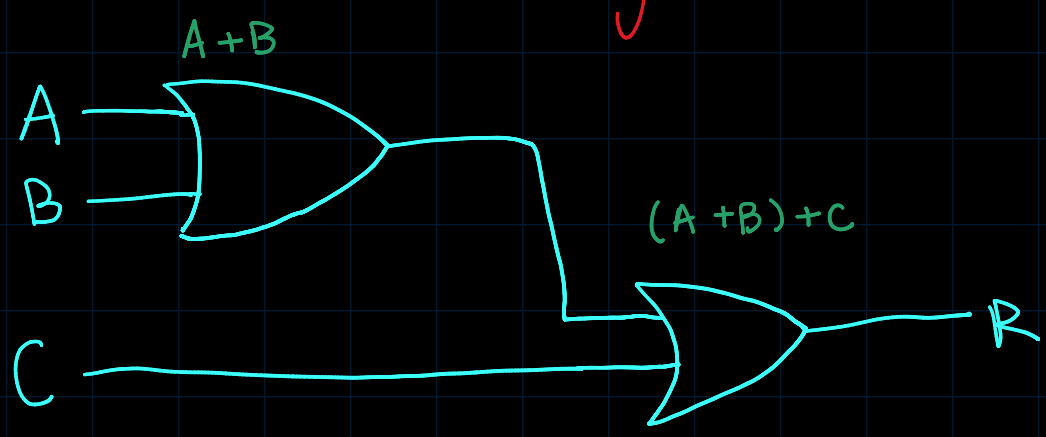
5.1.1: One-Chip Logic

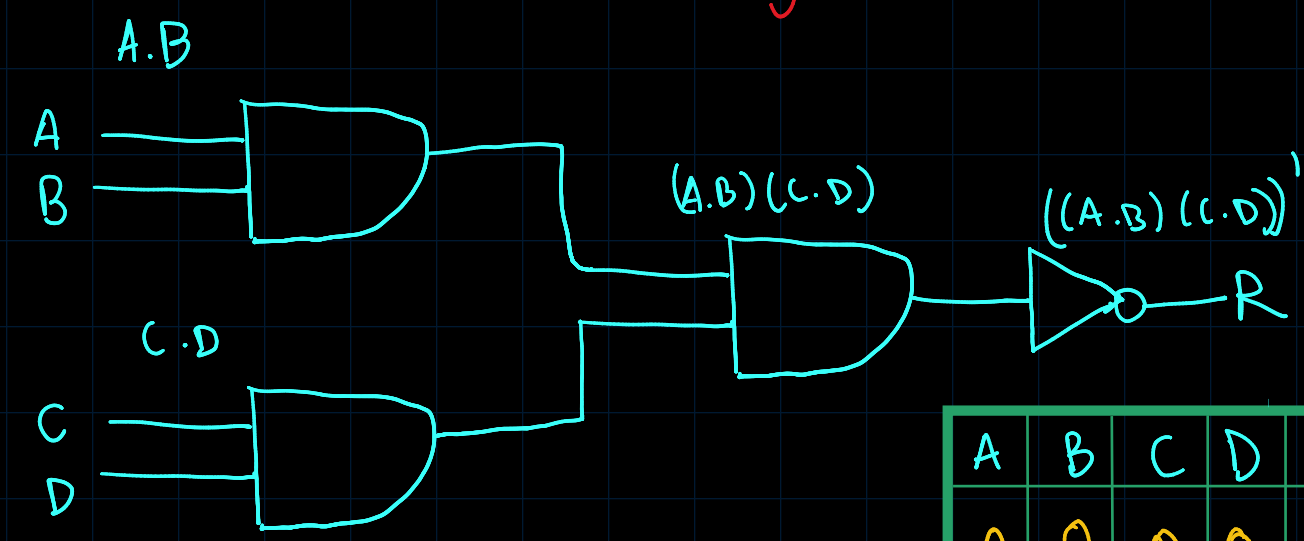
PRELAB #1



$$(A+B)+C = R$$

A	B	C	A+B	(A+B)+C
0	0	0	0	0
0	0	1	0	1
0	1	0	1	1
0	1	1	1	1
1	0	0	1	1
1	0	1	1	1
1	1	0	1	1
1	1	1	1	1

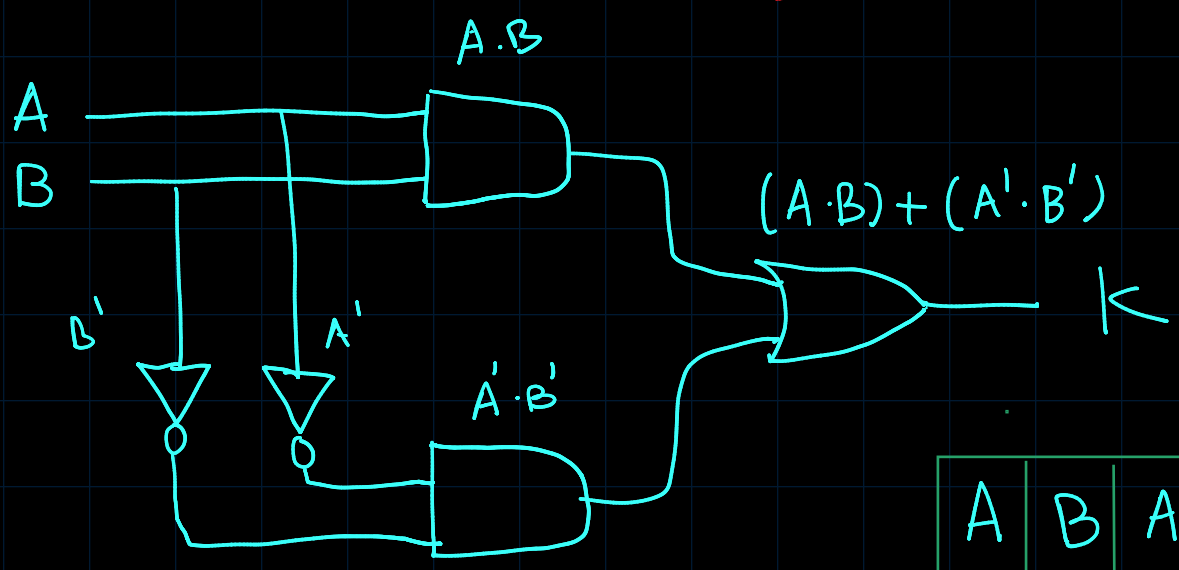
5.1.2 Two Chip logic



$$((A \cdot B)(C \cdot D))' = R$$

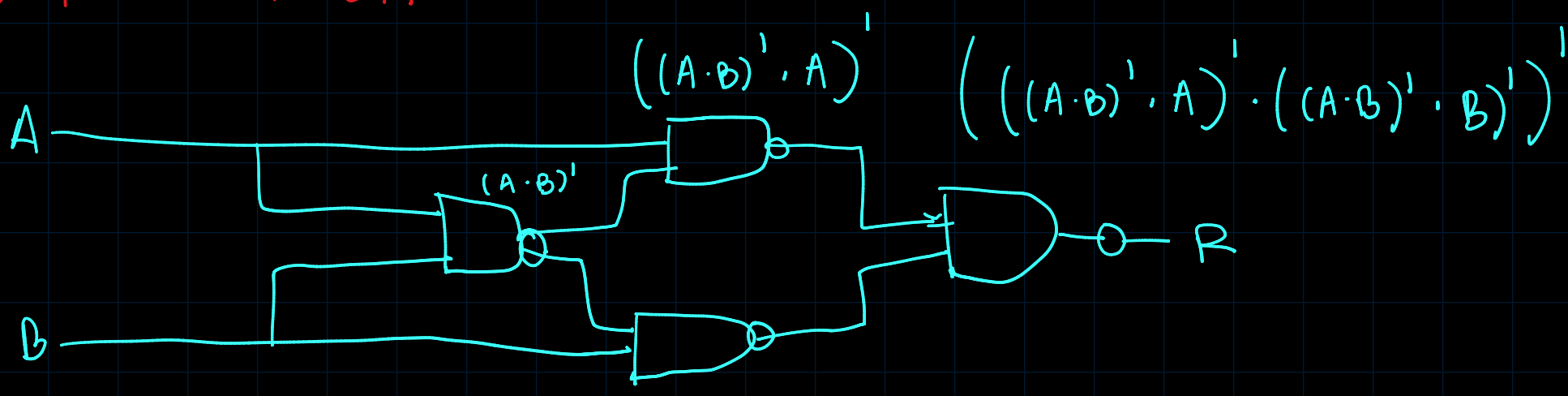
A	B	C	D	A.B	C.D	(A.B)(C.D)	((A.B)(C.D))'
0	0	0	0	0	0	0	1
0	0	0	1	0	0	0	1
0	0	1	0	0	0	0	1
0	0	1	1	0	1	0	1
0	1	0	0	0	0	0	1
0	1	0	1	0	0	0	1
0	1	1	0	0	0	0	1
0	1	1	1	0	1	0	1
1	0	0	0	0	0	0	1
1	0	0	1	0	0	0	1
1	0	1	0	0	0	0	1
1	0	1	1	0	1	0	1
1	1	0	0	1	0	0	1
1	1	0	1	1	0	0	1
1	1	1	0	1	0	0	1
1	1	1	1	1	1	1	0

5.1.3 Three-Chip Logic



A	B	A'	B'	A·B	A'·B'	(A·B)+(A'·B')
0	0	1	1	0	1	1
0	1	1	0	0	0	0
1	0	0	1	0	0	0
1	1	0	0	1	0	1

5.1.5 Ex. OR

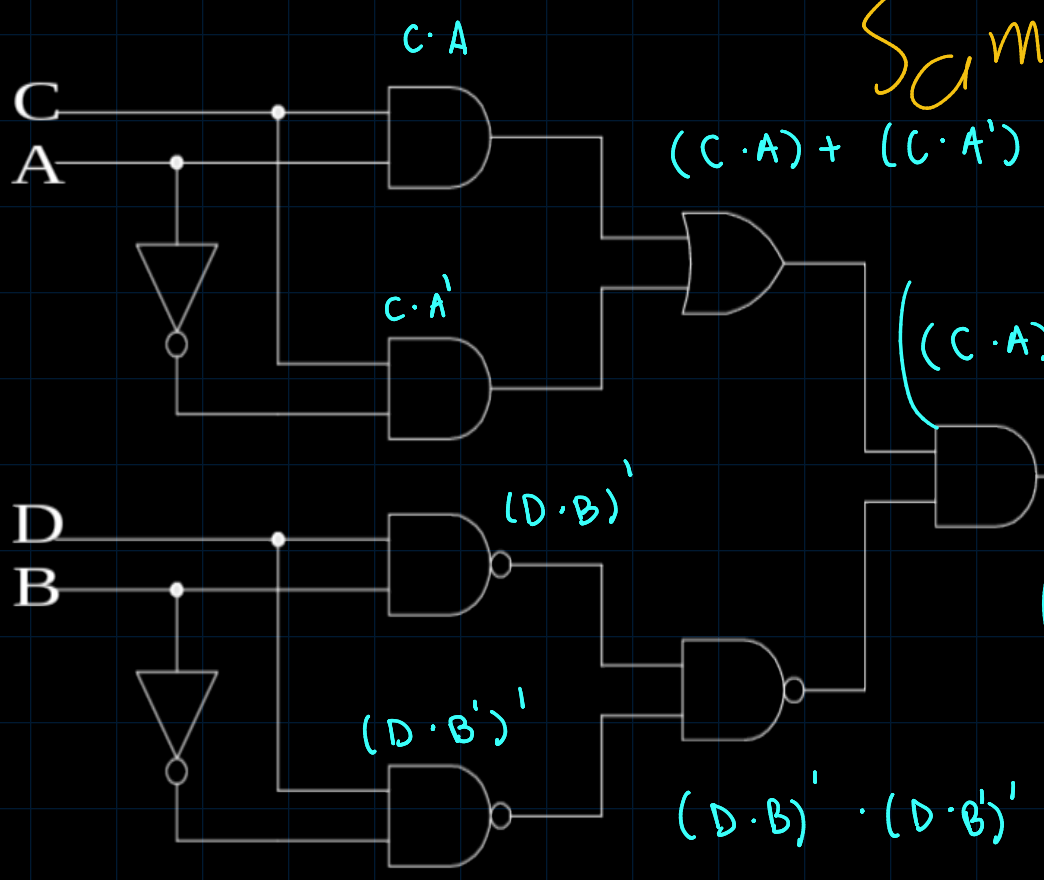


$$(((A\cdot B)'\cdot A)'\cdot((A\cdot B)'\cdot A)')' = R$$

A	B	(A·B)'	((A·B)'·A)'	((A·B)'·B)'	R
0	0	1	1	1	0
0	1	1	1	0	1
1	0	1	0	1	1
1	1	0	1	1	0

5.1.6 AND Circuit

Sameed is great!



$(C \cdot A) + (C \cdot A')$

$((C \cdot A) + (C \cdot A')) \cdot ((D \cdot B)' \cdot (D \cdot B')')$

$(((C \cdot A) + (C \cdot A')) \cdot ((D \cdot B)' \cdot (D \cdot B')'))$

$(D \cdot B)' \cdot (D \cdot B')'$

C	A	D	B	C·A	C·A'	(D·B)'	(D·B')'	(C·A) + (C·A')	(D·B)' · (D·B')'	R
0	0	0	0	0	0	1	1	0	0	0
0	0	0	1	0	0	1	1	0	0	0
0	0	1	0	0	0	1	1	0	0	0
0	0	1	1	0	0	1	1	0	0	0
0	1	0	0	0	1	1	0	1	0	0
0	1	0	1	0	1	1	1	1	1	1
0	1	1	0	0	1	0	1	1	0	0
0	1	1	1	0	1	1	1	1	1	1
1	0	0	0	1	0	1	1	1	1	1
1	0	0	1	1	0	1	1	1	1	1
1	0	1	0	1	0	1	0	1	0	0
1	0	1	1	1	0	1	1	1	1	1
1	1	0	0	1	0	0	1	1	0	0
1	1	0	1	1	0	1	1	1	1	1
1	1	1	0	1	0	1	0	1	0	0
1	1	1	1	1	0	1	1	1	1	1

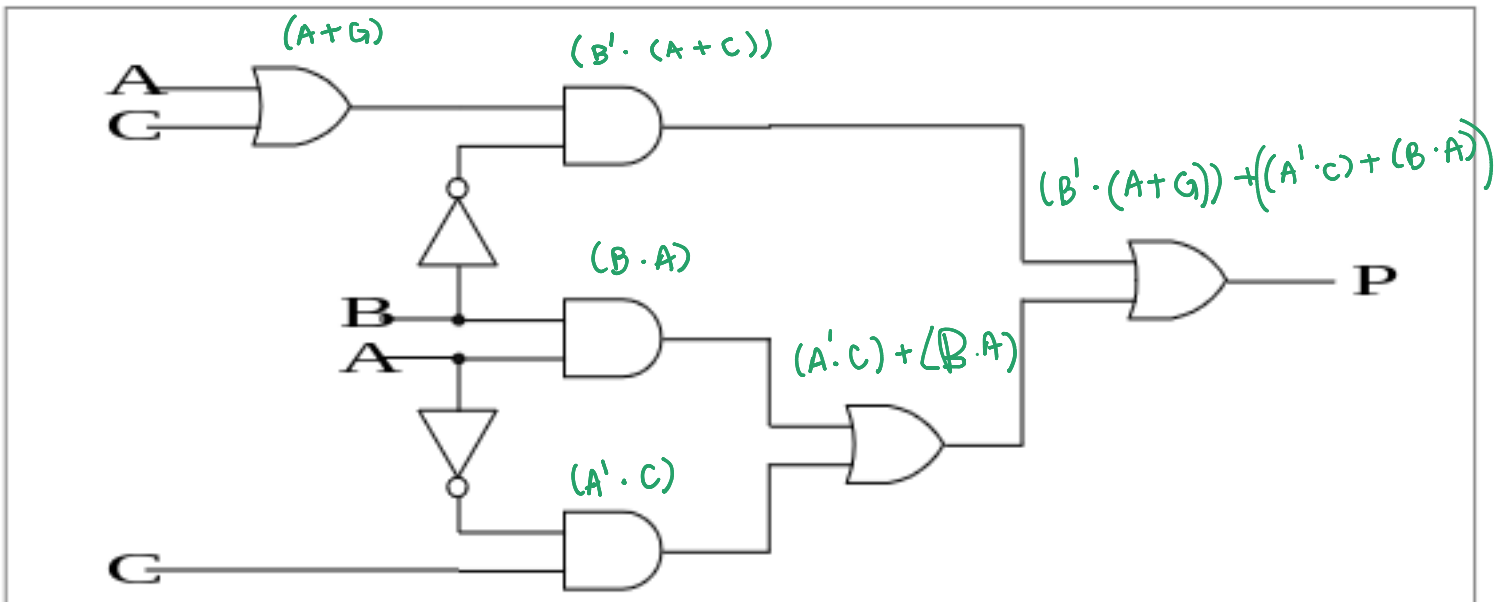


Figure 5.1.7: OR circuit

5.1.7 OR Circuit							((B'.(A+C)) +((A'.C)+(C.A))) = R	
A	B	C	(A+C)	(B.A)	(A'.C)	(B'.(A+C))	((A'.C)+(B.A))	((B'.(A+C)) +((A'.C)+(C.A)))
0	0	0	0	0	0	0	0	0
0	0	1	0	0	1	0	1	1
0	1	0	1	0	0	0	0	0
0	1	1	1	1	1	0	1	1
1	0	0	1	0	0	1	0	1
1	0	1	1	0	0	1	0	1
1	1	0	1	0	0	0	0	0
1	1	1	1	1	0	0	1	1

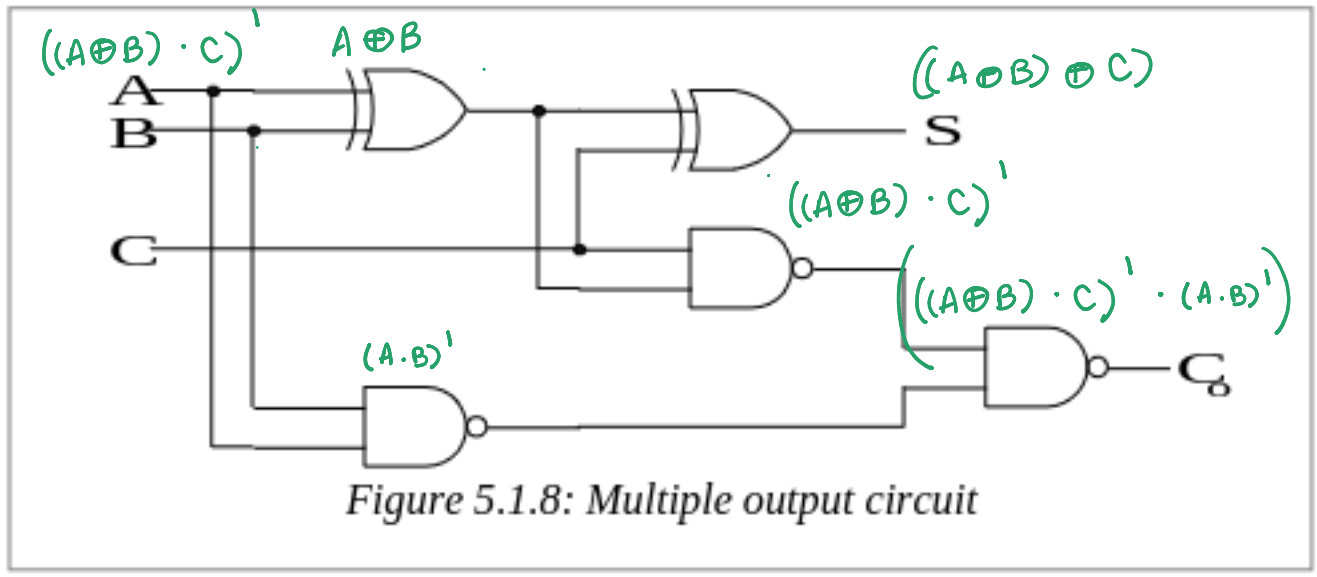


Figure 5.1.8: Multiple output circuit

5.1.8 Multiple Output Circuit			(((A⊕B).C)'.(A.B)') = C_0			((A⊕B)⊕C)) = S	
A	B	C	(A⊕B)	(A.B)'	((A⊕B).C)'	(((A⊕B).C)'.(A.B)')	((A⊕B)⊕C))
0	0	0	0	1	1	1	0
0	0	1	0	1	1	0	0
0	1	0	1	1	1	1	0
0	1	1	1	1	0	1	1
1	0	0	1	1	1	1	0
1	0	1	1	1	0	1	1
1	1	0	0	0	1	1	1
1	1	1	0	0	1	0	1