

DISCUSSION 2

- 1) Mom cares just as much about son's income as her own.
- a) what are her preferences over $(1,4), (2,1), (3,0), (2,3)$?
 These are incomes. $\downarrow \quad \downarrow \quad \downarrow \quad \downarrow$
 $5 \quad 5_m \quad 3 \quad 5_m \quad 3 \quad 5_m \quad 5$
- b) First convert the game into mom's preferences (assume son is selfish). Then find Nash equilibria.

	L	R
T	1, 4	2, 1
B	3, 0	2, 3

=>

	L	R
T	5, 4	3, 1
B	3, 0	5, 3

2) Consider the game

	L	R
T	y, y	0, x
B	x, 0	2, 2

For what values of x, y is this a Prisoner Dilemma? Strictly dominant action not efficient.

If $x > y$ then B is strictly dominant.
 If $y > 2$ then (B, R) not efficient.
 So $x > y > 2$.

3) Find Nash

	F	G	H	I	J
A	2, 4	3, 3	1, 9	4, 2	5, 4
B	1, 3	0, 1	0, 1	3, 1	2, 3
C	4, 2	2, 1	3, 0	8, 3	1, 4
D	1, 9	2, 5	0, 0	3, 3	3, 4
E	2, 9	1, 5	0, 5	5, 4	1, 5

	F	H	J
A	2, 4	1, 9	5, 4
C	4, 2	3, 0	1, 4
E	2, 9	0, 5	1, 5

=> None.

4) There are five roommates. Each can wear or not wear shoes in the house. There are 3 possible utilities = $\begin{cases} 0 & \text{if no shoes while others do} \\ 1 & \text{if shoes} \\ 2 & \text{if no shoes while others don't.} \end{cases}$

Find 2 Nash equilibria.

(S, S, S, S, S) or (N, N, N, N, N) .

↓

payouts $(1, 1, 1, 1, 1)$

↓

$(2, 2, 2, 2, 2)$

Convince yourself these are the only 2.

↳ Any other allocation has at least one N & S.

↳ So someone got payoff 0.

↳ They can always get 1.