Provinha 3

Q2

	L	C	R
T	(2,0)	(1,1)	(4,2)
M	(3,4)	(1,2)	(2,3)
~~B~~	~~(1,3)~~	~~(0,2)~~	~~(3,0)~~

a) Eliminação iterada de estratégias estritamente dominadas
→ B é estritamente dominada por T para linha
→ C é " " " R " coluna
Sobram T, M para linha e L C para coluna

b) Equilíbrios de Nash est. puras
(M, L)
(T, R)

c) Eq. Nash estratégia mista

	L	R
T	(2,0)	(4,2)
M	(3,4)	(2,3)

π_L = prob de L jogar T
$(1-\pi_L)$: " " M
π_C = probab. C jogar L
$(1-\pi_C)$: " " " R

Payoffs esperados

Coluna: $\underbrace{0\,\pi_L\pi_C}_{(T,L)} + \underbrace{2\pi_L(1-\pi_C)}_{(T,R)} + \underbrace{4(1-\pi_L)\pi_C}_{(M,L)} + \underbrace{3(1-\pi_L)(1-\pi_C)}_{(M,R)}$

$= 2\pi_L - 2\pi_L\pi_C + 4\pi_C - 4\pi_L\pi_C + 3 - 3\pi_L - 3\pi_C + 3\pi_L\pi_C$

$= -\pi_L + \pi_C - 3\pi_L\pi_C + 3 = \boxed{\pi_C(1-3\pi_L) + 3 - \pi_L}$

π_C em evidência

Linha: $2\pi_L\pi_C + 4\pi_L(1-\pi_C) + 3(1-\pi_L)\pi_C + 2(1-\pi_L)(1-\pi_C) =$

$= 2\pi_L\pi_C + 4\pi_L - 4\pi_L\pi_C + 3\pi_C - 3\pi_L\pi_C + 2 - 2\pi_L - 2\pi_C + 2\pi_L\pi_C =$

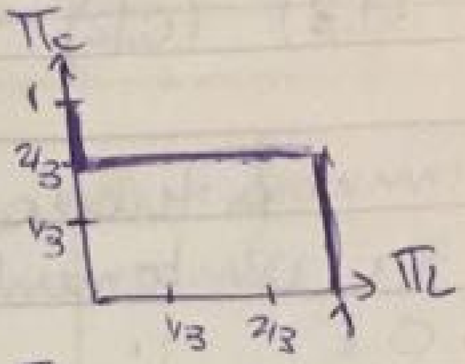
$= -3\pi_L\pi_C + 2\pi_L + \pi_C + 2 = \boxed{\pi_L(2-3\pi_C) + 2 + \pi_C}$

Linha maximiza o payoff se joga $\pi_L = 1$ quando $(2-3\pi_C)>0$ e $\pi_L=0$ quando $(2-3\pi_C)<0$

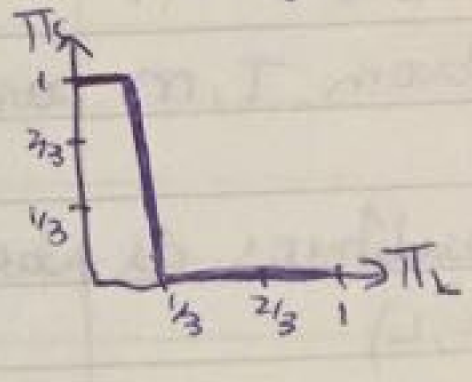
Coluna maximiza payoff se joga $\pi_C=1$ quando $(1-3\pi_L)>0$ e $\pi_C=0$ quando $(1-3\pi_L)<0$

Funções de melhor resposta

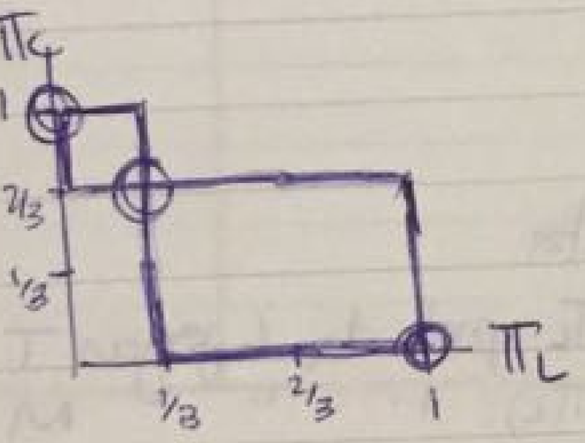
Linha $\begin{cases} \pi_L = 1 \text{ se } \pi_C < 2/3 \\ \pi_L = (0,1) \text{ se } \pi_C = 2/3 \\ \pi_L = 0 \text{ se } \pi_C > 2/3 \end{cases}$



Coluna $\begin{cases} \pi_C = 1 \text{ se } \pi_L < 1/3 \\ \pi_C = (0,1) \text{ se } \pi_L = 1/3 \\ \pi_C = 0 \text{ se } \pi_L > 1/3 \end{cases}$



Unindo:



Jogo possui 3 eq. Nash
→ 2 est. puras (M,L) e (T,R)
→ 1 est. mista $\pi_C = 2/3$ e $\pi_L = 1/3$

Q1

2 indivíduos A e B

$y_A = 20 - P$

$y_B = 15 - 3/4\,P$

1 firma

$C(y) = 4y$

a) Sem discriminação de preço

Demanda da economia

$$y_A + y_B = 20 - P + 15 - 3/4\,P = 35 - \frac{4P - 3P}{4} = 35 - \frac{7P}{4}$$

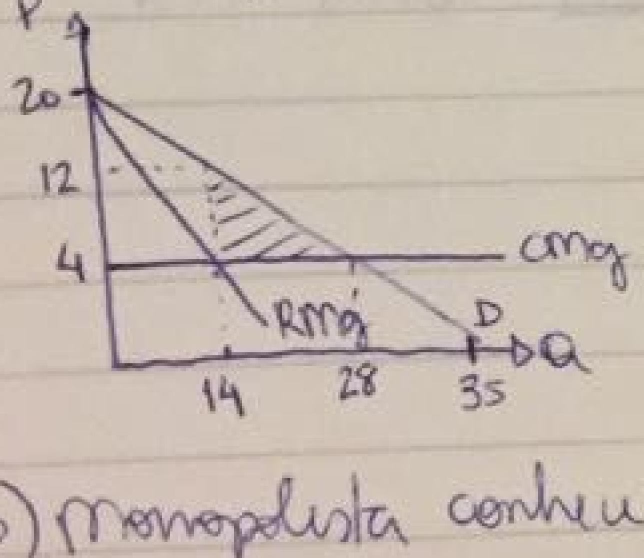
~~$\max_{Q} P.Q - CT \Rightarrow \max_{Q} (35 - 7/4\,P).P$~~ RMg $\Rightarrow 20 - \frac{8Q}{7}$

$$Q = 35 - 7/4\,P \Rightarrow 7/4\,P = 35 - Q \Rightarrow P = \frac{4}{7}(35 - Q) \Rightarrow P = 20 - 4/7\,Q$$

$$\max_{Q} P.Q - CT \Rightarrow \max_{Q} (20 - 4/7\,Q).Q - 4Q$$

$$\text{CPO: } 20 - \frac{4}{7}.2Q - 4 = 0 \Rightarrow 20 - \frac{8Q}{7} - 4 = 0 \Rightarrow \frac{8Q}{7} = 16 \Rightarrow \boxed{Q^m = 14}$$

$$P^m = 20 - \frac{4}{7}.14 \Rightarrow P^m = 20 - 8 \Rightarrow \boxed{P^m = 12}$$



Peso morto:

$$\frac{(12-4)(28-14)}{2} = \frac{8 \times 14}{2} = \boxed{PM = 56}$$

b) Monopolista conhece a demanda e consegue discriminar preços. P para cada indivíduo:

Iguala RMg = CMg para cada indivíduo

$y_A = 20 - P_A \Rightarrow P_A = 20 - y_A$

$y_B = 15 - \frac{3}{4}P_B \Rightarrow \frac{3}{4}P_B = 15 - y_B \Rightarrow P_B = 20 - \frac{4y_B}{3}$

$RT_A = (20 - y_A)\,y_A \Rightarrow 20y_A - y_A^2$; $RMg_A = 20 - 2y_A$

$RT_B = (20 - \frac{4}{3}y_B)\,y_B \Rightarrow 20y_B - \frac{4y_B^2}{3}$; $RMg_B = 20 - \frac{8y_B}{3}$

Igualando a CMg: $20 - 2y_A = 4 \Rightarrow \boxed{y_A = 8}$ e $\boxed{P_A = 12}$

$20 - \frac{8}{3}y_B = 4 \Rightarrow y_B = \frac{16 \times 3}{8} \Rightarrow \boxed{y_B = 6}$ e $\boxed{P_B = 12}$