Economics 200C: Problem Set I
Due: April 7, 2004

Paternalism:

- You've heard me (and others) say that doing problems is really important. There, I said it again.
- Try to make your answers as complete as possible. (Hand waving is for lectures!)
- Clear intuitive statements are better than nothing, but don't forget the previous point.
- If the question is too hard, make stronger assumptions.
- By all means work together. Please write down answers independently (because I think that you'll learn something writing the arguments down).

Problems:

1. Can a player have two strictly dominant strategies? Give an example or prove that this is impossible.
2. Can a player have two weakly dominant strategies? Give an example or prove that this is impossible.
3. Can adding a strategy for Player 2 increase Player 1's security level? Can it decrease it? Can it increase Player 1's maximum equilibrium payoff? Can it increase Player 1's minimum equilibrium payoff?
4. Can a strategy be strictly dominated by a non-trivial mixed strategy, but not by a pure strategy? Give an example or prove that this is impossible.
5. Can adding a weakly dominated strategy change the set of Nash equilibria in a game? How about adding a strictly dominated strategy?
6. Ten firms must decide whether to operate at location A or location B. If there are n firms in location A, then each of these firms earns n^2. If there are m firms at location B, then each of these firms earns $2m^2 - 14$. Describe the pure-strategy Nash equilibria of the game that arises if the firms simultaneously decide upon a choice of location. Write down (but do not solve) an equation that would characterize a symmetric (all firms play the same strategy) mixed-strategy equilibrium for the game. Show (if you can) that this equation has a solution.
7. Three voters ($i = 1, 2, 3$) must decide between two candidates, A and B. The candidate with the most votes wins. Voters 1 and 2 prefer candidate A to candidate B. Voter 3 prefers candidate B. Voters vote simultaneously. Show that there is an equilibrium in which candidate B wins. Show that this outcome disappears if voters avoid weakly dominated strategies.