Organização de Computadores

Versão Hands-on com Logisim

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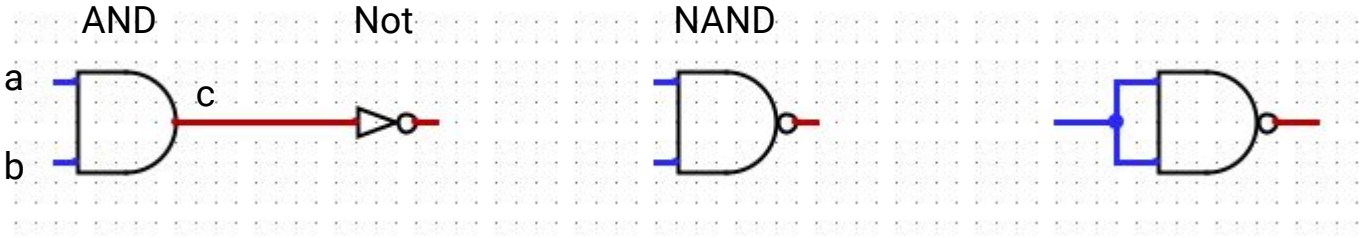
Revisão de conceitos

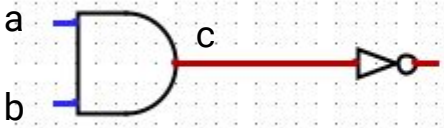
Portas lógicas



a	b	c
0	0	0
0	1	0
1	0	0
1	1	1

Portas lógicas

AND

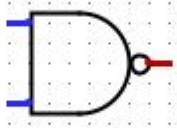


a	b	c
0	0	0
0	1	0
1	0	0
1	1	1

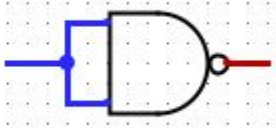
Not

c	o
0	1
1	0

NAND

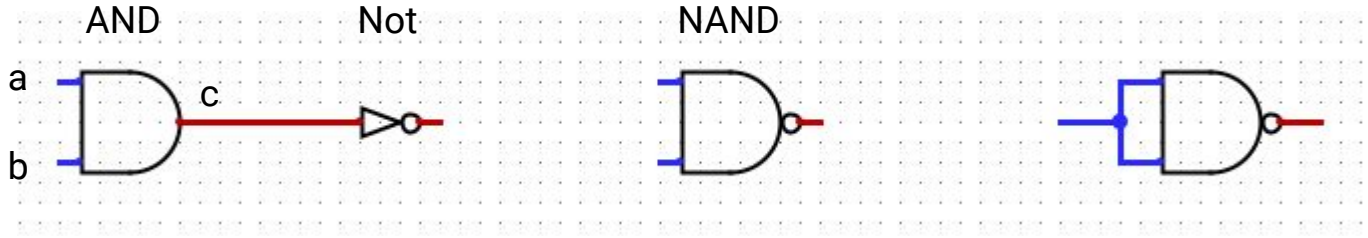


?



?

Portas lógicas

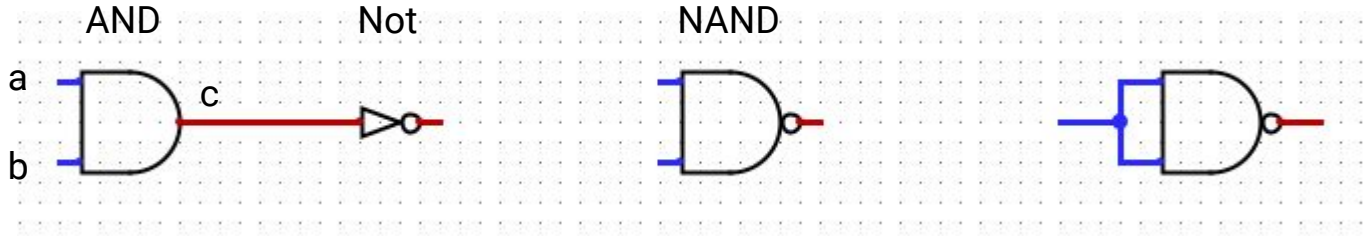


a	b	c
0	0	0
0	1	0
1	0	0
1	1	1

c	o
0	1
1	0

a	b	c
0	0	1
0	1	1
1	0	1
1	1	0

Portas lógicas



a	b	c
0	0	0
0	1	0
1	0	0
1	1	1

c	o
0	1
1	0

a	b	c
0	0	1
0	1	1
1	0	1
1	1	0

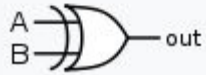
a	b	c
0	0	1
1	1	0

Soma binária

Tabela verdade da função XOR

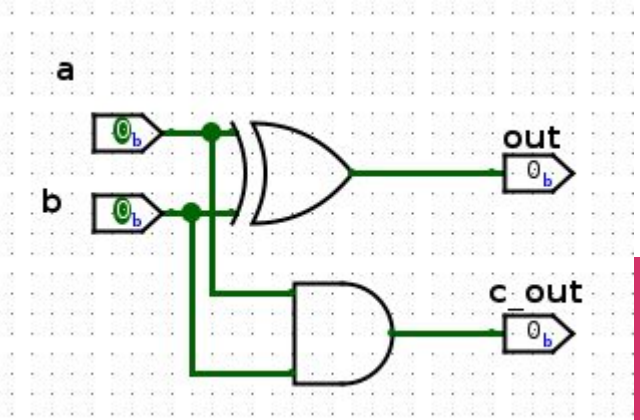
Entradas		Saída
A	B	S
0	0	0
0	1	1
1	0	1
1	1	0

Símbolo




```
 1 1 1 1   1
  0101011
  1111010
----------
 10100101
```

Este meio somador, funciona na conta anterior?



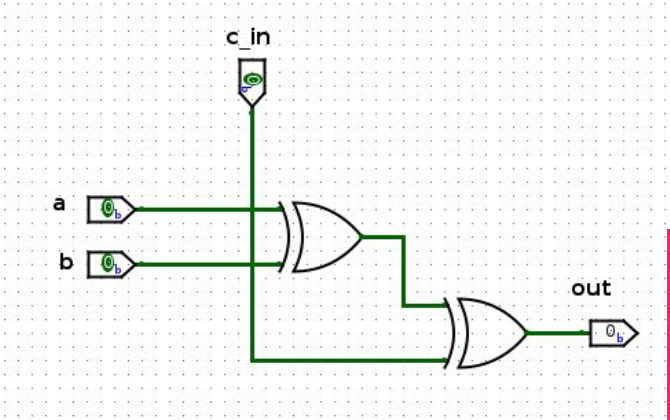
Soma binária

a	b	c_{in}
0	0	0
0	0	1
0	1	0
0	1	1
1	0	0
1	0	1
1	1	0
1	1	1

out	c_{out}
0	0
1	0
1	0
0	1
1	0
0	1
0	1
1	1

```
 1 1 1 1   1
  0101011
  1111010
----------
 10100101
```

Nova proposta. Resolvemos a soma, mas não o carry out

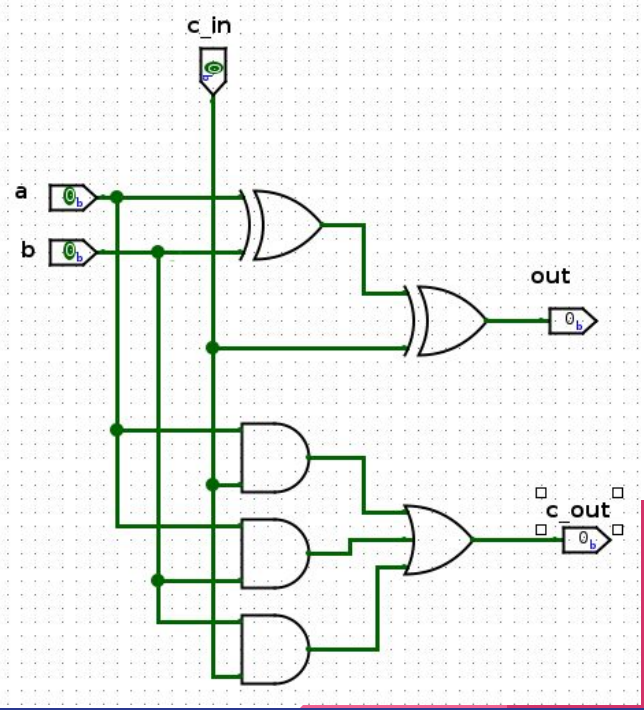


Soma binária

a	b	c_{in}
0	0	0
0	0	1
0	1	0
0	1	1
1	0	0
1	0	1
1	1	0
1	1	1

out	c_{out}
0	0
1	0
1	0
0	1
1	0
0	1
0	1
1	1

Somador completo



Soma binária

Atividade: construir um somador completo de 8 bits