

VOTING METHODS

Partial text from League Day 2015 presentation to League of Women Voters of Colorado
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Intro/Agenda

slide: What are Voting Methods?

A voting method defines the form of the ballot, what constitutes a valid vote, and how to count votes, and an algorithm for determining the outcome of the election. A voting method is not to be confused with an election system, which is concerned with whether or not to have early voting, all-mail elections, electronic or paper ballots, etc.

Today we'll conduct sample single-seat elections using three alternative methods that are being promoted for real world use: Approval voting, Range voting, and Instant Runoff Voting. We'll give you some background and analysis, then we'll hear from our guest speaker and take questions.

Our Team is not recommending any particular voting method, but we do recommend two actions: one, that our state League study the issue of voting methods and two, that Colorado laws allow for different voting methods in governmental elections so that we can get more on-the-ground voting data on how these methods work. We'll now conduct a sample election.

Sample Election/Voting

Hello everyone! Please take out your one page ballot sheet from your packet that looks like this

Ballot Sheet

We're going to use this ballot sheet to walk you through 4 different methods of voting, beginning with the one we all use today: plurality. All four ballots are on the same page for convenience. We want all of you to have the chance to see and vote on these different types of ballots, but we don't have time to tally all the votes. So, we've asked 15 of you to vote on separate, colored ballots, and we'll use those colored ballots for counting demonstrations. A smaller number of votes also means ties or other quirks are more likely, so, if needed, we have some prepared samples that will help your understanding of the counting process.

First, we'll vote 4 times, using the 4 different methods on your Sample Ballots handout. Volunteers will collect the colored ballots after each vote. After all the voting is complete, we'll calculate the results on screen, for you to follow the process of determining a winner under each voting method.

Let's vote on some desserts!

In the upper left hand corner of the Sample Ballots handout, please use the plurality ballot now to cast your vote. As you know, on the plurality ballot you can vote for only one choice, so put an X in the box for the dessert of your choice. If you're one of the 15 people filling out colored ballots, please leave the completed blue plurality ballot at the edge of your table for us to collect.

While those blue ballots are collected, we'll move on to voting using the Approval method. You'll find this ballot in the upper right hand quadrant of the one page handout. Here, you can vote for as many candidates as you like! Let's say you like brownie best, but sugar cookie is another favorite, so vote for both: put an X in the box for both desserts. Maybe you love lemon bars best, but don't expect lemon bars to win, and in the likely event they don't win, you'd sure like to see sugar cookie win.... so, vote for both!

For those 15 people filling out colored ballots, please put your completed pink ballot at the edge of your table for collection.

Now you are going to start formulating questions about the voting methods... we need to save the "what ifs, buts, and whys" for later. For now, please only ask a question if it's about completing the ballot.

While the pink Approval ballots are collected, we'll move on to voting using the Range, or Score voting method, which is on the bottom left quadrant of the Sample Ballots handout. Here, you're asked to express your opinion on every candidate.

Read directions.

For those of you voting on the colored ballots, please leave the completed green Range, or Score ballot at the edge of your table.

While the green Score voting ballots are collected, we'll vote using the Instant Runoff, or IRV method. The IRV ballot is on the bottom right quadrant of the handout.

Here, you're asked to rank your candidates. The number order is reversed from the Range ballot you just completed! Your favorite dessert is ranked number 1, your second choice is number 2, so write in number 2, and so on. You don't have to rank all four. You have the choice of ranking only as many as you'd like, but we do expect you to at least indicate a 1st choice. Again, for the 15 people voting on colored ballots, please leave the yellow ballots at the edge of your table.

While the yellow IRV ballots are being collected, we'll go on-screen and walk through the process of determining a winner under each voting method.

At the end, we'll show you a summary that compares the winners under each method.

We won't take the time to walk you through the plurality calculation since you're all familiar with it. Here are the results from counting the plurality ballots:

slide: Plurality Spreadsheet

Alright, let's calculate results from the Approval ballots:

slide: Approval Spreadsheet

Ballots are read for computer/screen entry.

Does everyone see that the winner is _____ under the Approval method?

Ok, let's calculate results from the Score voting ballots

slide: Range Spreadsheet

Ballots are read for computer/screen entry.

We'll enter the 1st and 2nd ballot, then explain the running summary calculation that we prepared for you at the top of the screen.

Describe the running summary section then continue reading ballot results.

So here, the winner is _____ under the Range method.

Now, let's calculate results from the IRV ballots.

slide: IRV Spreadsheet

Remember we're ranking candidates now, with the best being choice #1, then 2 indicating your 2nd choice, and so on.

Ballots are read for computer/screen entry.

If there's a winner in 1st round:

Since this election had a winner in the 1st round, we have another sample election that requires another round, so you can witness that IRV process.

Walk through sample IRV results.

Now let's take a look at the winners under each method:

Comparing Winners

Alright, you've had a chance to vote and see how to calculate the winner under 3 alternative methods. Now we'll give you some background and analytical information on voting methods.

BACKGROUND

slide: Attributes Group 1

There are several criteria that are commonly used to evaluate a voting method.

We've categorized some of these criteria for you as various Desirable Attributes.

This slide refers to some tactical attributes, such as favorite safe, meaning I can vote for the underdog who happens to be my favorite candidate, and not worry about hurting another front runner that would be my next choice. Clone safe means that two very similar candidates can run but not worry about splitting the votes of their supporters, which could result in their opposition winning through a higher percentage of votes than either of them. In the interest of time, I'm not going to explain every attribute, just introduce you to some of them. (Our guest speaker will be addressing the last 2 criteria on this list).

slide: Attributes Group 2

The second group of criteria is categorized under voter turnout, here you'd want to ask, is the voting method...(read list).

slide: Attributes Group 3

We've grouped another 4 possible criteria for evaluating voting methods under the category of Implementation. Is the voting method.. (read list).

There are a number of criteria comparison charts available via the internet, that rate the performance of various voting methods based on a variety of criteria. Just as people

may choose certain statistics to bolster their position on an issue, advocates of particular voting methods may choose criteria for a comparison chart that show their favorite voting methods in the best light. The questions of which criteria to focus on and whether there is a valid interpretation of voter response where these criteria come into play, are fundamental features of evaluating voting methods.

slide: Supporting websites for 3 alternative voting methods

Here are 3 websites that are promoting the 3 alternative voting methods we used today; for your convenience, the websites are also listed on the back of your one page ballot sheet.

Approval voting is supported by The Center for Election Science (our speaker today is a co-founder of this organization), Center for Range Voting supports the Range or Score voting method, and FairVote supports the IRV method.

We encourage you to visit these three websites to get more perspective on the pros and cons of voting methods. You'll find information about criteria and rationales for which criteria are most relevant. You'll also find information on real-time use of voting methods and perspectives on the feasibility of their use in elections.

Problem presentations

No voting method is perfect.

I want to give you an example of imperfection using IRV, Approval, and Score Voting.

The centerpiece of these examples is the criterion stating that the preferred candidate, that is, the candidate preferred by a majority of the voters, should win.

Spreadsheet, IRV Sample:

I'll start with IRV.

This particular example comes from Keith Devlin,¹ known as the Math Guy on NPR.

Consider an IRV voting election with 15 million voters deciding among three candidates: A, B, and C. We know the voters true preferences: 6 million, or 40% of the voters, prefer candidate A, over B, over C. Another 4 million, or 27%, prefer B, over C, over A. The last 5 million voters, or about 33%, prefer C, over B, over A.

I know we're talking about IRV, but it's interesting to note that if this was a plurality election, the first choice would be the only vote that matters, and A would win with 40% of the vote.

But these 4 million voters prefer B over A;

and these 5 million prefer B over A;

together they constitute a majority of 9 million people (about 60%) who prefer B over A!

So, you don't see the candidate preferred by a majority of voters winning, under plurality.

Let's run through the vote counting under IRV..... reference spreadsheet

In the first round, no one has a majority of 7.5 million, plus 1, votes!

¹ The Perplexing Mathematics of Presidential Elections, https://www.maa.org/external_archive/devlin/devlin_11_00.html (see also Potential for odd outcomes in San Francisco mayoral election with ranked-choice voting system, says Stanford mathematician, <http://news.stanford.edu/news/2011/november/devlin-ranked-voting-110711.html>)

So, the Candidate with the least number of votes in the first round, Candidate B, is eliminated from the race, and we go to the second round.

In the second round, these 4 million voters who had their first choice candidate eliminated, now have their votes moved to their 2nd choice candidate. When those second choice votes are added in the second round, C is the winner under IRV.

Yet, before IRV rounds determined C as the winner, we can see that these 6 million voters preferred B over C; and these 4 million voters preferred B over C; together, they constitute a majority of 10 million people (about 66%) who preferred B over C.

B is clearly the candidate preferred by a majority of voters, but this is an example where IRV fails to elect that candidate.

In a real life example, Burlington, Vermont voters approved the IRV voting method in 2005. In 2009, IRV was used to elect Burlington's mayor.

By analyzing voters' individual rankings from the election, Warren Smith of The Center for Range Voting showed that the 2009 IRV election failed to elect the candidate preferred by a majority of voters.² In 2010, Burlington voters repealed the IRV voting method.

One question you might ask in this case, is "how often would this happen with IRV?" I don't know if anyone knows for sure, but I've seen a criteria comparison chart that gives the percentage of time that you might expect a particular voting method to fail a given criterion. The accuracy of such percentages would need to be explored.

Spreadsheet, Approval sample:

Consider an approval voting election with ten million voters deciding among three candidates: A, B, and C. In this sample, the voters preferences are as follows: 5 million, or 50% of voters, prefer candidate A over B over C. Though their first choice is A, they also think B could do a decent job, so they vote for both A and B. Another 2 million voters, or 20%, also prefer candidate A>B>C, and they vote only for A. Overall, Candidate A is preferred by 70% of the Voters. The last 3 million voters prefer B>A>C, and they choose to vote only for B.

The winner is Candidate B. In this instance, the approval method fails to elect the candidate preferred by 70% of the voters. You can see that if the first 5 million voters had bullet-voted strategically for only Candidate A, then the tally would have been 7 million for A; only 3 million for B, and the majority preferred candidate would have won. In the next election, would those first 5 million voters be tempted to bullet vote, to assure their first choice wins, as if it were a plurality voting situation?

² Burlington Vermont 2009 IRV mayor election. Thwarted-majority, non-monotonicity & other failures, <http://www.rangevoting.org/Burlington.html>

In a real life example of approval voting possibly reverting to plurality voting, FairVote.org reported that the largest and most important use of approval voting was in elections for the world's largest professional association: I triple E (the Institute of Electrical and Electronics Engineers). After adopting approval voting in 1987, the I triple E board voted to eliminate it in 2002. The Institute's newsletter reported that about 80% of members were voting plurality-style for only one candidate.³ Now, we don't know the on the ground political situation for I triple E. You might ask whether there have been only one or two well-liked candidates for some time, which might be a cause of plurality-type voting. Another question for this case might be, even if most people have voted plurality style for only one candidate for some time, why take the option away for all future elections? Some things to think about.

Spreadsheet, Range sample:

Now let's look at Range voting.

This Range, or Score voting example is similar to the Approval voting sample, but I grouped the voters into batches of 1million, and each batch has a given set of scores for the candidates. There are still 70% of voters who prefer Candidate A as their 1st choice, but we see that the final average score gives the win to Candidate B. So in this situation Score voting also failed to elect the candidate preferred by majority of voters.

But Score voting supporters see something interesting in the scores, and I'm going to use these sample results to briefly touch on a performance measurement that will be addressed by our guest speaker.

Look at this:

These last 3 million people would have been REALLY unhappy about the election results if Candidate A had won, lots of regret there about the outcome. They love Candidate B, but they gave Candidate A the lowest score possible. On the other hand, there's another 3 or 4 million that didn't get their 1st choice, A, but the analytical approach promoted by Score voting would say that those 3 or 4 million are going to be ok with B as the winner. They won't have terrible regrets about the election because the winner B, their 2nd preference, was held in close esteem to their first choice. Score voting can let you see this close preference, where Approval and Ranked voting don't give you that information.

In this light, the win of Candidate B minimized the overall population's regret, or said another way, it maximized the overall population's satisfaction.

Yet, this performance measurement for Score voting can be contentious: not everyone agrees that avoiding an intensity of dissatisfaction, or likewise providing an overall

³ *Why Approval Voting is Unworkable in Contested Elections And How the Borda Count, Score Voting, Range Voting and Bucklin Voting are Similarly Flawed Due to Vulnerability to Strategic Voting*, An Analysis by FairVote, July 2011, <http://www.fairvote.org/research-and-analysis/blog/why-approval-voting-is-unworkable-in-contested-elections/>

higher satisfaction, should take precedence over the number of people represented by the majority and their preferred candidate.⁴

Less regret, or majority preferred candidate... which is right, and how would our society feel in real life? Until we have lots of real life scores from Range voting elections and see the subsequent reactions from voters, we may not know.

Another consideration for Range voting is the appropriate range of scoring. Does Score voting perform better when the scoring range is limited to the number of candidates, or should there be some range of scoring beyond the number of candidates? Running the same Range voting sample above with a scoring range equal to the number of candidates (1 to 3)... resulted in a win for the preferred candidate. Of the three alternative voting methods presented today, Range voting has the least real-life experience in political contests.

Colorado has had some real life experience with alternative voting methods....

slide: Approval Voting in Colorado

slide: Instant Runoff Voting Colorado

CONCLUSION AND RECOMMENDATIONS

Thank you for participating and listening today.

We've given you a ballot counting experience using 3 alternative voting methods that could be used instead of plurality, and we've introduced you to criteria and a performance measure that can be used to evaluate such voting methods.

No voting method is perfect. Each method has flaws based on certain criteria or performance measures; each method has costs associated with implementation. Opinions vary on which criteria or performance measures are most appropriate. There are voting methods we did not address; of the voting methods we did discuss, there are variations within them that we could not cover in this time frame. Further, we did not cover multi-seat elections, which can change the performance results of a given method. For instance, some opponents of IRV, which is a ranked voting method for single seat elections, are supportive of Single Transferrable Voting, which is a ranked voting method for multi-seat elections.

LWV of Boulder County's Voting Method's Team believes we need more on the ground experience with alternative voting methods, and we would like to see an in-depth study of voting methods done at the state level.

⁴ The Problem With Range Voting and Averaging Candidate Scores: IRV Soars in Twin Cities, FairVote Corrects the Pundits on Meaning of Election Night '09, <http://archive.fairvote.org/rangevoting.pdf>