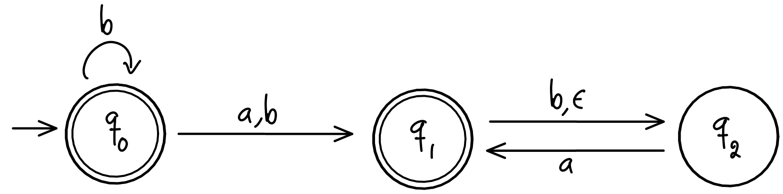
b) M_b



$Q = \{q_0, q_1, q_2\}$

$\Sigma = \{a, b\}$

q_0 estado inicial

q_0 & q_1 estados finales

δ	a	b	ϵ
q_0	$\{q_1\}$	$\{q_0, q_1\}$	$\emptyset$
q_1	$\emptyset$	$\{q_2\}$	$\{q_2\}$
q_2	$\{q_1\}$	$\emptyset$	$\emptyset$

Aplicamos el teorema 2.1 para hallar M_b' DFA tal que $L(M_b) = L(M_b')$

tenemos que
$$[q_0] = \{q_0\}$$
$$[q_1] = \{q_1, q_2\} = [q_1, q_2]$$
$$[q_2] = \{q_2\}$$
$$[q_0, q_2] = \{q_0, q_2\}$$
$$[q_0, q_1, q_2] = \{q_0, q_1, q_2\} = [q_0, q_1]$$

luego
$$\mathcal{Q} := \{\emptyset, [q_0], [q_1], [q_2], [q_0, q_2], [q_0, q_1, q_2]\} \subseteq \mathcal{P}(Q)$$

$$\mathcal{F} := \{[q_0], [q_1], [q_0, q_2], [q_0, q_1, q_2]\}$$

Recordar que $\delta' [q]\, x := \{p \in Q : \exists\, q_i \in [q] \text{ tal que } q_i \xrightarrow{x} p\}$

δ'	a	b
$[q_0]$	$[q_1]$	$[q_0, q_1]$
$[q_1]$	$[q_1]$	$[q_2]$
$[q_2]$	$[q_1]$	$\emptyset$
$[q_0, q_1]$	$[q_1]$	$[q_0, q_1]$
$[q_0, q_2]$	$[q_1]$	$[q_0, q_1]$
$\emptyset$	$\emptyset$	$\emptyset$

luego $M_b' := (\mathcal{Q}, \Sigma, \delta', [q_0], \mathcal{F})$

es el DFA tal que $L(M_b') = L(M_b)$