DFA 10

lunes, 14 de marzo de 2022 10:01

$$\forall x,y : \left((w = xy \wedge |x| \geq 3) \Rightarrow (|x|_a \in \dot{2} \vee |x|_b \in \dot{2}) \right)$$

1- Aplicamos el complementario

$\neg \forall x,y : \left((w = xy \wedge |x| \geq 3) \Rightarrow (|x|_a \in \dot{2} \vee |x|_b \in \dot{2}) \right) \equiv$ $\quad \neg \forall x : p(x) \equiv \exists x : \neg p(x)$

$\equiv \exists x,y : \neg \left((w = xy \wedge |x| \geq 3) \Rightarrow (|x|_a \in 2 \vee |x|_b \in \dot{2}) \right) \equiv$ $\quad \neg (p \rightarrow q) \equiv p \wedge \neg q$

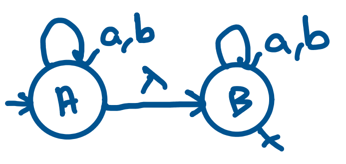
$\equiv \exists x,y : \left((w = xy \wedge |x| \geq 3) \wedge \neg (|x|_a \in \dot{2} \vee |x|_b \in \dot{2}) \right) \equiv$ $\quad \neg (p \vee q) \equiv \neg p \wedge \neg q$

$\equiv \exists x,y : \left((w = xy \wedge |x| \geq 3) \wedge (|x|_a \notin \dot{2} \wedge |x|_b \notin \dot{2}) \right) \equiv$ $\quad$ propiedad asociativa

$\equiv \exists x,y : (w = xy \wedge |x| \geq 3 \wedge |x|_a \notin \dot{2} \wedge |x|_b \notin \dot{2})$

2- Describimos los autómatas por separado

$w = xy$:

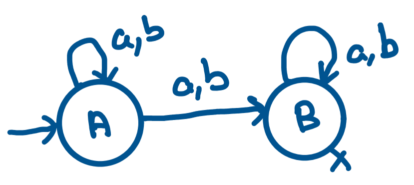


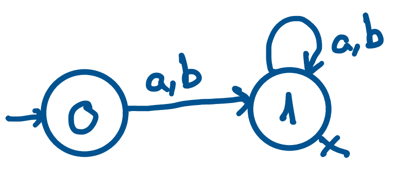
λ-NFA → NFA

q	Λ(q)	a	b
A	A,B	AB	AB
B	B	B	B

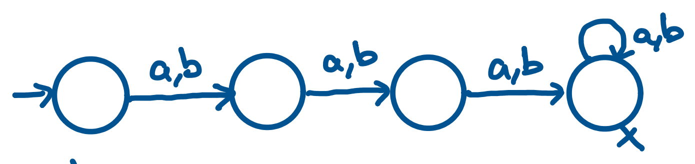
NFA → DFA

		a	b
0	A	AB	AB
1	AB	AB	AB

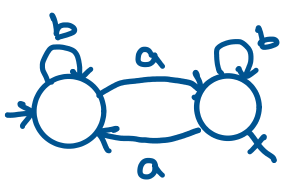




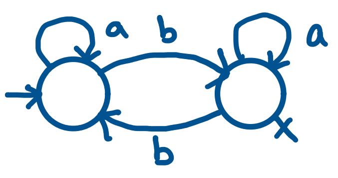
$|x| \geq 3$:



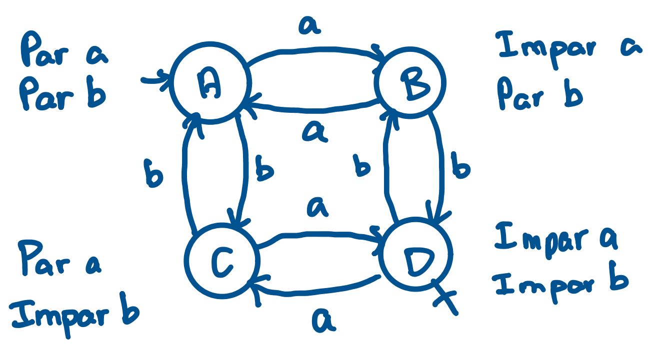
$|x|_a \notin \dot{2}$:



$|x|_b \notin \dot{2}$:



3 - Intersectamos $|x|_a \notin \dot{2} \wedge |x|_b \notin \dot{2}$

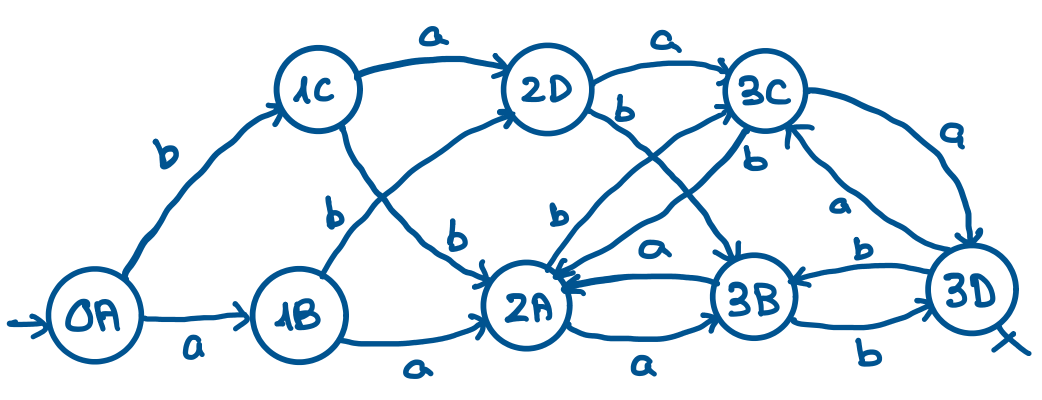


	a	b
A	B	C
B	A	D
C	D	A
D	C	B +

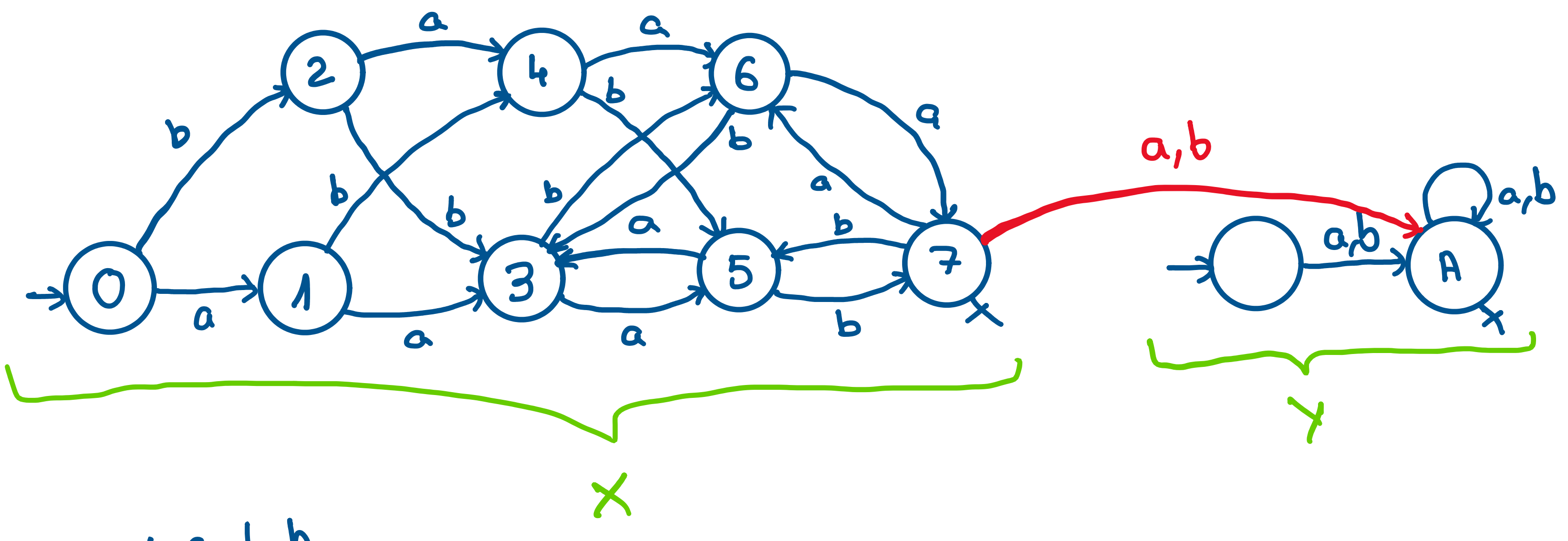
4- Intersectamos

		a	b
0	0A	1B	1C
1	1B	2A	2D
2	1C	2D	2A
3	2A	3B	3C
4	2D	3C	3B
5	3B	~~3A~~ 2A	3D
6	3C	3D	~~3A~~ 2A
	~~3A~~	~~3B~~	~~3C~~
7	3D	3C	3B +

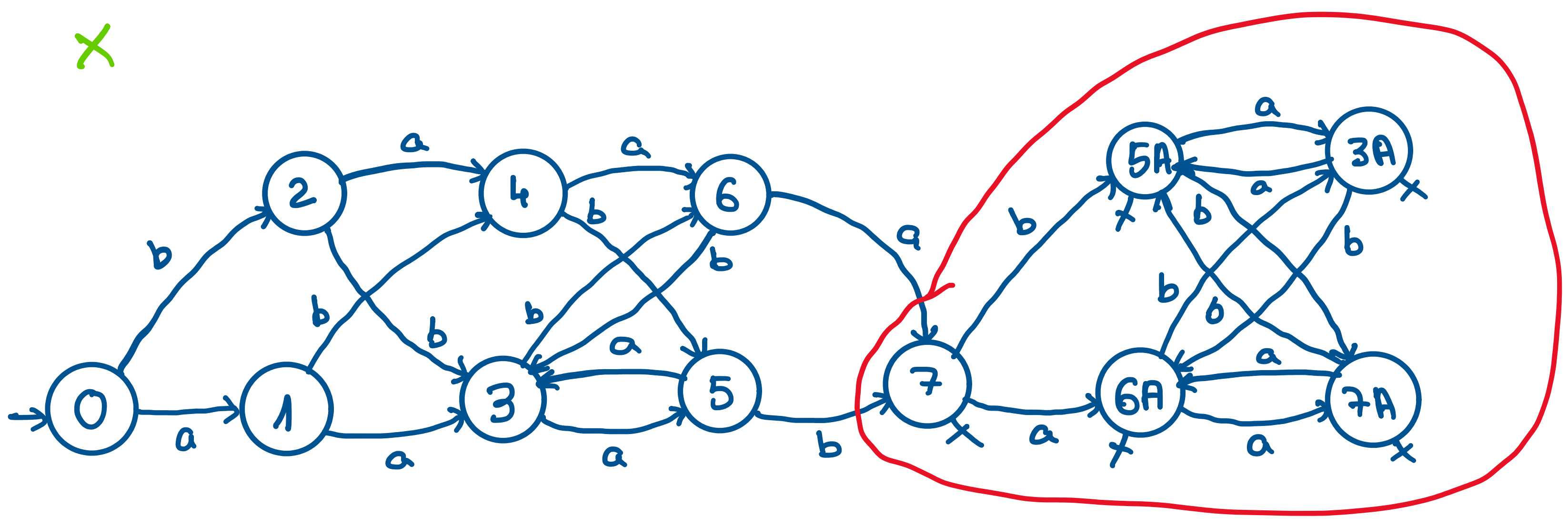
=



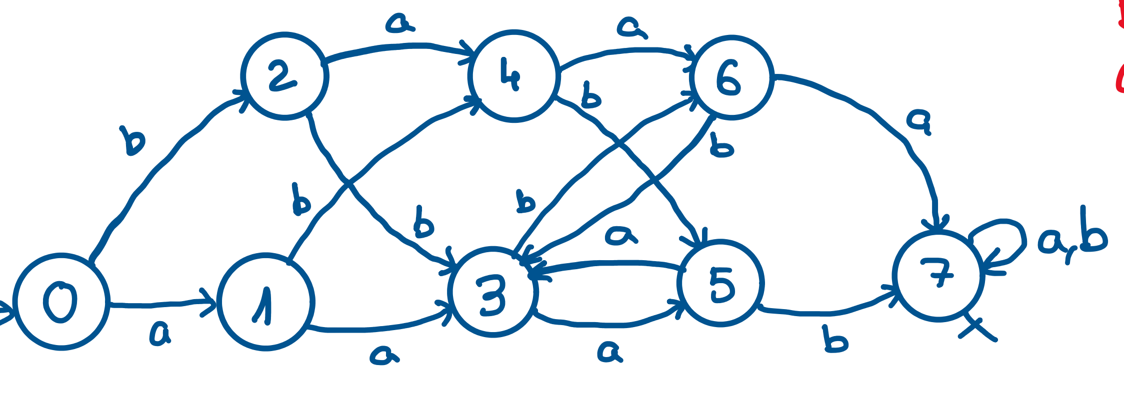
5 - Concatenamos {x} . {Y}



	a	b	
0	1	2	
1	3	4	
2	4	3	
3	5	6	
4	6	5	
5	3	7	
6	7	3	
7	6A	5A	+
6A	7A	3A	+
5A	3A	7A	+
3A	5A	6A	+
7A	6A	5A	+



Bucle infinito con mismo resultado



6- Aplicamos el complementario