

Lista_01_Exercicio_01_Letra_a

$$\{ab, c\}^* = \{t, ab, c, abc, abc, cab, cc, \dots\}$$

Lista_01_Exercicio_01_Letra_b

$$\{a, b, c\}^+ = \{a, b, c, aa, ab, ac, ba, bb, bc, ca, cb, cc, \dots\}$$

Lista_01_Exercicio_01_Letra_c

$$\{abc\}^* = \{t, abc, abcabc, abcabcabc, \dots\}$$

Lista_01_Exercicio_02_Letra_a

$$\{a, b\} \cup \{c, d\} = \{ac, ad, bc, bd\}$$

Lista_01_Exercicio_02_Letra_b

$$\{100, 010, 110\} \cup \{00, 01, 11\} = \{100, 010, 110, 00, 01, 11\}$$

Lista_01_Exercicio_02_Letra_c

$$\{101, 110\} \cdot \{00, 11\} = \{10100, 10111, 11000, 11011\}$$

Lista_01_Exercicio_02_Letra_d

$$\{\text{Anab}, \text{Emanu}, \text{Gabri}, \text{Isab}, \text{Rafa}\} \cdot \{\text{ela}\} = \{\text{Anabela}, \text{Emanuela}, \text{Gabriela}, \text{Isabela}, \text{Rafaela}\}$$

Ducca Giovane Gomes

ficha_01_Exercicio_03_Letra_a

Lista_01_Exercício_03_Letra_b

Lista_01_Exercicio_03_Letra_c

$$\sum^2 \cup \sum^2 = \{ \text{♪♪}, \text{♪♪}, \text{♪♪♪}, \text{♪♪♪}, \text{♪♪}, \text{♪♪}, \text{♪♪♪}, \text{♪♪♪}, \text{♪♪♪}, \text{♪♪♪} \}$$

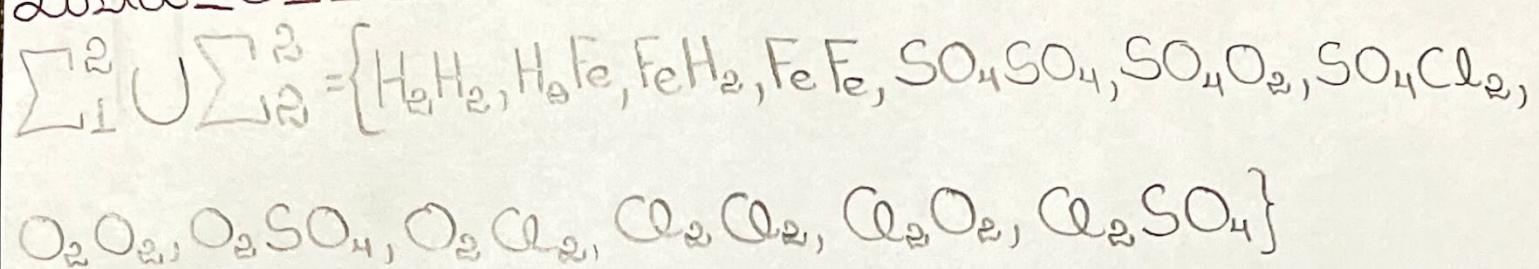
Lista_01_Exercicio_03_Letra_d

Lista_01_Exercicio_04_Letra_a

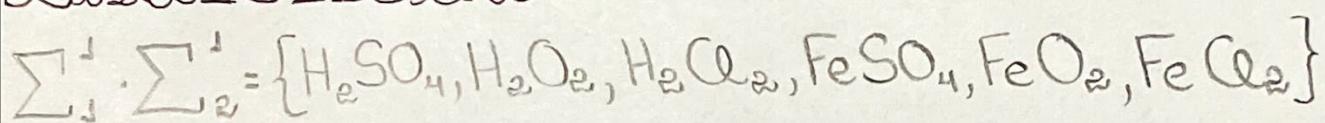
$$\sum_1^2 = \{H_2 H_2, H_2 Fe, Fe H_2, Fe Fe\}$$

Lucca Giovane Gomez

Lista_01_Exercicio_04_Letra_b



Lista_01_Exercicio_04_Letra_c



Lucca Giovane Gomes

Lucca Giovane Gomes

Lista_02_Exercício_01_Letra_a

$C^*(a(alblc))^* b(alblc)^*$

Lista_02_Exercício_01_Letra_b

$(blc)^*(a(blc)^*alblc)^*(blc)^*$

Lista_02_Exercício_01_Letra_c

$(0|1)^*00$

Lista_02_Exercício_01_Letra_d

$1(011)(011)(011)(0,1)(0,1)(0,1)* | 10101(1|0(011)(011)(011))$

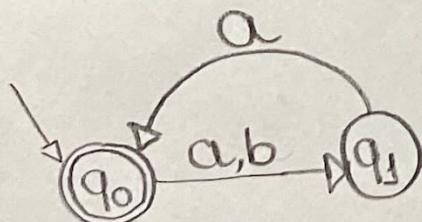
Lista_02_Exercício_02_Letra_a

O autômato reconhece valores binários de 0000 até 1111 com exceção do valor 6₁₀ (0110₂)

Lista_02_Exercício_02_Letra_b

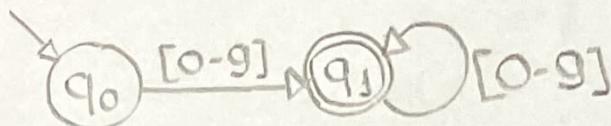
O autômato reconhece cadeias de 'a' com no mínimo 1 a e aumentando de 5 em 5

Lista_02_Exercício_03_Letra_a

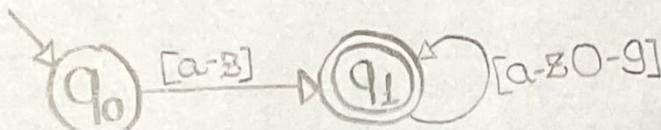


Lucca Giovane Gomez

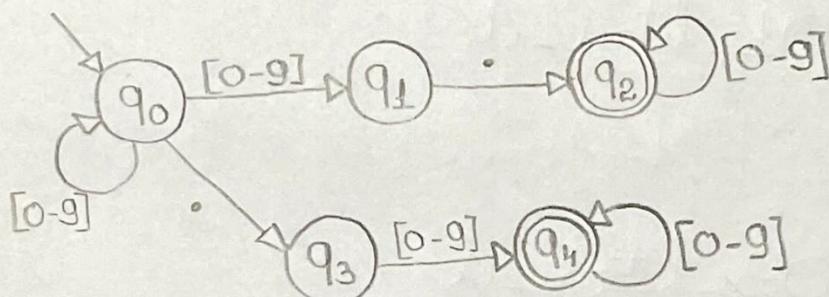
Lista_02_Exercicio_03_Letra_b



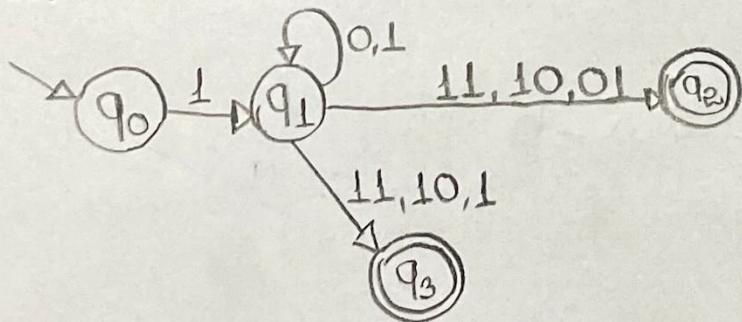
Lista_02_Exercicio_03_Letra_c



Lista_02_Exercicio_03_Letra_d



Lista_02_Exercicio_03_Letra_e



Lista_02_Exercicio_04_Letra_a

$\{i, p\}$

Lucca G. Gomes

Lista_02_Exercicio_04_Letra_b

[a-zA-Z][a-zA-Z0-9]*

Lista_02_Exercicio_04_Letra_c

[a-zA-Z]*

Lista_02_Exercicio_04_Letra_d

[0-9]+|[0-9]+|[0-9]+|[0-9]+

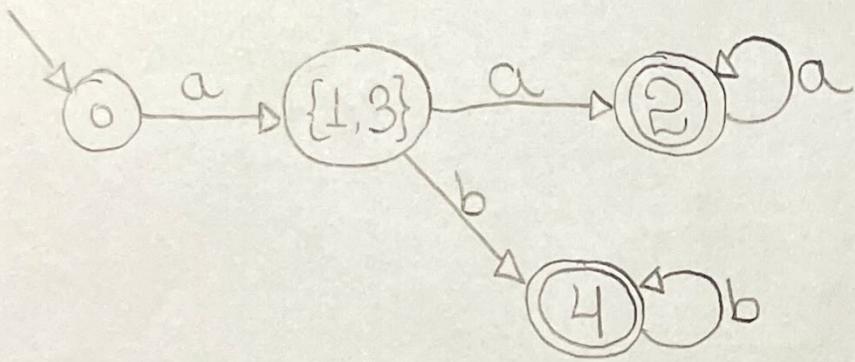
Lista_02_Exercicio_04_Letra_e

("-" "[a-zA-Z]*" "m") | ("lambda" " ")

Lucca Giovane Gomes

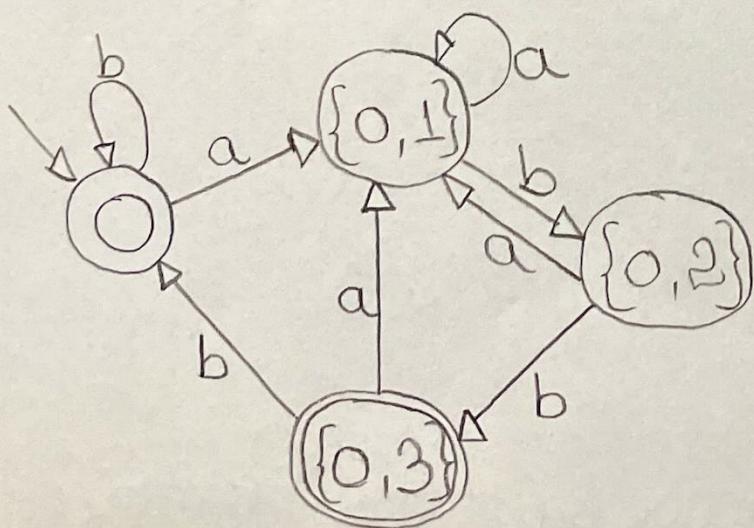
Lista_03_Exercicio_01_Letra_a

	a	b
{0}	{1, 3}^v	-
{1, 3}	{2}^v	{4}^v
*{2}	{0, 3}^v	-
*{4}	-	{4}^v



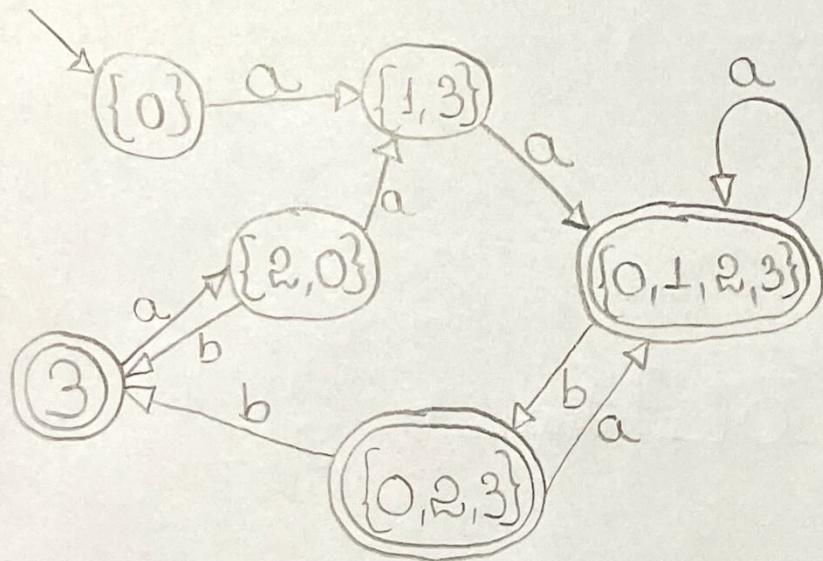
Lista_03_Exercicio_01_Letra_b

	a	b
{0}	{0, 1}^v	{0}^v
{0, 1}	{0, 1}^v	{0, 2}^v
{0, 2}	{0, 1}^v	{0, 3}
*{0, 3}	{0, 1}^v	{0}^v



Lista_03_Exercicio_01_Letra_c

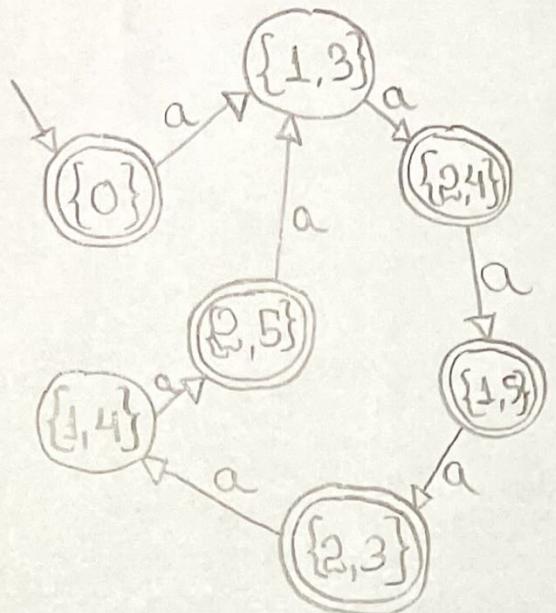
	a	b
{0}	{1,3}✓	—
{1,3}	{1,3,2,0}✓	—
*{0,1,2,3}	{1,3,2,0}✓	{2,0,3}✓
*{0,2,3}	{1,3,2,0}✓	{3}✓
*{3}	{2,0}	—
{0,2}	{1,3}✓	{3}✓



Lista_03_Exercicio_01_Letra_d

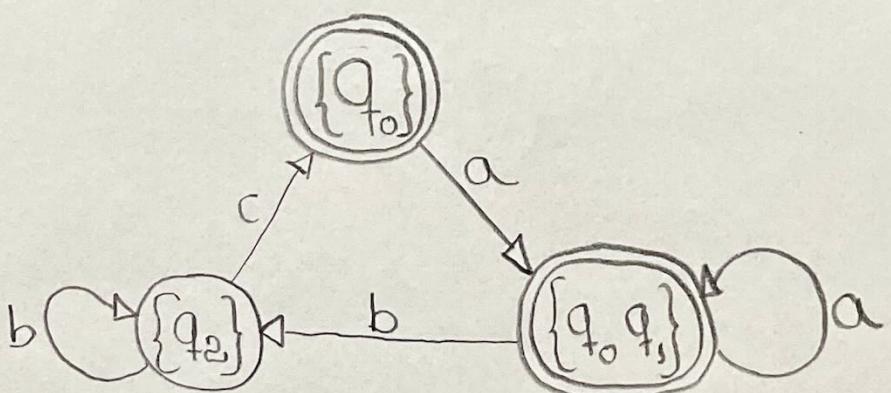
	a
*{0}	{1,3}✓
{1,3}	{2,4}✓
*{2,4}	{1,5}✓
*{1,5}	{2,3}✓
*{2,3}	{1,4}
{1,4}	{2,5}
*{2,5}	{1,3}

Lucca Giovane Gomes



Lista_03_Exercicio_01_Letra_e

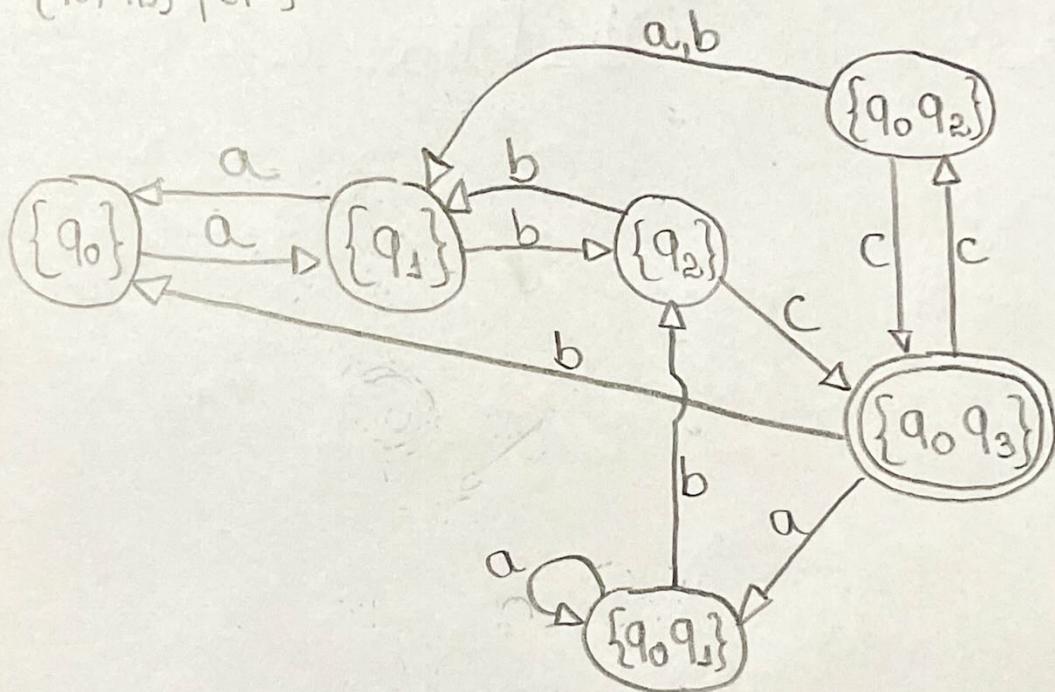
	a	b	c
* $\{q_0\}$	$\{q_0 q_1\}$	-	-
* $\{q_0 q_1\}$	$\{q_0 q_1\}$	$\{q_2\}$	-
$\{q_2\}$	-	$\{q_2\}$	$\{q_0\}$



Lucca Giovane Gomes

Lista_03_Exercicio_01_Letra_f

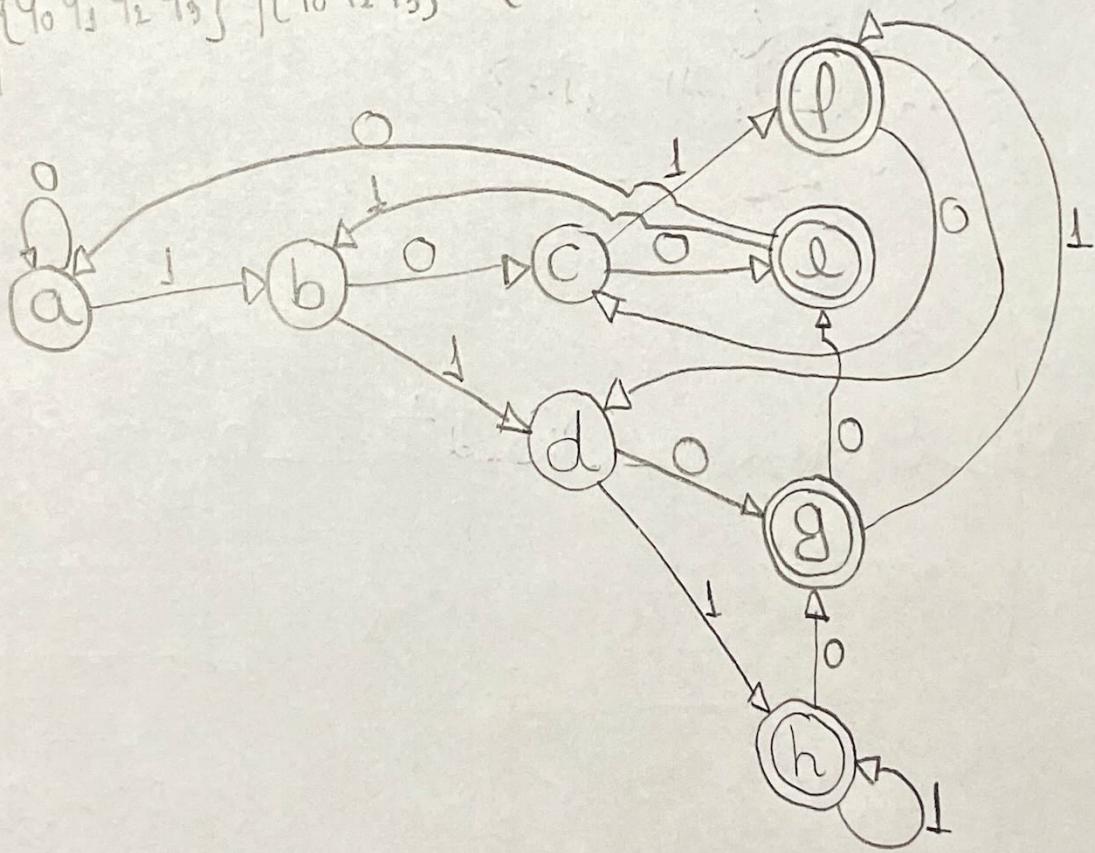
	a	b	c
$\{q_0\}$	$\{q_1\}^\vee$	-	-
$\{q_1\}$	$\{q_0\}^\vee$	$\{q_0\}^\vee$	-
$\{q_2\}$	-	$\{q_1\}^\vee$	$\{q_3, q_0\}^\vee$
$*\{q_0, q_3\}$	$\{q_1, q_0\}^\vee$	$\{q_0\}^\vee$	$\{q_2, q_0\}$
$\{q_0, q_1\}$	$\{q_1, q_0\}^\vee$	$\{q_2\}^\vee$	-
$\{q_0, q_2\}$	$\{q_1\}^\vee$	$\{q_1\}^\vee$	$\{q_3, q_0\}^\vee$



Lucca Giovane Gomes

Lista_03_Exercicio_01_Letra_g

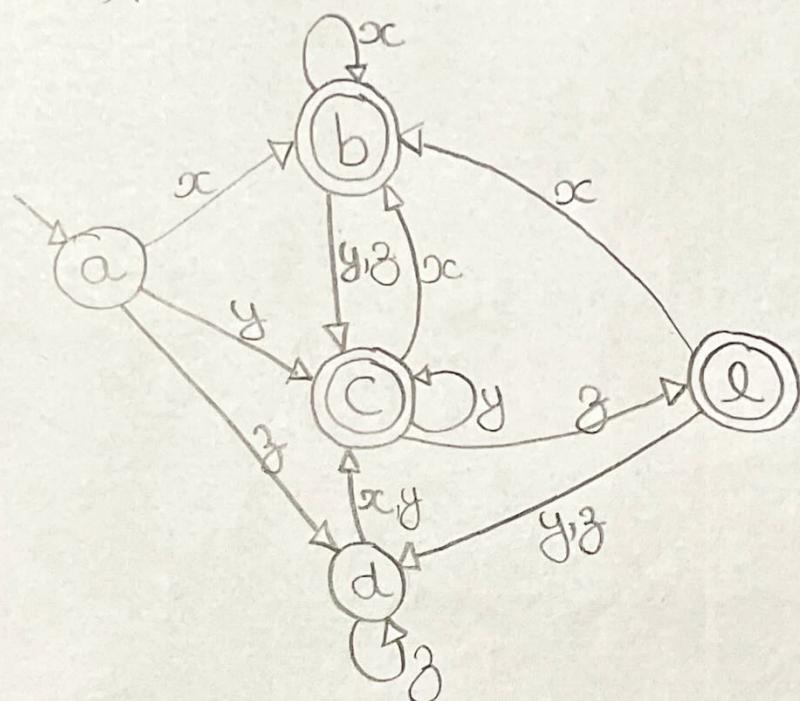
	0	1	
a	$\{q_0\}$	$\{q_0\}^v$	$\{q_0, q_1\}^v$
b	$\{q_0, q_1\}$	$\{q_0, q_2\}^v$	$\{q_0, q_1, q_2\}^v$
c	$\{q_0, q_2\}$	$\{q_0, q_3\}^v$	$\{q_0, q_1, q_3\}^v$
d	$\{q_0, q_1, q_2\}$	$\{q_0, q_2, q_3\}^v$	$\{q_0, q_1, q_2, q_3\}^v$
e	$*\{q_0, q_3\}$	$\{q_0\}^v$	$\{q_0, q_1\}^v$
f	$*\{q_0, q_1, q_3\}$	$\{q_0, q_2\}^v$	$\{q_0, q_1, q_2\}^v$
g	$*\{q_0, q_2, q_3\}$	$\{q_0, q_3\}^v$	$\{q_0, q_1, q_3\}^v$
h	$*\{q_0, q_1, q_2, q_3\}$	$\{q_0, q_1, q_2, q_3\}^v$	$\{q_0, q_1, q_2, q_3\}^v$



Lucca Giuvane Gomes

Lista_03_Exercicio_02_Letra_a

	x	y	z
a) $\{ \}$	$\{567234\} \vee \{123467\} \vee \{1234\}$	$\{1234\} \vee \{123467\}$	$\{1234\} \vee \{12347\}$
b* $\{1234567\}$	$\{1234567\} \vee \{123467\}$	$\{123467\}$	$\{12347\}$
c* $\{123467\}$	$\{567234\} \vee \{123467\}$	$\{123467\} \vee \{1234\}$	$\{1234\} \vee \{12347\}$
d $\{1234\}$	$\{567234\} \vee \{123467\}$	$\{123467\} \vee \{1234\}$	$\{1234\} \vee \{12347\}$
e* $\{12347\}$	$\{567234\} \vee \{1234\}$	$\{1234\}$	$\{12347\}$

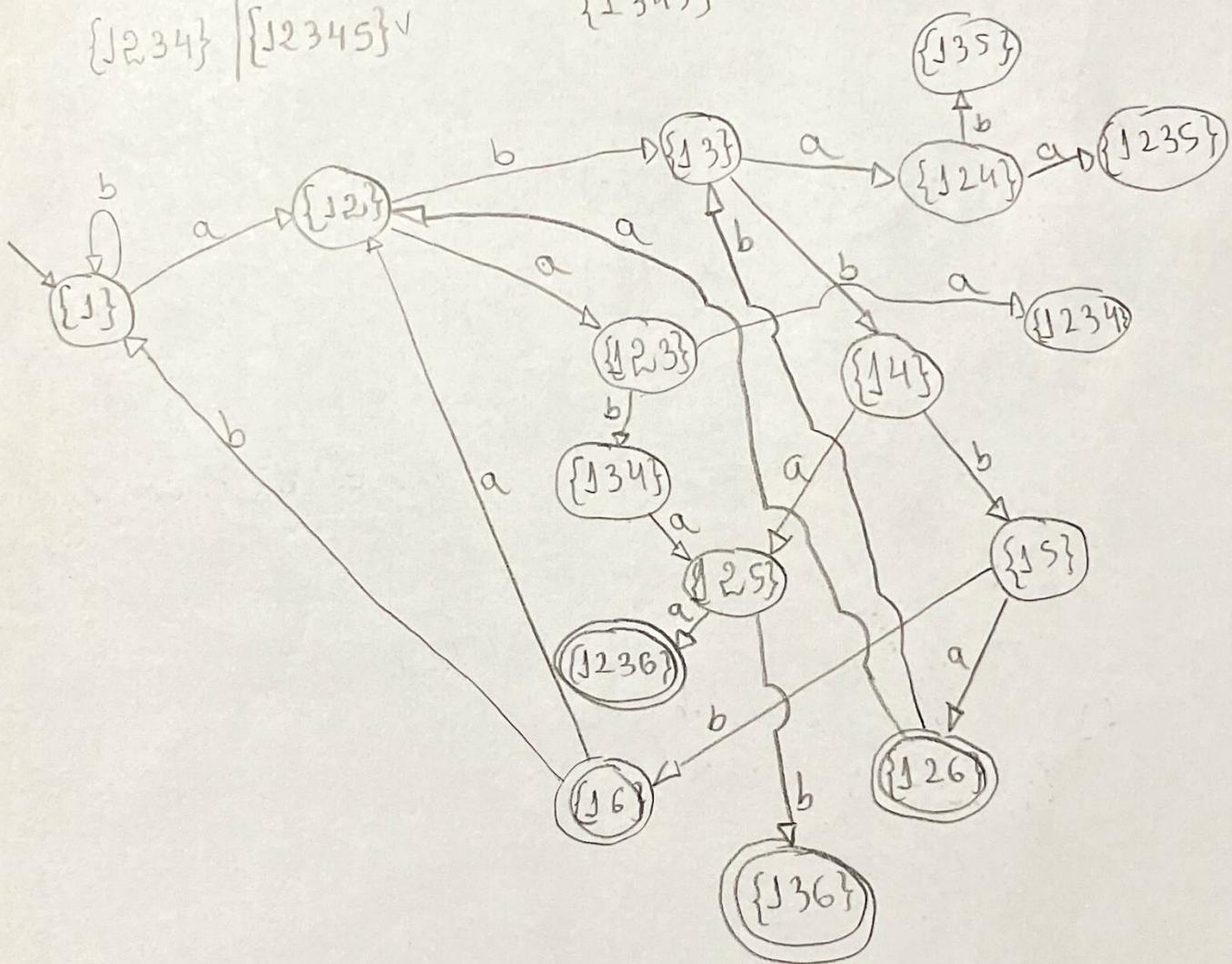


Lista_03_Exercicio_02_Letra_b

	a	b
$\{1\}$	$\{12\} \vee \{13\}$	$\{13\} \vee \{14\}$
$\{12\}$	$\{123\} \vee \{13\}$	$\{13\} \vee \{14\}$
$\{13\}$	$\{124\} \vee \{14\}$	$\{14\} \vee \{15\}$
$\{14\}$	$\{125\} \vee \{15\}$	$\{15\} \vee \{16\}$
$\{15\}$	$\{126\} \vee \{16\}$	$\{16\} \vee \{17\}$
* $\{16\}$	$\{12\} \vee \{1\}$	$\{1\} \vee \{18\}$
$\{123\}$	$\{1234\} \vee \{134\}$	$\{134\} \vee \{145\}$
$\{124\}$	$\{1235\} \vee \{135\}$	$\{135\} \vee \{146\}$

Lucca Giovane Gomes

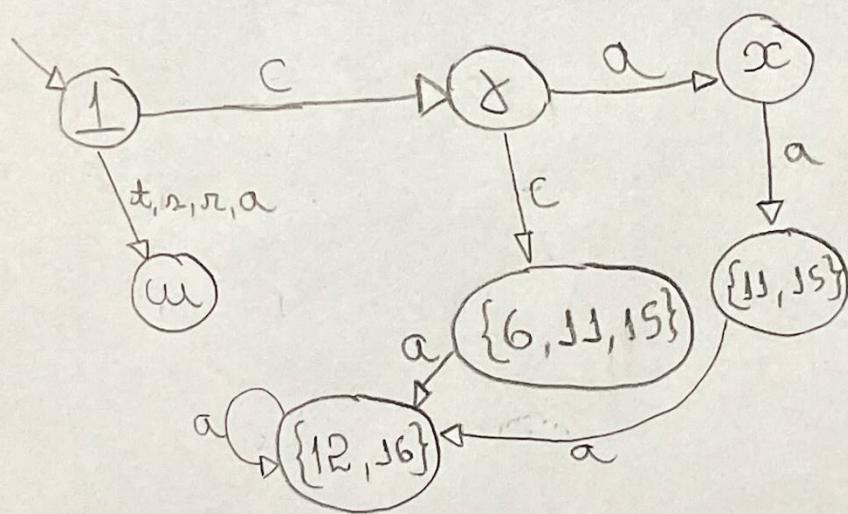
	a	b
$\{125\}$	$\{1236\}$	$\{136\}^v$
$*\{126\}$	$\{12\}^v$	$\{13\}^v$
$\{134\}$	$\{125\}^v$	$\{145\}^v$
$\{135\}$	$\{1246\}$	$\{146\}^v$
$*\{136\}$	$\{1243\}^v$	$\{135\}^v$
$\{145\}$	$\{1256\}$	$\{156\}^v$
$*\{146\}$	$\{125\}^v$	$\{15\}^v$
$*\{156\}$	$\{126\}^v$	$\{16\}^v$
$\{1234\}$	$\{12345\}^v$	$\{1345\}^v$



Luca Giovane Gomes

Lista_03_Exercício_02_Letra_C

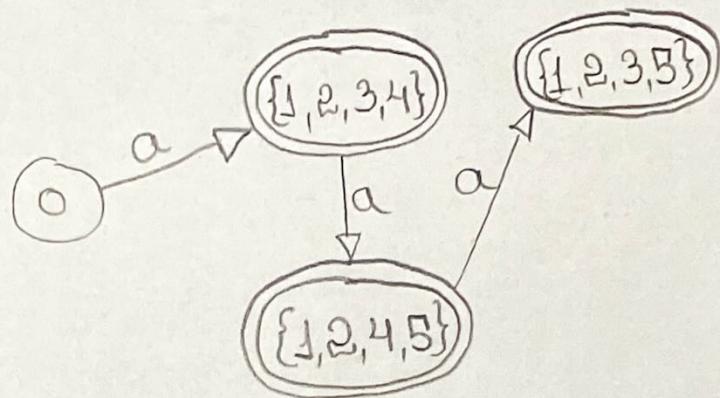
	c	t	r	n	a
1	$\{2, 5, 6, 10, 11, 14, 15\} = \gamma$	$\{5, 10, 14\}$	$\{5, 10, 14\}$	$\{5, 10, 14\}$	$\{5, 10, 14\} = \omega \checkmark$
w	$\{6, 11, 15\} \vee$	-	-	-	-
x	$\{6, 11, 15\} \vee$	-	-	-	$\{2, 6, 11, 15\} = x \checkmark$
$\{6, 11, 15\}$	-	-	-	-	$\{12, 16\} \vee$
x	-	-	-	-	$\{12, 16\} \vee$
$\{12, 16\}$	-	-	-	-	-
$\{11, 15\}$	-	-	-	-	$\{12, 16\} \vee$



Luca Giovane Gomes

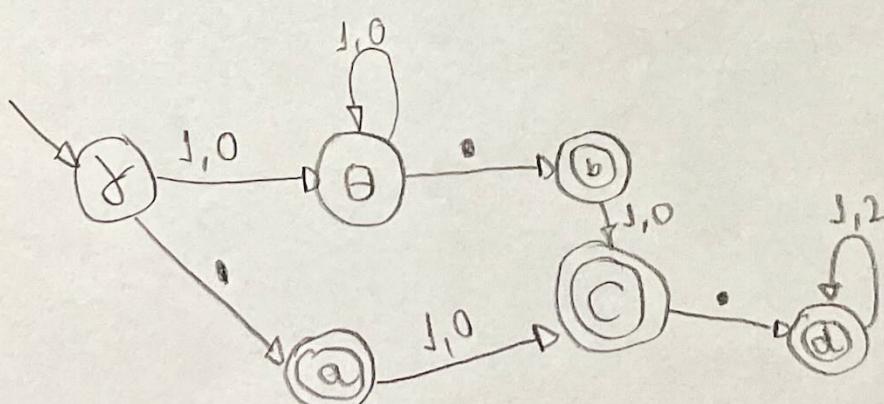
Lista_03_Exercicio_02_Letra_d

	a
{0}	{1,2,3,4} v
{1,2,3,4}*	{2,1,4,5} v
{2,1,4,5}*	{1,2,5,3} v
{1,2,5,3}*	{2,1,3,4} v



Lista_03_Exercicio_02_Letra_l

	1	0	
$\emptyset \{1,2,3,4,8\}$	$\emptyset \{2,3,4,5,7,8\} v$	$\emptyset \{2,3,4,6,7,8\} v$	$\{2,3,4,8,9,10,11,12,16\} = a v$
$\emptyset \{2,3,4,5,7,8\} \emptyset$	$\emptyset \{2,3,4,5,7,8\} v$	$\emptyset \{2,3,4,6,7,8\} v$	$\{2,3,4,7,8,9,10,11,12,16\} = b$
$\emptyset \{2,3,4,6,7,8\} \emptyset$	$\emptyset \{2,3,4,5,7,8\} v$	$\emptyset \{2,3,4,6,7,8\} v$	$\{2,3,4,7,8,9,10,11,12,16\} = b$
* a	$\{2,3,4,5,6,7,8,10,11,12,13,14,15,16\}$	$\{2,3,4,6,7,8,10,11,12,14,15,16\}$	$\{2,3,9,10,11,12,16\}$
* b	$\{2,3,4,5,7,8,10,11,12,13,15,16\}$	$\{2,3,4,6,7,10,11,12,14,15,16\}$	$\{2,3,9,10,12,16\}$



Lucca G. Gomes

Lista_03_Exercício_03

$$a = \{1, 4, 9\}$$

$$b = \{2, 3\}$$

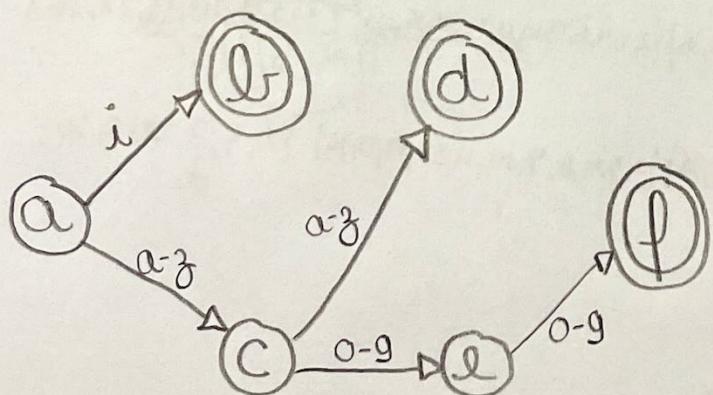
$$c = \{5, 6, 10\}$$

$$d = \{7, 8\}$$

$$e = \{11, 12, 6\}$$

$$f = \{12, 13\}$$

	i	$\{a-z\}$	$\{0-9\}$
a	b	c	c
*b	-	-	-
c	-	d	e
*d	-	-	-
e	-	-	f
*f	-	-	-



Lucca Giorrane Gomes

Lista_04_Exercicio_01_Letra_a

$$a = \{1, 4, 9\}$$

$$e^* = \{3, 6, 7, 8\}$$

$$b^* = \{2, 5, 6, 8\}$$

$$f^* = \{11, 12, 13\}$$

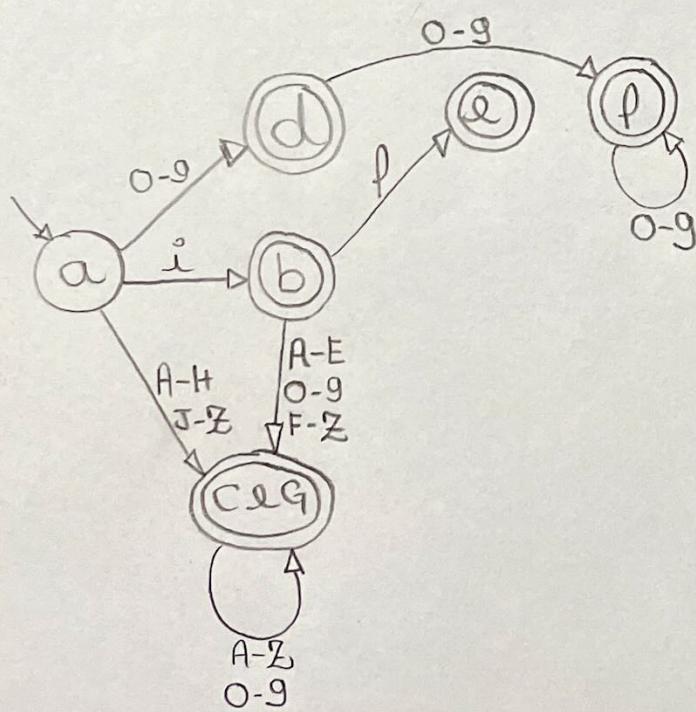
$$c^* = \{5, 6, 8\}$$

$$g^* = \{6, 7, 8\}$$

$$d^* = \{10, 11, 13\}$$

	b	c	d	e	f
b	x				
c	x	x			
d	x	x	x		
e	x	x		x	
f	x	x	x		x
g	x	x		x	x

	O-9	A-E	i	l
a	D	C	l	-
*b	G	G	-	-
*c	G	G	-	-
*d	l	l	-	-
*e	G	G	-	-
*f	l	l	-	-
*g	G	-	-	-

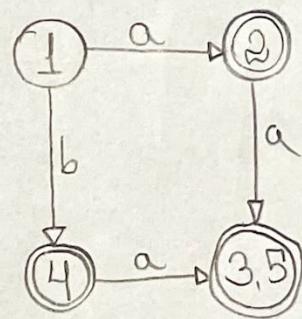


Lucca Giovane Gomes

Lista_04_Exercicio_1_Letra_b

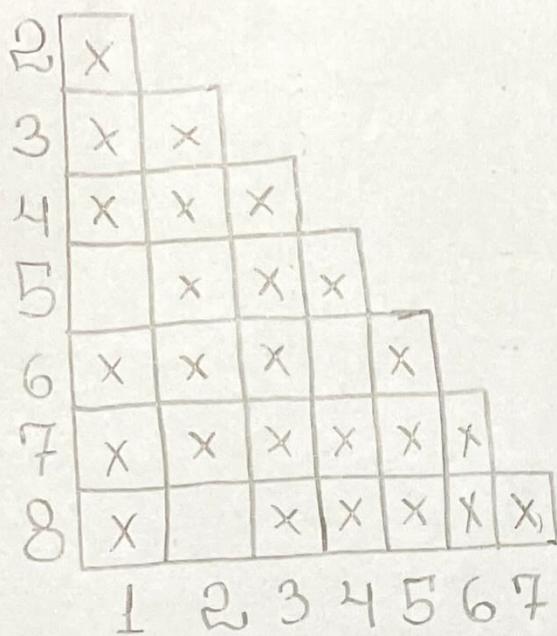
	a	b
1	2	4
*2	3	-
3	2	-
*4	5	-
5	4	-

	1	2	3	4
1				
2	X			
3		X	X	
4	X			X
5	X	X		X

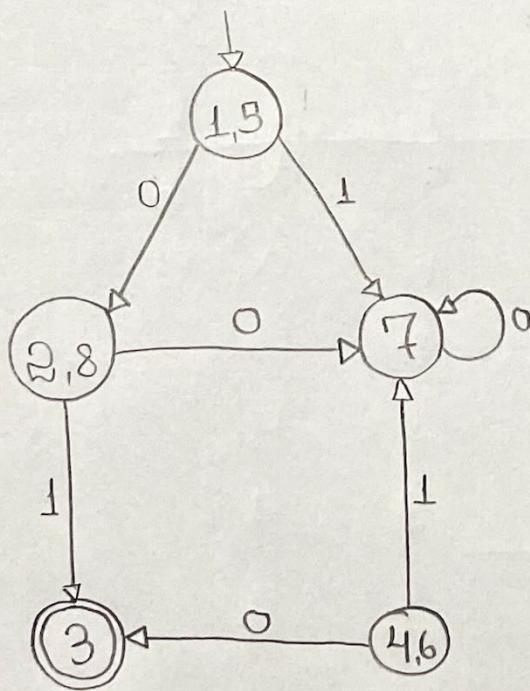


Lucca G. Gomez

Lista_04_Exercício_01_Letra_C



	1	0
a	1	6
b	2	3
c	*3	3
d	4	7
e	5	6
f	6	4
g	7	5
h	8	3



Lucca Giovane Gomes

Lista_04_Exercicio_02_Letra_a

$$a = \{1, 2, 3, 4, 8\}$$

$$\{2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 15, 16\}$$

$$b = \{1, 2, 3, 4, 5, 7, 8\}$$

$$1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 16$$

$$c = \{1, 2, 3, 4, 6, 7, 8\}$$

$$d^* = \{1, 2, 3, 4, 8, 9, 10, 11, 12, 16\}$$

$$e^* = \{1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16\}$$

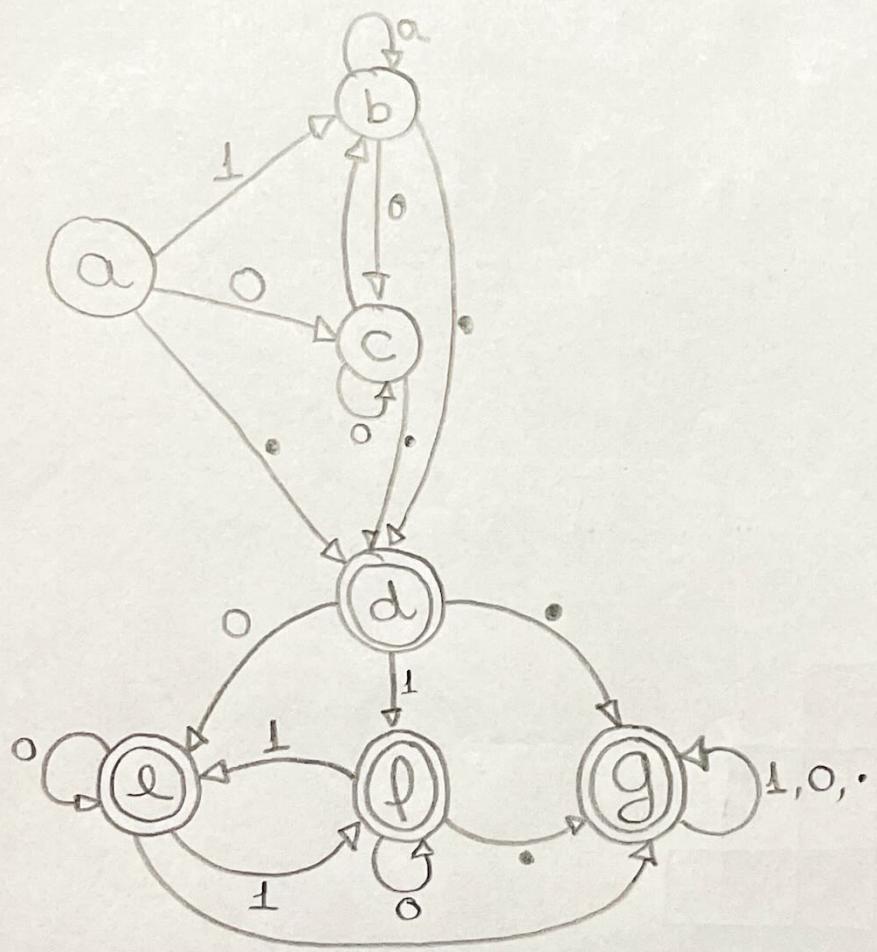
$$f^* = \{1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 13, 15, 16\}$$

$$g = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 16\}$$

	o	i	•
a	c ^v	b ^v	d ^v
b	c ^v	b ^v	d ^v
c	c ^v	b ^v	d ^v
*d	e ^v	f ^v	g
*e	e ^v	f ^v	g
*f	f ^v	e ^v	g
*g	g	g	g

Luca Giavane Gomes

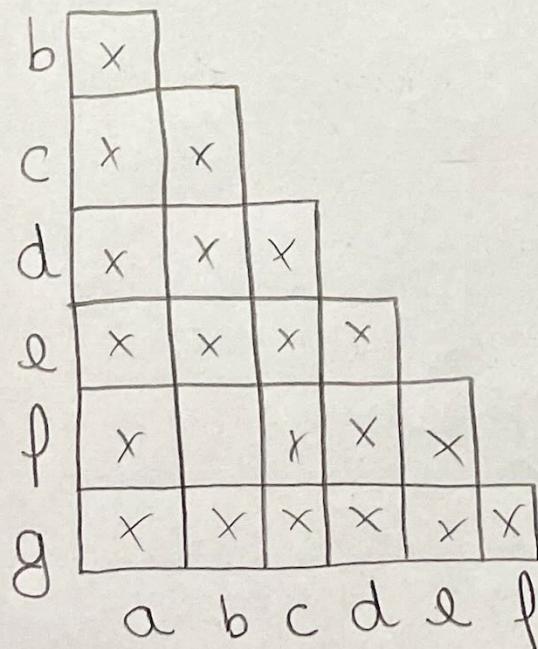
b					
c					
d	x	x	x		
e	x	x	x		
f	x	x	x		
g	x	x	x		
	a	b	c	d	e



Lucca G. Gomes

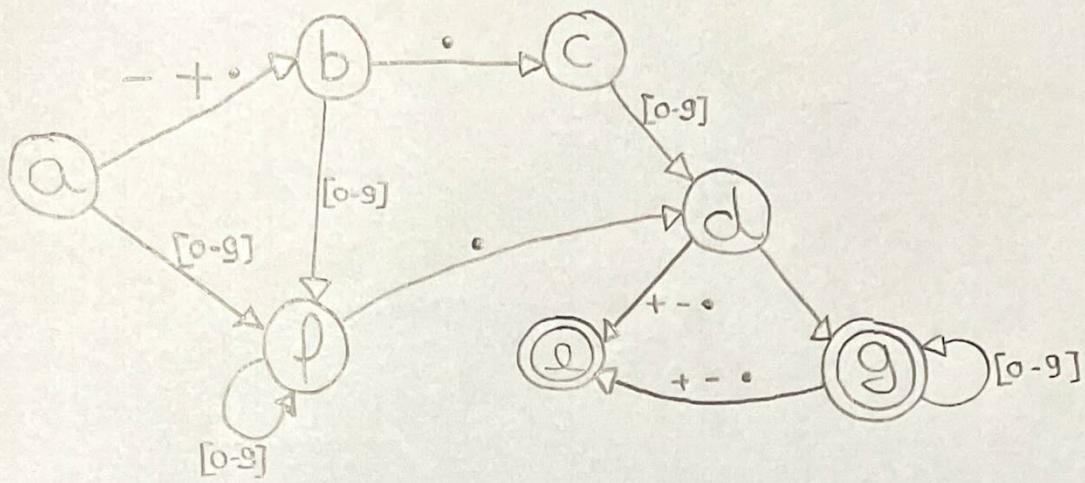
Lista_04_Exercício_02_Letra_b

	+	-	[0-9]	.
a $\{q_0\}$	$\{q_1\} \vee$	$\{q_1\} \vee$	$\{q_1, q_4\} \vee$	$\{q_1\} \vee$
b $\{q_1\}$	—	—	$\{q_1, q_4\} \vee$	$\{q_2\} \vee$
c $\{q_2\}$	—	—	$\{q_3\} \vee$	—
d $\{q_3\}$	$\{q_5\} \vee$	$\{q_5\} \vee$	$\{q_3, q_5\}$	$\{q_5\} \vee$
e $*\{q_5\}$	—	—	—	—
f $\{q_1, q_4\}$	—	—	$\{q_1, q_4\} \vee$	$\{q_3\} \vee$
g $*\{q_3, q_5\}$	$\{q_5\} \vee$	$\{q_5\} \vee$	$\{q_3, q_5\} \vee$	$\{q_5\} \vee$



Luca Giovane Gomez

Lucca Giovane Gomes



Lista_04_Exercicio_03

Automato A:

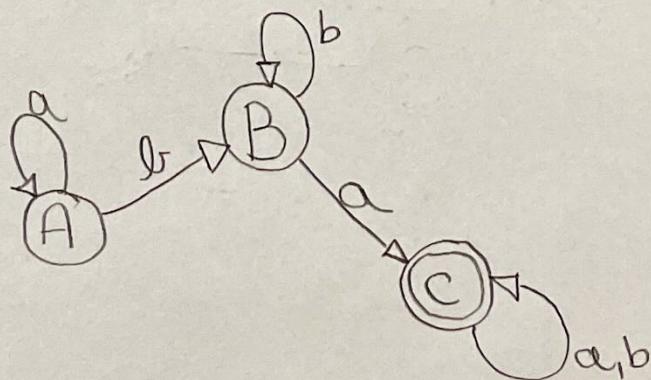
$$A = \{16, 0, 17, 18\}$$

$$B = \{16, 0, 1, 2, 17, 18, 19, 20\}$$

$$C = \{0, 17, 18, 2, 3, 20, 21, 22, 14, 8, 9, 15, 23, 10, 4, 5, 11, 12, 16, 13\} *$$

	a	b
A	A ∨	B ∨
B	C ∨	B ∨
C	C ∨	C ∨

$$D = \{0, 1, 2, 17, 18, 19, 20,$$



Automato B:

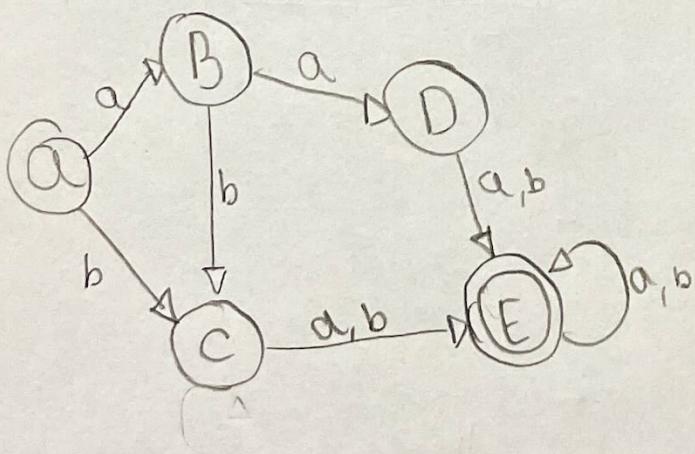
$$A = \{0, 0, 11, 4\}$$

$$B = \{0, 11, 4\}$$

$$C = \{1, 2, 11, 4, 9, 12, 6, 13, 14\}$$

$$D = \{4\}$$

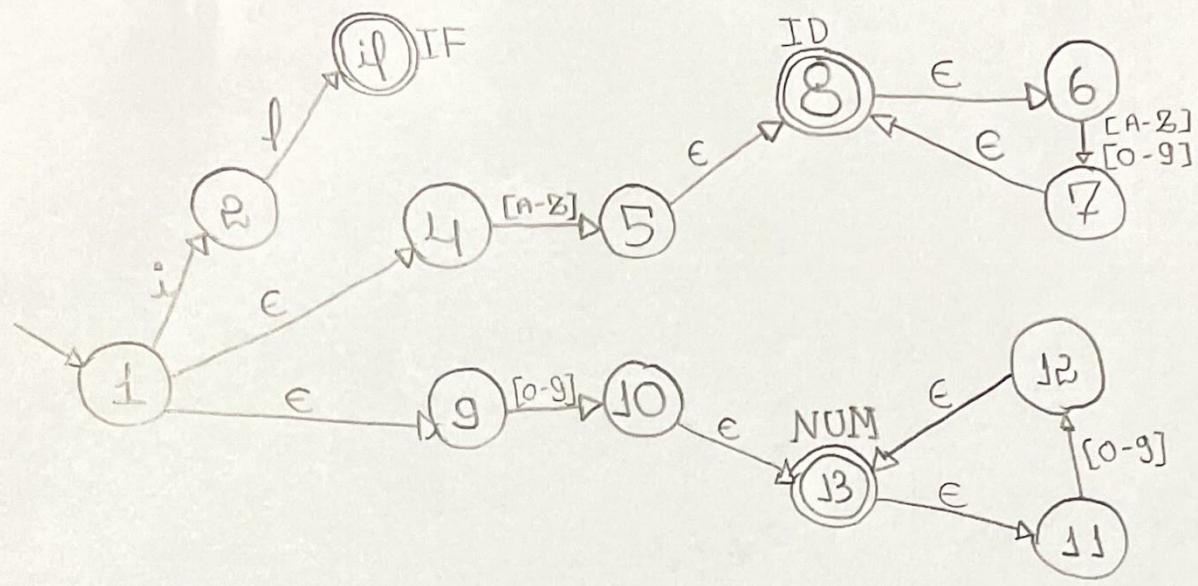
	a	b
A	B ∨	C
B	D	C
C	C	C
D	E	E



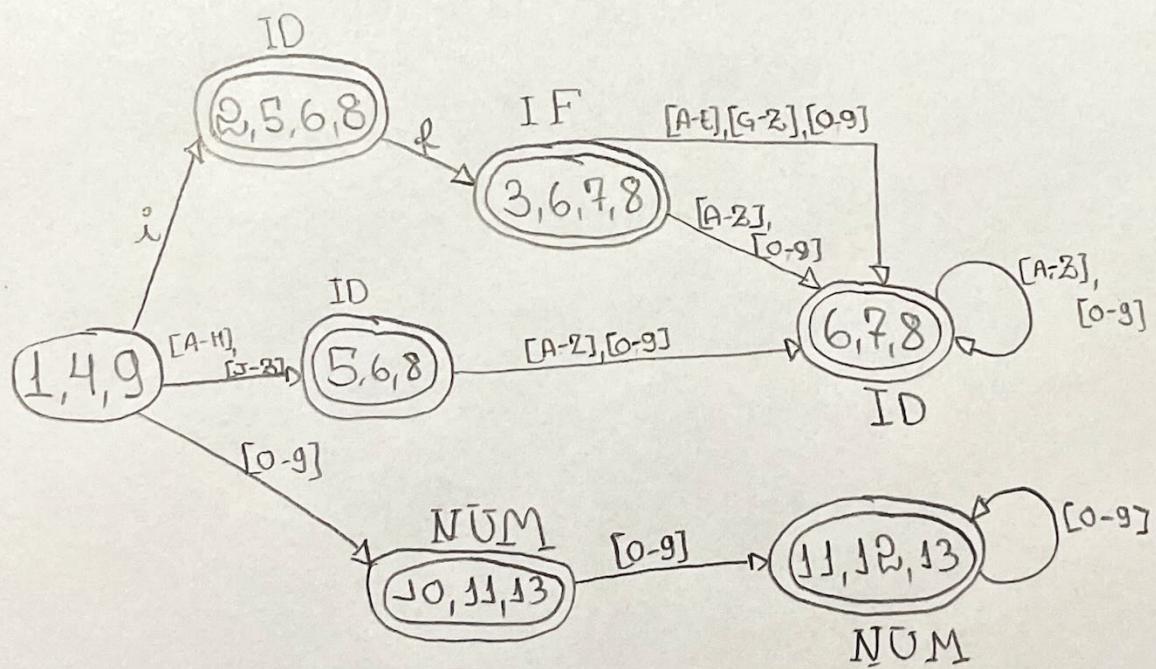
Não são equivalentes

Luca Giovane Gomes

Lista_04_Exercicio_04_Letra_a

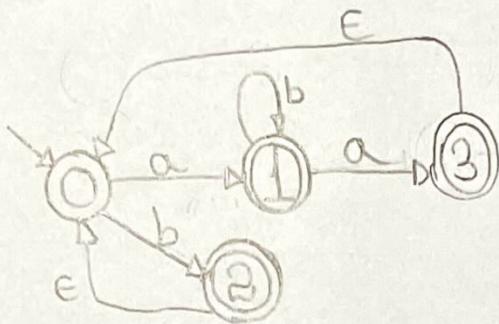


Lista_04_Exercicio_04_Letra_b



Lucca Giovane Gomes

Lista_05_Exercício_03



estado	a	b	finalidade
0	1	2	action 3
1	3	1	-
2	-	-	
3	0	0	action 1/2

Passo	Lectura	estado atual	próximo estado	ação
1	a	0	1	-
2	b	1	1	
3	a	1	3	action 1
4	a	3	1	-
5	b	1	1	-
6	b	1	1	-
7	a	1	3	action 2
8	b	3	2	action 3
9	a	2	1	action 3

Lucca Giovane Gomes