

Voting for an Electoral System That's Fair

The 2000 presidential election raised both our collective consciousness on democracy in action and our yearning for a voting system that is fair. So how should a democratic society make decisions? What if there are more than two candidates? How should voters indicate their preferences?



The example below is taken from *Beyond Numeracy: Ruminations of a Numbers Man*, by John Allen Paulos, and shows how different voting systems can yield surprisingly different winners.

Suppose there are five candidates for president of a small organization. When each of the voting members ranked their preferences (first, second, third, etc.), the following tallies were the result:

18 members prefer A to B to C to D to E

12 members prefer E to C to B to D to A

10 members prefer D to E to C to B to A

9 members prefer B to D to C to E to A

4 members prefer C to E to B to D to A

2 members prefer C to D to B to E to A

What is the fairest way to choose the new president?

Supporters of candidate A would argue that the candidate who receives the most first-place votes should be the new president. Candidate A received 18 first preferences, 50 percent more than any other candidate, so under this voting system candidate A would be president.

But first preferences often fail to yield a clear winner, and a fairer system (argues the campaign manager of candidate B), would be to award 5 points for first preference, 4 points for second place, 3 for third place, 2 for fourth place and 1 for fifth place. Under this system, the results could be tallied accurately and completely yielding a single winner—in this case candidate B, whose 191 points resoundingly trump the 127 points received by candidate A.

Candidate C (who used to be a professional wrestler) argues that only man-to-man (or man-to-woman) contests should count, and that matched

against any of the other four candidates in a two-person race, he comes out the winner, beating A 37:18, B 28:27, D 36:19, and E 33:22.

Candidate D's supporters prefer the transferable vote system, under which the voters' preferences are counted by eliminating the candidate with the fewest first-place votes. The voters' preferences for that candidate are then transferred to the candidate's second choice, and the table of preferences recounted. This approach would be repeated (with votes counted only for the remaining candidates) until only two candidates are left and one emerges as the organization's preferred president. The results of the four rounds of voting are shown in the table below.

Results of Four Rounds of Voting

	A	B	C	D	E
1st round	18	9	6	10	12
2nd round	18	9	X	12	16
3rd round	18	X	X	21	16
4th round	19	X	X	37	X

Supporters of candidate E would argue that where there is no clear winner after the first tally (i.e. a candidate who garners more than 50 percent of the votes), there should be a runoff election of the top two candidates. Under this approach, candidates A and E would enter the runoff. After the runoff, candidate E would win (assuming voters don't change their preferences), as 18 members prefer A to E, but 37 prefer E to A.

So, before 2004 rolls around, shall we vote on the fairest voting system?

ADAM REESE IS THE EDITOR OF THE *UPDATE*.