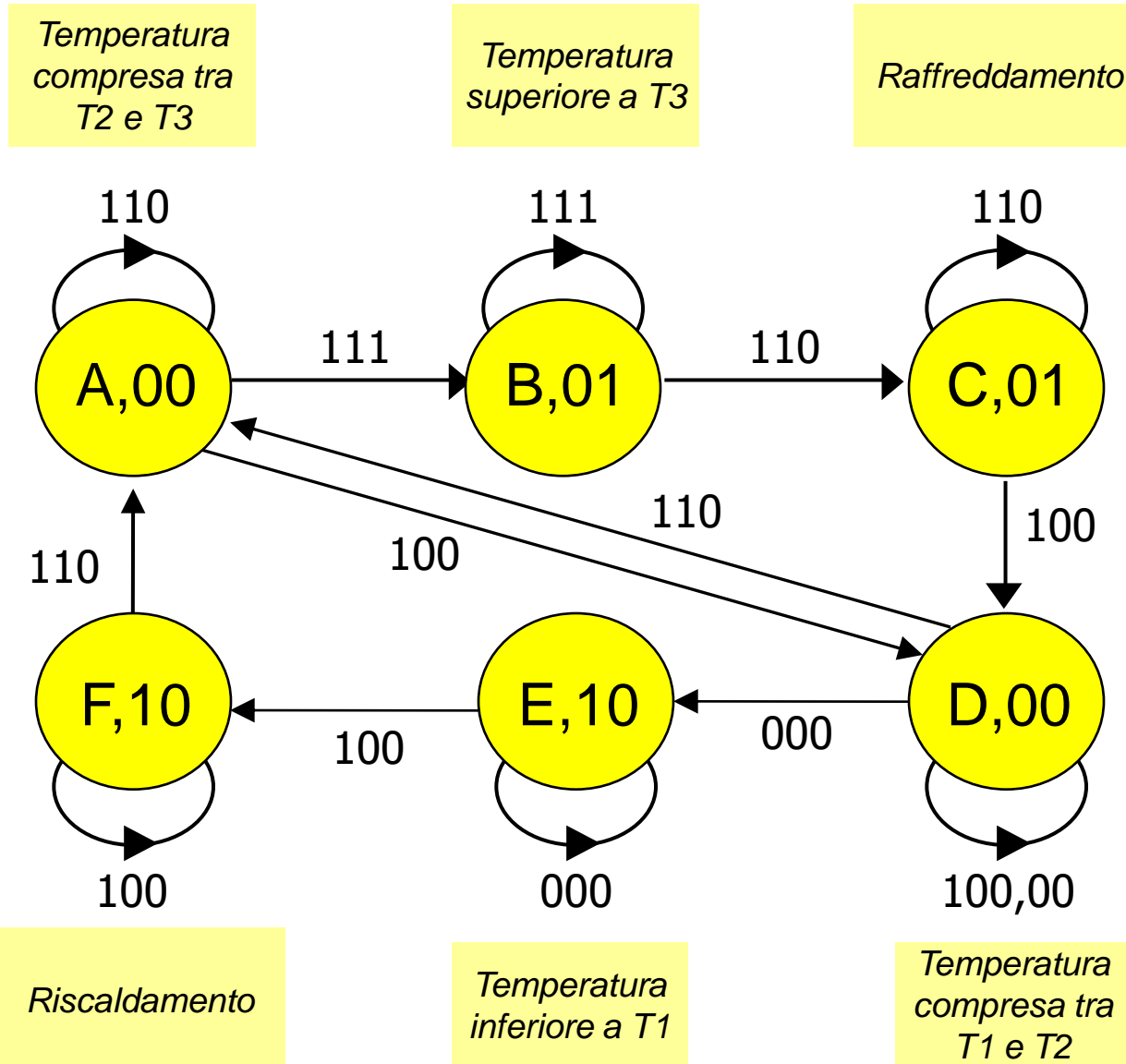


Esercizio 1.1 – Grafo primitivo

T1T2T3,VC VF

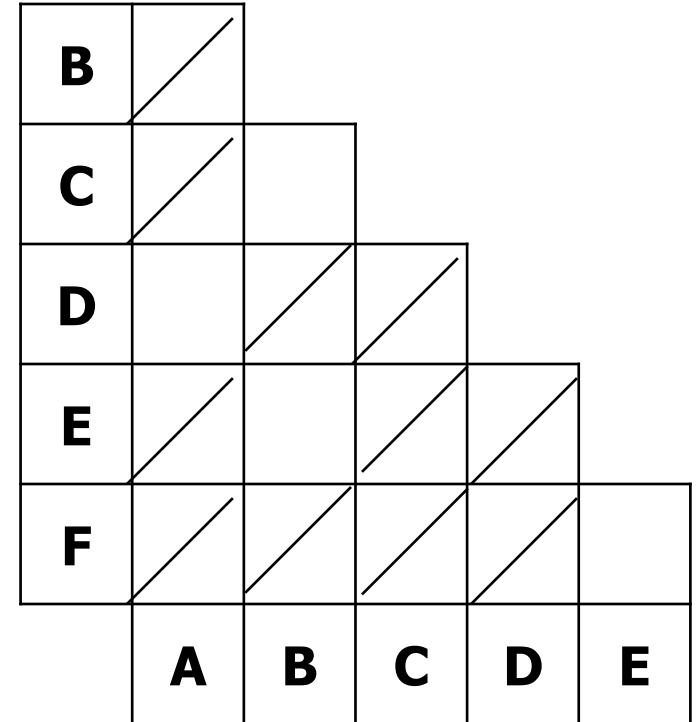


Esercizio 1.2 – TdF

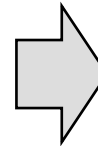
s.p.

		T1	T2	T3
	000	100	110	111
A	-	D,00	A,00	B,0-
B	-	-	C,01	B,01
C	-	D,0-	C,01	-
D	E,-0	D,00	A,00	-
E	E,10	F,10	-	-
F	-	F,10	A,-0	-

s.f., VCVF

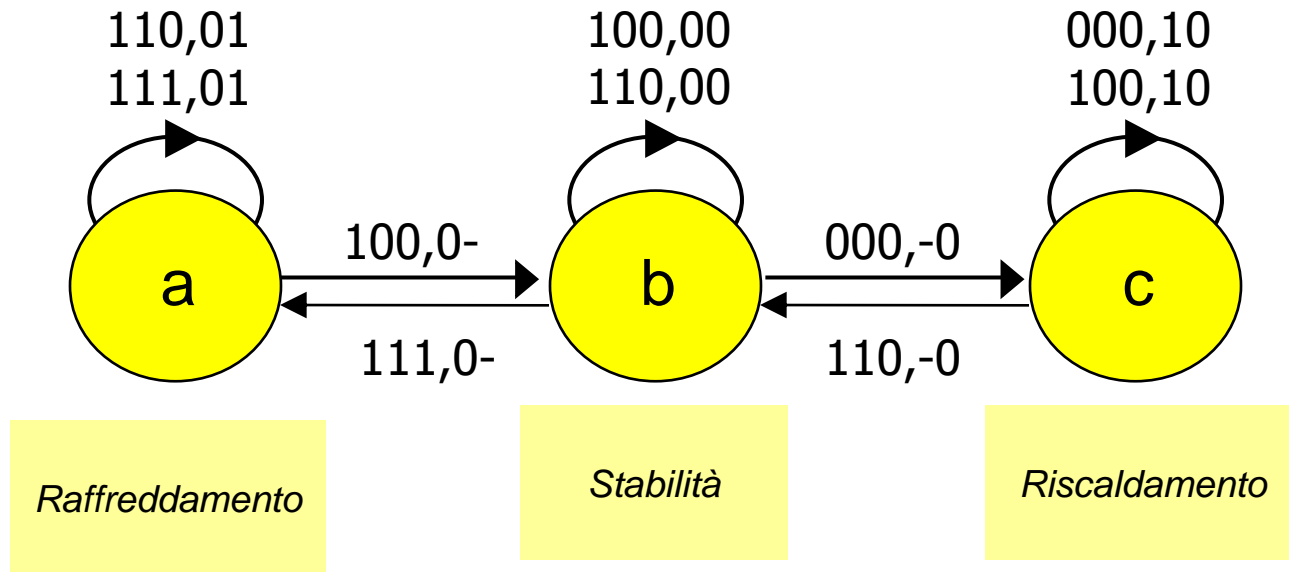


CMC: {BC}, {BE},
{AD}, {EF}



a={BC}, b={AD}, c={EF}

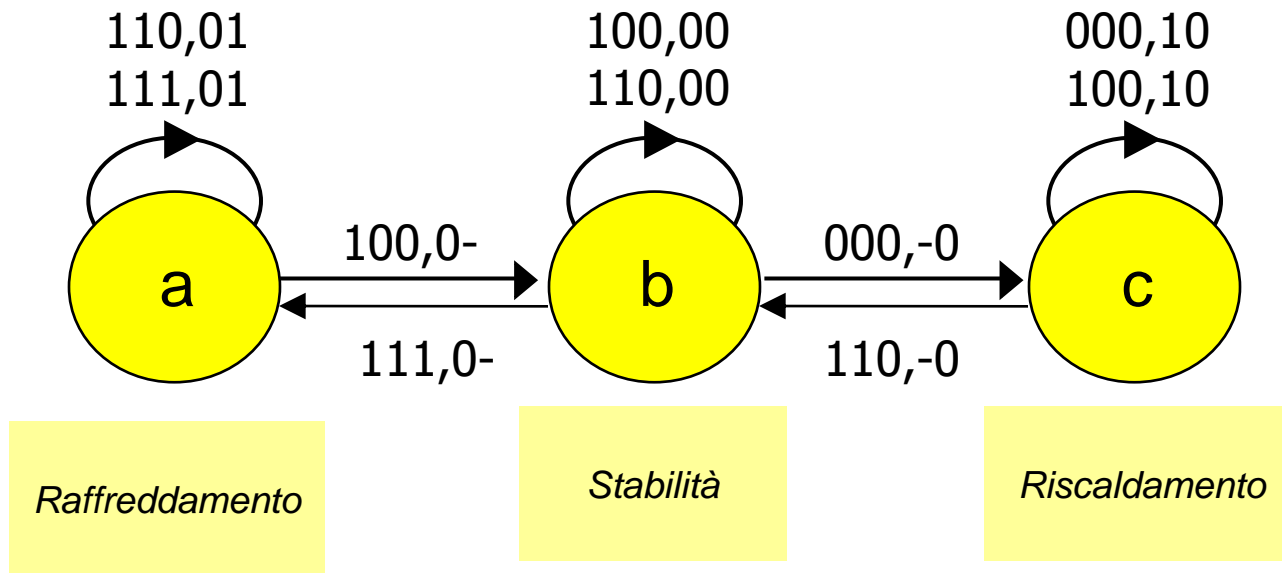
Esercizio 1.3 – TdF automa minimo



	T1 T2 T3			
	000	100	110	111
a	--,--	b,0-	a,01	a,01
b	c,-0	b,00	b,00	a,0-
c	c,10	c,10	b,-0	-,--
d	-,--	-,--	-,--	-,--

s.f, VC VF

Esercizio 1.3 – TdT automa minimo



Y1\Y0	0		1
0	a	↔	b
			↕
1			c

		T1	T2	T3	
Y1 Y0		000	100	110	111
a = 00		--,--	01,0-	00,01	00,01
b = 01		11,-0	01,00	01,00	00,0-
c = 11		11,10	11,10	01,-0	--,--
d = 10		--,--	--,--	--,--	--,--

Y1 Y0, VC VF

Esercizio 1.4 – Sintesi SP variabili di stato

Y1

T1T2

		00	01	11	10
00	-	-	0	0	
01	1	-	0	0	
11	1	-	0	1	
10	-	-	-	-	

T3=0

T1T2

		00	01	11	10
00	-	-	0	-	
01	-	-	0	-	
11	-	-	-	-	
10	-	-	-	-	

T3=1

$$Y1 = T1' + y1 T2'$$

Esercizio 1.4 – Sintesi SP variabili di stato

Y1

T1T2

	00	01	11	10
00	-	-	0	1
01	1	-	1	1
11	1	-	1	1
10	-	-	-	-

T3=0

T1T2

	00	01	11	10
00	-	-	0	-
01	-	-	0	-
11	-	-	-	-
10	-	-	-	-

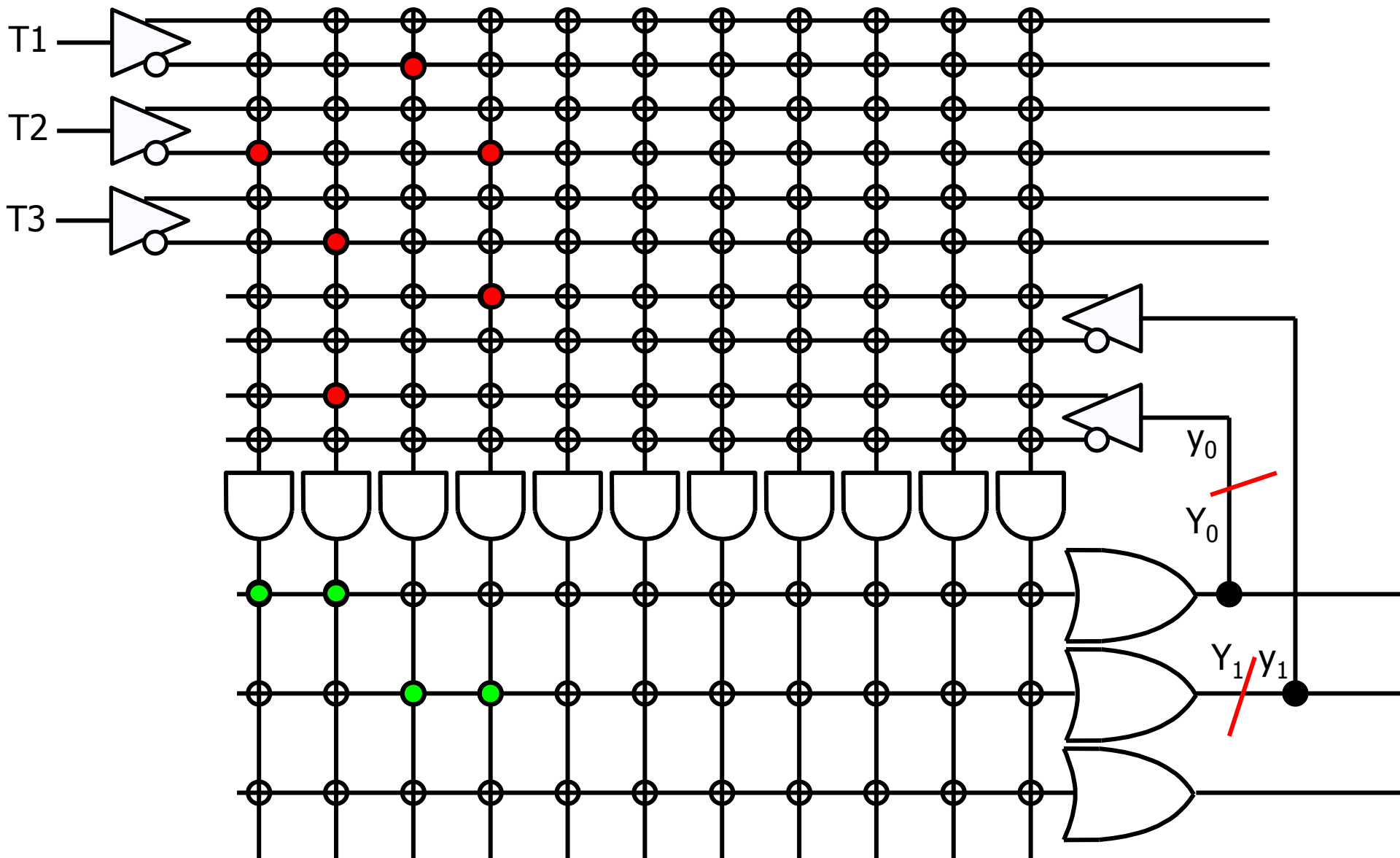
T3=1

Y1Y0

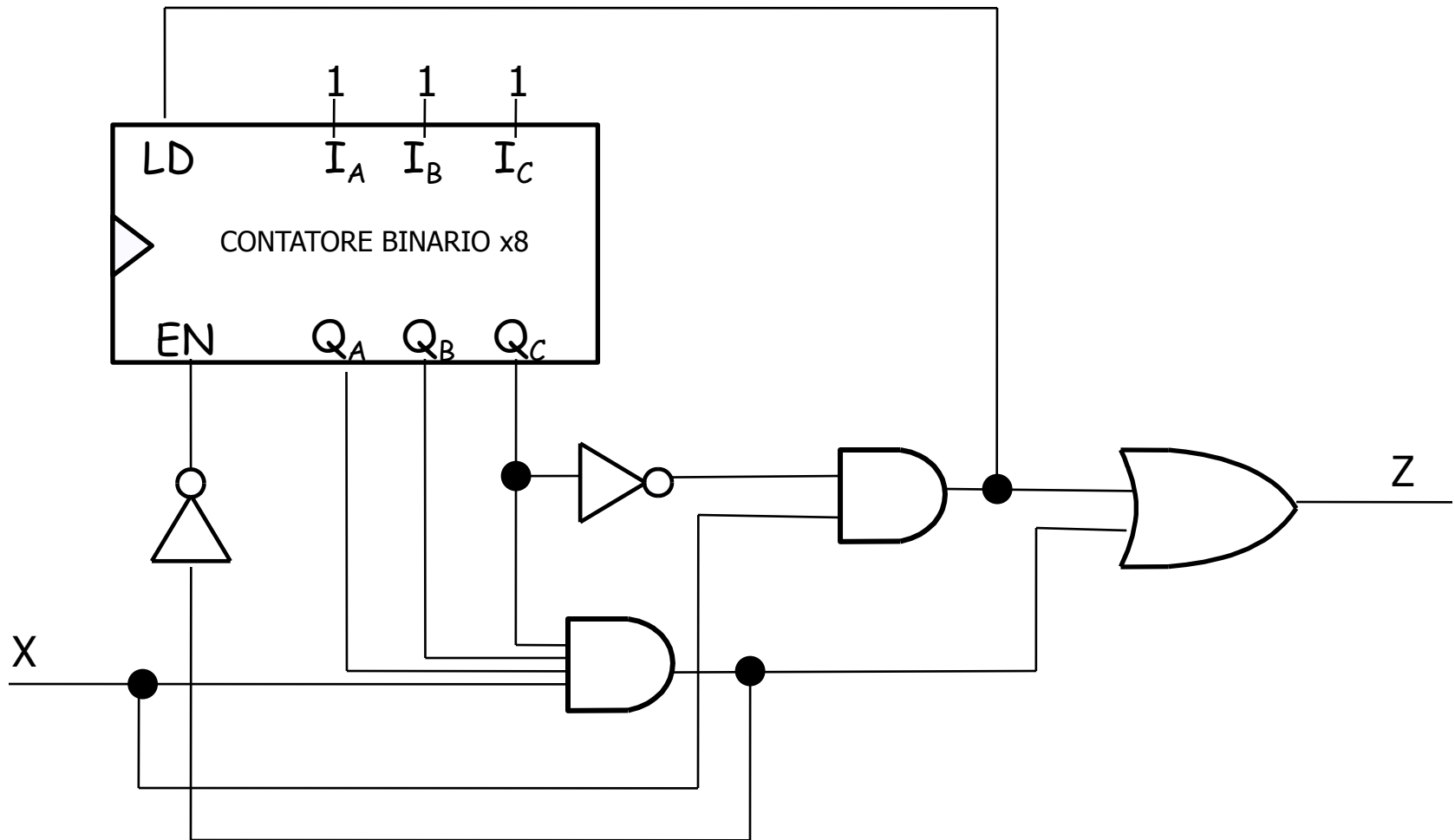
Y1Y0

$$Y0 = y0 T3' + T2'$$

Esercizio 1.4 – Sintesi con PLA



Esercizio 2.1 – Espressioni



$$Z = X Q_C' + X Q_A Q_B Q_C$$

$$LD = X Q_C'$$

$$EN = (X Q_A Q_B Q_C)'$$

Esercizio 2.2 – Mappa per Z

$$Z = X Q_C' + X Q_A Q_B Q_C$$

		$Q_B Q_C$			
		00	01	11	10
$X Q_A$	00	0	0	0	0
	01	0	0	0	0
	11	1	0	1	1
	10	1	0	0	1

Z

Esercizio 2.2 – Mappa per LD

$$LD = X Q_C'$$

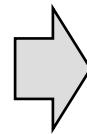
		$Q_B Q_C$			
		00	01	11	10
$X Q_A$	00	0	0	0	0
	01	0	0	0	0
	11	1	0	0	1
	10	1	0	0	1

LD

Esercizio 2.2 – Mappa per EN

$$EN = (X Q_A Q_B Q_C)'$$

		$Q_B Q_C$			
		00	01	11	10
$X Q_A$	00	0	0	0	0
	01	0	0	0	0
	11	0	0	1	0
	10	0	0	0	0
			EN'		



		$Q_B Q_C$			
		00	01	11	10
$X Q_A$	00	1	1	1	1
	01	1	1	1	1
	11	1	1	0	1
	10	1	1	1	1
			EN		

Esercizio 2.2 – Tabella con EN,LD,Z

	X	
	0	1
000	10,0	11,1
001	10,0	10,0
011	10,0	10,0
010	10,0	11,1
100	10,0	11,1
101	10,0	10,0
111	10,0	00,1
110	10,0	11,1

$(Q_A Q_B Q_C)^n$

$(EN,LD)^n, Z^n$

Con LD=1: $I_A I_B I_C = 111$

Esercizio 2.3 – TdT e TdF

	X	
	0	1
000	001,0	111,1
001	010,0	010,0
011	100,0	100,0
010	011,0	111,1
100	101,0	111,1
101	110,0	110,0
111	000,0	111,1
110	111,0	111,1

$(Q_A Q_B Q_C)^n$

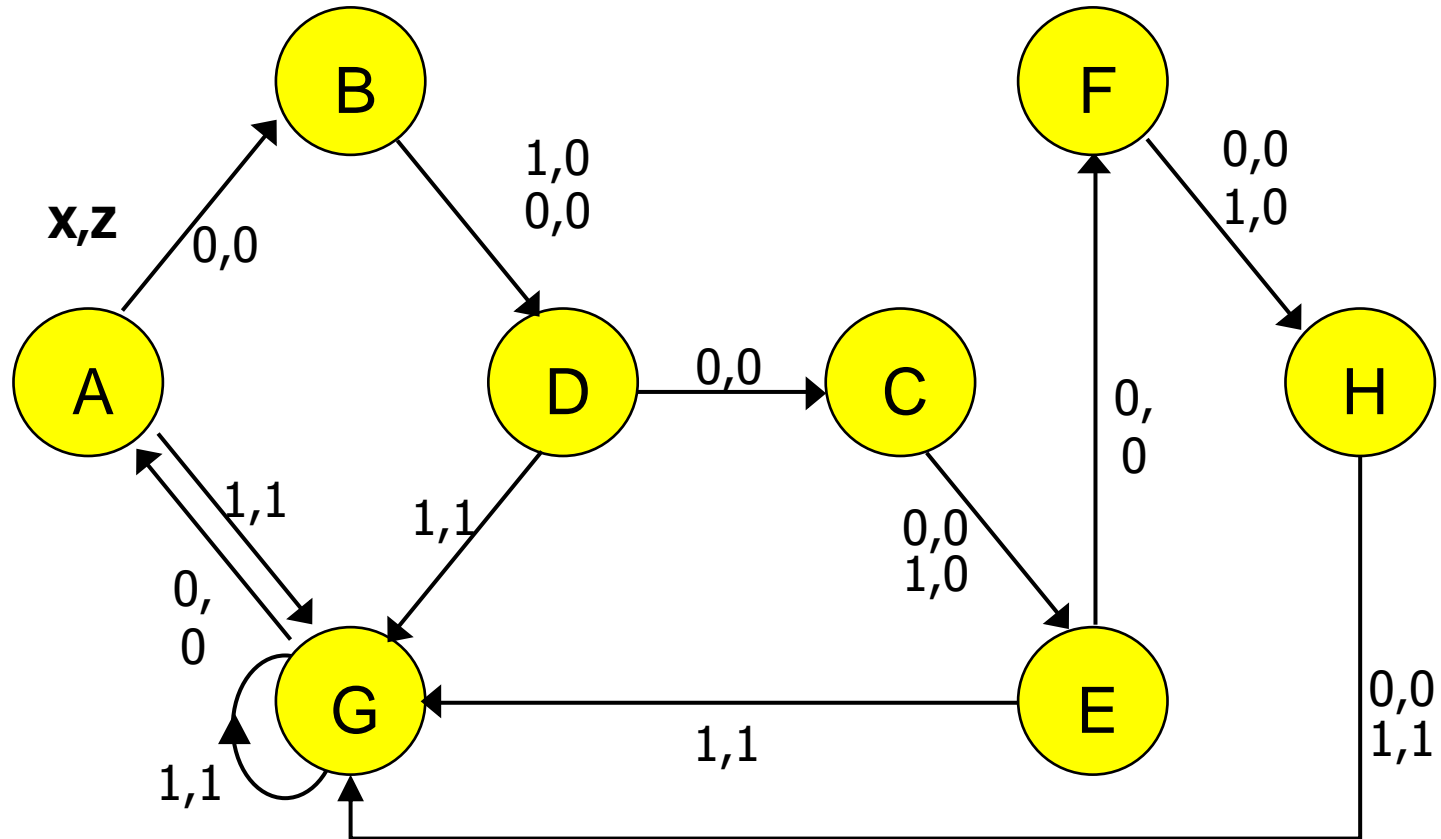
$(Q_A Q_B Q_C)^{n+1}, Z^n$

	X	
	0	1
A = 000	B,0	G,1
B = 001	D,0	D,0
C = 011	E,0	E,0
D = 010	C,0	G,1
E = 100	F,0	G,1
F = 101	H,0	H,0
G = 111	A,0	G,1
H = 110	G,0	G,1

s.p.

s.f., Z^n

Esercizio 2.4 – Grafo



- Con $X=0$, incrementa lo stato interno
- Con $X=1$, e conteggio «pari» (stati A,D,E,H): carica il valore 7 (stato G)
- Con $X=1$, e conteggio «dispari» minore di 7 (stati B,C,F): incrementa lo stato interno
- Con $X=1$, e conteggio pari a 7 (stato G): conteggio disabilitato

Comportamento: la rete implementa un ciclo di conteggio da 0 a 7. Il conteggio viene disabilitato quando $X=1$ e il conteggio è pari a 7. Il valore 7 viene caricato quando $X=1$ e il conteggio è pari. In entrambi tali casi, l'uscita è uguale a 1 (0 altrimenti).