

PS 274—Political Choice and Strategy

Problem Set 1

Due October 6, 5:00 pm. The short essay is worth one-third of the grade, the problems two-thirds. Please type your answer to the short essay; your answers to the exercises may be handwritten.

Short essay: Black’s Median Voter Theorem suggests that if members of a group have single-peaked preferences and decisions are made by majority rule, then policy should converge to the median ideal point. Describe a situation—tell a story—from some recent event in the world of “politics” (defined simply as the study of group life—it could be the U.S. House or the house where you live), other than those we have discussed in class, in which this prediction seems to hold. Be careful to explain why Black’s Theorem applies in the environment you describe, and please limit your essay to no more than 250 words.

Problems:

1. At the first meeting of the recently formed UW Condorcet Society, the seven members in attendance were asked whether they preferred weekly, biweekly, or monthly meetings. Below are the members’ expressed preferences, listing for each individual his/her strict preferences over the three alternatives, from most to least preferred. Each member is assumed to have transitive preferences.

Most preferred		Least preferred
Weekly	Biweekly	Monthly
Monthly	Biweekly	Weekly
Weekly	Biweekly	Monthly
Weekly	Biweekly	Monthly
Monthly	Biweekly	Weekly
Biweekly	Weekly	Monthly
Biweekly	Monthly	Weekly

Given these preferences, please answer the questions below for the following three preference-aggregation rules: a) simple plurality voting, b) the Borda count, and c) approval voting. For (c), assume that the first three individuals *approve* of only their most-preferred alternative, whereas the next four individuals *approve* of both their first- and second-most preferred alternative.

- (a) What is the group preference? (Please recall that a group preference, like an individual preference, is a preference over all pairs of alternatives.)
- (b) Is the group preference transitive?
- (c) What would you predict to be the group choice?

Please justify your answers.

2. Consider again the individual preferences over meeting times listed in the previous exercise.
 - (a) Are the preferences here single-peaked? Please illustrate your answer graphically.
 - (b) Is there a Condorcet winner? If so, what is it and how do you know? If not, why not?
3. Consider the following voting rule, known as *unanimity rule*:

For each pair of alternatives x and y , the group prefers x to y if and only if a) at least one group member strictly prefers x to y , and b) no group member strictly prefers y to x .

Arrow's Theorem tells us that unanimity rule must have some problem, in the sense that it violates one or more of U, P, I, and D and/or does not always produce a coherent (transitive) group preference. In terms of Arrow's Theorem, what is the problem with unanimity rule? Please justify your answer (e.g., by use of an example).