

Book Review

Reasonable Methods for Aggregating Preferences

STEVEN J. BRAMS AND PETER C. FISHBURN. *Approval Voting*.
Boston: Birkhäuser, 1983. Pp. xix + 198. \$24.95.
(paperback edition available)

Reviewed by BERNARD GROFMAN

Steven Brams is Professor of Politics at New York University. Best known for his work in applications of game theory to international relations and electoral strategy, his previous books include *Game Theory and Politics*, 1975, *Paradoxes in Politics*, 1976, *The Presidential Election Game*, 1978, and *Biblical Games*, 1980.

Peter Fishburn holds a research appointment at AT&T Bell Laboratories, Murray Hill, New Jersey. A distinguished contributor to the literatures on utility theory and social choice, with an extensive list of publications in these areas, his previous books include *Decision and Value Theory*, 1964, *Utility Theory for Decision-Making*, 1970, *Mathematics of Decision Theory*, 1972, *The Theory of Social Choice*, 1973, and *The Foundations of Expected Utility*, 1982.

The reviewer is Professor of Political Science and Social Psychology, University of California, Irvine. He is a specialist in issues of representation and reapportionment and has written on a variety of topics dealing with collective decision-making. His most recent co-edited books are *Information Pooling and Group Decision-Making*, 1985, and *Electoral Laws and Their Political Consequences*, 1985.

1. METHODS

Approval voting is a mechanism for aggregating individual preferences to pick one alternative (or candidate) from among several mutually exclusive options. In approval voting, unlike ordinary plurality elections, voters are not restricted to voting for a single candidate. Instead, each voter can vote for as many candidates as he or she wishes. The candidate with the most votes wins. The candidates for whom the voter votes can be thought of as those whom he/she "approves of." Although this interpretation is not essential to understanding the basic mechanics of approval voting, the candidate with the most "approval" votes is presumably also the candidate "acceptable to the most voters" (p. xi).

Approval voting is the most recent in a long line of election "reforms." These reforms have included the secret ballot, proposals for various forms of proportional representation, at-large elections, nonpartisan elections, runoff primaries, and, most recently, attempts to abolish runoff primaries and reduce or eliminate the use of at-

Requests for reprints should be sent to Bernard Grofman, Political Science and Social Psychology, University of California, Irvine, CA 92664.

large elections. As this list may suggest, what constitutes a "reform" and, indeed, what are the problems with existing procedures which need to be corrected are matters about which there has never been consensus. Approval voting, independently invented over several years by a number of authors, may become a major electoral innovation of the coming decades. Brams, for example, has lobbied for its adoption in U.S. Presidential primaries and has hailed it as the "election reform of the 20th century."

Most U.S. elections are conducted in single-member districts under plurality (first-past-the-post) rules. This form of election is, worldwide, a rarity. Only Great Britain and some of her former colonies use plurality elections. Elsewhere legislative elections are most commonly conducted in multimember districts under some form of list proportional representation (PR) (Rae, 1972), in which voters vote for political parties and parties are allocated seats proportional to the number of voters who supported their slate. In elections to pick a single individual (e.g., President, or mayor, or the like), the schemes which approval voting is intended to supplant are simple plurality on the one hand, and runoff procedures on the other. In the most common form of the majority runoff, if no alternative receives a majority of the votes cast, the top two alternatives are paired in a subsequent head-on-head contest. (In Europe this is known as the double-ballot system.)^{1,2}

2. CHOOSING AMONG ELECTION METHODS

In choosing among election methods, a variety of criteria of evaluation have been put forward. Most of these criteria are "formal"; i.e., they look to structural features of the aggregation process. Some evaluative criteria focus on consequences for political parties and campaign practices, while others deal with the probable effect of election procedures on voter behavior (e.g., to what extent do voters have incentives to misrepresent their true preferences in the ballots they cast, and even more generally, how easy is it for a voter to determine his or her "optimal" strategy).

Among the formal criteria are criteria such as monotonicity and consistency. *Monotonicity* requires that if a voting method chooses an alternative x and nothing

¹ Other runoff variants include a 40%, rather than majority, vote requirement for the initial election, and procedures which take more than two candidates into the runoff.

² In some Australian single-member-district elections, voters are asked to indicate their rank order preferences among candidates. If no candidate receives a majority, the candidate with the fewest first place votes is eliminated and the votes of its supporters reallocated to the next listed (feasible) preference. This process continues until one candidate receives a majority. This election method, known variously as the alternative vote and the majority-preferential ballot, is, of course, in principle, identical in its effects to a majority runoff except that it does not ever require two separate elections to be held. It, too, has from time to time been proposed as a reform to American plurality election procedures. In practice, the alternative vote and majority runoff may not yield identical effects because (a) the initial electorate and that for a majority runoff may not be identical; (b) campaigning may take place between the initial election and the runoff and this may change some votes; (c) the decision of candidates to enter the race may be affected by expectations about the potential costs of a runoff campaign.

changes except that some voters place x higher in the preference ordering than before, then x should still be chosen by that voting method. *Consistency* requires that, if we divide voters into two subsets, if, for a given voting method, an alternative is chosen by both subsets, then it should be chosen by the combined set of voters. Plurality and approval voting satisfy these two criteria. The majority runoff satisfies neither. An example in which the majority runoff fails to satisfy monotonicity (taken from Straffin, 1980, p. 24) is given below.

Number of voters	6	5	4	2
$n = 17$	a	c	b	b
	b	a	c	a
	c	b	a	c

In this example, a will win; yet, if the last two voters change their preferences in favor of alternative a so as to shift from a *bac* ordering to an *abc* ordering, then c will be chosen. We leave to the reader the devising of an example to show that majority runoff also fails to satisfy consistency. Failure to satisfy the monotonicity criteria, in particular, seems a grave defect, and it has been asserted to be a fatal flaw in a voting method (Doron and Kronick, 1977; Riker, 1982). However, we do not believe the mere fact that examples can be given in which some particular axiom is violated is ipso facto sufficient to rule out a given voting method from consideration, since the circumstances which give rise to the examples may be unlikely to occur in real world elections. Nonetheless, in terms of criteria commonly held to be desirable for election systems to satisfy, approval voting scores better than its two chief competitors.

Perhaps the single most important formal criterion for elections choice is the *Condorcet criterion*, which requires that the candidate be chosen, if any, who is preferred by a majority in pairwise votes to all other candidates. One of the strongest selling points of approval voting is that, when voter preferences are *dichotomous* (i.e., voters make no finer distinctions among candidates than to rank some as acceptable and others as unacceptable), approval voting guarantees the choice of the Condorcet (majority) winner. Moreover, when voter preferences are dichotomous, every voter has a dominant strategy—to vote for all the candidates he/she finds acceptable. This means that for dichotomous preferences, approval voting is *strategy proof*, i.e., it never makes sense for a voter to vote other than sincerely in accord with his/her preferences. Brams and Fishburn regard strategy-proofness as one of approval voting's most desirable features, since it means that voters can, by behaving "naturally" (i.e., sincerely) also be behaving optimally. In general, for plurality, sincere voting may not be optimal. In a three-way race, for example, the candidate whom one most prefers may have little chance and it will be desirable to vote "strategically" for your second choice.

When voters are not limited to dichotomous preference (and such a restriction is certainly a very strong one), then approval voting loses some, though certainly not

all, of its most desirable properties. With nondichotomous preferences, strategic calculations reenter (Niemi, 1984), and choice of a Condorcet winner is no longer a certainty; *but* approval voting is the nonranked system with the highest probability of giving rise to a Condorcet winner through sincere voting, and it is far better than plurality in that regard. Brams and Fishburn prove a variety of results which show that, when the circumstances are such that approval voting results in an outcome which seems inappropriate, the plurality method or the various runoff methods will in general do no better.

3. DISCUSSION

Brams and Fishburn assert (p. xii) that "every practicable voting system suffers certain deficiencies." I concur. Is approval voting the best there is? Yes and No. For certain purposes, e.g., picking a restaurant or a convention site which will be acceptable to the most people in a group, my enthusiasm is unequivocal: I cannot imagine a better social choice mechanism. For general elections to a single office, at least in the United States, I believe that two-party politics by and large provides us with a two-candidate election in which approval voting is irrelevant.³ As for the use of approval voting in multicandidate elections like primaries, Brams and Fishburn see approval voting as *the* solution to the problem of multicandidate primaries. I believe the verdict is still out on this important question.

Although Brams and Fishburn have, via exit polls, generated sample approval ballots for actual Presidential primaries, we cannot be sure the result of such polls reflects what would happen in a campaign conducted under approval voting where candidates might urge supporters to follow particular ballot strategies. Also, some primaries are in effect run under proportional representation rules, not as winner-take-all elections. Brams and Fishburn have not, to the best of my knowledge, considered the properties of approval voting in such a context. On the positive side, approval voting will certainly increase the likelihood of the Condorcet winner being chosen, if there is one, compared to plurality; and approval voting also makes it possible for voters to signal a very rough form of relative intensity of preference (by distinguishing between the approved and the disapproved candidates) in a way that plurality and majority runoff methods do not. On the negative side, when choices are important ones, in practice approval voting is apt to be a confusing system for voters because it requires them to choose among the $(2^m - 2)$ possible ballots they might cast, and not just among the possible single candidates they might vote for under plurality. Indeed, even if voters confine themselves to sincere strategies, there will, in general, be $m - 1$ possible sincere strategies open to them (consisting of voting for one's first choice, one's first two choices, etc.) under approval voting and only one sincere strategy under plurality. Also, as Niemi (1984) has shown, even when voters confine themselves to sincere ballots, questions of strategic calculation

³ The Washington-Daley-Byrne race in Chicago was an exception; other exceptions occur in New York State which has a Liberal, a Conservative, and a Right to Life party.

remain very important. Finally, once we move beyond approval voting's formal properties and look at the political implications of its use in primaries, then the consequences for party cohesion, campaign strategy, and candidate proliferation are not all clear.

My mixed feelings about approval voting as an election reform do not affect my very positive regard for *Approval Voting* as a book. *Approval Voting* is an unusual book in a number of ways. It is one of a handful of books to make a sustained policy argument through the use of abstract mathematical reasoning and deserves commendation for that reason alone. Moreover, unlike most social choice theorists, Brams and Fishburn are willing to get their feet wet with data. Chapters of the book deal intelligently with reconstructing probable voter preference orderings and outcomes under different election systems in a New York senatorial election, the 1980 Presidential contest, and the 1976 majority leader election in the U.S. House of Representatives. Brams and Fishburn also make a consistent and thorough-going attempt to be realistic in their modeling. For example one chapter deals with the different probable effects of polling information on voter choices under approval voting as compared to plurality or runoff systems. Scholars interested in social choice, decision theory, or scaling theory will find this book of considerable interest, regardless of what their ultimate judgment may be as to the importance of approval voting as an electoral innovation.⁴

REFERENCES

- DORON, G. & KRONICK, R. (1977, May). Single transferable vote: An example of a perverse social choice function. *American Journal of Political Science* 21 (2).
- NIEMI, R. G. (1984, December). The problem of strategic behavior under approval voting. *American Political Science Review* 78 (4).
- RAE, D. (1972). *The political consequences of electoral laws*, 2nd ed. New Haven: Yale Univ. Press.
- RIKER, W. (1982). *Liberalism against populism: A confrontation between the theory of democracy and the theory of social choice*. San Francisco: Freeman.
- STRAFFIN, P. *Topics in the theory of voting*. Boston: Birkhäuser.

⁴Note added in proof. For a recent exchange of views see Arrington, T. S., & Brenner, S. (1984). Another look at approval voting. *Polity* 17, 118-124; and Brams, S. J., & Fishburn, P. C. (1984). A careful look at "Another look at approval voting." *Polity* 17, 135-143. Also, see the forthcoming exchange between Brams and Fishburn and Niemi in the September 1985 issue of *American Political Science Review* in which Brams and Fishburn take issue with many of Niemi's criticisms.

Erratum

Volume 28, Number 4 (1984), in the Table of Contents, the title of the first article (pages 363-400) by James T. Townsend should read "Uncovering Mental Processes with Factorial Experiments" instead of "Uncovering Mental Processes with Capacity and Concurrency."