

Discussion 10.

BCS 134) 48 histories, 20 subgames, 384 strategies.
 Subgame perfect eqs at (2, 1, 1).

BCS 135) Losing positions: {89, 78, 67, 56, 45, 34, 23, 12, 13}.
 So P1 can win, must play 1.

mT2)

1) F, T, F, T, T, T, F, T

2a) Bid below your costs

b) $b_i = c_i$

c) First price

3a)

		P				
		A	B	C	D	E
T	A	-1, 1	1, -1	1, -1	1, -1	1, -1
	B	1, -1	-1, 1	1, -1	1, -1	1, -1
	C	1, -1	1, -1	-1, 1	1, -1	1, -1
	D	1, -1	1, -1	1, -1	-1, 1	1, -1
	E	1, -1	1, -1	1, -1	1, -1	-1, 1

3b) No

3c) Mix 1/5 each

3d) 4/5

3e) Yes terrorist mix at different rate to keep her indifferent

4a)

		P2		P2	
		Y	N	Y	N
P3	Y Y	$b-c, b-c, b-c$	$b-c, b, b-c$	$b, b-c, b-c$	$0, 0, -c$
	Y N	$b-c, b-c, b-c$	$-c, 0, 0$	$b, b-c, b-c$	$0, 0, 0$
	N Y	$b-c, b-c, b$	$b-c, b, b-c$	$0, -c, 0$	$0, 0, -c$
	N N	$b-c, b-c, b$	$-c, 0, 0$	$0, -c, 0$	$0, 0, 0$

P1: Y P1: N

4b) yes

4c) 15

4d) 2^4

4e) 7

4f) Ends at (b, b-c, b-c)

4g) 1st

3-player)

		P2	
		L	R
P1	u	1, 2, 1	3, 0, 2
	D	1, 0, 4	2, 2, 1
		P3: X	

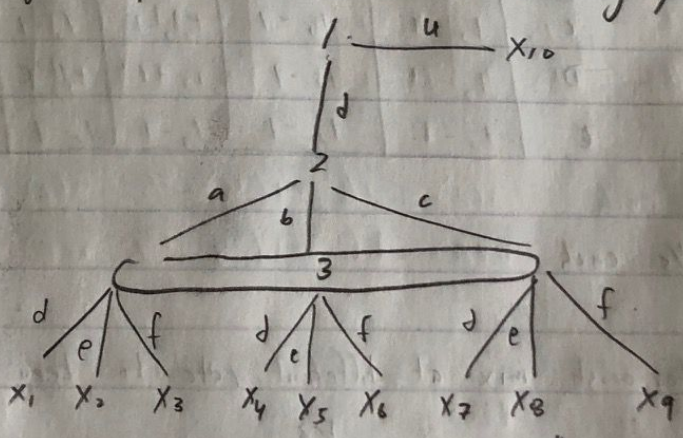
		P2	
		L	R
P1	u	3, 3, 0	0, 2, 0
	D	1, 5, 4	3, 2, 4
		P3: Y	

Incomplete info). Preferences given by

$$P1: \begin{pmatrix} x_7, x_9 \\ x_1, x_2, x_4, x_5 \\ x_{10} \\ x_3, x_6, x_8 \end{pmatrix} \quad
 P2: \begin{pmatrix} x_1, x_3 \\ x_4, x_5 \\ x_2, x_7, x_8 \\ x_6 \\ x_9 \end{pmatrix} \quad
 P3: \begin{pmatrix} x_2, x_7 \\ x_8 \\ x_1, x_4, x_9 \\ x_3, x_5, x_6 \end{pmatrix}$$

$$x_4 \sim^2 \begin{pmatrix} x_1 & x_2 \\ 1/2 & 1/2 \end{pmatrix} \quad
 x_1 \sim^3 \begin{pmatrix} x_2 & x_5 \\ 1/2 & 1/2 \end{pmatrix}$$

Find subgame perfect equilibrium of following game.



		P3			
		d	e	f	
P2	a	x1	x2	x3	(p)
	b	x4	x5	x6	(1-p)
	c	x7	x8	x9	0
		(q)	(1-q)	0	

a: $qu^2(x_1) + (1-q)u^2(x_2) = qu^2(x_4) + (1-q)u^2(x_5) : b \Rightarrow q = 1/2$

d: $pu^3(x_1) + (1-p)u^3(x_4) = pu^3(x_2) + (1-p)u^3(x_5) : e \Rightarrow p = 1/2$

DISCUSSION 10 CONTINUED.

$$\iint_D \frac{1}{4} x_1^4 x_2$$

$$\frac{1}{4} x_1 + \frac{1}{4} x_2 + \frac{1}{4} x_4 + \frac{1}{4} x_5$$

So the SPE:

$$\begin{pmatrix} d & a \\ 1 & 0 \end{pmatrix}, \begin{pmatrix} a & b & c \\ 1/2 & 1/2 & 0 \end{pmatrix}, \begin{pmatrix} d & e & f \\ 1/2 & 1/2 & 0 \end{pmatrix}$$