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Who's Afraid of the Big Bad Cycle?

Abraham Lincoln's firstborn son, Robert Todd Lincoln, is remembered best for a morbid coincidence. Robert was present at the assassinations of two American presidents (Garfield and McKinley) and had almost seen his own father shot, too. (The younger Lincoln decided not to go to Ford's Theatre that night.) After the McKinley assassination, Robert Lincoln was all too aware of his reputation as the executive branch's angel of death. He thereafter refused all invitations to meet a president.

There was another strange thing about Lincoln. In his old age-he lived until 1926-he did not like to be around black people. His father's role in history was only half the irony. Robert Todd Lincoln had made a successful career for himself as president of the Pullman Company. The firm supplied "Pullman porters" for railroad cars and was the largest employer of blacks in the post-Civil War era.

Lincoln spent his last years in Vermont. When he felt like an evening out, he would have his chauffeur drive him to the Equinox

House for dinner. No sooner had the car arrived than a flurry of black hands would rush out to open the door of Lincoln's Rolls-Royce. Lincoln would furiously beat them away with his cane. The management of the Equinox House was forced to devise a way to prevent further unpleasantness. The "whitest" boyan the staff was a youth from Harlem with curly, almost golden hair. The management paid him an extra ten dollars a week to open the door of Mr. Lincoln's car. Lincoln knew nothing of the arrangement. He was so pleased that he tipped the boy a silver dollar each time.

The "white" boy was the future New York congressman Adam Clayton Powell, Jr., and this was only the beginning of a long career gaming race relations. Powell came of age during an unprecedented wave of interest in proportional representation in America. This enthusiasm had been building since the 1870s and included such influential figures as President James Garfield. Some believe that had Garfield lived longer, he might have made proportional representation the law of the land. (Four months into his term, he invited a couple of cabinet members to accompany him on a train trip. Secretary of War Robert Todd Lincoln arrived just in time to hear the gunshots that mortally wounded the president.)

A score of American cities adopted the single transferable vote in the early twentieth century, including Cleveland (in 1921), Cincinnati (1925), and New York (1936). This being politics, there was the usual hidden agenda. In New York it was the Republicans who wanted the new system. They were a minority and thought they could use proportional representation to secure seats on the City Council in proportion to their strength, rather than seeing practically all the seats go to the Democrats' Tammany Hall machine.

The trouble with this plan was that the Republicans were not the only minority in New York. It had been effectively impossible for a black man to be elected to public office with the plurality vote. Adam Clayton Powell, Jr., saw the city's new voting system as a way of launching a political career. He was already a well-known figure, having inherited his

father's pulpit at Harlem's Abyssinian Baptist Church. Powell knew Malcolm X and, like him, segued easily from religion to community activism. In 1941 Powell convinced a coalition of Harlem churchgoers, labor interests, and socialists to vote for him. He thereby became the first African American elected to the New York City Council.

"I consider PR [proportional representation] the most un-American, most diabolical system ever yet devised to hoodwink the voters," wrote Rita Casey, a Democrat on the City Council. Democrats had reason to worry. Before proportional representation, the Democratic Party commanded 91 percent of the seats. Afterward, that figure plummeted to 68 percent.

The Republicans weren't cheering. Their 9 percent of the council seats rose only modestly, to 13 percent. The real beneficiaries were ethnic minorities, the American Labor Party (which got more seats than the Republicans), and the Communist Party (which got 5 percent of the seats).

"P.R. Is a Godsend to Commies," thundered *The New York World Telegram,* asserting that the new system was "complicated, trying the voters' patience, tiresomely long and costly to count, apt to play straight into the hands of alert and sinister Communist-led minorities." Apparently, some voters were left with the impression that their votes got mysteriously "transferred" to the Communist Party. The *Brooklyn Daily Eagle* warned that "there is among the PR groups a refusal to recognize the fact that in Germany it produced Hitler, and in Italy Mussolini."

To this day, Adolf Hitler is the poster boy for opponents of proportional representation. The German Reichstag used proportional representation, and it led to a profusion of fringe parties winning seats. One of them was the National Socialists. Had it not been for proportional representation, the argument goes, Hitler would have been a "third-party" candidate who never won anything. Hindenberg would not have appointed him chancellor, and Hitler would not have been able to have himself voted dictator.

Maurice Duverger, a twentieth-century French sociologist, noted that in countries with the plurality vote, a winner-takes-all system, there tend to be two major parties. In countries with proportional representation, there are many parties, If nothing else, this makes politics more interesting, In Italy, porn star 1I0na Staller was elected to parliament as a Radical Party candidate. Staller flashed her left breast at rallies, continued making hardcore films while in office, and offered to sleep with Saddam Hussein if it would achieve peace in the Middle East. She didn't have to won)' about offending the easily offended, just about getting enough supporters to rank her above the more conventional politicians.

You might question whether it's good to have fringe viewpoints like Hitler's or even Staller's in a legislature. But proportional representation doesn't invent nutty factions. It just turns a mirror to the electorate. The real problem in Germany wasn't that proportional representation gave a voice to an angry minority in the Reichstag; it was that the single-seat post of chancellor was filled by *appointment*. It's hard to blame proportional representation for that.

New York's Democratic and Republican parties *did* blame proportional representation for Hitler, and for communism, too. "The whole effort ran into the buzz saw of the post-World War II era," said Rob Richie, founder of the Center for Voting and Democracy. 'There was the Red scare and less tolerance toward dissent." Tammany Hall and the GOP instructed New York voters to repeal the "'Stalin Frankenstein' Project" of proportional representation. A ballot proposition did that in 1947. Other cities followed suit. "By 1960 there was only Cambridge and Hopkins, Minnesota, left," said Richie, "and Hopkins got rid of it, too."

Adam Clayton Powell, Jr., made the most of his window of opportunity. He used his time on the City Council as a springboard to a 1944 bid for Harlem's recently created congressional seat. Powell won both

the Democratic and Republican primaries, ran unopposed, and won. His congressional career ran twelve terms. An expert logroller, he was by far the most influential African American in Congress. Perceived (accurately) as that lowest of life forms, the slick politician, Powell did not fit the heroic mold of other civil rights movement figures. Yet it was he more than anyone who leveraged Martin Luther King's words into political action. Unlike Malcolm and Martin, Powell survived the sixties, barely. He spent much of his later years cloistered on the Bahamian island of Bimini, missing important committee meetings, neglecting to file income tax forms, and dodging mistresses, ex-wives, and a warrant for his arrest in New York. The Democrats shunned Powell when he came up for reelection in 1970. He could not even make the ballot as an independent.

Powell's political gamesmanship unintentionally put him at the center of a debate over the meaning of Arrow's impossibility theorem. How pessimistic should we be over Arrow's result?

Okay, voting isn't "perfect:' But it was still possible to hope that it worked well enough, most of the time. The exceptions, such as the paradox of voting, could be hothouse rarities, unlikely to be encountered in real politics.

Scholars were discovering that the author of *Alice's AdtJentures in Wonderland* had weighed in on this very issue. Duncan Black republished Dodgson's voting pamphlets in 1958. In a real sense, Dodgson entered the modem conversation *after* Arrow. In his third voting pamphlet, after describing the paradox of voting, Dodgson defensively wrote,

> I am quite prepared to be told, with regard to the cases I have here proposed ... *"Dh,* that is an extreme case: it could never really happen!" Now J have observed that the answer is always given instantly, with perfect confidence, and without examination of the details of the proposed case. It must therefore rest on some general principle: the mental process being probably something like this-"J have formed a

theory, This case contradicts my theory. Therefore this is an extreme case, and would never occur in practice."

He then argues that cycles can happen when people vote strategically. In the following, Dodgson's word *division* is Victorian English for a vote, referring to the practice of having assembled voters literally divide themselves into groups.

> Suppose A to be the candidate whom I wish to elect, and that a division is taken between Band C; am I bound in honour to the vote for the one whom I should really prefer, if A were not in the field, or may I vote in whatever way I think most favourable to A's chances? Some say "the former," some "the latter." I proceed to show that, whenever [no candidate has a clear majority of first-place votes] and there are among the electors a certain number who hold the latter course to be allowable, the result *must* be a case of cyclical majorities.

Dodgson thereby derives an all-purpose Machiavellian.rule for succeeding in politics. "This principle of voting," he wrote,

> makes an election more of a game of skill than a real test of the wishes of the electors, and as my own opinion is that it is better for elections to be decided according to the wish of the majority than of those who happen to have most skill in the game, I think it desirable that all should know the rule by which this game may be won. It is simply this: "In any division taken on a pair of issues neither of which you desire, vote against the most popular."

Dodgson's basic idea is as familiar to any politician as breathing. In 1995 Bill Clinton ran a TV ad attacking the Republican stand on cutting Medicare. The spot needed an unflattering sound bite from a prominent Republican, either Senator Bob Dole or Representative Newt Gingrich. According to Clinton consultant Dick Morris, they

made a calculated decision to use Gingrich because they didn't want to hurt Dole. Dole was expected to run against Clinton in 1996, and they believed that he would be easier to beat than another, possibly stronger Republican. They therefore didn't want to do anything that might hurt Dole's chances of being nominated.

Same principle, different Clinton: in 2006 evangelist Jerry Falwell told supporters that he hoped Hillary Clinton would be the Democratic presidential candidate in 2008 because she would motivate conservatives to oppose her more than Lucifer himself would.

And as I've already remarked, a 2006 California congressional race had Democrats paying for ads to help an "unelectable" Republican (Randy Graf) beat a more popular Republican rival. This is Dodgson's rule in action. You might say it's a restatement of the Middle Eastern proverb "The enemy of my enemy is my friend."

One person who took Dodgson's point to heart was William H. Riker. Riker (1920-1993) was an important nexus in the reception of Arrow's theorem. He was a political scientist of conservative leanings who studied at Harvard and taught at Lawrence College and the University of Rochester. In the 1950s, Riker discovered game theory and concluded that it was the key to understanding the mysteries of politics. He quickly assimilated the work of von Neumann, Morgenstern, and Arrow, and began teaching them in his political science classes at Lawrence. Riker's approach became known as "positive political science." At a time when enthusiasm for game theory was cooling in defense planning and economics, Riker helped make it the hot new trend in political science.

Riker believed he had found an example of Dodgson's trick-and a real-life voting cycle-in the so-called Powell amendment. In 1956 the postwar baby boom created unprecedented demand for new schools. The House of Representatives considered a Democrat-sponsored bill to provide federal funds for school construction. There was strong bipartisan support. No one could deny that the schools were needed and

that they would have to be built with somebody's tax money. Both parties were eager to score points with parent-voters.

Adam Clayton Powell, Jr., introduced an amendment to the bill that stipulated that the federal money be given *only* to states with desegregated schools. Two years previously, the Supreme Court's decision in *Brown* v. *Board of Education* had ruled segregated schools unconstitutionaL

Powell's state, New York, was in compliance with the Supreme Court decision. The South, however, was still dragging its feet. Southern congresspeople had loved the original school-aid bill. It would rake yet more federal money south of the Mason-Dixon Line. Under Powell's amendment, the segregated South would get *nothing*. Either that, or the South would have to scramble to integrate its schools. The southern Democrats who had supported the original bill opposed Powell's amendment.

Under parliamentary law, a vote must first be taken between the amendment and the original bill. The winner of this two-way contest is then voted against the status quo. The winner in that contest prevails. You can think of the amendment, the bill, and the status quo as three candidates. The amendment will be passed only if it is a Condorcet winner (assuming everyone votes honestly).

In the first role call vote, the Powell amendment prevailed 229 to 197 over the original bilL The Powell-amended bill was then put up for *vote* against the status quo. It lost 199 to 227. Consequently, Congress rejected federal funding for schools. That was indeed a paradox, for most congresspeople had supported the original bill.

In 1958 Riker identified the Powell amendment voting as a Condorcet cycle contrived for political reasons. He was not saying that Powell, or anyone else in Congress, had even heard of a Condorcet cycle. The only math they needed was counting *votes*. Everyone knew that Powell's amendment would capsize the school-aid bill's chances of passage. Consequently, diehard Republicans who were against any

federal spending supported Powell's amendment on the first *vote*. On the second vote, these same Republicans voted for the status quo.

In a letter to Congress, former president Harry Truman wrote that the Powell amendment

> has been seized upon by House Republican leadership, which has always been opposed to Federal aid to education, as a means of defeating Federal aid and gaining political advantage at the same time. I think it would be most unfortunate if the Congress should fall into the trap which the Republican leadership has thus set ... The result would be that no Federal legislation would be passed at all, and the loser would be our children of *every* race and creed in every State of the Union.

There were 97 flip-flappers who voted for the Powell amendment before they voted against it. All 97 were Republican. Riker reported that at least 12 of the 97 voted *against* civil rights amendments in other bills that came to a vote shortly afterward. This suggests that they were no fans of the civil rights movement and that they voted for the Powell amendment for strategic reasons. It was Dodgson's rule, and it worked.

William Riker was the Joe McCarthy of Condorcet cycles. He made lists of them. He believed them to be lurking around every corner, insidiously attacking American values. To Riker, identifying a congressional vote as a cycle was a discovery imbued with hidden significance. It was like a conspiracy theory where everything is connected. Each new piece of the puzzle had true believers nodding their heads.

At the heart of it all was the impossibility theorem. "The main thrust of Arrow's theorem and all the associated literature is that there is an unresolvable tension between logicality and fairness," Riker wrote, "No adequate resolution of the tension has been discovered, and it appears unlikely that any will be." Riker concluded, therefore, that the

impossibility theorem "consigns democratic outcomes-and hence the democratic method-to the world of arbitrary nonsense."

Riker presented democracy as a shell game. The "marks" (voters) put up with voting only because they *believe* it's a fair game. The smart operators who run the show know how easily it's rigged. Every "paradox" of voting is an opportunity for insiders to force the outcome they desire.

This notion has been the great theme of the more noir phase of social choice theory, Elections are determined by the details of voting (to which few pay attention) as much as by the public will. Whoever sets the agenda can produce the "democratic" outcome desired. "I don't care who does the electing," cracked "Boss" Tweed, "so long as I get to do the nominating."

The apotheosis of this idea must be the notorious challenge issued by contemporary theorist Donald Saari: "For a price, I will come to your organization just prior to your next important election. You tell me who you want to win. I will talk with the voters to determine their preferences over the candidates. Then, I will design a 'democratic voting method' which involves all candidates. In the election, the specified candidate will win."

The offer was a joke, Saari assured me, Not everyone was laughing. "I don't want to identify who, but I've had senior staff people from several congressmen and at least two, maybe three senators, and from the president of one country contact me and ask for advice. And I've had several politicians running for office call,"

Riker's grand obsession was crystallized in an influential, sometimes delirious 1982 book, *Liberalism Against Populism.* His thesis was that much of American history has been shaped by shrewd operatives manipulating the ambiguities of voting. According to Riker, Abraham Lincoln became president because of a voting cycle. The Depew Amendment, the Wilmot Proviso, and many another half-familiar

New York Democratic Party boss Williatll Tweed, as seen by Thomas Nast. Such cartoons caused Tweed to demand, "Stop them damned pictures. I don't care so much what the papers say about me. My constituents can't read. nUl. damn il . they can see pictures !·

phrase from history class are, under Riker's discerning reappraisal. cases of manipulated voting. A leitmotif is that slavery and its ncvcr-ending legacy arc often the source of clectoral paradox.

Riker's publicatiuns helped frame the debate on Arrow's theorem. Arrow's seminal paper is a work of prim mathematical logic. Terms are defined, axioms laid out, *Liberalism Agai"st Populism* is fast-moving revisionist history, It was read by political scientists and political consultants. In it, Riker uses the intellectual mystique of Arrow's theorem to advance an essentially philosophical point. Personal freedom and majority rule are *bOlll* part of the American tradition. Americans have always existed in denial of the potential conflict between the two. We would like to think that a democratic majority would never vote to

stone all left-handed accountants to death-but what if they did? Riker comes down on the side of individual rights and "liberalism"---or libertarianism, we might say. Riker was willing to take Arrow's mathematical conclusion at face value. Democracy is not such a good thing after aiL

Riker's classroom examples, collected in The *Art of Political Manipulation* (\984), have influenced generations of political strategists. I'll give one tale that's not in Riker's books. One day a *US. News and World Report* reporter contacted Riker saying the magazine was planning to run a feature on the top American grad schools for political science and was asking department chairs such as Riker to rank the top schools. Riker had assembled a first-rate political science program at Rochester and took due pride in this achievement. Eliciting the fact that the magazine's published ranking would be determined by a Borda count, he naturally buried Rochester's most serious rivals at the very bottom of his list.

In some of the details at least, Riker was wrong. One of his juiciest claims was that the popular *vote* in the 1860 presidential election was a Condorcet cycle. This was the type of election that might be expected to yield a cycle. There were four strong candidates and two political dimensions, namely slavery versus abolition and Democrat versus Republican/Whig. Riker believed that Stephen Douglas would have beaten Abraham Lincoln in a head-to-head match ... that Lincoln would have beaten John Bell . . . and that Bell would have beaten Douglas. (The Southern Democrat, John Breckenridge, was not part of Riker's cycle.)

In a 1999 study in the aptly named *Journal of Theoretical Politics,* Alexander Tabarrok and Lee Spector convincingly refuted Riker's claim. Remember first of all that the official 1860 vote counts do not contain enough information to say whether a cycle existed. You have to guess the second- and third-place choices of long-dead voters. Riker (who

had himself died in 1993) made his own guesses. He was not an expert on the Civil War period. Tabarrok and Spector sun'eyed prominent historians who were. They got thirteen historians to estimate the raokiogs, and they averaged these values. The historians' figures said there was no cycle. Douglas would have beaten Lincoln (as Riker claimed and everyone believed), but Lincoln and Bell would have been Virtually tied, and Bell would have lost to Douglas (refuting Riker). This means that Douglas would have been a Condorcet winner.

Further theoretical studies implied that cycles must be rare. Candidates have incentive to move to the middle, the "empty center" of the diagram on p. 158. By presenting herself as a compromise choice, a candidate could become a Condorcet winner and destroy the cycle. A cycle therefore requires not only an unusual distribution of voter opinion but also candidates unwilling to help themselves by assuming a more popular stance.

The few believable cases of strong cycles involve legislative votes. Adam Clayton Powell, Jr., was apparently more interested in rattling the cage of the segregationists (and making a point for the voters back home?) than in seeing his amendment pass. He devised an amendment creating shifting coalitions of three very partisan factions (northern Democrats, southern Democrats, and Republicans), No one could immediately rush in with a more viable amendment. Congress had to vote on the present amendment first. Hence the implicit cycle (that Riker rather creatively reconstructed).

The changed tone of the room was summed up in the title of a 1992 paper, "Who's Afraid of the Big Bad Cycle?" Authors Scott L. Feld and Bernard Grofman examined thirty-six elections in British and Irish professional societies conducted using ranked ballots. All thirty-six elections had a Condorcet winner. Feld and Grofman then broke down the election results into groups of three candidates in the same election. Of the 14,270 triplets of candidates, only 71 formed cycles. This means that, for a given set of three candidates, the chance of a cycle is about 1 in 200.

"We have not exorcised the paradox of cyclical majorities," Feld and Grofman wrote; "we have, we hope, put its importance for ordinary political choice into perspective."

Today just about everyone would agree. The cycle is a mathematical rarity hardly worth losing sleep over. In a larger sense, though, Riker was probably right. Voters and candidates can be expected to exploit the ambiguities that exist with any method of voting. This must be considered in evaluating voting methods, and in understanding politics.

Arrow's proof did not address manipulated ("strategic") voting. Subsequent theorists have devoted much attention to the topic. In Riker's time, the major theoretical developments reinforced the dark thoughts and quashed any optimism. Is it possible to devise a voting system in which no one has an incentive to misrepresent his or her true preferences? The answer (given certain reasonable-sounding assumptions) is regrettably no. This, too, has been demonstrated with unarguable mathematical certainty. The proof, independently devised by the University of Michigan's Allan Gibbard (1973) and Northwestern University's Mark Satterthwaite (1975), is now called the Gibbard-Satterthwaite theorem. It shows that, like the Republicans in the Powell amendment vote, voters may get what they want by pretending to want something else. No voting system can prevent such manipulation.

Such melancholy findings inspired Amartya Sen to pose this amusing allegory of social choice:

> "Can you direct me to the railway station?" asks the stranger. "Certainly," says the local, pointing in the opposite direction, towards the post office, "and would you post this letter for me on your way?" "Certainly," says the stranger, resolving to open it to see if it contains anything worth stealing,

Voters, too, don't always tell the truth. The momentous decisions of free societies arise from this mutual con game we call voting.