

# TOPIC 01 // LESSON 02

Discrete Math

# LESSON 2

Insincere voting: aka “strategic voting”

Switching votes so that they are not “wasted”

All voting methods are “manipulatable” and can be affected by insincere voting.

Note: “plurality method” is the one that is most easily manipulated.

Ex. Ralph Nadar 2000, 2004

Insincere voting hurts small parties and  
independents

[5% to qualify for federal funds]

# BORDA COUNT METHOD

Each place is assigned points

Last place = 1 pt, 2<sup>nd</sup> place to last = 2pt, ...,

1<sup>st</sup> place = “N” points where N is the number of candidates

	14	10	8	4	1
1	A	C	D	B	C
2	B	B	C	D	D
3	C	D	B	C	B
4	D	A	A	A	A

Winner is the best average ranking  
[best compromise candidate]

## EX 1.6 PRINCIPAL A, B, C, AND D

		6	2	3
4x	1	A	B	C
3x	2	B	C	D
2x	3	C	D	B
1x	4	D	A	A

The Winner is....

**Principal B**

[with 32 points]

**Q: What about Principal A?**

29 points, but  $6/_{11}$ .

A is the Majority candidate and Condorcet C

**Q: Violates two** criteria of fairness

1. Majority Criterion 2. Condorcet Criterion

	6	2	3
1	A	B	C
2	B	C	D
3	C	D	B
4	D	A	A

Borda Count Method is considered

**One of the best!**

It is used in:

Heismann Trophy, NBA Rookie of the Year, NFL MVP, Music Industry Awards, hiring principals, university presidents, and corporate executives



# PLURALITY W/ ELIMINATION AKA INSTANT RUNOFF VOTING [IRV]

Q: How does one get a majority with 3 or more candidate?

A: eliminate the lowest and have a runoff

A<sub>2</sub>: use preference ballots so that IRV is possible

## IRV process:

1. Count 1<sup>st</sup> place
  1. Majority wins or eliminate lowest
2. Cross out eliminated names and move up. Recount
3. Repeat

# IRV

Lets try it

	14	10	8	4	1
1	A	C	D	B	C
2	B	B	C	D	D
3	C	D	B	C	B
4	D	A	A	A	A

The winner is..

