Yashar

2013

20,00

BERTRAND
Alexandre

PL2
2013

1 2 3 4 5 6 7 8
1 11 1 1 11 10 1 0

9
1 1

Exercice 1 :

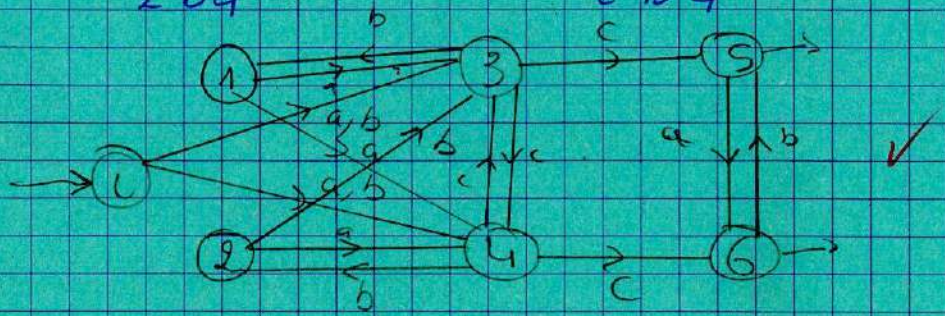
	a	b	c	
12	34	34	P	€
34	2	1	3456	
1	34	P	P	
2	P	34	P	
3456	26	15	3456	S
15	346	P	P	S
26	P	345	P	S
346	2	15	3456	S
345	26	1	3456	S
P	P	P	P	

Exercice 2 :

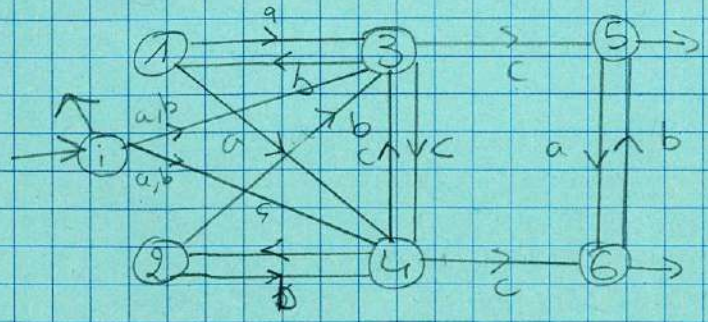
a) On ~~ajoute~~ les transitions :

1 a 3
1 a 4
2 b 3
2 b 4

i a 3
i a 4
i b 3
i b 4



b) Non le mot vide n'est pas reconnu.

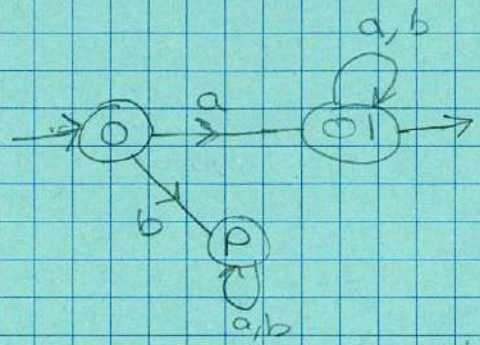


✓

Exercice 3

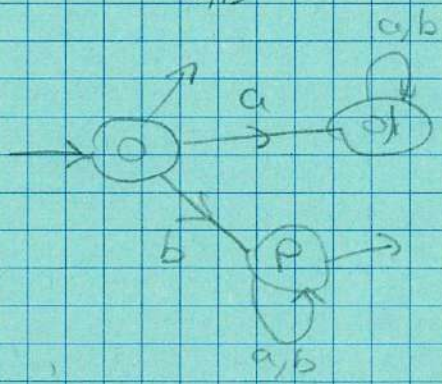
il faut dabord deterministiser l'automate et le completer

		a	b
	0	01	P
S	01	01	01
	P	P	P



Puis le completer :

		a	b
€/S	0	01	P
	01	01	01
S	P	P	P



✓

Exercice 4.

Il faut dabors completer l'automate

		a	b	c
	1	3	4	P
	2	3	4	P
S	3	5	1	4
S	4	2	6	3
	5	4	P	P
	6	P	5	P
€	7	3	4	P
	P	P	P	P

- Separer les etat terminaux des etat NT.

$\Theta_0 = \{NT, T\} = \{(1256P), (34)\}$

	a		b		c	
3	S	T	1	NT	4	T
4	2	NT	6	NT	3	T

ils ne sont pas compatible

$\Theta_1 = \{(1256P), 3, 4\}$

- Regrouper les etat NT.

$\Theta_2 = \{1P, S, 6P, 3, 4\}$

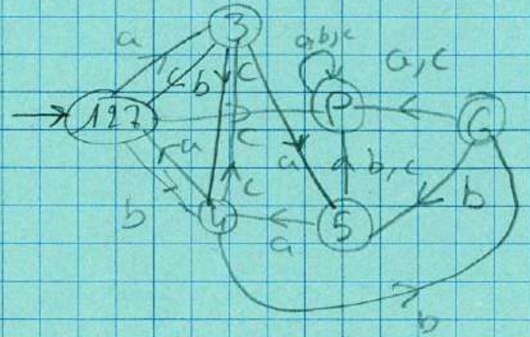
		a		b		c	
1	3	T		4	T	P	NT
2	3	T		4	T	P	NT
S	4	T		P	NT	P	NT
6	P	NT		S	NT	P	NT
P	P	NT		P	NT	P	NT
7	3	T		4	T	P	NT

– Verifier leur compatibilité

	a	b	c	
1	3	4	6P	
2	3	4	6P	✓
7	3	4	6P	
6	6P	5	6P	
P	6P	6P	6P	×

$\theta_3 = \theta_{fin} = \{127, 5, 6, P, 3, 4\}$

		a	b	c
E	127	3	4	P
	5	4	P	P
	6	P	5	P
	P	P	P	P
S	3	5	127	4
S	4	127	6	3



Exercice 5

a)

$$\begin{cases} 0 = \varepsilon + 0a \\ 1 = \varepsilon + 1b \\ 2 = 0a + 1b + 2a \\ 3 = 0b + 1b + 3b \end{cases}$$

b)

$$= \begin{cases} 0 = \varepsilon a^* = a^* \\ 1 = \varepsilon b^* = b^* \\ 2 = a^*a + b^*b + 2a \\ 3 = a^*b + b^*b + 3b \end{cases}$$

$2 = (a^*a + b^*a)a^* = a^*aa^* + b^*aa^*$

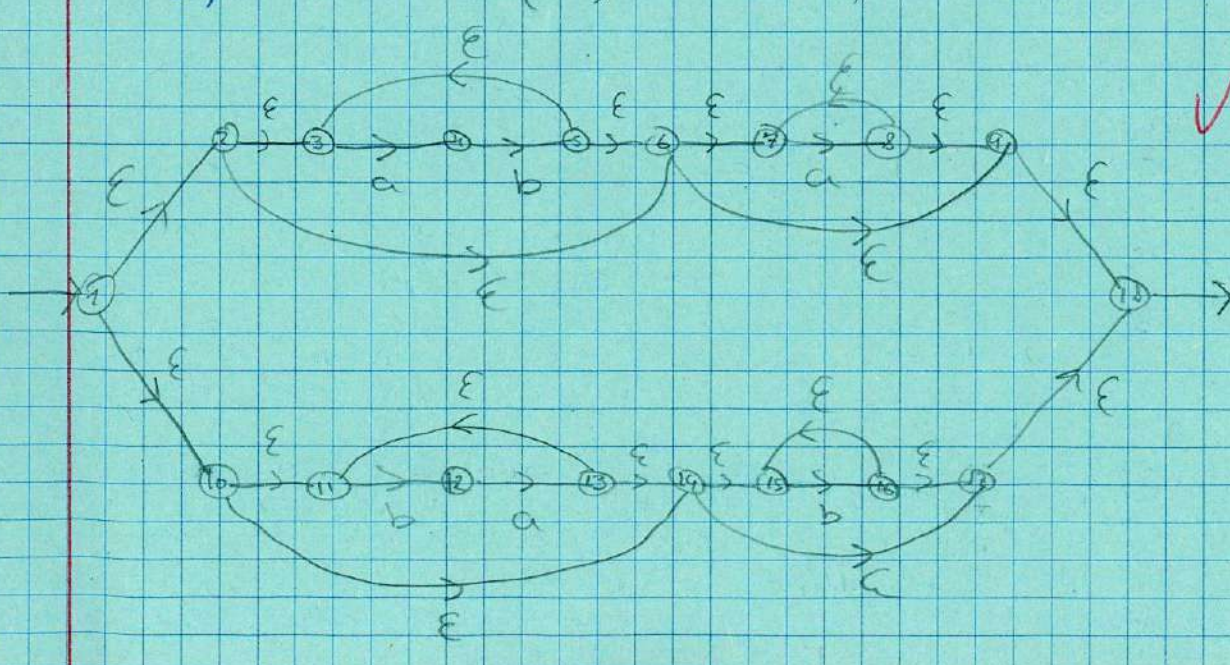
$3 = (a^*b + b^*b)b^* = (a^*bb^* + b^*bb^*)$

$L = a^*aa^* + b^*aa^* + a^*bb^* + b^*bb^*$

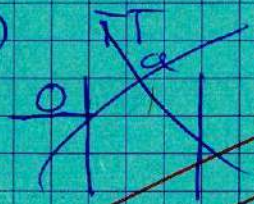
Exercice 6

a)

$L = (ab)^*a^* + (ba)^*b^*$



b)



donc c'est incorrect

0249

€/$	O	a	b
$	1249	1249	5689
$	5689	12349	249
$	12349	689	56789
$	249	12349	12349
$	689	2349	249
$	56789	9	67
$	2349	6 89	$6789
$	249	2349	2349
$	9	2349	249
	67	9	—
	6	6	67
		—	67

Exercice 7

$8^1 - 1 = 7 \times 1 = 7k$ ✓ ✓

On veut que $8^{n+1} - 1 = 7k$.

or $8^{n+1} - 1 = 8 \cdot 8^n - 1$

$= (7+1)(8^n) - 1$

$= 7(8^n) + 8^n - 1$ or $8^n - 1 = 7k$

$= 7(8^n) + 7k$

$= 7(8^n + k) = 7k$ ✓

Exercice 9

a) le PGCD est $2^5 \times 3^5 \times 5^3 \times 11 \times 17$ ✓

C'est tous ce qui y a en commun chez a et b.