

Social Choice 3/23/21 - strategic voting and impossibility

1. Is Plurality voting strategy-proof?

- (A) Yes, because only first-place votes matter, so it's always smart to give your first-place vote to your favorite candidate. That means no strategic voting, so it's strategy-proof.
- (B) Yes, because Plurality was proven to be equivalent to Dictatorship of the tipping-point voter.
- (C) No, because it might be strategic to put your second-favorite candidate first if you think they have the best chance (and you think you can avoid a win by the one you hate most).
- (D) No, because it is strongly monotonic and no system can be both strongly monotonic and strategy-proof.

↑ ↑
both of these are false

2. We have a definition of a **successful strategic vote**, and we have a definition of **moves favorable to a candidate**. Is it true that every successful strategic vote is a favorable move for some candidate?

- (T) True
- (F) False

→ on this last worksheet, you showed that reversing your ballot can be strategic.

That's not "favorable" to anyone, because it's not simply moving someone up.

3. In lecture, we proved the Müller-Satterthwaite Theorem by assuming a mystery system had some properties and using those properties to deduce features of the system. Which one of these statements follows from the proof of the theorem?

- (A) Every preference schedule has a candidate who gets one first-place vote and N-1 last-place votes.
- (B) Every voter is a Dictator for some candidate. (In other words, that voter's first-place vote is enough to make the candidate win.)
- (C) For every single-winner voting system which is PE and SM, there is some detailed preference schedule where one voter ranked C,A,B while 999 ranked A,B,C, but C won.
- (D) For every single-winner voting system which is PE and SM, there is some way to make candidate B win with no first-place votes.

→ This follows from our proof technique! You

can start with

#1	#2	#3	...	#999	#1000
A	A	A		A	A
B	B	B		B	B
C	C	C		C	C

and then move C to the top one column at a time.
The proof then shows you how to move C
back down once you've found the flipping point
voter, while keeping $W = \{C\}$.

Voilà! Dictator!