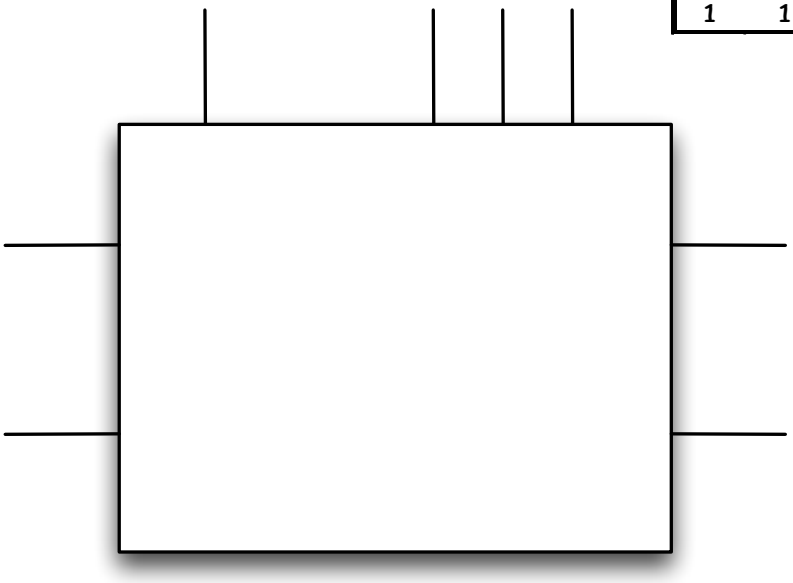
A shop has the following rules for making a good (meat) sandwich:

(1) All sandwiches must have at least one type of meat.
(2) Don't put both roast beef and ham on the same sandwich.
(3) Cheese only goes on sandwiches that include turkey.

Write a Boolean expression for the allowed combinations of sandwich ingredients using the following variables:

c = cheese
h = ham
t = turkey
r = roast beef

c	h	t	r	f(..)
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	1	0	
0	1	1	1	
1	0	0	0	
1	0	0	1	
1	0	1	0	
1	0	1	1	
1	1	0	0	
1	1	0	1	
1	1	1	0	
1	1	1	1	



Operation:	NAND (NOT-AND)	NOR (NOT-OR)	XOR (eXclusive OR)
Expressions:	$(xy)' = x' + y'$	$(x + y)' = x'y'$	$x \oplus y = x'y + xy'$

Truth table:

x	y	(xy)'
0	0	1
0	1	1
1	0	1
1	1	0

x	y	(x+y)'
0	0	1
0	1	0
1	0	0
1	1	0

x	y	x⊕y
0	0	0
0	1	1
1	0	1
1	1	0

Logic gates: