According to law, the presidential candidate who receives the most first place votes in a state wins all the electoral votes from that state. In this project we will investigate the 1996 race for Tennessee’s electoral votes, and consider what might have happened if that race had been decided using the voting methods we have studied.

There were three major candidates, Bill Clinton, Bob Dole, and Ross Perot. The voters in Tennessee cast votes as shown below. (For simplicity we have eliminated minor candidates.)

<table>
<thead>
<tr>
<th>Candidate</th>
<th>1st Place Votes (in thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinton</td>
<td>909</td>
</tr>
<tr>
<td>Dole</td>
<td>865</td>
</tr>
<tr>
<td>Perot</td>
<td>106</td>
</tr>
</tbody>
</table>

1. Suppose that each voter had given a complete preference ballot listing all three candidates in order of preference. What are the possible preference ballots in this election?

2. Create a hypothetical preference schedule for this election wherein you assign a number of voters to each possible preference ballot (column of the schedule) in a way that is consistent with the table of first place votes above. That is, the votes you assign to the ballots (columns) with Clinton as first choice should total 909 thousand, the votes you assign to the ballots with Dole as first choice should total 865 thousand, and the votes you assign to the ballots with Perot as first choice should total 106 thousand. Be sure that in your preference schedule each possible preference ballot is assigned some votes.

3. Using the preference schedule you constructed in Part 2, decide who would have won Tennessee’s 1996 Presidential electoral votes using each of the following voting methods:
   (a) Plurality
   (b) Borda Count
   (c) Plurality with Elimination
   (d) Pairwise Comparison

4. If Dole did not win under any voting method in Part 3, then assign new numbers of voters to the possible ballots, in a way consistent with the data in the original table, (i.e. so that each candidate has the same total first place votes as shown in the chart above) so that Dole does win by at least one of the methods listed in Part 3. Explain how this schedule causes Dole to win.

5. If Perot did not win under any voting method in Parts 3 or 4, then assign new numbers of voters to the possible ballots, in a way consistent with the data in the original table, so that Perot does win by at least one of the methods listed in Part 3. Explain how this schedule causes Perot to win.

6. Does one of your preference schedules in the parts above show a violation of the Independence of Irrelevant Alternatives Criterion by the Plurality Method? If so, explain why. If not, then construct a new preference schedule (consistent with the given data in the original table) that does show a violation of the Independence of Irrelevant Alternatives Criterion by the Plurality Method, and explain why it does.

7. Does one of your preference schedules constructed in the parts above show a violation of the Condorcet Fairness Criterion by the Plurality with Elimination Method? If so, explain why. If not, then construct a preference schedule (consistent with the given data in the original table) that does show such a violation, and explain why it does.

Be sure to submit the Cover Sheet on Back!