

10 Oct 2014

Math 181

**Discussion:**

What are some use cases of backward induction?

Who wins in the original Centipede game in from the video?

How much must we alter the game by to obtain a different expected payoff?

**Fair Division:**

A cake must be divided amongst people so that no person is envious of a portion that someone else receives. This is a kind of *fair-division procedure* that we refer to as being *envy-free*.

If you have a sibling, you probably already know how to do envy-free sharing for two players. The algorithm for three players is more complicated and can be found on pages 469–470.

**Homework:** I will post a video on my website that shows how to find ALL Nash Equilibria for the following game. (This comes from the handout on Oct 6 where you only had to find pure strategy N.E.) The video will be a good review of several techniques we've used thus far.

1,0	2,2	1,2
2,3	1,0	1,1
0,1	0,2	3,0

If you struggled with the quiz, practice problems 8–12 on pages 564–565.

**Due Wednesday:**

1. Come up with two scenarios where you could find game theory useful. For one of the situations, write down a payoff matrix for two of the players. You do not need to solve either game.
2. Some critics of game theory argue that it does not take into account of (irrational?) emotions of people, such as anger, jealousy, or love. What is your opinion of this question? In a couple paragraphs, give an example (real or hypothetical) that supports your position. Pay particular attention to whether the players acted with or against their preferences.
3. Answer questions #35 (p567) and #43 (p568). (As a side note, the latter problem ties into Section 13.8.)