

<https://AllenCompSci.GitHub.io>

Symbol for XOR 

Symbols for AND * &&

Symbols for OR + ||

$\frac{D}{T}$
F

$\frac{D}{T}$
T
T
T
T
F
F
F
F
F
F

$\frac{L}{T}$
T
T
F
F
T
T
F
F
F
F

$\frac{C}{T}$
T
T
T
T
T
T
T
T
T
T

1	variable	2 groups
2	variable	4 groups
3	variable	8 groups
4	...	<u>16</u> groups
$2^{\text{\# variables}}$		num of permutations

True - 1

False - 0

&& - *

A && B
T-1 F-0

|| - +

1*0=0

A || B
T-1 T-1

1+1=2
not zero
= true

$$A \oplus B \quad A \text{ xor } B$$

xor - exclusive or

"one or the other but not both"

$A \oplus B$			
T	T	→	F
T	F	→	T
F	T	→	T
F	F	→	F

C++	English
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!	- NOT
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&&	- AND
----	-------

	- OR
--	------

A xor B with only &&, or, not, A & B.

A	B	A xor B	(A ^③ B)	(A & B) ^②	!(A & B)
F	F	F	F	F	T
F	T	T	T	T	T
T	F	T	T	T	T
T	T	F	T	F	F

xor - (A || B) && !(A && B)
 ()
 -
 &&
 ||

Order of Oper.

()

!

.

&&

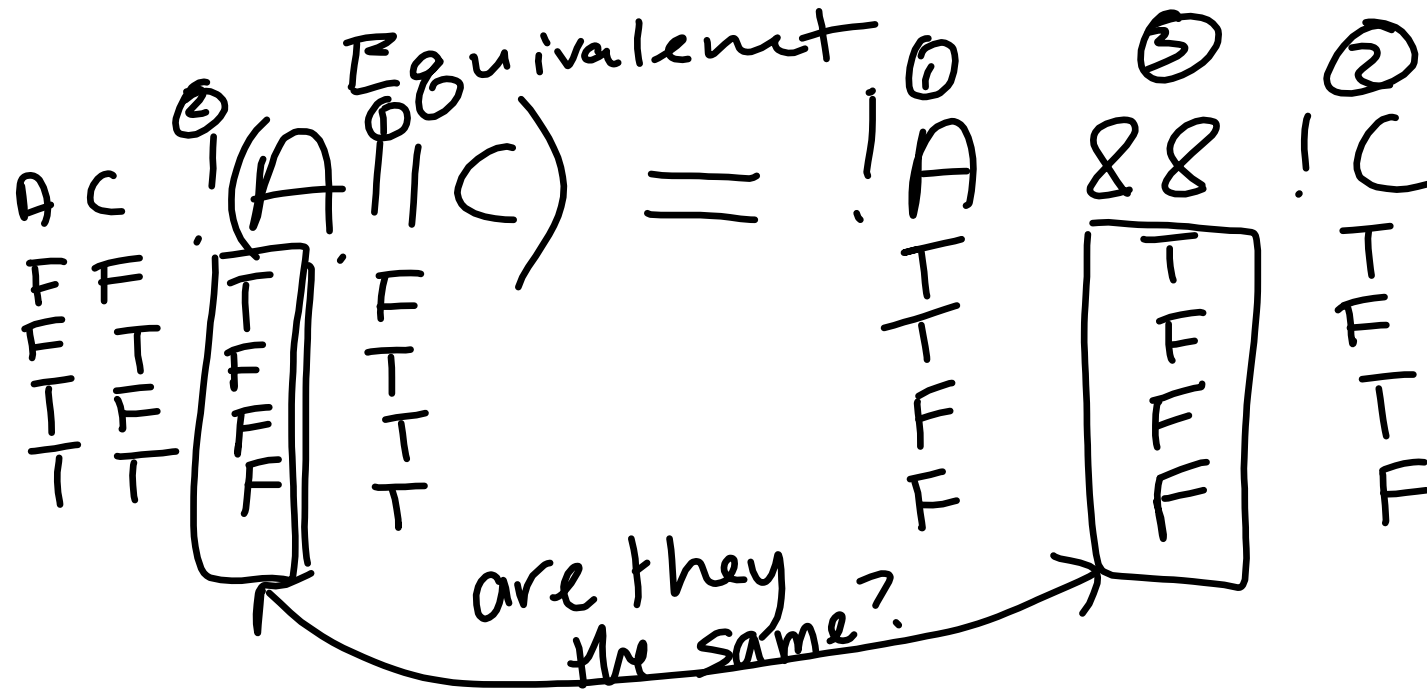
||

C	A	B	
A	B	C	
F	F	F	
F	F	T	
F	T	F	
F	T	T	
T	F	F	C-F
T	F	T	A-F
T	T	F	B-T
T	T	T	

$(A \vee B)$	$\&$	$!(A \vee C)$
F	F	T
T	T	T
T	F	T
T	T	T
T	T	T
T	T	T
T	T	T
T	T	T
T	T	T

$!(A \vee C) \rightarrow$

$!$	C	$!C \& !A$	$!A$	D
T	T	T	T	T
T	T	T	T	T
T	T	T	T	T
T	T	T	T	T
T	T	T	T	T
T	T	T	T	T
T	T	T	T	T
T	T	T	T	T
T	T	T	T	T



$$\neg(\neg A \&\& \neg C) = \neg A \underline{\vee\vee} \neg C$$

$$\neg(A \vee\vee C) = \neg A \&\& \neg C$$

De Morgan's Law

