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 SP3034178 SISD2 P2

① Estados $I_1 I_0$

	00	01	11	10	S
A	A	-	-	B	0
B	D	-	C	B	0
C	-	E	C	-	0
D	D	F	-	-	1
E	A	E	-	-	0
F	A	F	-	-	1

1- A \nleftrightarrow E

B - D	B				
C	C	C			
x	x	x	D		
C	A - D	C	x	E	
x	x	x	A - D	x	F

Tabela de classes de estados de máx compatibilidade:

Análise

Compatíveis

CCENC

E

-

-

D

-

-

C

E

(C, E)

B

C

(C, E), (B, C)

A

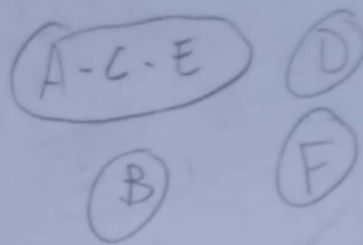
C, E

~~(C, E), (B, C), (A, C), (A, E)~~

(A, C, E)

$CCENC = \{(A, C, E), (B, C)\}$

Grafo de compatibilidade:



11E Reduzido:

$\alpha = A-C-E$ $\beta = B$ $\gamma = D$ $\theta = F$

Estados \ I, I ₀	00	01	11	10	S
α	α	α	α	β	0
β	γ	-	α	β	0
γ	γ	θ	-	-	1
θ	α	θ	-	-	1

2. 4 estados \rightarrow 2 bits \rightarrow 2 FF's

Atribuição:

$\alpha = 00$ $\gamma = 10$

$\beta = 01$ $\theta = 11$

11E atribuída:

	Q ₁ Q ₀ \ I, I ₀	00	01	10	11	S
α	0 0	00	00	00	01	0
β	0 1	10	-	00	01	0
θ	1 1	00	00	-	-	1
γ	1 0	10	00	-	-	1

FF D:

Tabela verdade:

D	Q(t+1)
0	0
1	1

Tabela de excitação

Q(t) → Q(t+1)	D
0 → 0	0
0 → 1	1
1 → 0	0
1 → 1	1

Minimização

lógica:

FF 1:

Q ₁ Q ₀		I ₁ I ₀			
		00	01	11	10
0	0	0	0	0	1
0	1	0	-	0	1
1	1	0	0	-	-
1	0	0	0	-	-

$$D_0 = \bar{I}_0 I_1$$

FF₂:

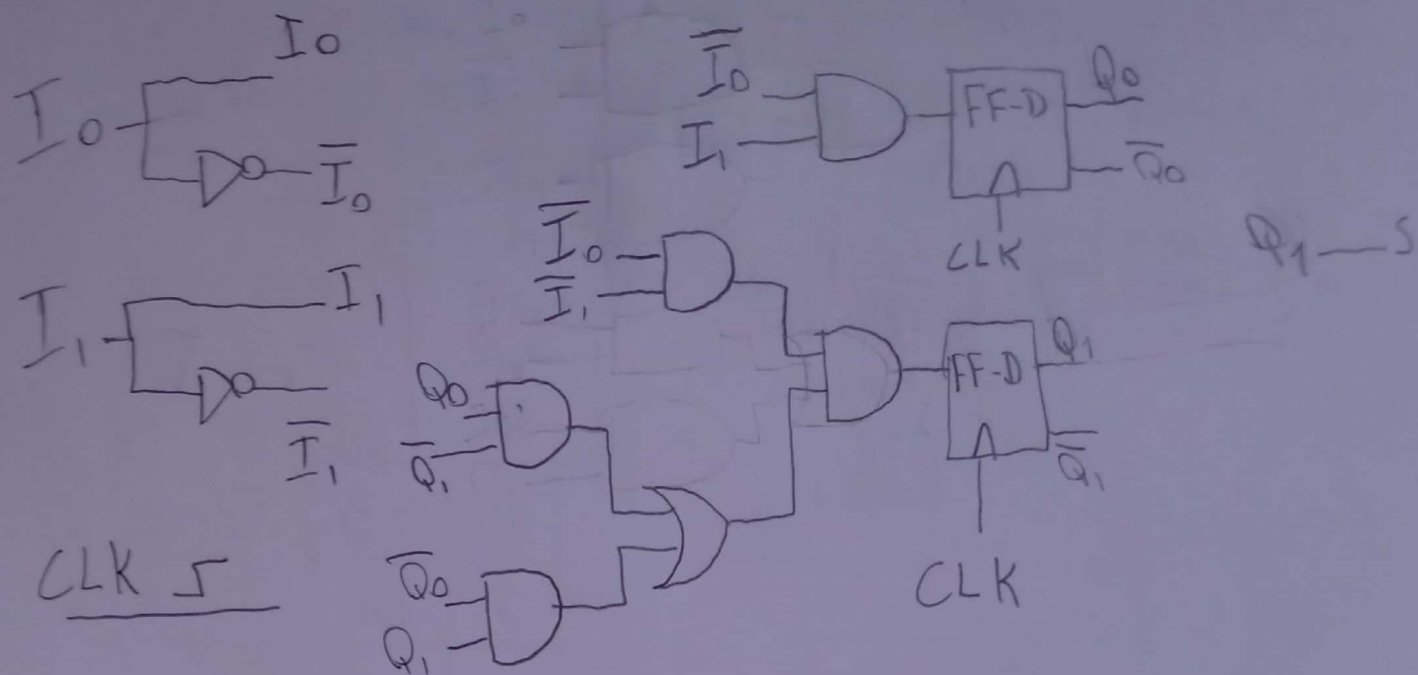
Q ₁ Q ₀		I ₁ I ₀			
		00	01	11	10
0	0	0	0	0	0
0	1	1	-	0	0
1	1	0	0	-	-
1	0	1	0	-	-

$$D_1 = \bar{I}_0 \bar{I}_1 (\bar{Q}_1 Q_0 + Q_1 \bar{Q}_0)$$

Saída:

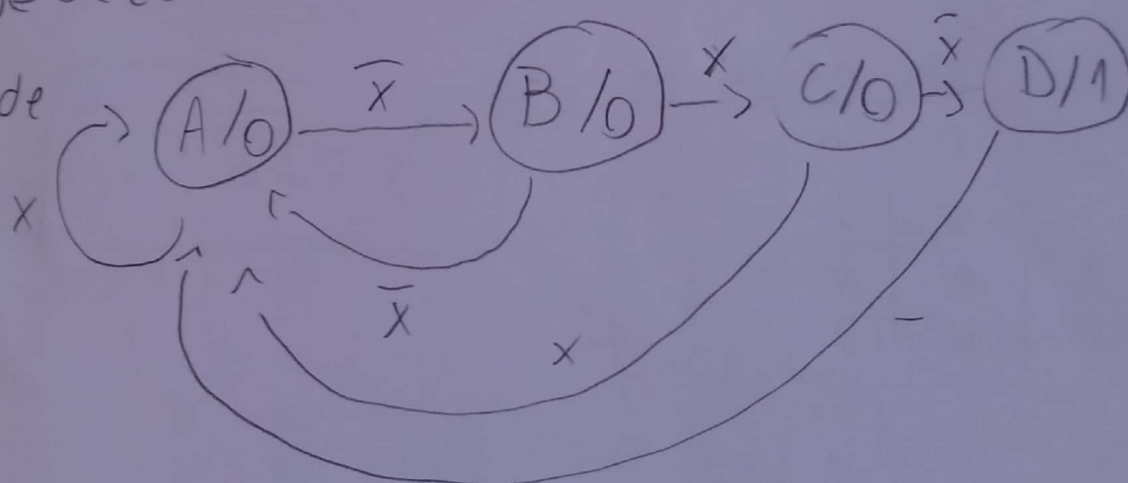
Q ₁ \ Q ₀	0	1
0	0	1
1	0	1

$$S = Q_1$$



② Detector 0-1-0

Diagrama de estados



IE:

Estado	x=0	x=1	Z
A	B	A	0
B	A	C	0
C	D	A	0
D	A	A	1

IPE:

A			
A-C	B		
B-D	A-D	A-C	C
X	X	X	D

Não há estados compatíveis

4 estados \rightarrow 2 bits \rightarrow 2 Flip Flops

A \rightarrow 00 B \rightarrow 01 C \rightarrow 11 D \rightarrow 10

11E assinalado:

$Q_1, Q_0 \backslash X$	0	1	2
0 0	01	00	0
0 1	00	11	0
1 1	10	00	0
1 0	00	00	1

tabela de excitação:

$Q(t) \rightarrow Q(t+1)$	J	K
0 \rightarrow 0	0	x
0 \rightarrow 1	1	x
1 \rightarrow 0	x	1
1 \rightarrow 1	x	0

FF-0-J

FF-0-K

$Q_1, Q_0 \backslash X$	0	1
0 0	1	0
0 1	x	x
1 1	x	x
1 0	0	0

$$J_0 = \overline{X} \overline{Q_0} \overline{Q_1}$$

$Q_1, Q_0 \backslash X$	0	1
0 0	x	1
0 1	1	0
1 1	1	1
1 0	x	x

$$K_0 = \overline{X} + Q_1$$

FF-1-J

FF-1-K

$Q_1, Q_0 \backslash X$	0	1
0 0	0	0
0 1	0	1
1 1	x	x
1 0	x	x

$$J_1 = X Q_0 \overline{Q_1}$$

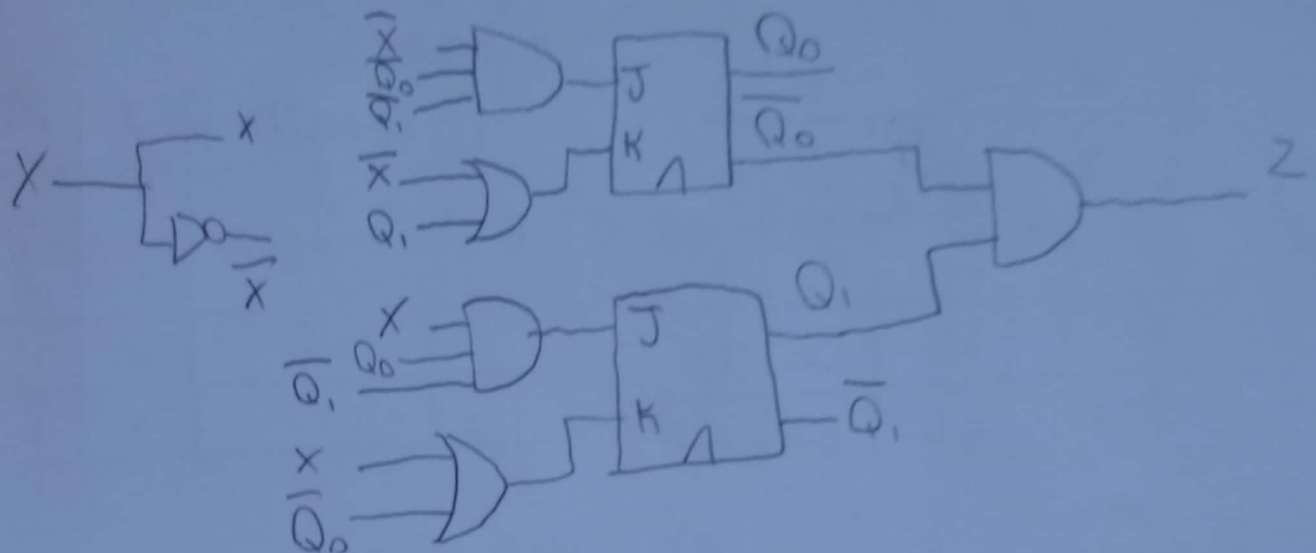
$Q_1, Q_0 \backslash X$	0	1
0 0	x	x
0 1	x	x
1 1	0	1
1 0	1	1

$$K_1 = X + \overline{Q_0}$$

2:

$Q_1 \backslash Q_0$	0	1
0	0	0
1	1	0

$$Z = \overline{Q_0} Q_1$$



③ $J = xQ + \overline{y}x$ $K = \overline{x}y$ $S = Q$

$$J = x(Q + \overline{y}) \quad Q = J\overline{q} + \overline{K}q$$

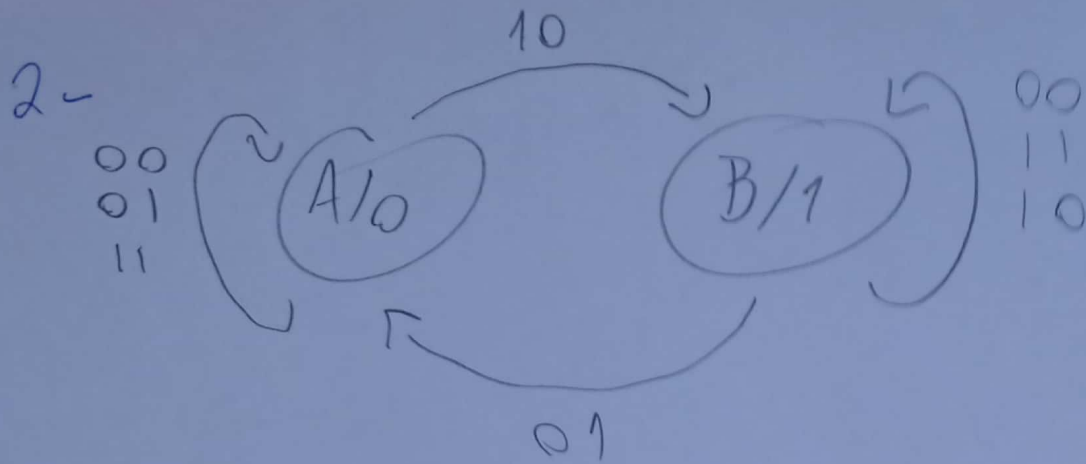
$$Q = \overline{q}x(Q + \overline{y}) + \overline{x}yq$$

TTT:

$Q \backslash xy$	00	01	11	10	S
0	0	0	0	1	0
1	0	1	0	0	1

$Q = 0 \Rightarrow$ estado A

$Q = 1 \Rightarrow$ estado B



3- S detecta a entrada 10 ou 01.