

	Majority	Unanimity	CWC	Mono.
Plurality	✓	✓	✗	✓
BCV	✓	✓	✗	✗
Condorcet	✓	✓	✓	
Borda	✗	✓	✗	✓
Dictatorship	✗	✓		✓

2 more criteria & 1 more voting system!

Monotonicity

About what happens when people change their minds.

Like if I was going to put X on top,
but then I change my mind and put
Y on top.

This should help Y.

5	4	3	1
A	C	B	B
B	B	C	A
C	A	A	C

Doing Borda, the scores are: $A = 11$
 $B = 17 \leftarrow B$ wins.
 $C = 11$

What if I change $\begin{matrix} C \\ B \\ A \end{matrix}$ to $\begin{matrix} B \\ C \\ A \end{matrix}$?

B still wins. (B gets more pts, C gets less)

5	4	3	1
A	C	B	B
B	B	C	A
C	A	A	C

Now RCV: Round 1
 $A: 5$
 ~~$B: 4$~~
 ~~$C: 4$~~ A wins!

New change $\begin{matrix} B \\ \textcircled{A} \\ C \end{matrix} \rightarrow \begin{matrix} \textcircled{A} \\ B \\ C \end{matrix}$ This "boosts the winner"

Then if's

5	4	3	1
A	C	B	A
B	B	C	B
C	A	A	C

5	4	3	1
A	C	C	A
C	A	A	C

RCV: Round 1 A: 6
 ~~B: 3~~
 C: 4

Round 2 A: 6
 C: 7

C wins!

Here, we boosted the winner, but using RCV this caused them to lose.

Sometimes changing your mind to vote for somebody will actually hurt them.

The Monotonicity Criterion

If some voters change their mind to boost the winner, then the winner doesn't change.

RCV **X**
 Borda **✓**

"same direction"

Does plurality satisfy monotonicity? Yes

Imagine X was the winner, then I
change ballots to boost X.

Boosting X may give X more 1st place rankings,
will not give anybody else any more.

So X is still the winner using plurality.

Another System: Dictatorship

Dictatorship Before the election, one of the voters
is chosen to be the dictator, the
1st place choice of the dictator wins.

Does not satisfy Majority:

it's possible for a majority to like X best,
but the dictator chooses someone else.

Unanimity: If all voters put X above Y,
Y should not win.

Yes! The dictator puts X above Y, so
Y won't be the winner.

Moore: If X was going to win,
then someone boosts X on their ballot.

Then X still wins
(the dictator will still choose X)