Source: *National Geographic*

Gerrymandering 2.0:

Should we trust algorithms to police redistricting?

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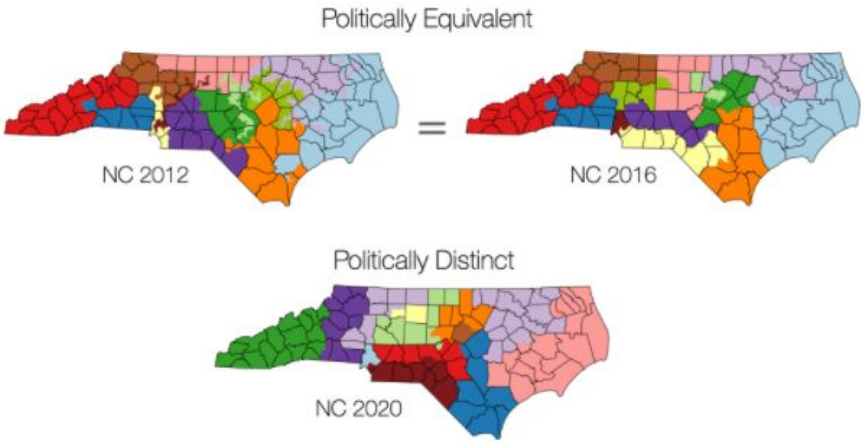
Hunter College Advanced Certificate Program in Computer Science

Ethics - Professor Zamansky

>>”[T]o ‘gerrymander’ is to manipulate district boundaries with a political agenda, and thereby manipulate election outcomes.” (*MIT Technology Review*)

Good fences make good neighbors.



Source: *Mit Technology Review*

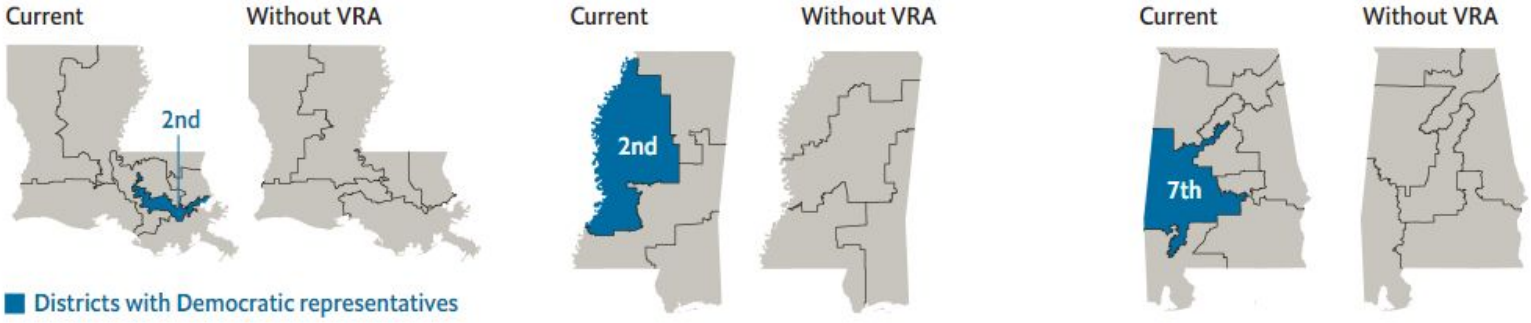
>>“The question is…which map should we choose, and how should we decide if someone has done a good job in choosing that map?” (*MIT Technology Review*)

>>”Beyond the constitutional rule that laws protect everyone equally, federal law places just two limits on gerrymandering. First, districts must have similar numbers of people. Next, in 1986 the Supreme Court applied the VRA to ban states from diluting non-whites’ impact in places where they vote as a bloc.” *(The Economist)*

All in all it’s just another brick in the wall.

→ **If Republicans could get rid of “majority-minority” districts, some Democrats would lose seats**

Current boundaries v hypothetical gerrymandered boundaries without Voting Rights Act (VRA) “majority-minority” requirements*



*In House elections in 2020, Democrats might not have won any seats in these states using these boundaries

Source: *The Economist*

"The use of computers to generate and gerrymander electoral maps became relatively common in the 1990s, although early redistricting software was prohibitively expensive, costing $500,000 to $1 million. Now the industry standard is Maptitude, made by Caliper. When the first Maptitude for Redistricting package was released, in the late 1990s, it cost $2,999. The current price ranges from $1,000 to $10,000." (MIT Technology Review)

How does one gerrymander?

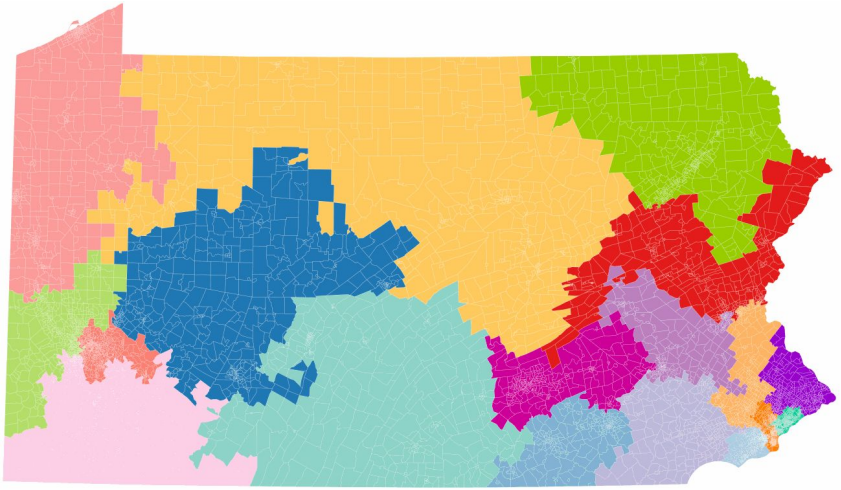
Maptitude Online Redistricting – Public Edition

Redistricting online tools support public participation and transparency. The Maptitude Online Redistricting Public Edition is intended for states that are legally required to, or simply wish to, open the redistricting process up to the general public. Anyone can logon, establish a user name and password, and create one or more redistricting plans. The system administrator can limit the number of plans, restrict the number of districts, and specify the level of geographic detail (e.g., to the block or VTD). The user can transmit the finished plan to the system administrator for further analysis. Either the state or Caliper Corporation can host the Public Edition.

Maptitude Online Redistricting – Legislator Edition

The Legislator Edition is intended for states that use the Windows-based version for their redistricting staff and key legislators, but who

Source: Maptitude for Redistricting



Data Visualization 1. Steps in a ReCom chain for Pennsylvania

Source: *HDSR*

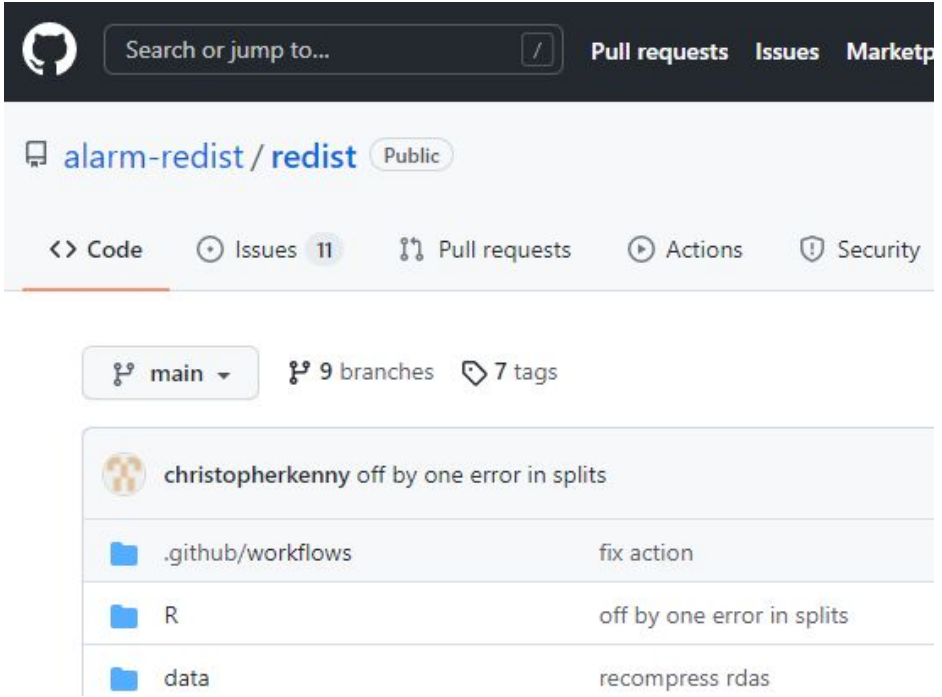
Something there is that doesn't love a wall.

>>Redist: https://github.com/alarm-redist/redist/

>>Gerry Chain: https://github.com/mggg/GerryChain

>>The For the People Act would "require that congressional redistricting be transparent and participatory, with open meetings and public hearings, opportunities for the public to review and comment on proposed maps, and public access to underlying data and software so that members of the public can analyze maps and/or create and propose alternatives" (Brennan Center for Justice, emphasis mine)

What's the solution?



Source: *Redist on GitHub.com*

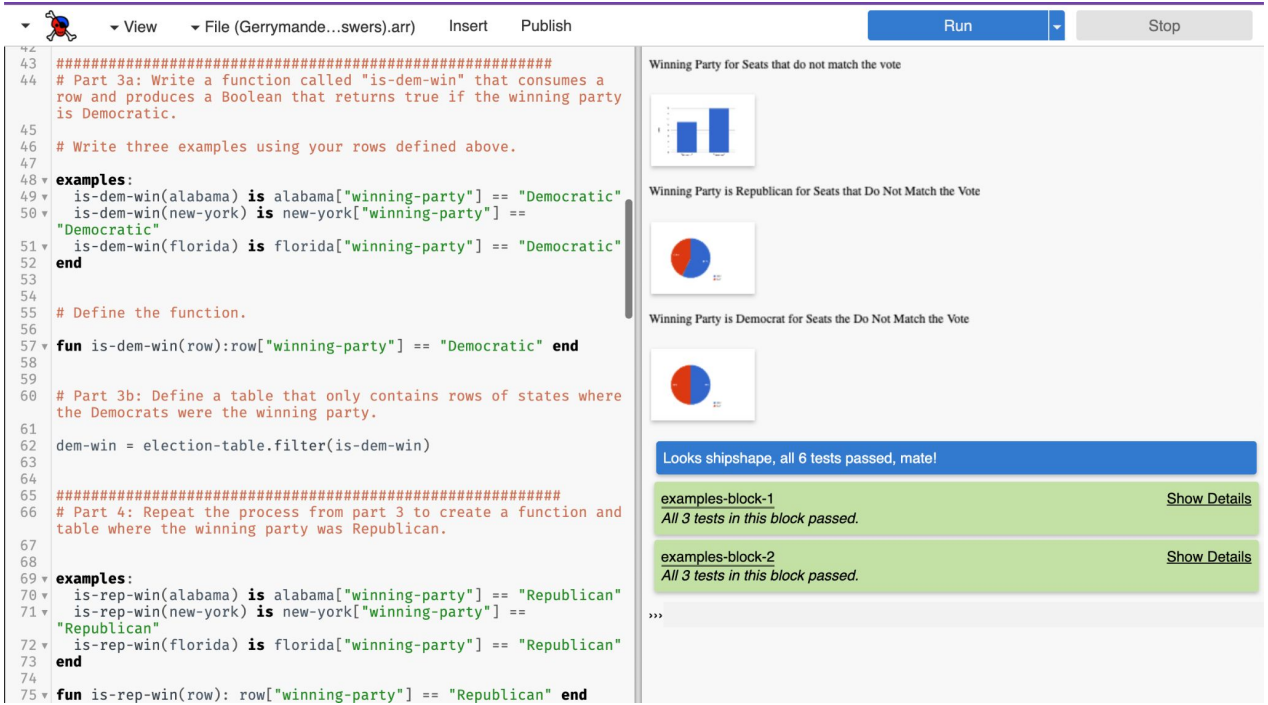
Classroom Connection

- In this lesson, students will perform methods on tables and write functions to analyze data from a dataset of Republican and Democratic votes for US Representatives from 2018 in order to investigate gerrymandering.
- The dataset comes from bootstrapworld.org and is based on US Census Bureau data.
- The code is in Pyret (https://code.pyret.org/)

Pyret Code

To access the Pyret code:

1) Go to https://code.pyret.org/
2) Sign in.
3) Connect to google drive.



Links for Gerrymandering Lesson Plan

- Gerrymandering Lesson Plan Link
- Gerrymandering Lesson Slides
- Gerrymandering Dataset (Bootstrap)
- Gerrymandering Project Pyret Code
- Gerrymandering Project Example Pyret Code

Sources

"Annotated Guide to the For the People Act of 2021." *Brennan Center for Justice*. 18 Mar. 2021.

"Congress and the Voting Rights Act of 1965." *National Archives*. 19 June 2019.

DeFord, Daryl; Moon Duchin; and Justin Solomon. "Recombination: A Family of Markov Chains for Redistricting." *HDSR*. 31 Mar. 2021.

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Li, Michael. "Opinion: The Voting Fix That Cannot Wait: Stopping Partisan Gerrymandering." *The Washington Post.* 2 Aug. 2021.

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Roberts, Siobhan. "Mathematicians Are Deploying Algorithms To Stop Gerrymandering." *MIT Technology Review.* 12 Aug. 2021

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Links and More Information

Video: Gerrymandering Explained (Washington Post)

Website: Gerrymandering Explained (Brennan Center for Social Justice)

Website: Gerrymandering Dataset from Bootstrapworld.com