Bugs in Democracy: Descriptive Statistics, Fairness, and the Law



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Prof. Sam Wang

Geometric Algorithms and Redistricting Workshop – June 8, 2018

Bug courtesy of Lafayette College

2012-2016: Three unusual Congressional elections



election.princeton.edu Three Tests for Practical Evaluation of Partisan Gerrymandering

Sam Wang (2016) Stanford Law Review

Two Gilded Ages



Asymmetrical Polarization

Average ideological positions of House party coalitions, 1947-2012



Source: Poole and Rosenthal via Vital Statistics on Congress

The Opinion Pages

WORLD U.S. N.Y./REGION BUSINESS TECHNOLOGY SCIENCE HEALTH SPORTS OPINION

The Great Gerrymander of 2012

By SAM WANG Published: February 2, 2013 | 📮 167 Comments

HAVING the first modern democracy comes with bugs. Normally we would expect more seats in Congress to go to the political party that receives more votes, but the last election confounded expectations. Democrats received 1.4 million more votes for the House of Representatives, yet Republicans won control of the House by a 234 to 201 margin. This is only the second such reversal since World War II.

Multimedia



Using statistical tools that are common in fields like my own, neuroscience, I have found strong evidence that this historic aberration arises from partisan

disenfranchisement. Although

gerrymandering is usually thought of as a bipartisan offense, the rather asymmetrical results may surprise you.





Fig. 6.4. Elkanah Tisdale's original Gerrymander, as it appeared in the Boston *Gazette*, March 26, 1812. (From James Parton, *Caricature and Other Comic Art* [New York: Harper and Brothers, 1877], p. 316.)

Number of Extreme Partisan Gerrymanders



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AMERICAN PROSPECT

Slaying the Partisan

Gerrymander

With extreme gerrymanders on the rise, it is time for the Supreme Court —and the states—to curb a practice that has gotten out of control.

By Sam Wang & Brian Remlinger

September 25, 2017

This article appears in the Fall 2017 issue of The American Prospect magazine. Subscribe here.

errymandering is an old phenomenon with new dimensions and heightened significance for American democracy. Thanks to technology and political polarization, the effects of partisan gerrymandering since 2012 have been more pronounced than at any point in the previous 50 years. Close to a hundred congressional seats and thousands of state legislative seats have been strategically drawn to be noncompetitive at the expense of all other interests. As a consequence, tens of millions of voters have had no meaningful say in who represents them.

In this year's Supreme Court term, the justices have taken up the constitutionality of partisan gerrymandering in a case involving state legislative districts drawn by Republicans in Wisconsin. A key question for the

http://prospect.org/article/slaying-partisan-gerrymander

An impregnable fortress?







Gerrymandering – a rogue's gallery



No. 16-1161

IN THE Supreme Court of the United States

BEVERLY R. GILL ET AL.,

Appellants,

v.

WILLIAM WHITFORD ET AL.,

Appellees.

On Appeal from the United States District Court for the Western District of Wisconsin

BRIEF OF HEATHER K. GERKEN, JONATHAN N. KATZ, GARY KING, LARRY J. SABATO, AND SAMUEL S.-H. WANG AS *AMICI CURIAE* IN SUPPORT OF APPELLEES

Kevin K. Russell GOLDSTEIN & RUSSELL, P.C. 7475 Wisconsin Ave. Suite 850 Washington, DC 20814

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Partisan Symmetry Is A Deeply Intuitive Standard With Ancient Roots.

While modern discrimination law is replete with examples of symmetry standards, the principle's roots are ancient. One finds, for instance, examples in Judeo-Christian ethics, Genesis 13:8-9; Matthew 7:12. The notion of turning the tables is so powerful that it is a canon of literature, WILLIAM SHAKESPEARE, A MID-SUMMER NIGHT'S DREAM; WILLIAM SHAKESPEARE, TWELFTH NIGHT; MARK TWAIN, THE PRINCE AND THE PAUPER (1881), music, W.S. GILBERT & ARTHUR SULLIVAN, H.M.S. PINAFORE (1878), and moral philosophy, JOHN RAWLS, A THEORY OF JUSTICE 73-78 (rev. ed. 1999). This measure of fairness is deployed across cultures. See CINDERELLA ACROSS CULTURES (Martine Hennard Dutheil de la Rochère et al. eds., 2016); Heather K. Gerken, Second Order Diversity, 118 HARV. L. REV. 1099, 1146 & n.124 (2005) (discussing Japanese tradition). Even children rely on the time-honored strategy of "I cut, you choose."

Gill v. Whitford, case 16-1161, amicus brief by Gerken, Katz, King, Sabato, and Wang

William Sealy Gosset ("Student")



1876-1937 Chief Experimental Brewer, The Guinness Company



Testing for lopsided wins with Student's t-test: North Carolina



Three Tests for Practical Evaluation of Partisan Gerrymandering Sam Wang (2016) Stanford Law Review



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Article

Three Tests for Practical Evaluation of Partisan Gerrymandering

Samuel S.-H. Wang



Since the U.S. Supreme Court's *Davis v. Bandemer* ruling in 1986, partisan gerrymandering for statewide electoral advantage has been held to be justiciable. The existing Supreme Court standard, culminating in *Vieth v. Jubelirer* and *LULAC v. Perry*, holds that a test for gerrymandering should demonstrate both intents and effects and that partisan gerrymandering may be recognizable by its asymmetry: for a given distribution of popular votes, if the parties switch places in popular vote, the numbers of seats will change in an unequal fashion. However, the asymmetry standard is only a broad statement of principle, and no analytical method for assessing asymmetry

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Advanced Tests Learn More Donate!

U.S. Congressional Races: (2012)



How gerrymandered is my state?

Welcome to the website of the Princeton Gerrymandering Project! We research the effects of gerrymandering, a major bug in American democracy. On this site, you can check how gerrymandering affects your state using the explorer on this page. Click on a state to view test results and more information. You can also learn about efforts to solve the problem, and learn more about gerrymandering and our methods.

U.S. Congress

State Legislatures

The Latest: May 5th, 2018

We summarized how prediction markets think the Supreme Court will decide the two partisan gerrymandering cases before it. Expert predictors are optimistic that the Court will rule against gerrymandering.

Gerrymandering puts half of a state's seats up for grabs



A pretty map can still hide ill intent

PA Republican-proposed district map, February 2018



Court-ordered remedial plan, February 2018



A 50-50 vote would produce: 13 Republicans, 5 Democrats (no close races)

10 Republicans, 8 Democrats (6 close races)

THE MORNING CALL Capitol Ideas

Pennsylvania politics and issues from Morning Call reporters Laura Olson and Steve Esack

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News / Nation/World / Pennsylvania News / Capitol Ideas

Five takeaways from Gov. Wolf's rejection of GOP's map in Pennsylvania gerrymandering case

Wolf also cited an article written by Sam Wang, a Princeton University professor, who said he determined the map purposely splits densely populated urban areas around Erie, Reading, Scranton, Wilkes-Barre and Harrisburg to dilute Democratic votes.

> Summary of Conclusions of Joint Submission Plan Professor M. Duchin February 13, 2018

I was asked to use best practices from mathematics and statistics to assess whether the proposed Joint Submission Plan is or is not an *extreme outlier* along partisan lines. I concluded that the proposed Joint Submission Plan is indeed an extreme outlier, exhibiting a decidedly partisan skew that cannot be explained by Pennsylvania's political geography or the application of traditional districting principles.

State-by-state legal reforms

- Proposed reforms (some don't constrain the range of outcomes):
 - Compactness and keeping political divisions together (PA)
 - Preserving communities of interest (MI)
 - Statistical measures (AK, NH)
 - Citizen commissions (AZ, CA, MI)
- How to fix backdoors and loopholes in these reforms using simple statistical measures?
- How to define a doctrine that unifies partisan fairness and Voting Rights Act compliance?

Slaying gerrymanders: next steps

- Sealing loopholes and backdoors in reform initiatives
- Comprehensive help for activists: state-level policy reports
- Lowering the barrier for entry: data and code sharing
- Summer/Fall 2018: Virginia and Michigan





Theodore Roosevelt 26th President, 1901-1909

The national government belongs to the whole American people.

Our whole experiment is meaningless unless we are to make this a democracy in the fullest sense of the word.

If the minority is as powerful as the majority there is no use of having political contests at all, for there is no use in having a majority.



Supporters: Educational Ventures, Helmut Weymar

Partners: Heather Gerken (Yale), Brennan Center for Justice (NYU)