VRDI CHAIN PLOTTING

VRDI

MGGG

1. Introduction

This guide provides a brief guide to the two types of plots currently available through the chain program. This assumes that you have already installed chain using the earlier guide and run some sample chains using the chain instructions.

2. Districting Plans

(1) Start by launching a command prompt.

(2) Enter the vrdi directory

```
conda activate vrdi
cd %VRDI_DATA%        (<- Windows)
cd $VRDI_DATA         (<- unix/mac)
```

(3) Since we want to separate the output for various runs we should make a new directory:

```
mkdir test_plots
cd test_plots
```

(4) In order to output svg files we need some extra flags. Here is a version that will work (note that the chain will run slower since it is generating the figures for us):

```
chain -f ../precincts.txt --filename_wes_units ../plans/2011.csv
 --filename_election_results ../elections/sen10.csv -n 18 -M -d 14
 -I ../input.svg -s tests -l 20 -O on
```

(5) We just created 18 svgs, named tests1.svg – tests18.svg in our testplots directory. You can open these from the command line or in your browser.

```
open tests_9.svg
```
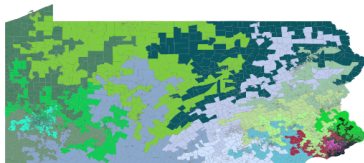
3. Histograms

(1) In order to plot histograms we need to do three things. First, make sure that we are having the chain compute one of the metrics using the -M, -E, or -S (or any combination of them). Second, we need to make sure that we are using -d to get enough samples to make a meaningful histogram and finally we need to set the -H flag to actually generate the histogram files.

(2) Here is an example that works:

```
chain -f ../precincts.txt --filename_wes_units ../plans/2011.csv
--filename_election_results ../elections/sen10.csv
-n 18 -M -d 14 -H
```

(3) This places two files in our directory:

```
median_mean_hist.txt
median_mean_hist_1E5.txt
```

(4) Next, we need to run the python code to generate the histograms:

```
python ../scripts/plot.py median_mean_hist.txt 0.0622747 hist.png
```

(5) The number here is copied and pasted from the initial input configuration. It is the red vertical line in the plot representing the value of the metric on the original plan.

(6) This places a figure named hist.png in our test plots directory. Again it can be opened in the command line or with your favorite figure software.

```
open hist.svg
```