

History of Redistricting and the Gerrymander

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Representative democracy was a relatively new phenomenon when delegates from the former colonies wrote the Constitution. A number of new problems arose that had never been imagined before. So many aspects of voting theory, the theory of apportionment and fair division in mathematics were inspired by the real-world consequences of America's representative democracy. This paper will examine the history of just one aspect of these processes: redistricting and the problem of gerrymandering. Since the first districting process to elect the first Representatives to the brand-new Congress, how the process will be accomplished has been a political one. Early on, political partisans began to use the process to gain political advantage.¹ The character of that political process changed inalterably after the Civil War. When blacks first gained the right to vote during Reconstruction, they naturally aligned themselves with the political party that had given them their freedom and tried to fight for their rights: the Republican Party. When Democrats tried to "redeem" the South for white Confederates, since race and party were so closely connected, they began to use race and party interchangeably in the redistricting process. The segregation of the races made this easier.² With the Civil Rights Era, the parties may have switched roles, but the arguments defending racial gerrymanders on the grounds of party remained. It was in this period that the Supreme Court began to weigh in to produce the still flawed process we have in the present. Redistricting has become a major modern fight.³ This paper will focus on the nineteenth and twentieth centuries and will examine how the process has changed over time, and its influence on America's political history. We will conclude with a brief summary of the current controversies and a rundown of recent events and the issues still to be decided.

To better prepare for this discussion, an introduction to redistricting, and defining terms and process will help us make better sense of what we will describe below.

The United States Constitution gives no guidance about how districts shall be drawn. Indeed, the letter of the Constitution does not even specify that such districts need to exist. It says only: “Representatives and direct taxes shall be apportioned among the several states which may be included within this union, according to their respective numbers...”⁴ with the remainder of that clause being amended several times, primarily with respect to who counts and how they will be counted. Once a census is conducted, states are assigned a proportional number of House seats according to their populations, which by law, are now capped at 435 seats. The process of apportioning seats among the states is not spelled out in the Constitution and has itself been the subject of repeated controversies. In 1941, the method of apportionment was legally set to be the Huntington-Hill Method.⁵ Once the number of seats is distributed to each state according to their populations, then the state legislatures—typically, although in some states, in recent years, they have formed redistricting commissions to draw the districts—and only if the state was assigned more than one representative, determine the geographic regions within the states that will be represented by each Congressional Representative. This redistricting process happens after each census, conducted once every ten years. It is this redistricting process that we will examine here.

It did not take long for political parties, once formed, to seize upon the redistricting process as a way to gain power. Indeed, the term “gerrymandering” came about because the redistricting of Massachusetts by the Democratic-Republican governor Elbridge Gerry produced a map with one district wrapping around the state from the southwest to the northeast as looking like a salamander after the census of 1810.⁶ (See Figure 1.) Thus, a new dimension of controversy was created within the states that the Founders had not ever considered. While early gerrymanders were certainly politically motivated, as we will see, they took on a whole new dimension with the close the Civil War. With freedmen being granted the right to vote and

almost universally associating themselves with the National Republican Party, political gerrymandering was applied ruthlessly as a mean of limiting the power of blacks to participate in government.⁷ The problem of gerrymandering isn't just confined to Congressional districts, but occurs any time a region such as a state, county or city is divided up into districts that will elect representatives to the governing body. Thus, when one power holds power in state, we see it not only in Congressional districts, but also state legislative and senate districts. If in a county or city is politically or racially mixed, the powerful will draw districts for commissioners to maintain their power.⁸



Figure 1. Cartoon of Massachusetts district map that coined the term “gerrymander”. Originally published by the Boston Gazette.⁹

A small number of techniques are used to create gerrymandered or malapportioned districts. The main two of these are called *cracking* and *packing*. “Cracking” is the idea that a constituency has their power diluted by dividing them up into several smaller chunks into nearby districts of the opposite party. Legislators from rural areas will employ this method to reduce the power of urban areas by “cracking” the city up across multiple mostly rural districts, and thus preventing them from achieving a majority in any district. “Packing” is the opposite technique:

pack as much of the urban area as possible into a single district where one party has an overwhelming majority, so that even if they have the majority of the state's population, their vote will be so concentrated in one area that they will still have a minority of seats.¹⁰ A third method called “tacking” can be employed for smaller communities, where they are tacked onto a larger district in which their numbers are overwhelmed. All of these methods are designed to produce electoral advantages for the party in power at the time of the census in order to maintain their power over the next decade, despite changing demographics or other factors that might threaten to sweep them out of power.

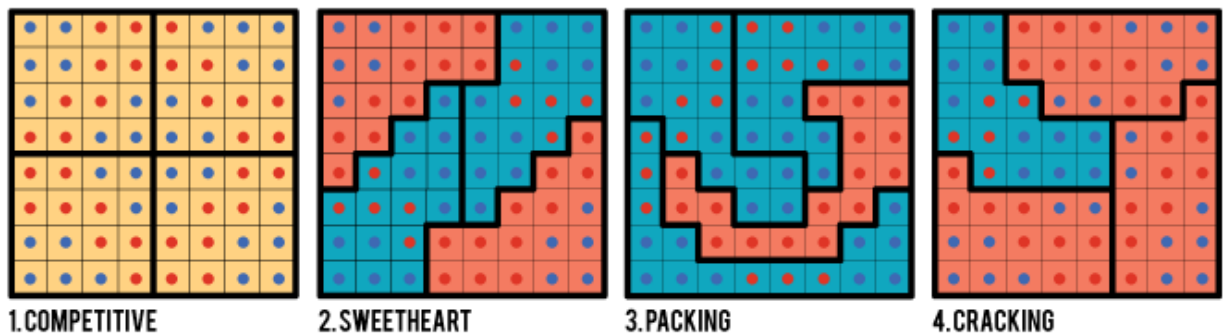


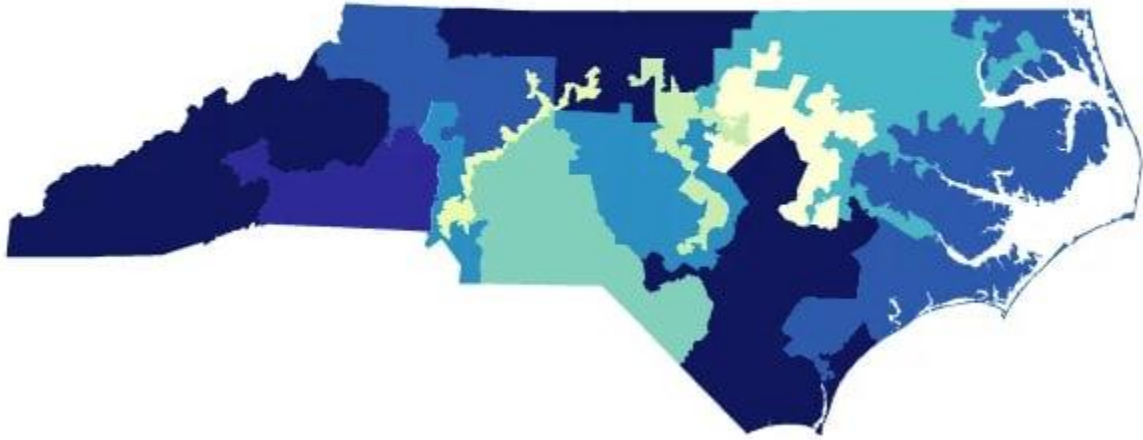
Figure 2. Illustrations of how cracking and packing can be used to manipulate outcomes in district maps.¹¹

Over the centuries since gerrymandering was identified as an undemocratic method of maintaining power, various attempts have been made to identify properties of fair districts that can be employed in when new districts must be redrawn. Some of these properties include *compactness* (the idea that geographically, districts should look more like squares or circles than candy canes; it can perhaps be thought of as a ratio of perimeter to area: the bigger the ratio, the less compact, see Figure 3.), *contiguity* (districts must be geographically connected), *equality of population* (they must have the same population size in each district),¹² following pre-existing boundaries (such as city limits, county limits, natural boundaries like rivers, etc.), competitiveness (allowing districts to potentially flip parties and not be beholden to any one

party), opportunity (permitting minorities to elect representatives), among others.¹³ However, many of these criteria that have been suggested have not met sufficiently rigorous standards to be imposed by the court. Many factors for fairness come into play, and it's not at all clear that all fairness standards can be accounted for at once. Court rulings on redistricting maps have increased since the Civil Rights era, and we will examine some of those below, but the issue continues to be a serious one in 2018. At least two states, Pennsylvania and North Carolina, have had their Congressional maps overturned by the court on the grounds that they were unconstitutional.^{14,15}

North Carolina

CURRENT CONGRESSIONAL DISTRICTS



DISTRICTS REDRAWN TO OPTIMIZE COMPACTNESS



SOURCE: U.S. Census Bureau (top), Brian Olson (bottom)
GRAPHIC: The Washington Post, Published June 3, 2014

Figure 3. Illustration of North Carolina district map compared to map drawn by computer to optimize the property of compactness.¹⁶

Redistricting is such a massive and complex problem that researchers have only occasionally attempted to address it in any comprehensive way. One source written in 1907 by Elmer Griffiths attempts to trace the practice of gerrymandering back to colonial period in America, through the nineteenth century. He describes it as “a species of fraud, deception and trickery...”, and says that “It sets aside the will of the majority.”¹⁷ Some sources have attempted

to address the topic through a survey of the various state practices, such as Hardy, Heslop and Anderson in 1981.¹⁸ Some have addressed state-level issues in greater detail by tackling one state at a time, such as Keith's more recent book on Texas redistricting,¹⁹ or Fosten's book on Tennessee,²⁰ as well as other regional sources.²¹ Legal historians have also begun to tackle several pivotal Supreme Court cases, such as Taper's look at Gomillion from the 1960s.²² These sources employ a variety of historical lenses such as the political lens, the racial lens, and the legal lens. In recent years, another perspective has arisen which might be described as a mathematical or cliometric lens: an increasing number of analyses both in book and article format that look at the mathematics of districting processes, particularly as related to compactness and other geographical and geometric processes, in an attempt to measure the degree of gerrymandering. Apportionment finally became a settled legal topic when a method of apportioning that could be demonstrated to be as fair as possible was established and implemented. Representation associated with weighted voting has also been mathematically analyzed for fairness and produced impacts in legal cases. However, a similar mathematical analysis for geographic districts remains elusive. The goal is to determine which of these methods for analyzing district maps for fairness is most effective in producing the best outcomes, what factors must be considered based on previous legal rulings, and the historical effects of malapportioned districts. Can one determine, in retrospect, which devices produce the most-fair outcomes? Lastly, we will examine recent historical events over the last three decades to examine the issues that must be addressed after the upcoming 2020 census.

The historical research on redistricting and gerrymandering has been done by a diverse group of historians, legal scholars and political scientists. Historians tend to place issues of redistricting in a historical context, and so historical sources on this topic have a tendency to

mention the subject only in passing. One example is Woodward's 1951 book *Origins of the New South*. He examines the history of the South after Reconstruction, beginning with the Redeemers through the turn of the twentieth century and the early Progressive movement, and the various techniques they used to re-impose white rule. Gerrymandering techniques were just one method employed to limit the power of blacks in the South.²³ This is the main source that examines this topic through the lens of race in this category of historical work.

Another approach historians take is to examine some other prominent event that impacts redistricting, but not redistricting itself. Margo Anderson's look at the Census in *The American Census* (1988) is such an example. Since the census triggers redistricting and the changing demographics are certainly part of what drives modern efforts to malapportion districts as well as other political effects of the census, she does touch on the subject; however, the focus of her book is primarily centered on the data collection and analysis efforts. Gerrymandering is just one area impacted by the census.²⁴ Because politics and culture often intersect, Wiebe's 1995 book *Self-Rule* examines the cultural history of American democracy. Through political gerrymandering, one can also gerrymander culturally. Wiebe also examines other efforts to impose cultural preferences on the electorate in terms of other forms of voting restrictions. All of these books provide rich context for the motivations and practice of malapportioning districts, but they do not drill down into the history of the practice exclusively.²⁵

Griffith's dissertation *The Rise and Development of the Gerrymander* (1907) is the only book-length source that addresses gerrymandering exclusively in a broad historical context. He traces the practice back to colonial times, before the term gerrymander was coined, and examines motivations for malapportionment outside of modern political party politics, including ethnic, religious and class motivations. His text, however, is only able to trace the practice through the

pre-Civil War period (the last year he examines is 1842). Instead of trying to focus on a single state or region of the country, he examines exemplars, perhaps several, from each redistricting process across many parts of the country that provide insight into the methods and motivations of those who drew the districts.²⁶ Given the time period he was writing in, it's notable that he stopped prior to 1850, whose maps would have been in play at the start of the Civil War, or any of the consequences that came after, despite writing nearly fifty years after the end of the War.

Journal articles written by historians on this topic are equally difficult to find. David Stebenne in 2012 examines the most recent fifty years of court rulings impacting the redistricting process in his article "Re-mapping American Politics: The Redistricting Revolution Fifty Years Later," including recent attempts to create redistricting commissions which are non-partisan.²⁷ Of the recent articles I was able to find, many take a computational approach to the topic, which I will examine more closely below. These works represent a strong political lens, even when they acknowledge other lenses such as race or economics.

Another approach to the political lens is a regional or state-based approach. The comprehensive such work looks at the main redistricting controversies on a state-by-state basis. *Reapportionment Politics* (1981) is edited by two political scientists and a historian to produce a national examination of each of the fifty states. Some states, such as Alaska or Wyoming, do not have battles at the Congressional level as they have only one Representative in the House, but they do have battles over district lines at the state level to elect members of the state legislature. The depth of the history varies by state, sometimes for natural reasons (relatively recent statehood), and sometimes by the choice of the author of each article. This source tends to focus on the impacts of legal rulings in the 1960s and 1970s, which can be an important context for an

analysis of the modern fight through the lens of race (since most of these rulings addressed racial issues), or through a legal lens.²⁸

Other state-by-state or regional approaches are able to look at issues at several levels, congressional, city or state-level in particular states, and usually those with a history of controversy. These sources are written by a mix of legal scholars, political scientists and historians. Several of these sources look specifically at Texas because this state has a long and complex legal, political and racial history. Like other sources that address redistricting in the West, Texas also deals with racial issues primarily associated with its Latino population, rather than just the black population, at least in the last century or so. These western states also have a sharp contrast in population density in some cases that are quite high in the cities, and practically empty (more cows than people) in the rural areas. Most of these sources address modern controversies, particularly in light of Supreme Court rulings since the 1960s, and in the case of Texas, some particularly egregious political actions such as redrawing districts twice in a census period, ushering in the modern period of even more ruthless gerrymandering efforts.^{29,30,31} These sources that address controversies over the last twenty years will be used sparingly because of their coverage of more recent events.

A third set of sources focuses specifically on the legal lens, which ties in nicely to the racial lens, since most of the court cases addressing gerrymandering focused on racial gerrymanders. While these cases don't address only congressional districts, they had a broad impact on redistricting at all levels. These sources do provide critical information for understanding the development of the redistricting process, the issues on which is based in the past century, and what issues any solution to malapportionment must address if it is to be successful, and deemed, from a legal standpoint, to be fair. Two sources from the legal sources

are particularly interesting: Taper's *Gomillion versus Lightfoot* (1963), and Yarbrough's *Race and Redistricting* (2002). Both of these sources focus on an individual case (Yarbrough looks at a set of related cases collectively referred to as the Shaw-Cromartie cases) that were litigated before the Supreme Court on using race in redistricting maps. The Gomillion case was decided in 1960 concerning districts in Alabama,³² while the first Shaw-Cromartie decision was decided in 1994 concerning redistricting in North Carolina.³³ These cases highlight permissible and impermissible uses of race as a factor in creating fair district maps.

Several other sources with this same general area of focus—how to create fair district maps so that representatives are representative of the general public—are also addressed more in the abstract. These sources include Behr's *Race, Ethnicity and the Politics of City Redistricting* (2004), Buchman's *Drawing Lines in Quicksand* (2003), and Rush and Engstrom's *Fair and Effective Representation?* (2001). All these sources address redistricting issues, but in particular, Rush and Engstrom's book looks at a variety of voting and representation issues, including factors outside the scope of our present examination, such as the Electoral College, and voting rights issues generally.³⁴

The final category of source is a relatively recent addition to the literature: mathematical analysis of district maps. These sources include publication of raw data, such as Parson, et al.'s *United States Congressional Districts and Data 1843-1883*³⁵ (1986), as well as detailed mathematical and statistical analyses of district maps in an effort to determine some objective measures of fairness. These sources include both books and articles, including Suzuki's 2015 book *Constitutional Calculus*,³⁶ Guest, et al.'s "Gerrymandering and Computational Redistricting"³⁷ (2017), and Ansolabehere and Palmer's "A Two-Hundred Year Statistical History of the Gerrymander"³⁸ (2016). These sources attempt to analyze various quantifiable

properties of districts to attempt to determine whether the map is fair. Ansolabehere and Palmer look at various measure of compactness (or non-compactness) to determine which produces a better measure of impermissible gerrymandering.³⁹ Guest produces a computational approach to drawing districts and compares them to existing districts.⁴⁰ Suzuki notes that “The Court’s decision implies that if a manageable standard for measuring the extent of partisan gerrymandering could be found, it might be willing to revisit the question.”⁴¹ This is an important consideration, since the courts have so far been mostly unwilling to intervene in purely political gerrymanders, and as long they were not based on protected class status, such as race. However, given that party can be used as a close proxy for race (most blacks after the Civil War were Republicans, until the Civil Rights Era, when most became Democrats), the partisan considerations also impact protected classes. It’s statements like these from the Supreme Court that have prompted the rise of computational analysis of redistricting. While the mathematics can be simple or complex, in the era of high-speed computing and big data that we have today, it may be possible to write a program to find the (or “an”) optimal solution to redistricting questions that will meet constitutional muster and produce results that better mirror the will of people and not that of the party in power.

Deficiencies in the source material include the fact that no single source covers gerrymandering and its effects from early America through the modern period. While it is decried as problematic in nearly every source, the impact of those gerrymanders tends to focus on political parties or race. More recent sources focus in great detail on modern legal cases with regards to gerrymandering, and when they address the historical context at all, tend to focus almost exclusively on the Elbridge Gerry map from 1812 (see Figure 1), from which “gerrymandering” derives its name, and then more modern cases. While a number of features

have been proposed to make district maps more fair, there does not seem to be a comprehensive analysis of which properties produce the most representative maps over time. While no paper of this length can hope to address all these issues, identifying which factors can be used to represent fairness and why they matter in a district map, and how they can be measured could contribute to the general project, in particular, if that analysis includes factors from all historical periods, including recent case law. Gerrymandering before the Civil War did not have to contend with black voters, their population count (as three-fifths of a person) was used to apportion Congressional seats and could have been used in a similar way internal to the states to set district lines—effectively giving plantation owners more power than smaller white farmers. Therefore, it is possible to look at racial factors through the whole of American history, as well as to examine other geographically isolated populations (such as religious communities like the Amish, or other ethnic groups like the Irish or Italians) that could be exploited in gerrymandered districts.

There is a saying that *power corrupts*, and the history of drawing district lines is an extended example of that maxim, for we see repeatedly throughout the historical record that those in power will seek advantage in subtle or overt ways as they are able. For all those who say they value democracy and the Enlightenment value of the marketplace of ideas, it is clear that not everyone was fully onboard with this program at all times.

Griffith traces representative democracy back to colonial times. He notes that in Virginia, which he uses as his colonial exemplar, the House of Burgess was composed of representatives based largely on counties or individual towns.⁴² As the population in the state grew, county lines would have to be redrawn. Initially, there was little effort to ensure that these entities had roughly equal populations, and as county lines were redrawn, they could be redrawn

for political gain. Political parties as we know them did not exist, but there were political tensions nonetheless between the more democratic populous, governors and classes. Governors often sought to limit the number of districts to maintain his power, while local elections often turned on the number and location of district lines.⁴³ A similar dynamic played out in other states including New York, Pennsylvania and Delaware.⁴⁴

After the Revolution, it became less common for the state to be divided up solely on the grounds of pre-existing political boundaries like towns and cities; though, this was by no means vanished entirely as it would be some time before it was mandated by the courts that districts should represent equal populations. The formation of political parties in this period not only represented the north-south divide, but also the urban-rural divide. The cities tended to be more commercial, densely populated and Federalist, while the more sparsely populated western and southern farmlands tended to be more (Democratic-)Republican. Indeed, even at the time of the initial passage of the Constitution, Federalist and Anti-Federalist factions attempted, so it is claimed, to set districts in such a way to get the outcome they desired. In Virginia, the conflict takes the form of the conflict between Patrick Henry (an Anti-Federalist who did not want the Constitution ratified) and James Madison (a Federalist, who helped write the Federalist Papers) who did want it ratified.⁴⁵ Madison wrote to Jefferson complaining of the districting bill, concluding that his home county had been lumped in with other counties that opposed his view, so much so, that he felt campaigning for office in such a district would be futile.⁴⁶ Thus, we see that even before the term gerrymandering was coined, those in power exercised their influence not to draw up fair districts, but rather to draw up districts chosen to achieve a particular aim: for *their* side to win, and the other side to remain out of power. Obviously, these efforts were not

always wholly successful, as the vote against the Constitution that Patrick Henry had been hoping to achieve did not materialize.

We can see, though, in these earlier efforts that the battle lines were not directly, or even necessarily indirectly, over the question of race. In colonial times, the issues were over democratic influence of the legislature in competition with the power of the executive. During the period where the Constitution was being ratified, the political battles were about whether to ratify the Constitution or not, to maintain the Articles of Confederacy or not, or to separate from the Union or not. Only after the ratification, did we finally see modern political parties forming, which then took on the role of the competing parties in this dance. Shifting allegiances in this early period made the outcomes somewhat more unpredictable, but as the parties stabilized, it became easier to line up intended outcomes with actual outcomes.

All parties, both those that were in power and those out of it, recognized gerrymandering to be an unfair, undemocratic process. The party in power was willing to admit that it would resort to various measures to keep their own party in power, as it is human nature, and expect that the opposing party would do the same if they were ever to achieve power. However, they argued that their methods were not inconsistent with the Constitution, since the Constitution was silent on the question.⁴⁷

Questions about race could not remain far from the process for long. While much of the argument at the national level remained on the political parties, the plantation areas with large numbers of slaves versus more western areas with more small white farmers took on an increasing prominence at the state level leading up to the Civil War era. Plantations were partially counting their slaves as population, and so not only paid more taxes, but had more power in the representative system. White farmers wanted representation based on only eligible

voters (white men).⁴⁸ These regional animosities eventually would lead to West Virginia breaking off from Virginia during the Civil War, and nearly split Maryland as well.⁴⁹ Although, the racial factors in this period were not over the representation of blacks, per se, but over the power their presence, and the counting of their bodies, gave to other wealthy whites. Thus, this conflict takes on more of a class struggle, than as a genuinely race-based gerrymander.

As the middle of the nineteenth century approached, the question of race loomed ever larger in the question of redistricting. As states expanded westward and the controversy of slave states and free states heated up, the census, upon which all redistricting was done, became more and more controversial. Questions meant to better understand the institution of slavery were rejected. In addition to the conflicts previously noted between small white farmers and plantation owners were also added the new state states like Kansas and Missouri and the compromises named for them. Comparatively little was known about the slave population in the United States prior to emancipation.⁵⁰

The method of counting the now freed slaves for apportioning and districting purposes resulted in the second section of the Fourteenth Amendment. Race was clearly at the forefront here: the goal was to punish Southern States with loss of political power nationally if they refused to enfranchise blacks but would not punish the Northern States to the same degree for also failing to enfranchise blacks. In the South, where blacks were numerous, the punishment of losing congressional seats now that the three-fifths rule no longer applied. In the North, the much smaller number of blacks meant that it was much less likely the punishment of reducing representation would have any effect at all. However, the clause was never implemented, since the Fifteenth Amendment soon enfranchised all adult males regardless of race.⁵¹

Post-Reconstruction Southern whites blamed their own gerrymandering methods on Radical Republicans during Reconstruction. One Tennessee Democrat claimed “I have nothing to conceal in the matter. One main object was to redistrict the State that for the next ten years not a Republican can be elected to the Legislature.”⁵² This white Democrat was speaking in terms of party, but blacks were almost exclusively Republican, thus punishing Republicans had the added benefit of functionally disenfranchising blacks. While gerrymandered districts were far from the only strategy employed under Jim Crow, it was overt at all levels of government across the South. It was this racial gerrymandering that would eventually be challenged in the Supreme Court.

In *Colgrave v. Green* (1946), the Supreme Court determined that political gerrymandering is a political question that is best settled by elections, never mind that the point of political gerrymandering is designed to make that very thing more difficult; although, they did acknowledge that it could be sufficiently severe that might be something they would consider (in recent years, it’s been state, not federal Supreme Courts that have taken this claim more seriously⁵³). They did determine that racial gerrymandering was subject to judicial review. They did leave open the possibility that political gerrymandering might be subject to review in the future, but the Court has repeatedly argued they need clearly enumerated standards in order to act.⁵⁴ *Colgrave*, however, proved to be the first in a series of Supreme Court decisions on gerrymandering that would finally begin to address what many saw as violations of the equal protections clause, that sought to rob some voters of their ability to gain representation in Congress, state legislatures and other elected bodies.

Less than twenty years after *Colgrave*, the *Baker v. Carr* (1962) decision overturned aspects of the *Colgrave* decision and ruled that at least one aspect of political gerrymandering

was, indeed, a violation of the equal protection clause. *Baker* ruled that districts must represent equal numbers of people. In Tennessee, where the case originated, the districts had not been redrawn since the turn of the century, and now urban districts outnumbered rural districts 10-to-1, giving rural voters far more power than urban voters.⁵⁵

What is interesting about the *Baker* decision is that while it was ostensibly about rural voters versus urban voters, urbanization was well underway, and we can see the effect today, where many northern cities are majority minority. Tennessee was not the only state that gave more power to rural whites. This ruling also led to overturning some state senate assignments that modeled the national Senate, by giving a fixed number of Senators according to counties. This practice was ruled to violate the one-person-one-vote rule making these districts now also subject to the possibility of gerrymandering.⁵⁶ It is striking to realize how recent the one-person-one-vote rule is.

A number of cases following *Baker* were necessary to fully instantiate this principle at all levels of representative government and to establish additional standards by which districts could or could not be drawn. The *Gomillion v. Lightfoot* case established that race could not be used as a basis for drawing city district lines. Drawing such lines in order to effectively rob black citizens of the vote was deemed unconstitutional in a unanimous decision.⁵⁷ Such principles were also established in law under the Voting Rights Act, and which gave the Justice Department the right to review redistricting plans in particular areas to ensure compliance with the law.⁵⁸

For a time, these considerations of equal representation and not gerrymandering districts strictly by race held sway, and focus returned for a time to political considerations, and

preserving the power of incumbency. Sometimes legislators from both parties worked together to mutually preserve incumbents of both parties, particularly when the margins were close.⁵⁹

A conflict that began to arise late in the twentieth century is over minority representation. To what extent was it permissible to use race to draw racial lines to ensure a minority representative in the legislature? For instance, would a majority black district capable of electing a black Congressperson be acceptable if diluting black votes across districts was not? To what extent did that marginalize black legislators once elected? Or would it be better for black voters to have what become known as minority-opportunity districts, where they were not the majority, but were of sufficient numbers to sway an election, and ensure that their positions were represented by more than one legislator. These questions came to a head after the redistricting maps approved for the 1992 election. Canon argues that both sides of this debate are “using the same stereotype—that black politicians represent only black constituents” while believing that white politicians represent all their constituents.⁶⁰ Following such efforts in North Carolina, a series of three cases known as the *Shaw-Comartie* cases were brought before the Supreme Court between 1993 and 2001 challenging racially gerrymandered districts designed to provide a majority-minority district capable of electing a minority to the legislature.⁶¹ All of these cases were closely decided on five-four votes, and many of the judges along the way divided on partisan grounds. We continue to see the intersection of race and partisanship when it comes to drawing district maps. It is in these cases that we begin to see arguments related to compactness and contiguity beginning to play a role even though they don’t appear in any Voting Rights legislation.

Joshua Behr examines the smaller case of electing blacks and Latinos to city council districts via minority-opportunity districts, rather than North Carolina’s scheme of majority-

minority districts. Behr attempts to perform an analysis of outcomes and the proportion of the district that needs to be made up of minorities in order to have the best outcomes: not necessarily minority representatives, but in effective legislative representation. Behr's analysis is particularly interesting for two reasons. First, in that it considers both Latino and black voters in his analysis. Second, that his analysis does not focus on broad constitutional principles as much as mathematical analyses of inputs and corresponding outcomes.⁶²

This trend toward mathematical analyses can best be explained by the plain language of Supreme Court rulings in which they either refuse to step in at all or make very narrow rulings because of the difficulty of establishing an objective standard of fairness. The one-person-one-vote standard is a simple enough mathematical concept. However, when it comes to factors like compactness, or racial or partisan gerrymandering, extreme cases are clearer, but with no clear standard, the court is reluctant to apply vague principles because they are difficult for lower courts to follow and may well appear to be partisan in their own right.

Contributing to the feeling of need in modern civil rights and voting rights advocates is the rise of unusually aggressive partisan gerrymanders, particularly in Texas under the influence of Tom Delay that redistricted a second time before the ten-year census period was up.⁶³ North Carolina, too, after the striking down of the preclearance provision, has made aggressive efforts for ostensibly partisan, but also overtly racial, gerrymanders, with the hope that one party (in both these cases, the Republican party) could take advantage of the district plans for many years before they could be challenged in the courts. Swing states have also been battlegrounds, particularly after the 2010 census. The aggressiveness of these maps has not just created a small mismatch with statewide votes by party and actual representation, but sometimes that disparity has been in the double digits, even giving a party that gained a minority of the vote, a solid

majority status in the legislature. As we saw with earlier efforts, much of the disparity breaks down on rural-urban lines using both cracking and packing to reduce the influence of urban—and therefore minority—voters. Thus, there has been increased urgency to develop simple and reproduceable standards that can contribute to increasing fairness, and this has been matched by recent court rulings that expressed interest in stepping into these controversies in future cases but would not in recent suits because of the lack of a clear standard, among other considerations.⁶⁴

The search for a clear standard through mathematical analysis has taken on much of the analysis of gerrymandering and redistricting. Mathematical analysis has proven to be useful in establishing standards for power relationships in weighted voting systems such as sometimes happens in city councils as well as in the European Union, and in methods of apportionment. Thus, it is reasonable to think that analysis of the past can establish standards that can approximate fair voting districts beyond the one-person-one-vote standard. Cliometric analyses are most often applied in economic settings, but this area too, is data rich. Combining redistricting map, voting histories and census data, modern methods of big data analysis are promising. Guest, et al.'s analysis of districts produces a clustering algorithm that can run in an automated fashion. They highlight states such as Texas, Ohio, Illinois and New Mexico that can be most dramatically improved using their algorithm (see Figure 4).⁶⁵ Texas and Ohio are currently gerrymandered to Republican advantage, while Illinois and New Mexico to Democratic advantage. Ansolabehere and Palmer examine compactness as well,⁶⁶ though, it remains somewhat unclear how compactness directly relates to fair representation. It is a relatively easy calculation to understand and can be calculated in a variety of ways. Further research will need to be done to understand the relationship between these measures and fairness of outcomes.

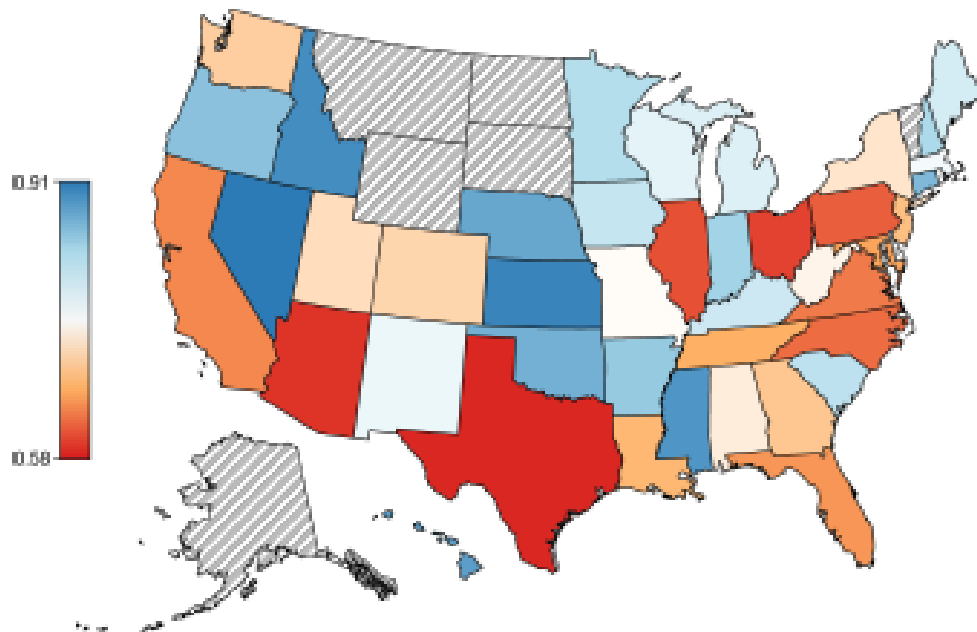


Figure 4. Graph produced by Guest, et al.'s analysis of how their compactness analysis can improve the fairness of state Congressional districts. Red indicates the greatest level of improvement (hashmarks indicate states with just one district).⁶⁷

In addition to analyzing compactness, Suzuki examines statistical approaches to the subject as well as other factors that contribute to a disparity between public opinion and legislative representation. Suzuki does not come to any definitive conclusions, but he does lay out several paths for consideration that will be ripe for further research.⁶⁸ Given the difficulties, it may be that the ultimate solution in many states will not be a mathematical standard. Several states have proposed and even instituted non-partisan redistricting commissions to take the power of district lines out the legislature entirely.⁶⁹

The history of drawing district lines in this country, wherever there has been representative democracy, has always been political. Groups in power try to do it to preserve their advantage, and those out of power always recognize it as being fundamentally unfair, and even undemocratic. If a democracy really believes in the power of good ideas to win over voters, then drawing districts to preserve partisan power is an attack on democratic institutions.

The battle remained strictly partisan and was most influenced by migrations in and out of districts until abolition and the Civil War made district lines about race. Race, because it so closely aligns to party in many southern states and urban areas, has doubled for partisanship. And when the Supreme Court ruled that race was not a valid reason for drawing district lines, partisan districts remained a proxy for race. The Civil Rights movement produced several Supreme Court decisions that leveled the playing field for voters, but also left several questions unanswered, particularly about the constitutionality of purely partisan gerrymanders, unanswered. Voters in several states have attempted to seize the redistricting power from their legislatures and establish non-partisan redistricting commissions with varying degrees of success. It remains to be seen if these commissions, once formed, can remain non-partisan and still function for many decades. Mathematicians have had some success in other areas of fairness from voting theory, to power relationships, and apportionment. If such a standard can be mathematically established, such as the Huntington-Hill method used to apportion Congressional seats, then it can be given judicial endorsement similar to the one-person-one-vote rule. A great deal more research will need to be done before such a standard will have the kind of support needed to survive Supreme Court scrutiny.

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