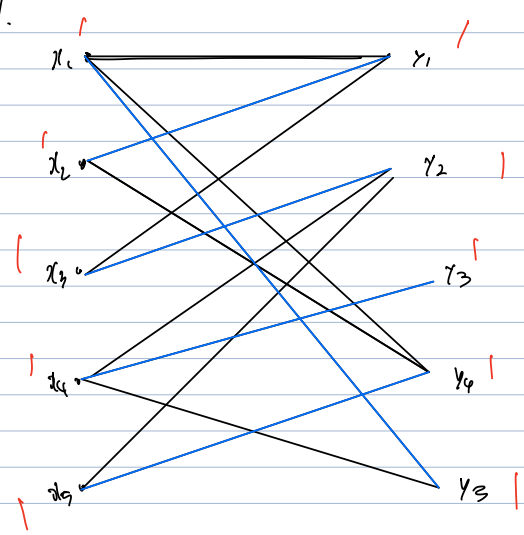


1.



$$x_0 = x_0$$

$$V \leftarrow \{x_2\}, V \leftarrow \emptyset$$

$$\Gamma(V) = \{y_1, y_4\}$$

$$H(V) - V = \{y_1, y_4\}$$

$$y_1 \approx 1 \Rightarrow V \leftarrow \{x_2, x_1\}, V \leftarrow \{y_1\}$$

$$\Gamma(V) = \{y_1, y_4, y_5\}, V \approx \{y_1\}$$

$$y_4 \neq 1 \Rightarrow M \leftarrow M \oplus P, x_2 \leftarrow 1, y_4 \leftarrow 1.$$

$$x_0 = x_1, V = \{x_3\}$$

$$\Gamma(V) = \{y_1, y_2\}, V = \emptyset$$

$$y_2 \approx y_1 \approx 1, V = \{x_1, x_3\}, V = \{y_1\}$$

$$\Gamma(V) = \{y_1, y_4, y_5, y_2\}$$

$$y_1 = y_2 = 1, V = \{x_1, x_2, x_4\}, V = \{y_1, y_2\}$$

$$\Gamma(V) = \{y_1, y_2, y_4, y_5, y_3\}, V = \{y_1, y_2\}$$

$$y_2 = y_3 = 0, P: x_3 \rightarrow y_3, x_3 \approx y_3 = 1.$$

$$x_0 = x_5, V = \{x_3\}, \Gamma(V) = \{y_2, y_4\}, V = \emptyset$$

$$y_2 = y_4 = 1, V = \{x_5, x_3\}, V = \{y_2\}$$

$$\Gamma(V) = \{y_2, y_4, y_1\}, V = \{y_2\}$$

$$y_1 = y_1 = 1, V = \{x_1, x_2, x_5\}, V = \{y_1, y_2\}$$

$$\Gamma(V) = \{y_1, y_4, y_5, y_2\}$$

$$y_2 = y_4 = 1, V = \{x_1, x_2, x_3, x_5\}, V = \{y_1, y_2, y_4\}$$

$$\Gamma(V) = \{y_1, y_2, y_3, y_4, y_5\}, y_1 = y_2 = 1$$

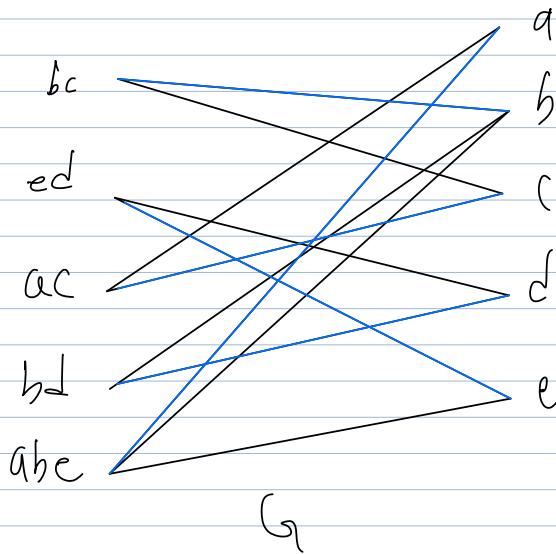
$$U = \{u_1, u_2, u_3, u_4, u_5\}, V = \{v_1, v_2, v_3, v_4\}$$

$$E(U) = \{u_1, u_2, u_3, u_4, u_5\} \quad u_i = v_j = 0$$

$$p(u_5 \rightarrow v_5), \quad u_5 = v_5 = 1$$

2. bc, ed, ac, bd, abe . 可看做求 G 中完美匹配。

显然 蓝线表示一个完美匹配。



bc 对应 b

ed 对应 e

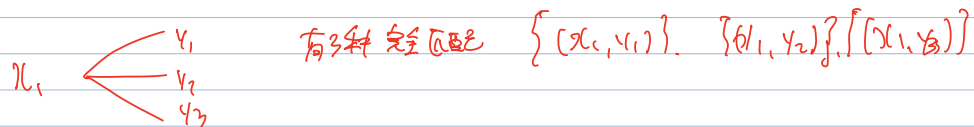
ac 对应 c

bd 对应 d

abe 对应 a

2. 证明: n 个结点的树中最多存在一个完全匹配。

命题有误 例如, 当 $n=2$ 时



已知利润矩阵, 求最大利润。

问题相当于求最大权。

5	4	5	3	8	8
7	3	6	6	6	10
5	6	8	4	2	9
11	7	6	8	3	2
8	7	5	4	6	7
8	4	3	2	4	5

$\delta = 1$

8	3	4	3	5	3	0
10	3	7	4	4	4	0
9	4	3	1	5	7	0
11	0	4	5	3	8	9
9	1	0	4	5	3	2
7	0	3	4	5	3	2
	0	0	0	0	0	0

$\delta = 1$

$\delta = 2$

7	3	4	2	4	2	0
9	3	7	3	3	3	0
8	4	3	0	4	6	0
10	0	4	4	2	7	9
8	1	0	3	4	2	2
6	0	3	3	4	2	2
	1	1	0	0	0	1

$\delta = 2$

$\delta = 3$

5	3	4	2	2	0	0
7	3	7	3	1	1	0
6	4	3	0	2	4	0
8	0	4	4	0	5	9
6	1	0	3	2	0	2
4	0	3	3	2	0	2
	3	3	2	0	0	3

一个最大匹配方案是 $\{C_{15}, C_{26}, C_{33}, C_{44}, C_{55}, C_{61}\}$

$$\sum (x(i,j) + y(i)) = 5 + 10 + 8 + 8 + 9 + 7 = 47$$