



OCTOBER 28, 2024

ADVENTURES IN DEMOCRATIC
DECISION MAKING

PLURALITY AND MANIPULATION

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What is the most natural, as well as popular, way to count votes?

PLURALITY, OR FIRST-PAST-THE-POST

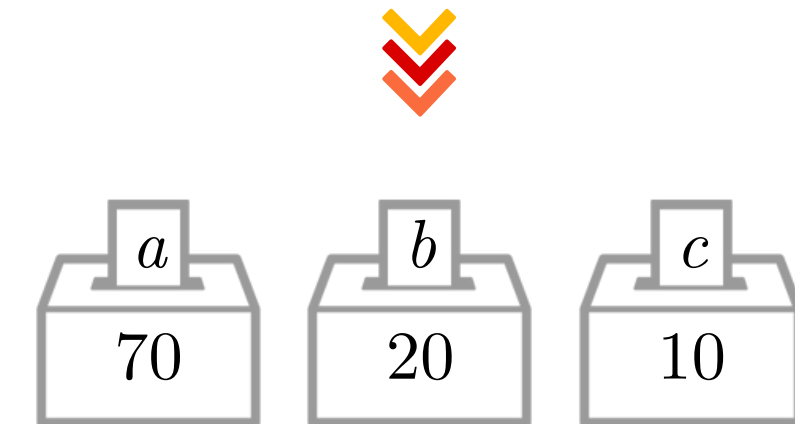
PREFERENCES

Let's assume voters can rank the candidates in order of their preference.

70	20	10
<i>a</i>	<i>b</i>	<i>c</i>
<i>b</i>	<i>a</i>	<i>a</i>
<i>c</i>	<i>c</i>	<i>b</i>

BALLOTS

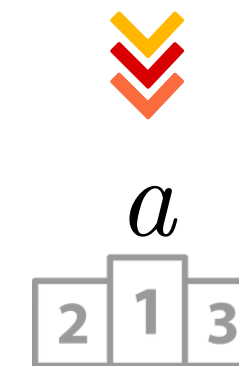
Every voter reports their top choice, i.e., favorite candidate.



WHO WINS?

Candidate with most votes.

There might be ties, but let's assume they're handled somehow.



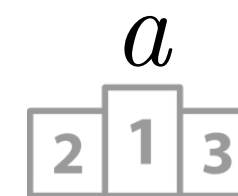
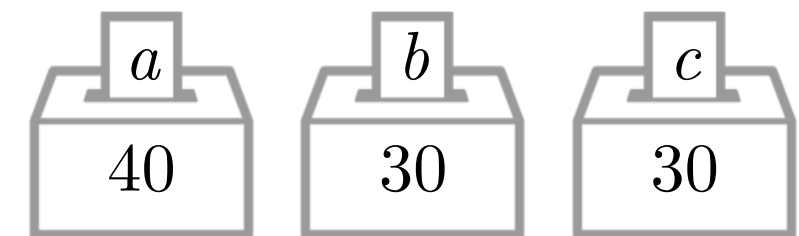
Problems with this way of picking
a winner?

PLURALITY WINNER CAN BE NON-REPRESENTATIVE OF VOTERS' PREFERENCES

WORST CASE SCENARIO

A candidate wins by razor-thin margin, while hated by the rest of the electorate.

😊	😡	😡
40	30	30
<i>a</i>	<i>b</i>	<i>c</i>
<i>b</i>	<i>c</i>	<i>b</i>
<i>c</i>	<i>a</i>	<i>a</i>



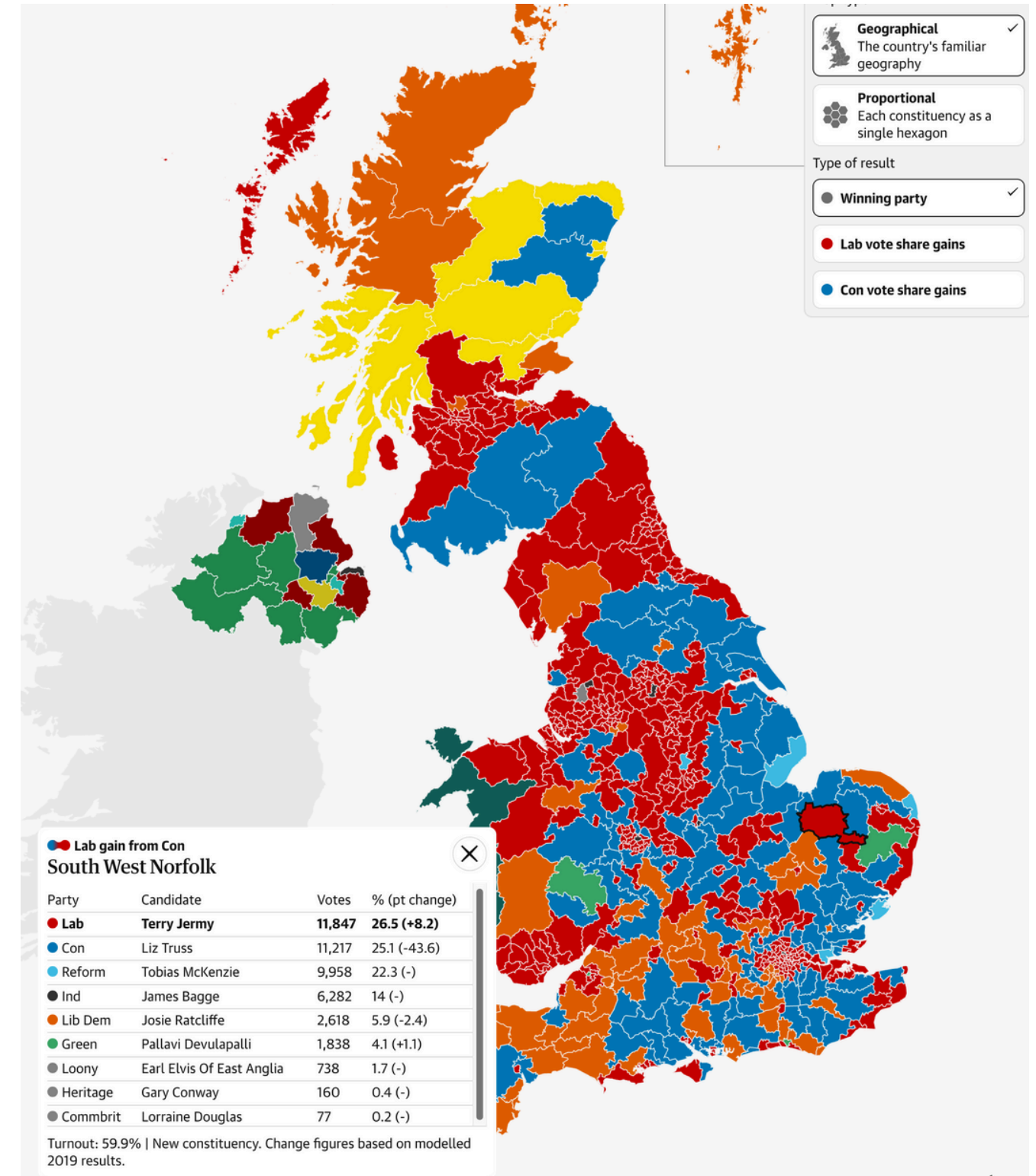
2024 UK GENERAL ELECTION

LABOUR'S WIN IN SOUTH WEST NORFOLK

They win the seat with 26.5% of the vote.

OVERALL

Labour wins 66% of seats with about 33% share of votes.





PLINY THE YOUNGER

Something like this happened also happened in the trial for the murder of Afranius Dexter!




Szpiro, G. (2010). *Numbers Rule: The Vexing Mathematics of Democracy, from Plato to the Present*. Princeton University Press.

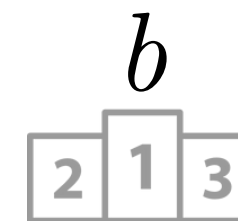
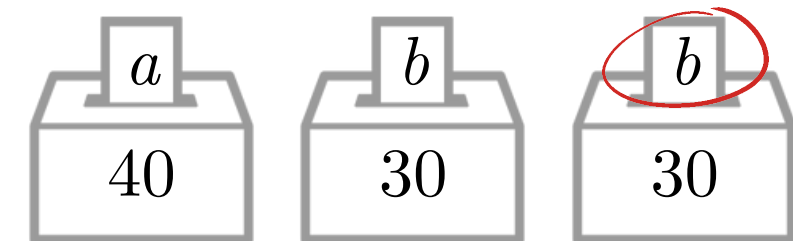
Of course, voters know this. And react accordingly.

PLURALITY CAN BE MANIPULATED

VOTERS VOTE TACTICALLY

Coalitions of voters can get a better result according to *their own preferences* by voting for someone other than their first choice.

		
40	30	30
<i>a</i>	<i>b</i>	<i>c</i>
<i>b</i>	<i>c</i>	<i>b</i>
<i>c</i>	<i>a</i>	<i>a</i>



This is a persistent phenomenon
in voting.

MANIPULATION OF WORLD CUP HOST VOTE

It seems that the voting rule used is a multi-round one, where the fewest votes are eliminated every round.

What is going on with the votes for Qatar between rounds 1 and 2?

Perhaps one of the voters for Qatar, anticipating a tie-break between the US and Japan in round 2, casts their vote for the US instead in order to ensure its survival to round 3.

Similarly, it seems that one supporter of Japan suspects that Japan will be kicked out at round 2 and goes for their second-best?

Either way, the changing tallies suggest tactical voting.

	ROUND 1	ROUND 2	ROUND 3	ROUND 4
QATAR	11	10	11	14
USA	3	5	6	8
SOUTH KOREA	4	5	5	
JAPAN	3	2		
AUSTRALIA	1			

[2018 and 2022 FIFA World Cup bids](#). Wikipedia

MAURICE DUVERGER



In the long run, *c* loses support as more and more voters migrate towards *b*.

In general, smaller parties get squeezed out of power.

Because no one bothers to vote for them.

Because they don't win anyway.

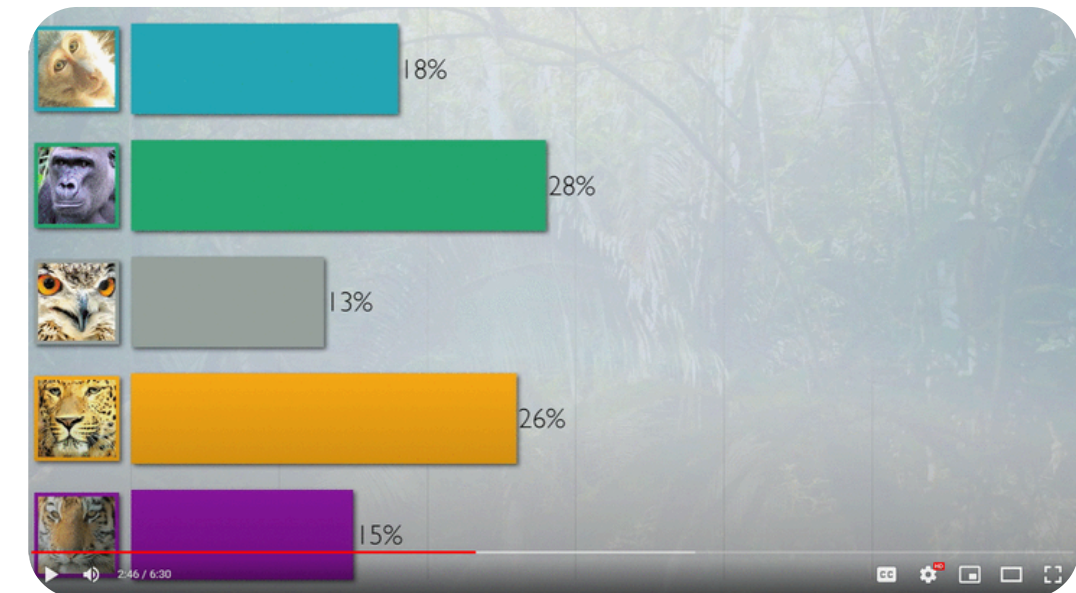
A single-ballot plurality-rule election structured within single-member districts tends to favor a two party system.



CGP GREY

This is known nowadays as *Duverger's Law*.

40	40	20
<i>a</i>	<i>b</i>	<i>c</i>
<i>c</i>	<i>c</i>	<i>b</i>
<i>b</i>	<i>a</i>	<i>a</i>



Duverger, M. (1964). Political parties: their organization and activity in the modern state. London: Methuen.

CGP Grey (2011). Minority Rule: First Past the Post Voting. YouTube.