GerryChain Template Practice

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1 Introduction

These are some suggested project ideas to get you more experience working with GerryChain.

2 Grids

- What happens to the results as you increase or decrease the population constraint bound?

- On a smaller grid, try building your own set of carefully crafted vote data. Does your ensemble detect gerrymandering?

- For the annealing example, can you modify the acceptance function so that the final state is still snaky? What is the minimum number of steps you need so that the final state is smooth?

- Can you modify the graph to do the same type of walks on non–grids? Maybe one of the other prebulit networkx graph families? Or your ego network from earlier in the week.

- Make a version of the mixed ensemble by passing partition assignments back and forth between two

3 Alaska

- Try deleting some additional edges around Anchorage. How does this impact the results?

- Now try adding some addition edges to the islands. How does this impact the results?

- Increase the compactness constraint and population balance independently? What changes about the partisan metrics?

- Now vary them together and observe what happens.

- Make a plot of the plan you find with the largest number of matchings.

4 Pennsylvania

- Try runs at each of the 8 starting plans. How do the partisan metrics differ as the number of steps grows?

- Compare the nodes that are flipped in runs starting with the different plans. What does this say about flip mixing.

- Save examples of the most extreme partisan plans that your ensemble finds (MM, EG, seats) and plot them separately. What do you notice? How are the metrics correlated?

5 Mississippi

- Generate an ensemble by constructing a bunch of different starting plans, instead of using MCMC. how does the distribution of BVAP differ between these ensembles?

- Add an additional election that measures the BPOP. How does it differ from the BVAP?

- Make a figure of the most compact plan your ensemble finds?