Caveats about Preferential Elections

Economist Kenneth Arrow won a Nobel Prize for proving that every election process can produce some mathematically anomalous results. The anomalies of the preferential elections proposed for the forum include: 1) a candidate with less *total* support among all voters can sometimes defeat a candidate with more total support (failing to meet what mathematicians call the Condorcet criterion); and 2) a voter can sometimes help a candidate by voting for someone else (failing the "monotonicity" criterion).

Nonetheless, the election process proposed for the forum is the one most likely to give as many voters as possible a representative they would trust. To see how that's so, we need to go into the details of the above anomalies.

As an example of 1) above, suppose that candidates A, B, C and D compete for mayor in a preferential election, with ballots being cast as follows:

55 voters for A-B-C-D in that order

35 voters for B-A-C-D

25 voters for C-B-D-A

20 voters for D-C-B-A

In this case, D would be eliminated first. His 20 votes would go to C, giving her 45 votes. B, with only 35 votes, would be eliminated next. Those 35 votes would go to A, who would then win.

However, B has more *total* support than A. That is, 80 voters prefer B over A (the last three lines above), while only 55 voters prefer A over B (the first line above).

This result occurs because only voters who picked D or B first had their lower choices counted. Voters who picked C first did not have their preference for B over A considered.

Now, suppose that 6 voters switched from the second category to the fourth category. The results would then be:

55 voters: A-B-C-D

29 voters: B-A-C-D

25 voters: C-B-D-A

26 voters: D-C-B-A

In this case, C would be eliminated first. Her 25 votes would go to B, giving him 54. Then D would be eliminated, with her 26 votes going to B (because C had already been eliminated). B would then win with 80 votes.

In effect, voters who switched away from B helped B to win. This result occurs because voters for C had their second choice preference for B counted, whereas in the first example they did not.

Despite these anomalies, preferential voting meets the objectives of the forum more closely than other election methods. Those other methods include:

1) Condorcet. In this system, which uses preferential ballots, the ballot counting consists of comparing every possible pair of candidates to see which candidate would beat all others in hypothetical one-on-one races. In some cases, though, the winner may still be unclear. For instance, suppose the ballots are cast as follows (the same as in the first example except that on the first line the preferences for C and B are transposed):

55 voters: A-C-B-D

35 voters: B-A-C-D

25 voters: C-B-D-A

20 voters: D-C-B-A

In that case, 80 voters would still prefer B over A (the last three lines), 100 voters would prefer C over B (lines one, three and four), and 90 voters would prefer A over C (lines one and two). Who, then, wins? One could argue for A, B, or C. There are several methods for resolving such ambiguities, but each can produce a different outcome.

In any event, Condorcet is far more complex than straightforward preferential elections. In a 10-person race, for instance, there are 45 possible combinations of one-on-one contests. A Condorcet tally would have to evaluate all of them.

Most voters would therefore not understand Condorcet and are thus unlikely to endorse it. That's one reason no government in the world uses it, while many use standard preferential voting.

Condorcet is especially problematic for multi-winner elections because voters' lower rankings can influence the outcome as much as their higher rankings. For instance, if

conservative voters outnumber liberals, conservatives could have a greater say than liberals in who represents the liberals. Condorcet can thereby deprive many voters of the spokesperson they would most prefer.

Condorcet thereby fails to meet the forum's objectives.

2) Borda. This system also uses preferential ballots, but weights the lower choices on every ballot. For instance, if 10 candidates run, every first-choice votes counts as a 10, every second choice as a 9, and so on. This system tends to elect candidates who reflect the broadest consensus.

The forum's purpose, though, is to give each voter a representative who reflects his/her concerns as closely as practical. Furthermore, virtually anyone can grasp the metaphor of voters in a large hall moving from candidate to candidate, which means virtually anyone can grasp the election's purpose of giving each constituent a representative who shares his/her political priorities closely. Borda, by contrast, is a mathematical construct, whose purpose most voters would find opaque.

3) Bucklin. This system also uses preferential ballots, but voters mark as many first choices as there are seats to fill. To win, a candidate needs a majority. If the top drawing candidates don't have a majority, then all second-choice votes are added to the first-choice votes, and so on, until the number of candidates with a majority equal the number of seats. Bucklin is designed to elect lawmakers who are significantly less diverse than the citizens they represent. Indeed, 51 percent of voters can elect all the representatives. Bucklin thereby fails to meet the forum's purpose.

4) Approval voting. In this system, voters indicate which candidates they could accept, and the candidates acceptable to the most voters win. Again, the winners are likely to be significantly less diverse than the citizens they represent, virtually the opposite of the forum's criteria.

So strictly preferential elections do indeed have quirks, but if our principal objective is to create the strongest possible connection between each representative and his/her constituents, preferential elections are a more realistic approach than the alternatives would be.