We Make Online Elections Easy and Affordable

OpaVote is a secure online voting platform that makes it easy to run elections at a fraction of the usual cost. We're the leading provider of ranked choice elections, which help achieve more democratic outcomes by better representing the will of your voters.

Demo Election **Try it Free**

Our Voting Services

Online Elections

Send your voters an email with secure, single-use voting links that ensure only authorized voters can vote, once.

Online Polls

Create a personalized poll that anyone can vote on, and publicize it using your website, email, or social media.

Automated Ballot Counts

Count ranked ballots that you've already collected (using e.g., paper ballots or your own vote collection software).

Our Customers Say it Best

OpaVote's security features made it easy for us to audit the election while maintaining the secrecy of each voter's ballot. We had confidence the results accurately reflected the wishes of our voters.

H. Ginsberg, **Green Democrats**

A particularly good feature is the 'reminder' email that you can send out periodically over the voting period. It certainly helped boost our response - more than 50% voted, which was excellent.

C. de Goguel, **Worthing Green Party**

In one of our elections there were 6 candidates and the one with the 3rd most votes in the initial round ended up winning. OpaVote could not have better illustrated how ranked choice voting worked.

E. Cox, **NY Beer Association**

OpaVote helped us improve our governance by enlarging our voter base to all athletes. The results output is super transparent and easy to understand - the community loved it.

W. Boddener, **Brazil Sailing Federation**

I love the fact that I can download the ballots, and recount them using different systems to see how the results would have differed. It gives OpaVote tremendous educational value.

M. Jackson, **St Michaels University School**

We use OpaVote to elect our employee representative body. The fact that OpaVote is a trusted third party gives us confidence that no one at our company can retrieve or manipulate the votes.

J. Kanis, **The Hyve**

What You Can Do With Us

Elect Representatives

Elect your organization's steering committee, employee representatives, student body leaders, condominum board members, etc. using the voting method of your choice.

Embrace Candidates

Maximize your chances of seeing grassroots action by having your political party's members surface the candidates they're most willing to back.

Streamline Decisions

Streamline your formal board or committee meetings. Use them to officially record what has already been pre-discussed and voted on ahead of time by email.

Assess Industrial Action

Discreetly and inexpensively check if your union's members would like to strike before holding a formal assembly or sending an expensive 'legal' postal ballot.

Easy to Set Up and Vote

We make it super easy for you to set up an election and for your voters to cast their votes.

When your election starts, each of your voters will receive an email with a secret, single-use voting link. Your voter then just clicks that link to be immediately taken to the voting page. Because our process is so easy for voters, we get a higher percentage of voters to actually vote.

Our interface allows both regular (check box) voting and (drag and drop) ranked choice voting. You can try the voting interface in the example ballots that follow or by casting a vote in our demonstration poll.

Your ballot:

1. Chocolate Chip
2. Cookies & Cream
3. Vanilla
4. Strawberry
5. Chocolate

Your ballot:

Chocolate
Vanilla
Cookies & Cream
Chocolate Chip
Strawberry

Single Transferable Vote	**Borda**
Instant Runoff Voting	**Condorcet**
Approval Voting	**Plurality/FPTP**

All Main Voting Methods

We support most well known counting methods. OpaVote lets you do a traditional election where voters select a single candidate, ranked-choice voting (e.g., STV, IRV, or Condorcet), approval voting, or more than one contest with any combination of methods.

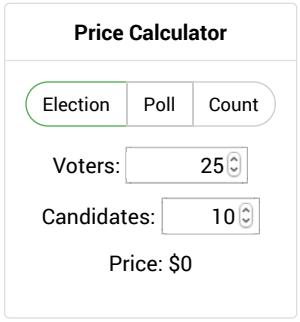
We also support weighted voting, to accomodate scenarios where some of your voters are more equal than others - based on their number of shares, their property's surface, etc.

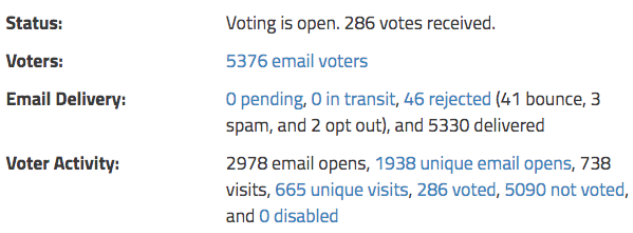
Fanatically Low Prices

Our prices are low and easy to understand, with no commitments or hidden fees:

- Each $10 gets you up to 125 voters and 10 candidates across any number of contests.
- Polls always have unlimited voters.
- Elections stay on our systems for a total of 12 weeks.

OpaVote is free of charge for elections with up to 25 voters and 10 candidates. Evaluate our service now by running a small test election with your colleagues.





Great Monitoring Tools

One of the hardest aspects of running online elections is delivering the voting emails. Our reporting tools update you in real time so that you know which voters have received emails, opened them, visited your voting page, and voted. You get an explanation (e.g., mailbox full) for emails that are not delivered and can drill down to resend them.

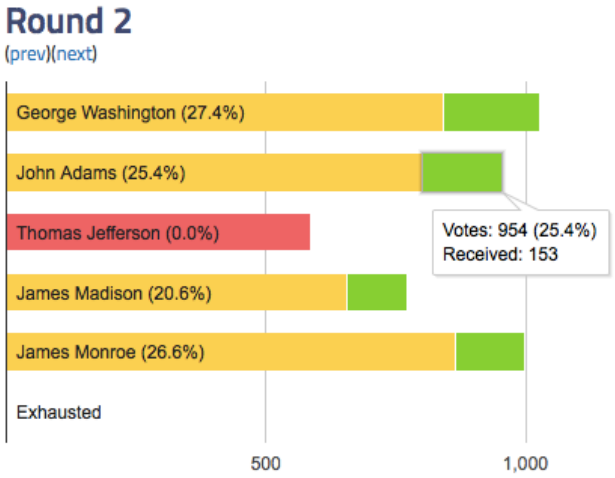
OpaVote also has backup email delivery. We automatically detect when emails get mislabeled as spam (about 1%) and resend them using a different service. This gives us very high deliverability with no effort on your part.

Last but not least you can send periodic reminders to voters who haven't voted yet. This helps you maximize voter participation and is a client favorite.

Transparent Results

Voters love the clear and transparent results OpaVote will enable you to provide them with. At the end of your election, you'll get the raw ballots as well as a detailed report with counts automatically done for you. The step by step explanation of these counts are based on the voting method you used, and interactive graphics allow you can see the fine-grained details at each step.

You can try a report's look and feel by looking at the results of our demonstration poll.



Also Works On-Site

OpaVote makes it super easy to combine having on-site and offsite voters in your election.

By using single-use code voters (which also come in handy when spouses share the same email address), you can have voters who can make it to your venue(s) cast their vote in booths using PCs or tablets, and voters who can't make it cast their vote by email on their own devices. Once the voting ends, OpaVote will provide you with the final count directly, without any manual steps on your part.

See our blog post on using OpaVote for on-site elections for more details.

Secure and Trustworthy

Secure

Anonymous

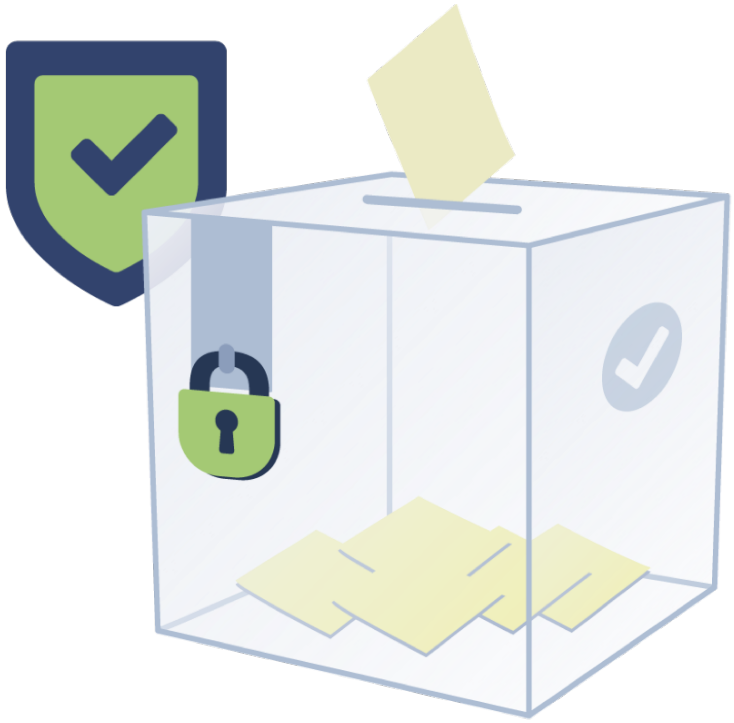
Private

Our voting pages are encrypted so your voters can enjoy complete security and privacy while voting. See our blog post on security for more details.

We offer the strongest possible guarantee of voter anonymity: we simply do not track who votes for what; only who votes, and what the vote is.

We do not use or share your voters' email addresses for any purposes outside of your election. See our privacy policy for more details.

Indisputable Results



We're an independent third-party with no stakes in your election, and we've built OpaVote so it can only operate like a non-biaised and uninterested referee that you and your voters can trust.

You and your voters can thus rest assured that no one in your election - not even yourself - can tamper with or improperly influence your election's results.

Start Making All Votes Matter

Sign Up and Try it Free

OpaVote Pricing

Free items allow up to 25 voters and 10 candidates. For each $10 paid, you get 125 voters and 10 candidates across all your contests.

One exception is that, for polls, we always give you unlimited voters!

Price Calculator

Election | Poll | Count

Voters: 25

Candidates: 10

Price: $0

Price Comparison

OpaVote's prices for online elections are **much** lower than other providers of online voting services!

For 2000 voters, OpaVote only costs $160. By comparison, Election Buddy would cost $299, Simply Voting would cost $900, and Elections Online would cost $1170.

Don't pay more than you need to!

Example Pricing

Price (US$)	Max Voters[1]	Max Candidates
Free!	25	10
$10	125	10
$20	250	20
$40	500	40
$80	1000	80
$160	2000	160
$800	10000	800

[1] Only applies to Elections and Counts. Polls have unlimited voters.

About OpaVote Online Voting

OpaVote was created in 2011 and is a continuation of the OpenSTV project that was started in 2003. Our goals at OpaVote are to:

- Provide the best possible experience for both voters and election managers. Getting voters to vote is challenging so we provide a clean and simple user interface for voters. OpaVote is fast and works great on mobile devices.
- Provide top-notch security and reliability. OpaVote encrypts voting pages with state-of-the-art encryption for security, runs on Google servers for fast responses, and sends voting emails using Sendgrid to make sure emails land in voter inboxes.
- Maintain voter privacy. Voter emails are used ONLY for your election.
- Be cost effective! OpaVote is much less expensive than most other providers even though OpaVote provides better services.
- Promote the use of better voting techniques. OpaVote specializes in ranked voting because ranked voting provides better outcomes than check-the-box voting.

Meet the Founder

OpaVote was founded by Jeff O'Neill. Jeff's passion for helping people vote the right way motivated him to start writing voting software in 2003 and to found OpaVote in 2011.

Jeff has a Ph.D. in electrical engineering and a Juris Doctorate. During law school, Jeff was a summer intern at Fair Vote and the National Voting Rights Institute. Jeff wrote a law review article setting forth legal grounds for mandating fairer voting procedures under the U.S. Constitution.

The article, Everything that Can be Counted Does not Necessarily Count: The Right to Vote and the Choice of a Voting System, was published in the Michigan State Law Review, cited by the Ninth Circuit Court of Appeals in upholding the legality of ranked-choice voting in San Francisco, and relied upon by the City of Minneapolis in successfully arguing for the constituionality of IRV under state law.

Jeff lives in Somerville, Massachusetts with his wife and two cats. Jeff also works as a patent attorney at O'Neill Patent Law, runs Patent Bots, and is a director of a conservation non-profit called Earthwise Aware. When not working, Jeff enjoys Cross Fit and binge watching TV shows.

Voting Methods Overview

OpaVote implements a wide variety of methods for your online elections. Available methods include traditional methods where a voter simply checks a box to select a candidate and more sophisticated methods where a voter can rank the candidates in order of preference.

For ease of navigation, the available methods are grouped into categories:

- Traditional Methods — Methods where the voter simply checks a box to select a candidate.
- Ranked-Choice Voting — Methods where voters rank candidates instead of selecting them.
- Instant Runoff Voting — Ranked-choice voting for electing a single candidate.
- Single Transferable Vote — Ranked-choice voting for electing multiple candidates with proportional representation.
- Other Methods — Other methods where voters rank candidates that do not fit into the above categories and also approval voting.

For people who are unsure of which counting method to use, see our recommendations.

Checkbox Voting

Summary: These are traditional voting methods where the voters check one or more candidates, and the candidates with the most votes are the winners. If you have more than two candidates, these methods can produce unfair results and you are better off using instant runoff voting or the single transferable vote.

There are two types of checkbox methods for online elections. The first is for electing a single candidate, and the second is for electing a group of candidates (such as a committee or council).

Your ballot:

- Vanilla
- Cookies & Cream
- Strawberry
- Chocolate Chip
- Chocolate

Plurality/FPTP/SNTV

This is the most common type of voting. Each voter selects one candidate, and the candidate with the largest number of votes is the winner. This method is known as plurality voting, first past the post (FPTP), and the single non-transferable vote (SNTV) (in contrast to other methods available at OpaVote that allow votes to be transferred).

Although commonly used, this is not a good method for counting votes. When there are more than two candidates, the winner of the election may have much less than a majority of votes, and other counting methods below will generally provide a better result. For example, FairVote has a comparison of plurality voting and instant runoff voting.

Plurality at Large/Block Voting/MNTV

This method can be used to elect a council or committee. Suppose a committee of four is to be elected. Each voter selects up to four candidates, and the four candidates receiving the largest number of votes are the winners. This method is known as plurality at large voting, block (or bloc) voting, and the multiple non-transferable vote.

This is also not a good method for counting votes because it allows a majority of voters to control the entire committee. Suppose that a city is electing a council of 10 and that 51% of the city is party A and 49% is party B. Under this method, party A can elect its candidates to all 10 seats of the council and party B will be unrepresented even though it is supported by 49% of the voters.

Ranked-Choice Voting (RCV)

Summary: Ranked-choice voting allows voters to rank candidates and produces fairer results than just checking a candidate. If you are electing one person try instant runoff voting or if you are electing a committee or council try the a single transferable vote.

Your ballot:

1. Cookies & Cream
2. Strawberry
3. Chocolate Chip
4. Vanilla
5. Chocolate

Ranked-choice voting is a method of casting a vote where you rank the candidates instead of just picking one. On the right is an example ranked ballot for an online election.

Ranked-choice voting is better because it provides outcomes that better represent the will of the voters. Here are a few examples of reasons why ranked-choice voting is better:

- RCV elects a candidate supported by a majority of the voters. When there are more than two candidates running, it is possible that the winner receives less than a majority. A perfect example is Donald Trump winning the 2016 Republican primary without receiving the support of a majority of voters.
- RCV allows voters to vote honestly without "wasting" their vote. For example, a voter who supports a third party can rank the third-party candidate first, knowing that his or her vote will count towards the second choice if the third party candidate doesn't win.
- RCV prevents losing candidates from changing the outcome of the election. For example, in 2000, people complained that Ralph Nader caused Al Gore to lose the election. With RCV, Nader's votes would have been transferred to their second choices instead of splitting liberal votes.

People use the term ranked-choice voting in different ways. For some people, ranked-choice voting means any voting method where voters rank candidates. For these people, ranked-choice voting includes not only instant runoff voting and the single transferable vote, but also Condorcet voting and the Borda count.

For some people, ranked-choice voting means specifically instant runoff voting when electing a single candidate and the single transferable vote when electing multiple candidates (e.g., a council or committee). Follow the above links to learn more!

Ranked-choice voting is also known under other names, such as majority preferential voting, the alternative vote, English preferential voting, and the Hare-Ware system.

Instant Runoff Voting (IRV)

Summary: For electing a single candidate, instant runoff voting is a great method because it ensures that the winner is supported by a majority of the voters. The voters rank the candidates, and if a voter's first choice is eliminated, the vote is transferred to the voter's second choice.

Instant runoff voting is a type of ranked-choice voting that is most often used for electing a single candidate. On the right is an example ranked ballot for an online election.

Your ballot:

1.	Chocolate Chip
2.	Strawberry
3.	Cookies & Cream
4.	Vanilla
5.	Chocolate

Instant runoff voting is similar to a traditional runoff election, but better. With a traditional runoff system, a first election has multiple candidates, and if no candidate receives a majority of the vote, a second or runoff election is held between the top two candidates of the first election. A traditional runoff election prevents a candidate from winning with less than a majority of the votes.

With IRV, a voter ranks the candidates in order of preference, and the votes are assigned to the top ranked candidate on each ballot. The candidate with the fewest votes is eliminated and those votes are transferred to their second choices. This process is repeated until a candidate has a majority or only two candidates remain.

IRV is better than a traditional runoff for two reasons. First, voters only have to vote once. Holding an election is an expensive and time-consuming process so having one election is much better than two. Second, with IRV, losing candidates are eliminated one by one instead of eliminating all but the top two at once. This helps ensure that the best candidates are progressing at each round (e.g., if the second and third place candidates are close to each other).

You can see an example of IRV results generated by OpaVote.

IRV is used for government elections in Minneaoplis, Minnesota; Berkeley, Oakland, San Francisco, and San Leandro in California; and Takoma Park, Maryland; Australia; and Ireland.

OpaVote provides a few versions of IRV. A general version of IRV (with some counting options if you are using a Count), the version of IRV used in San Francisco, and the version of IRV used in Oakland County. The differences between the three versions are small and you can see the details in our Help documentation.

Instant Runoff Voting

The general version of IRV has several options (but note that these options are available only for counts and not for elections and polls). By default, IRV uses the following options:

- Zero for Candidate Elimination
- Backward for Tie Breaking
- Skip for Remove Overvotes
- Skip for Remove Undervotes

San Francisco RCV

The city of San Francisco uses the San Francisco RCV rules for city elections. San Francisco enacted IRV in 2002, its first election with IRV was in 2004, and it has been used annually since then.

The differences with the general method are the following options:

- Losers for Candidate Elimination
- Random for Tie Breaking
- Stop for Remove Overvotes
- Skip for Remove Undervotes

Oakland RCV

This method implements IRV as used by the cities of Oakland, San Leandro, and Berkeley. All three cities had their first IRV elections in 2010.

The differences with the general method are the following options:

- Zero for Candidate Elimination
- Random for Tie Breaking

- Stop for Remove Overvotes
- Skip for Remove Undervotes

Single Transferable Vote (STV)

Summary: For electing a group of candidates, the single transferable vote is a great method because it provides proportional representation. E.g., if a group has 40% support, it should be able elect 40% of the winners. The voters rank the candidates, and the votes are transferred to find a set of winners that best match the voters' preferences.

Your ballot:

1. Cookies & Cream
2. Chocolate
3. Chocolate Chip
4. Vanilla
5. Strawberry

The single transferable vote is a type of ranked-choice voting that is used for electing a group of candidates (e.g., a committee or council). When used to elect one candidate, it is basically the same as instant runoff voting. On the right is an example ranked ballot for an online election.

The single transferable vote is similar to instant runoff voting in that votes are transferred from losing candidates to other choices on the ballot. STV also has a second kind of vote transfer. A candidate in an STV election can have **too many** votes, called surplus votes, and these surplus votes can also be transferred to other candidates.

One of the main principles of the single transferable vote is to obtain proportional representation. Proportional representation means, in a rough sense, that the demographics of the elected body should mirror the demographics of the electorate. Transferring surplus votes is a key part of ensuring proportional representation.

The easiest way to explain is with an example. Suppose a highly partisan town is electing a city council of 5 councillors using STV. The town's voters are 80% Republican and 20% Democrat. If we want proportional representation, then 4 of the 5 city councillors should be Republican.

The city has 100 voters, the Republicans have 5 candidates, and the Democrats have 3 candidates. For the Republicans, one candidate is hugely popular and gets most of the Republican first choices. Accordingly, when votes are transferred to their first choices, we have the following distribution.

Round	R1	R2	R3	R4	R5	D1	D2	D3
1	75	2	1	1	1	8	7	5

If we stop here then the Republicans win 2 seats and the Democrats win 3 seats even though 80% of the city is Republican. We could start eliminating candidates with the fewest votes, but this doesn't help the Republicans, because we would just be eliminating Republican candidates.

The solution is to transfer the surplus votes of candidate R1. To figure out how many surplus votes that R1 has, we establish a "winning threshold" using this formula and then dropping any fraction:

$$\text{threshold} = \frac{\text{number of votes}}{\text{number of seats} + 1} + 1$$

For this election, the winning threshold is 100/(5+1) + 1 or 17. Accordingly, candidate R1 has 75 - 17 = 58 surplus votes. Here is what the next round of counting might look like after we transfer R1's surplus votes:

Round	R1	R2	R3	R4	R5	D1	D2	D3
1	75	2	1	1	1	8	7	5
2	17	27	16	13	7	8	7	5

Now, this is starting to look more reasonable! At this point, it looks like the Republicans will take 4 of the 5 seats as expected.

Note that candidate R2 now has surplus votes so those surplus votes would be transferred next. This process continues until 5 candidates reach the winning threshold or until only 6 candidates remain. We'll skip the intervening rounds transferring surplus votes and eliminating candidates, but the final result could look something like this:

Round	R1	R2	R3	R4	R5	D1	D2	D3
1	75	2	1	1	1	8	7	5

2	17	27	16	13	7	8	7	5
...								
5	17	17	17	17	12	17	3	0

In the end, we are electing 4 Republicans and 1 Democrat so we have proportional representation. While this was an extreme example to illustrate how STV works, STV provides proportional representation in less extreme situations as well.

More generally, counting votes with STV proceeds as follows:

1. Count the first place votes.
2. Transfer votes from one candidate to other candidates:
    - If a candidate has surplus votes (votes in excess of the winning threshold), then transfer surplus votes to their next choices.
    - Otherwise, eliminate the last place candidate and transfer those votes to their next choices.
3. If not all seats have been filled, then go to step 2.

Each of the STV methods below specify additional details (or modify) these three steps.

STV is used for government elections in Cambridge, Massachusetts; Minneaoplis, Minnesota; Scottland; Australia; Ireland; N. Ireland; and Malta.

OpaVote provides several versions of STV, such as Scottish STV, Meek STV, ERS97 STV, and Minneapolis STV. You can see an example of STV results generated by OpaVote.

Scottish STV

The Scottish STV rules are recommended for most organizations because the rules are well defined and provide a straightforward implementation of STV that is easier to understand. Scotland enacted STV in 2007 and had its first election that year. Our blog post provides a plain English explanation of the Scottish STV rules.

Scottish STV has the following features:

- Single for Candidate Elimination
- Static and Whole Threshold
- No delayed transfer of surplus votes
- Precision of 5
- Backward for Tie Breaking

Meek STV

Meek STV is recommended for organizations whose members are comfortable with a more complicated counting method. Meek STV provides more accurate proportional representation than other STV methods, but takes more effort to understand.

One advantage of Meek STV is that when a candidate is eliminated from the election, the votes are counted as if the candidate was never in the election at all and the order of elimination cannot effect the outcome. With other STV methods, the order of elimination can effect the outcome.

Another advantage of Meek STV is that surplus votes are transferred in a better way. With other STV methods, surplus votes are not ever transferred to a candidate who has already won. With Meek STV, surplus votes are always transferred to the next candidate on the ballot.

For additional details about Meek STV, see our blog post explaining Meek STV or first issue of Voting Matters.

ERS97 STV

The Electoral Reform Society of the United Kingdom has been providing STV rules since at least as early as 1955 and its latest rules from 1997 are commonly referred to as the ERS97 STV rules. These rules are widely used in the UK. The ERS97 rules are the most complicated of all the STV rules provided by OpaVote. For this reason, we recommend other STV rules.

Minneapolis STV

Minneapolis enacted STV in 2006 and had its first STV election in 2009. The Minneapolis rules are very similar to the Scottish rules.

Minneapolis STV has the following features:

- Losers for Candidate Elimination
- Static and Whole Threshold
- Delayed transfer of surplus votes
- Precision of 4
- Random Tie Breaking

N. Ireland STV

The N. Ireland STV rules are similar to the ERS97 rules, but significantly simpler.

Warren STV

Warren STV is very similar to Meek STV. To learn more about the differences, see the first issue of Voting Matters.

Cambridge STV

The City of Cambridge, Massachusetts has used Cambridge STV rules to elect its city council and school committee since 1941. Note that the statute allows Cambridge to use any method for transfering surplus votes that was in use in 1938, and Cambridge has chosen to use the Cincinnati method.

Since candidates with fewer than 50 votes are eliminated, this method should not be used with a small number of ballots.

The City of Cambridge describes the Cincinnati method as follows:

The ballots of the candidate who has a surplus are numbered sequentially in the order in which they have been counted (that is, in the sequence dictated by the random draw of precincts) and then every *n*th ballot is drawn and transferred to a continuing candidate until the original candidate is credited with ballots equaling no more than quota. *n* is nearest whole number computed by the formula

$$n = \frac{\text{Candidate's Total Ballots}}{\text{Surplus Ballots.}}$$

A ballot selected by this method that does not show a preference for a continuing candidate is skipped and remains with the original candidate. If not enough ballots are removed when ballots *n, 2n, 3n*, ... have been transferred, the sequence starts again with *n+1, 2n+1, 3n+1*, ...

Fractional Transfer STV

The fractional transfer STV method is a generalization of the Scottish STV rules, and you can use the options to customize your counting rules (but note that these options are available only for counts and not for elections and polls).

Random Transfer STV

Except for Cambridge STV, all of the STV counting rules above use fractional votes for transferring surplus votes. This is a general method that allows you transfer surplus votes as whole votes instead of fractional votes. This method is not recommended for actual elections, but you may find it interesting to compare with other methods.

Note that the transfers of votes are not actually random, but the outcome of an election can depend on the order of the ballots. If you shuffle the ballots and recount, you could obtain a different winner. All of the methods above (except Cambridge STV) will always produce the same winners after shuffling ballots.

Condorcet Voting

Your ballot:

1.	Cookies & Cream
2.	Vanilla
3.	Chocolate
4.	Strawberry
5.	Chocolate Chip

Condorcet voting is another type of voting that uses ranked ballots, but depending on who you talk to it may or may not be a type of ranked-choice voting. Condorcet voting is used to elect a single candidate.

Condorcet voting is quite different from instant runoff voting. Condorcet voting elects a candidate who beats all other candidates in pairwise elections. To figure out the Condorcet winner, we need to consider all pairwise elections. Consider two candidates A and B, if A is ranked higher than B on a majority of ballots, then A beats B, otherwise B beats A. A candidate who beats all other candidates in this way is the winner.

This is easiest to visualize this is using a table, and here is an example of Condorcet results generated by OpaVote. In the results, compare the candidate on the row with the candidate in the column. If a cell is green, that means that the candidate on the row beat the candidate on the column. If the cell is red, then the candidate on the row lost to the candidate on the column. The numbers in the cell show you the number of ballots where each candidate was ranked higher than the other. At the time of writing this, Cookies and Cream beat all other candidates and is the winner.

That seems pretty straightforward, but Condorcet has one complication, and it is a big one. It is possible that there is no candidate who beats all other candidates. For example, it is possible that candidate A beats candidate B, candidate B beats candidate C, and candidate C beats candidate A. Thus, all candidates have lost to at least one other candidate.

This is sometimes referred to as a Condorcet cycle, and the candidates in the cycle are referred to as the Smith set. You could think of it as a tie between the candidates in the Condorcet cycle. Like other types of ties, the tie needs to be broken and the different variants of Condorcet voting basically break this tie in different ways. For example, you could break the tie by running an IRV election among the candidates in the Condorcet cycle. Some Condorcet methods, such as Beatpath, have fairly complicated ways of breaking the tie.

No governments currently use Condorcet voting for elections.

OpaVote provides a few versions of Condorcet voting, such as Condorcet Beathpath, Condorcet IRV, Condorcet Borda, and Condorcet Copeland.

- Condorcet Beathpath — See here.
- Condorcet IRV — The winner is chosen from the Smith set using IRV.
- Condorcet Borda — The winner is chosen from the Smith set using the Borda Count.
- Condorcet Copeland — See here.

Approval Voting

Approval voting is a **really** simple type of voting, and unlike most voting methods supported by OpaVote, does not use a ranked ballot. You can see an example ballot on this page that is used for an online election with approval voting.

With approval voting, you have the option to approve of any number of candidates. Candidates you approve get a check mark, and candidates you don't approve of don't get a check mark. The candidate with the most approvals is the winner.

Although very easy to implement and count votes, one tricky aspect of approval voting is how to determine which candidates to approve. Clearly, a voter should approve their favorite and not approve their least favorite, but whether to approve other candidates is a tricky decision. For example, approving your second favorite candidate could cause your second favorite candidate to beat your favorite candidate.

You can see an example of approval results generated by OpaVote.

No governments currently use approval voting for elections.

Your ballot:

- Vanilla
- Strawberry
- Cookies & Cream
- Chocolate Chip
- Chocolate

Other Voting Methods

OpaVote provides a few other counting methods that are less commonly used, and these methods are described here.

Coombs Method

The Coombs method is just like IRV, except that a different technique is used to select a candidate to eliminate. With IRV, the candidate with the fewest votes is eliminated at a round of the count. With Coombs, the candidate with the most last place votes is eliminated.

Borda Count

The Borda count uses ranked ballots, but votes are not transferable. Instead, a score is generated for each candidate from the ranked ballots, and the candidate with the highest score is the winner. If there are N candidates in the election, then each candidate gets N-1 points for each first place vote, N-2 points for each second place vote, and so forth.

See our blog post about the Borda count for more information and good applications of the Borda count.

Bucklin System

The Bucklin system is also known as the Grand Junction system (where it was once used) and American preferential voting. The voters rank the candidates and a candidate receiving a majority of first choices is declared the winner. If no candidate has a majority of first choices, then a candidate receiving a majority of first and second choices is the winner. If more than one candidate has a majority of first and second choices, then the candidate having the most first choices is the winner. This process is repeated for further choices as necessary.

Sunday, September 16, 2018

Non-Anonymous or Recorded Voting Now Available

For most elections, the anonymity of the vote is extremely important, and OpaVote makes sure that no one (not even us!) can figure out how a voter votes. For some elections, however, it is required that the vote not be anonymous or that the votes of voters are recorded so it is known how each voter voted.

Recorded votes are commonly used for elections of elected bodies. For example, for most countries, the votes of elected representatives (e.g., Senators and members of the House of Representatives) are recorded so that the people who voted for them know what they are doing.

Any organization that elects people to represent its members might want to use recorded voting. For example, if you live in a condominium association and elect trustees to represent the condo owners, then you likely want to use recorded voting when the trustees vote on behalf the condo owners (though you would probably use anonymous voting when the condo owners elect the trustees).

Running an election with recorded voting with OpaVote is very simple. There is a new option (only available in expert mode) that allows you to set "Anonymous voting" to "no". When you do this, we record the votes of each voter.

To see the recorded votes after the election is over, download the spreadsheet of all voter statistics from the election console. A new column is added for each contest in the election, and the new columns show the votes for each voter.

The recorded votes only available to the election manager. The manager can, of course, share the voter statistics spreadsheet with others to let them know how the voters voted.

Posted by Jeff O'Neill at 11:14 AM (2018-09-16T11:14:00-07:00)

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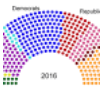

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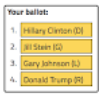

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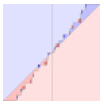

Guest Post: Rethinking STV Fundamentals

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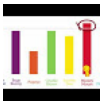

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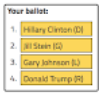

Why use ranked choice voting over Condorcet voting

This is a follow up article to my previous article explaining why I prefer ranked choice voting over approval

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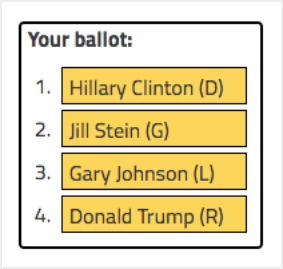
Monday, October 10, 2016

Why use ranked-choice voting over approval voting



Voting is not an easy task for a voter. I don't mean taking time off work, getting to the polls, and waiting in line, etc. I mean, when you are standing there in the ballot box, you have to decide what vote you want to cast given the options presented to you. For example, a Jill Stein supporter may be torn between supporting her favorite candidate and voting for a candidate who has a better chance of winning the election. I'll refer to this as the *cognitive burden* of expressing your vote.

In this post, I'll address the cognitive burden of three different types of voting:

1. Plurality voting (i.e., selecting one candidate)
2. Approval Voting
3. Ranked-choice voting

OpaVote supports all three of these voting methods if you want to try them out yourself.

Plurality Voting

Plurality voting is very simple, a voter simply picks one candidate. There is, however, a cognitive burden when there are more than two candidates. A voter presumably wants her vote to matter. Accordingly, a voter should not necessarily select her favorite candidate, but instead select her favorite candidate who has a reasonable chance of being elected.

Consider the current U.S. Presidential election. I'm a big supporter of the Green Party, but Jill Stein is not going to win the election. I'd like to vote for the Green Party, but instead I'll vote for Hillary because that is the best way for my vote to make a difference. Others will vote for the Green Party out of principle.

Where there are more viable candidates, the cognitive burden is much higher. The French 2012 elections for President had **ten candidates** in the first round. A voter thus needed to consider which candidates had a chance of winning, and then select her favorite among those who had a chance of winning.

Approval Voting

With approval voting, a voter has the option to approve as many candidates as they like. The candidate with the most approvals is the winner. For someone whose first choice is Jill, the voter may, for example, approve of Jill and Hillary and not approve Donald and Gary.

Approval voting, like plurality voting, is very simple in practice. A voter just selects one or more candidates. But Approval voting suffers from similar cognitive burdens as plurality voting. How do you draw the line between candidates you approve and candidates you don't approve?

Consider a voter whose true preferences are:

1. Jill Stein
2. Hillary Clinton
3. Gary Johnson
4. Donald Trump

Clearly, this voter will approve Jill and will not approve Donald, but what should she do with the other two candidates? Should she also approve Hillary? Giving Hillary an approval may help Hillary beat Jill, but she would certainly prefer Hillary to Gary or Donald. Similarly, this voter may not like Gary, but she may dislike Donald so much that it is worthwhile to approve Gary to minimize the chance that Donald is elected.

Phew... that is a lot of thinking to do. It would be even harder if Jill and Gary had better chances of being elected.

In sum, approving any candidates other than your favorite can hurt your favorite. Not approving candidates can help your least favorite get elected. Approval voting thus creates a significant cognitive burden for voters.

Ranked-Choice Voting

With ranked-choice voting, a voter ranks the candidates in order of preference, similar to the picture above. In my view, this has the least cognitive burden among the three methods discussed here. It is easy for a voter to pick her favorite candidate, pick her second favorite, and so on. This kind of ballot has low cognitive burden because a voter doesn't have to consider which candidates are viable.

But, you may ask, "Doesn't a voter have to think about whether their second and later preferences might hurt their first preference? For example, should a Jill Stein supporter not rank Hillary second because it might help Hillary beat Jill?"

The great thing about ranked-choice voting is that the answer to this question is a clear and resounding **NO!!!** Your second and later choices cannot harm your first choice! Your second preference is only ever considered at all if your first preference has definitively lost. Voting geeks call this the later-no-harm criterion.

Voters thus need to be educated that later choices do not hurt earlier choices so that voters are encouraged to rank as many candidates as possible. The more candidates a voter ranks, the greater influence the voter has in the outcome of the election.

Accordingly, ranked-choice voting has the lowest cognitive burden. A voter simply needs to select their first choice, second choice, and so forth. The voter does not need to consider which candidates are viable.

(For voting geeks who are leaping out of their seats to make points about other voting systems criteria, please keep reading.)

Other Stuff...

In my view, it is extremely important to make it as easy as possible for voters to vote, and, for the reasons described above, ranked-choice voting does this better than both plurality and approval voting.

I want to briefly address another form of ranked voting called Condorcet voting. Condorcet voting also uses a ranked ballot, but the votes are counted in a different way. Condorcet voting doesn't satisfy the later-no-harm criterion mentioned above, so it is **possible** that your second and later choices could hurt your first choices. The possibility, however, that your second and later choices hurt your first choice is **so small** that, for **practical purposes**, a voter to cannot take this into account, and thus Condorcet voting has the same cognitive burden as ranked-choice voting. While Condorcet voting is a great voting method, I still prefer ranked-choice voting for public elections, and I'll address that in a future blog post.

Another point to mention is that detractors of ranked-choice voting complain that ranked-choice voting does not satisfy other voting systems criteria, such as the monotonicity criterion. While this is certainly true, for practical purposes, a voter cannot take the monotonicity criterion into account when casting a vote. It is just far too complicated and you would need to know how everyone else is going to vote. The non-monotonicity of ranked-choice voting thus doesn't create a cognitive burden.

Please let me know what you think, especially if you disagree. I am happy to post any well-reasoned dissent as comments or even give you the opportunity to write your own blog post in rebuttal.

Posted by Jeff O'Neill at 8:50 AM (2016-10-10T08:50:00-07:00)

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8 comments:

Greg Dennis October 10, 2016 at 6:59 PM

Exactly! It's nearly impossible to pin down Approval Voting advocates on what *instructions* voters are to be given. They usually start by saying "vote for those your approve", but when you start asking what "approval" actually means --- including whether it means the same thing to every voter --- and the possibilities of "approving" could lead to a "wrong" result (e.g. Stein and Johnson supporters bullet-voting their candidates), they'll admit what they really want is for voters to use a particular strategy. The strategy they want relies on voters having access to accurate polls, which precludes using it effectively in many local and state races, particularly primaries, where there is no public polling. Approval voting takes complexity out of the ballot and tally and places it on the voter instead; thus, the cognitive burden you highlight.

Reply

homung October 12, 2016 at 3:28 AM

First off: thank you, Jeff, for a thought-provoking piece. I'm going to disagree with you on some points, but it's clear that you're arguing in good faith.

Second: I'm sorry, but I really can't bear the name "RCV" in a voting methods discussion. I know that's what IRV is frequently called in actual laws, but to me "ranked choice voting" is obviously the correct term for the whole class of voting methods which includes Condorcet, Borda, and IRV; not just for IRV alone.

So, on to the body of your argument: that (according to you) the cognitive burden of IRV is lower than approval, Condorcet, or plurality.

I agree with you on one point: thinking in terms of cognitive burden is an important, and productive, way to consider voting systems. I also acknowledge that approval's apparent simplicity is less of an advantage than one might think, once you consider the cognitive burden.

However, I strongly disagree with you that IRV has a low cognitive burden in practice, for two reasons.

The first, and most important, is that IRV does not actually remove the need for strategic thinking. Yes, it obeys LNH, so once you've decided to rank your favorite in first place, you have no reason not to include your second choice on the ballot too. But there's an important, and predictable, class of election scenarios where it's strategically crucial NOT to rank your favorite first: center squeeze scenarios. If you have two candidates at ideological opposite points, with a third candidate in the middle near the median voter, it is actually quite common for the center to have the lowest first-choice support and get prematurely eliminated. This kind of thing happened in Burlington 2009; in multiple recent French elections; tragically, in Egypt 2011; and would have happened in the US 2000 if Nader had gotten over 25%. In this case, the correct strategy for one group of voters is to rank their true first choice in second place. Understanding this, and correctly seeing when it applies, is a HUGE cognitive burden for IRV voters.

Second, IRV requires strict ranking. That's a nontrivial cognitive burden when there are more than a handful of candidates. If there were 15 candidates in a race, how should a voter decide exactly which of them to give 8th preference? It's much easier to use absolute grades, as in Majority Judgment. (Behavioural research bears this out; strict ranking is harder than rating, for anything more than 3 or 4 options.)

On the other hand: is the strategic burden for approval voters actually that high? I think not. Consider the rule used by Ka-Ping Yee in his voting system visualizations: a randomly-assigned strict threshold. This requires no strategic doublethink, yet leads to near-ideal

outcomes under his assumptions. My point is that under approval sophisticated strategy is not nearly as important as under IRV.

But still, I think you have a point. Approval does have a cognitive burden, and we should account for that. That's precisely why I've been working on MAS (majority acceptable score) as an option: it's a simple 3-level voting system with an absolute minimum of cognitive burden. I believe that under MAS, in basically all everyday voting scenarios, a naive sincere ballot will be strategically optimal, or close enough to it that most voters wouldn't care.

Jameson

ps. You mention Condorcet, and argue that the strategic cognitive burden is higher than IRV. I disagree; but since Condorcet comes with a higher cognitive burden in just figuring out why a given candidate won, I agree that Condorcet methods are probably not best for large-scale elections.

Reply

Replies

Jeff O'Neill October 15, 2016 at 5:45 AM

I agree that the terminology is difficult and that RCV could and perhaps should apply to any method where votes are ranked.

When you say that "it is actually quite common for the center to have the lowest first-choice support and get prematurely eliminated," we need to clarify "quite common." If you mean 5-10% of the time, then I could believe that, but if you mean 50% of the time, then I would disagree. It would be really interesting if a statistician could collect the data and present results.

I can't comment on Burlington or Egypt. For the French elections, the center candidate is generally in the top three of 10-15 candidates (depending on the year). Candidates that came later than that top 5 have very little support.

My main point here, however, is that, except in rare situations, voters are not capable of voting strategically to account for a center candidate out of the top two (and by this I mean normal voters, not the people on this list). First, it isn't clear how often the center candidate is out of the top two. Second, voters would need to think deeply about how the voting system works. third, you need precise polling information. Fourth, if you are too successful in your strategic plan, it backfires. There is this middle ground where enough voters have to vote strategically to get their desired result but not so many that you overshoot and still elect the wrong candidate. A few people (like the people on this list) may consider such a scenario when voting, but I think it is far too complicated for any significant subset of voters to consider it.

Regarding the difficulty of ranking a lot of choice, that makes sense, but I don't think it matters so much. For most RCV elections, nearly all ballots end up at one of their top 3 or 4 choices. Rankings after this don't matter much. Also, if a person has trouble deciding who to rank 7th and 8th, then perhaps the person doesn't have a strong preference between them and would be equally happy (or more likely equally unhappy) with either.

Melvin Mackey August 14, 2017 at 3:34 PM

I have found the following directions to be helpful to voters:

Rank candidates in the order of your choice by writing a "1" by your first choice, a "2" by your second Choice, a "3" by your third choice, and continue ranking until you don't care who wins among the remaining candidates.

Jeff O'Neill August 15, 2017 at 4:49 AM

Melvin, thanks for sharing. Those are good instructions for voters.

Reply

Jeff O'Neill October 8, 2017 at 1:41 PM

Publishing comment on behalf of Mike Sawyer:

Homunq asks, "IRV requires strict ranking. That's a nontrivial cognitive burden when there are more than a handful of candidates. If there were 15 candidates in a race, how should a voter decide exactly which of them to give 8th preference?"

Brian Zurowski of Davidson College and I are collaborating on some voting theory issues. We have been looking at using pods with various voting methods as a way to relieve the cognitive burden. By "Pod" we mean any collection of choices of unknown, indistinguishable or equal values (Pod – from the proverbial "like peas in a pod"). We were wondering if you had looked at pods (perhaps by some other name)? To see the logic of using pods you need only imagine you are voting (say instant runoff) on a list of restaurants for your groups luncheon tomorrow. Your preference is Mexican cuisine and you see three Mexican restaurants on the list, but you've been to none of them, so you group them in a pod and rank the pod first on your ballot. It's not that just any one will do, but your best bet is the one others rank highest. This is tallied by counting one first place vote for each choice in the pod reducing the chance that any of the three will be eliminated. This is in effect an approval vote followed by individual rankings.

You might have ranked this pod in second place in which case it (with its surviving members) becomes an "approval pod" only when your first choice is eliminated. In fact a ballot could have multiple pods by simply stringing together consecutive choices that have only trivial differences. An RCV ballot with five choices would have not just 120 voter profiles but 520 (if I did that right). "Approval Pods" (or perhaps Coombs disapproval pods) should be possible with most single winner RCV, Condorset and (with additional steps) STV algorithms. Effective use of approval pods may gain a small strategic advantage for more flexible voters, but for the most part the choice is a trade-off sacrificing "selection" (the ability to choose between "peas" or pod members) in exchange for "protection" (greater assurance that at least one pod member, [the one most liked by the voters] will survive). Generally we want to avoid methods that allow strategic voting, but I see this as productive strategic voting as opposed to counterproductive results seen with plurality voting. The simple rule of thumb for deciding when to form a pod is "ignore trivial differences." We appreciate your thoughts.

Reply

JeffB November 7, 2017 at 9:42 AM

This is an old post but I'd disagree with you that non-monotonicity is not a problem with voting system like IRV. Take the absolutely most common situation Left is running against Center and Right and all of them are reasonably close. Most of Left's voters have ballots that look like Left-Center-Right, and Right's voters Right-Center-Left. In short because the vote is close Center can come in 3rd or 1st but he can't come in 2nd.

That means if Left is winning, but doesn't have an outright majority Left's best strategy is to make sure that Center gets eliminated before Right. This is especially important since if Left is winning, it most likely follows that more of Centers voters look like Center-Left-Right than Center-Right-Left. Because of this, it pays for a small group of Left's voters (activists) to vote Right-Left-Center even though Right is their least prefered candidate.

That is to say the best strategy for disciplined voters is to cast a highly dishonest ballot. And note they don't have to know exactly how the other voters will vote they just have to be correct within a few percentage points most of the tie for that strategy to payoff handsomely. Similarly you have strategies like this when the candidates are HardLeft, SoftLeft, SoftRight,

HardRight.

I noticed you commented on this a little above. General voters can vote honestly. It is the 10% or so that are politically involved that can be safely instructed when to vote a dishonest ballot that make IRV potentially extremely destructive.

Reply

Patrick Hutton January 14, 2018 at 6:14 AM

Just my 2d. One of the arguments against Ordinal is that they are non-monotonic therefore will on occasion give the wrong result and that weakness can be exploited for tactical voting.

1) Why is a non monotonic result "wrong"?

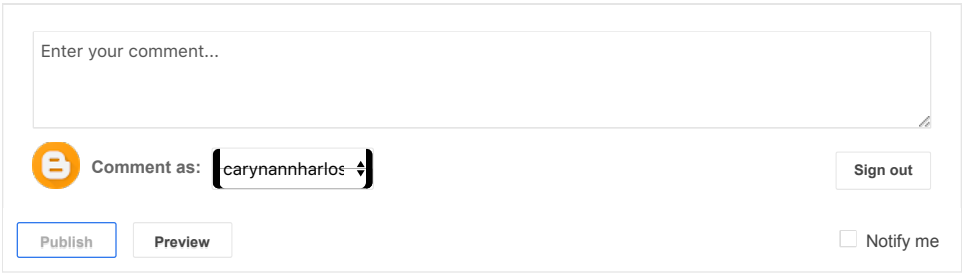
2) I've never heard a convincing argument about how it can be exploited.

The argument that it causes cognitive dissonance for voters is strange.

You look through the candidate list and put a one next to your favourite candidate, then put a two next to your favourite remaining candidate, repeat until you run out of candidates or run out of candidates you know about.

None of the quirks of the voting system should cause you to vote tactically. How can they? I challenge a critic to give just one example of a secret ballot where a political representative was being chosen with an electorate over a thousand where due to tactical voting the "wrong" candidate won. I'll give you a clue, there isn't.

Reply



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Friday, December 29, 2017

OpaVote Security Practices

Some OpaVote customers are nervous about the security of online elections. To reduce risk, OpaVote follows many security best practices, and in this post we explain some of them to reassure you that it is safe to run your elections with OpaVote.

This is a followup post to a previous one where we showed that OpaVote has far better practices than other online election providers as determined by independent third parties.

Hackers have five possibilities in trying to undermine your election:

1. Breaking into Google servers (OpaVote runs on Google)
2. Accessing secret codes of voters
3. Obtaining an election manager's password
4. Obtaining an OpaVote administrator password
5. Exploiting possible vulnerabilities in the OpaVote website.

We'll address each of these below.

Google Servers

Google fully maintains all the servers used by OpaVote. Because Google runs many important websites, it goes to great lengths to ensure security. For this reason, we can rely on Google to make sure that servers have been updated with the latest security patches, and that the doors to the server rooms are locked.

Voters

For email voters, we provide each voter with a 128-bit code. This provides a HUGE number of codes. Here is the number written out: 340,282,366,920,938,000,000,000,000,000,000,000,000. If you could try a billion codes per second, then it would take more than a billion years to try all of the codes. For this reason, hackers cannot guess voter codes.

Your voters' email accounts are the weakest link, because many of your voters likely don't have good security practices with their personal email accounts. Though email providers keep getting better in enforcing security practices (e.g., strong passwords) so it is still hard for a hacker to gain access to an individual email account, and much harder to gain access to enough email accounts to have an influence on the election.

Election Managers

This one is mostly up to you. You should be using a strong password for your account and a password that is different from all of your other passwords. Preferably, you login to OpaVote using an existing account (e.g., a Google or Facebook account) with two-factor authentication. If you do create a password at OpaVote, we store only a salted hash of your password so that even if someone broke into OpaVote, there would be no way for them to get your actual password.

OpaVote Administrator

We can access OpaVote servers as administrators using an administrator password. We have only a single password for administrator access, it is strong, it is different from all other passwords used by us at OpaVote, and we have enabled two-factor authentication. This prevents hackers from getting administrative access.

OpaVote Website

There are many different ways that hackers can attack a website, such as by trying to upload

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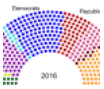
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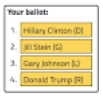
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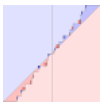
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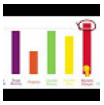
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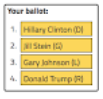
Why use ranked choice voting over Condorcet voting
This is a follow up article to my previous article explaining why I prefer ranked choice voting over approval

harmful code or sniffing Internet traffic. This is a very complicated area, but here are some of the measures we take to prevent attacks on the OpaVote website:

- All traffic to OpaVote is encrypted using HTTPS and HSTS. Any non-encrypted requests are immediately redirected to encrypted requests.
- Cookies are encrypted.
- We don't store any sensitive information, such as credit card numbers. Payments are handled by secure third party providers.
- To prevent injection attacks and cross-site scripting attacks, all queries are parameterized and user input is escaped. Where we do allow HTML input, we check it against a whitelist to prevent unsafe content.
- We have tests to continually check that management pages are only accessible to authorized managers.
- All form inputs use CSRF to prevent hackers from causing you to execute unwanted actions.

To see more details, check out the security grades that OpaVote has received from these independent third parties:

- A+ from SSL Labs
- A+ from HT Bridge
- A+ from Security Headers
- B+ from Mozilla Observatory (This is a very high standard. Even gmail gets a B on this test.)

Please feel free to contact us with any questions on our security practices.

Posted by Jeff O'Neill at 6:30 AM (2017-12-29T06:30:00-08:00)

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