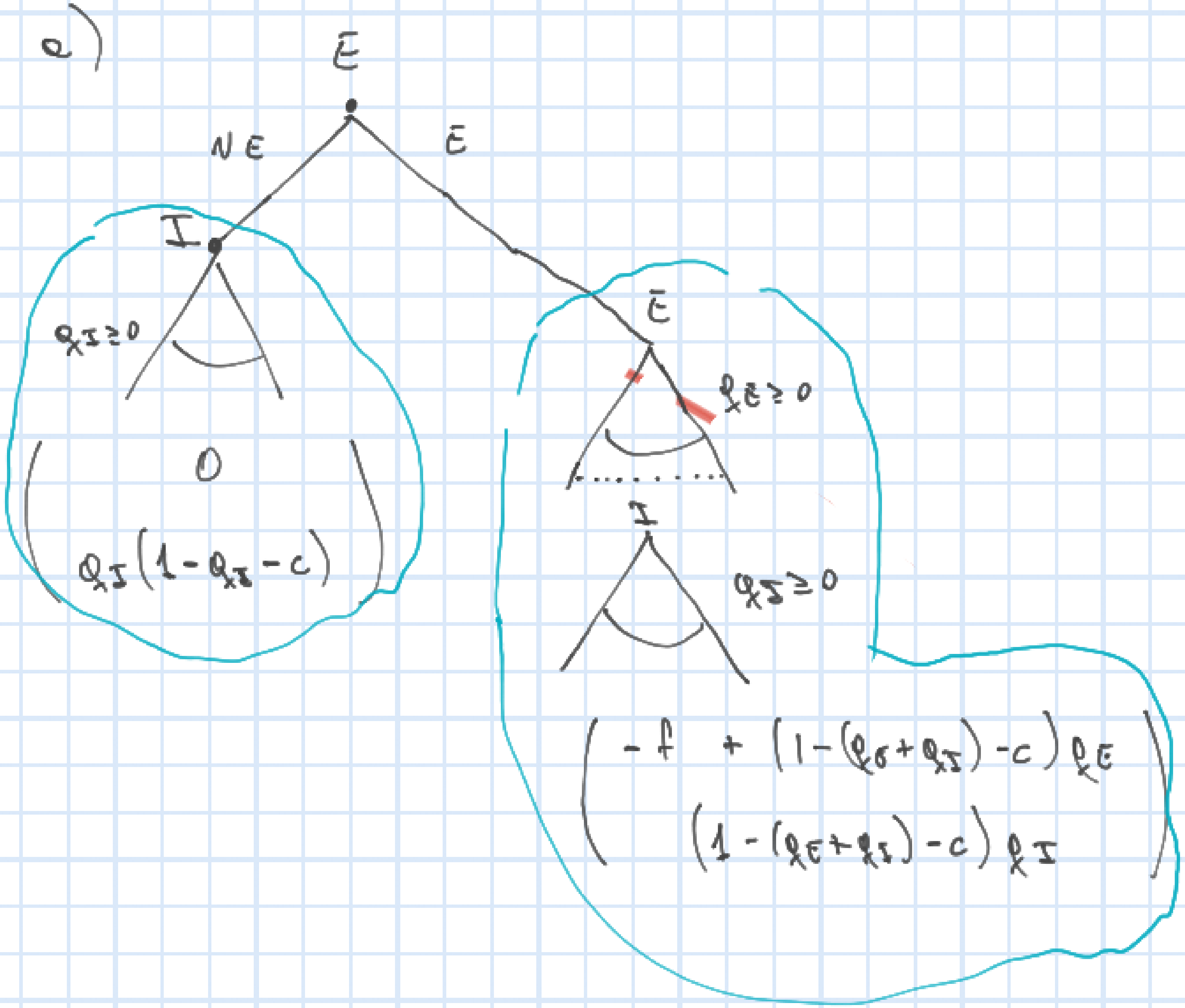
P1| · Incumbente · $1 - Q$

· Entrante · custo f por entrar

· $C_i(q_i) = c\,q_i$

a)



b) $\underline{s_E = NE}$

I) $\max_{q \geq 0} (1-Q-c)q \Rightarrow 1-2q-c=0 \Rightarrow q = \frac{1-c}{2}$

$p = 1 + \frac{1-c}{2} = \frac{1+c}{2} \Rightarrow \pi_I = \left(\frac{1-c}{2}\right)^2$

$p - c = \frac{1-c}{2}$

$\underline{s_E = E}$

i) $\max_{q_i} (1 - q_i - q_j - c) q_i$, $i \in \{E, I\}$

$\Rightarrow 1 - 2q_i - q_j - c = 0 \Rightarrow \boxed{q_i = \frac{1-q_j-c}{2}}$

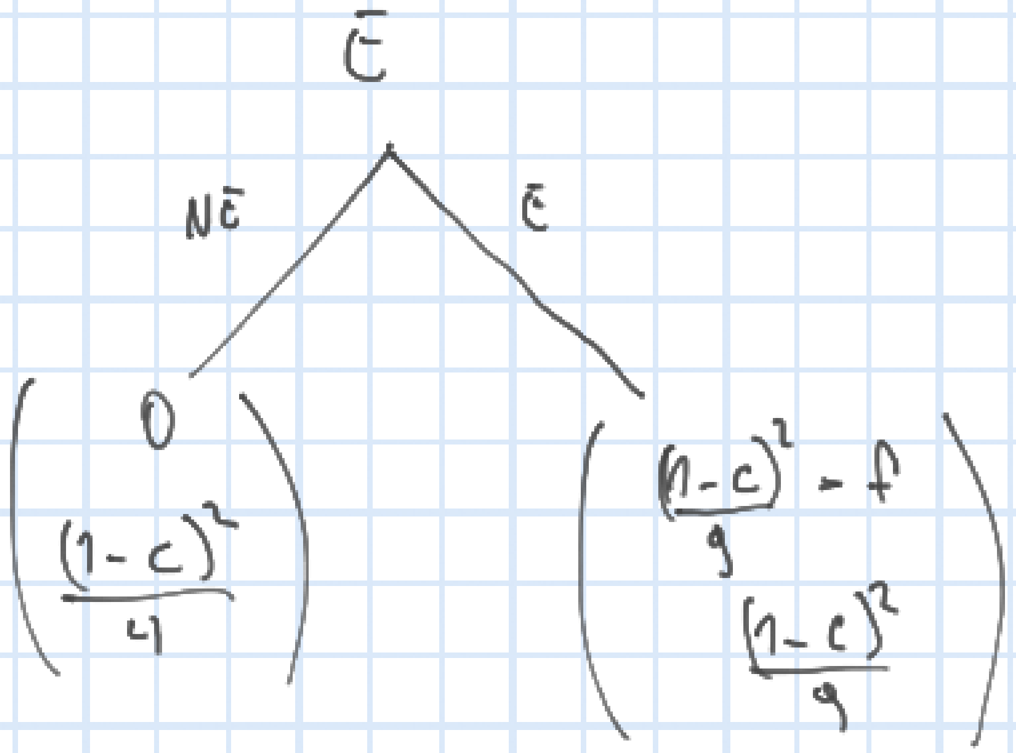
$\boxed{q_i^* = q_j^*} = q^*$ $\quad q^* = \frac{1-q^*-c}{2}$

$\Rightarrow \boxed{q^* = \frac{1-c}{3}}$ $\quad p^* = 1 - \frac{2(1-c)}{3}$

$p^* = \frac{1+2c}{3}$

$\boxed{p^* - c = \frac{1-c}{3}}$

$\Rightarrow \pi_I = \frac{(1-c)^2}{9}$, $\pi_E = \frac{(1-c)^2}{9} - f$



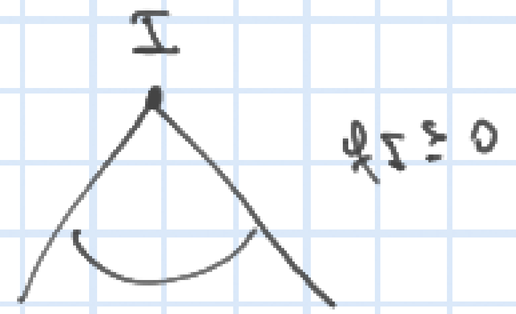
$\bar{E}$) $r_E^* = E \iff \boxed{\frac{(1-c)^2}{9} \geq f}$ //

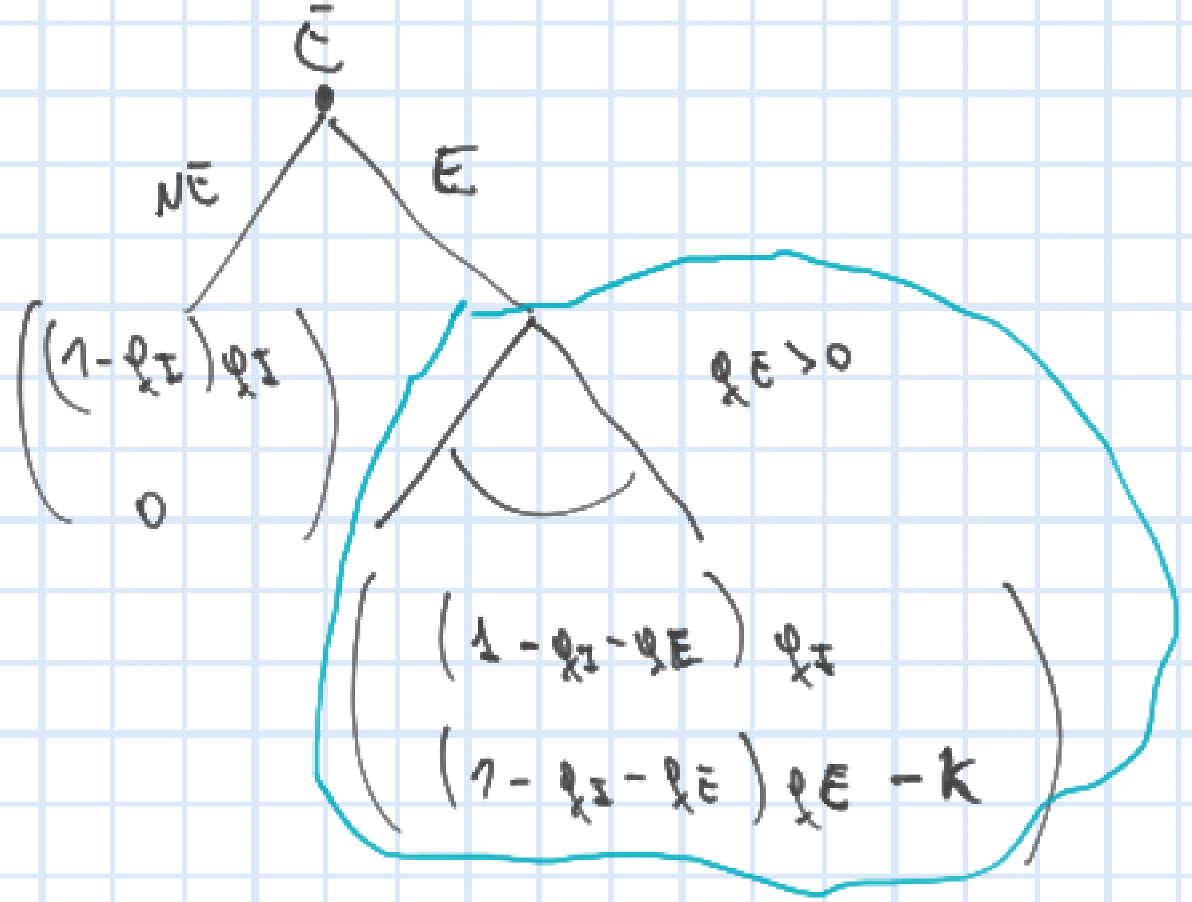
c) Untepder.

D3)

$P = 1 - Q_x$

$= \max\{0, 1 - q\}$





$\boxed{s_E = E}$

$$\max_{q_E} \; (1 - q_I - q_E)\, q_E$$

$$\Rightarrow \quad 1 - q_I - 2q_E = 0$$

$$\Rightarrow \quad q_E(q_I) = \frac{1 - q_I}{2}$$

On a alors :

$$\pi_E = \left(1 - q_I - \left(\frac{1 - q_I}{2}\right)\right) \frac{1 - q_I}{2} - K$$

$$\boxed{\pi_E = \frac{(1 - q_I)^2}{4} - K}$$

$$\boxed{\pi_I = \frac{1 - q_I}{2}\, q_I}$$

$\boxed{s_E^* = E} \iff \dfrac{(1 - q_I)^2}{4} \geq K \iff (1 - q_I)^2 \geq 4K$

$$1 - q_I \geq 2\sqrt{K}$$

$$\Rightarrow \boxed{1 - 2\sqrt{K} \geq q_I}$$

I) $\boxed{1/2}$

$$\max_{q_I \geq 0} \; \frac{1 - q_I}{2}\, q_I$$

Sol int : $q_I^* = 1/2$

$$\boxed{q_I \leq 1 - 2\sqrt{K}}$$

$$\frac{1}{2} \leq 1 - 2\sqrt{K}$$

$$\iff 2\sqrt{K} \leq \frac{1}{2} \iff \boxed{K \leq \frac{1}{16}}$$

Sol bord:

$$\frac{(1-q_J)q_I}{2}$$

$$q_J^* = 1-2\sqrt{k}$$

$$n-2q_J^* = 1-2(1-2\sqrt{k}) > 0$$

$$-1+4\sqrt{k}>0 \iff \boxed{k>\frac{1}{16}}$$

$\boxed{k\le \frac{1}{16}}$ $q_I^*=\frac{1}{2} \Rightarrow \pi_I = \frac{1}{8}$

$\boxed{k>\frac{1}{16}}$ $\boxed{q_J^R = 1-2\sqrt{k}}$

max q_I $\boxed{(1-q_J)\,q_I}$ Sol int $q_J^* = \frac{1}{2}$

sc $\boxed{q_I \ge 1-2\sqrt{k}}$

$$\frac{1}{2} \ge 1-2\sqrt{k}$$

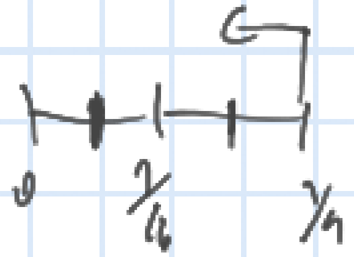
$$2\sqrt{k}\ge \frac{1}{2} \iff \boxed{k\ge\frac{1}{16}}$$

Sol bord: $q_J^* = 1-2\sqrt{k} \iff \boxed{k<\frac{1}{16}}$

$k\le\frac{1}{16}$ $\boxed{q_I=\frac{1}{2}}$

$k>\frac{1}{16} \Rightarrow q_J^R = 1-2\sqrt{k} < \frac{1}{2}$

$\boxed{q_J^* = \frac{1}{2} \;\Big|\; k>\frac{1}{16}}$

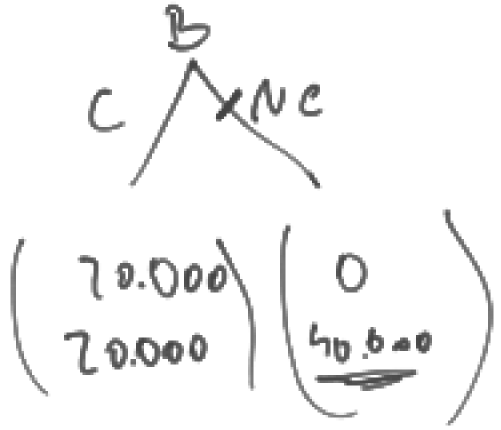


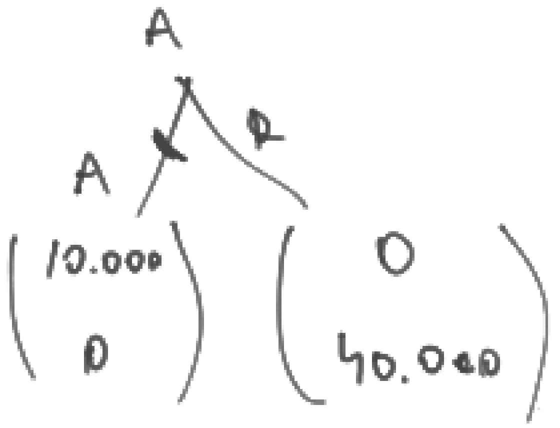
$n_E = E^*$ si $\boxed{k\le\frac{1}{16}}$

$$\boxed{q_E(q_J) = \frac{1-q_J}{2}}$$

Résultats: $k\le\frac{1}{16}$ $\left(q_J=\frac{1}{2},\ q_E=\frac{1}{4}\right)$

$k>\frac{1}{16}$ $\left(q_J=\frac{1}{2},\ q_E=0\right)$





$\boxed{\begin{array}{l} A:\ A \\ B:\ NC \end{array}}$