8	9	11	10

[illegible]

QUINE - MCCLAUSKEY

$F = \Sigma(0, 4, 8, 10, 11, 12, 13, 15)$

* pair with just 1 bit difference

pair 2 included.

pair করলাম

same group এ pairing হবে না

	w	x	y	z		
0 1's	0	0	0	0 ✓	→ 0	(0,4) : 0 _ 0 0 (0,8) : _ 0 0 0
1 1's	0	1	0	0 ✓	→ 4	(4,12) : _ 1 0 0
	1	0	0	0 ✓	→ 8	(8,10) : 1 0 _ 0 (8,12) : 1 _ 0 0
2 1's	1	0	1	0 ✓	→ 10	(10,11) : 1 0 1 _ (12,13) : 1 1 0 _
	1	1	0	0 ✓	→ 12	(11,12) : × (একের বেশি mismatch হয়েছে)
3 1's	1	0	1	1 ✓	→ 11	(11,15) : 1 _ 1 1
	1	1	0	1 ✓	→ 13	(13,15) : 1 1 _ 1
4 1's	1	1	1	1 ✓	→ 15	

_ means mismatch বাদ দিলাম

* if num2 - num1 = num3 & num3 != 2^n, we cannot create a pair. (4,10) cannot be a pair becaus $10 - 4 = 6 \neq 2^n$.

Now we do grouping together based on dashes.

- This time we match dashes & dash out mismatch. (one bit)

(0,4) : 0 – 0 0 ✓

(0,8) : – 0 0 0 ✓

(4,12) : – 1 0 0 ✓

ii ← (8,10) : 1 0 – 0

(8,12) : 1 – 0 0 ✓

iii ← (10, 11) : 1 0 1 –

iv ← (12, 13) : 1 1 0 –

v ← (11, 15) : 1 – 1 1

vi ← (13, 15) : 1 1 – 1

{(0,4}, 8,12) : – – 0 0 → i

(0,8,4,12) : – – 0 0

* (8,10) কোনো pair করতে পারছেনা, same with ~~(8r~~ 10,11), (12,13), (11,15), (13,15).

* unpicked ones are prime implicant.

now we add up the unpicked ones.

w x y z
– – 0 0 = $\bar{y}\bar{z}$

w x y z
1 0 – 0 = $w\bar{x}\bar{z}$

so on.

$$F = \bar{y}\bar{z} + w\bar{x}\bar{z} + w\bar{x}y + wx\bar{y} + wxyz + wxz$$

vi টা prime implicant.

The one's which are important is called "essential prime implicant".

	0	4	8	10	11	12	13	15
(essential) $\bar{y}\bar{z}$	✓	✓	✓			✓		
$w\bar{x}\bar{z}$				✓				
$w\bar{x}y$				✓	✓			
$wx\bar{y}$							✓	
$w\cancel{xy}yz$					✓			✓
wxz							✓	✓

since we can implement 10, 11 using both $w\bar{x}y$, we choose $w\bar{x}y$ over $w\bar{x}\bar{z}$ (known as row dominance). Same with wxz.

$$F = \bar{y}\bar{z} + w\bar{x}y + wxz$$