Econ 306
Professor Coughlin

Homework 8

I. Answer questions 1-4 (1 point each)
II. Answer questions 5-6 (T/F) (worth 1 point each)
III. Please complete the homework 8 problems on the Aplia Website. (2 points)
IV. Complete exercise 32.1 below (2 points)

Use the following information to answer questions 1-4
The Bear family is trying to decide what to have for dinner. Baby Bear's ranking of the alternatives is (honey, grubs, porridge). Mama Bear's ranking of the alternatives is (grubs, porridge, honey). Papa Bear's ranking is (porridge, honey, grubs).

1. Suppose we aggregate the preferences of the three individuals in the bear family into one "social preference" by using majority voting in the following way:
For each pair of alternatives, a and b,
(i) a is "socially preferred" to b if a majority of the individuals prefer a to b
(ii) otherwise, a and b are "socially indifferent"

a) Is the social preference for the Bear Family
complete?_____
reflexive?_____
transitive?_____

b) Using the Bear Family's social preference, is there a "best" alternative (that is, a most preferred alternative)?

For questions 2-4, assume they agree to make the decision by having two "contests".
In the first contest they will consider two of the alternatives. Whichever (of these two alternatives) is preferred by a majority wins the first contest.
In the second contest they will consider the winner of the first contest and the remaining alternative. Whichever (of these two alternatives) is preferred by a majority wins the second contest.

The winner of the second contest is the alternative that will be chosen.

2. Papa suggests that they first consider honey vs. grubs, and then the winner of that contest vs. porridge. Which alternative will be chosen?

3. Mama suggests instead that they consider honey vs. porridge and then the winner vs. grubs. Which gets chosen?

4. What order should Baby Bear suggest if he wants to get his favorite food for dinner?

5. Whenever we know the preferences of three individuals, it is possible to aggregate the individuals' preferences into one social preference.

6. Arrow's impossibility theorem established that every social decision mechanism has the following property: all social rankings are the rankings of one individual.

32.1 (2) One possible method of determining a social preference relation is the *Borda count*, also known as rank-order voting. Each voter is asked to rank all of the alternatives. If there are 10 alternatives, you give your first choice a 1, your second choice a 2, and so on. The voters' scores for each alternative are then added over all voters. The total score for an alternative is called its Borda count. For any two alternatives, x and y, if the Borda count of x is smaller than or the same as the Borda count for y, then x is "socially at least as good as" y. Suppose that there are a finite number of alternatives to choose from and that every individual has complete, reflexive, and transitive preferences. For the time being, let us also suppose that individuals are never indifferent between any two different alternatives but always prefer one to the other.

(a) Is the social preference ordering defined in this way complete?_____

_____ Reflexive?_____ Transitive?_____.

(b) If everyone prefers x to y, will the Borda count rank x as socially preferred to y? Explain your answer._____

_____

_____.

(c) Suppose that there are two voters and three candidates, x, y, and z. Suppose that Voter 1 ranks the candidates, x first, z second, and y third. Suppose that Voter 2 ranks the candidates, y first, x second, and z third. What is the Borda count for x?_____ For y?_____ For z?_____ Now suppose that it is discovered that candidate z once lifted a beagle by the ears. Voter 1, who has rather large ears himself, is appalled and changes his ranking to x first, y second, z third. Voter 2, who picks up his own children by the ears, is favorably impressed and changes his ranking to y first, z second, x third. Now what is the Borda count for x?_____ For y?_____ For z?_____.

(d) Does the social preference relation defined by the Borda count have the property that social preferences between x and y depend only on how people rank x versus y and not on how they rank other alternatives? Explain._____

_____

_____.