

Jack Parker

CS 314

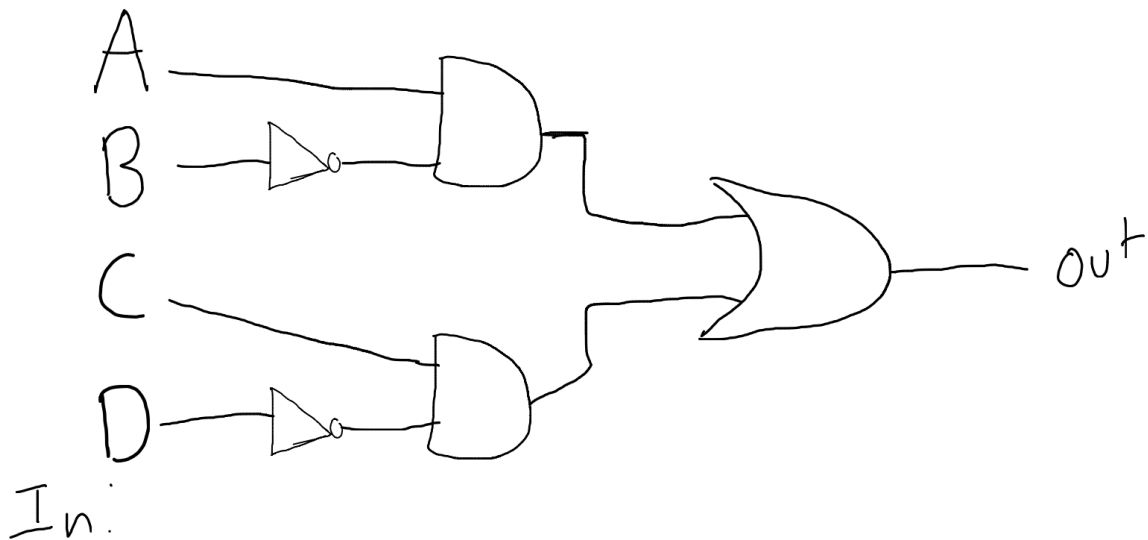
Eric Wills

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Assignment 5 Text Solutions (5-2 and 5-3)

5-2.

2. [20] Draw a circuit (using AND, OR, and/or NOT gates) with inputs  $A$ ,  $B$ ,  $C$ , and  $D$  and one output such that the output is on only if  $A$  is on and  $B$  is off or  $C$  is on and  $D$  is off (e.g.,  $(A \ \&\& \ !B) \ || \ (C \ \&\& \ !D)$ ). See Figure 4.10 for an example.



5-3. Re-implement operations for instruction iaddq V, rB.

Fetch:

$\text{icode:ifun} \leftarrow M_1[\text{PC}]$

$\text{rA:rB} \leftarrow M_1[\text{PC} + 1]$

$\text{valC} \leftarrow M_8[\text{PC} + 2]$

$\text{valP} \leftarrow \text{PC} + 10$

Decode:

$\text{valB} \leftarrow R[\text{rB}]$

Execute:

$\text{valE} \leftarrow \text{valB} + \text{valC}$

Memory:

(none, purely register based operations)

Writeback:

$R[\text{rB}] \leftarrow \text{valE}$

PC Update:

$\text{PC} \leftarrow \text{valP}$