

Department of Economics
The Ohio State University
Econ 817 Game Theory

Winter 2009
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Homework #2–Due Monday November 2

Directions: Answer all questions, and be neat. If you discuss the questions in study groups, list the members of your study group, and make sure that the writeup is your own work. In particular, do not look at the O-R solutions manual or any answers handed out in previous years.

1. O-R, exercise 146.1.

2. Consider the following simplified version of Blackjack. A shuffled deck contains only two types of cards, 1's and 2's, with an equal number of each type. The object is to have the sum of your cards come as close to 2 as possible, without going over. Player 1 looks at the card he is dealt, and decides whether to “hit” or “stick.” If he decides to hit, then another card is dealt and his total is the sum of his two cards. After observing the number of cards taken by player 1 but not the face values of the cards, player 2 observes her own card. She then decides whether to hit or stick. If she decides to hit, then another card is dealt and her total is the sum of her two cards.

If player 1's total is greater than 2, then he loses, and payoffs for the two players are $(-1, 1)$. Player 1 also loses if his total is 1 and player 2's total is 2.

If player 1's total is 2 or less and player 2's total is more than 2, then player 1 wins, and payoffs are $(1, -1)$. Player 1 also wins if his total is 2 and player 2's total is 1.

If both totals are 1 or both totals are 2, then the game is a tie, and payoffs are $(0, 0)$.

Find a sequential equilibrium of this game, remembering to specify beliefs as well as strategies. Be neat, be clear, and explain your notation.