$= a^2 b^3 = aabbb$$

$$h=1, k=0$$

⋮

$$h=0, k=1$$

⋮

$$L_1 a^{2h} \cdot b^{2k+1} L_2$$



concatenazione

$$L_1 = \{a^{2h} \mid h \geq 0\} \quad h=0$$

$A \rightarrow \lambda \mid aaA$

$$L_1 = (aa)^*$$

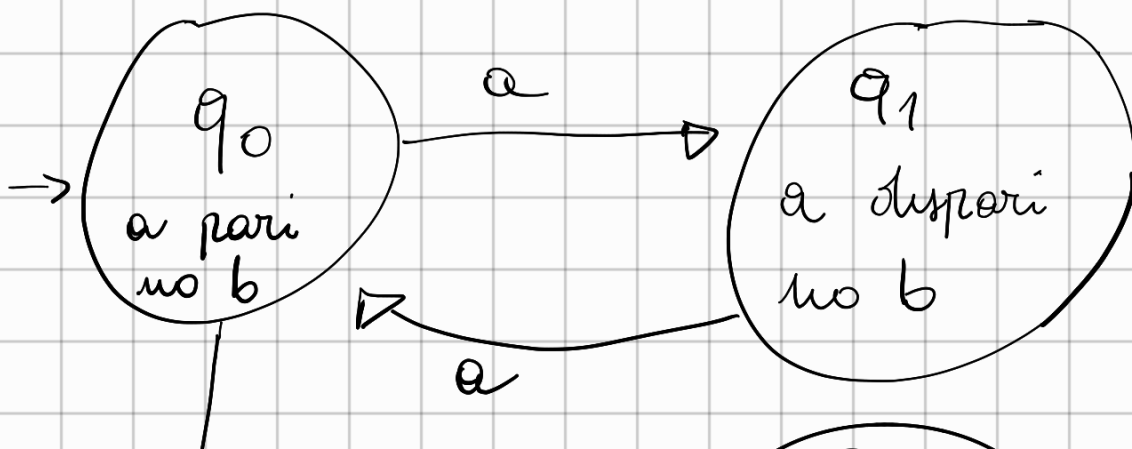
$$L_2 = \{ b^{2k+1} \mid k \geq 0 \} \quad k=0$$

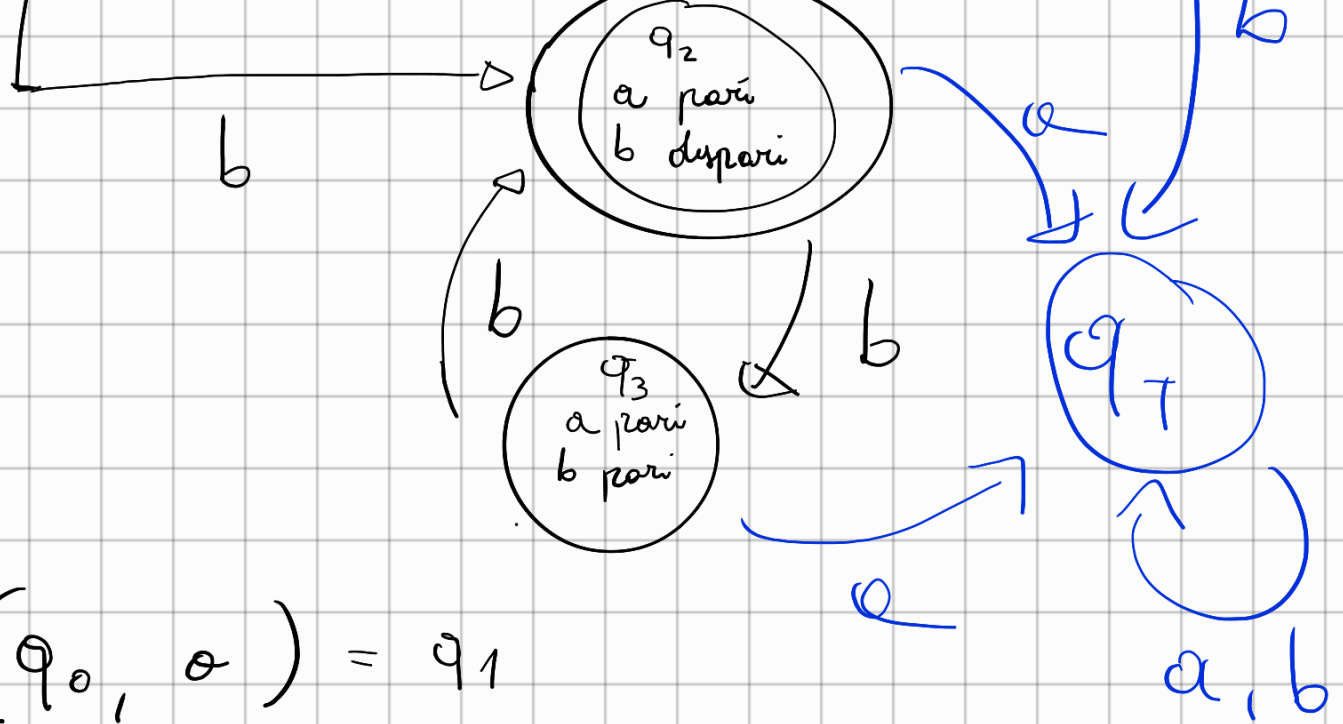
$B \rightarrow \underbrace{b}_{+1} \underbrace{bbB}_{2k} \quad L_2 = b(bb)^*$

$$L = (aa)^* \cdot b(bb)^*$$

(I, F, S, Σ)

a pari	✓	, no b	✗
a dispari	✗	, no b	✗
b pari	✗		
b dispari	✓		





$$\delta(q_0, a) = q_1$$

$$\delta(q_0, b) = q_2$$

$$\delta(q_1, a) = q_0$$

$$\delta(q_1, b) = \text{ / } q_T \leftarrow$$

$$\delta(q_2, a) = \text{ / } q_T \leftarrow$$

$$\delta(q_2, b) = q_3$$

$$\delta(q_3, a) = \text{ / } q_T \leftarrow$$

$$\delta(q_3, b) = q_2$$

$$\delta(q_T, a) = q_T$$

$$\delta(q_T, b) = q_T$$

$$\Sigma = (0, 1)$$

Questa parola formata da 1,
modulo 3

111, 111111,

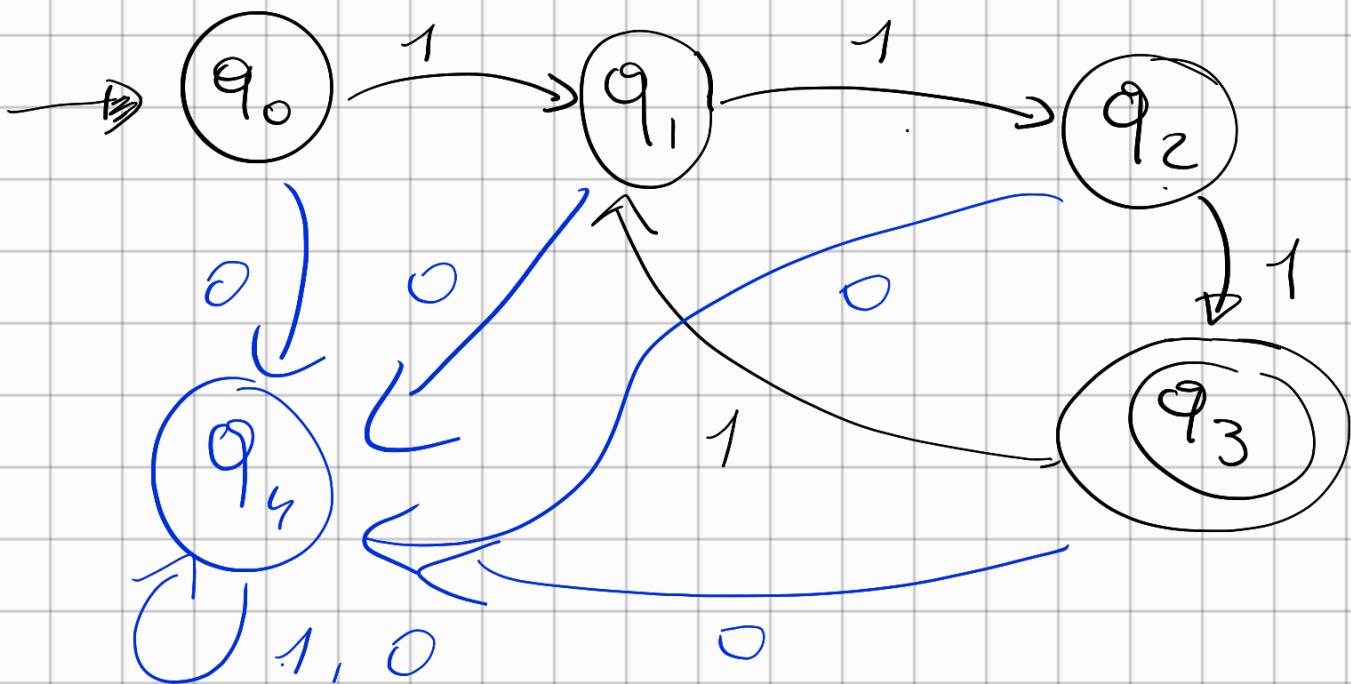
leu (stringa) mod 3 = 0

$$M = (\Sigma, Q, F, q_0, \delta)$$

$$\Sigma = \{0, 1\}$$

$$q_0 = q_0$$

$$(111)^+$$



$$\delta(q_0, 1) = q_1 \quad \delta(q_0, 0) = q_4$$

$$\delta(q_1, 1) = q_2 \quad \delta(q_1, 0) = q_4$$

$$\delta(q_2, 1) = q_3 \quad \delta(q_2, 0) = q_4$$

$$\delta(q_3, 1) = q_1 \quad \delta(q_3, 0) = q_4$$

$$\delta(q_4, 0) = q_4$$

$$\delta(q_4, 1) = q_4$$

$$L = \{ (111)^m \mid m > 0 \}$$

$$F = \{ q_3 \}$$

① Costruire un DFA sull'alfabeto $\{a, b\}$ che riconosca le stringhe che non contengono la sottstringa bb

② Costruire DFA sull'alfabeto

Costruire un DFA sull'alfabeto
 $\{a, b\}$ in cui ogni a è
immediatamente seguita da ^{almeno} una
b

(3) Costruire un DFA sull'alfabeto
 $\{a, b\}$ che riconosca le stringhe
in cui il numero di a è pari
e il numero di b è divisibile
per 3