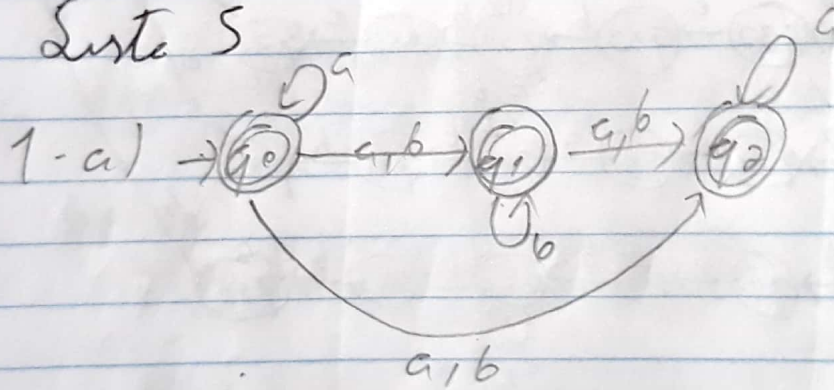
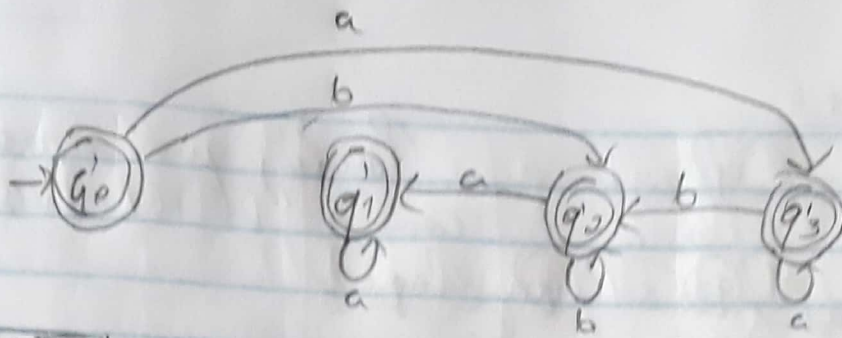


Ex 5



AFN \rightarrow AFD

		a	b
q ₀	(q₀)	(q₀ q₁ q₂)	(q₁ q₂)
	(q₁)	(q₂)	(q₁ q₂)
q ₁	(q₂)	(q₂)	—
	(q₀ q₁)	(q₀ q₁ q₂)	(q₁ q₂)
	(q₀ q₂)	(q₀ q₁ q₂)	(q₁ q₂)
q ₂	(q₁ q₂)	(q₂)	(q₁ q₂)
q ₃	(q₀ q₁ q₂)	(q₀ q₁ q₂)	(q₁ q₂)



q_1	X		
q_2	X	X	
q_3		X	X
	q_0	q_1	q_2

$$(q_1, q_3) \rightarrow (q_0, q_1), (q_0, q_2)$$

$$\begin{aligned} & \bullet (q_0, q_1) \\ & \delta(q_0, a) = q_3 \\ & \delta(q_1, a) = q_1 \end{aligned} \left. \vphantom{\begin{aligned} & \delta(q_0, a) = q_3 \\ & \delta(q_1, a) = q_1 \end{aligned}} \right\} (q_1, q_3)$$

$$\begin{aligned} & \delta(q_0, b) = q_2 \\ & \nexists \delta(q_1, b) \end{aligned} \left. \vphantom{\begin{aligned} & \delta(q_0, b) = q_2 \\ & \nexists \delta(q_1, b) \end{aligned}} \right\} X$$

$$\begin{aligned} & \bullet (q_0, q_0) \\ & \delta(q_0, a) = q_3 \\ & \delta(q_0, a) = q_1 \end{aligned} \left. \vphantom{\begin{aligned} & \delta(q_0, a) = q_3 \\ & \delta(q_0, a) = q_1 \end{aligned}} \right\} (q_1, q_3)$$

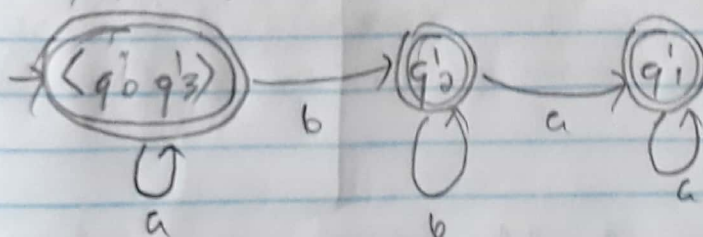
$$\begin{aligned} & \delta(q_0, b) = q_2 \\ & \delta(q_0, b) = q_0 \end{aligned} \left. \vphantom{\begin{aligned} & \delta(q_0, b) = q_2 \\ & \delta(q_0, b) = q_0 \end{aligned}} \right\} \text{ok}$$

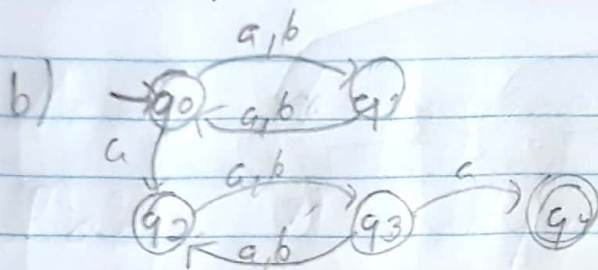
$$\begin{aligned} & \bullet (q_0, q_3) \\ & \delta(q_0, a) = q_3 \\ & \delta(q_3, a) = q_3 \end{aligned} \left. \vphantom{\begin{aligned} & \delta(q_0, a) = q_3 \\ & \delta(q_3, a) = q_3 \end{aligned}} \right\} \text{ok}$$

$$\begin{aligned} & \delta(q_0, b) = q_2 \\ & \delta(q_3, b) = q_0 \end{aligned} \left. \vphantom{\begin{aligned} & \delta(q_0, b) = q_2 \\ & \delta(q_3, b) = q_0 \end{aligned}} \right\} \text{ok}$$

$\bullet (q_1, q_2)$
 $\delta(q_1, a) = q_1$ não tem transição
 p/ b e o resto sim, logo
 não tem como ser equivalente a
 algo

$$\begin{aligned} & \bullet (q_2, q_3) \\ & \delta(q_2, a) = q_1 \\ & \delta(q_3, a) = q_3 \end{aligned} \left. \vphantom{\begin{aligned} & \delta(q_2, a) = q_1 \\ & \delta(q_3, a) = q_3 \end{aligned}} \right\} (q_1, q_3)$$

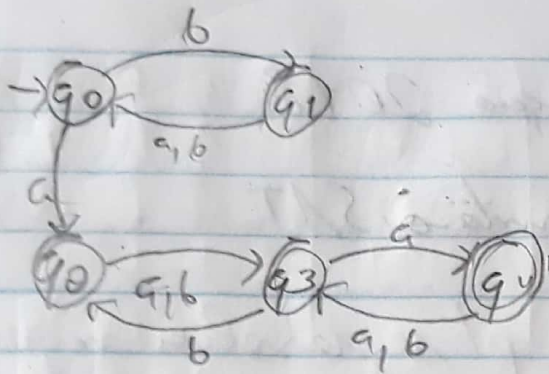




AFN → AFD

		a	b
q0	< q0 >	< q1 q2 >	< q1 >
q1	< q1 >	< q0 >	< q0 >
	< q2 >	< q3 >	< q3 >
	< q3 >	< q2 q4 >	< q2 >
	< q4 >		
	< q0 q1 >		
	< q0 q2 >		
q3	< q0 q3 >	< q1 q2 q4 >	< q1 q2 >
	< q0 q4 >		
q2	< q1 q2 >	< q0 q3 >	< q0 q3 >
	< q1 q3 >		
	< q1 q4 >		
	< q2 q3 >		
	< q2 q4 >		
	< q3 q4 >		
	< q0 q1 q2 >		
	< q0 q1 q3 >		
	< q0 q1 q4 >		
	< q0 q2 q3 >		
	< q0 q2 q4 >		
	< q0 q3 q4 >		
	< q1 q2 q3 >		
q4 F	< q1 q2 q4 >	< q0 q3 >	< q0 q3 >
	< q1 q3 q4 >		
	< q0 q1 q2 q3 >		
	< q0 q1 q2 q4 >		
	< q1 q2 q3 q4 >		
	< q0 q1 q2 q3 q4 >		

Deixei apenas os estados que poderiam ser atingidos para facilitar



q1	X			
q2	X	X		
q3	X	X	X	
q4	X	X	X	X
	q0	q1	q2	q3

$$\begin{aligned} & \bullet (q_0, q_1) \\ & \delta(q_0, a) = q_2 \quad \rangle (q_0, q_2) \times \\ & \delta(q_1, a) = q_0 \end{aligned}$$

$$\begin{aligned} & \bullet (q_2, q_3) \\ & \delta(q_2, a) = q_3 \quad \rangle (q_3, q_4) \times \\ & \delta(q_3, a) = q_4 \end{aligned}$$

$$\begin{aligned} & \delta(q_0, b) = q_1 \quad \rangle (q_0, q_1) \text{ ok} \\ & \delta(q_1, b) = q_0 \end{aligned}$$

$$\begin{aligned} & \bullet (q_0, q_2) \\ & \delta(q_0, a) = q_2 \quad \rangle (q_2, q_3) \\ & \delta(q_2, a) = q_3 \end{aligned}$$

$$\begin{aligned} & \delta(q_0, b) = q_1 \quad \rangle (q_1, q_3) \times \\ & \delta(q_2, b) = q_3 \end{aligned}$$

$$\begin{aligned} & \bullet (q_0, q_3) \\ & \delta(q_0, a) = q_2 \quad \rangle (q_2, q_4) \times \\ & \delta(q_3, a) = q_4 \end{aligned}$$

$$\begin{aligned} & \bullet (q_1, q_2) \\ & \delta(q_1, a) = q_0 \quad \rangle (q_0, q_3) \times \\ & \delta(q_2, a) = q_3 \end{aligned}$$

$$\begin{aligned} & \bullet (q_1, q_3) \\ & \delta(q_1, a) = q_0 \quad \rangle (q_0, q_4) \times \\ & \delta(q_3, a) = q_4 \end{aligned}$$

for state minimization