Comments on Homework 5

1. I think almost everyone got this right. Just make sure you state what each person will do at each node.

4. There were actually several choices. You folks did great!

5. There seemed to be some confusion about what is mean by subgame perfect. They are really talking about giving the strategy profile which yields a stable decision. You are playing a sequential game, but the idea is IF you knew what the other person was going to do, would you change your mind? If you would, it isn’t stable. If your decisions are fine, even for places you will actually not get to, we call it subgame perfect.

6. Let’s look at ALL possibilities:

<table>
<thead>
<tr>
<th></th>
<th>T1</th>
<th>T2</th>
<th>Equilibrium, but not subgame perfect as T2 is always a bad choice for player 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>t</td>
<td>T1</td>
<td>B2</td>
<td>Equil and subgame perfect</td>
</tr>
<tr>
<td>t</td>
<td>B1</td>
<td>T2</td>
<td>Not equil, player 1 would switch to b, given that player 2 plays T2</td>
</tr>
<tr>
<td>t</td>
<td>B1</td>
<td>B2</td>
<td>Not equil, player 1 would switch to b, given that player 2 plays B1</td>
</tr>
<tr>
<td>b</td>
<td>T1</td>
<td>T2</td>
<td>Not equil, player 2 switches as T2 is always bad for player 2</td>
</tr>
<tr>
<td>b</td>
<td>T1</td>
<td>B2</td>
<td>Not equil, player 1 switches as T1 choice makes b better.</td>
</tr>
<tr>
<td>b</td>
<td>B1</td>
<td>T2</td>
<td>Not equil, player 2 switches as T2 is always bad for player 2</td>
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<td>b</td>
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<td>B2</td>
<td>Equil and subgame perfect</td>
</tr>
</tbody>
</table>

This ended up generating lots of different answers. Look at {t} {T1 T2}. No one will change their mind (so is stable), but player two can’t defend his T2 option (so isn’t subgame perfect).

Look at {b} {T1 B2}. Player 1 will decide to pick t, given that T1 will be picked by player 2. Thus, this decision isn’t stable.

Remember, nash equilibrium have to do what NOT changing your mind even if you knew what the other person would do. It suggests that in a future game, you would both keep doing the same old thing- it would be stable.

8. a. The fewer papers you have, the more likely your decision matters. If you only have one paper, your decision matters, and you will read it. If you have 3 papers, the decision matters only half the time.

Given you have a fifty percent change of guessing right and p chance your decision matters, the general formula for guessing paper is

\[ p \times .5 \times 1000 + (1-p) \times 1000 \]

Reading the paper is always 600 utility.
What percent chance of making a difference would cause you to read it?
\[ p \cdot 0.5 \cdot 1000 + (1-p) \cdot 1000 < 600 \]
\[ 1000 - 500p < 600 \]
\[ 400 < 500p \]
\[ p > 0.80 \]

That isn’t going to happen with 7 papers. Thus, it would make no difference.

b. In order to actually review, we need values such that \( p \) is the probability you make a difference, \( g \) is the probability you guess correctly, and \( c \) is the cost of review.

\[ p \cdot g \cdot 1000 + (1-p) \cdot 1000 < 1000 - c \]

c. Lots of you suggested making the paper easier to review. While that would work, I’m not sure if that is really possible. A better strategy is to devise a mechanism that only asks you to read the paper if your vote counts.

d. There are really lots of choices here. Some of you said, you would ask the most expensive person first, as his/her chance of making a difference is greater, but if you construct your mechanism right, then you don’t ask ANYONE unless his/her vote makes a difference. If your mechanism is like that, then asking the cheapest one first makes more sense as the resources spent are less and I pay less for the decision. I am assuming here that the firm actually pays the cost of the total decision, as when people are reading the paper, they aren’t doing other things I need done.

10. The concern is that you can’t sell or buy good cars. It hurts both sides. The solution is a warranty or third party opinion.

11. It was reassuring to know that you all felt your college education was useful. I think that is particularly true in the sciences. I can envision cases where that isn’t true. Medical school admittance often requires that you apply two years in a row. I’m not sure that the extra year gives you more training – as they don’t care what you’ve done in that year. It seems more of a signal that you will love medicine because you didn’t give up at the first rejection.