1. Multiview (30%)

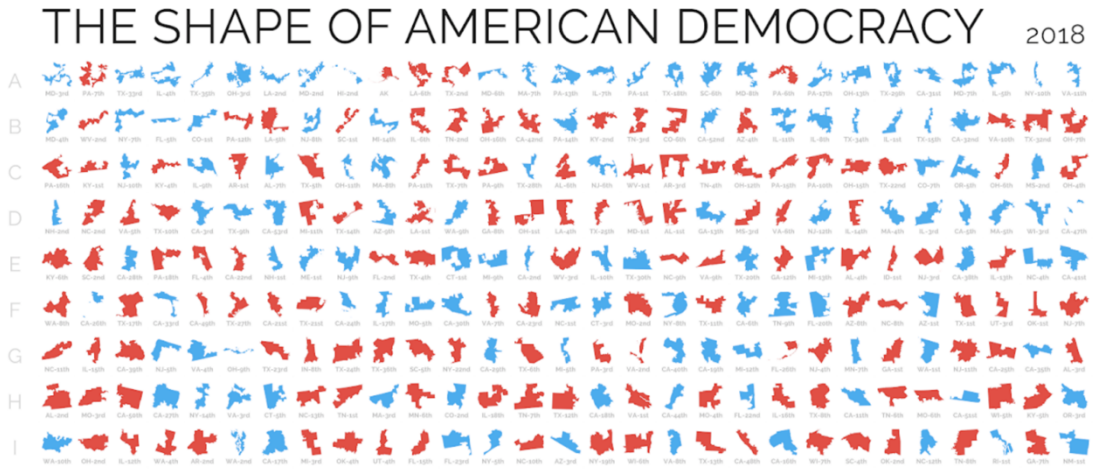
For each of the multi-view visualizations below, what type of view coordination is used?

- Overview/Detail, Same Form
- Small Multiples
- Multiform
- Overview/Detail, Multiform
- No Linkage
- Fully Redundant

Justify your choice very briefly, according to two criteria:

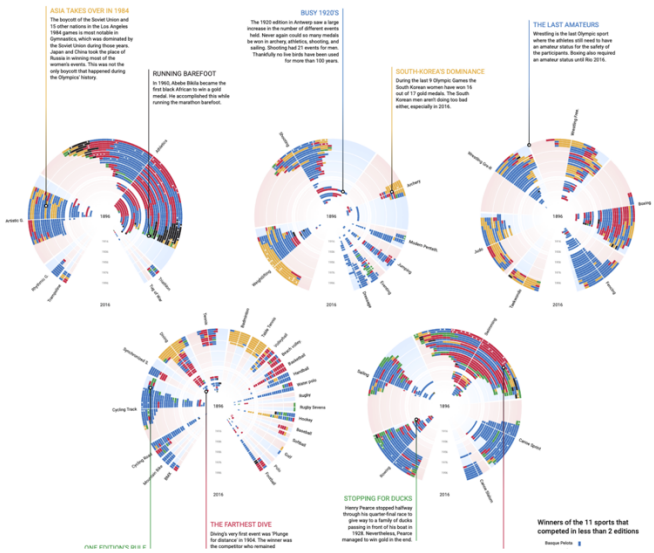
- Whether the views share the same visual encoding
- Whether they show the same data, or a subset of the data, or disjoint data

A. Gerrymandering



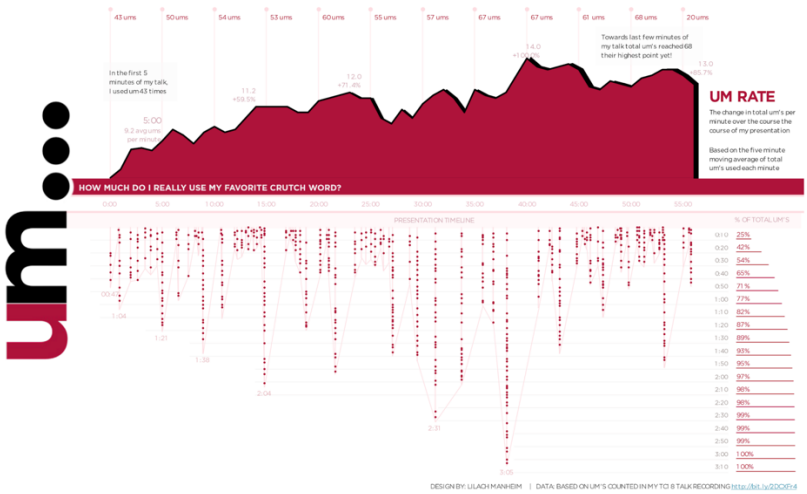
https://www.statsmapsnpix.com/2018/05/the-shape-of-american-democracy-v10.html

B. Olympic Feathers



https://olympicfeathers.visualcinnamon.com/

C. How Much do I Really Use My Favorite Crutch World



https://public.tableau.com/app/profile/lilach.manheim/viz/AnUm____Analysis/Um____

2. Twitter Monitoring Application (60%)

Problem: You work in a design agency which needs to develop a Facebook Monitoring application for the president election in Taiwan. The goal of the application is to show the sentiment of posts across candidates, time, and space. Sentiment analysis is the interpretation of the emotional meaning of text, as positive (supportive, e.g. happy) or negative (unsupportive, e.g. angry) or neutral.

Data: You are provided with data extracted by a data processing engine that monitors Facebook and produces the following information at one-day intervals:

Attribute	Attribute Type	Cardinality/Range
Time	Quantitative	C: 2023-01-01 to 2023-12-31 R: 365
Candidate	Categorical	C: 3
City/County	Categorical	C: 22
Average sentiment of posts (over interval since previous timestamp)	Quantitative	R:-1 to 1
Volume (# of posts) (over interval since previous timestamp)	Quantitative	R: 0 to 500k

The time interval is one year. There are 36.5K (365*3*22) items in a tabular dataset. There are also shapefiles for the geographic boundaries of Taiwan.

A: Design a visualization that shows all of this information on one screen.
The visualization can be interactive and will probably contain multiple views. It should allow the viewer to answer all of the following questions about each candidate:

- Q1: How has the sentiment for candidate X changed over time in each city/county?
- Q2: At time point T, compare the sentiments between both candidates in each city/county.
- Q3: In which city/county has the sentiment changed so that the most positively discussed candidate flips from one to the other candidate, between time points T1 and T2?
- Q4: What is the distribution of the total volume of posts across Taiwan at time point T? and overall time?
- Q5: Is the sentiment correlated with the volume of posts, for either candidate?
- Q6: Are there geographic patterns to the sentiment distributions for the candidates?

Do not forget to include titles, axis labels or legends as needed! Your sketch can be hand-drawn. It can also be mocked up using Powerpoint, a graphics editor, or wireframe tools.

B: Rationale for your design choices

Provide a rigorous rationale for your design decisions.

Document the visual encodings you used and why they are appropriate for the data and tasks that the visualization should support. Specifically:

- ◯ For each view, what marks and channels did you choose, and why?
- ◯ For each view, what questions are easy vs difficult to answer?

3. Color Channels (10%)

In each figure, we can see multiple colors. What color channel(s) are changed (hue/saturation/luminance) in each one?