



# AFNIC

Association Française pour le Nommage Internet en Coopération

## Election methods

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# 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)

7 ballots : A,B,C,D - 6 ballots : B,A,C,D - 5 ballots : C,B,A,D - 3 ballots : D,C,B,A

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:

7 ballots : A,B,C,D - 6 ballots : B,A,C,D - 5 ballots : C,B,A,D - 3 ballots : D,C,B,A

The 3 last voters promoted A. The count is :

7 ballots : A,B,C,D - 6 ballots : B,A,C,D - 5 ballots : C,B,A,D - 3 ballots : A,D,C,B

The count is:

A : 10 , B : 6 , C : 5

No candidate has the majority, D and C eliminated the method is reapplied on:

7 ballots : A,B - 6 ballots : B,A - 5 ballots : B,A - 3 ballots : A,B

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 seats, 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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