



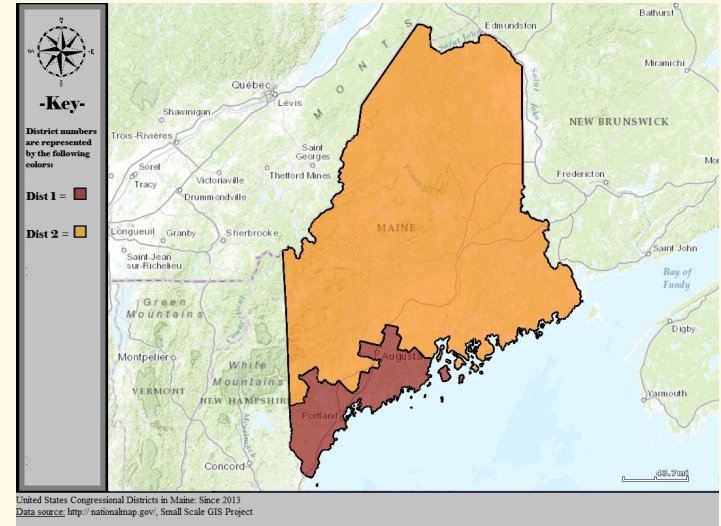
6. Tactical Voting

Bullet voting

Let's remember the 2018 congressional race in Maine's 2nd district. We said that *50.4% of voters only marked a single name on their ballot.*

This is called **bullet voting**. The idea is, rather than ranking all candidates, you only write your favorite candidate down.

In truth, you might have an honest preference between all the candidates, but your ballot doesn't reflect that.



Tactical voting

Definition

A *voting tactic* is when a voter submits a ballot which doesn't honestly reflect their preferences, but which they hope will benefit their preferred candidate(s) or hurt candidates they don't like.

It can also be called *insincere voting*.



Tactical voting example

Voting tactics can have inadvertent outcomes.

Suppose we have an election between Alice, Bob, and a Zombie. Alice and Bob are polling each around 50%, so the election is a tossup. The Zombie has virtually no support, since they are running on a campaign of eating everyone's brains.

Suppose we are in a country that uses the **Borda count** for their elections.

Even though you don't like Bob, you don't like getting your brains eaten, so your honest preferences might be:

Rank	Candidate
1	Alice
2	Bob
3	Zombie

But the Zombie doesn't have a realistic shot at winning, so why give Bob 1 point when you could give him 0 points?

Q:

If you were an Alice voter, what might your preferences be?

So you might vote like:

Rank	Candidate
1	Alice
2	Zombie
3	Bob

This is a voting tactic called **burying**.

Burying

Definition

Burying is a voting tactic in ranked choice voting systems where a voter moves a popular candidate they dislike further down their rankings, below less popular candidates they dislike even more.

Suppose all the Alice voters bury Bob, and all the Bob voters bury Alice. Then the votes come in, and they look like this:

Number of votes

Rank	100	3	100
1	A	Z	B
2	Z	A	Z
3	B	B	A

The resulting societal preference order is:

Rank	Team	# Points
1	Zombie	206 points
2	Alice	203 points
3	Bob	200 points



Burying

Rank	Team	# Points
1	Zombie	206 points
2	Alice	203 points
3	Bob	200 points

Under the Borda count, a lot of voters used *burying* as a voting tactic.

This affected the outcome of the election.

So we would say that *the Borda count is susceptible to burying.*



Tactical voting: example

Let's do another example with the same candidates.

Suppose for whatever reason you slightly prefer the Zombie to Alice, but you hate Bob.

Your honest preferences might be:

Rank	Candidate
1	Zombie
2	Alice
3	Bob

You realize that the Zombie has no real shot at winning the election, but Alice could beat Bob. Since you definitely don't want Bob to win, you submit the following ballot:

Rank	Candidate
1	Alice
2	Zombie
3	Bob

That is, you bump Alice up your rankings because she is a legitimate challenger to Bob.

This is called *pushover voting*.



Tactical voting in plurality

Discuss:

What types of insincere/tactical voting do we see in plurality elections?

A: There is a lot of “lesser evil voting,” also called *compromising*.

In the US, there are a lot of people who would vote for Green or Libertarian candidates if they were legitimate options. Because voters feel they are “throwing away their vote” if they vote for them, they instead vote Democrat or Republican.



Tactical voting in approval

Discuss:

What types of insincere/tactical voting could you imagine happening under approval voting?

A:

Approval voting is definitely susceptible to bullet voting and to compromising.

It is resistant to burying.



Is tactical voting bad

Discuss:

Is tactical voting a bad thing? If you were an election official, how would you combat tactical voting?



When is there no tactical voting

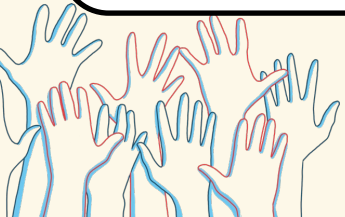
Big Q:

Can you think of a voting system where there is *no incentive* for any voters to vote tactically/insincerely?

A: In majority rules with 2 candidates there is no incentive to vote for anyone other than your preferred candidate.

A: In a dictatorship with 2+ candidates there is no incentive to vote tactically, since it won't do anything.

A: In a non-neutral voting system with 2+ candidates (e.g. Bob always wins) there is no incentive to vote tactically.



When is there no tactical voting

Q:

In an election with 3+ candidates is there any *neutral* voting system (other than a dictatorship) where there is no incentive to vote tactically?

A:

No!

Gibbard-Satterwaithe Theorem

Any neutral election with 3+ candidates which is not a dictatorship is susceptible to tactical voting.

That is, there is always a block of voters who can increase the chance that the election goes the way they want it to by voting insincerely.

Gibbard (1973), Satterwaithe (1975)



Gibbard–Satterwaithe Theorem

Gibbard–Satterwaithe Theorem

Any neutral election with 3+ candidates which is not a dictatorship is susceptible to tactical voting.

That is, there is always a block of voters who can increase the chance that the election goes the way they want it to by voting insincerely.

Gibbard (1973), Satterwaithe (1975)

The proof of this is really similar to the proof of Arrow's theorem---

We assume that we have a voting system which is impervious to tactical voting, and then we argue that it has to be a dictatorship.



Does tactical voting happen?

Q:

The Gibbard-Satterwaithe theorem says that tactical voting always *could* happen in any voting system. Does it actually happen?

A:

This is an active area of research!

Plurality: The most common form of tactical voting is *compromising*. It's very hard to measure how often this occurs, and it likely changes from election to election.

Some data points place it around 10% of voters compromising.



Does tactical voting happen?

Approval: Proponents of approval voting argue it is resistant to tactical voting in practice. It is hard to tell, since approval voting is rare and there isn't much data.

Score: Score voting is susceptible to *exaggeration*. That is, people may give their preferred candidate the highest possible score, and candidates they dislike the lowest possible score.

It's very likely that this depends on the specifics of the scale used.

Instant runoff: Instant runoff voting is fairly resistant to tactical voting.

It is less resistant, however, to tactics carried out by candidates and political parties rather than by voters!



Strategic nomination

If a voting system V fails IIA, what does this mean?

This means that the *societal preference order* between the existing candidates can possibly be changed by the introduction of new candidates.

If you are running a political party, you may want to introduce new candidates into the race in order to affect the societal preference order.

This is called **strategic nomination**.

Definition

Strategic nomination is when a political party enters a new candidate into a race with the goal of affecting how the societal preference order ranks the other candidates.

So when a voting system (like the Borda count) fails IIA, it **might** be susceptible to strategic nomination!



Strategic nomination

Suppose Alice and Bob are running against each other in a **Borda count** election, and polling indicates that Alice is doing a little better:

Number of votes		
Rank	55	45
1	Alice	Bob
2	Bob	Alice

Now suppose Bob's party runs a new candidate, named Bill, who is ideologically similar, but almost everyone agrees is worse than Bob.

Rank	55	40	5
1	Alice	Bob	Bill
2	Bob	Bill	Bob
3	Bill	Alice	Alice

So even though Alice didn't lose any supporters or gain any new ones, by introducing an ideologically similar candidate into the race, Bob's party was able to win the election.

This is the main form of strategic nomination, and it is called **cloning**.

Rank	Team	# Points
1	Bob	140 points
2	Alice	100 points
3	Bill	50 points



Cloning

Definition

Cloning is a type of strategic nomination when a party runs an ideologically similar candidate (a clone) in order to try to win the election.

Definition

We say a voting system satisfies the ***independence of clones criterion*** if a party cannot strategically nominate a clone (an ideologically similar candidate) and impact the societal preference order between the other candidates.

In 1987, Nicolaus Tideman proposed a new criterion for voting systems – it was basically that introducing clones into a race shouldn't affect the outcome.

We just saw that the Borda count ***fails*** independence of clones.



Definition

We say a voting system satisfies the *independence of clones criterion* if a party cannot strategically nominate a clone (an ideologically similar candidate) and impact the societal preference order between the other candidates.

Q:

Does plurality satisfy independence of clones?

A:

No – it fails independence of clones for kind of the opposite reason of the Borda count.

If a party was winning, but they chose to run two candidates, they might split the vote and lose.

This is a bad idea of course, but it shows that the presence of clones can still impact the societal preference order.

Q:

Does approval voting satisfy independence of clones?

A:

If the clones are “perfect” (i.e. indistinguishable from one another), then yes.

In practice, though, no. A winning candidate could only be supported by bullet voters, and the introduction of a clone could split that vote and cause them to lose.



Recap

We talked about ways in which voters can attempt to influence an election (tactical voting) and parties can attempt to influence an election (strategic nomination).

Voting theory asks mathematically if voting systems are susceptible or resilient to these types of strategies.

A lot of applied research attempts to establish empirically whether these strategies have any effect.




Key Vocab


- Bullet voting
- Burying
- Pushover voting / compromising
- Tactical voting
- Gibbard-Satterwaithe theorem
- Strategic nomination
- Cloning
- Independence of clones criterion




Exercises



Exercise 1: You are a political party running in an instant runoff election. What strategic nomination strategies can you come up with? How effective do you expect them to be?



Exercise 2: Does score voting satisfy independence of clones?



Exercise 3: Does instant runoff voting satisfy independence of clones?

