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Approval Voting: A Simple Solution to the Third Party Spoiler Effect

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Abstract

An earlier paper (Blair, 2005) explains how the two major political parties in the United States perpetuate the two-party myth, use the spoiler effect to keep power for themselves, but shift blame for distorted elections to third party candidates. This paper follows up to suggest a simple and easy solution to (1) eliminate this distortion, (2) make every person's vote count, (3) provide a more equitable distribution of political power, and (4) thereby help alleviate political apathy among potential new voters.

Blair (2005) reviewed the concept of the "third party" spoiler effect and how it has affected some recent Presidential elections in the United States. That paper also described how the two major political parties in conjunction with large political contributors and the mass media perpetuate the two-party myth and use the spoiler effect to discourage voter support for minor parties. This paper follows up with a discussion of voting methods and suggests a simple and easy adjustment to the voting system that could eliminate the problem of the spoiler effect, better reflect the voters' **true wishes**, provide a more equitable distribution of power among political parties—particularly between the major and minor parties, and by offering voters greater choice help alleviate apathy among potential new voters.

Voting Methods

Voting can be analyzed as a *three-step* process at two levels. At the personal level individual voters *rate* and *rank* each candidate, then *award* their vote(s). At the organizational level election officials combine these votes to determine a group's or district's own rating and rank order for each candidate, then award the office(s) to the winner(s). Only the outcome of one step from the personal level is visible—the one that gets recorded on a ballot during the voting process. In fact, single-winner voting systems can be classified by ballot type depending on whether the ballot allows voters to record their cardinal ratings, their rank ordering, or with yes/no voting their preferred candidates (Wikimedia, 2004v). Let's illustrate these three steps and the corresponding three types of voting with a hypothetical election in which three candidate are running for a single office: Mr. Paper, Ms. Stone, and Mr. Scissors.

Voters could be asked to rate each candidate on some scale—0 to 10, for instance, though it could just as easily be 0 to 100. Then society has the problem of deciding how to combine these individual ratings into a single rating of its own. The simplest way is to total up each candidate's individual ratings. To add some complexity to our model while keeping the calculations managable, let us assume there are three blocks of voters:

Block 1 consists of 60 voters who would award the office to Mr. Paper. They rate him 10. They rate Ms. Stone and Mr. Scissors much lower, 4 and 2 respectively.

Block 2 consists of 130 voters who would award the office to Ms. Stone, to whom they give the full rating of 10. But they would be almost equally satisified with Mr. Scissors (9) and Mr. Paper (8), too.

Block 3 consists of 110 voters who like Mr. Scissors best, but only rate him 7, followed by Mr. Paper at 5, and Ms. Stone at 3.

The totaled individual ratings translate into the combined ranking of Paper, Scissors, Stone so that Mr. Paper takes office (see table 1).

block	1	2	3	totals by rating	results
Ms. Stone	4	10	3	1,870	3rd
Mr. Paper	10	8	5	2,190	1st
Mr. Scissors	2	9	7	2,060	2nd
voters	60	130	110	300	—

Table 1 Rating Ballots

Another method, associated with the French mathematician and naval officer Jean Charles de Borda [1733–1799], is to base the election on a composite of individual rankings rather than ratings (O' Connor and Robertson, 2003 and Saari, 2001, 26). Voters record their individual rankings on the ballots, then each rank is assigned a fixed value with equal intervals between each rank. In this election we could give the top ranked candidate 2 points, the bottom ranked candidate 0, and the middle candidate 1 point (half weight). The result would be a victory for Mr. Scissors (see table 2).

block	1	2	3	totals by ranking	results
Ms. Stone	1	2	0	320	2nd
Mr. Paper	2	0	1	230	3rd
Mr. Scissors	0	1	2	350	1st
voters	60	130	110	300	—

Table 2 Ranking Ballots

In practice, in the United States and other countries a simpler method is used, one in which only the voters' first choice of candidates is considered. This eases the burden on all concerned. Voters only have to decide which candidate they like the best. On the one hand all lower ranked preferences are ignored, but on the other both marking the ballot and tallying the votes becomes a much simpler, more straight-forward process. Then our example election goes to Ms. Stone (see table 3).

block	1	2	3	totals by ranking	results
Ms. Stone	0	1	0	130	1st
Mr. Paper	1	0	0	60	3rd
Mr. Scissors	0	0	1	110	2nd
voters	60	130	110	300	—

Table 3 Award Balloting

This relatively simple example illustrates a major election paradox. The outcome can depend on how society looks at and treats individual preferences (see table 4 on next page). In this case, award (yes/no voting), ranking, and rating ballots all produced different winners. If society just looked at how many people would award the office to each candidate, then Ms. Stone would win, because the largest block of voters prefer her. When it gives half weight to voters' second choices, Mr. Scissors picks up enough support from the second largest block, a close second in size, to move past Ms. Stone. If society used a rating system that looks deeply enough at individual preferences to take into account how strong or weak the individual preferences were, Mr. Paper would win. This is because voters in block 1 have strong preferences and thus use a fuller range of the rating scale, thereby giving their preferences more strength. His supporters in block 1 indicated a very strong preference, while the other candidates' supporters in blocks 2 and 3 had correspondingly weaker preferences.

Thus one factor in election outcomes is how much information—what amount of detail—is recorded on the ballot. *Award* balloting only allows voters to place candidates on *two tiers*, one candidate on the upper "yes" tier and all others candidates on the lower "no" tier. *Ranking* ballots allow voters

Balloting Method	Award	Ranking	Rating
Ms. Stone	**130**	320	1,870
Mr. Paper	60	230	**2,190**
Mr. Scissors	110	**350**	2,060
total votes	300	900	6,120
winner	Stone	Scissors	Paper

Table 4 Winner According to Method of Balloting

to place candidates on multiple tiers equal to the *number of candidates* with the added condition that no two candidates are placed on the same tier. *Rating* ballots allow voters to freely place candidates on a *fixed number* of tiers equal to the number of points on the rating scale. In our example election, award balloting allows a two-tiered distribution of candidates, ranking ballots allow three tiers, and rating ballots (on a scale of 1 to 10) allow a ten-tiered distribution. Each system has advantages. Rating ballots allow arbitrarily fine distinctions as the number of tiers increases and puts no conditions on the relative evaluation of candidates. A two-tier system, on the other hand, undeniably eliminates a great deal of confusion making the administration of elections a much smoother process.

Can these advantages be combined in a single system of voting? Yes, it is called *approval voting* (Saari, 2001, 24). This system was proposed by Robert Webber (1971) as a part of his Ph. D. thesis and independently by the People's Party of Hawaii as part of its platform in the 1976 elections. It has also been analyzed and promoted by the research team of Steven Brams and Peter Fishburn (1982 and Brams, Fishburn, and Merrill, 1988). Approval voting would eliminate the spoiler effect by letting voters cast votes for more than one candidate, as many or as few candidates as they want.

Majority Vote

It is usually considered ideal in a democracy for the winning candidate to have the support of a *majority* of the voters. When a strong third candidate enters the race and voters are allowed to vote for only one candidate, the vote is split up in such a way that it is difficult to demonstrate exactly how much support the winner really has. As the number of candidates increases a

plurality winner tends to have a smaller and smaller portion of the electoral pie. Worried that a winning candidate might emerge with very little demonstrable support among voters, many voting systems provide for some kind of runoff. In the United States there are primary elections before the general elections. Each party selects one candidate in their primary elections, so that its loyal supporters will not be tempted to split their votes ineffectively among several candidates in the general elections. The two-party myth and marginalization of third party and independent "spoilers" usually assures that only two strong candidates will emerge out of the primaries: one Democrat and one Republican.

To the extent that the two dominant parties can suppress third party and independent candidates, the spoiler effect is minimized for the general elections. Setting aside the question of whether this is a fair solution, it should be noted that the spoiler effect in the primary elections is not affected in the least. Primary races, even with three or more candidates, do not have runoffs unless there happens to be a tied vote between the front runners. Yet any race with more than two should be a cause for worry (Saari, 2001, 3). How much support does each party's candidate really have within its own party?

While award ballots do not record enough information to decide voters preferences without a runoff or series of runoff elections, ranking and rating ballots do. With a full set of rankings recorded on each ballot, society can examine what the results would be in each set of possible pairwise elections. French mathematician Marie-Jean-Antoine-Nicoclas de Caritat, the Marquis de Condorcet [1743–1794] proposed such a system about ten years before his death in prison during the French Revolution (Condorcet, 1785 and O'Connor and Robertson, 1996). It works like a tennis tourament where every player plays every other player, although the consistancy of individual rank ordering places some constraint on the results. Any candidate who beats all others is called the *Condorcet winner*. Any who loses to all others is the *Condorcet loser*. Lets take a look at our three candidates Stone, Paper, and Scissors in pairwise races with 1 vote going to the preferred candidate and none to the other.

block	1	2	3	totals by ranking	results
Mr. Stone	0	1	0	130	loses
Mr. Paper	1	0	1	170	wins
voters	60	130	110	300	—
Mr. Paper	1	0	0	60	loses
Mr. Scissors	0	1	1	240	wins
voters	60	130	110	300	—
Ms. Stone	1	1	0	190	wins
Mr. Scissors	0	0	1	110	loses

Table 5 Ranking Ballots in Pairwise Elections

These pairwise comparisons yield no conclusive result. Paper beats Stone, Stone beats Scissors, but Scissors beats Paper—just like the game jan-ken-po (stone-paper-scissors). None of the candidates would beat both of the others in a head-to-head two person race. This has become known as the Condorcet Paradox and explains why Condorcet voting is not used in government elections (see Wikimedia, 2004c).

It is precisely to resolve this paradox that Borda devised his own method of assigning points as described above. Tied votes are very rare. The winner is easily identified. Still, the process of voters deciding their individual rankings becomes cumbersome at an exponential rate as the number of candidates increases. The complexity of calculating scores for each of the candidates imposes a burden as well. The *standard plurality model*, which is used in the vast majority of elections in the United States can be viewed as a simplified, binary ranking system that allows only two rankings—yes or no. Whenever there are more than two candidates tied rankings are allowed in the "no" rank, but not in the "yes" rank. Only one "yes" is allowed, giving rise to the popular phrase "one man [sic, women should be included], one vote". Sometimes this constraint is relaxed to allow multiple yes votes, but still constrained to be no more than the number of winners to be chosen, which is, if the election is to have any effect, less than the number of candidates. This constraint, which is present in every ranking system, is *the source* of the spoiler effect, which often distorts elections and encourages strategic nominations (see Wikimedia, 2004sn), tactical voting (see

Wikimedia, 2004tv), and vote swapping (see Wikimedia, 2004vs). Approval voting would simply eliminate this problematic constraint, thereby changing a ranked voting system to a rated system, while retaining the binary simplicity of the standard plurality model.

The standard plurality model is known to be particularly susceptible to the spoiler effect (Wikimedia, 2004se). In the United States, society attempts to control its influence (a) in a formal manner by having primary elections for each party before the general elections and (b) in an informal manner by perpetuating the two-party myth. Presidential elections indicate that the spoiler effect continues to distort election results (Blair, 2005). One might suspect that its influence in primary elections, where the field of candidates may not be dominated by one or two very strong candidates, would be much more pervasive.

One Man (Person), One Vote

While approval voting would instantly and efficiently solve the problem of the spoiler effect in elections, one must ask whether it is a fair method of voting. Approval voting allows a single voter to cast several votes in each race. Does that make it unfair, especially in light of the oft heard electoral mantra "one man [person], one vote"?

First, we should probably acknowledge that, at least in Presidential elections, this saying does not hold true. Presidents are chosen by the Electoral College one month after the general elections. A state's electoral votes are not proportional to the votes cast in its general elections, the number of potential voters, or even its population. It is set at the number of it members of Congress--members of the House and of the Senate. Thus small states get more votes than their populations would normally warrant. Furthermore, the winner in almost every state captures all of its electoral votes, completely ignoring all votes cast for the state's losing candidates. This issue is beyond the score of the present paper, however, so having acknowledged its existence, we move on.

Two conditions must hold for a fair election: (1) voters must be treated equally—anonymity and (2) candidates must be treated equally—neutrality

(Wikimedia, 2004c). If voters all get the same number of votes, then condition 1 has been satisfied. Each voter has equal power in the selection process. The question becomes how will those votes be distributed.

If no constraints are imposed on the distribution a market-like system emerges, votes can be spread among the various candidates like money at a supermarket. Each voter has equal buying power. Any votes not cast are simply wasted. Some voters might, for instance, voluntarily give up a portion of their electoral power, because they have no strong preferences or lack confidence in their ability to make a good choice. Since each voter is allowed to exercise their power within the same range, the election process remains fair.

In addition to how many votes within the allotted number to cast, each voter must decide how to parcel them among the different candidates. While each candidate has an equal opportunity to garner votes, each vote cast for a particular candidate is necessarily withheld from the others. Thus the candidates' tallies are *interdependent*. Clone candidates might siphon off votes, although it is more likely to be a portion of a voter's vote, rather than its entirety, that is diverted. The spoiler effect though mitigated, will still be present.

Conclusions

Traditionally voting systems are divided into three categories : rated systems, ranked systems, and yes/no award voting (Wikimedia, 2004vs). I would like to propose a more comprehensive category scheme along two dimensions (see table 6 on next page). One dimension would indicate the amount of interdependence among the candidates' vote tallies with the highly interdependent market-like systems on one side and the independent rated systems on the other. These are truly opposites. Market systems have voters assign votes to the candidates according to the perceived utility of the candidates' electoral victories, while rated systems have them assign candidates to categories of a specified number of votes, which determine their ratings. Ranked systems are simply rated systems with constraints that (either partially or totally) prohibit tied rankings. These added constraints

increase the ranked systems' interdependence.

The second dimension would separate binary yes-no systems, including the standard plurality model and approval voting, from systems that allow a range of values. The range models allow voters more flexibility at the cost of procedural simplicity.

	Market	Ranked	Rated
Binary	standard plurality	Condorcet	approval voting
Range	split voting	Borda	cardinal ratings

Table 6 Voting Systems

Kenneth Arrow won the Nobel Prize in Economics in 1972 for demonstrating mathematically that there is no ideal voting system—Arrow's Paradox (Arrow, 1951; O'Connor and Robertson, 2002; and Wikimedia, 2004 a). Nevertheless, the spoiler effect presents a real problem in elections in the United States. It deserves to be taken seriously and solved in a systematic and fair way. I suggest electoral reform—replacement of the standard plurality model by approval voting. It offers maximum protection against the spoiler effect and maximum simplicity.

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