



OpenVoter

Open Source Voting Software to Remove Oppressors

Prof. Robin Rowe
ANM Green Conference
Thursday, July 15th, 2021

2:00-3:20pm Eastern
1:00-2:20pm Central
12:00-1:20pm Mountain
11:00am-12:20pm Pacific
10:00-11:20am Alaska
8:00-9:20am Hawaii

Why OpaVote Isn't a Solution

- Anonymity – Who has our emails and voting records?
- Transparency – What does the voting code actually do?
- Audit – How do we check when the result is close or seems off?
- Bad Actors – Hackers? Infiltrators?
- Disrupters – Zoombomb kids
- Crooks – Mobsters, phishers
- Opposition parties
- State surveillance

A Personal Electronic Voting Experience



- I ran for mayor of Beverly Hills in 2020, my first election attempt
- VSAP, Los Angeles County created its own voting software
- Secretary of State picks me in lottery to be first on VSAP ballot
- Beverly Hills files lawsuit Against Los Angeles County
- Beverly Hills is suing to roll back electronic voting, doesn't want a non-incumbent being #1 on the ballot again
- Incumbents backed by hedge fund and gentrification developers
- Incumbent campaign budget expended \$20 per vote received

A Personal Green Committee Voting Experience



- I ran for Eco-Action Secretary, but not because I needed to win
- I ran because I wanted to know first-hand the Green committee voting system
- I ran because it is poor practice to hold “elections” with candidates running unopposed
- My opponent was hostile to my running, indignant at not being unopposed
- All the votes except for the chair who endorsed my opposing candidate were invalid because of the chair’s botched directions to voters
- I declined calls to re-run the election

Voting Methodologies

- Black Ball – Passed unanimously
- RCV – Ranked Choice Voting
- FPP – First Past the Post
- Star
- Approval
- Downvote



Ranked Choice Voting



- https://en.wikipedia.org/wiki/Ranked-choice_voting_in_the_United_States
- Endorsed by Green Party, in founding bylaws
- RCV has since been adopted in many locations
- Complexity makes audit difficult
- May result in audit chaos like Arizona times 10
- Botched New York RCV decreases confidence
- Has yet to elect any Greens

First Past the Post Voting



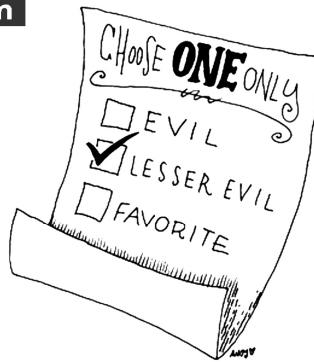
- FPP - https://en.wikipedia.org/wiki/First-past-the-post_voting
- Traditional winner-takes-all
- California state elections are Top-2 FPP
- Top two candidates from jungle primary run in general election
- California local elections are open to all comers and are non-partisan per California state constitution

California Top-2 Voting



- FPP Top-2 placed Green candidate Matt Gonzalez on the ballot against Gavin Newsom in the San Francisco general election
- Newsom won by 11,000 votes, flipping just 6,000 votes would have made a Green the mayor of San Francisco
- After serving as San Francisco mayor twice, Newsom was elected governor of California
- Had Gonzalez won San Francisco in 2003, it is conceivable Gonzalez would have gone on to become the first Green governor of California (and no recall of Newsom now)

The Problem




Star Voting

<https://www.starvoting.us/>



How does STAR Voting work?



STAR VOTING
SCORE - THEN - AUTOMATIC - RUNOFF

Score candidates from 0 - 5 stars.
Those you leave blank receive a zero. If you don't have a preference you can give candidates the same score.

Candidates:	Worst	0	1	2	3	4	Best
Abby		0	1	2	3	4	5
Ben		0	1	2	3	4	5
Carmen		0	1	2	3	4	5
DeAndre		0	1	2	3	4	5
Eric		0	1	2	3	4	5

The two highest scoring candidates are finalists.
The finalist preferred by the majority wins.

Scoring

The two highest scoring candidates are finalists.

Candidates:	Totals:
Carmen	624,057
Ben	509,742
DeAndre	387,143
Abby	37,708
Eric	2,789

Carmen and Ben advance to the Automatic Runoff.

Runoff

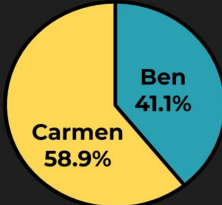
Your vote goes to the finalist you prefer.

Candidates:	Worst	0	1	2	3	4	Best
Abby		0	1	2	3	4	5
Ben		0	1	2	3	4	5
Carmen		0	1	2	3	4	5
DeAndre		0	1	2	3	4	5
Eric		0	1	2	3	4	5

This vote goes to Carmen because she was scored higher than Ben.

Results

The finalist preferred by the majority wins!



For multi-winner elections this process continues until all seats have been filled.

Whether or not your favorite can win, your vote goes to the finalist you preferred!

Approval Voting



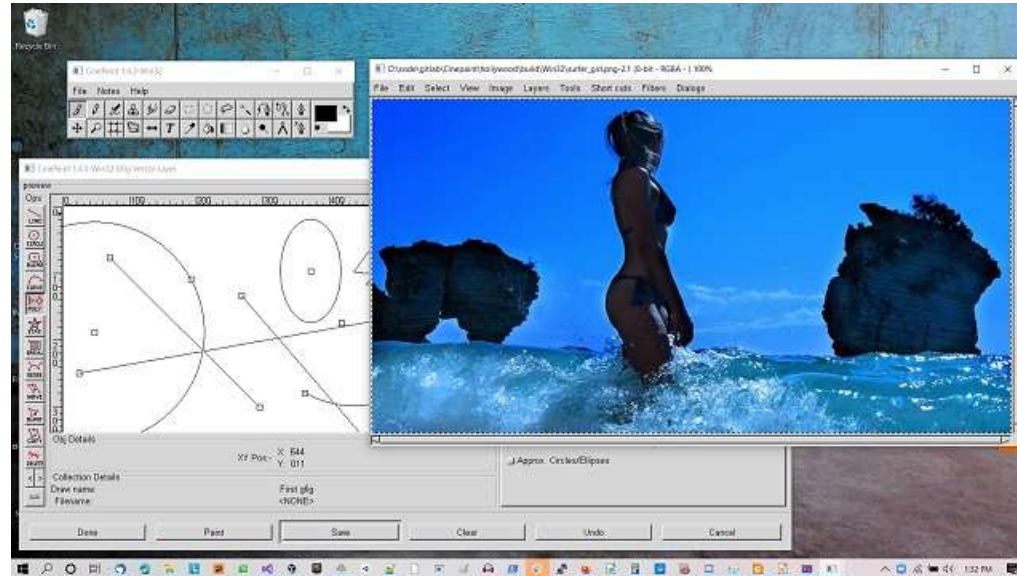
- <https://electionscience.org/approval-voting-101/>
- Approval voting is similar in goal to RCV
- In Approval voting, voters vote for all the candidates they approve of
- The candidate with the most votes wins
- Easier for voters who don't know the candidates well enough to confidently rank them

Downvote Voting



- How the Internet deals with toxic content
- Downvote voting may draw disaffected voters to the polls
- Voters who do not vote because they like none of the candidates
- Stops protest votes being misrepresented as support or a mandate by opposing candidate

Free Open Source Software



- Linux (FOSS) powers the Internet
- I'm the project leader for CinePaint (FOSS), an alternative to Photoshop used in the making of the *Harry Potter* and *Lord of the Rings* films

Open Source Voting Software



- Green Vote (Perl)
- DemoChoice (PHP)
- CIVS (Perl, Javascript)
- Every Election (Scala, Python)
- VSAP. promised open source coming soon?

Desirable Voting Software Capabilities



- Identity - make sure votes are coming from the people who are allowed to vote
- Privacy - make sure that no one can find out how a particular individual voted
- Audit - prove that all the votes counted were the votes that were cast
- Traceable - how can an individual see that their vote was counted
- Usability - how easy is it for a user to understand and use the system
- Reliability - Ballots are ACID and blockchained and the system
- Fault-tolerant, a crash cannot result in a half-cast ballot
- Security - Fraudulent ballots have a clear process resolution

Voting System Configurability



- A voter can review his or her vote after it has been cast
- A voter can/cannot refund (change) his or her vote after it has been cast, before the election deadline closes
- If vote refunds are allowed, the second vote overrides the first, but may require permission of admin
- How the system handles two ballots from the same voter is the same as with vote refund, but if vote refunds not allowed the voter may be marked for audit
- Anyone can/cannot see vote totals as they are collected
- An admin may change vote totals visibility mid-vote from “cannot” to “can”, but not from “can” to “cannot”
- Spoiled ballots are handled as vote refunds and marked for audit
- Choose voting methodologies, with the support for every type: plurality, approval, rank choice, score, star, black ball...
- A ballot may contain different voting methodologies for different races in the same election



Want to use FOSS voting software?
Want to help?

<https://github.com/robinrowe/OpenVoter>

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