

## Q1

a)

$$\text{fecho-}\epsilon(0) = \{0, 1, 3\} = q_0$$

$$\begin{aligned} D_{\text{states}} &= \{ \text{q0} \} & q_0 &= \{0, 1, 3\} \\ \text{fecho-}\epsilon(\text{move}(q_0, a)) &= \text{fecho-}\epsilon(\{2\}) = \{2\} = q_1 \\ \text{fecho-}\epsilon(\text{move}(q_0, b)) &= \text{fecho-}\epsilon(\{4\}) = \{4\} = q_2 \end{aligned}$$

$$D_{\text{states}} = \{ \text{q0}, q_1, q_2 \} \quad q_0 = \{0, 1, 3\} \quad q_1 = \{2\} \quad q_2 = \{4\}$$

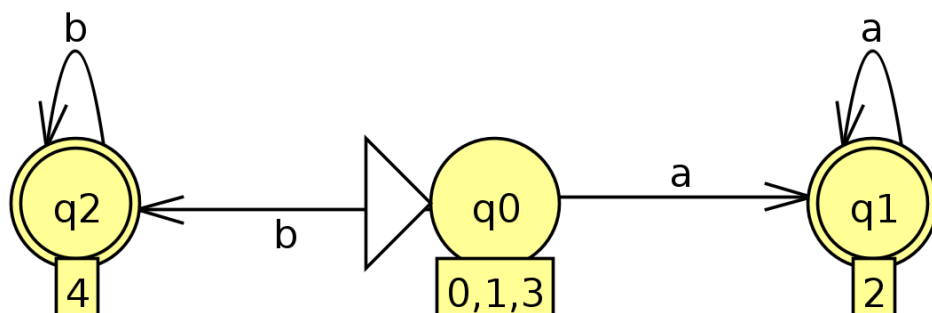
Estado	Símbolo	Próximo
q0	a	q1
q0	b	q2

$$\begin{aligned} D_{\text{states}} &= \{ \text{q0}, \text{q1}, q_2 \} & q_0 &= \{0, 1, 3\} & q_1 &= \{2\} & q_2 &= \{4\} \\ \text{fecho-}\epsilon(\text{move}(q_1, a)) &= \text{fecho-}\epsilon(\{2\}) = \{2\} = q_1 \\ \text{fecho-}\epsilon(\text{move}(q_1, b)) &= \text{fecho-}\epsilon(\{\}) \end{aligned}$$

Estado	Símbolo	Próximo
q0	a	q1
q0	b	q2
q1	a	q1
q1	b	-

$$\begin{aligned} D_{\text{states}} &= \{ \text{q0}, \text{q1}, \text{q2} \} & q_0 &= \{0, 1, 3\} & q_1 &= \{2\} & q_2 &= \{4\} \\ \text{fecho-}\epsilon(\text{move}(q_2, a)) &= \text{fecho-}\epsilon(\{\}) \\ \text{fecho-}\epsilon(\text{move}(q_2, b)) &= \text{fecho-}\epsilon(\{4\}) = \{4\} = q_2 \end{aligned}$$

Estado	Símbolo	Próximo
q0	a	q1
q0	b	q2
q1	a	q1
q1	b	-
q2	a	-
q2	b	q2



b)

$\text{fecho-}\epsilon(0) = \{0, 1, 2, 3\} = q_0$

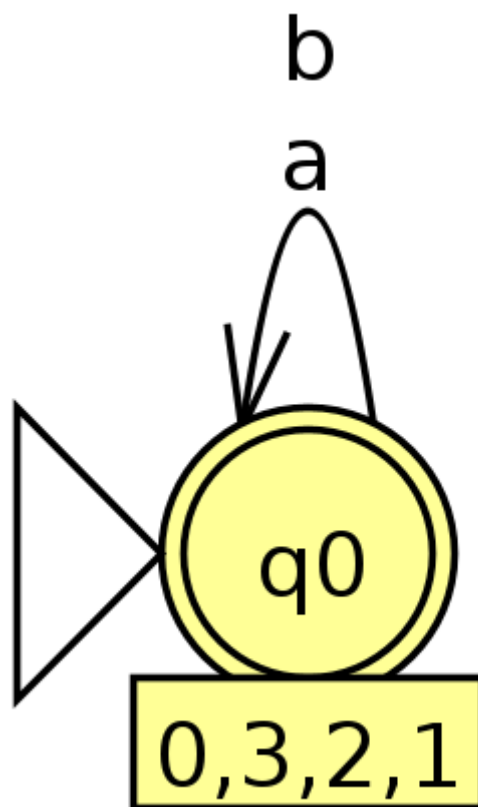
$D_{\text{states}} = \{q_0\}$        $q_0 = \{0, 1, 2, 3\}$

$\text{fecho-}\epsilon(\text{move}(q_0, a)) = \text{fecho-}\epsilon(\{0, 1\}) = \{0, 1, 2, 3\} = q_0$

$\text{fecho-}\epsilon(\text{move}(q_0, b)) = \text{fecho-}\epsilon(\{2, 3\}) = \{0, 1, 2, 3\} = q_0$

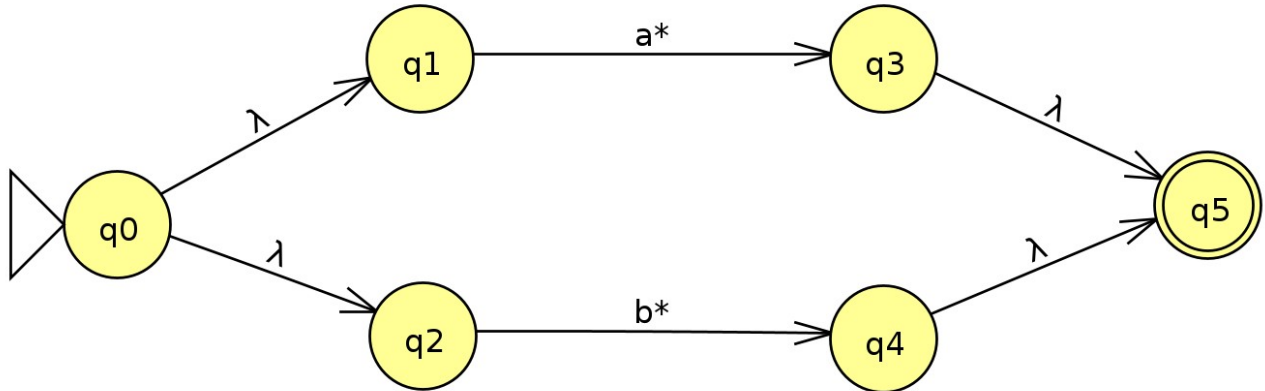
$D_{\text{states}} = \{q_0\}$        $q_0 = \{0, 1, 2, 3\}$

Estado	Símbolo	Próximo
$q_0$	a	$q_0$
$q_0$	b	$q_0$

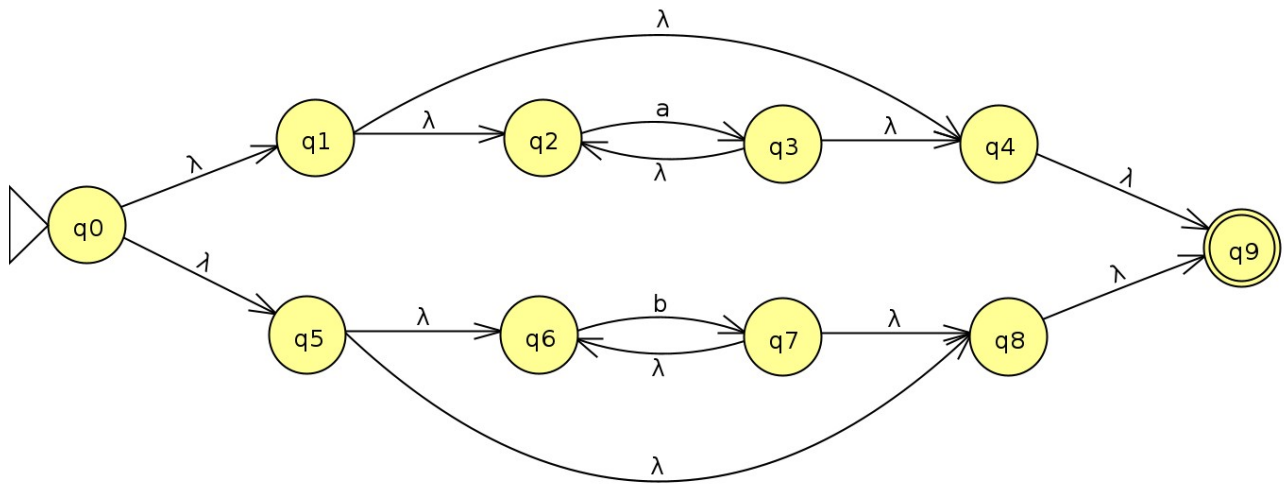


## Q2

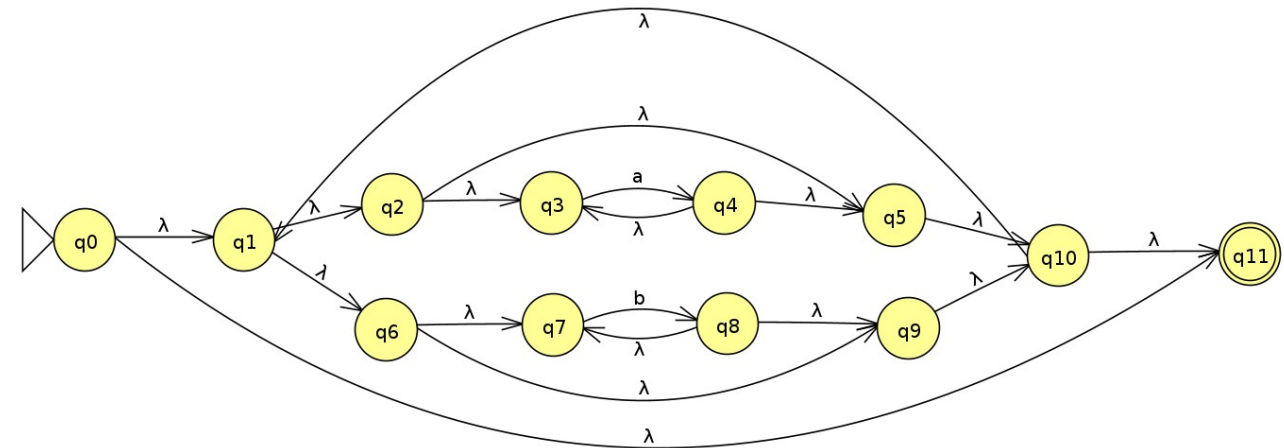
a)  $a^*|b^*$



$(a^*|b^*)$



$(a^*|b^*)^*$



$\text{fecho-}\epsilon(0) = \{0, 1, 2, 3, 5, 6, 7, 9, 10, 11\} = q_0$

$D_{\text{states}} = \{ \text{q0} \}$

$q_0 = \{0, 1, 2, 3, 5, 6, 7, 9, 10, 11\}$

$\text{fecho-}\epsilon(\text{move}(q_0, a)) = \text{fecho-}\epsilon(\{4\}) = \{1, 2, 3, 4, 5, 6, 7, 9, 10, 11\} = q_1$

$\text{fecho-}\epsilon(\text{move}(q_0, b)) = \text{fecho-}\epsilon(\{8\}) = \{1, 2, 3, 5, 6, 7, 8, 9, 10, 11\} = q_2$

$D_{states} = \{ \text{q0}, \text{q1}, \text{q2} \}$        $q0 = \{ 0, 1, 2, 3, 5, 6, 7, 9, 10, 11 \}$      $q1 = \{ 1, 2, 3, 4, 5, 6, 7, 9, 10, 11 \}$        $q2 = \{ 1, 2, 3, 5, 6, 7, 8, 9, 10, 11 \}$

Estado	Símbolo	Próximo
q0	a	q1
q0	b	q2

$D_{states} = \{ \text{q0}, \text{q1}, \text{q2} \}$        $q0 = \{ 0, 1, 2, 3, 5, 6, 7, 9, 10, 11 \}$      $q1 = \{ 1, 2, 3, 4, 5, 6, 7, 9, 10, 11 \}$        $q2 = \{ 1, 2, 3, 5, 6, 7, 8, 9, 10, 11 \}$

$\text{fecho-}\epsilon(\text{move}(q1, a) = \text{fecho-}\epsilon(\{ 4 \}) = \{ 1, 2, 3, 4, 5, 6, 7, 9, 10, 11 \} = q1$   
 $\text{fecho-}\epsilon(\text{move}(q1, b) = \text{fecho-}\epsilon(\{ 8 \}) = \{ 1, 2, 3, 5, 6, 7, 8, 9, 10, 11 \} = q2$

Estado	Símbolo	Próximo
q0	a	q1
q0	b	q2
q1	a	q1
q1	b	q2

$D_{states} = \{ \text{q0}, \text{q1}, \text{q2} \}$        $q0 = \{ 0, 1, 2, 3, 5, 6, 7, 9, 10, 11 \}$      $q1 = \{ 1, 2, 3, 4, 5, 6, 7, 9, 10, 11 \}$        $q2 = \{ 1, 2, 3, 5, 6, 7, 8, 9, 10, 11 \}$

$\text{fecho-}\epsilon(\text{move}(q2, a) = \text{fecho-}\epsilon(\{ 4 \}) = \{ 1, 2, 3, 4, 5, 6, 7, 9, 10, 11 \} = q1$   
 $\text{fecho-}\epsilon(\text{move}(q2, b) = \text{fecho-}\epsilon(\{ 8 \}) = \{ 1, 2, 3, 5, 6, 7, 8, 9, 10, 11 \} = q2$

Estado	Símbolo	Próximo
q0	a	q1
q0	b	q2
q1	a	q1
q1	b	q2
q2	a	q1
q2	b	q2

