



# Lab Problem Set 6

## Game Theory

This problem set is intended to support the presentation by your teacher in the class. You are not required to submit written solutions to this problem set. It is highly recommended that you work on these problems at home since you will be expected to know how to solve similar tasks in the controlled works.

### Problem 1

Find the NE in the following simultaneous game between player 1 and player 2.

P1\P2	L	R
T	2, 1	0, 2
B	1, 2	3, 0

### Problem 2

Find the NE in the following simultaneous game between player 1 and player 2.

P1\P2	L	R
T	2, -3	1, 2
B	1, 1	4, -1

### Problem 3

Find the NE in the following simultaneous game between player 1 and player 2.

P1\P2	L	R
T	1, 0	0, 1
B	0, 1	a, 0

### Problem 4

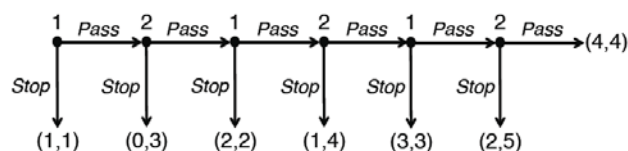
Consider the following game by-matrix for a dynamic game.

P1\P2	L	R
T	10, 1	-3, 3
B	1, 2	7, -1

- Find the SPNE if P1 moves first.
- Find the SPNE if P2 moves first.
- If we could auction the priority of moving, who would bid on it and how much?

### Problem 5

Consider the following game:



- Find the equilibrium
- Can you suggest a Pareto improvement relative to the equilibrium outcome in a)? Why may it be hard to achieve it?

**Problem 6**

Consider the following game:

P1 \ P2	I	N
I	1, 1	0, $c$
N	$c$ , 0	$c$ , $c$

- Solve the game assuming  $0 < c < 1$ .
- Knowing that strategy "I" corresponds to "invest" action and "N" corresponds to "not invest", what is the economic interpretation of this game?
- Which strategy is less risky and why?

**Problem 7**

Find the NE in mixed strategies in the following simultaneous game between player 1 and player 2. Explain why this is a NE. [10p]

P1 \ P2	L	R
T	0, 1	1, 0
B	1, 0	0, 2