

①  $f(A, B, C) = ABC' + A'BC + AB'C$

A	B	C	f
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	1
1	1	1	0

Not T-Preserving, since

$$f(T, T, T) = F$$

~~Not~~ F-Preserving, since

$$f(F, F, F) = F$$

Not Counting, since

$$f(0, 0, 0) = 0$$

and

$$f(0, 0, 1) = 0.$$

But position 'c' is not dummy, since,

$$f(1, 1, 0) = 1$$

$$f(1, 1, 1) = 0.$$

~~not monotonic, since~~

~~$$f(0, 1, 1) = 1$$~~

~~$$f(1, 1, 1) = 0$$~~

~~$$f(1, 1, 1) = 0$$~~

Not monotonic, since

(i)  $f(0, 1, 1) = 1$

(ii)  $f(1, 1, 1) = 0$

Here for position A, in  $x_{A(i)} \leq x_{A(ii)}$

But  $f(i) > f(ii)$

$\downarrow$   $\downarrow$   
1 0.

Not self dual, since.

$$f(0, 0, 0) = 0$$

$$f(1, 1, 1) = 0.$$

~~But~~ (self dual required  $f(\sim 0, \sim 0, \sim 0) = \sim 0$ )

$$\Rightarrow f(1, 1, 1) = 1$$

But that is not the case

$\therefore$  Since  $f(A, B, C)$  is ~~not~~ F-Preserving ~~thus~~, its not functionally complete.