

6 Oct 2014

Math 181

For the following game, are there any dominant pure strategies? If yes, state them.
Are there any Nash Equilibria? If yes, state them.

| | |
|-----|-----|
| 6,4 | 1,1 |
| 1,1 | 2,2 |

Find all pure strategy Nash Equilibria of the following game.

| | | |
|-----|-----|-----|
| 1,0 | 2,2 | 1,2 |
| 2,3 | 1,0 | 1,1 |
| 0,1 | 0,2 | 3,0 |

Determine the value of this game. State all Nash Equilibria, and give the optimal strategies for both players.

| | |
|------|------|
| 3,-3 | -2,2 |
| -1,1 | 0,0 |

As an aside, recall that “value” refers only to zero-sum games, so asking for the value of other games on this worksheet would not make sense.

Determine the Nash Equilibria for the following game.

| | | |
|-----|-----|-----|
| 0,2 | 3,1 | 2,3 |
| 1,4 | 2,1 | 4,1 |
| 2,1 | 4,4 | 3,2 |

Determining Nash Equilibria, especially when it comes to mixed strategies, can be a lot of work. Save yourself some effort by trying to “rule out” any pure strategies.

| | | | | |
|------|-------|------|------|-------|
| 4,-1 | 3,0 | -3,1 | -1,4 | -2,0 |
| -1,1 | 2,2 | 2,3 | -1,0 | 2,5 |
| 2,1 | -1,-1 | 0,4 | 4,-1 | 0,2 |
| 1,6 | -3,0 | -1,4 | 1,1 | -1,4 |
| 0,0 | 1,4 | -3,1 | -2,3 | -1,-1 |

Homework: Read 15.4, pages 543–549. Go to www.tinyurl.com/gt101mahoney. Watch #12 (Strict Dominance in Mixed Strategies), #14 (Infinitely Many Equilibria), and #17 (Backward Induction).

Due Friday: Suppose a friend has been sick and unable to attend class. When they return, they must be able to compute all Nash Equilibria for a 2-player game, where each player has two choices. You must write a guide on how to solve this type of problem in as much detail as possible. I will grade your guide by following it as precisely as possible on several example games.