Quiz 1

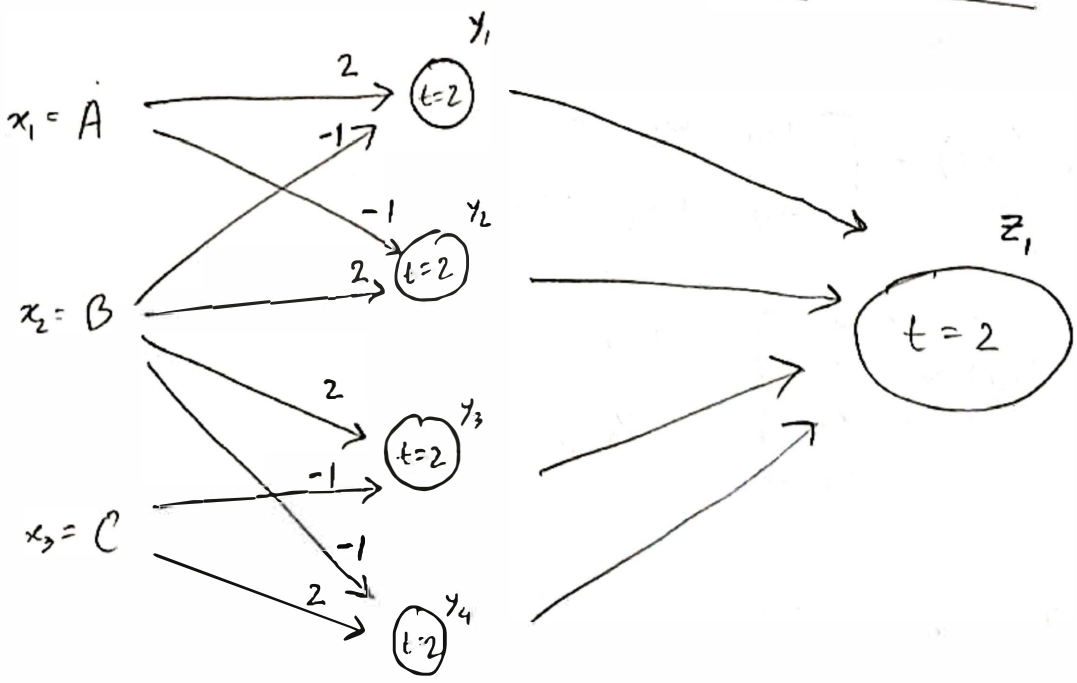
Question 1

01/11/2021

Given,

$$F(A, B, C) = AB' + BA' + BC' + CB'$$

A	B	C	F
0	0	0	0
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	0

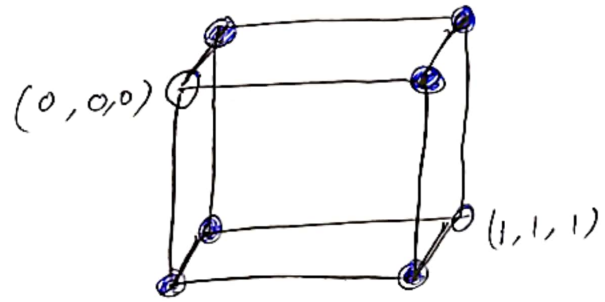


Here,

$$F(A, B, C) = AB' + BA' + BC' + CB'$$
$$= (A \text{ XOR } B) + (B \text{ XOR } C)$$

The following boolean logic implements XOR gates. Hence, they cannot be linearly seperable.

If we draw a 3D-figure, we get:



Except the inputs (0,0,0) and (1,1,1), all others are excitatory. only these two are inhibitory. Judging from this figure, it is clear that we cannot generate such a 2D-plane that can seperate the classes. ie, it is not linearly seperable.