Overall: There were many disappointing answers to this homework. Some students did not describe assignment (conflict over position) or provision (avoiding payment but trying to get benefits) problems. There were many instances of unclear/incomplete payoffs and strategies. There were also many instances in which payoffs led to undiscussed strategies not mentioned in your stories. It was not a good idea to show one set of strategies and then claim something else happened without saying why those strategies were ignored.

I graded you based on the clarity of your story and its match to the payoff matrix and resulting play. Many of you lost points for failure to specify a complete set of payoffs or explain how the game was played.

1. (5 points) Use the ideas and examples discussed in Chapter 3 to create an assignment game based on a real example in your life, i.e., specify players, positions, payoffs, and strategies. Explain how players got to one outcome or another (efficient or not) in reality.

NB: You can specify a mixed-strategy equilibrium, but then you have to tell me how players “randomized” between two choices.

Hint: the easiest way to do this is to think of an assignment problem (e.g., who gets to sit in the front seat on a long driving trip) and then work out all the technical details. Use a few pages of paper to draw out/test out the ideas, then revise to hand in. I’m guessing you will need about two pages for each answer, i.e., (a) describe the situation (enough background so I can understand your story), (b) define all the parameters, (c) draw and fill in the play/payoff matrix, and (d) explain how the game was actually played and the results.

Solution: These games often result in a mixed equilibrium where players want to alternate between two positions/plays. There’s no need to specify a probabilistic strategy when the game is repeated and positions alternated.

Example: My girlfriend (C) and I prefer the couch (payoff 4) assignment to the chair assignment (payoff 1). We have one position and two strategies (couch or chair). Given the payoffs, our outcomes are to share the couch (cozy, but crowded).

2. (5 points) Same idea as Question 1, for a provision game.

Solution: Those of you who copied from pp 61–2 did not often do so correctly, e.g., forgetting that \( w \) is the value of time, etc. that can be used for other things. Specifying \( w \) as a cost and then adding it to payoffs is incorrect.

Example: My girlfriend (C) and I prefer to sit around (4) rather than provide dinner (0), but no dinner is worst (-2 each). We have one position and two
strategies (cook or don’t cook). Given the payoffs, we have two equilibria (one cooks, one does not). In a single game, we’d flip a coin. In repeated games, we alternate, with the non-chef doing the dishes.