

Prof. Dr. Anke Gerber

Advanced Game Theory

1. Exam Summer Term 2015

Important Instructions

1. You have 90 minutes to finish the exam.
2. The maximum number of points is 90.
3. You are not allowed to use any material (books, lecture notes etc.), but you may use a non-programmable calculator.
4. Give a reason for your answers. You may end up with zero points for a question if it is not clear how you arrived at your solution.
5. Only use the paper that is handed out to you and submit all paper in the end (including any notes you do not want to be graded).
6. Please do not use a pencil.
7. Please write your name on each sheet of paper, number the pages and leave a margin (2.5cm) on each page.
8. Please write legibly and make sure that your answers are coherent and complete.
9. Mobile phones must be switched off throughout the exam.

Good luck!

Problem 1

(20 Points)

Consider the following two-player normal form game:

		Player 2	
		A	B
Player 1	A	1, 1	3, 3
	B	3, 3	2, 2

Determine all evolutionary stable strategies under symmetric role behavior, i.e. when players cannot condition their strategy on the player role.

Problem 2**(40 Points)**

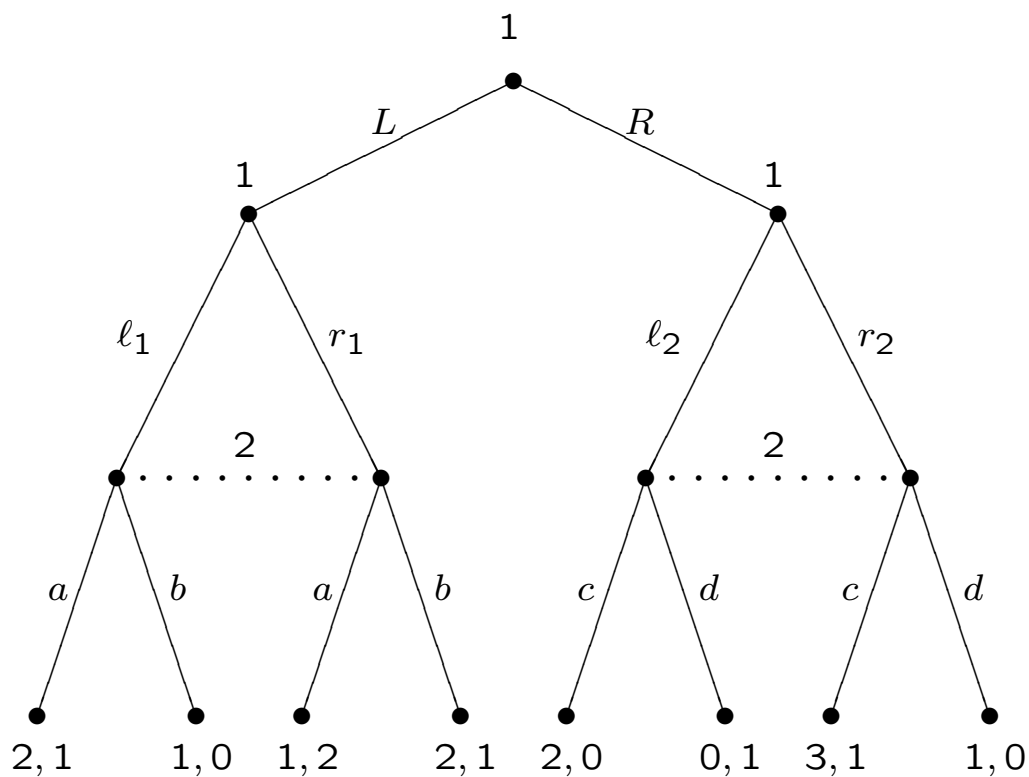
Consider the following two-player normal form game:

		Player 2	
		L	R
Player 1	T	2, 2	0, 0
	M	3, 0	6, 6
	B	4, 4	2, 4

1. Determine all pure and mixed strategy Nash equilibria of the game.
(15 Points)
2. Determine all trembling-hand perfect equilibria of the game.
(7 Points)
3. Determine all proper equilibria of the game.
(18 Points)

Problem 3**(30 Points)**

Consider the following two-player game with imperfect information:



1. Determine a pure strategy weak perfect Bayesian equilibrium, where player 1 plays L at his first decision node.

(12 Points)

2. Prove that there does not exist a sequential equilibrium, where player 1 plays L at his first decision node.

(18 Points)