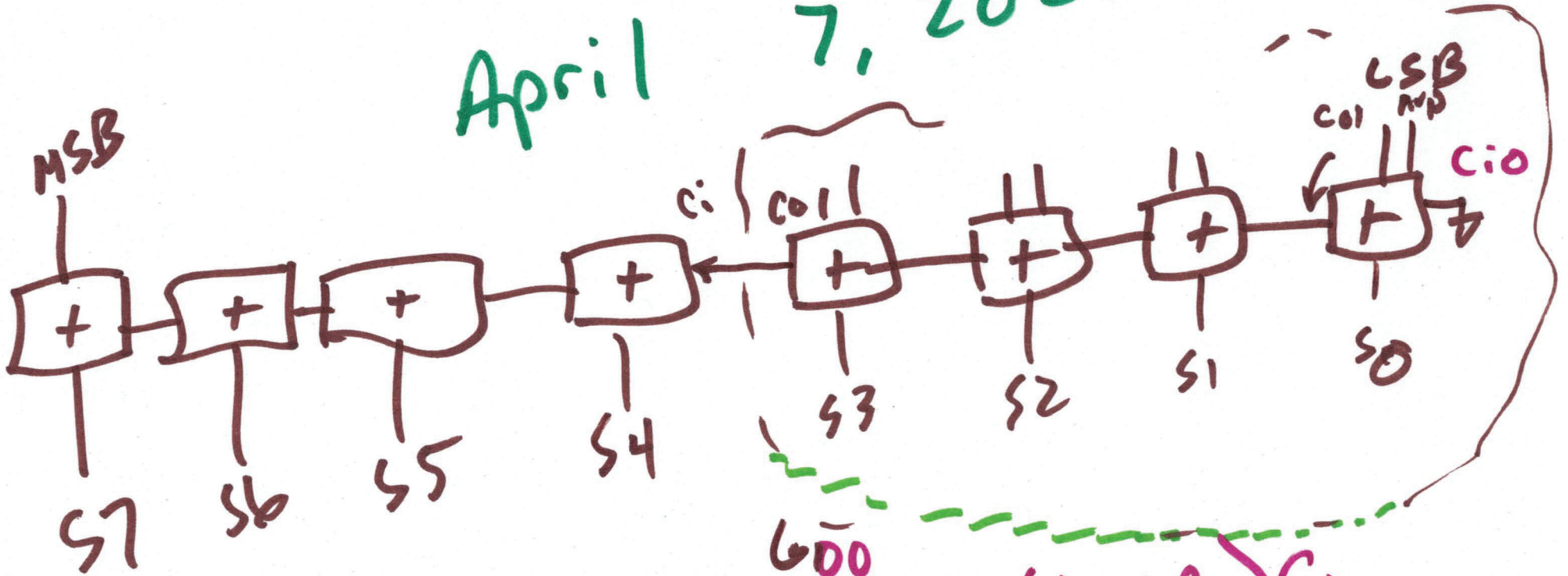


# CPE 100 Digital Design I

Lecture 19

April 7, 2021



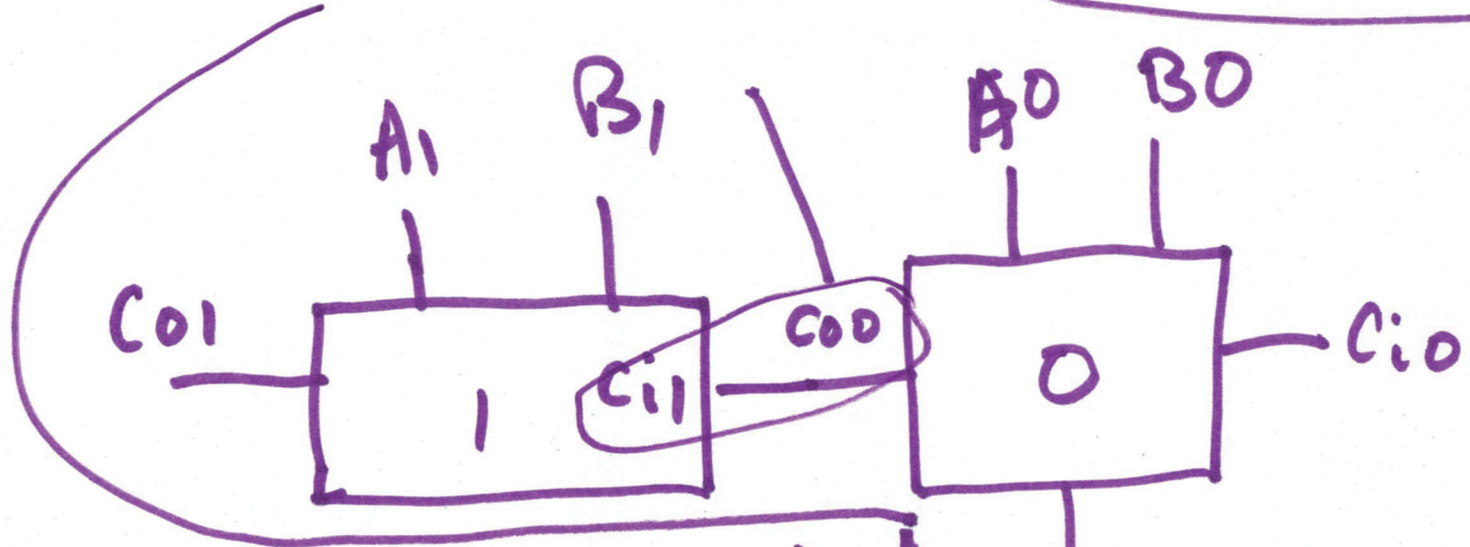
$$C_{10} = \underbrace{A_0 B_0}_{\text{generate } C_0} + \underbrace{(A_0 + B_0) C_0}_{\text{propagate } C_0}$$

$$C_{02} = \underbrace{A_1 B_1}_{G_1} + \underbrace{(A_1 + B_1)}_{P_1} \cdot C_{00}$$

↑  
CARRY in of  
second stage

$$C_{00} = A_0 B_0 + (A_0 + B_0) C_{i0}$$

second stage



$$C_{01} = A_1 \cdot B_1 + (A_1 + B_1) C_{i1} \text{ SO}$$

2)

$$C_{01} = A_1 \cdot B_1 + (A_1 + B_1)(A_0 B_0 + (A_0 + B_0)C_{i0})$$

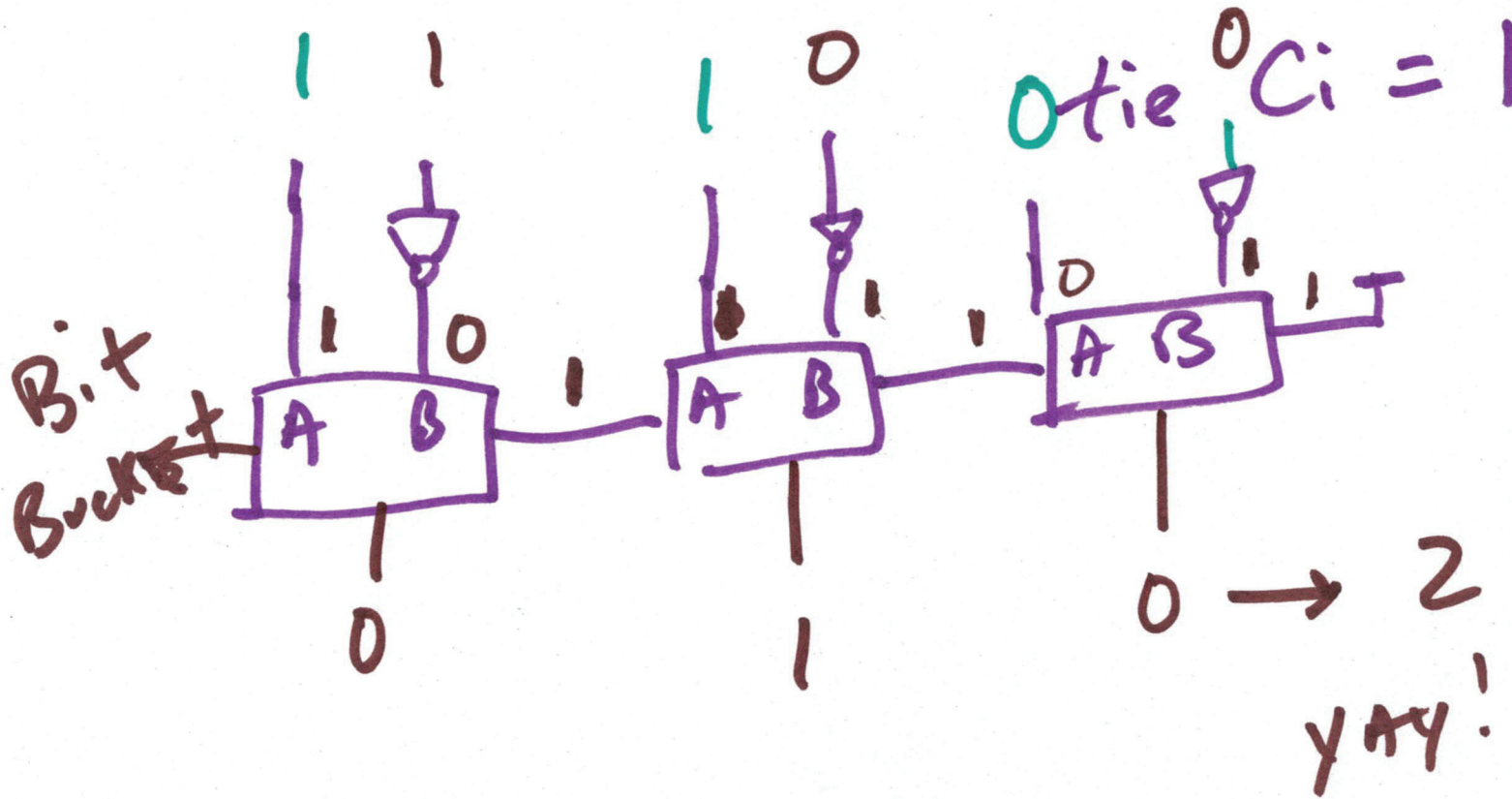
$$= \underbrace{A_1 \cdot B_1}_{G_1} + \underbrace{(A_1 + B_1)}_{P_1} \cdot \underbrace{A_0 \cdot B_0}_{G_0} + \underbrace{(A_1 + B_1)}_{P_1} \underbrace{(A_0 + B_0)}_{P_0} C_{i0}$$

$$C_0 = (A_0 + B_0) C_i + A_0 B_0$$

6-4

# SUBtraction

invert the thing  
you WANT to  
subtract



4)