Election methods
Election Methods Evaluation

• Setting up an election means setting up a voting procedure and choosing a set of mathematical rules to count the ballots and determine the winner(s).

→ This presentation will focus on objective technical criteria to help choosing the set of rules for counting the ballots and determining the winner, and will propose a concrete method (draft) based on “approval”;
Why do we care?

an easy example (1)

• The best election method gives the electorate the possibility to vote for the leaders they sincerely prefer and minimize their need to vote strategically;

→ Example: the conventional plurality system strengthens the bipolarity vision of political sensitivity and render almost impossible for little parties to have representatives elected: electors are pushed to vote for the stronger less evil because voting for the one they prefer might strengthen the one they don’t want!
Favorite Betrayal Criterion

an easy example (2)

• Statement of Criteria:

   No voter should ever have strategic incentive to vote a less-liked candidate over his favorite.

→ A better election method should comply with Favorite Betrayal Criterion.

→ The conventional plurality and STV does not comply with this criterion

→ Condorcet Method and Approval method comply with this criterion
Defensive Strategy Criterion

an easy example (2)

• Statement of Criteria:

If a majority prefers one particular candidate to another, then they should have a way of voting that will ensure that the other cannot win, without any member of that majority reversing a preference for one candidate over another.

→ A good election method should comply with defensive strategy criterion.

→ The conventional plurality and STV does not comply with this criterion

→ Condorcet Method and Approval method comply with this criterion
Why do we care?

A « bizarre » example with STV (1)


We count the number of time each candidate is supported as first:
A : 7, B : 6, C : 5, D : 3

If one candidate receives a majority of first choice, this one wins (not in that case)
Eliminate the one less supported (D in this case) and reapply the method:
7 ballots : A,B,C - 6 ballots : B,A,C - 5 ballots : C,B,A - 3 ballots : C,B,A
A : 7, B : 6, C : 8

B is eliminated
7 ballots : A,C - 6 ballots : A,C - 5 ballots : C,A - 3 ballots : C,A
A : 11, C : 8

A IS THE WINNER !!!
Why to care?

A « bizarre » example with STV (1)

Suppose that instead of:
The 3 last voters promoted A. The count is :
The count is:
A : 10 , B : 6 , C : 5
No candidate has the majority, D and C eliminated the method is reapplied on:
A : 10 , B : 11

B IS THE WINNER!!!

By supporting A from last to first choice, 3 voters caused A to lose instead of win.
Monotonicity Criterion

• Statement of Criterion:

With the relative order or rating of the other candidates unchanged, voting a candidate higher should never cause the supported candidate to lose, nor should voting a unsupported candidate ever cause the candidate to win.

→ A good election method should comply with Monotonicity Criterion.

→ The STV method does not comply with this criterion.
Some Technical Criteria

Monotonicity Criterion (MC)
Condorcet Criterion (CC)
Generalized Condorcet Criterion (GCC)
Strategy-Free Criterion (SFC)
Generalized Strategy-Free Criterion (GSFC)
Strong Defensive Strategy Criterion (SDSC)
Weak Defensive Strategy Criterion (WDSC)
Favorite Betrayal Criterion (FBC)
Summability Criterion (SC)

→ see the evaluation methods matrix:
http://www.electionmethods.org/evaluation.htm
Suggestions

• The method that complies with almost all criteria used to evaluate election methods is “condorcet method”;

• Some online communities use this method (debian, etc.);

• Issues:
  – it’s a ranking method, more complex to be implemented, difficult to understand by the electorate;
  – The calculation is done by counting how many times each candidate would win on a face to face fight against each other candidate (with three sits the combination issue is quite complex).

• Approval method: an alternative!
Approval method

- Approval method complies with many evaluation criteria;
- In Approval voting, each voter simply votes for (or approves), as many of the candidates he desires;
- Approved candidates are simply “marked” not “ranked”;
- As in plurality voting, the votes are counted, and the candidate with the most votes wins;
- In the ccnso context, the "vote for three candidates" assumption (that would be used with a traditional plurality voting process) would simply become "vote for as many candidates".
Election statement proposal with Approval for the ccnso

- Each voter checks as many candidates he/she wants;
- The winners are the three candidates with the most checks;
- If two or more candidates are tied for one or more sits, hold a second election between the tied candidates for the seat(s) they are tied for;
- The winner that has the most checks is elected for three years, the second for two years, the third for one year;
- In case of winner tied within the winner set, organize a straw poll within this set to determine who is first second and third;
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  http://www.electionmethods.org

• Emmanuel Raviart and Patrice Saad: 
  http://www.entrouvert.com

• http://www.condorcet.org