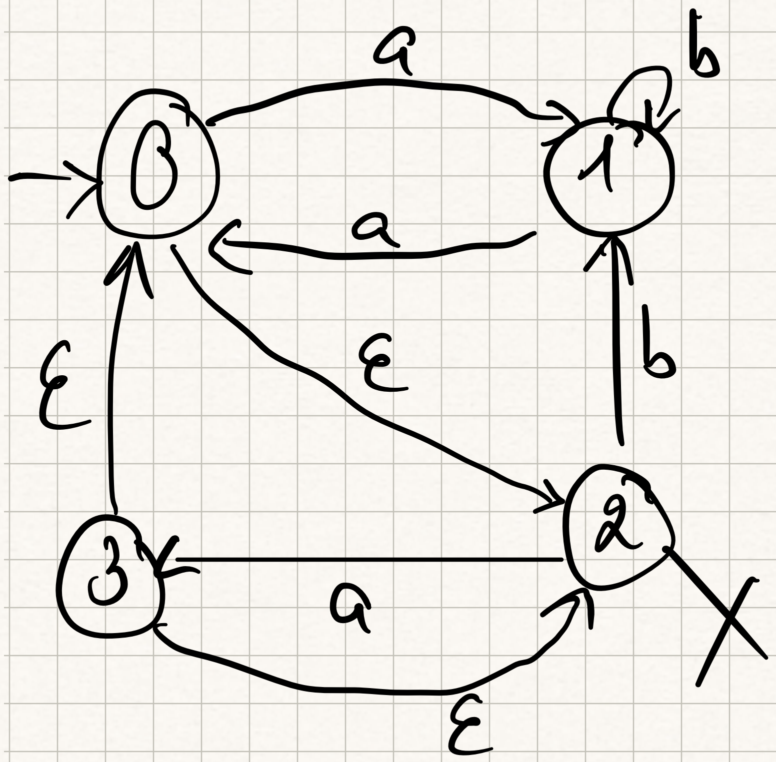
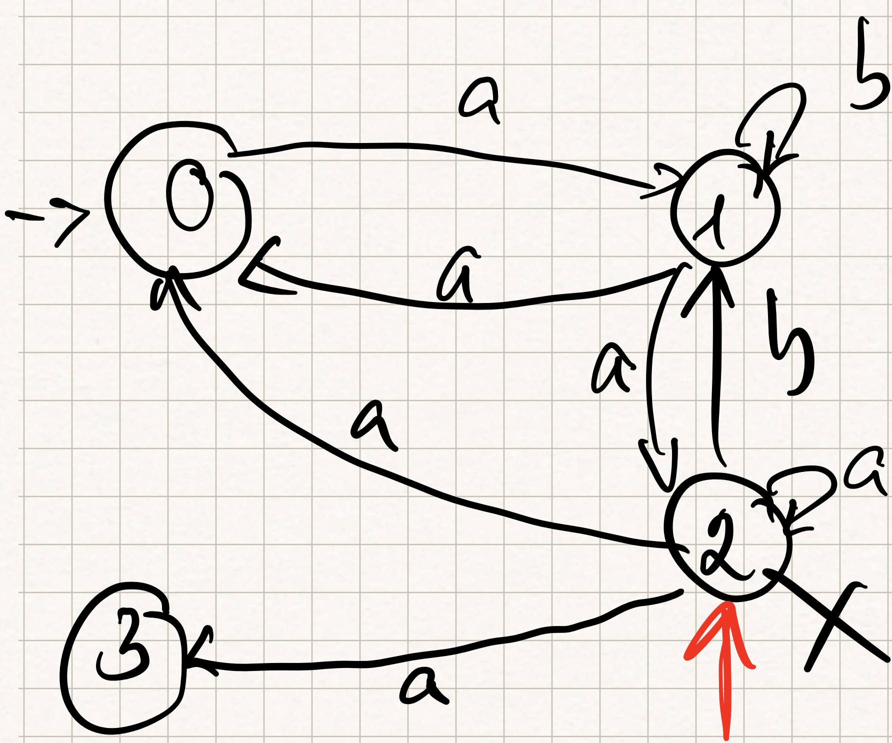
Elimination des ε-transitions



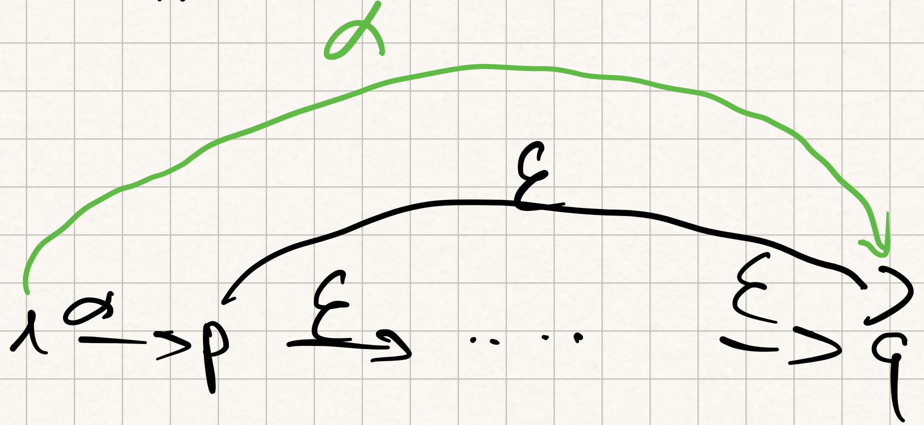


$(\overset{p}{0}, \varepsilon, \overset{q}{2})$

$(\overset{i}{1}, \overset{\alpha}{a}, \overset{p}{0})$

Pour toute transition (p, ε, q) avec p initial, q devient initial

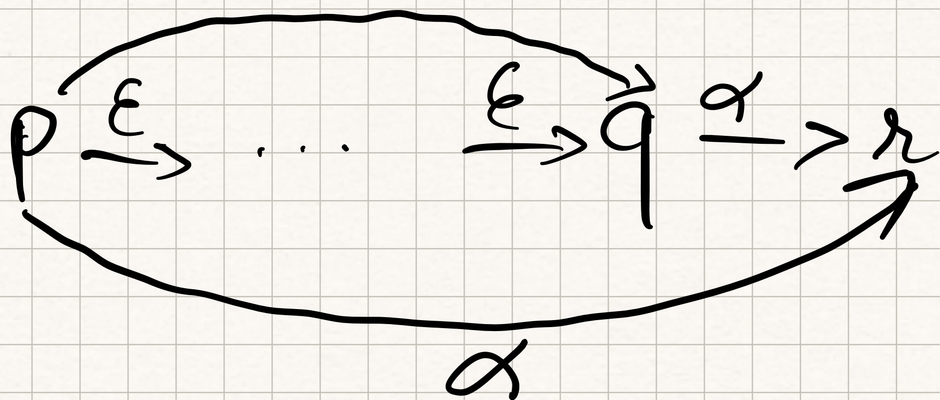
Pour toute transition (p, ε, q) et toute transition (r, α, p)
$(\alpha \neq \varepsilon)$
On ajoute la transition (r, α, q)
on supprime (p, ε, q)

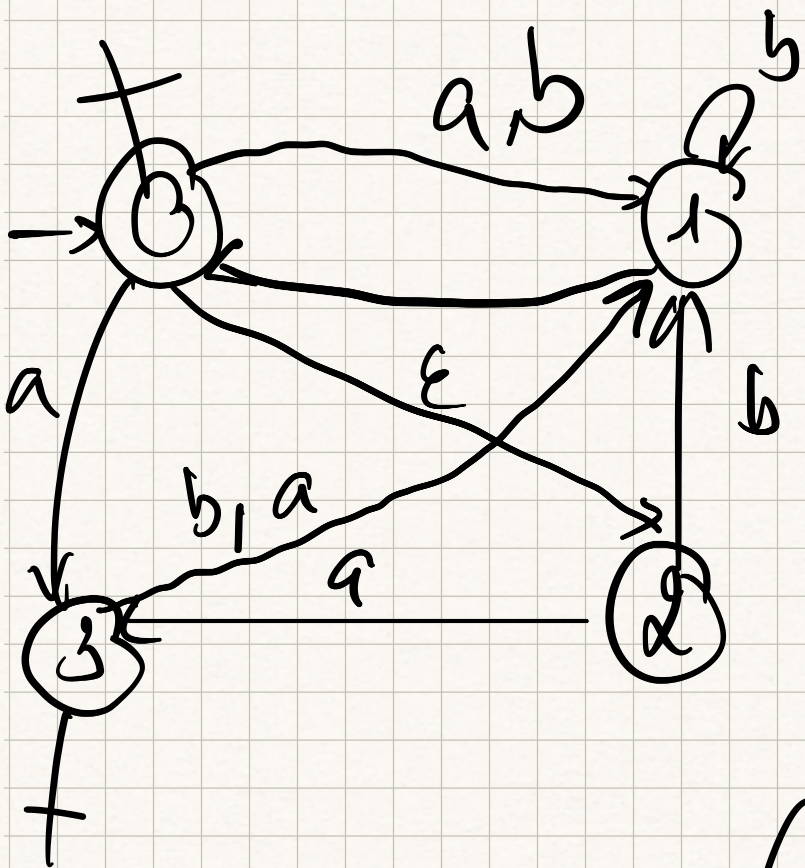


Construction 2

pour toute transition (p, ε, q) avec q final, p devient final

$\Rightarrow$ Pour tout (p, ε, q) et (q, α, r)
On ajoute (p, α, r) et on supprime (p, ε, q)





$(0, \varepsilon, 2)$

0 devient final

$(3, \varepsilon, 2)$

3 devient final

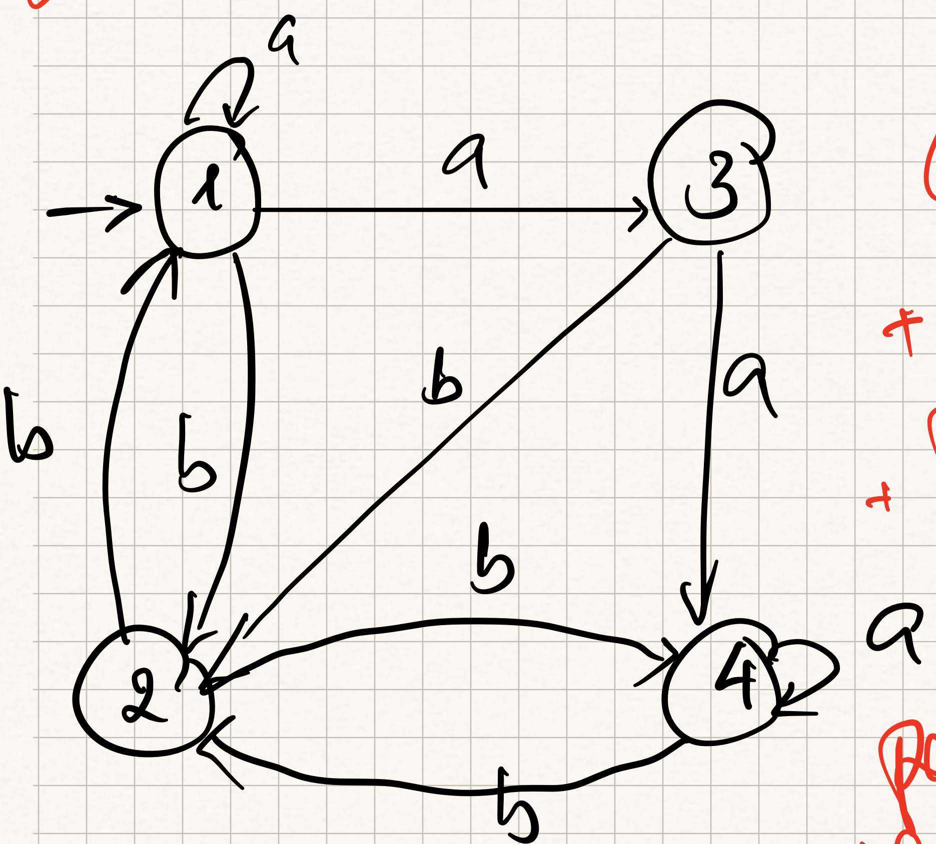
$(\overset{0}{\underset{3}{p}}, \varepsilon, \overset{2}{\underset{0}{q}})$ $(\overset{2}{\underset{0}{q}}, \underset{a}{\alpha}, \overset{3}{\underset{1}{r}})$

3   2   1

$\Rightarrow (\underset{3}{p}, \overset{2}{\underset{a}{\alpha}}, \underset{1}{r})$

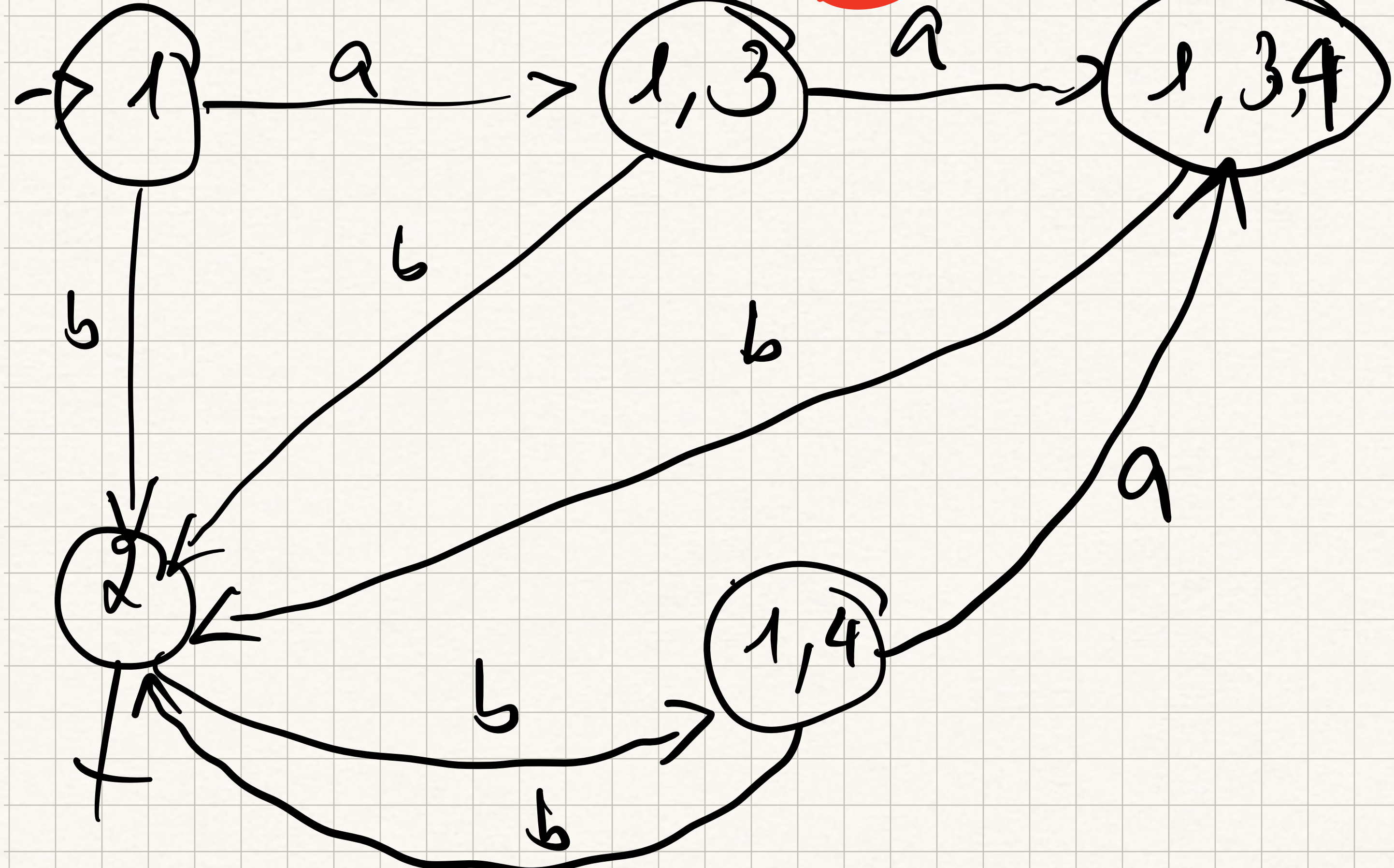
$\times (p, \varepsilon, q)$

Déterminiser automates



déterministe :

+ un seul état initial
+ Pour chaque état q et pour chaque lettre a il existe au plus 1

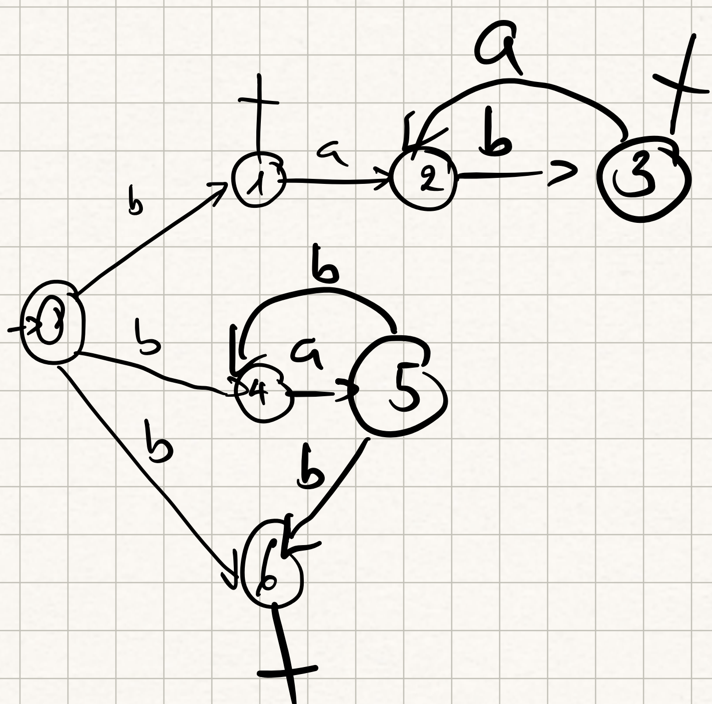


Glushkov

$$b(ab)^* + (ba)^*b$$

$$b_1(a_2 b_3)^* + (b_4 a_5)^* b_6$$

	Succ		
$\emptyset$	b_1	b_4	b_6
$\boxed{b_1}$	a_2		
a_2	b_3		
$\boxed{b_3}$	a_2		
b_4	a_5		
a_5	b_4	b_6	
$\boxed{b_6}$	$\emptyset$		



Glushkov l'âne méthode

$$(a+\varepsilon)(ba)^*(b+\varepsilon)$$

$$\Rightarrow_0 (a_1+\varepsilon)(b_2\, a_3)^*(b_4+\varepsilon)$$

$\delta(0,a) \to \{1\}$

$\delta(0,b) \to \{2,4\}$

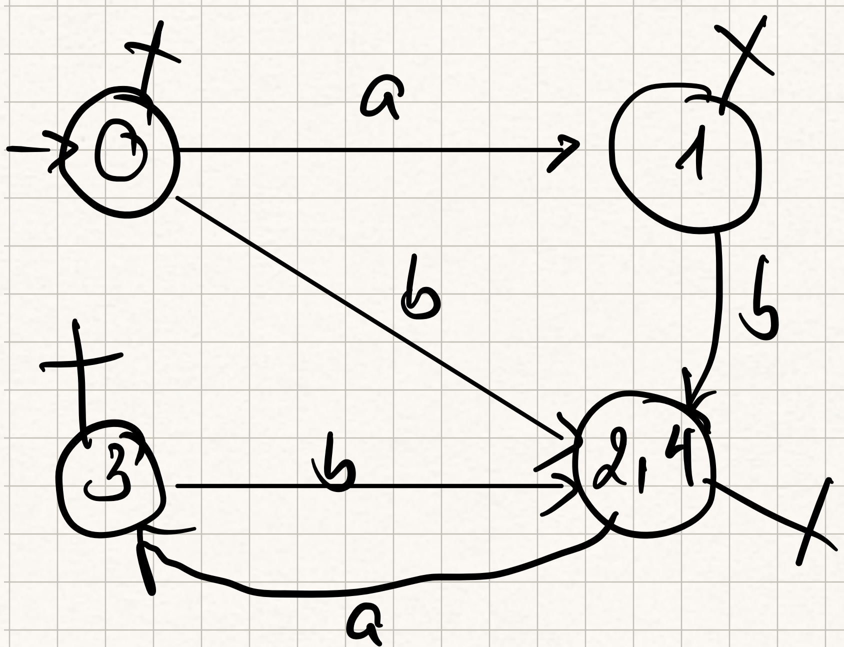
$\delta(1,a) \to \emptyset$

$\delta(1,b) \to \{2,4\}$ $\Rightarrow$ $\delta(\{2,4\},a) \to \{3\}$

$\delta(\{2,4\},b) \to \emptyset$

$\delta(3,a) \to \emptyset$

$\delta(3,b) \to \{4,2\}$



$${}_0(a_1 + b_2)^*(a_3 b_4 b_5 + \varepsilon)$$

$\delta(0, a) \to \{1, 3\}$

$\delta(0, b) \to \{2\}$

$\delta(1, a) \to \emptyset$

$\delta(1, b) \to \emptyset$

$\delta(2, a) \to \{1, 3\}$

$\delta(2, b) \to \{2\}$

$\delta(\{1,3\}, a) \to \{1, 3\}$

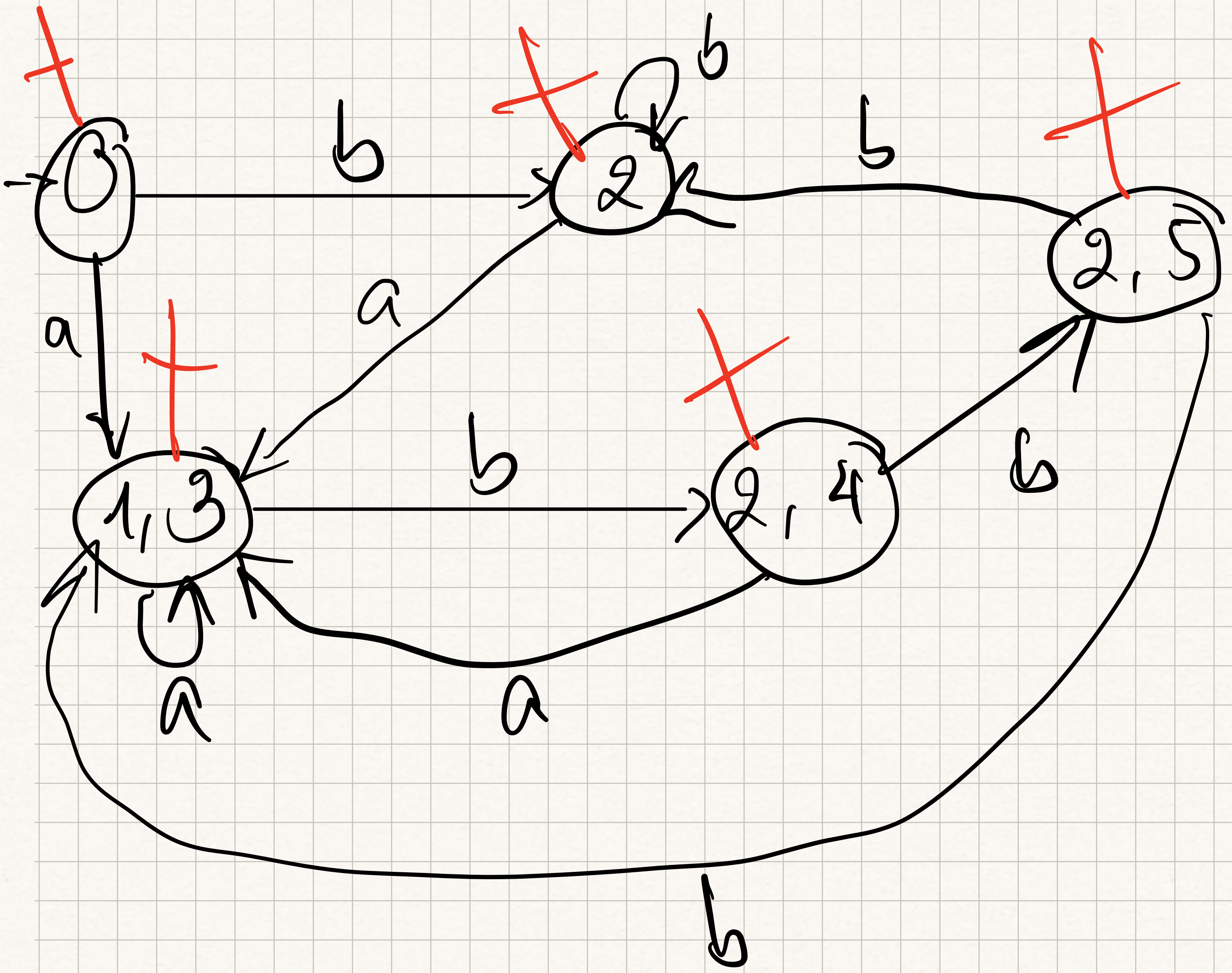
$\delta(\{1,3\}, b) \to \{2, 4\}$

$\delta(\{2,4\}, a) \to \{1, 3\}$

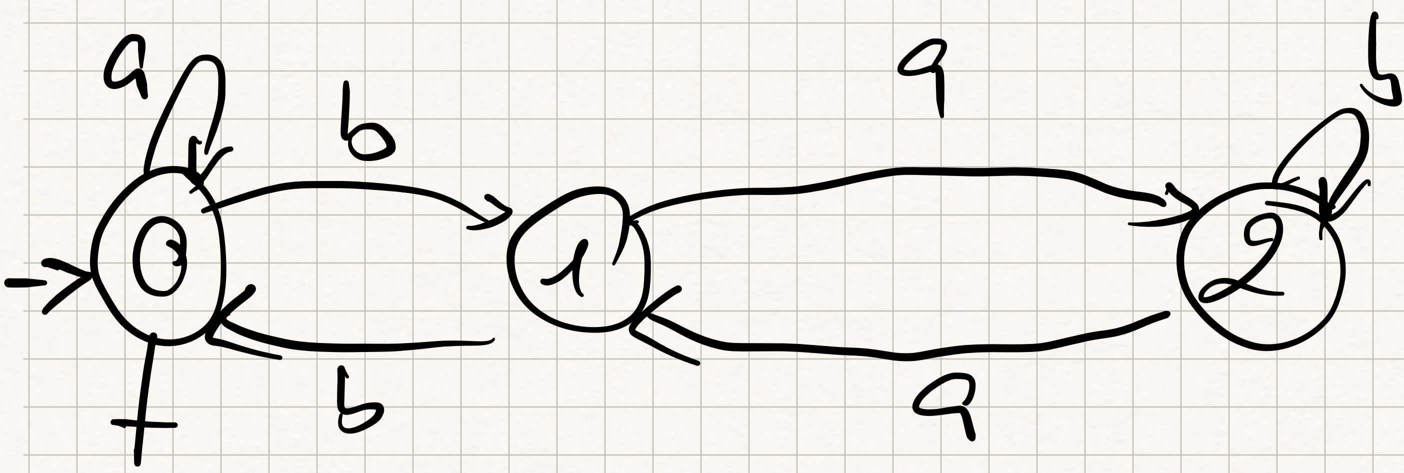
$\delta(\{2,4\}, b) \to \{2, 5\}$

$\delta(\{2,5\}, a) \to \{1, 3\}$

$\delta(\{2,5\}, b) \to \{2\}$


0
2
2, 5
1, 3
2, 4
a
b

Arden



$$\begin{cases} L_0 = aL_0 + bL_1 + \varepsilon \\ L_1 = bL_0 + aL_2 \\ L_2 = aL_1 + bL_2 \end{cases}$$

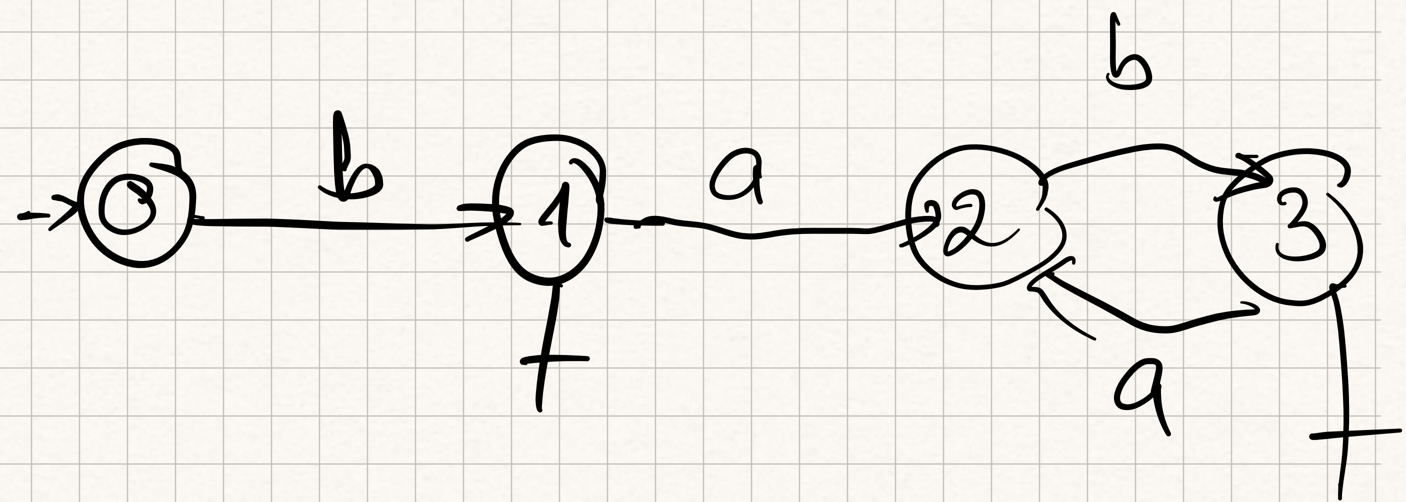
Lemme :

$\alpha = aL + (b \dots)$

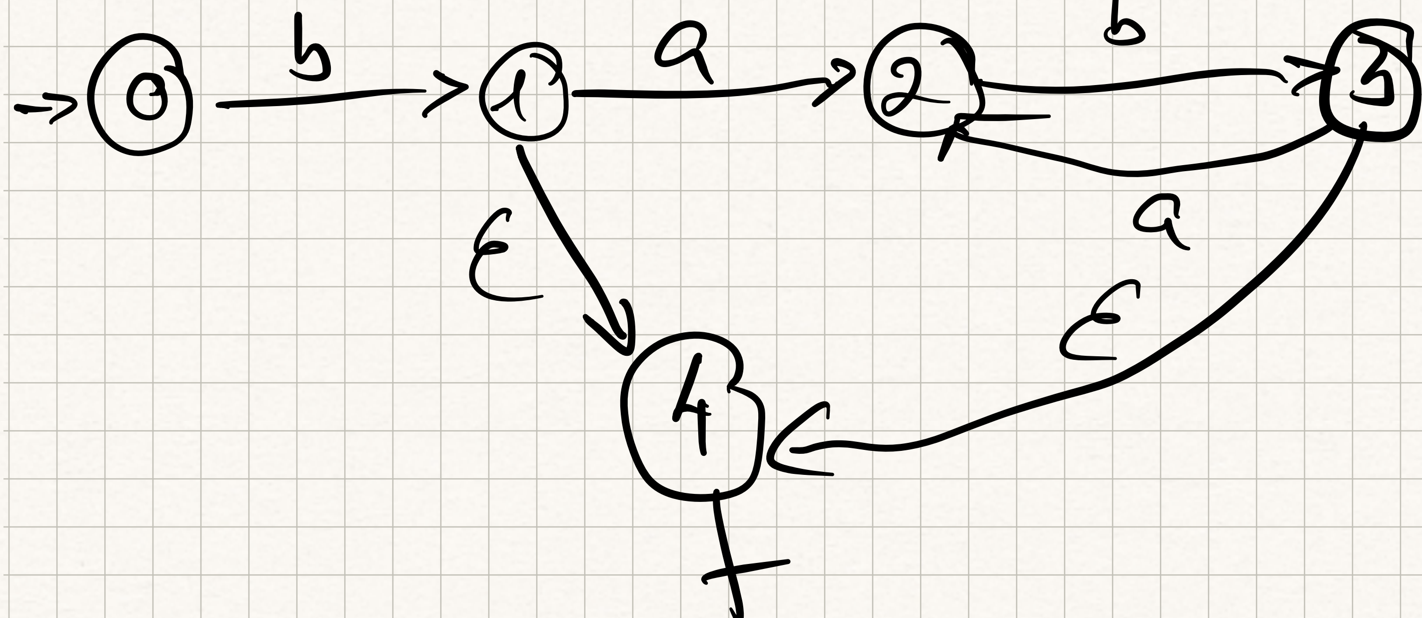
$\alpha = a^*(b \dots)$

Brzozowski

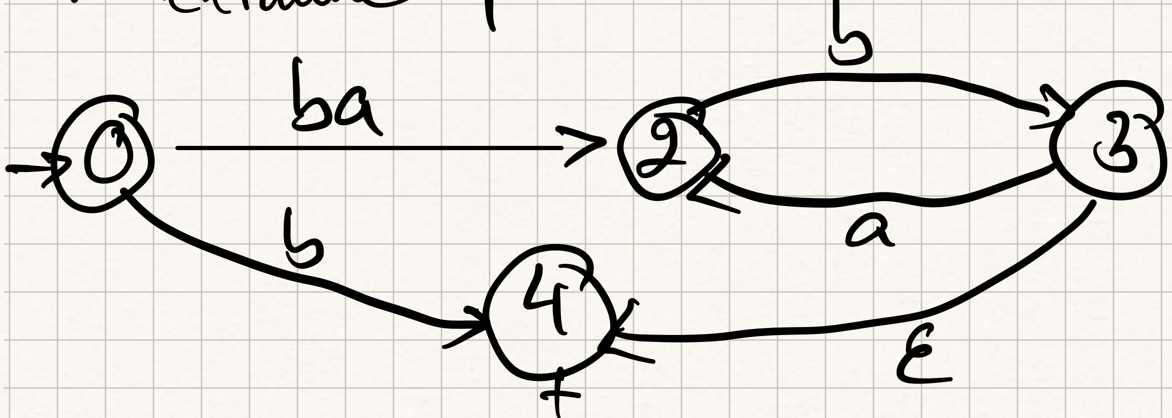
1)



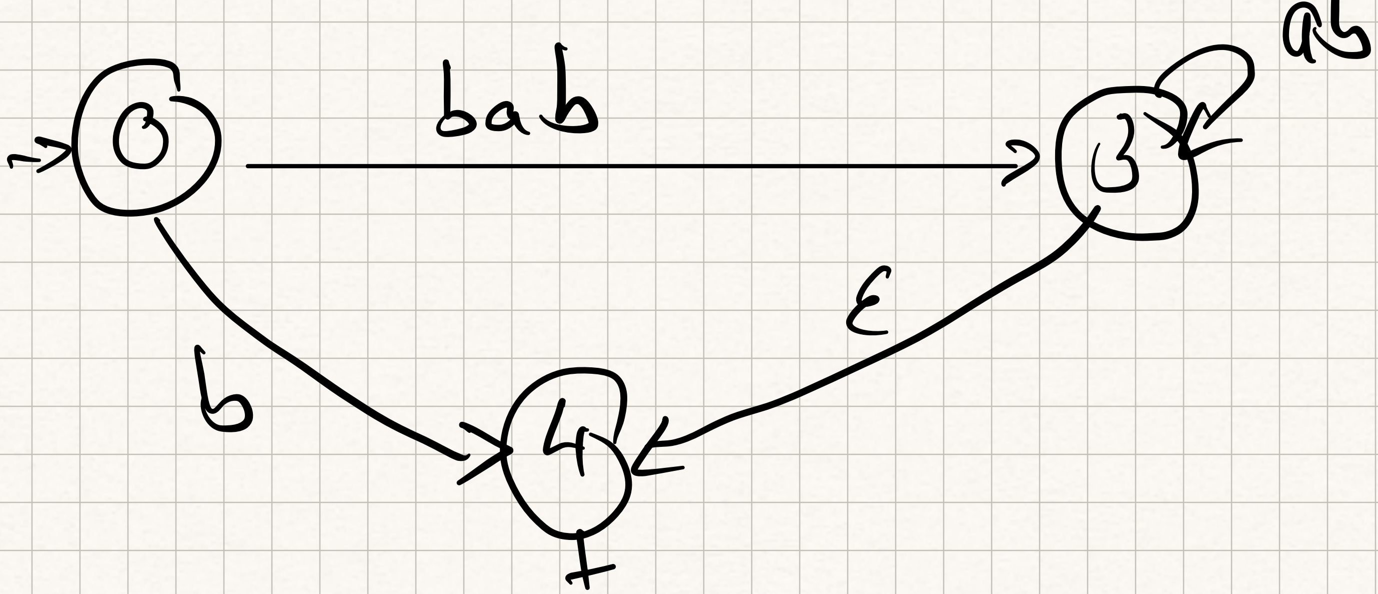
On modifie



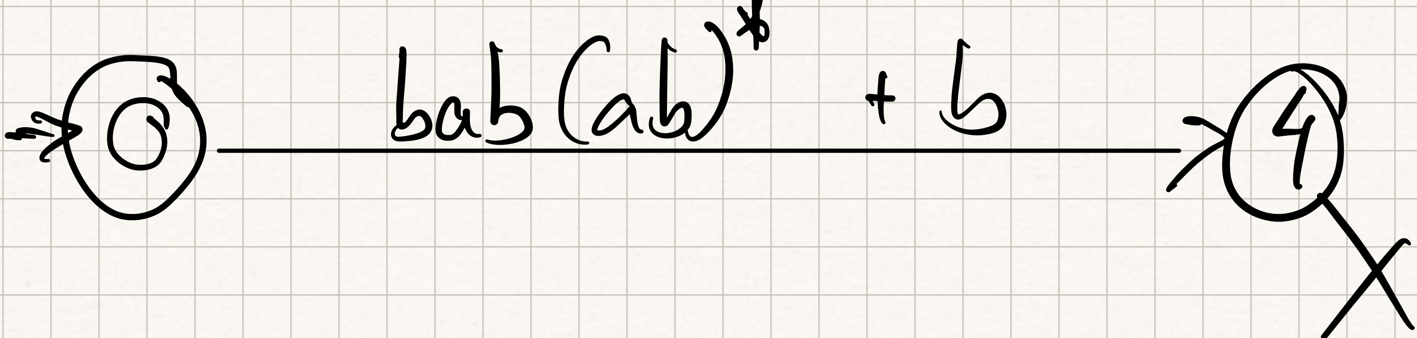
On élimine 1

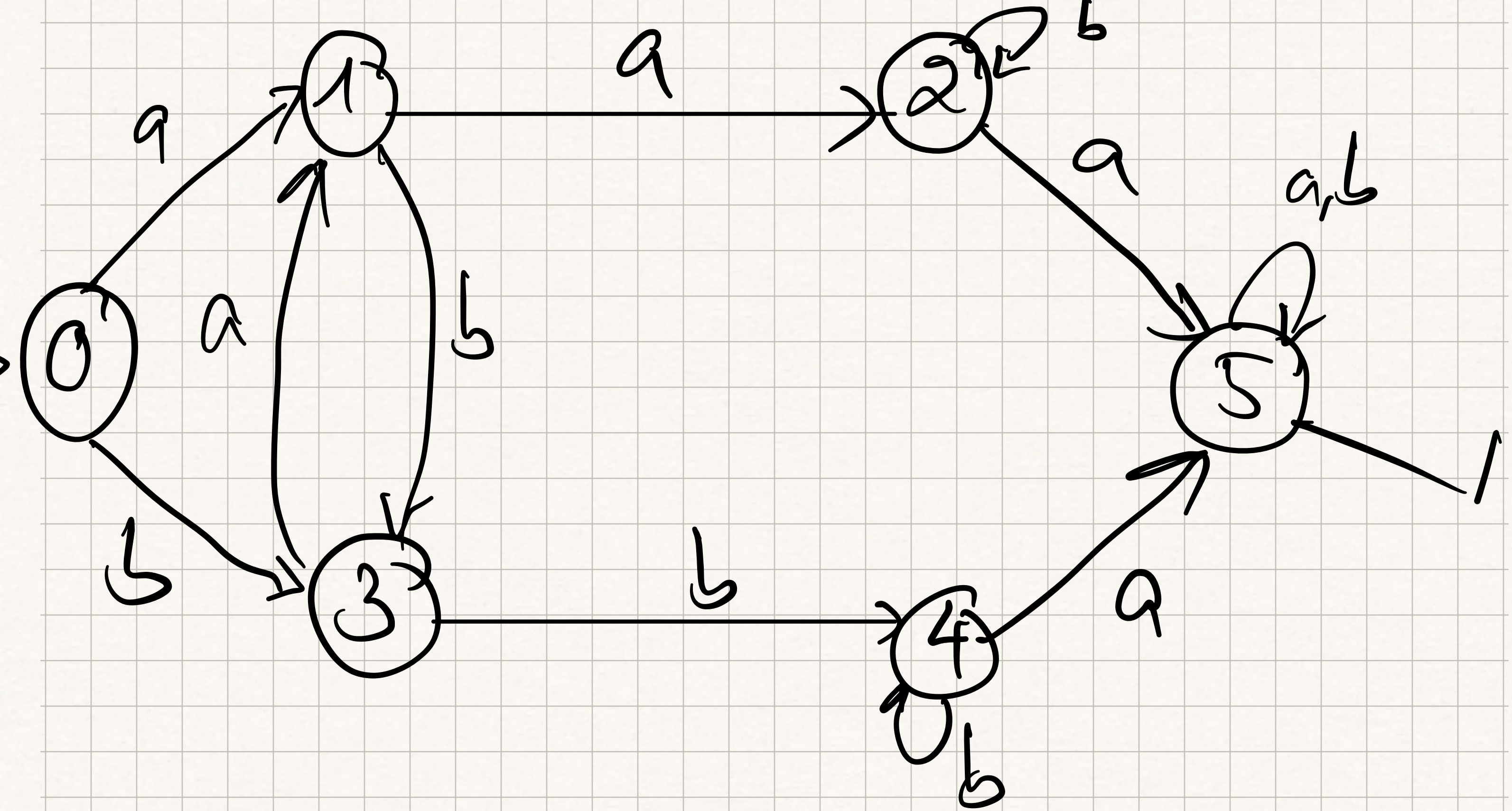


On élimine 2

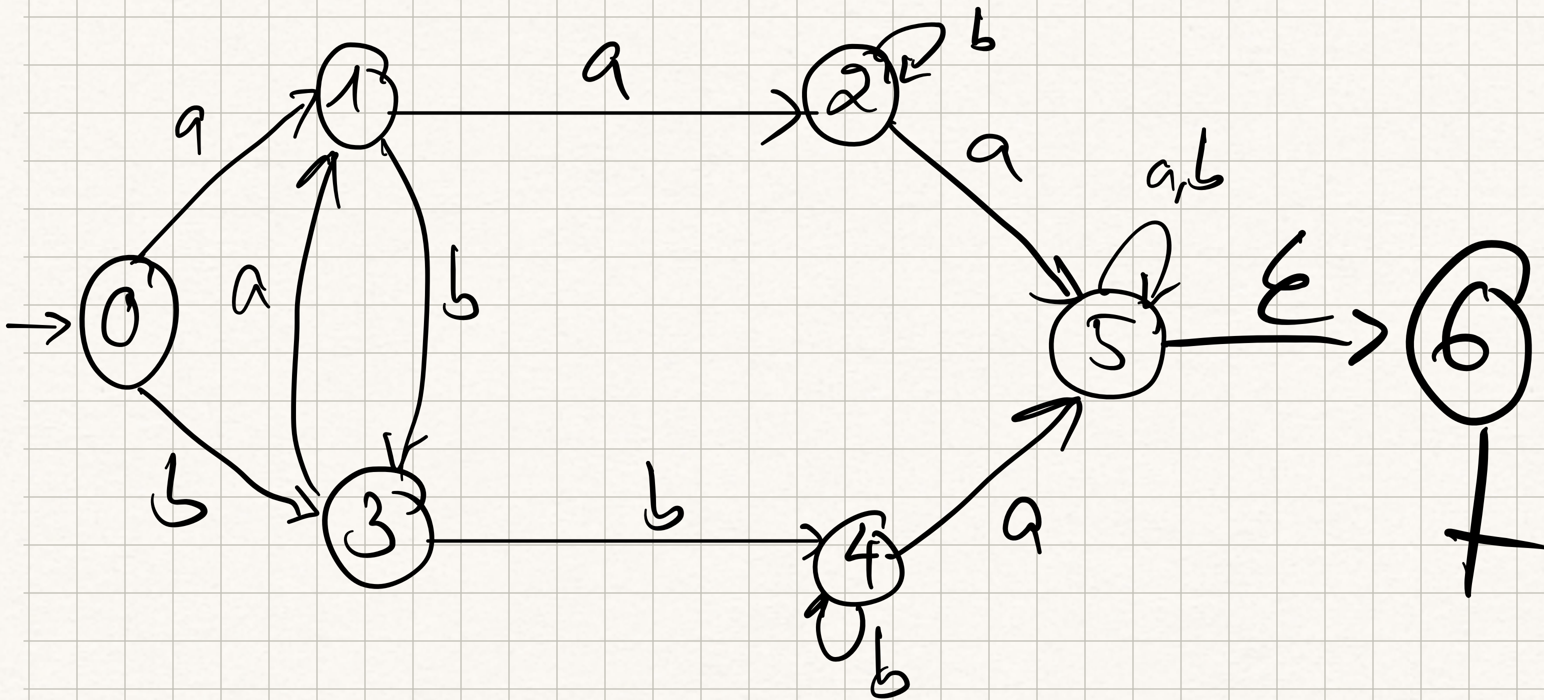


On élimine 3

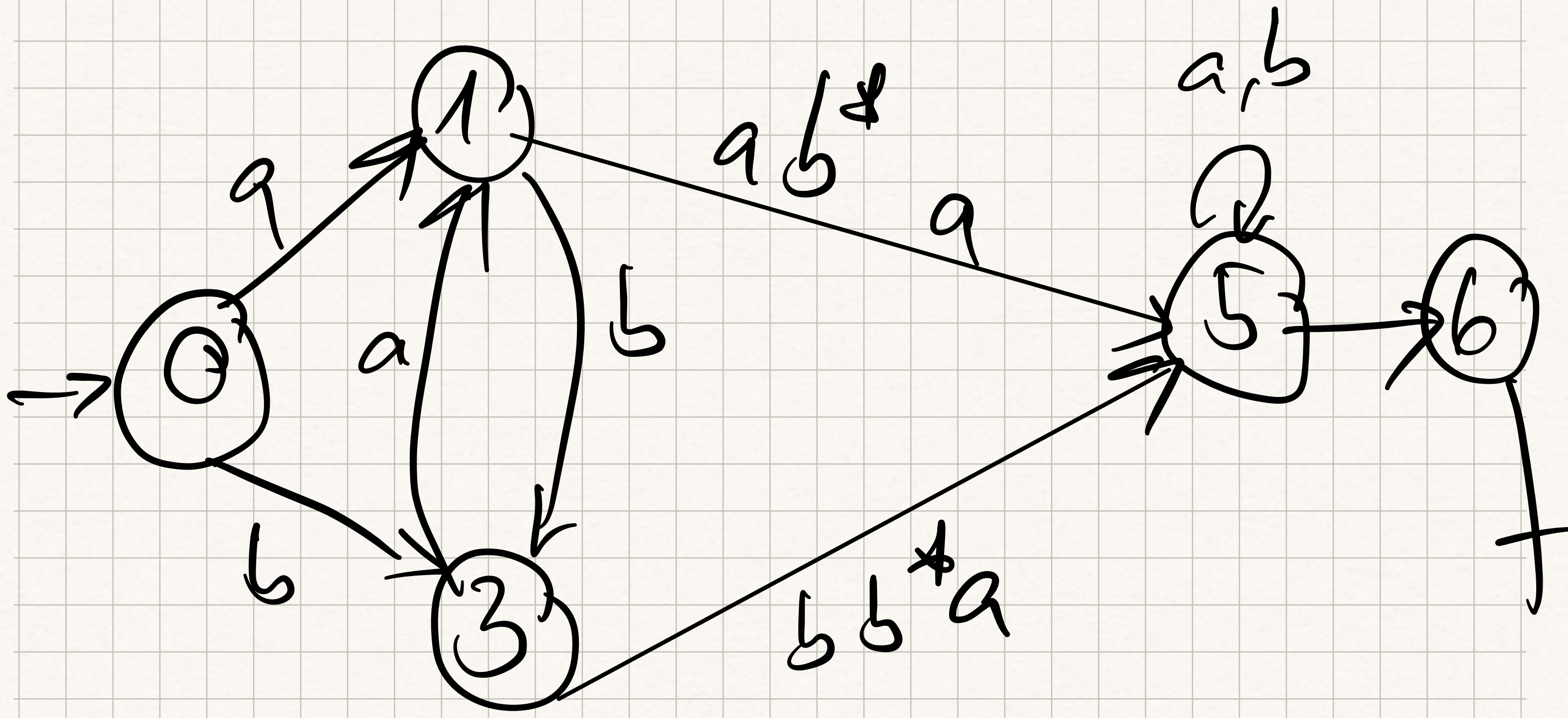




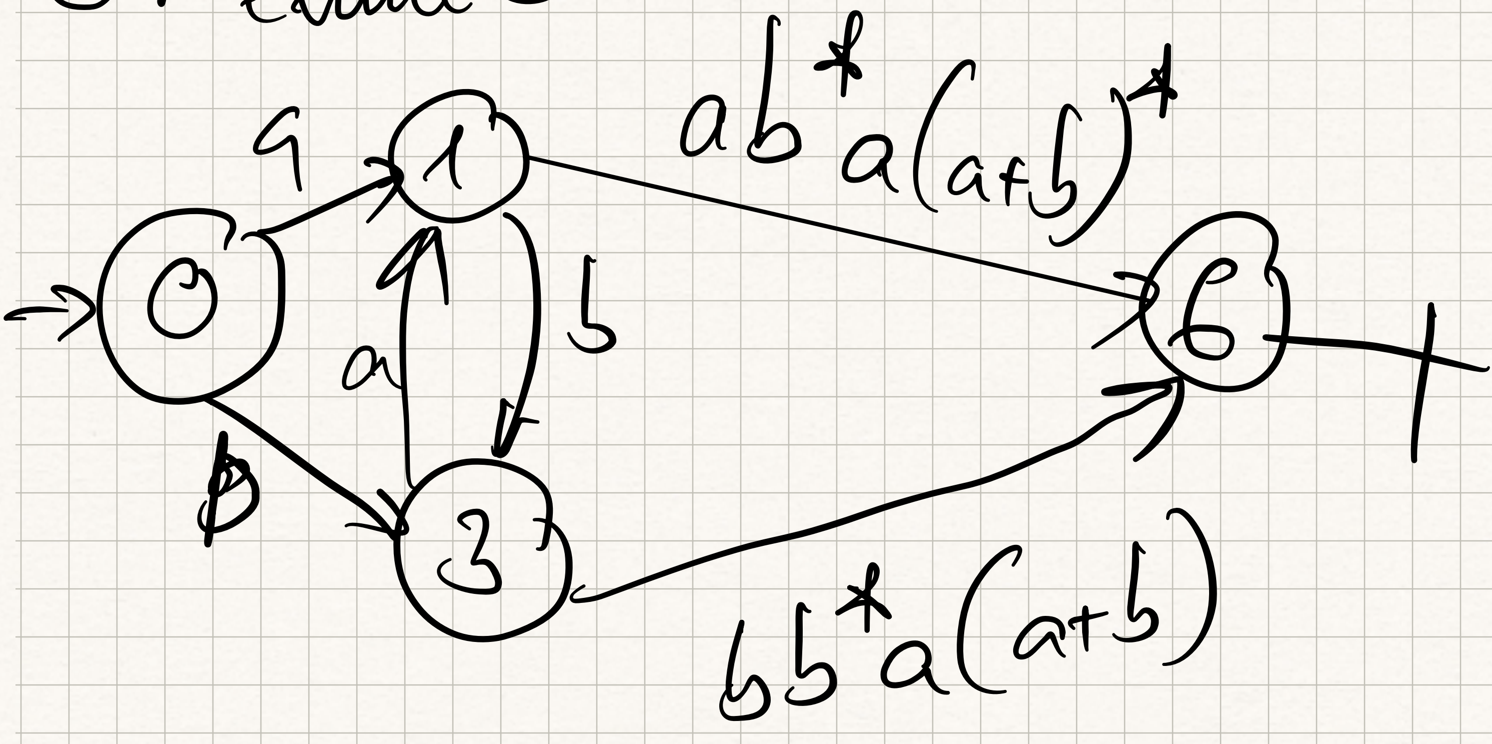
On modifie



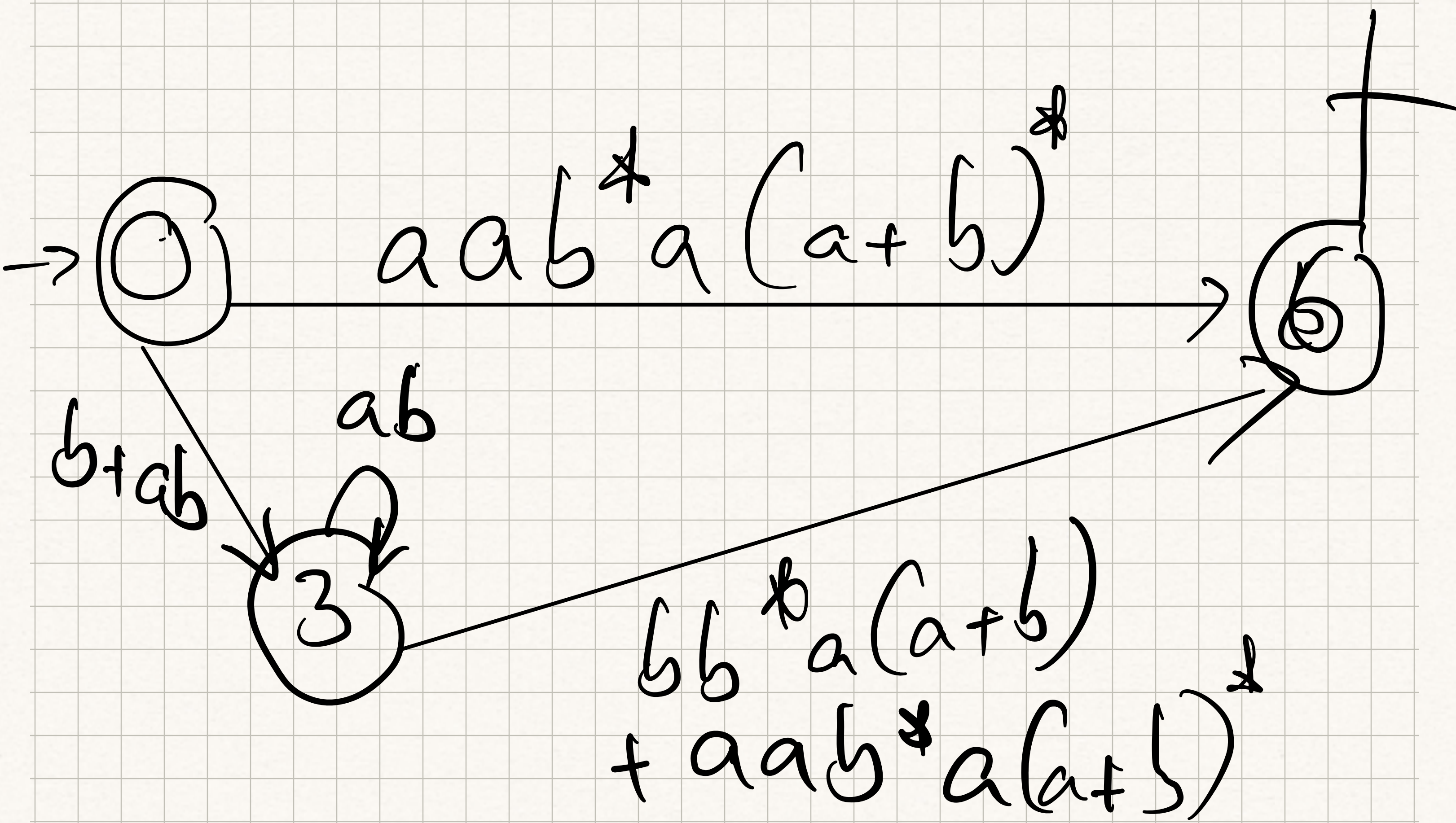
On élimine 2 et 4



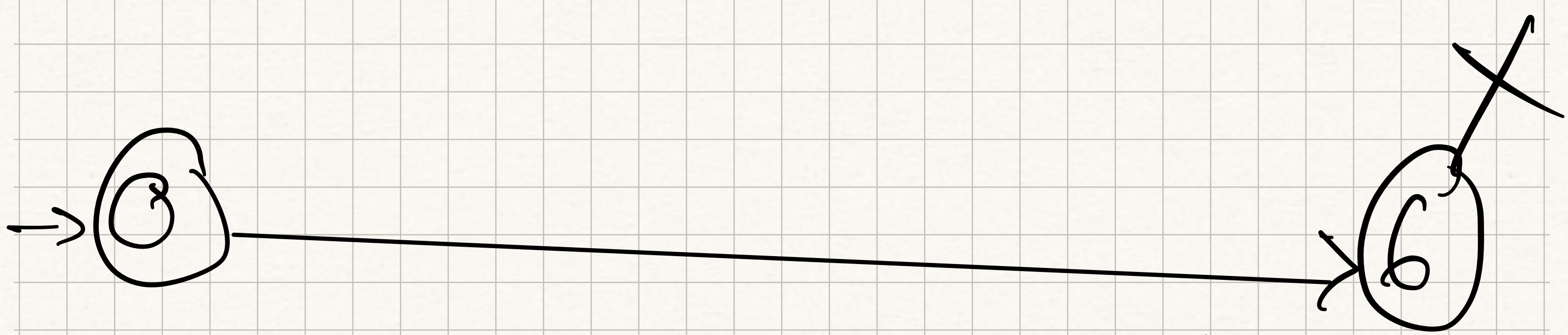
On élimine 5



On élimine 1

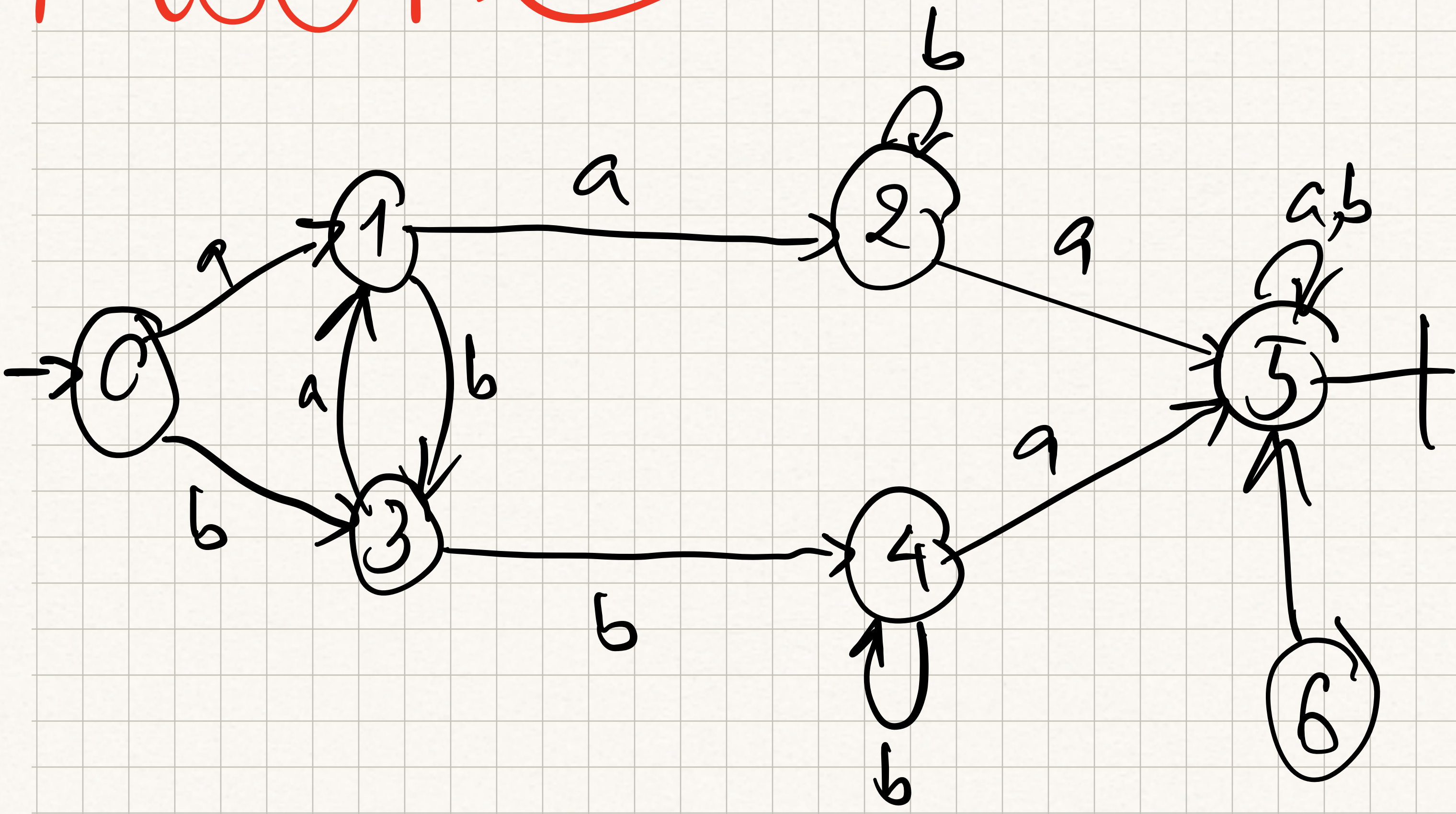


On élimine 3



$aab^*a(a+b)^* + (b+ab)(ab)^*$

Moore



	0	1	2	3	4	5	6
a	1	2	5	1	5	5	
b	3	3	2	4	4	5	

On sépare 2 classes

{0, 1, 2, 3, 4}   {5} état terminal

On sépare 2 et 4

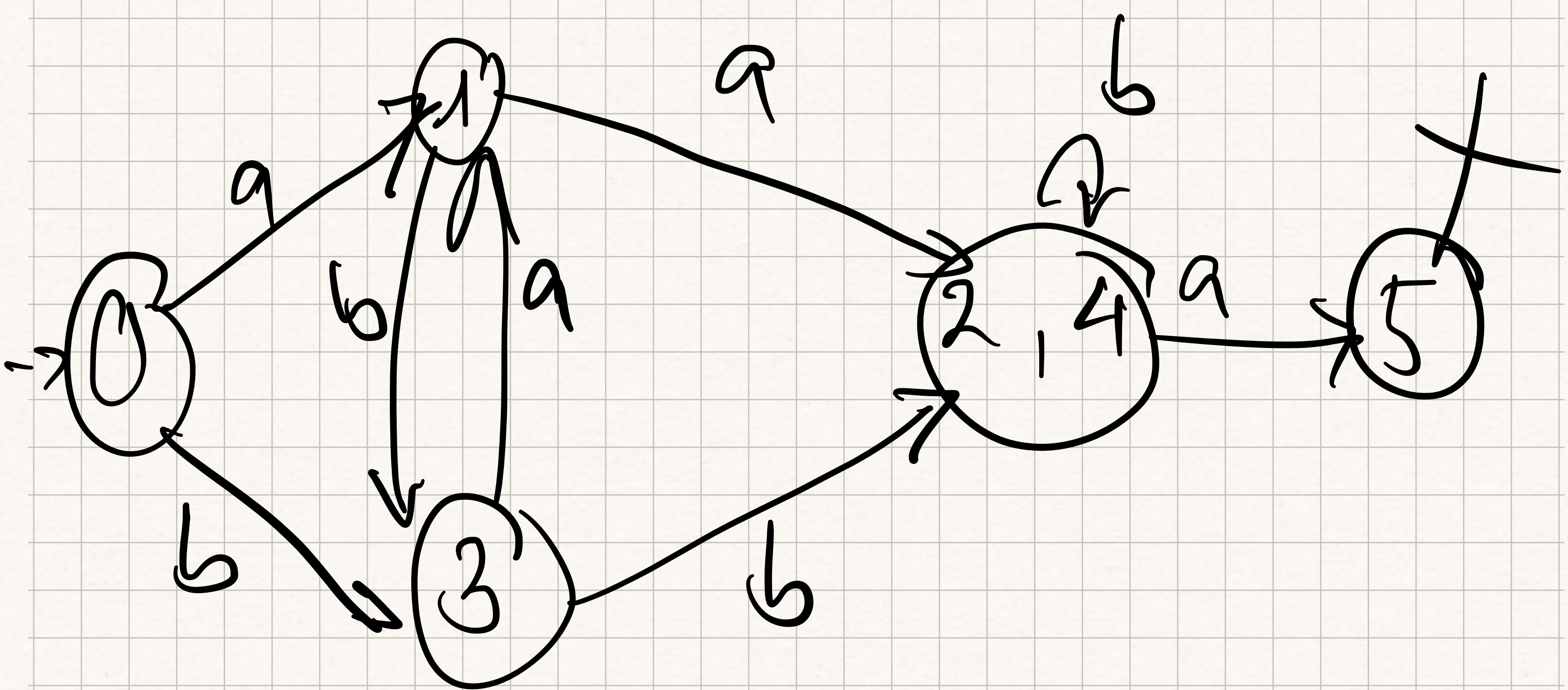
{0, 1, 3}   {2, 4}   {5}

On sépare 1

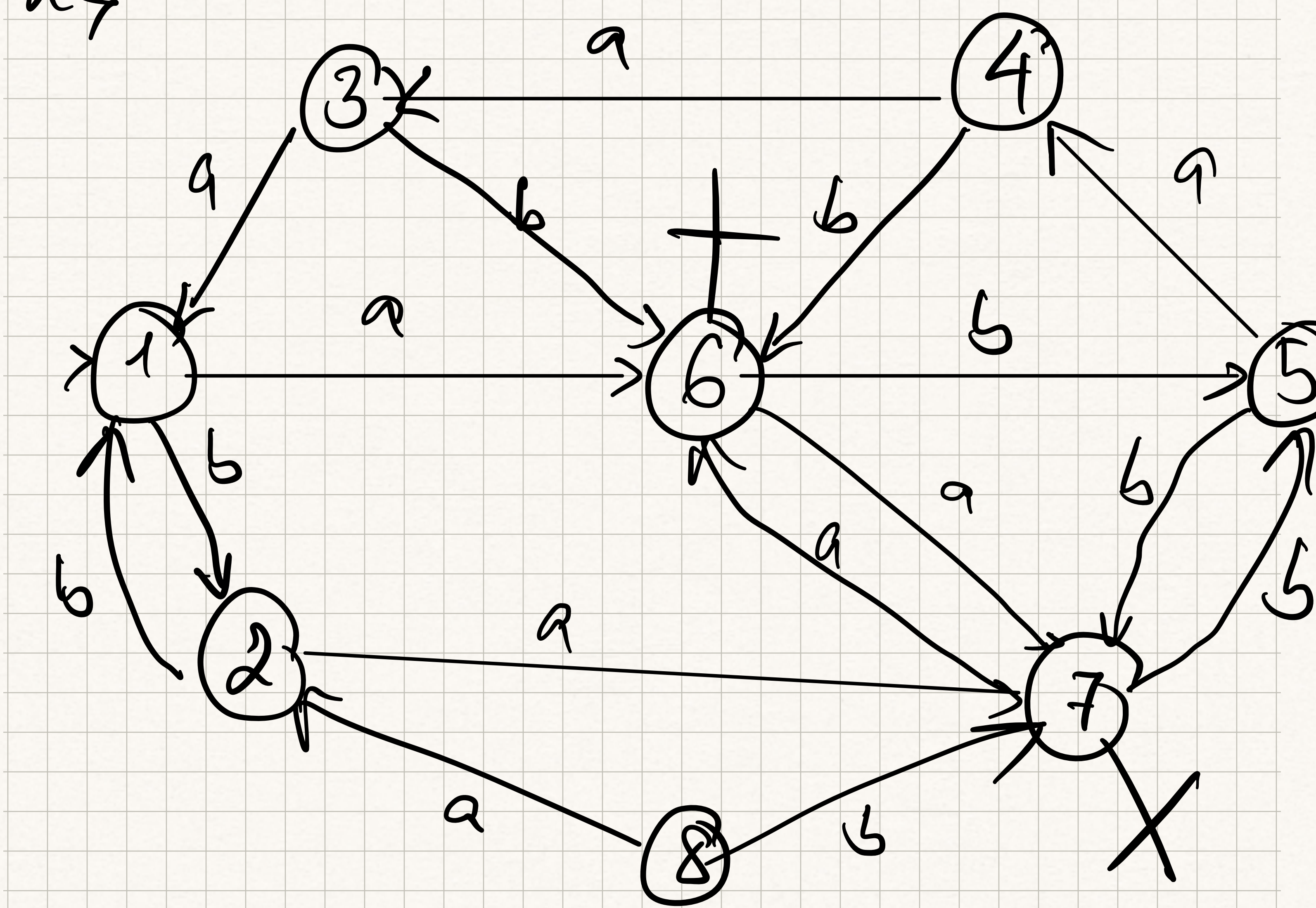
$\{0, 3\}$ $\{1\}$ $\{2, 4\}$ $\{5\}$

On sépare 0 et 3

$\{0\}$ $\{3\}$ $\{1\}$ $\{2, 4\}$ $\{5\}$



2 -



	1	2	3	4	5	6	7	~~8~~
a	6	7	1	3	4	7	6	~~2~~
b	2	1	6	6	7	5	5	~~7~~

On classe :

$\{1, 2, 3, 4, 5\}$ $\{6, 7\}$

On sépare 1 et 2

$\{1, 2\}$ $\{3, 4, 5\}$ $\{6, 7\}$

On sépare 3

$\{1, 2\}$ $\{3\}$ $\{4, 5\}$

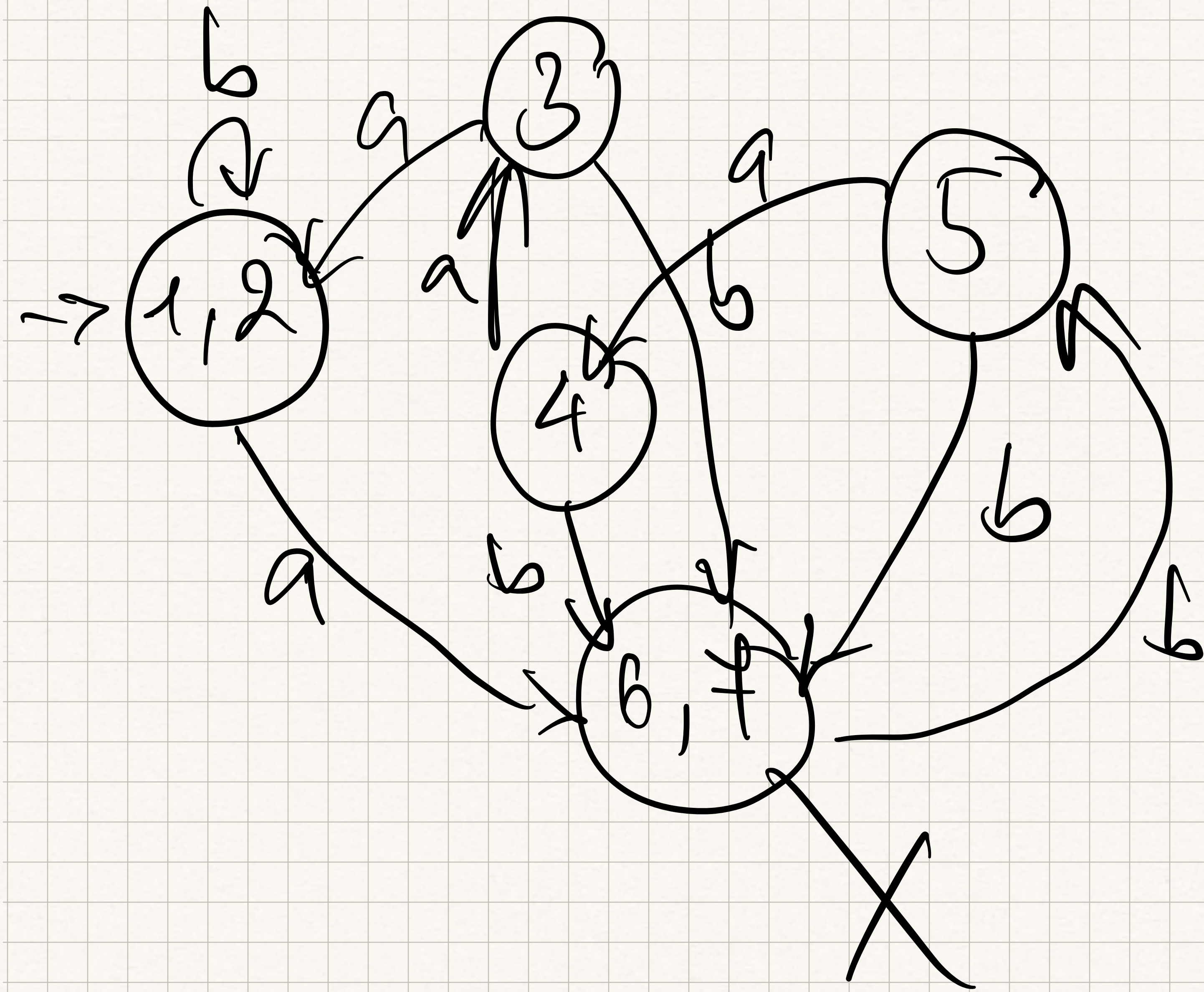
$\{6, 7\}$

On sépare 4

$\{1, 2\}$ $\{3\}$ $\{4\}$ $\{5\}$

$\{6, 7\}$

6



1,2
3
4
5
6,7
a
b