

Department of Economics
The Ohio State University
Econ 805–Homework #3
due Thursday, February 19

Prof James Peck
Winter 2009

1. Mas-Colell, exercise 7.D.1.

2. Consider the following game. The players are three voters, who must vote either YES or NO (no abstentions). The referendum will succeed if at least two of the voters vote YES, and it will fail otherwise. Suppose that player 1 receives a payoff of 2 if the referendum succeeds, and a payoff of -2 if it fails. Players 2 and 3 receive a payoff of -1 if the referendum succeeds, and a payoff of 1 if it fails. Assume that we have a private ballot, where players cannot see how the other players vote until the ballots are counted.

(a) What is the normal form of this game? That is, for $i = 1, 2, 3$, write out the strategy sets, S_i , and the payoff functions, π_i .

(b) Express the normal form game using matrices. (For a three player game, you can write it as a collection of matrices, one matrix for each strategy of player 3. Player 3 chooses the matrix, player 1 chooses the row, and player 2 chooses the column. Each box of each matrix has three numbers, corresponding to the payoffs of the three players.)

(c) Represent this game in extensive form.

3. Mas-Colell, exercise 8.D.4. If the two demands sum to less than **or equal to** \$100, they do the project, each gets his demand, and any money left over goes to charity.

4. Mas-Colell, exercise 8.D.5.