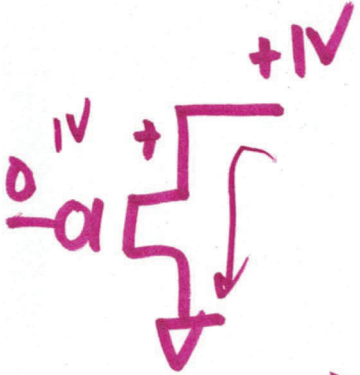
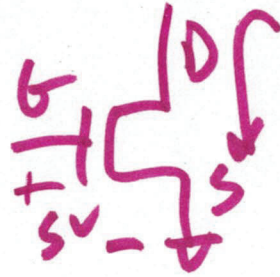
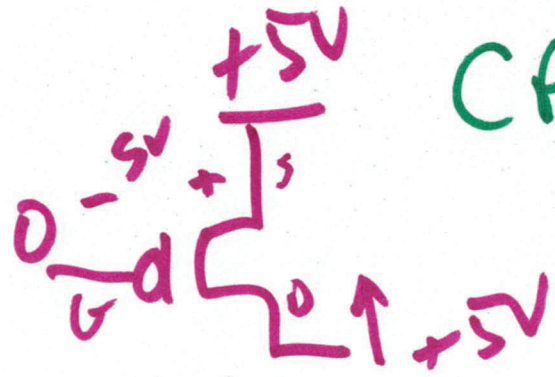


CPE 100

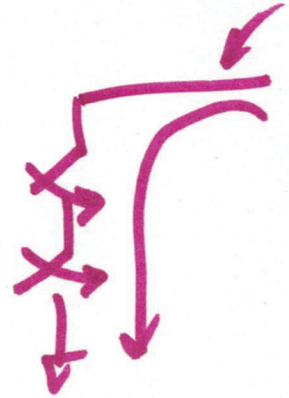
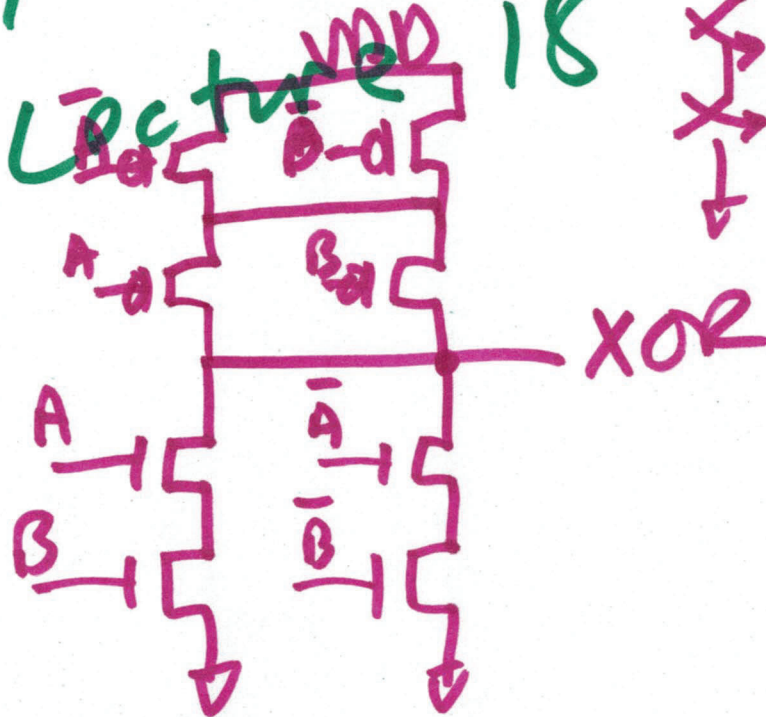
Digital
Logic
Design

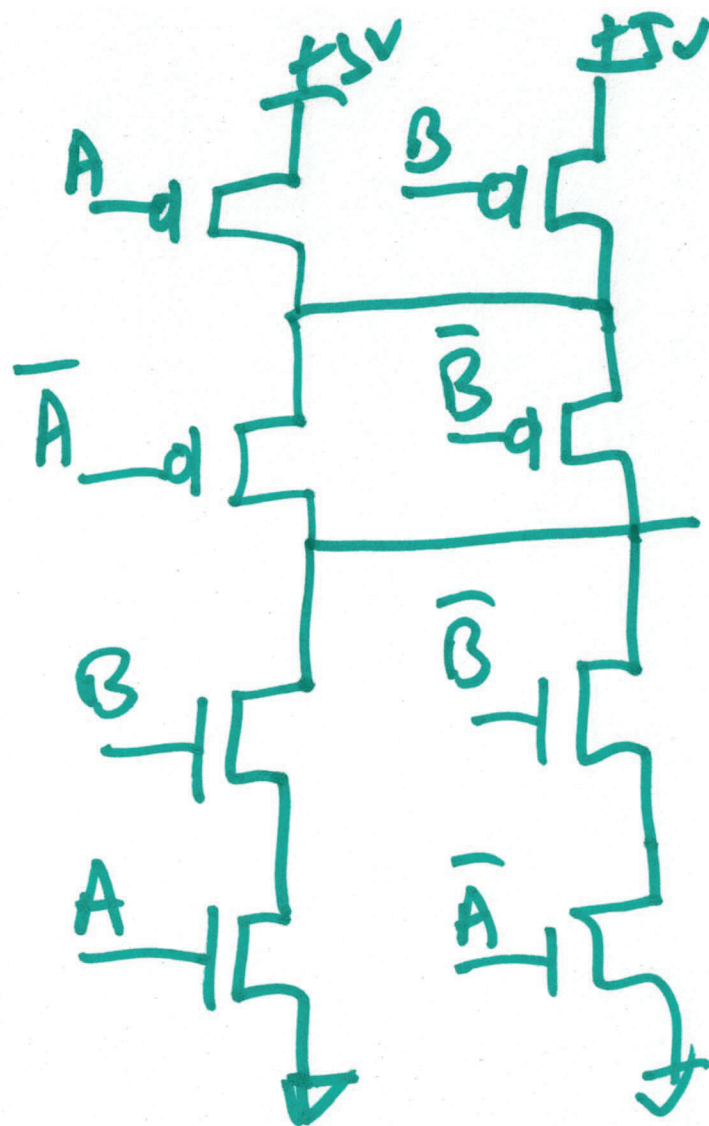
April 5, 2021

Lecture 18



A	B	XOR
0	0	0
0	1	1
1	0	1
1	1	0

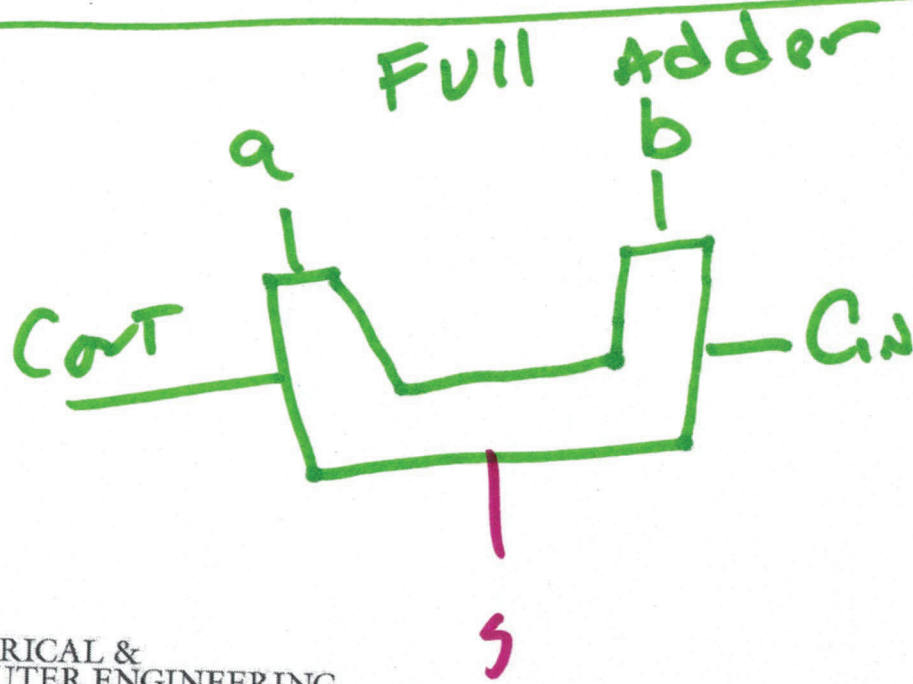
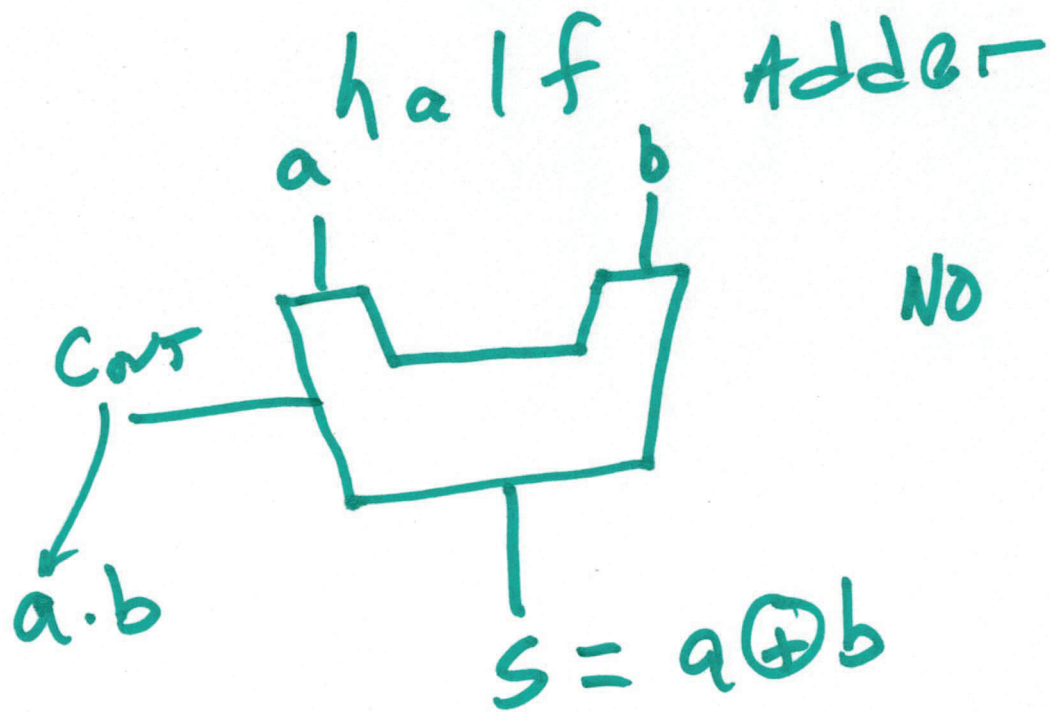




XOR = $\overline{a}b + a\overline{b}$

a ₁	b ₁	s	C
0	0	0	0
0	1	1	0
1	0	1	0
1	1	0	1

2)



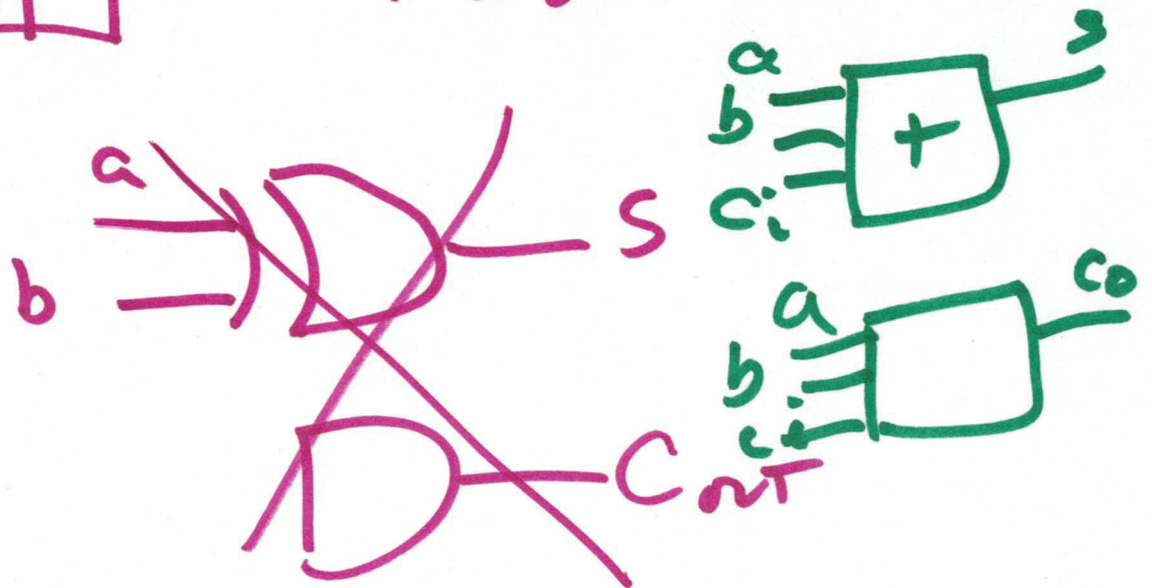
a	b	C _{in}	S	C _{out}
0	0	0	0	0
0	1	0	1	0
1	0	0	1	0
1	1	0	0	1
0	0	1	1	0
0	1	1	0	1
1	0	1	0	1
1	1	1	1	1

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3)

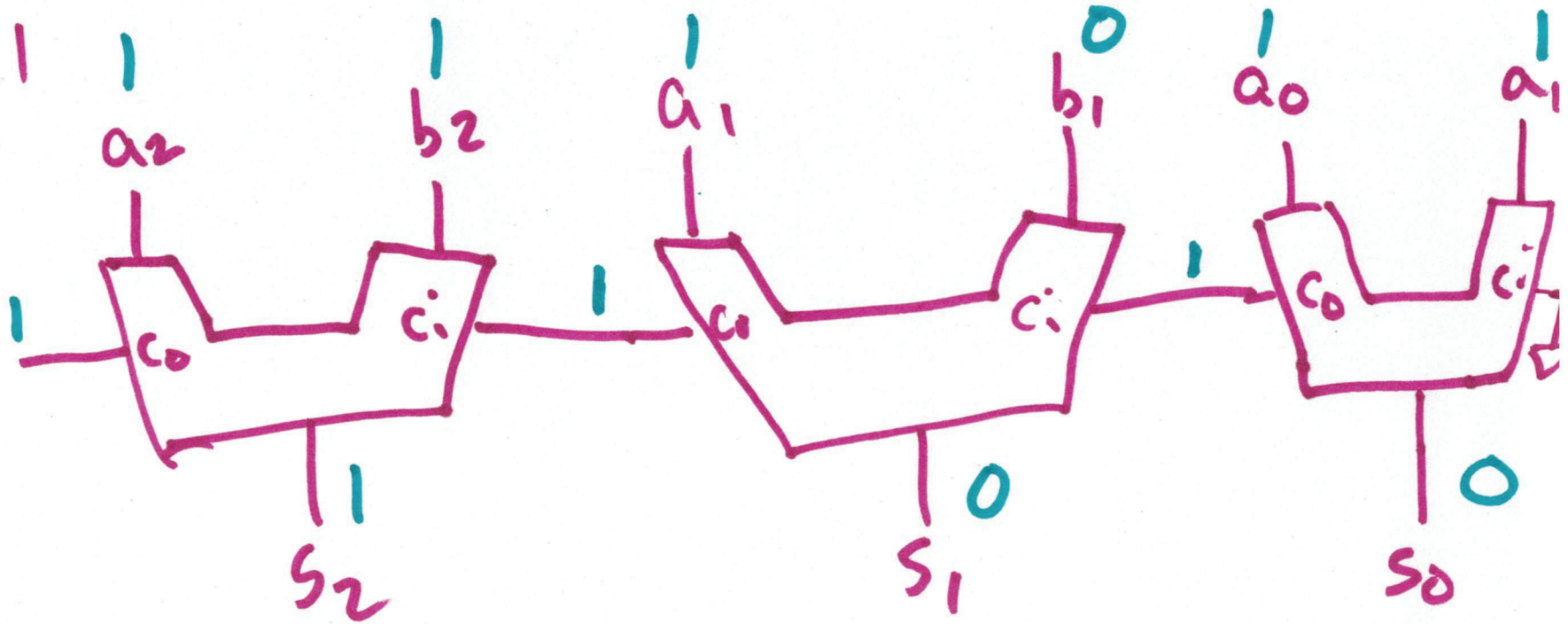
	ab			
c_i	00	01	11	10
0		1		1
1	1		1	

$$s = \bar{a}b\bar{c}_i + a\bar{b}\bar{c}_i + \bar{a}\bar{b}c_i + abc_i$$



4)

3,721



8 4 0 0 \Rightarrow 12
1 1 0 0

6)

CARRY - look ahead

Generate

$$G = A \cdot B$$

Propagate

$$C_{i+1} \cdot P = (A + B) \cdot C_i$$

$$C_i = G + P \cdot C_{i-1}$$