Advanced Algorithms Assignment 1

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Due date: handin in class on Monday Feb 4 at 1:30pm

1   Tennis game

What are the pure Nash equilibria of the following game? What are its mixed Nash equilibria?

10 90	80 20
70 30	40 60

2   An interesting game

What are the pure Nash equilibria of the following game? What are its mixed Nash equilibria? What is interesting about this example?

1 3	0 0
0 0	3 1

3   Nash equilibrium of combination of games

(HT: Constantinos Daskalakis lecture notes)

We have three players. Assume that players 1 and 2 are playing a zero-sum game, players 1 and 3 are playing a zero-sum game, but instead of using different strategies in the two games, player 1 must use the same strategy in both games. Show that there exists a Nash equilibrium in this game.