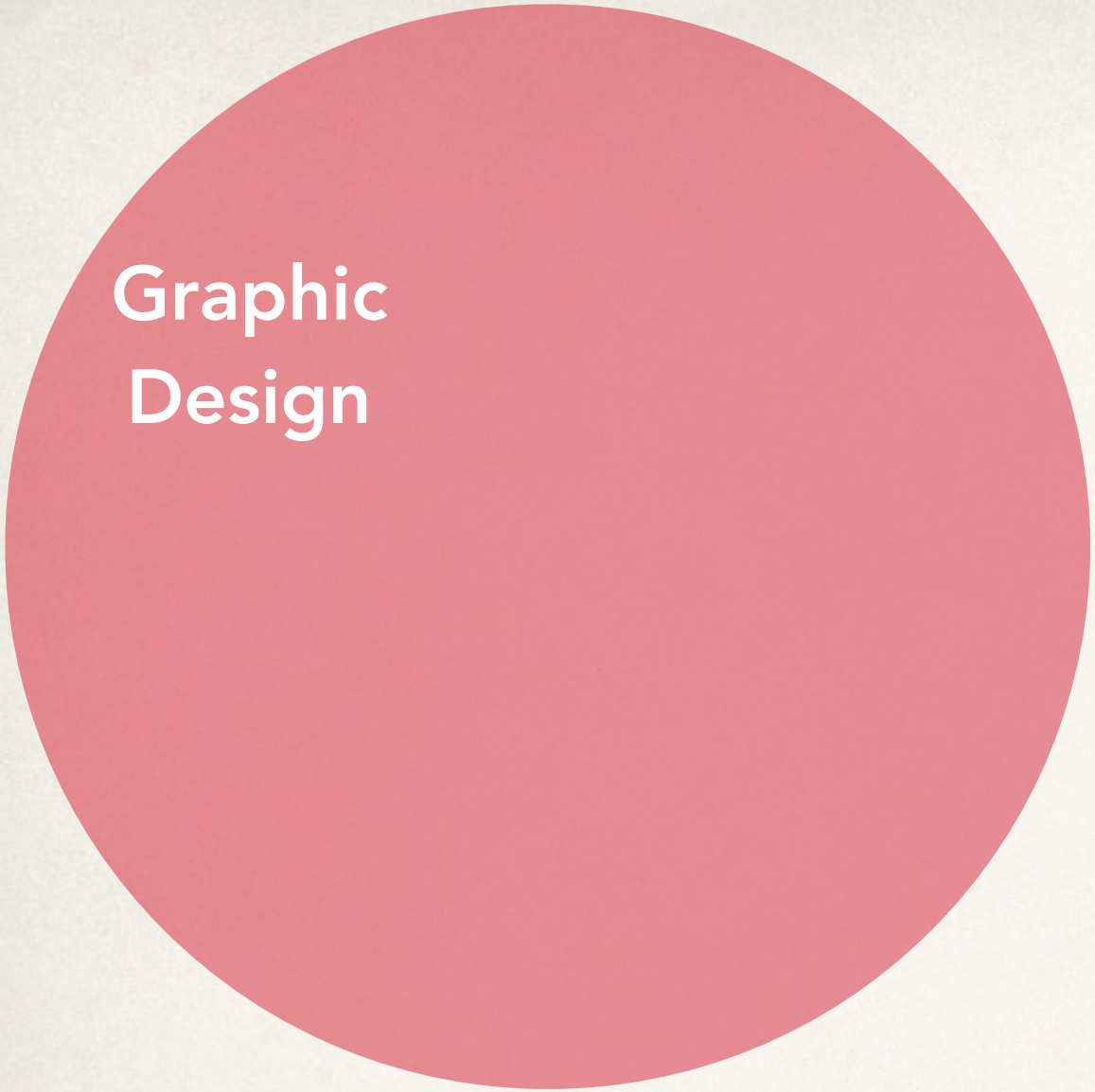


Interaction

C. Andrews

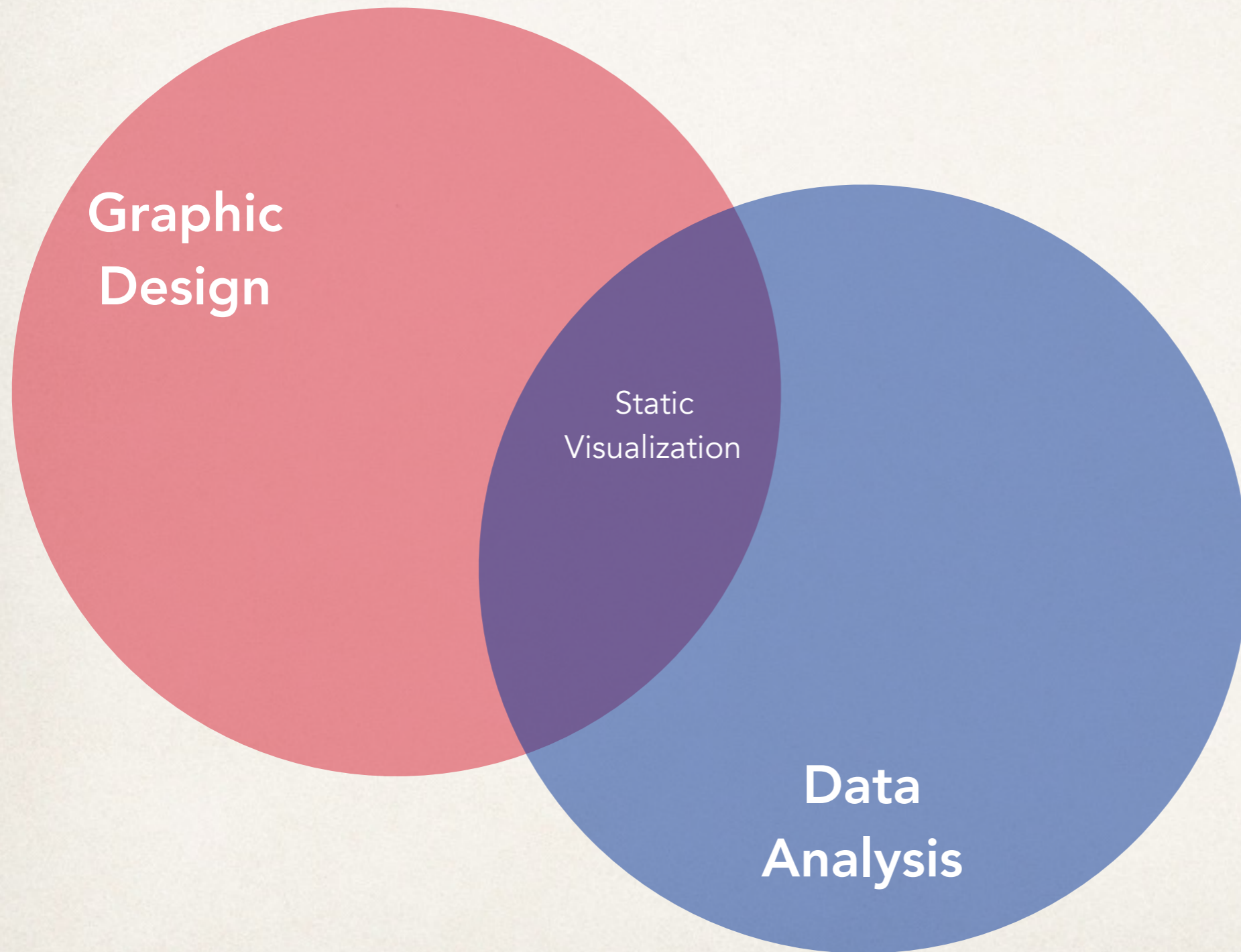
2016-03-16

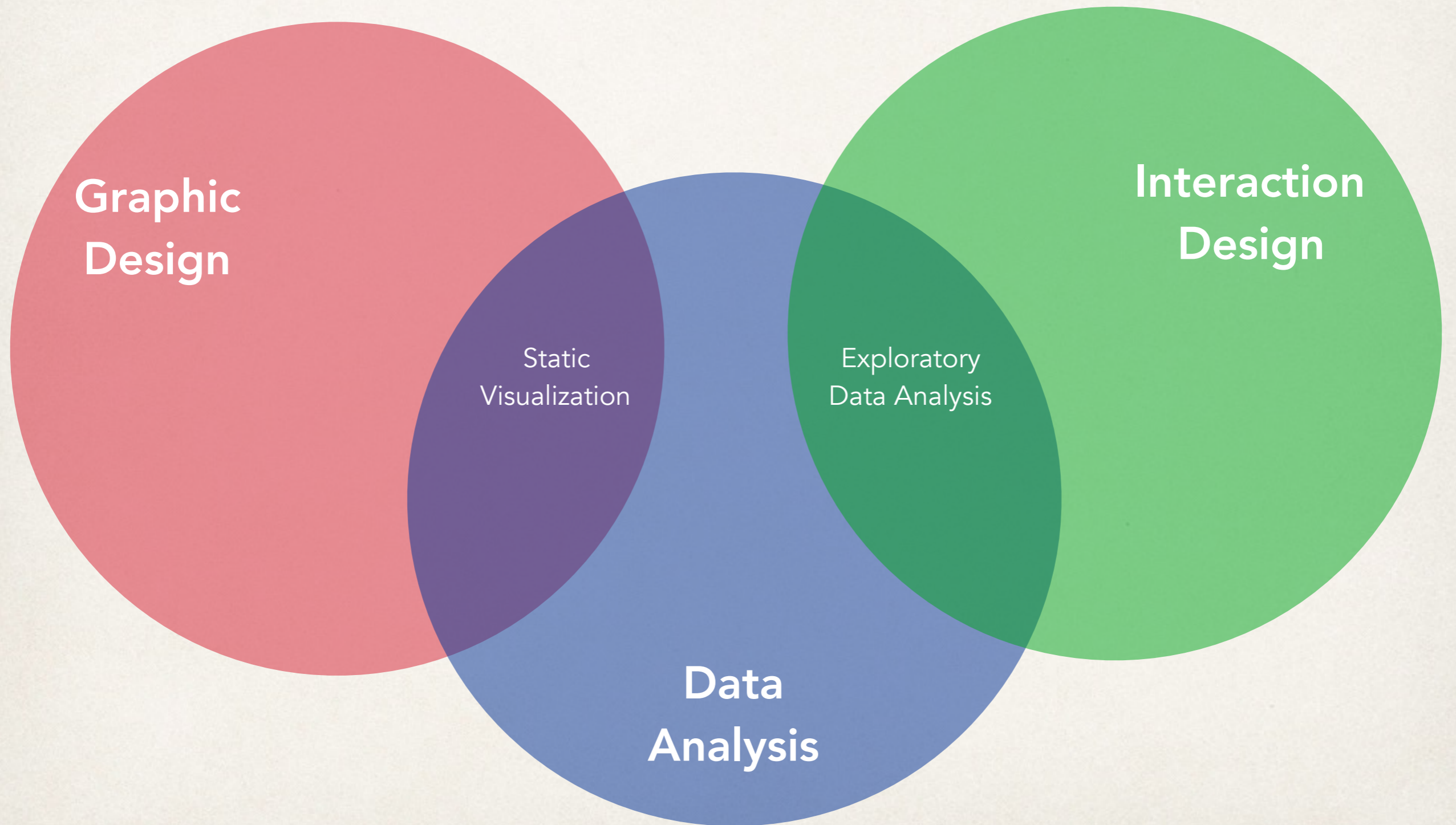


**Graphic
Design**



**Data
Analysis**





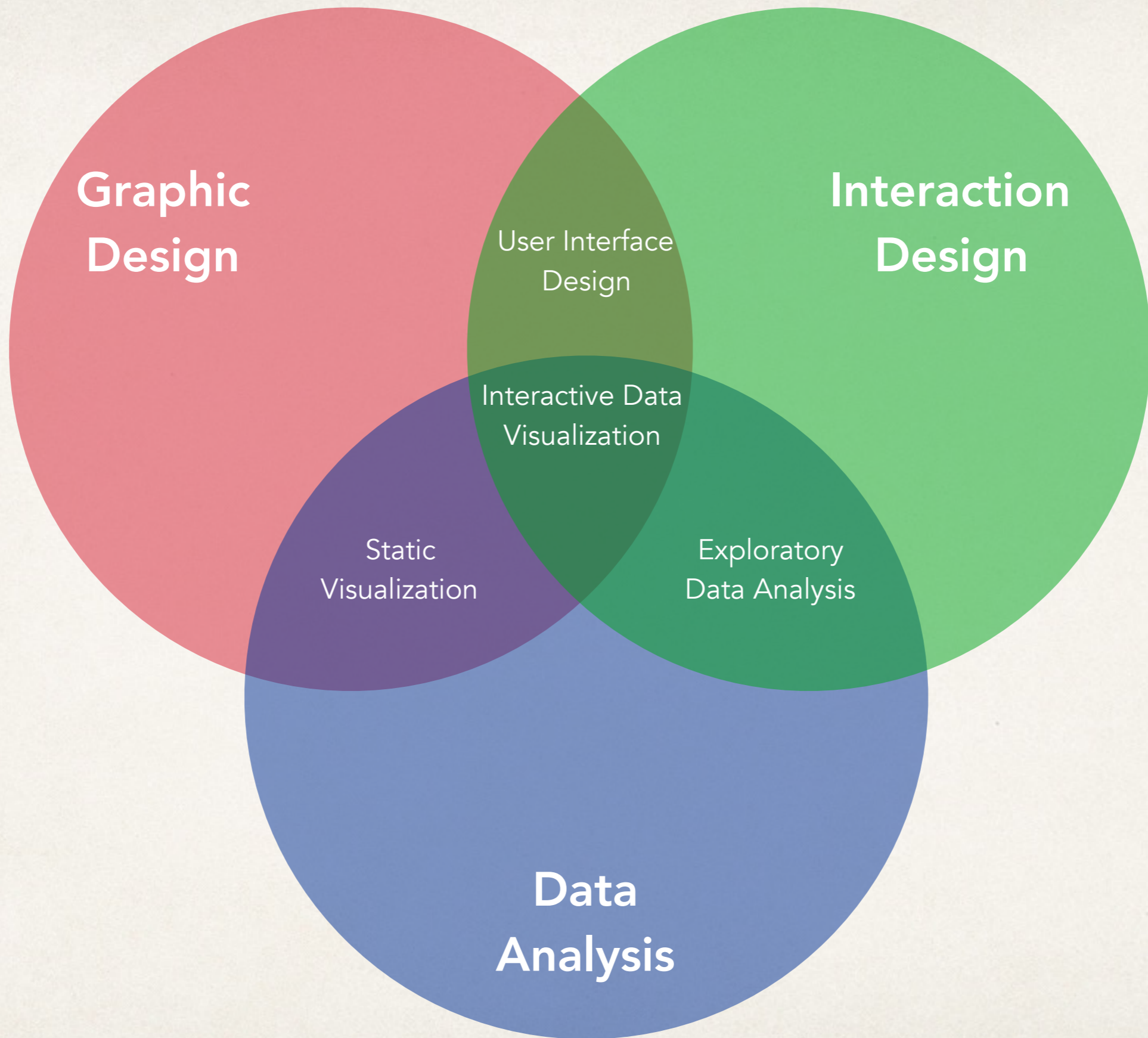
**Graphic
Design**

**Interaction
Design**

Static
Visualization

Exploratory
Data Analysis

**Data
Analysis**



Why interaction?

When is (static) representation not enough?

Scale

- Too many data points
- Too many dimensions

Exploration

Learning

Storytelling

Few's Principles of Interaction

comparing

sorting

filtering

highlighting

aggregating

zooming and panning

details

annotating

re-encoding

selecting

Yi et al.'s Interactive Vis Techniques

Select

mark something as interesting

Explore

show me something different

Reconfigure

show me a different arrangements

Encode

change the visual representations

Abstract/Elaborate

show me more or less detail

Filter

conditionally show me something

Connect

show me related items

Select

mark something as interesting

This takes the reference to all `circles` and sets the `cx` attribute for each one. (Remember that, in SVG lingo, `cx` is the x position value of the *center* of the circle.) Our data has already been bound to the `circle` elements, so for each `circle`, the value `d` matches the corresponding value in our original dataset (5, 10, 15, 20, or 25).

Another value, `i`, is also automatically populated for us. (Thanks, D3!) Just as with `d`, the name `i` here is arbitrary and could be set to whatever you like, such as `counter` or `elementID`. I prefer to use `i` because it is concise, it alludes to the convention of using `i` in for loops, and it is very common, as you'll see it in all the online examples.

So, `i` is a numeric index value of the current element. Counting starts at zero, so for our "first" circle `i == 0`, the second circle's `i == 1`, and so on. We're using `i` to push each subsequent circle over to the right, because each subsequent loop through, the value of `i` increases by one:

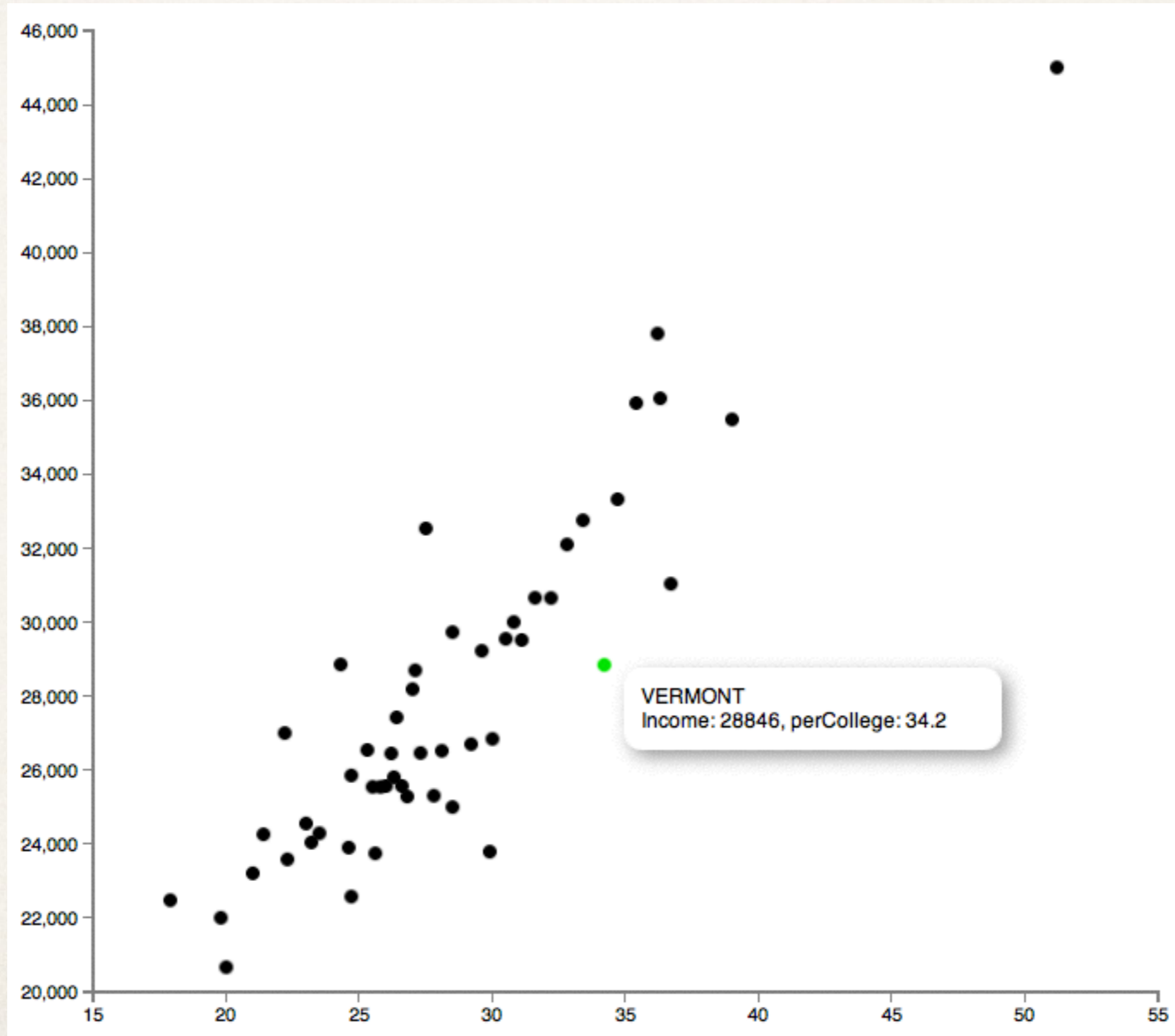
Select

mark something as interesting



Select

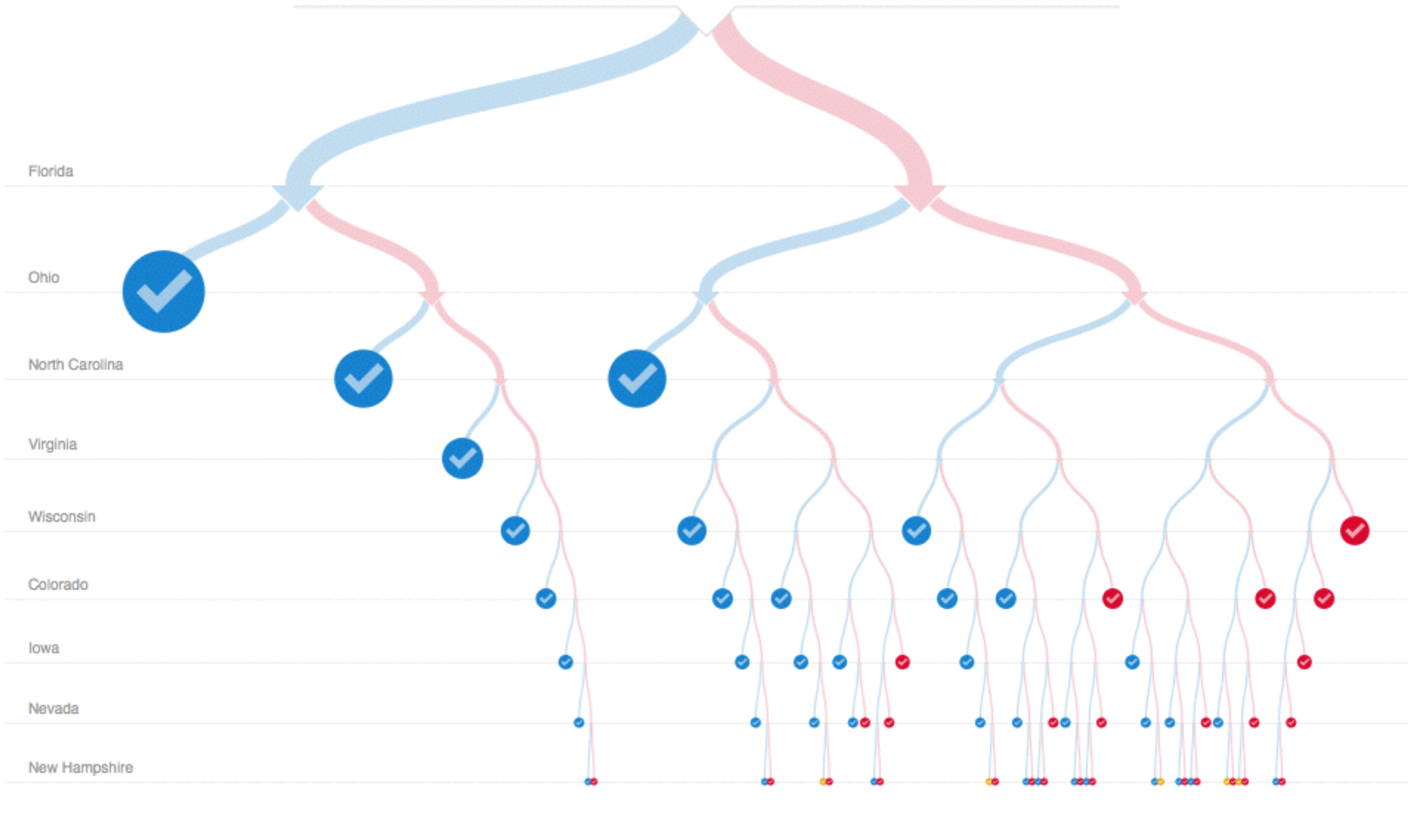
mark something as interesting



Obama has **431** ways to win
84% of paths

5 ties
0.98% of paths

Romney has **76** ways to win
15% of paths



Explore

show me something different

CS 465 - Information Visualization
Spring 2016

[Syllabus](#)
[Plazza](#) [class forum]

Schedule

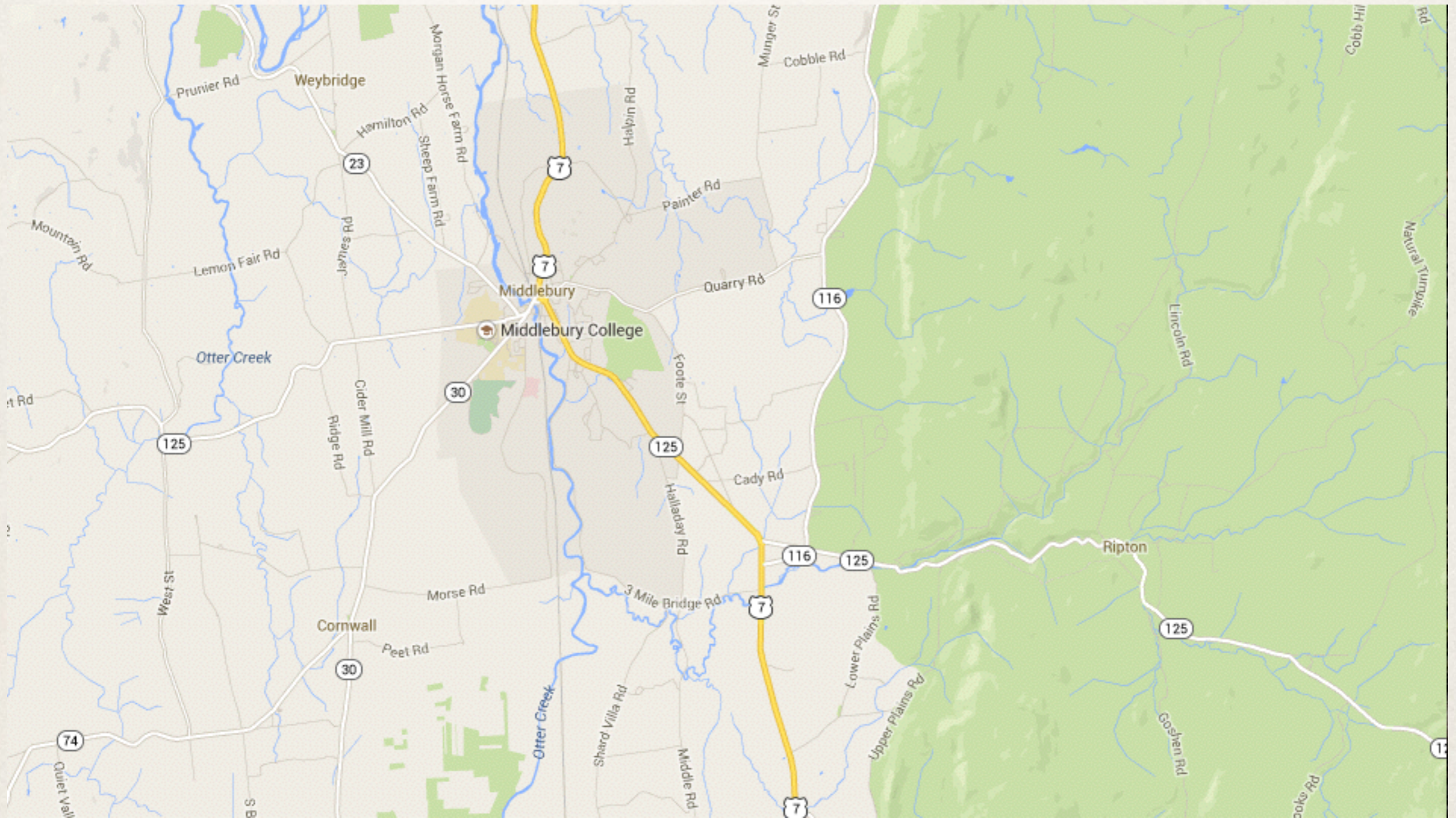
This is a living schedule and subject to change

Date	Topic	Reading	Notes	Assignment
02/15	Introduction to information visualization	Few Ch 1+2	Introduction	Attendance form
02/17	Data		Data	Attendance form, HW1
02/19	Exploring data with Tableau			HW2
02/22	Perception	Few Ch 3	Perception	
02/24	Perception for Visualization		Perception for vis I	
02/26	Winter Carnival [no class]			HW3
02/29	Perception for Visualization II		Perception for vis II	
03/02	Introduction to D3	Murray Ch 3-6	simple bar chart	
03/04	Introduction to D3 II	Murray Ch 3-6	bar chart 1, bar chart 2, bar chart 3	Partner Questionnaire
03/07	Introduction to D3 III	Murray Ch 6-8	bar chart 4, bar chart 5, bar chart 6, bar chart 7	HW4
03/09	Evaluating Visualizations			
03/11	Evaluating Visualizations II			
03/14	Interactive D3	Murray 10		HW5
03/16	Evaluation wrap-up, Interactions and navigation	Few 4		
03/18	More Interactions and navigation	Few 4		
03/21				
03/23				

Open "www.cs.middlebury.edu/~candrews/classes/Infovis/syllabus.html" in a new tab

Explore

show me something different



Explore

show me something different



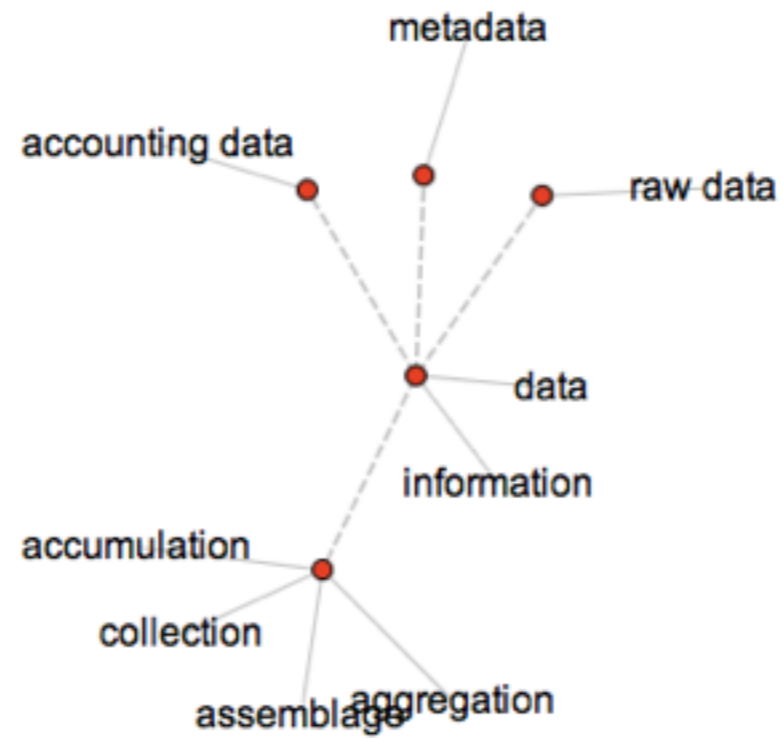
Explore

show me something different



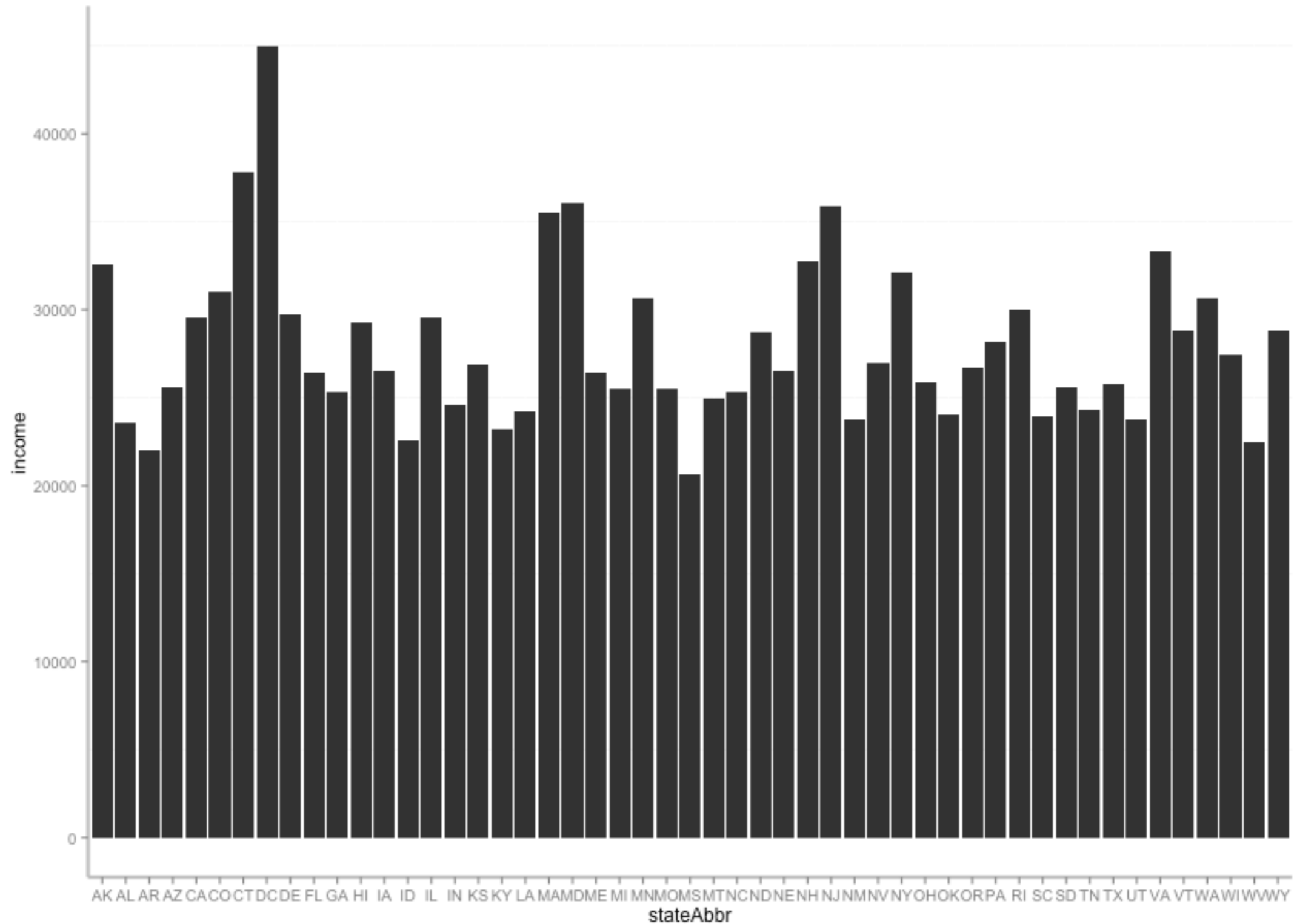
Explore

show me something different



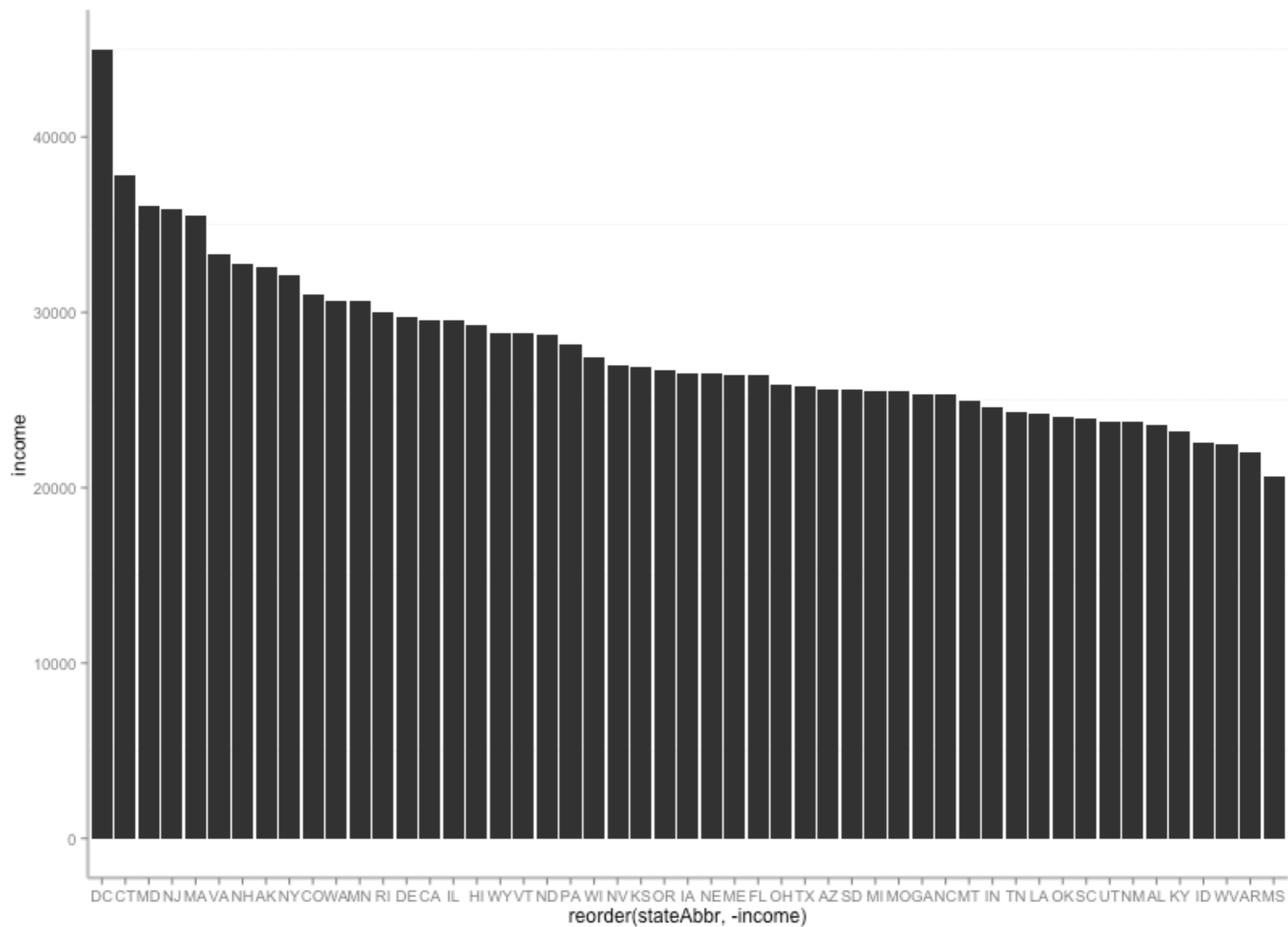
Reconfigure

show me different arrangements



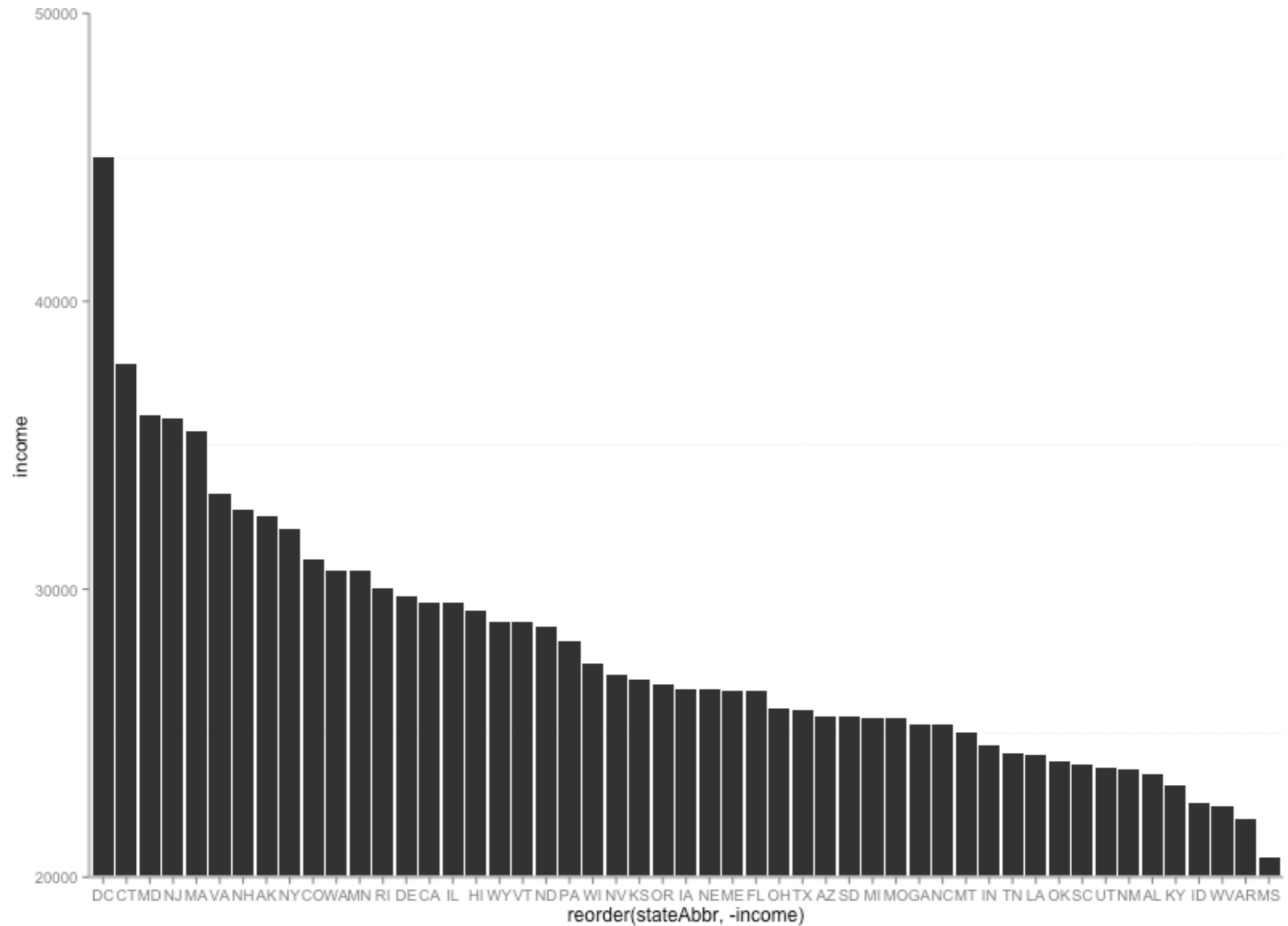
Reconfigure

show me different arrangements



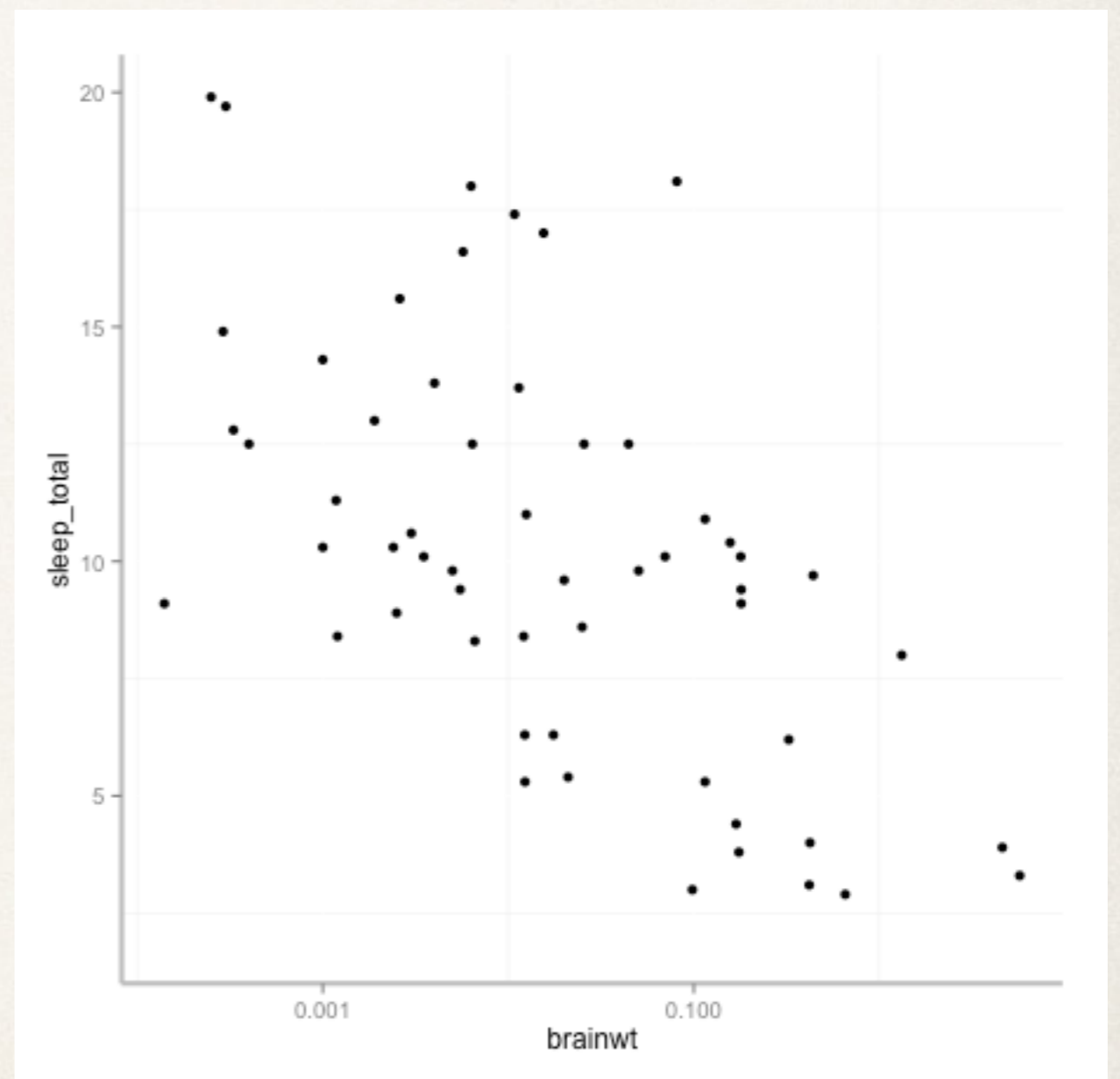
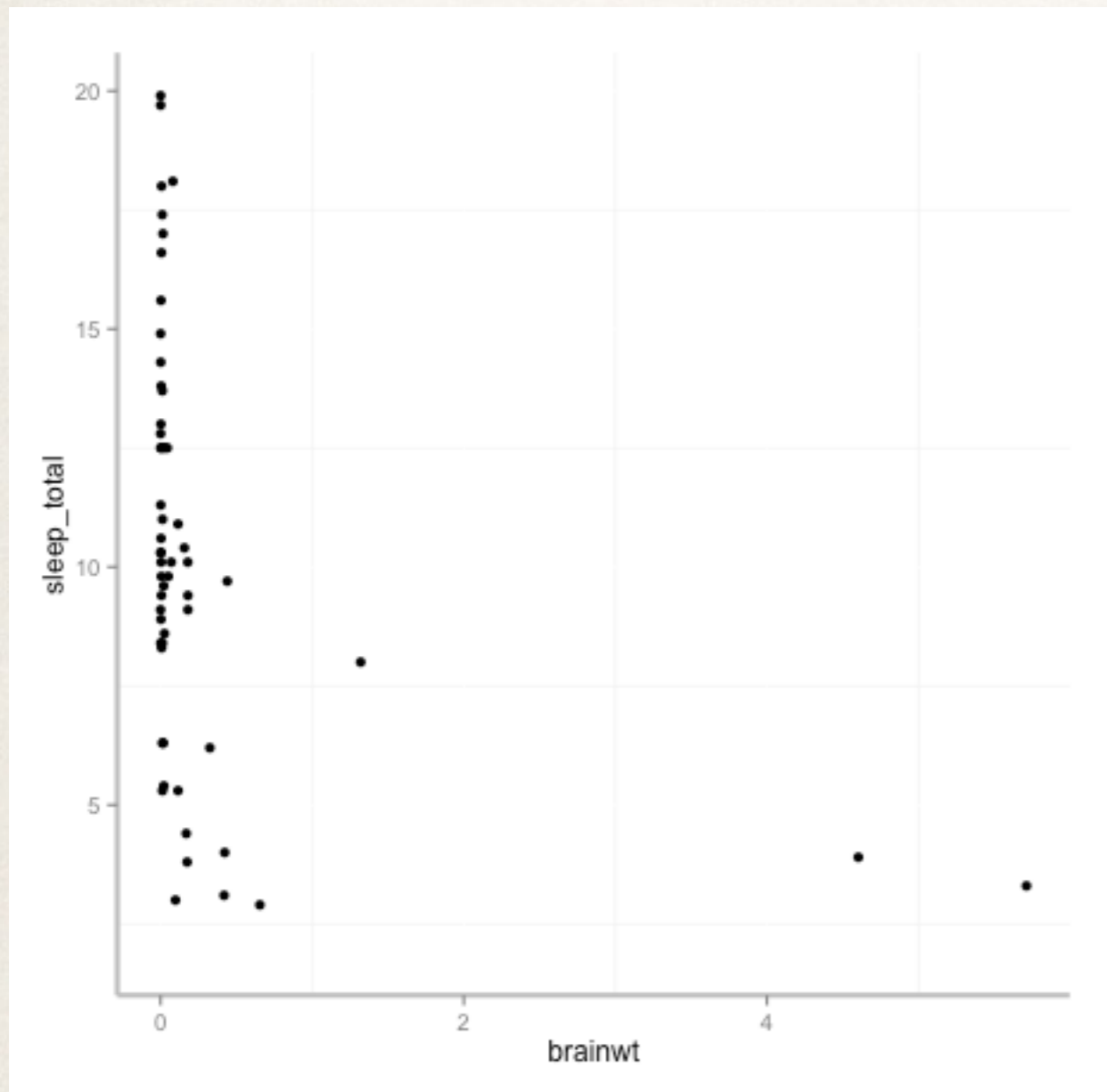
Reconfigure

show me different arrangements



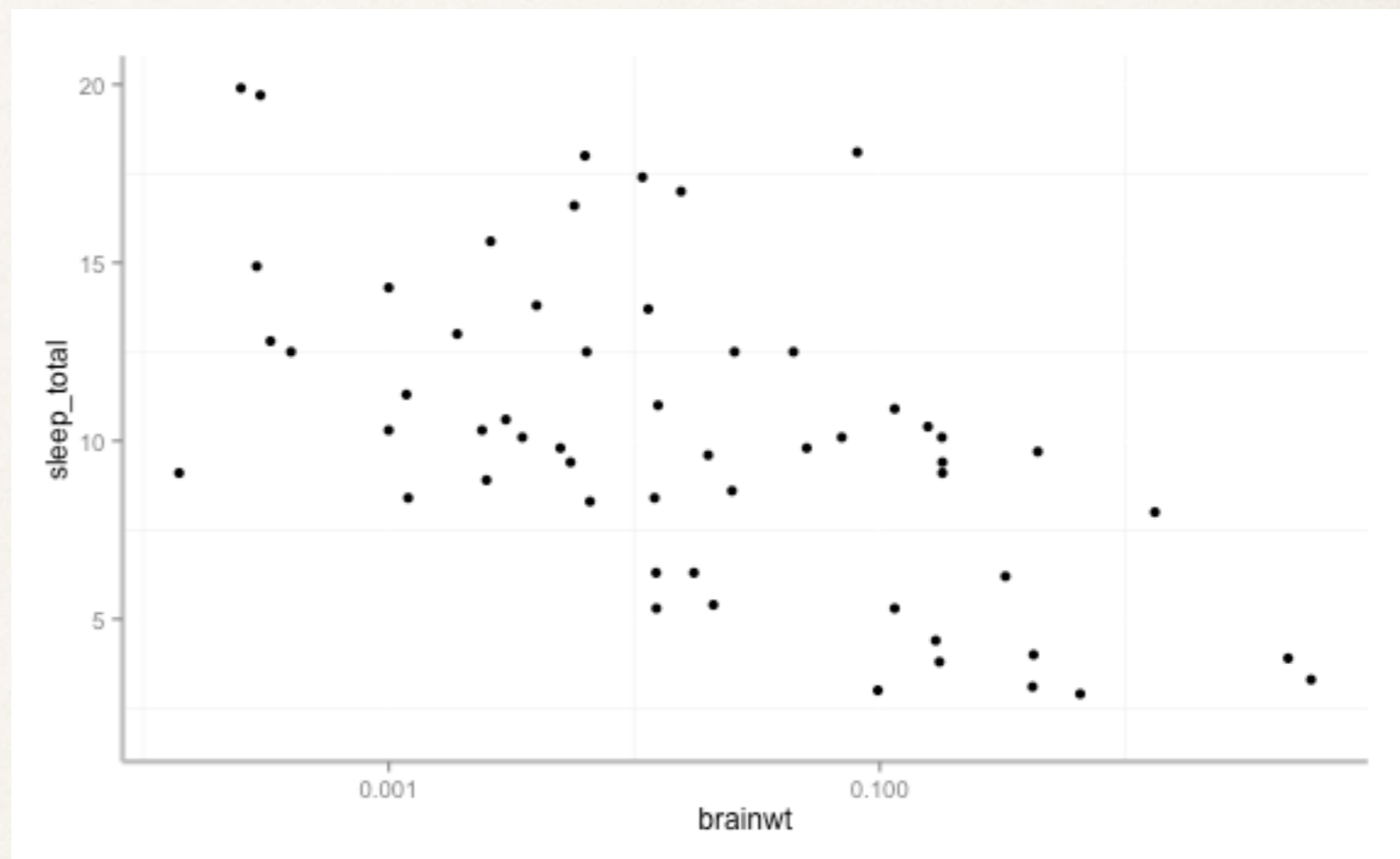
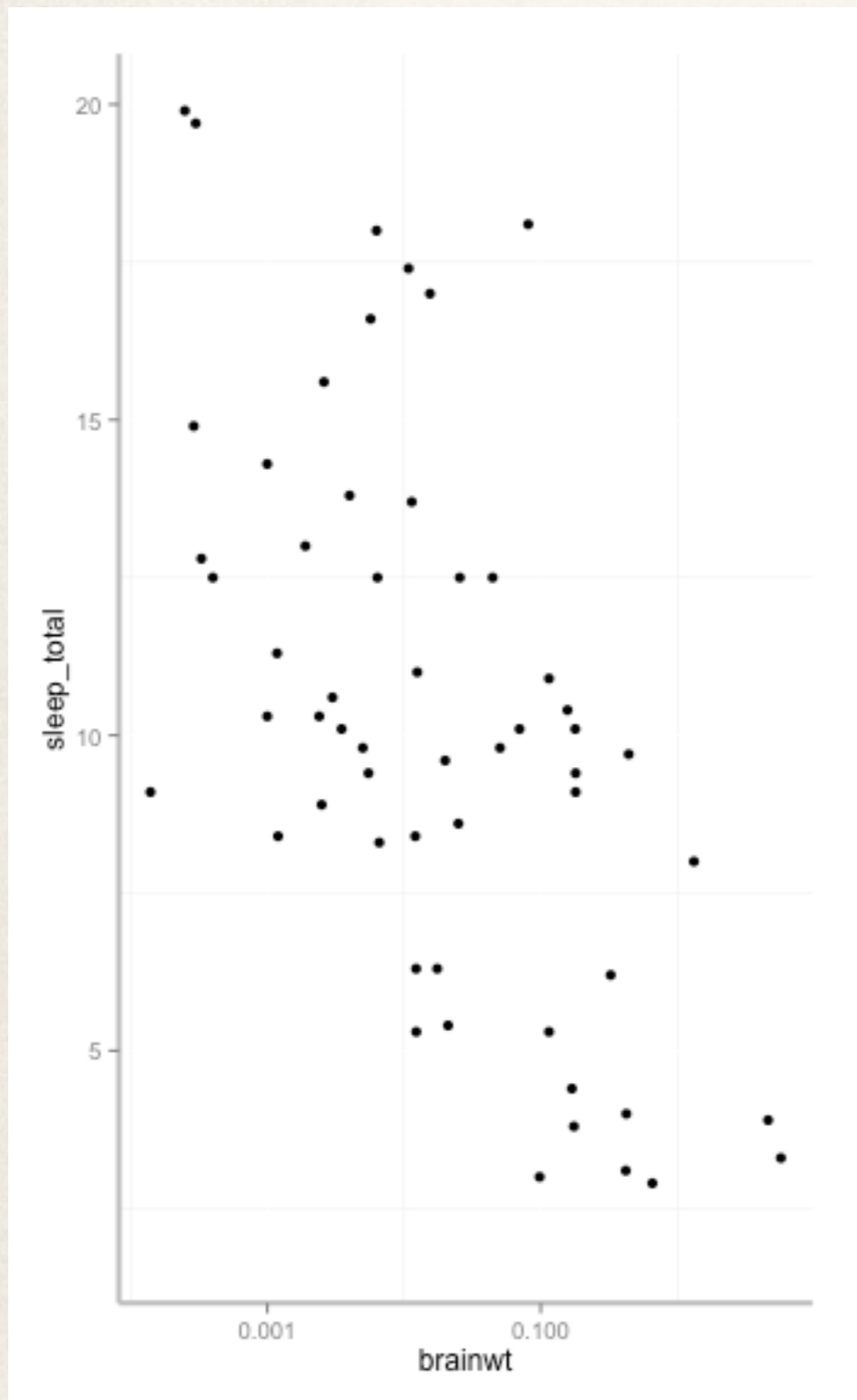
Reconfigure

show me different arrangements



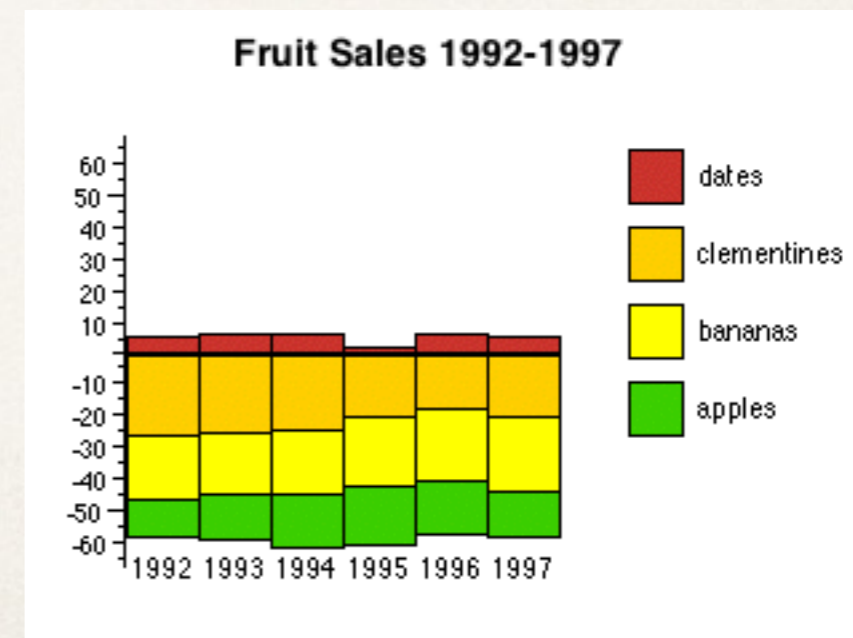
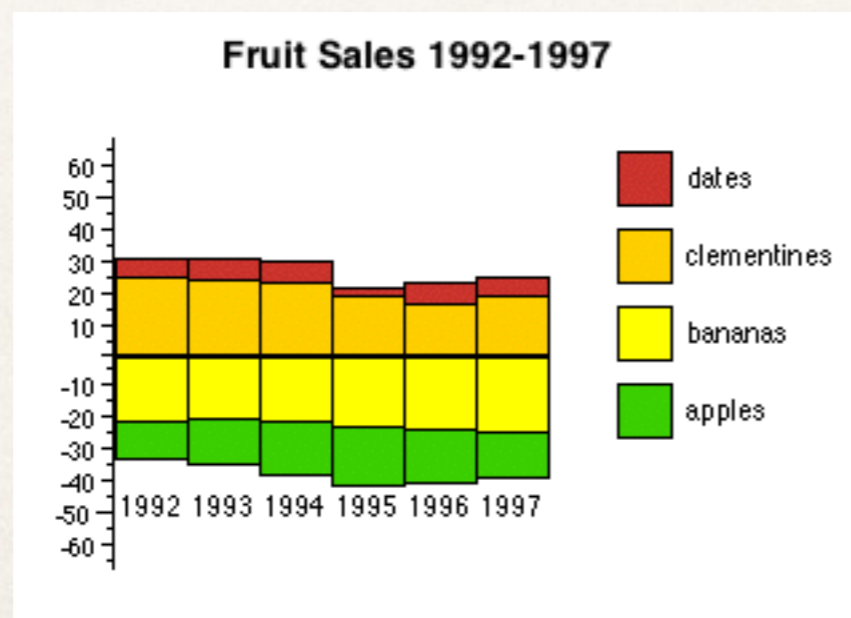
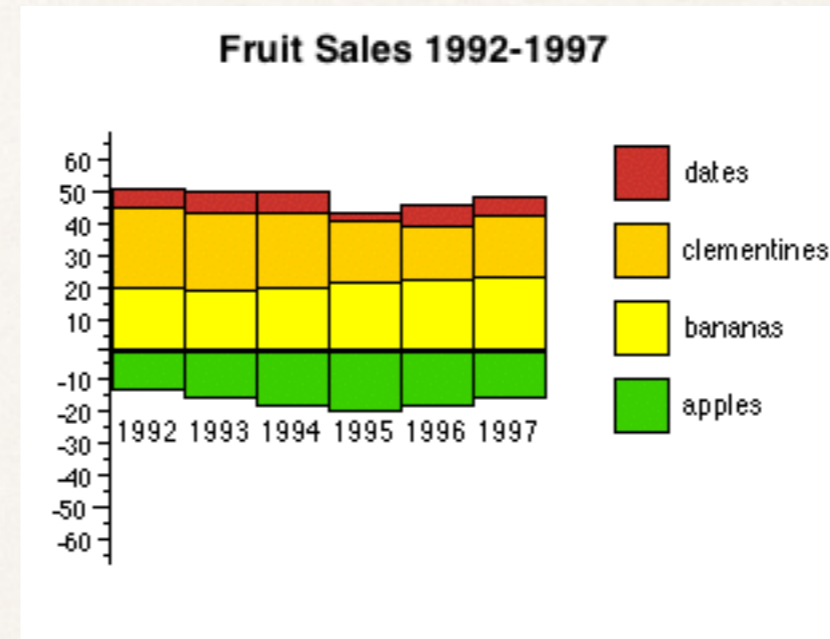
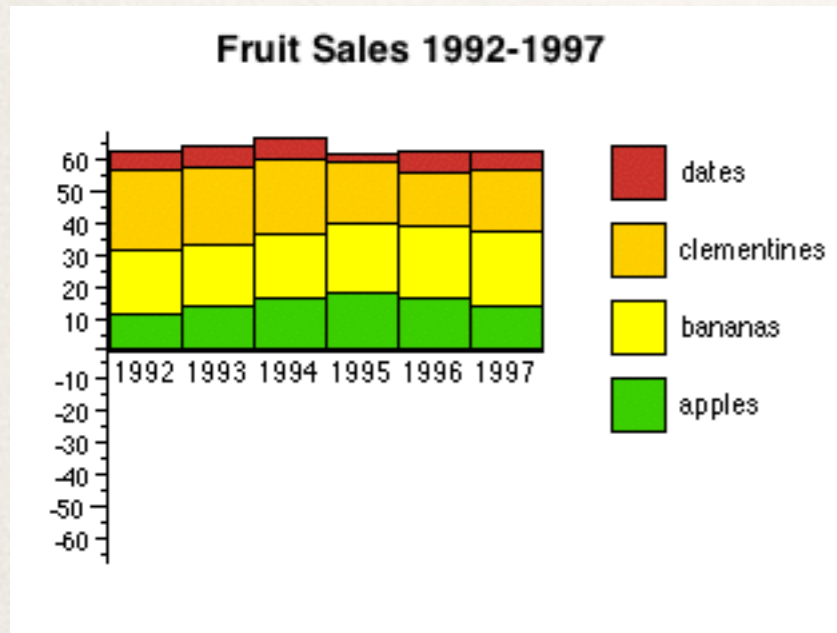
Reconfigure

show me different arrangements



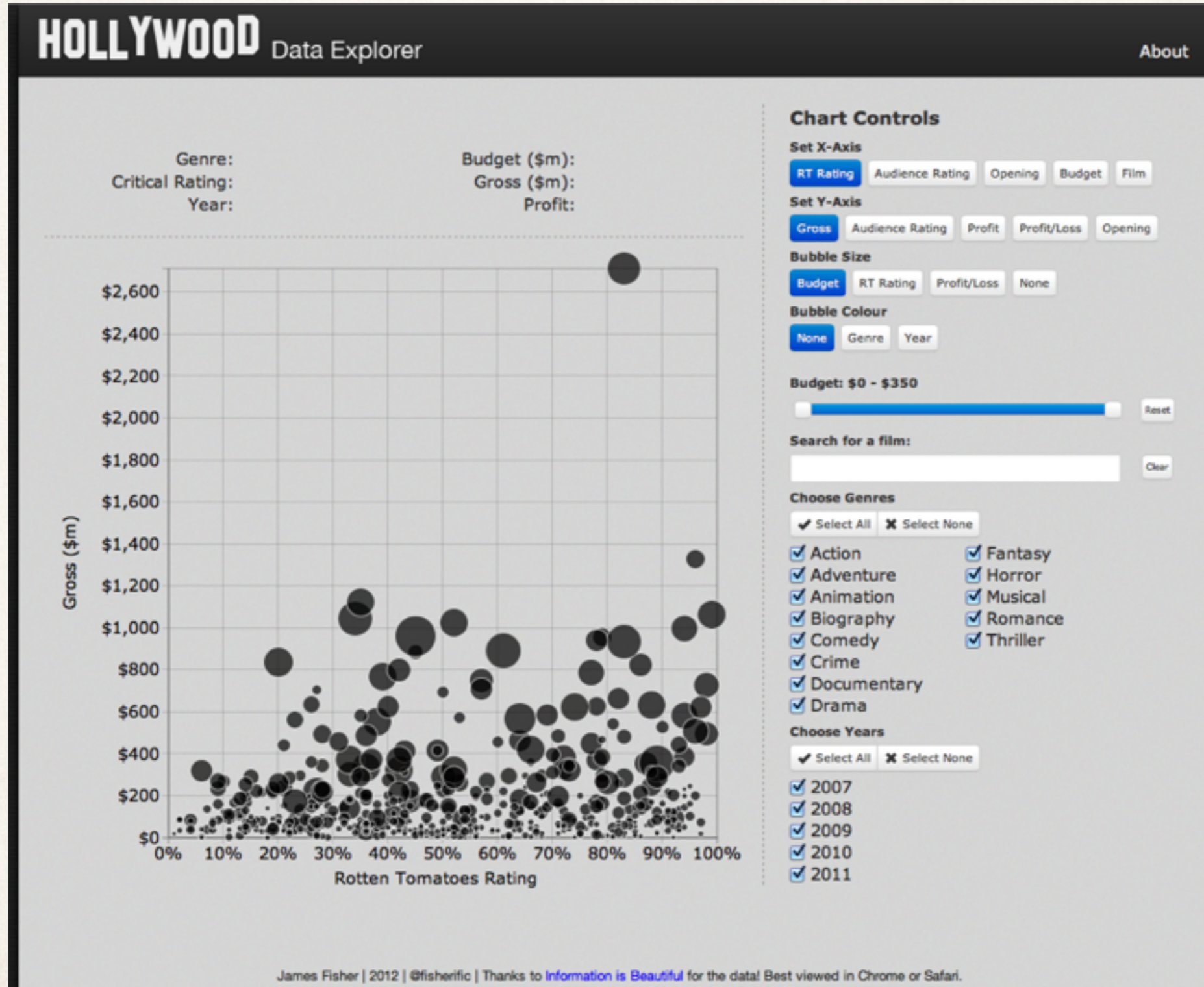
Reconfigure

show me different arrangements



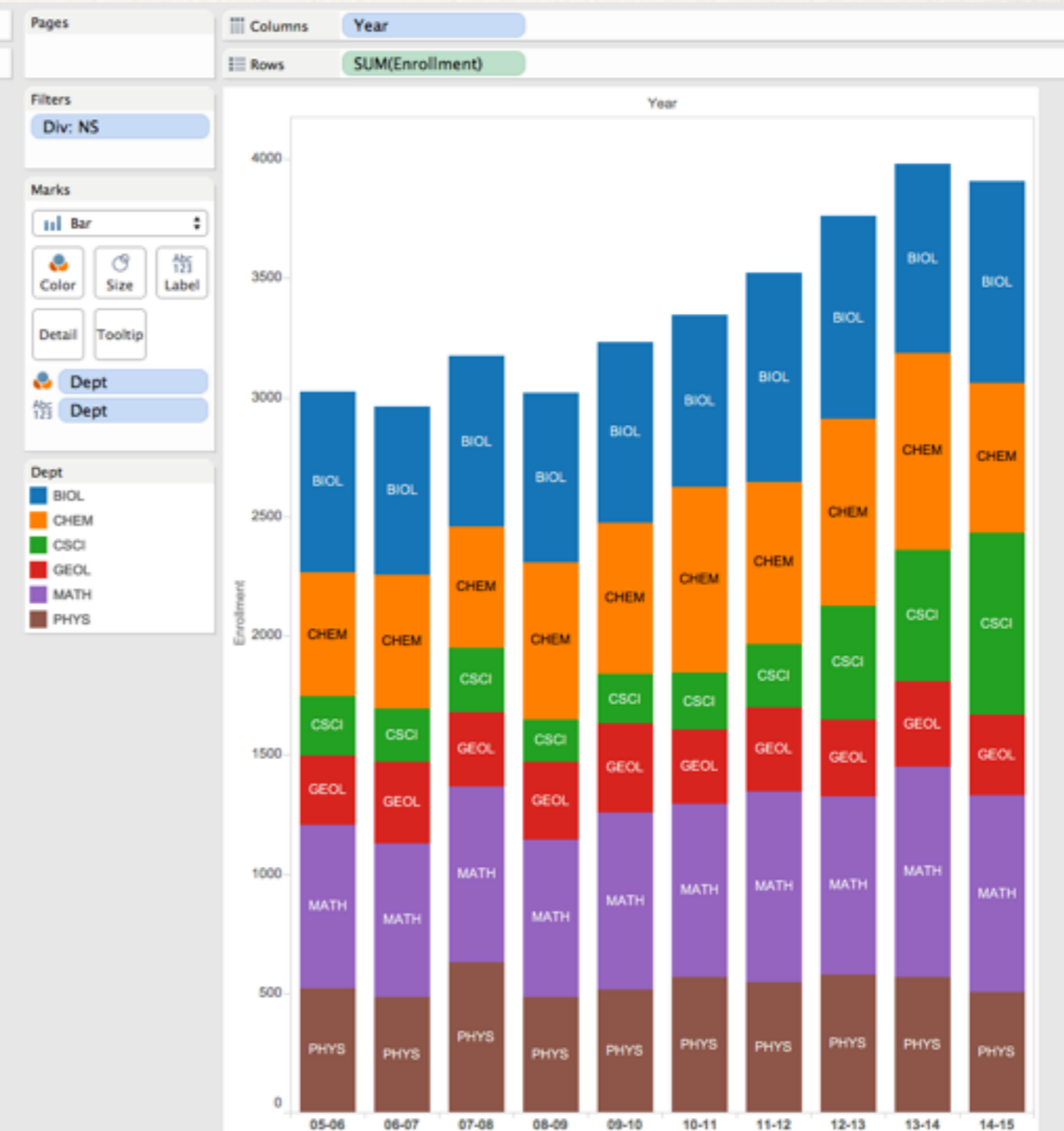
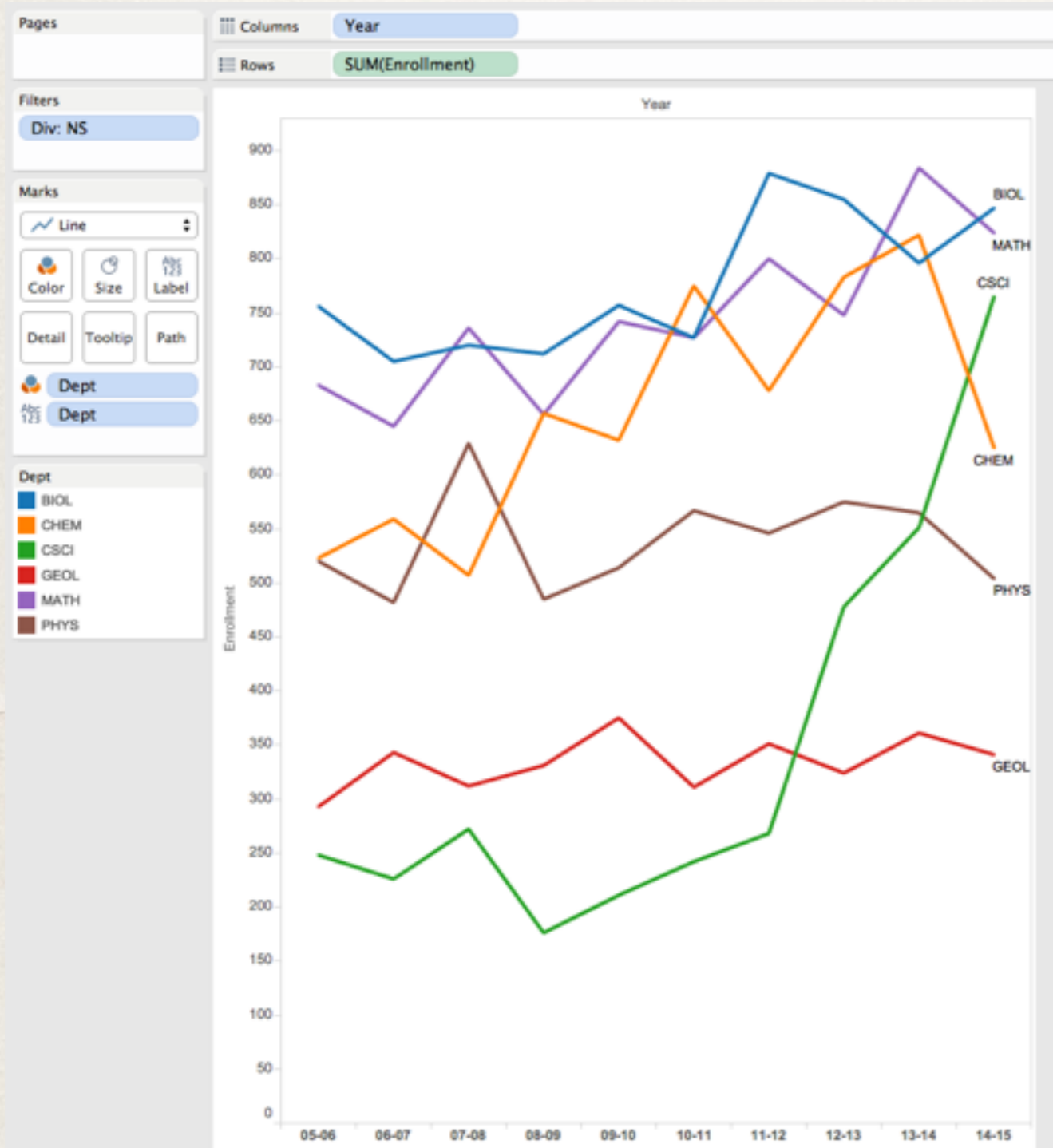
Reconfigure

show me different arrangements



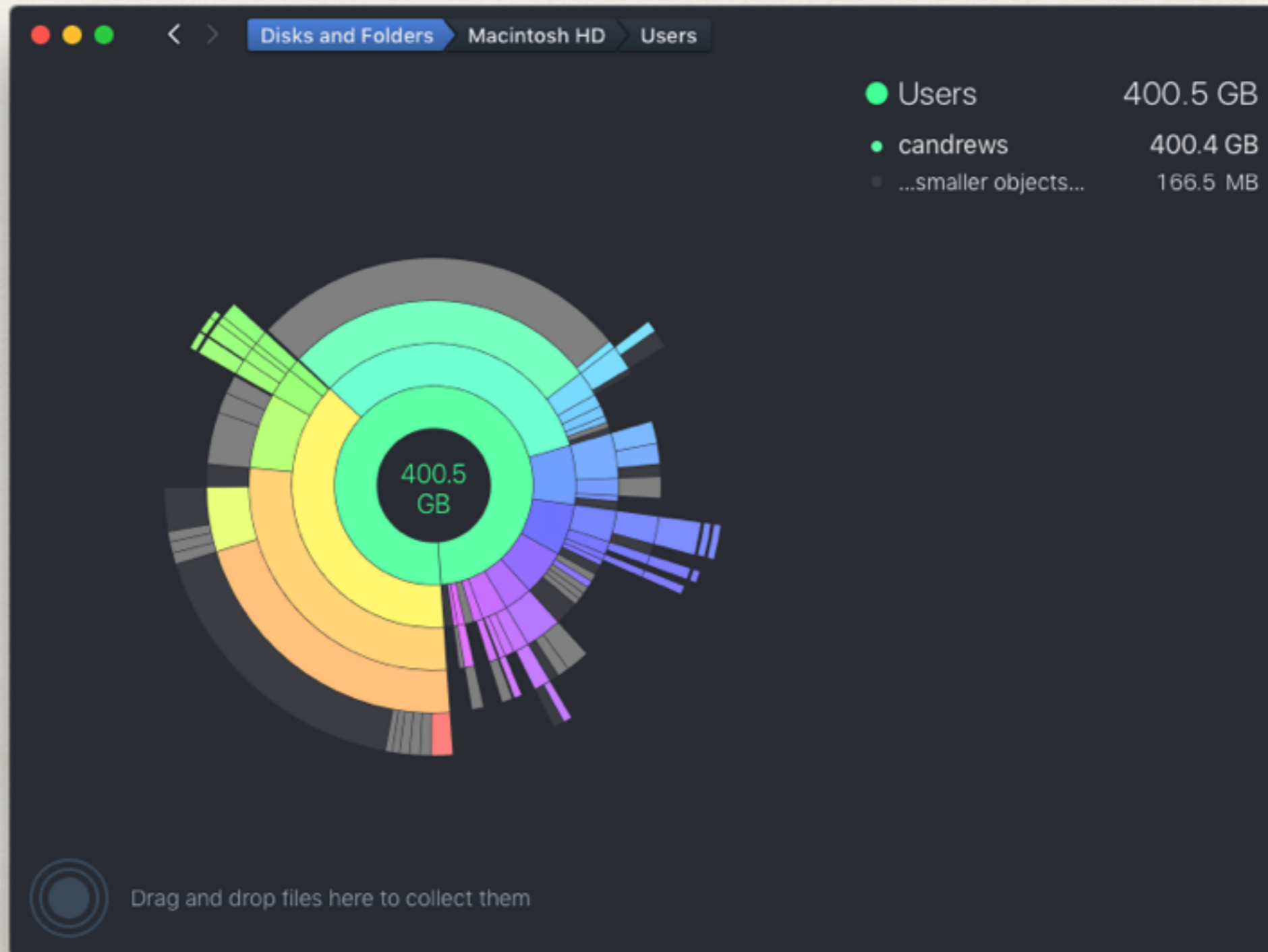
Encode

change the visual representations



Abstract/Elaborate

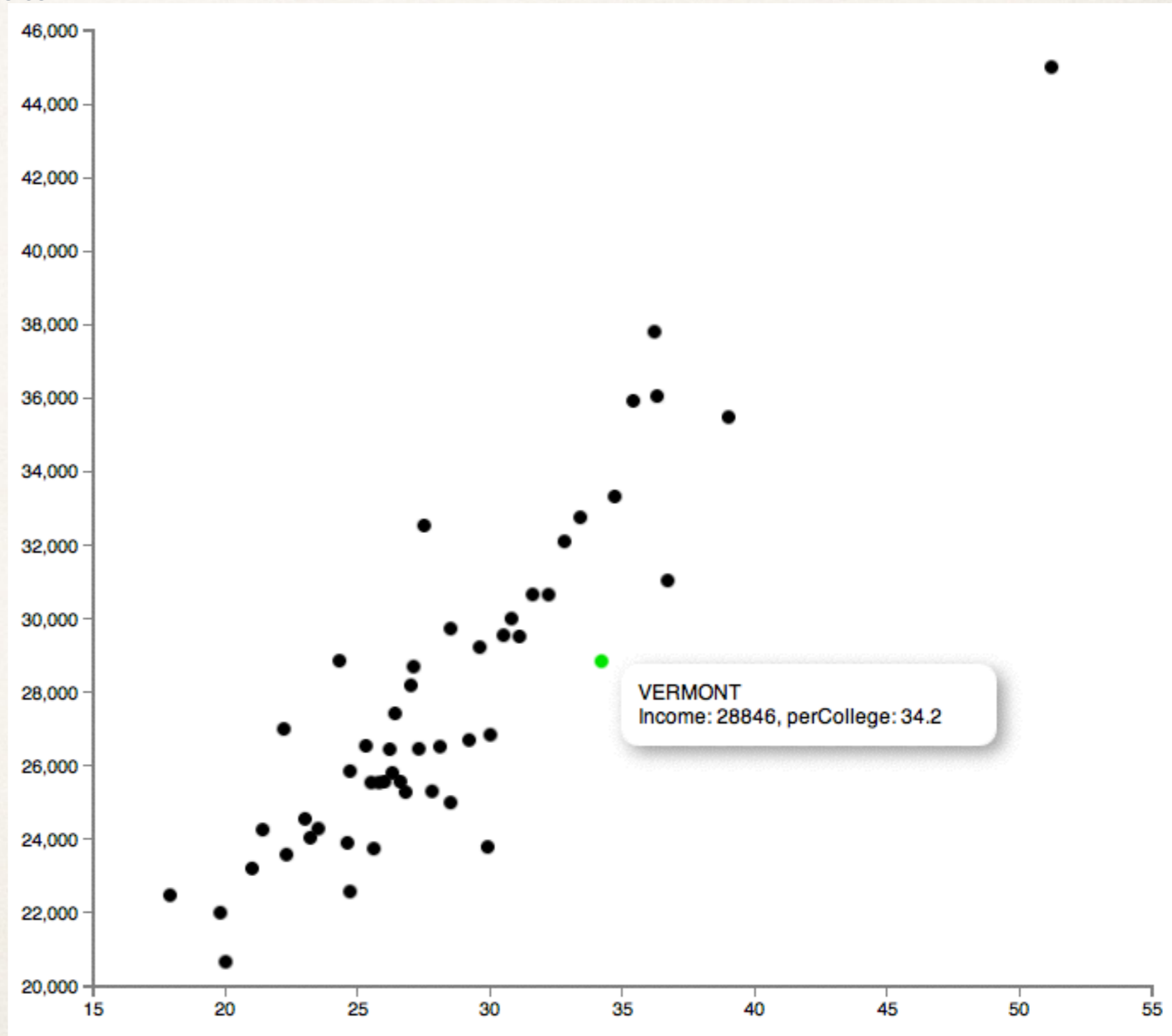
show me more or less detail



Abstract/Elaborate

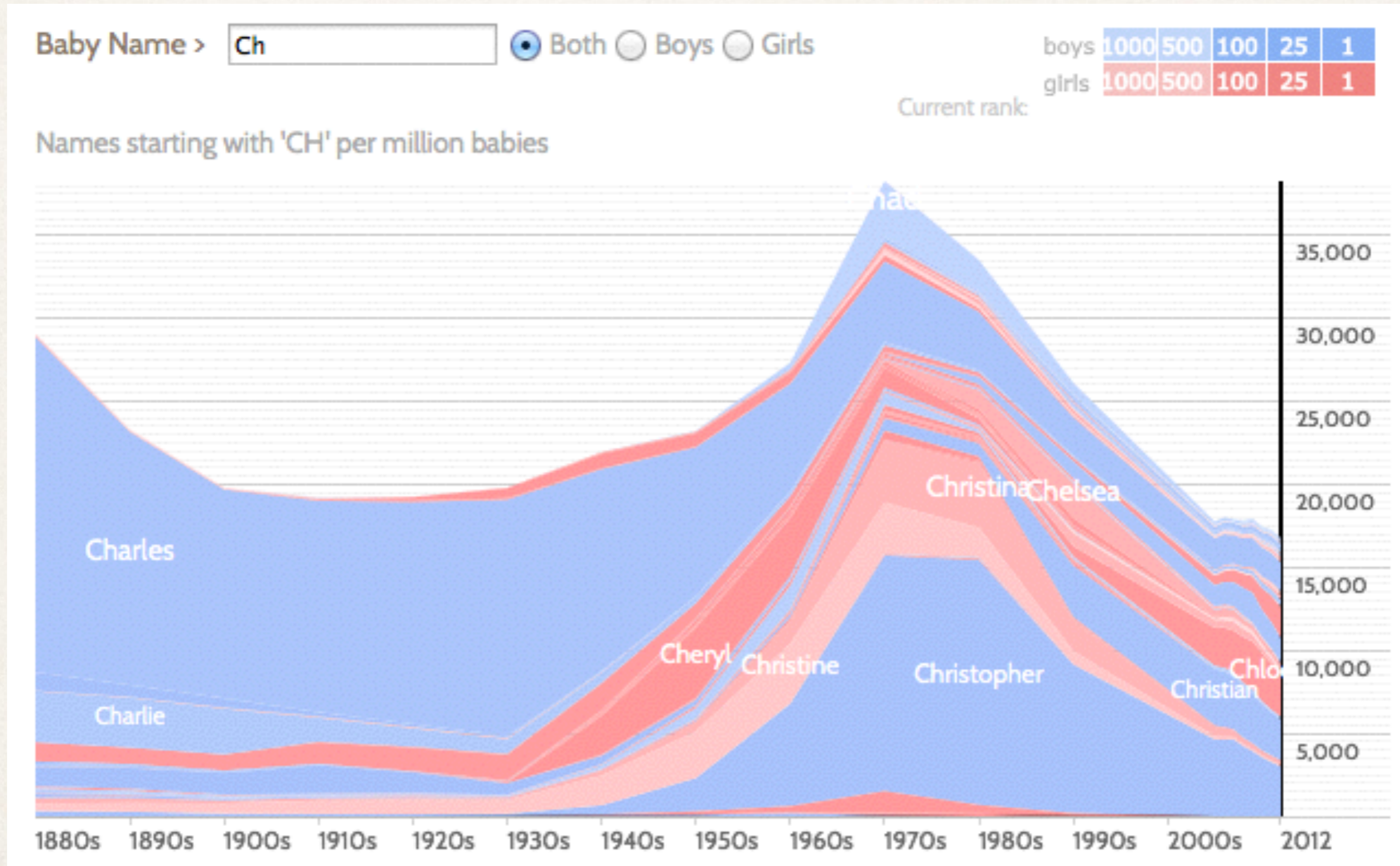
show me more or less detail

“details on demand”



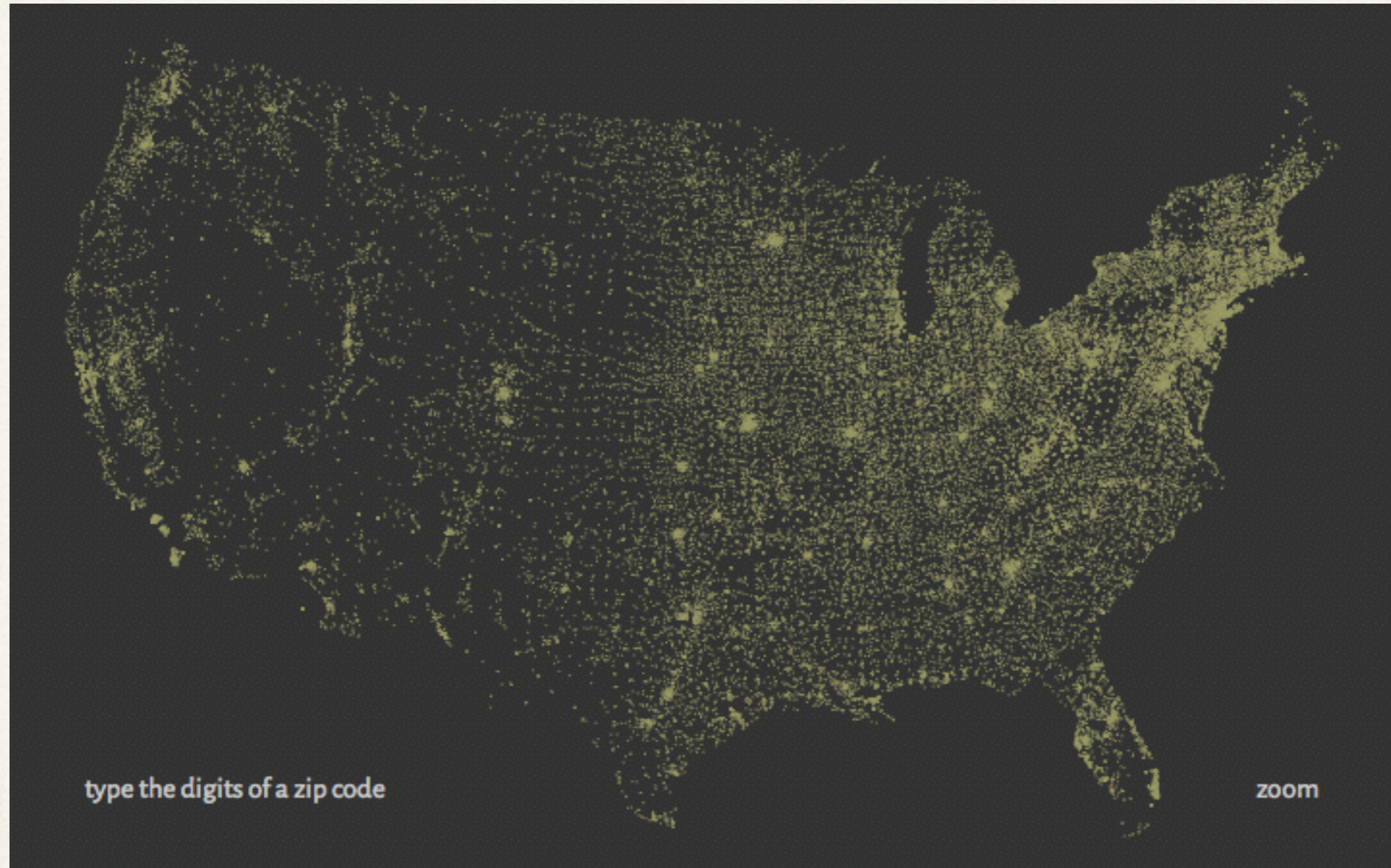
Filter

conditionally show me something



Filter

conditionally show me something



Query language

```
SELECT address FROM realestateDB WHERE sqFoot >= 1500  
AND bedrooms >= 3 AND garage == TRUE AND price <=  
$300000
```

```
movies90 <- subset(movies, year>=1990 & year <2000)
```

Dynamic queries

Dynamic HomeFinder

Reset Quit

Save Print

Dist to A:
1 30
19

Dist to B:
1 30
6

Bedrooms:
1 7
2 4

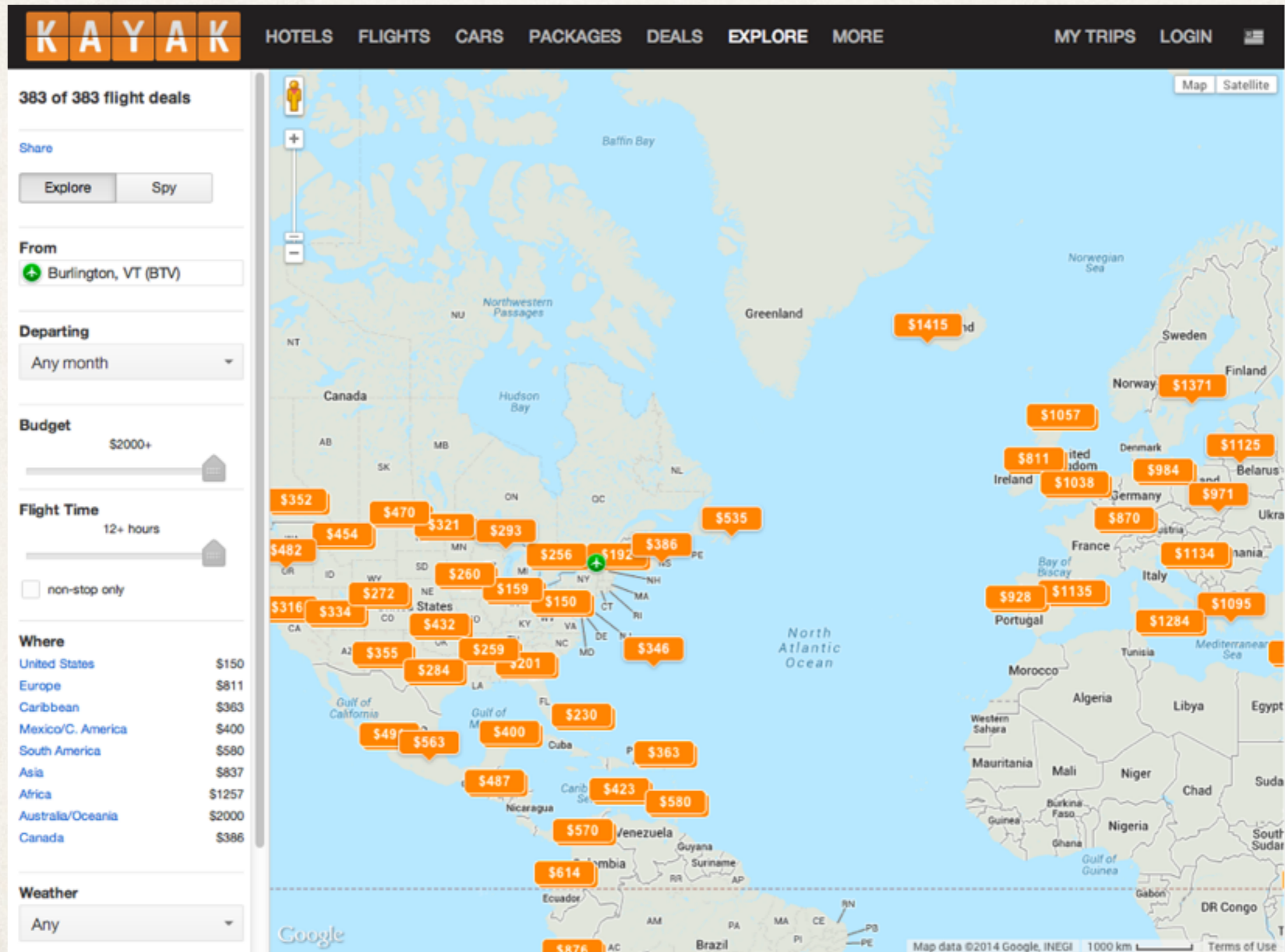
Cost:
\$50k \$500k
16 38

Look at:
Hse TH Cnd

Features:
Grg Fp1
CAC New

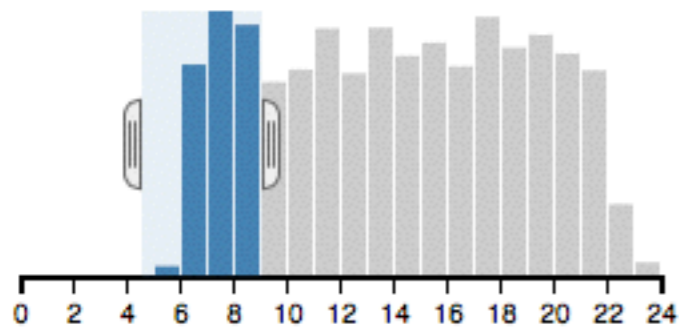
The yellow dots above are homes in the DC area for sale. You may get more information on a home by selecting it. You may drag the 'A' and 'B' distance markers to your office or any other location you want to live near. Select distances, bedrooms, and cost ranges by dragging the corresponding slider boxes on the right. Select specific home types and services by pressing the labeled buttons on the right.

Dynamic queries

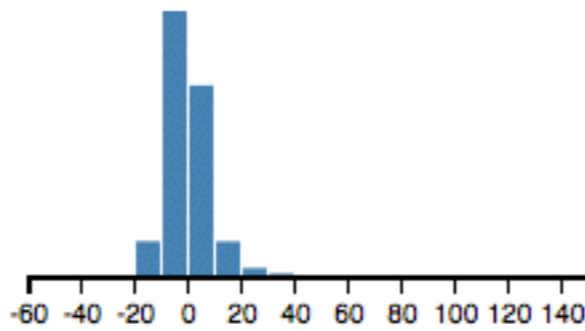


Brushed histograms

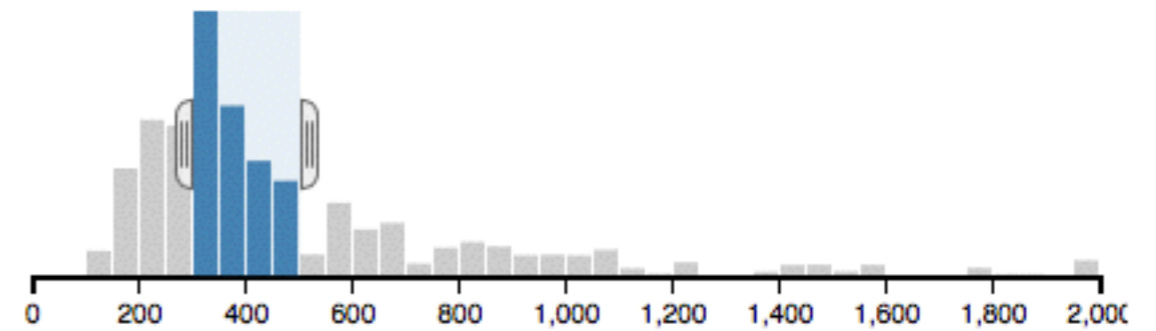
Time of Day [reset](#)



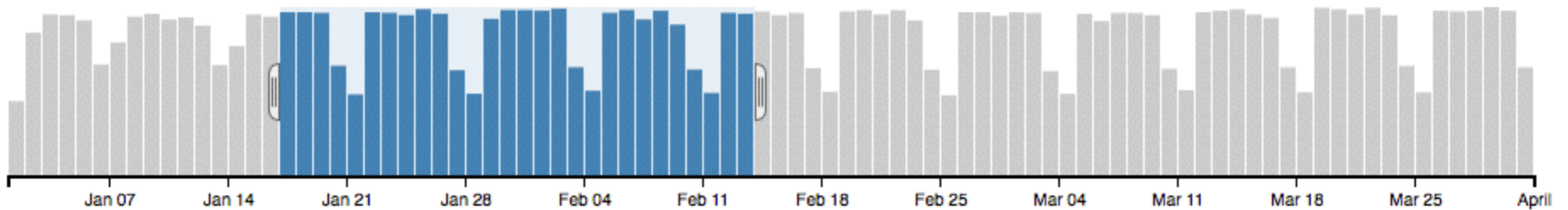
Arrival Delay (min.)



Distance (mi.) [reset](#)

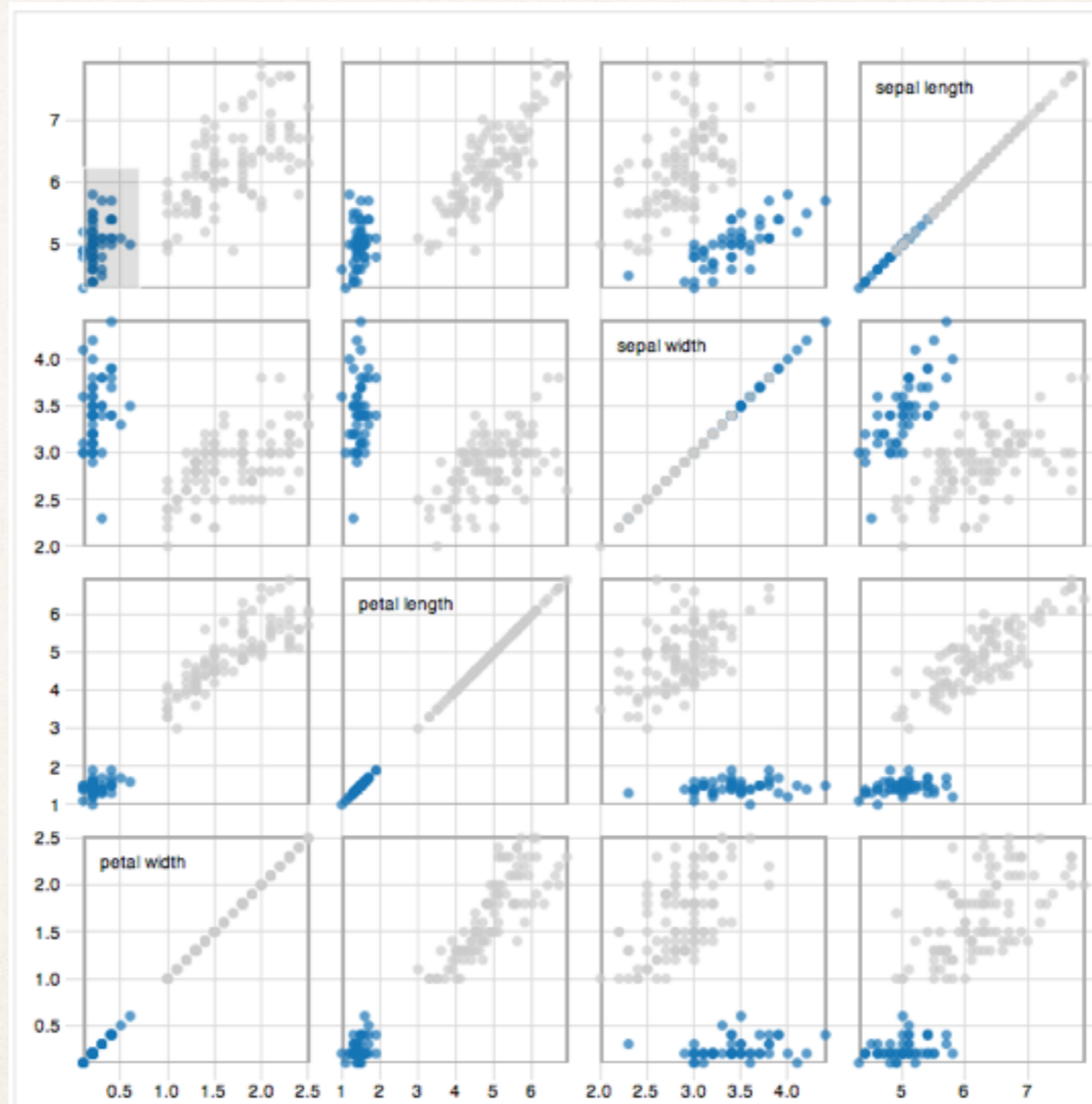


Date [reset](#)



Connect

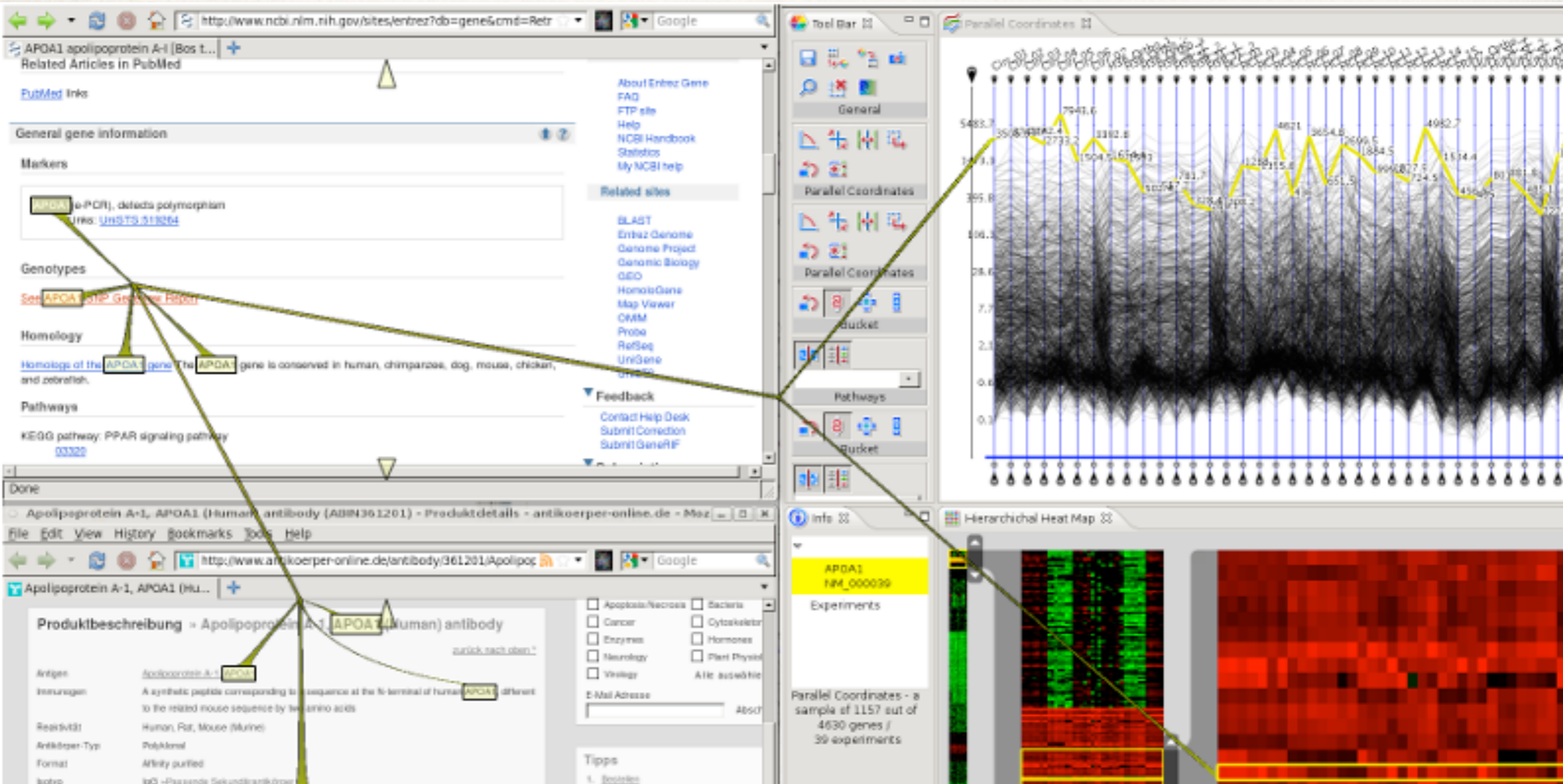
show me related items



brush and link

Connect

show me related items



Album Reviews @ Pitchfork

9 Reviews Artist: The Cure

Show All

Highlights

- Best New Music 0
- Best New Reissue 1

Artist

Search: 2 4 6 8

- The Smashing Pumpkins 0
- The Roots 0
- The Raveonettes 0
- The Cure 9**
- Sunn O))) 0
- Simian Mobile Disco 0
- Shearwater 0
- Ryan Adams 0
- Portastatic 0
- Plaid 0

1014 Rows ~918 More

Label

Search: 1 2

- Rhino 2**
- (n/a) 1
- Geffen 1
- Elektra 1
- PIAS 1
- Sire 1
- Elektra / Rhino 1

7 Rows # 1 2

id Search: Artist

15545	The Cure - Bloodflowers
12531	The Cure - Join the Dots: B-Sides and Rarities 1978-2001: The Fiction Years
12157	The Cure - The Cure
11575	The Cure - Three Imaginary Boys [Deluxe Edition]
11125	The Cure - Seventeen Seconds
9580	The Cure - The Top
6915	The Cure - 4:13 Dream
5040	The Cure - Disintegration [Deluxe Edition]
3251	The Cure - Bestival Live 2011

