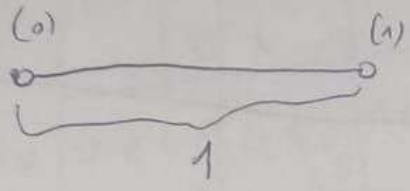
Curs 5 P.L. Clasificarea (optimală)

Metrică

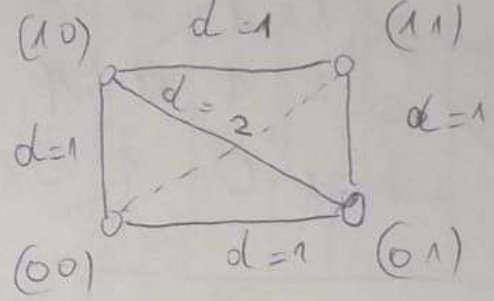
Numărul de biți care se modifică între două stări adiacente

$y : z^2 \to z^1$

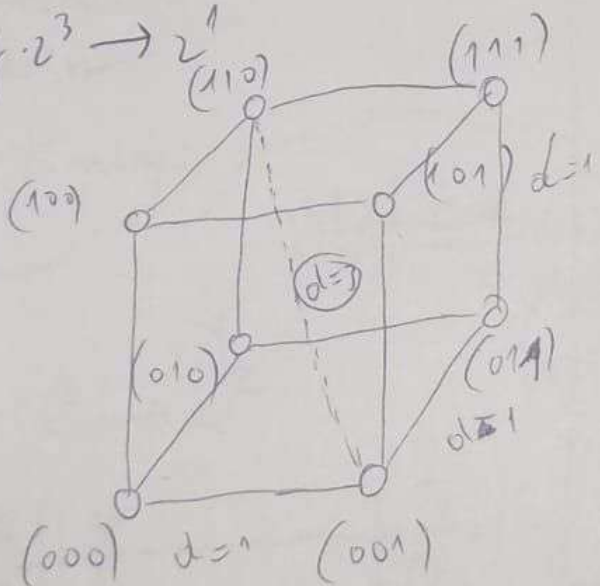


$y \cdot z^2 \to z^1$

$U = \{(00), (01), (10), (11)\}$



$y \cdot z^3 \to z^1$



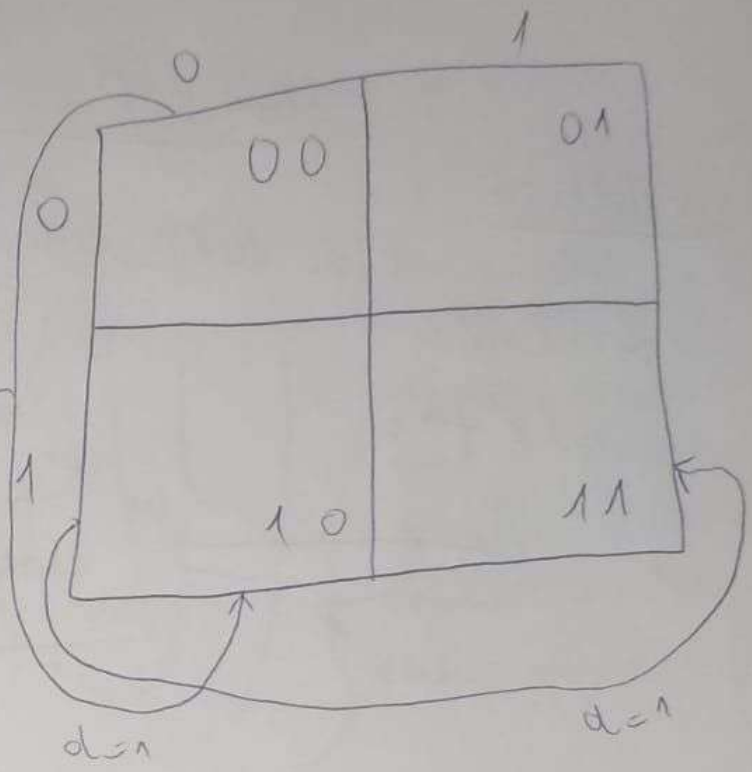
- Numărătoare recurențiale, cele care numără prin incrementarea LSB

- Numărătoare nerecurențiale

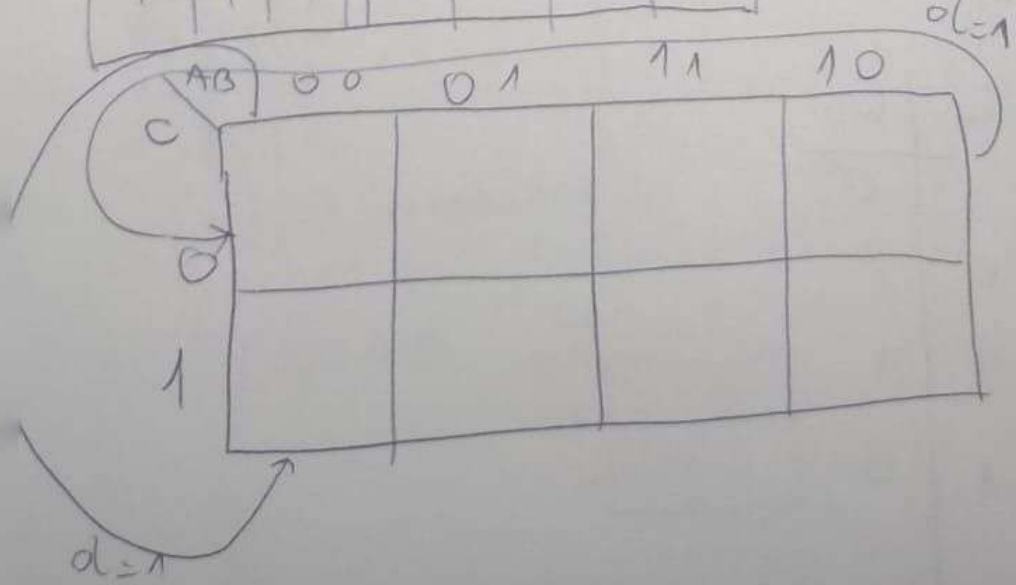
Numărătorul (Ulsay) care are metrica 1 între 2 stări consecutive

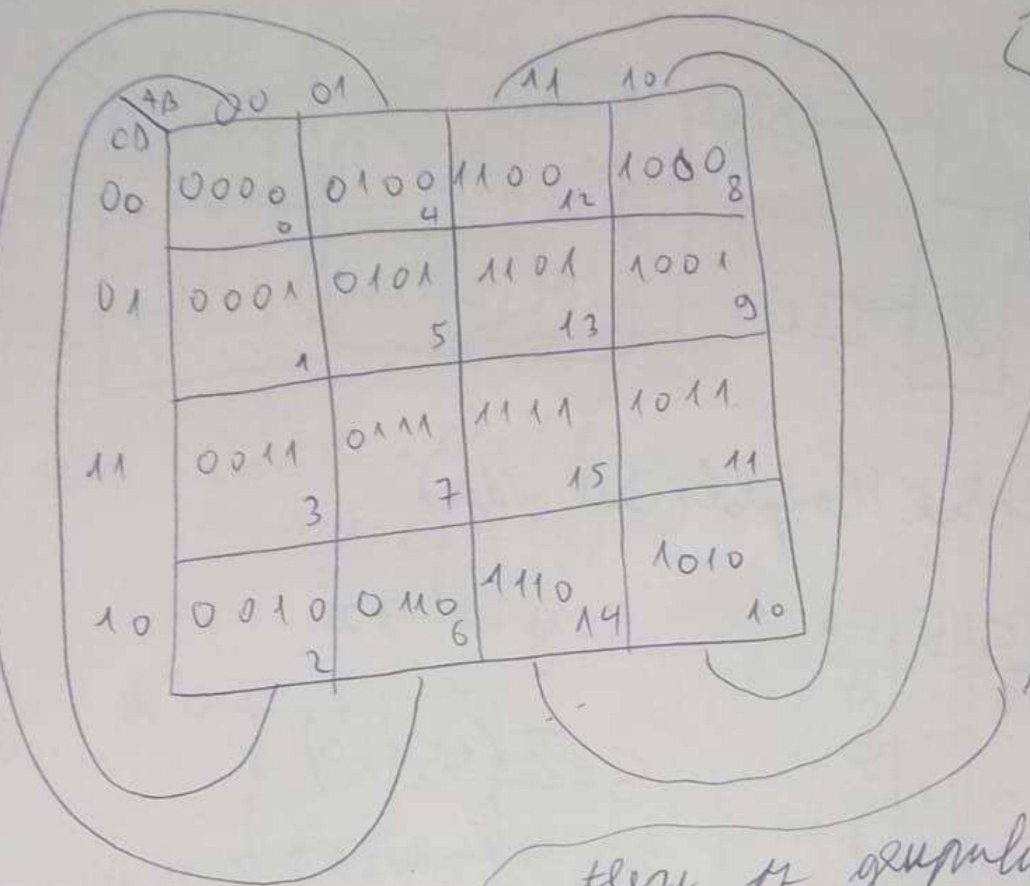
#	A	B	dL	GA	GB
0	0	0	2 (3)	0	0
	0	1	1	0	1
1	0				
	1	0	2	1	1
2	1				
3	1	1	1	1	0

A	B	C	d	GA	GB	GC
0	0	0	–	0	0	0
0	0	1	1	0	0	1
0	1	0	2	0	1	1
0	1	1	1	1	1	1
1	0	0	3	1	1	0
1	0	1	1	1	0	0
1	0	0	2	1	0	1
1	1	0	1	0	1	0
1	1	1				



A	B	C	d	GA	GB	GC
0	0	0	–	0	0	0
0	0	1	1	0	0	1
0	1	0	2	0	1	1
0	1	1	1	0	1	0
1	0	0	3	1	1	0
1	0	1	1	1	1	1
1	0	0	2	1	0	1
1	1	1	1	1	0	0





CD \ AB	00	01	11	10
00	0000 (0)	0100 (4)	1100 (12)	1000 (8)
01	0001 (1)	0101 (5)	1101 (13)	1001 (9)
11	0011 (3)	0111 (7)	1111 (15)	1011 (11)
10	0010 (2)	0110 (6)	1110 (14)	1010 (10)

În procesul de optimizare, PAD-urile ce pot fi formate atât din mintermi cât și maxtermi, grupând doar după aceluiași tip trebuie să păstreze ff grupului.

mintermi -
maxtermi -

V-K maps

Aplicatie Semisumator (Half Adder)

c - carry (bit de transport)

$y : 2^2 \to 2^2$

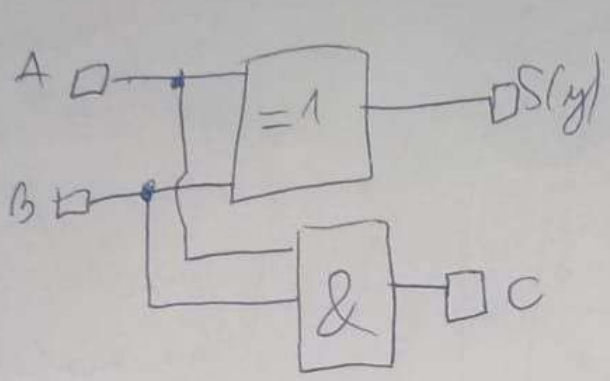
A	B	y	C
0	0	0	0
0	1	1	0
1	0	1	0
1	1	0 (in toate 1 0)	1

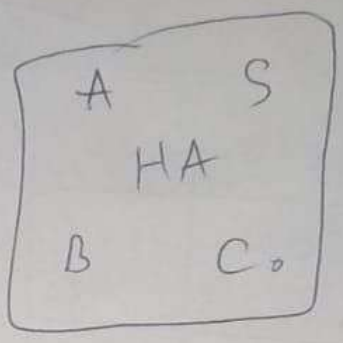
$y = \sum(1,2) = \bar{A}B + A\bar{B} = A \oplus B$

B \ A	0	1
0	0	1
1	1	0

$C = \sum(3) = AB$

B \ A	0	1
0	0	0
1	0	1





Sumatorul Complet (Full adder)

A	B	C_i	S	C_0
0	0	0	0	0
0	0	1	1	0
0	1	0	1	0
0	1	1	0	1
1	0	0	1	0
1	0	1	0	1
1	1	0	0	1
1	1	1	1	1

$y: 2^3 \to 2^2$

$S = \sum(1,2,4,7)$

$C_0 = \sum(3,5,6,7)$

$S = \bar{A}\bar{B}C + \bar{A}B\bar{C} + A\bar{B}\bar{C} + ABC$

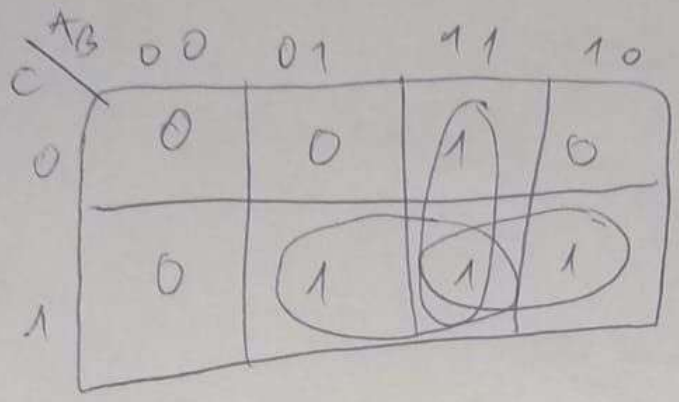
$C_0 = \bar{A}BC + A\bar{B}C + AB\bar{C} + ABC$

C_0 \ AB	00	01	11	10
0	0	1	0	1
1	1	0	1	0

$\bar{C}_i(\bar{A}B + A\bar{B}) + C_i(AB + \bar{A}\bar{B})$

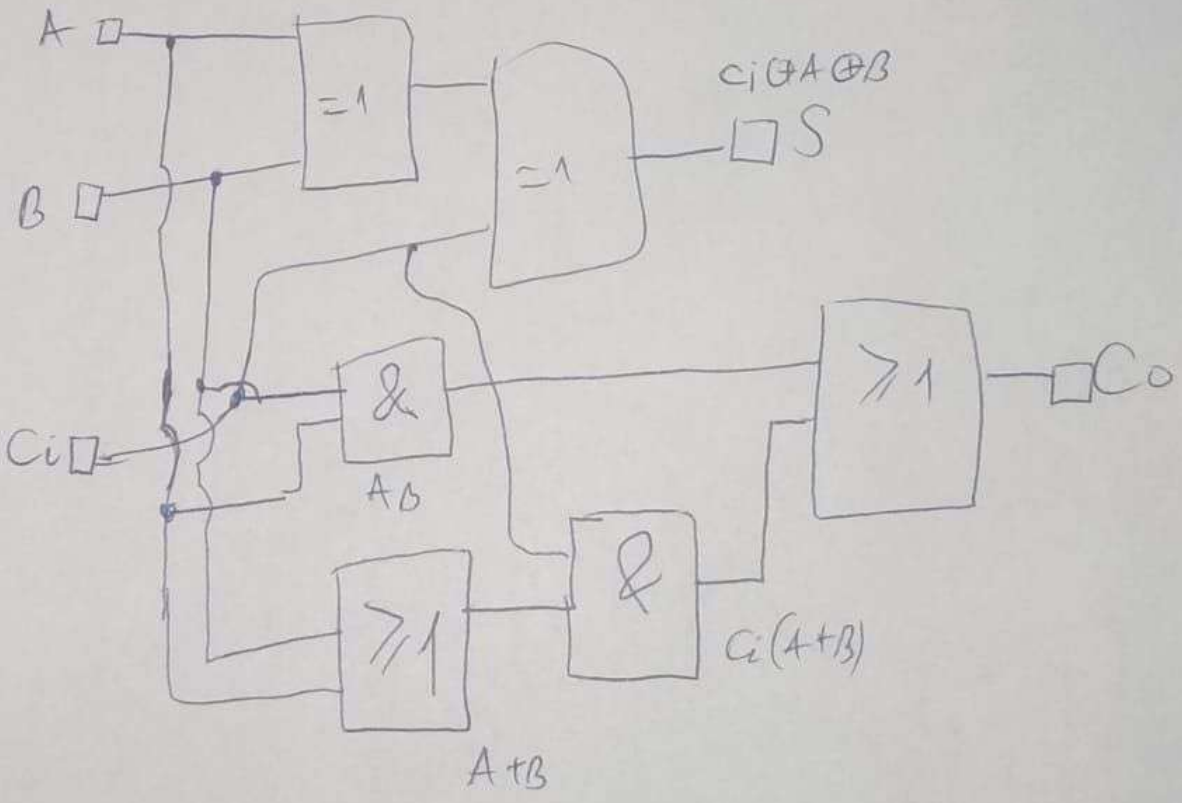
F

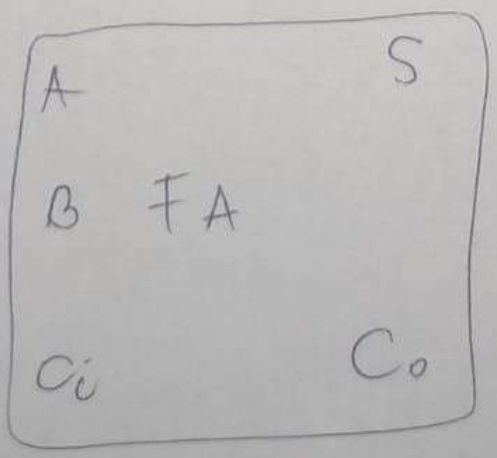
$F\bar{C}_i + \bar{F}C_i = F \oplus C_i = A \oplus B \oplus C_i$

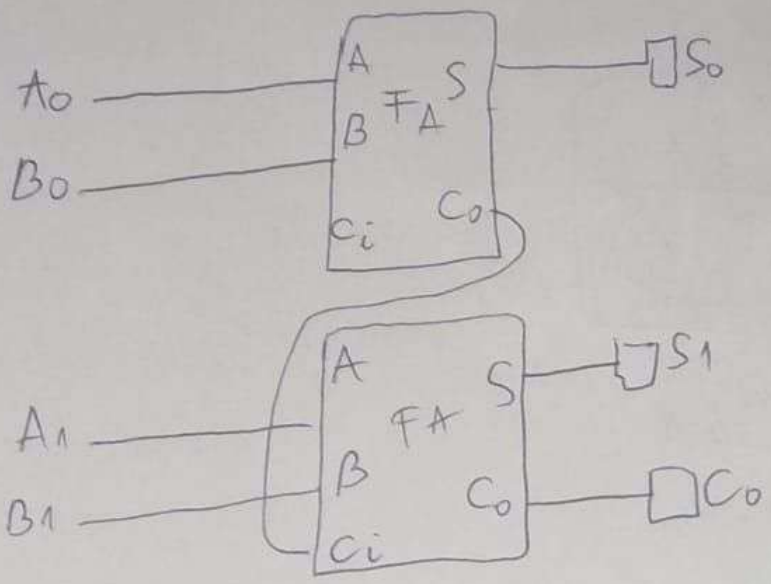


$C_o = BC + AC + AB$

$AB + C(A+B)$






A0
B0
A
B
FA
S
S0
Ci
C0
A1
B1
A
B
FA
S
S1
Ci
C0
C0