

1)	Entradas			Saídas	
	A	B	Cin	Count	S
	0	0	0	0	0
	0	0	1	0	1
	0	1	0	0	1
	0	1	1	1	0
	1	0	0	0	1
	1	0	1	1	0
	1	1	0	1	0
	1	1	1	1	1

2)  $\bar{A} \cdot \bar{B} \cdot \text{Cin} + A \cdot \bar{B} \cdot \text{Cin} + A \cdot B \cdot \bar{\text{Cin}} + A \cdot B \cdot \text{Cin}$

3)  $S = \bar{A} \cdot \bar{B} \cdot \text{Cin} + A \cdot \bar{B} \cdot \text{Cin} + \bar{A} \cdot B \cdot \bar{\text{Cin}} + A \cdot B \cdot \text{Cin}$

4) Expressão para count

Count					
Cin	AB	00	01	11	10
	0			1	
	1		1	1	1

Expressão para 'S'

[S]

Cin	AB	00	01	11	10
	0		1		1
	1	1		1	

$$\begin{aligned}
 S &= \bar{A} \cdot \bar{B} \cdot \text{Cin} + A \cdot \bar{B} \cdot \text{Cin} + \bar{A} \cdot B \cdot \bar{\text{Cin}} + A \cdot B \cdot \text{Cin} \\
 &= (\bar{A} \cdot \bar{B} + A \cdot \bar{B}) \cdot \text{Cin} + (\bar{A} \cdot B + A \cdot B) \cdot \bar{\text{Cin}} \\
 &= (\bar{A} \oplus B) \cdot \text{Cin} + (A \oplus B) \cdot \bar{\text{Cin}} \\
 &= (A \oplus B) \oplus \text{Cin}
 \end{aligned}$$