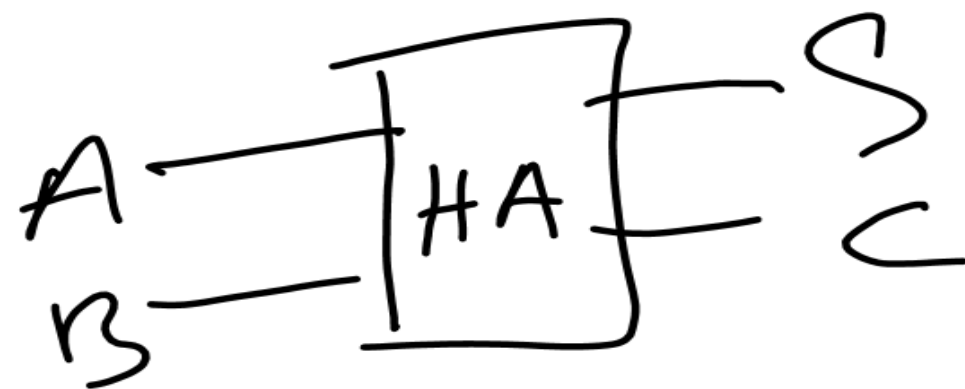
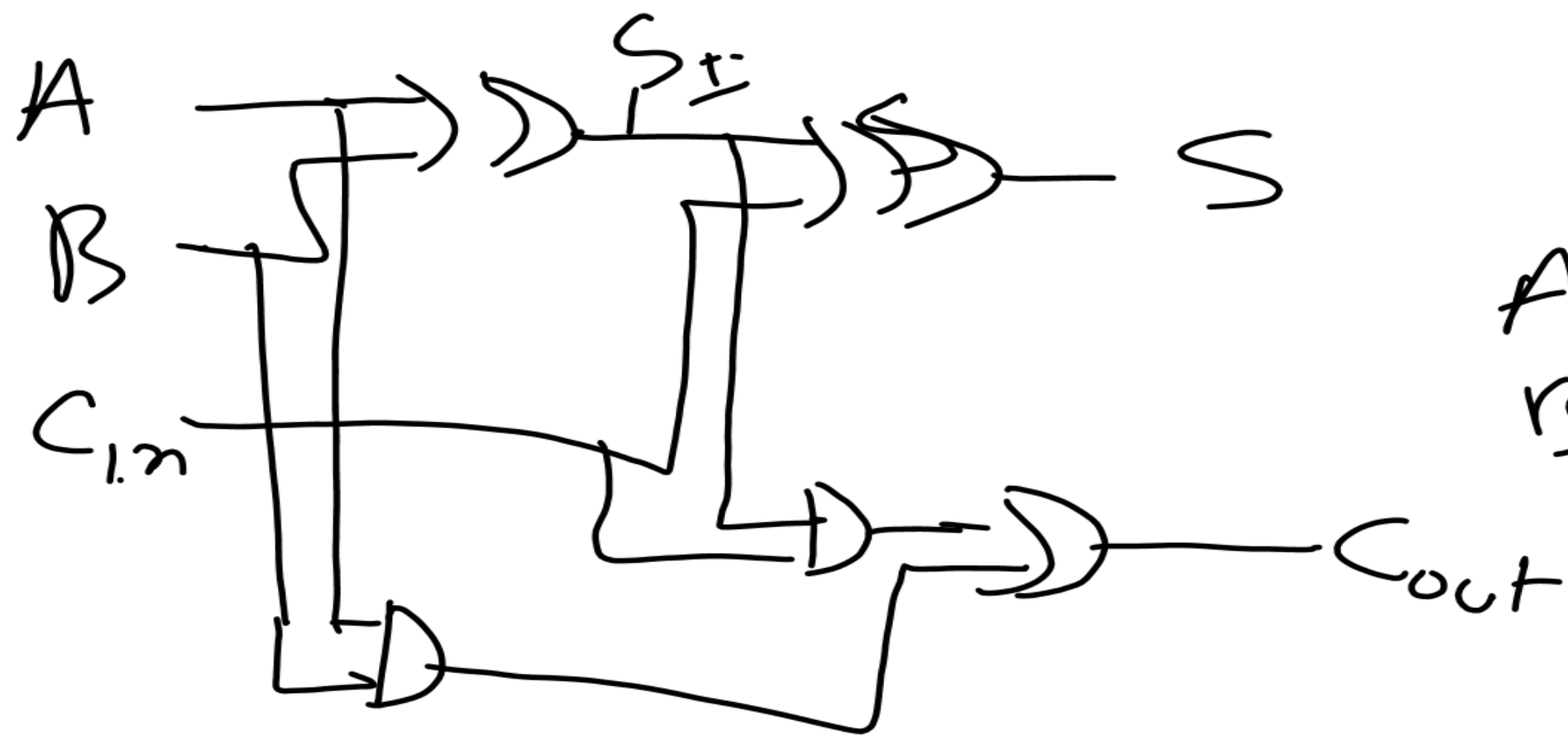
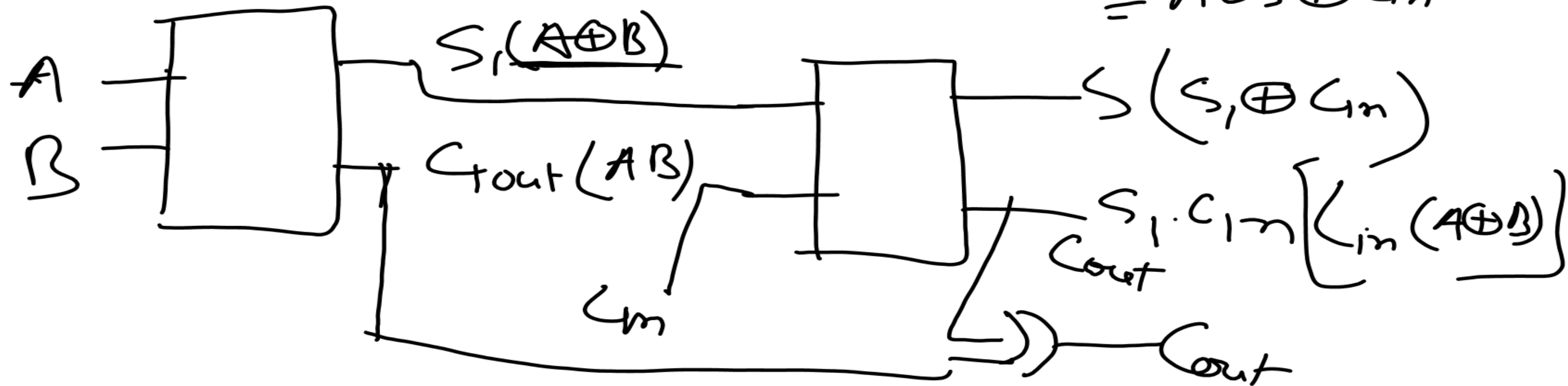


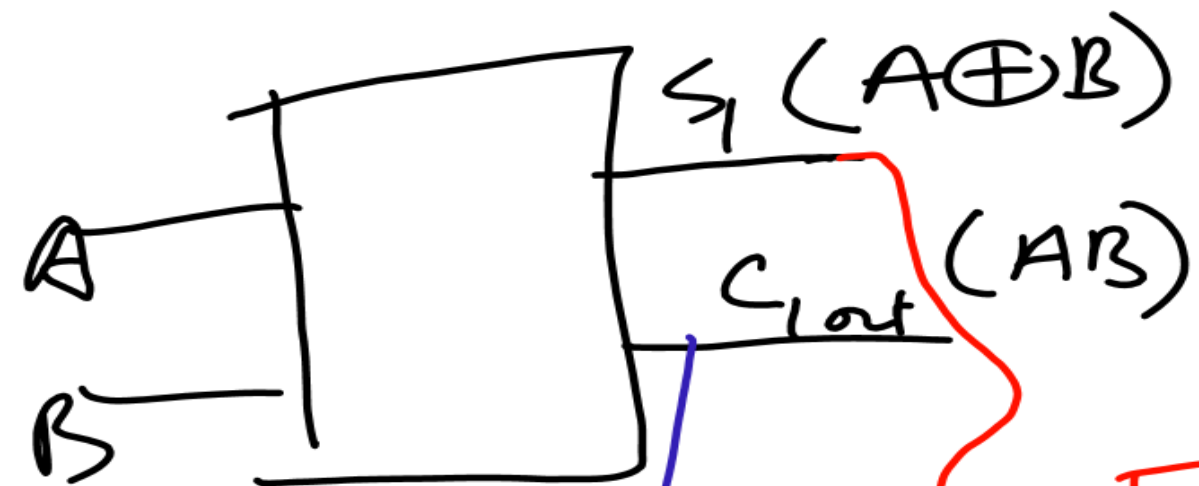
$$\begin{array}{l|l}
 S = A \oplus B & S = A \oplus B \oplus C \\
 C_{out} = AB & C_{out} = AB + C_{in} (A \oplus B)
 \end{array}$$



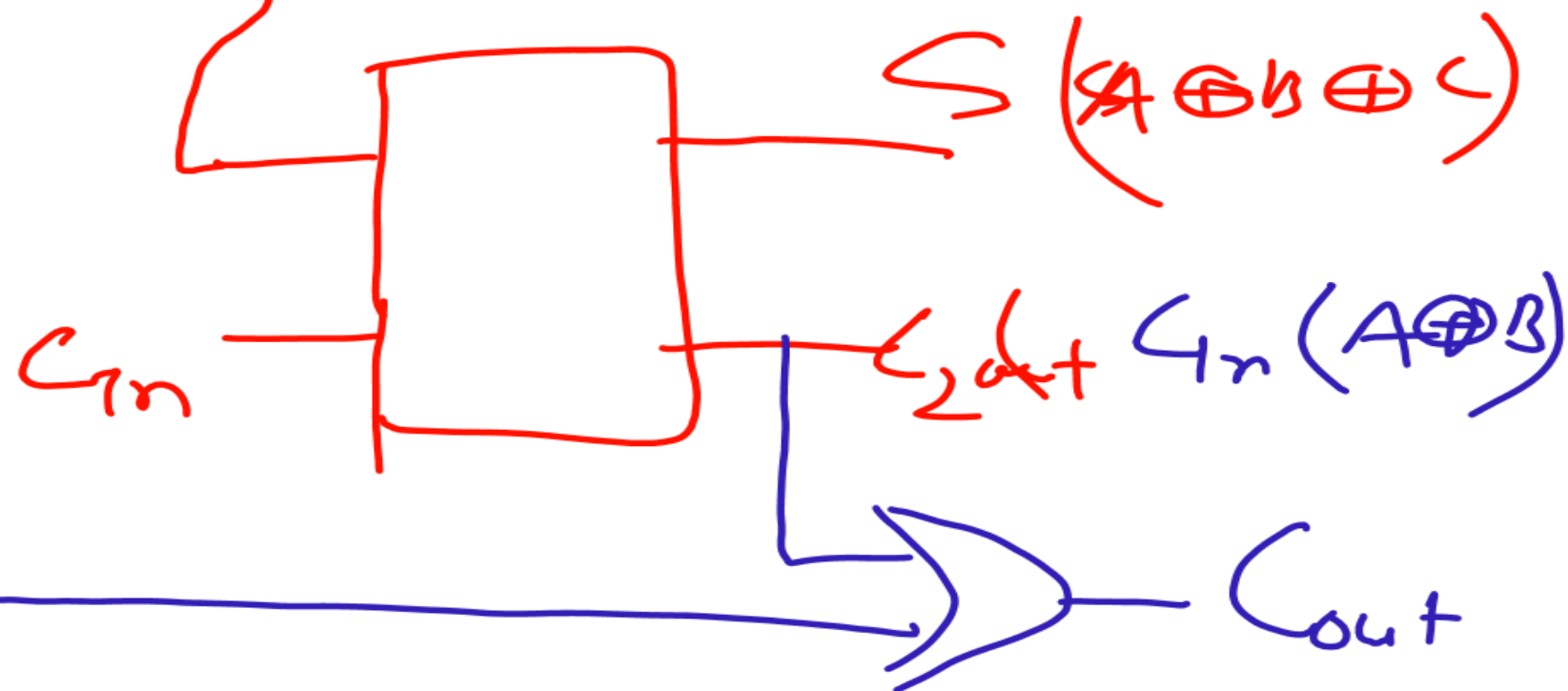
$$X_S = \boxed{A \oplus B} \oplus C_m$$

$$C_{out} = \boxed{AB} \rightarrow \boxed{C_{in}(A \oplus B)}$$





$$S_1 = A \oplus B$$



$$S = \overline{S_1} \oplus C$$

$$C_{out} = \overline{A \oplus B} + C_{in}(A \oplus B)$$

$$\begin{array}{c} \downarrow \\ 0 + 0 + 0 \end{array} \rightarrow \begin{array}{cc} C & S \\ 0 & 0 \end{array}$$

$$0 + 0 + 1 \rightarrow \begin{array}{cc} C & S \\ 0 & 1 \end{array}$$

$$0 + 1 + 1 \rightarrow \begin{array}{cc} C & S \\ 1 & 0 \end{array}$$

$$1 + 1 + 1 \rightarrow \begin{array}{cc} C & S \\ 1 & 1 \end{array}$$

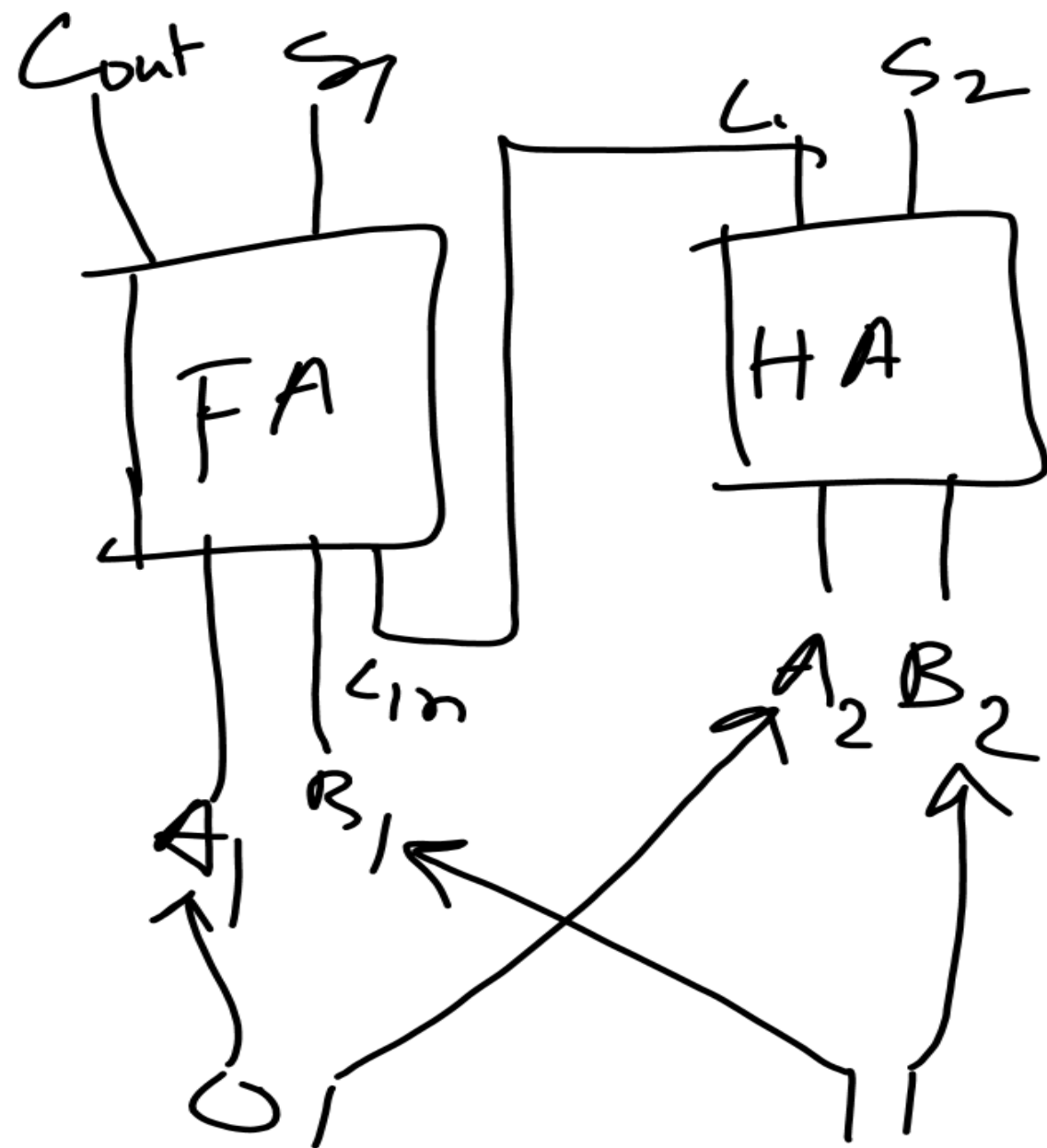
$$A_1, A_2 + B_1, B_2 \rightarrow \begin{array}{ccc} C & S_1 & S_2 \\ 0 & 0 & 0 \end{array}$$

$$11 + 11 \rightarrow \underline{1 \quad 1 \quad 0}$$



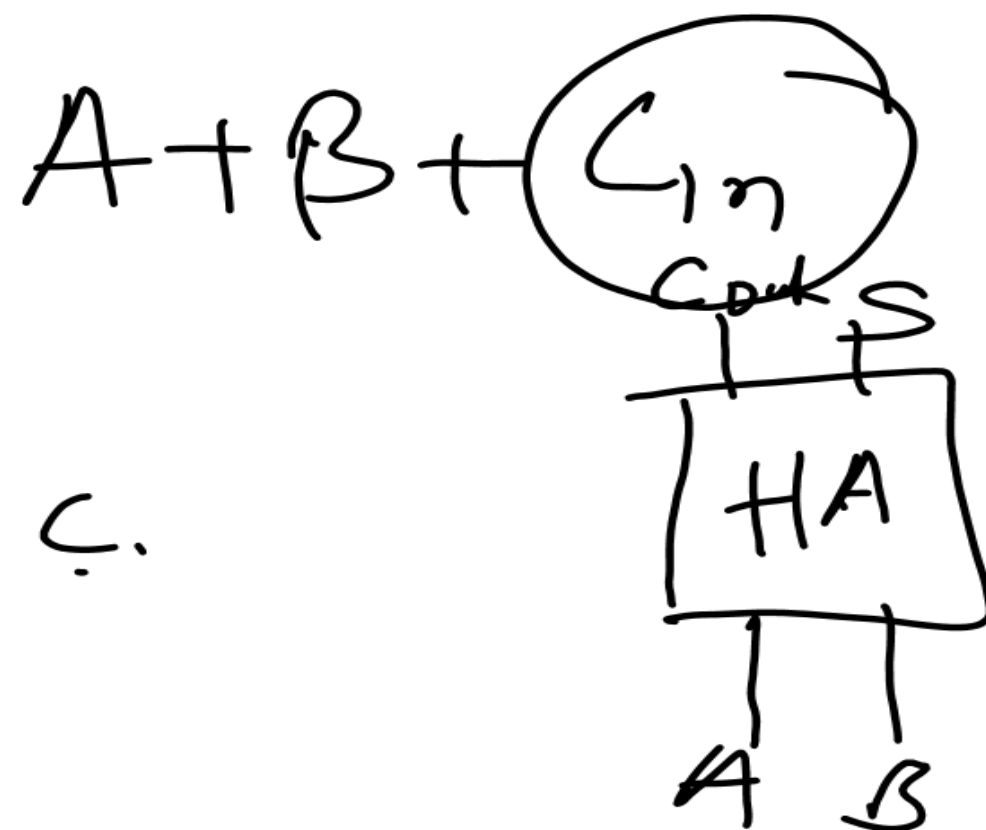
$A_1, A_2$		$B_1, B_2$	
0	0	0	0
0	0	0	1
0	0	1	0
0	0	1	1
0	1	0	0
0	1	0	1
0	1	0	0
0	1	0	1
1	0	0	0
1	0	0	0

$C$	$S_1$	$S_2$
0	0	0
0	0	1
0	1	0
0	1	1
0	0	1
0	1	0
0	1	0
0	1	0
0	0	0
0	1	0



$$\begin{array}{r}
 A_1 A_2 \\
 0 \ 1 \\
 \hline
 1 \ 1 \\
 1 \ 1 \\
 \hline
 1 \ 0 \ 0 \\
 A+B+C_1
 \end{array}$$

$C_1$



$$\begin{array}{r}
 \begin{array}{ccc}
 \uparrow & \uparrow & \uparrow \\
 1 & 2 & 3 \\
 | & | & | \\
 | & | & | \\
 | & 0 & | \\
 | & | & | \\
 \hline
 1 & 1 & 0 & 0
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 \begin{array}{cc}
 1 & 2 \\
 \downarrow & \downarrow \\
 A & B
 \end{array}
 \begin{array}{r}
 \begin{array}{cc}
 1 & 2 \\
 | & | \\
 0 & 1 \\
 | & | \\
 1 & 1 \\
 \hline
 0
 \end{array}
 \end{array}
 \begin{array}{l}
 A \oplus B \\
 A \oplus B
 \end{array}
 \end{array}$$

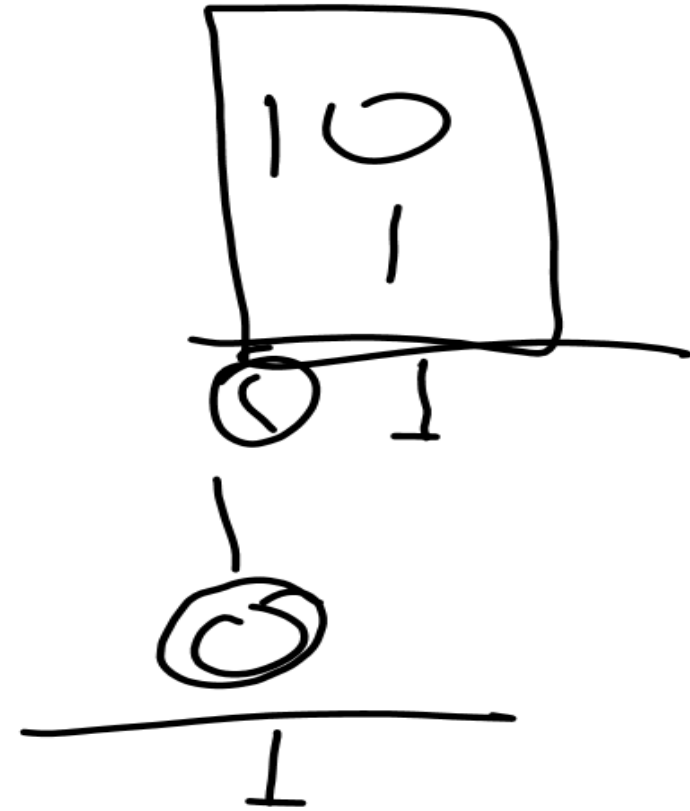
$$\begin{array}{r}
 A_2 + B_2 = S, C \\
 \hline
 A_2 + B_2 + C_{in} [0] \\
 \hline
 A_2 + B_2 + C_{in} [C_{out}]
 \end{array}$$



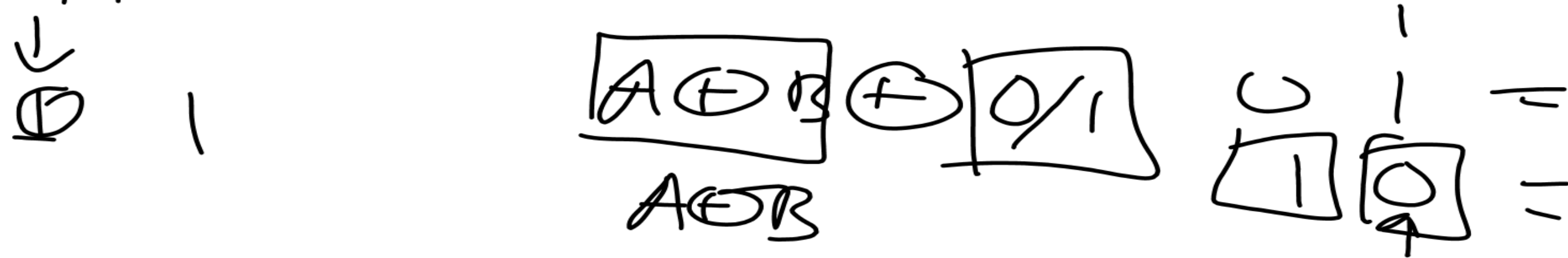
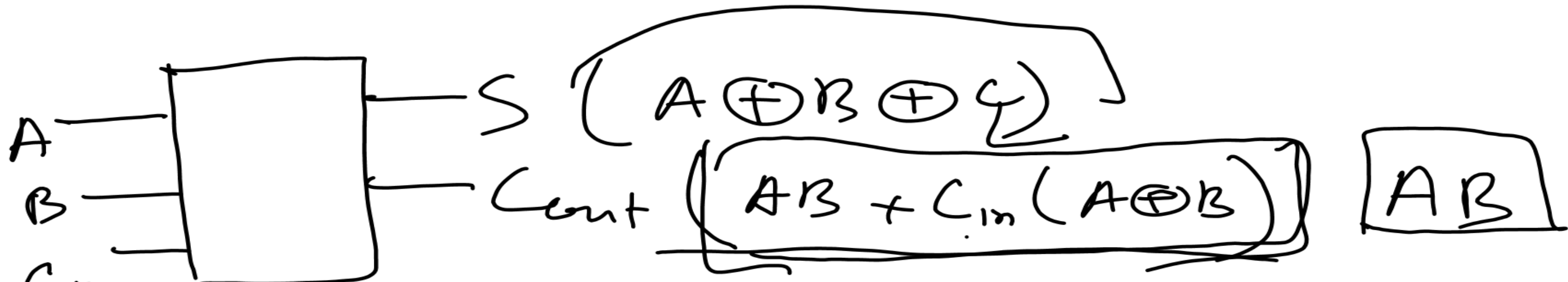
$\downarrow$ $A$	$\downarrow$ $B$	$B_{out}$	$S$
0	0	0	0
$\leftarrow$ 0	1	1	1
$\leftarrow$ 1	0	0	1
1	1	0	0
0/1	0/1		

$$S = A \oplus B$$

$$B_{out} = \bar{A} B$$



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$$AB + \underline{C_{in} (A \oplus B)}$$

$$C_{in} = 0$$

$$AB + (A \oplus B)$$

$$= AB + A\bar{B} + \bar{A}B$$

$$= A(B + \bar{B}) + \bar{A}B$$

$$= A + \bar{A}B$$

$$= A + B$$