Interaction

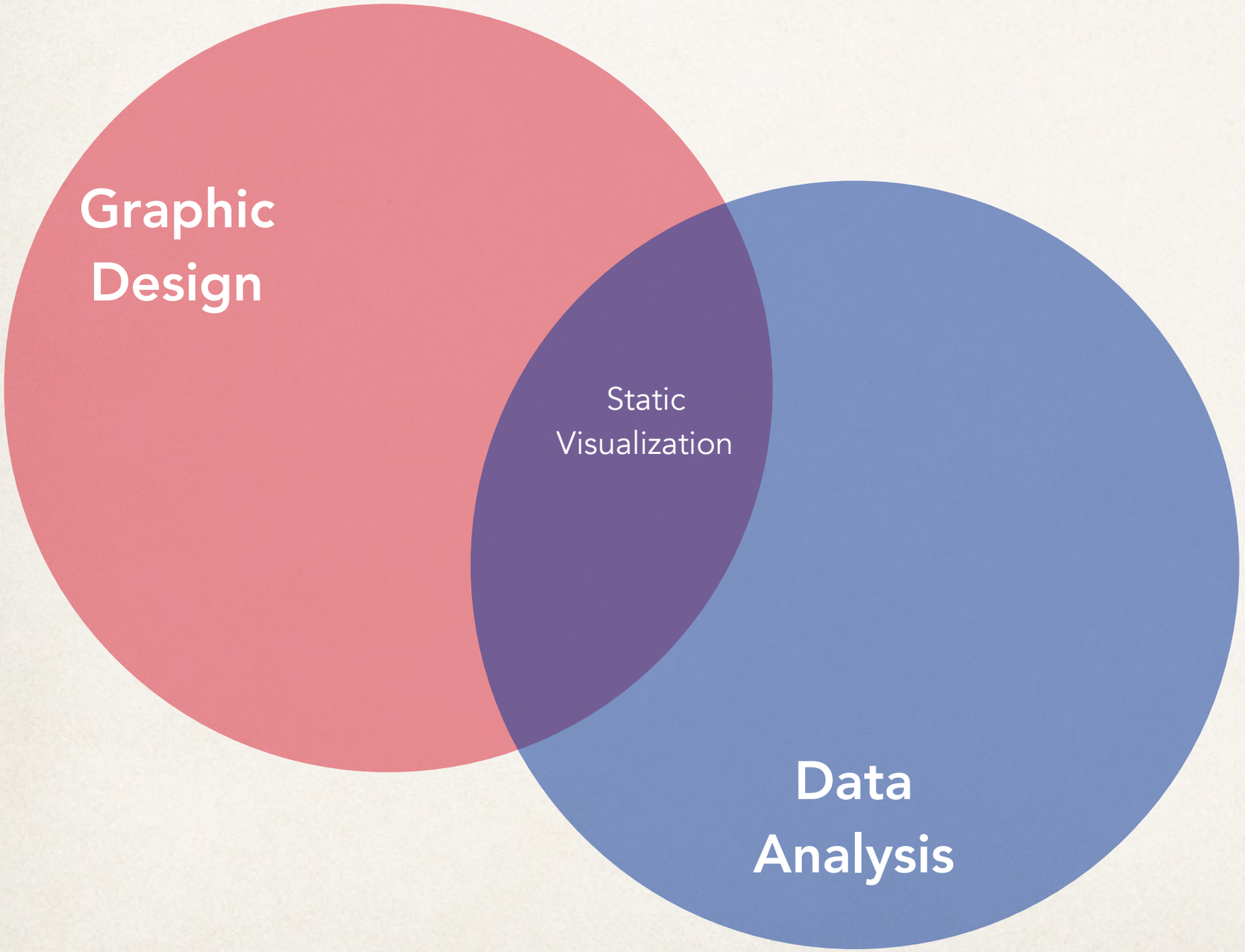
C. Andrews

2016-03-16

Graphic
Design

Data
Analysis

borrowed from Micheal Porath



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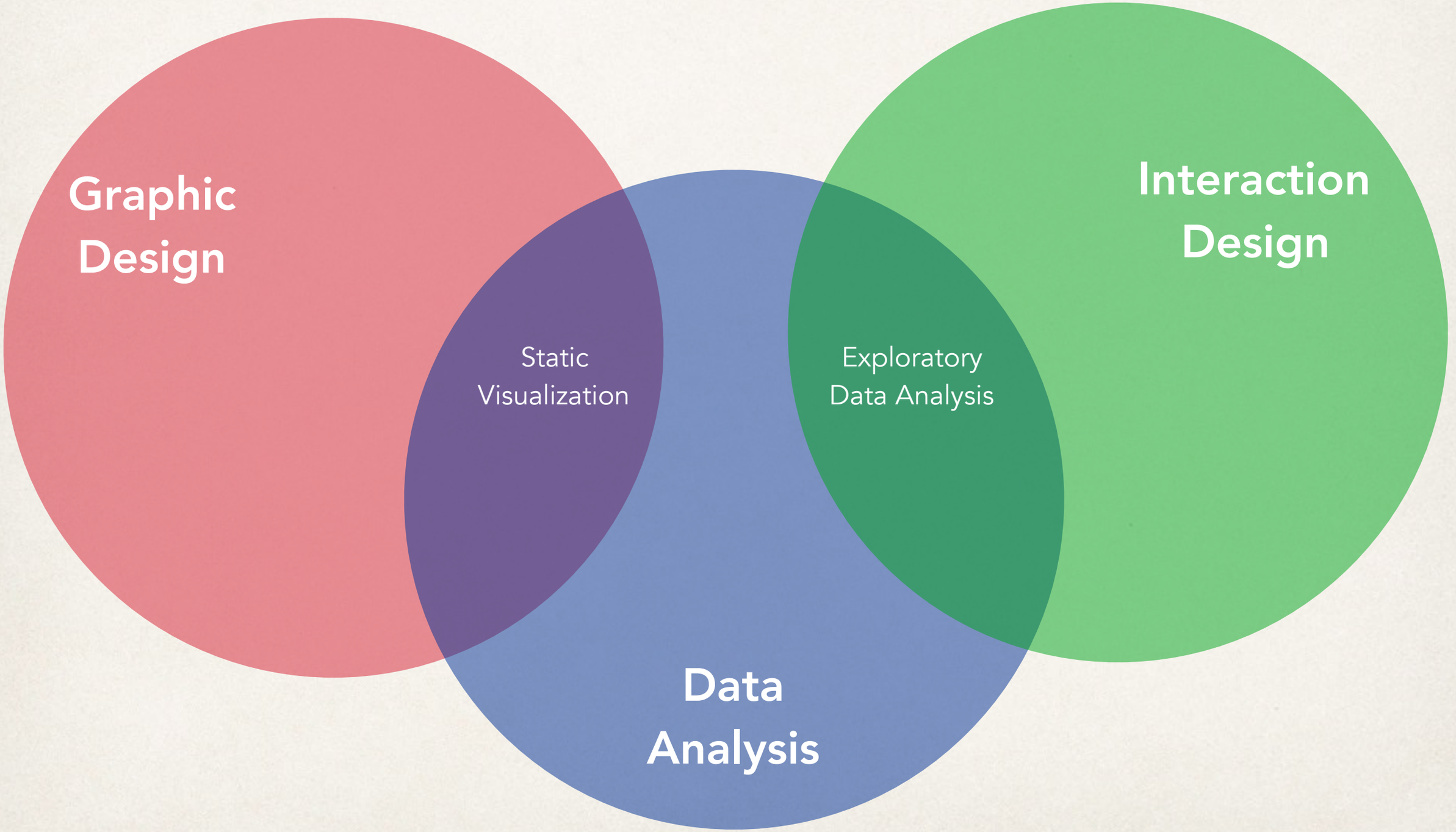

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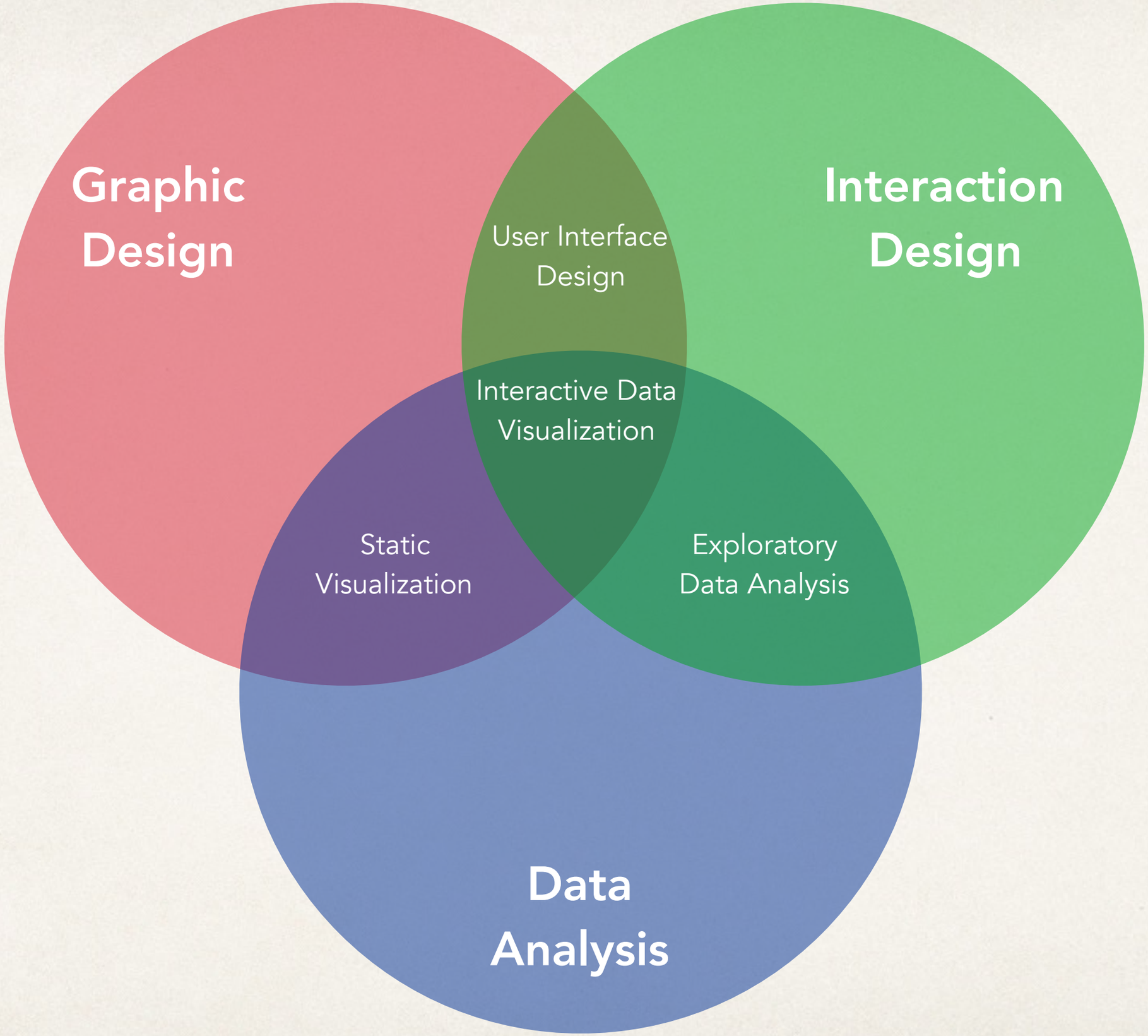


borrowed from Micheal Porath

Why interaction?

When is (static) representation not enough?

Scale

- Too many data points
- Too many dimensions

Exploration

Learning

Storytelling

borrowed from Micheal Porath

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

Yi, et al, 2007

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.

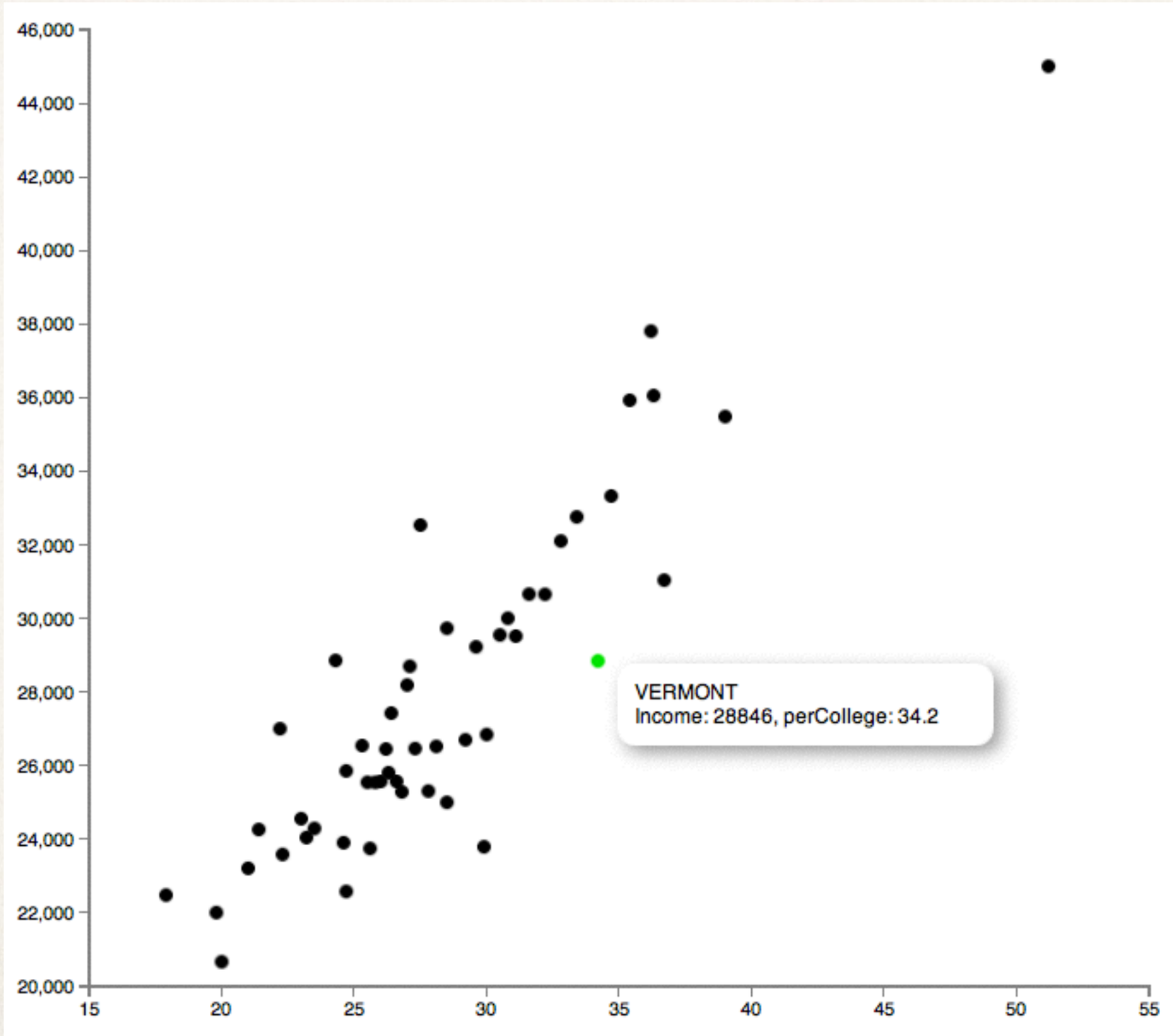
So, `i` is a numeric index value of the current element. Counting starts at zero, so for our "first" circle `i == 0`, the second circle's `i == 1`, and so on. We're using `i` to push each subsequent circle over to the right, because each subsequent loop through, the value of `i` increases by one:

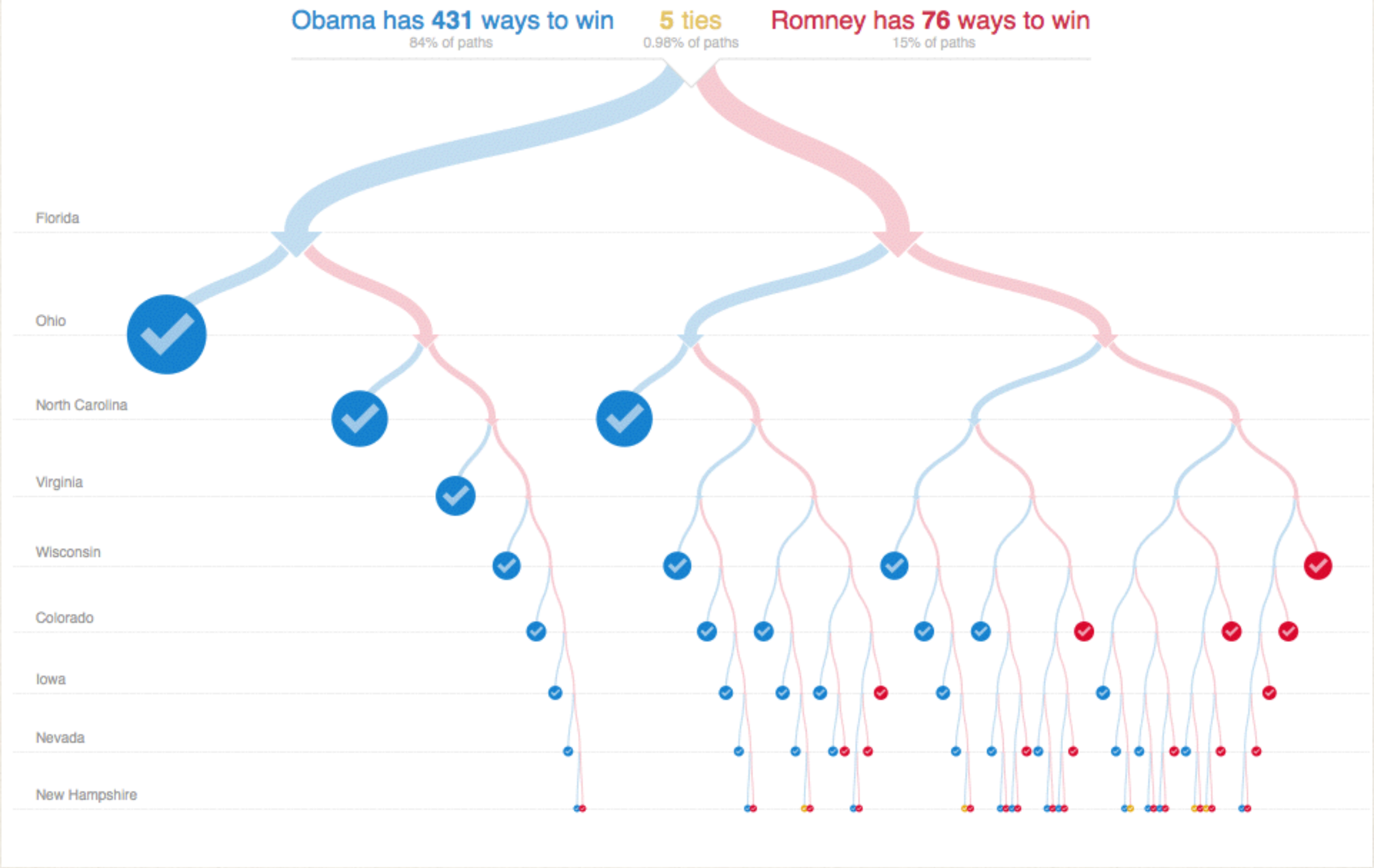
Select

mark something as interesting

Select

mark something as interesting

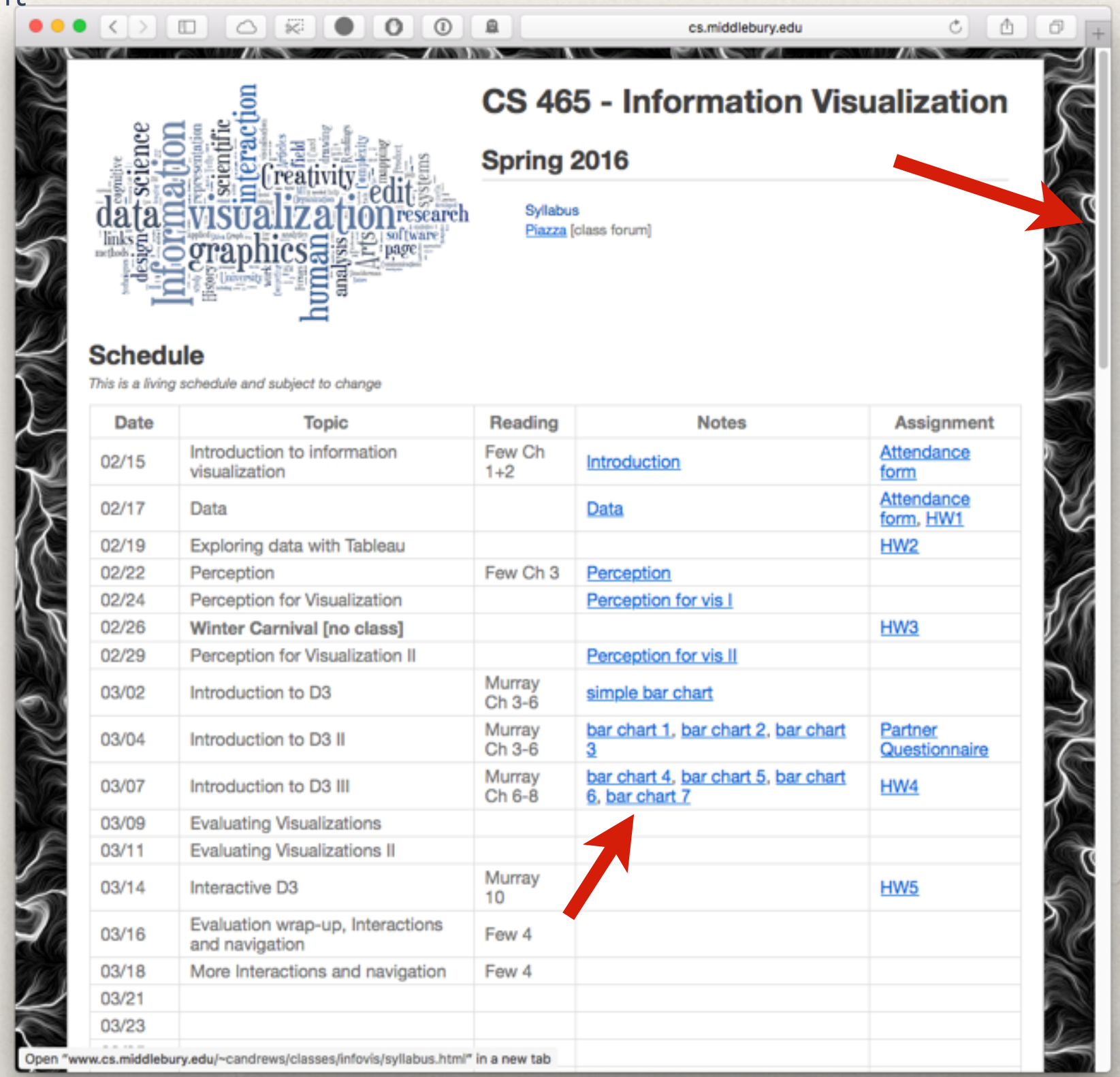




http://www.nytimes.com/interactive/2012/11/02/us/politics/paths-to-the-white-house.html?_r=0

Explore

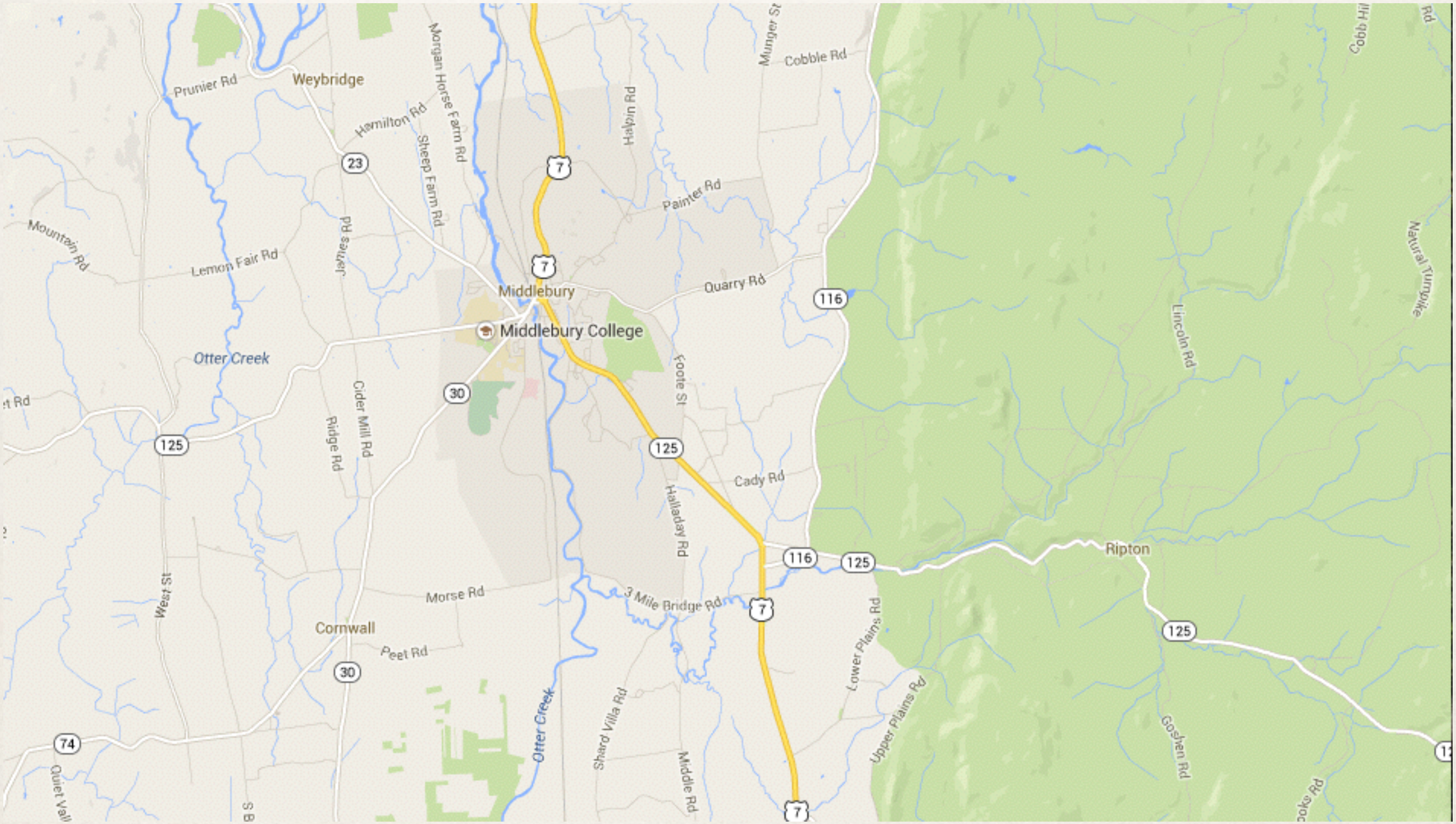
show me something different



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				

Explore

show me something different



Explore

show me something different

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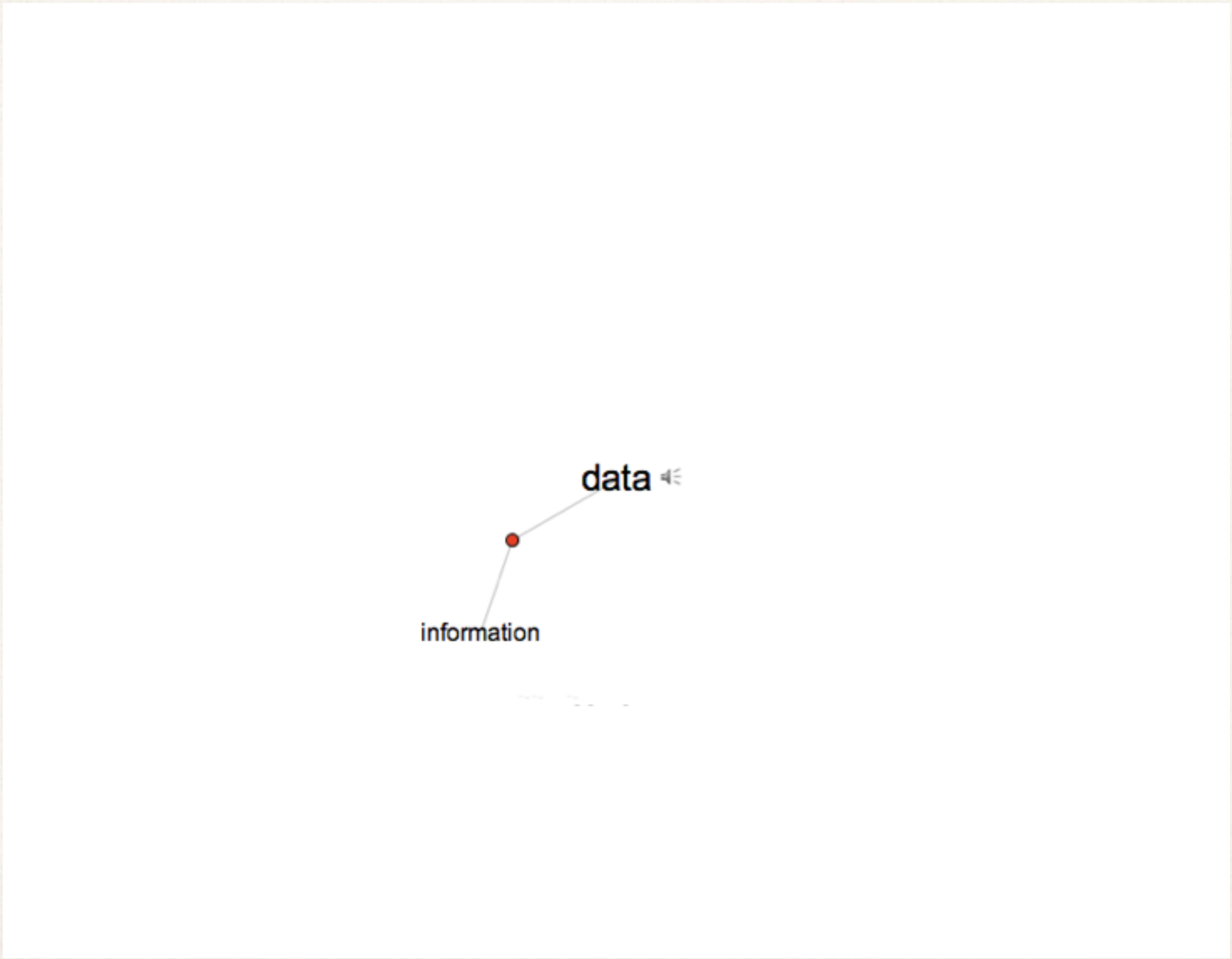
show me something different



http://www.visualthesaurus.com

Explore

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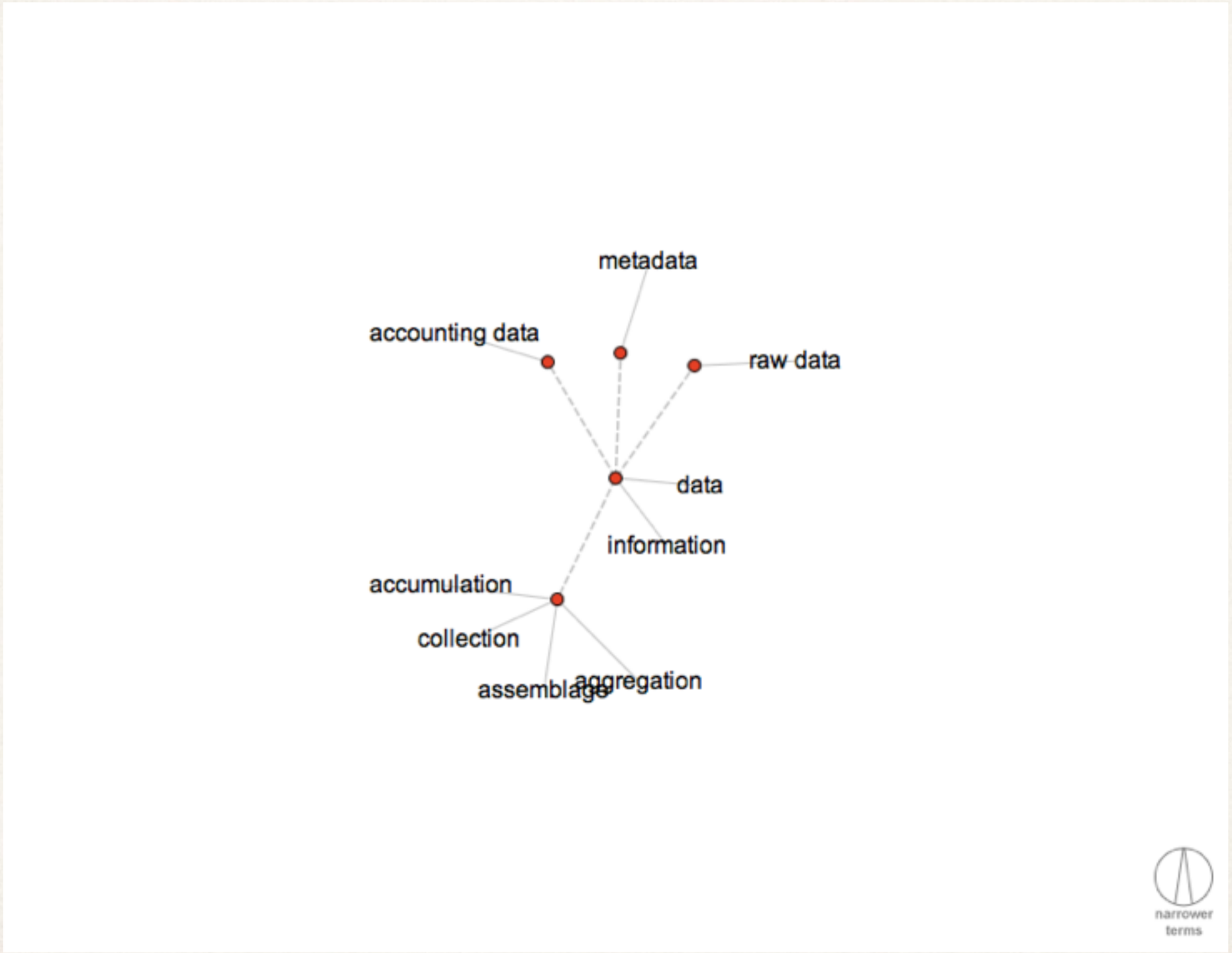
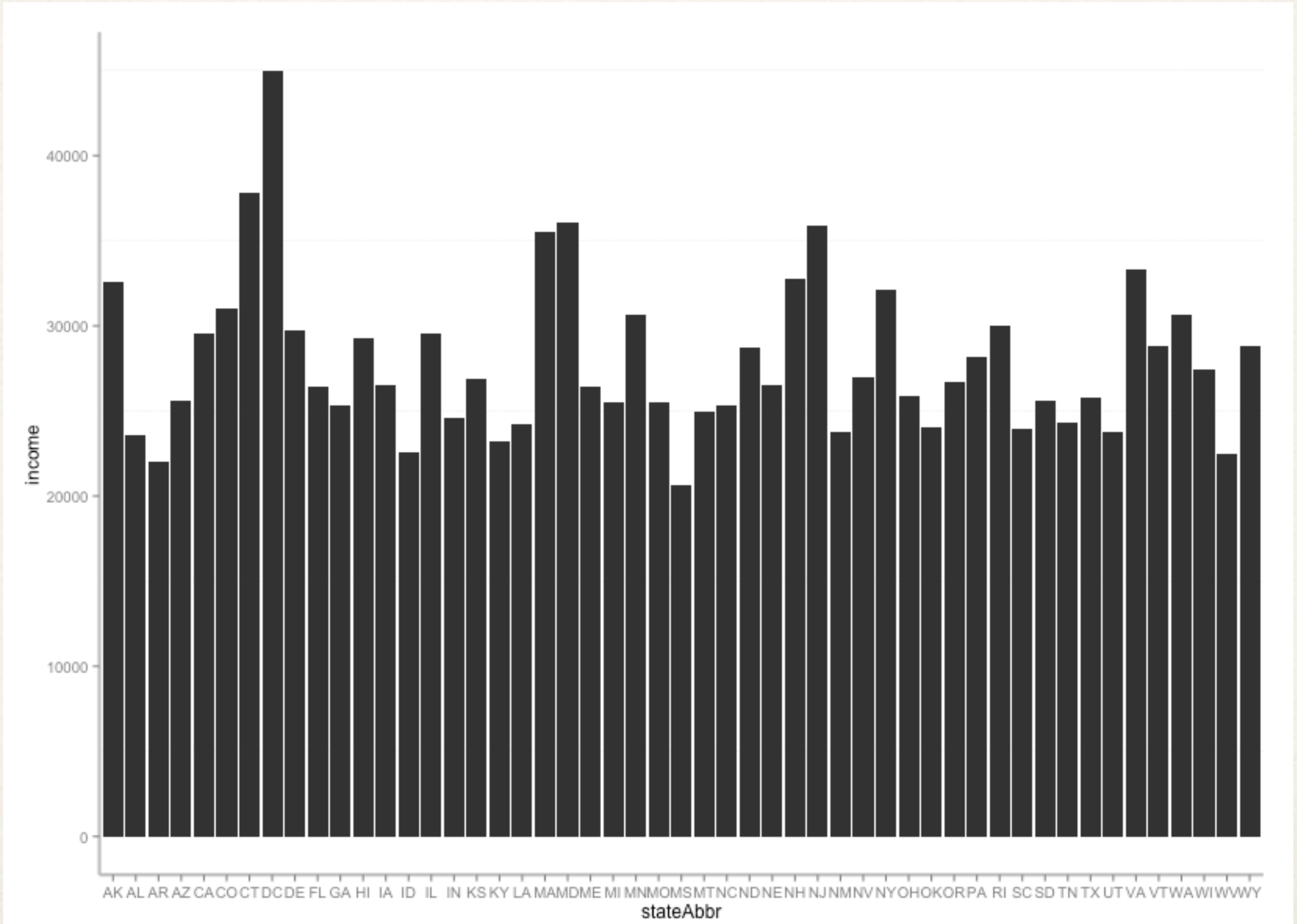


www.visualthesaurus.com

Reconfigure

show me different arrangements



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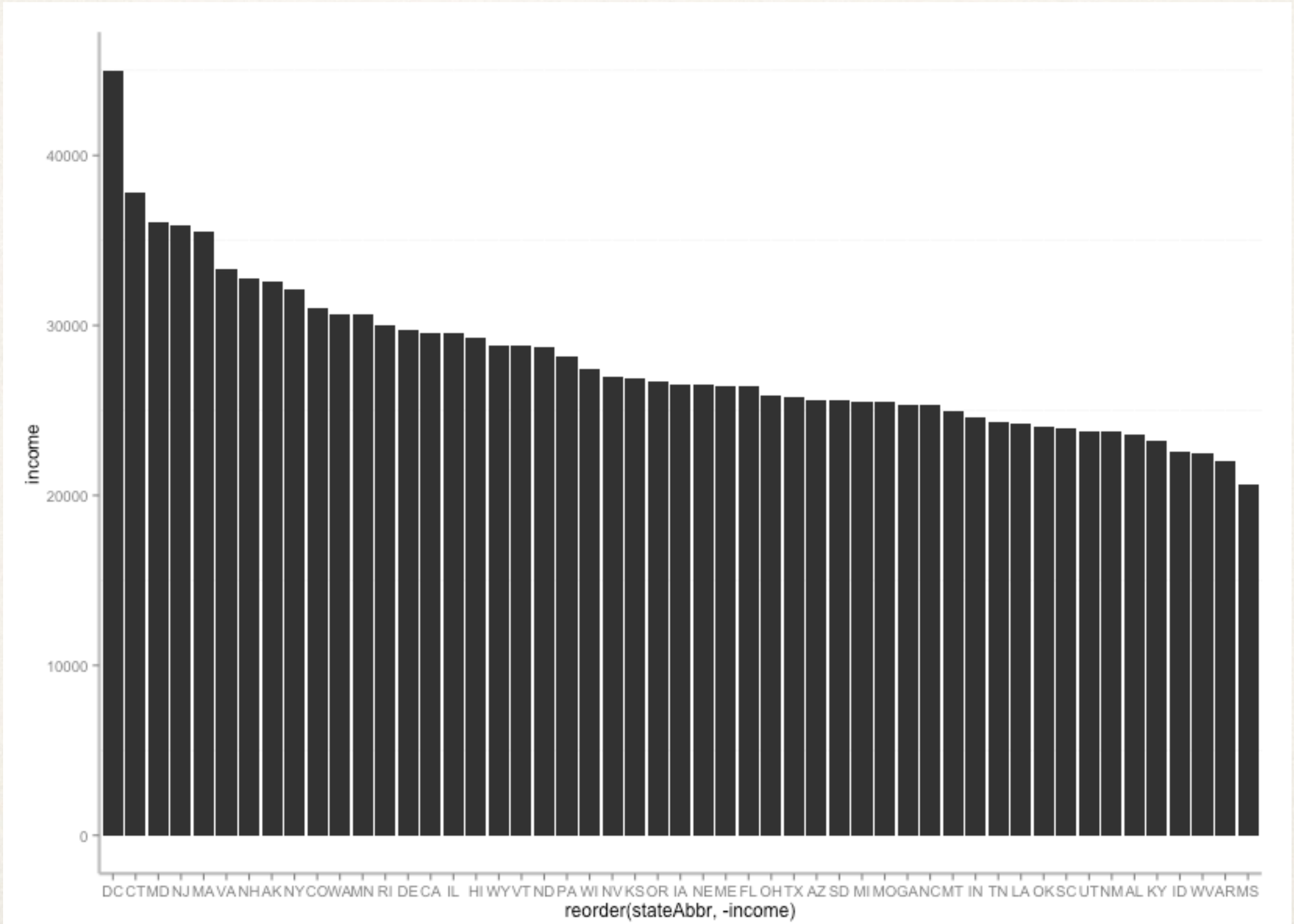

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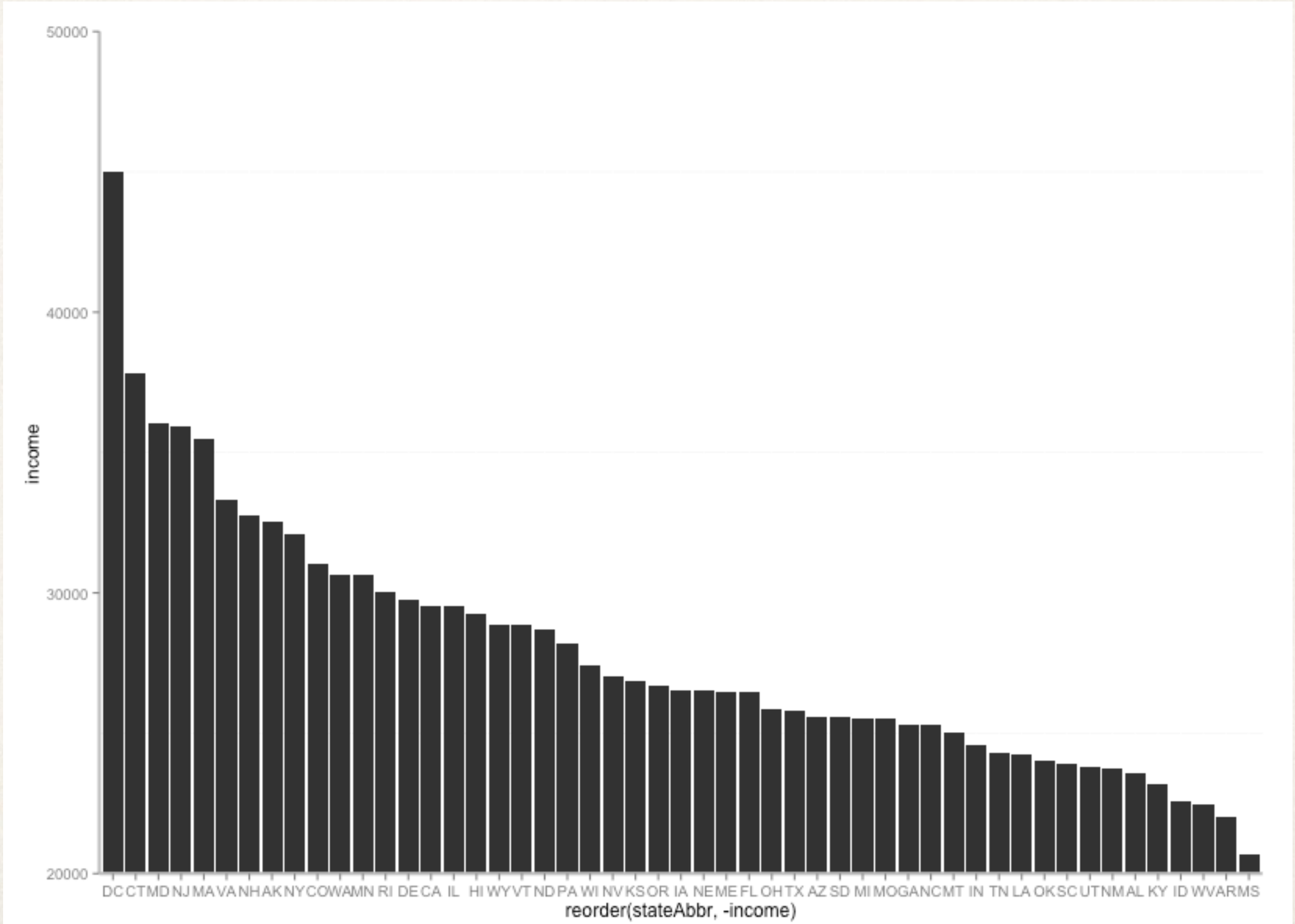

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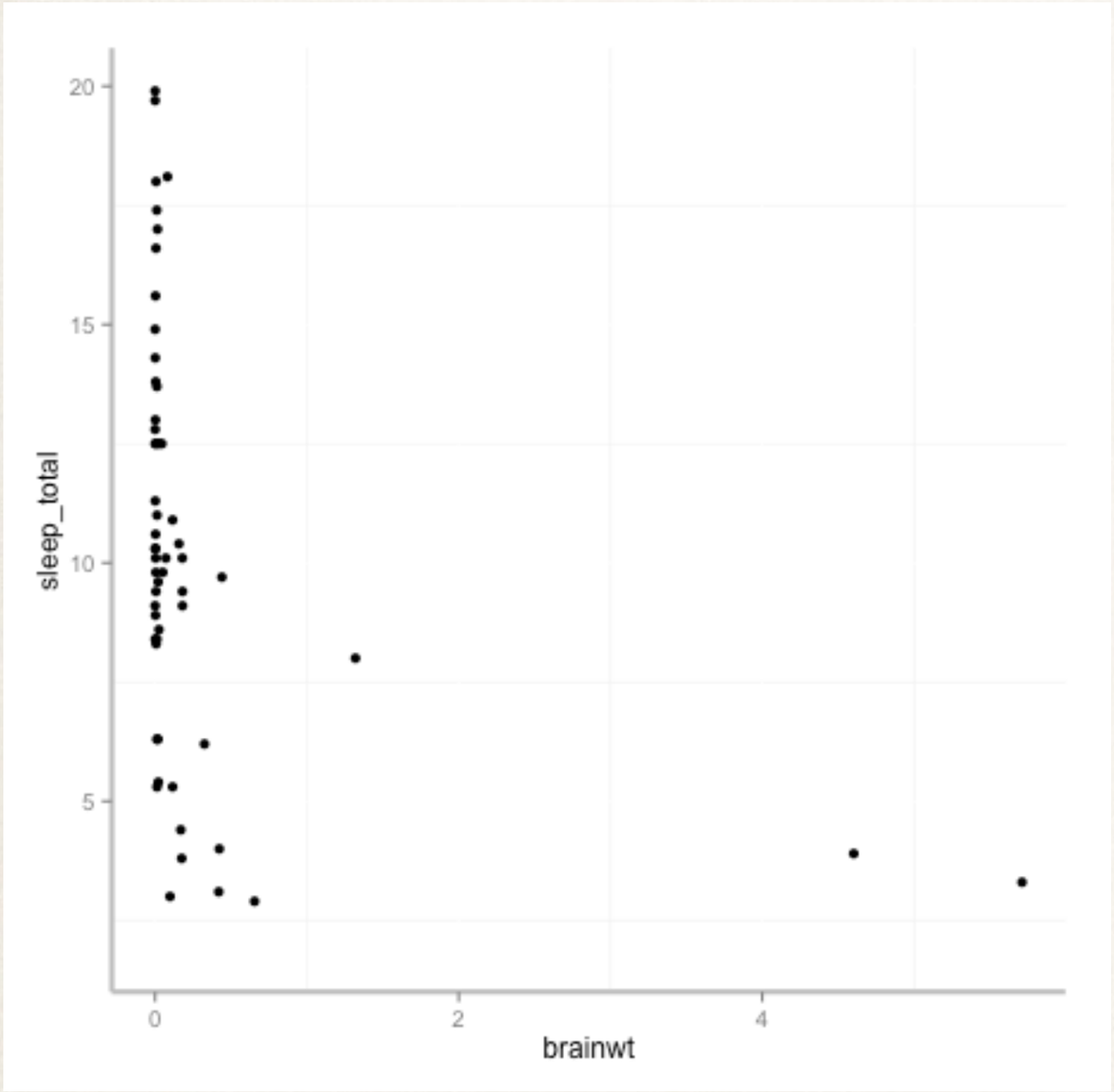

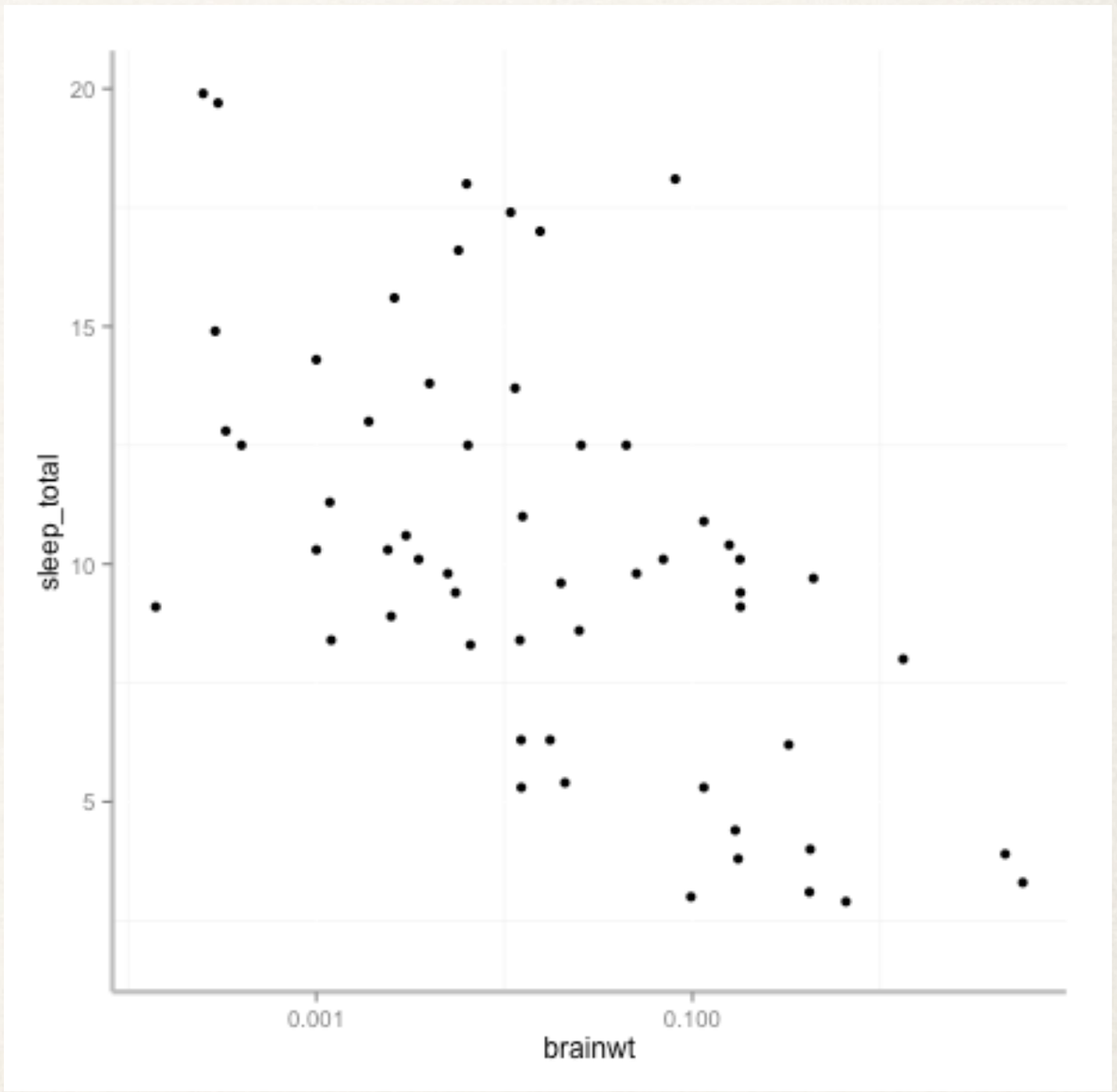

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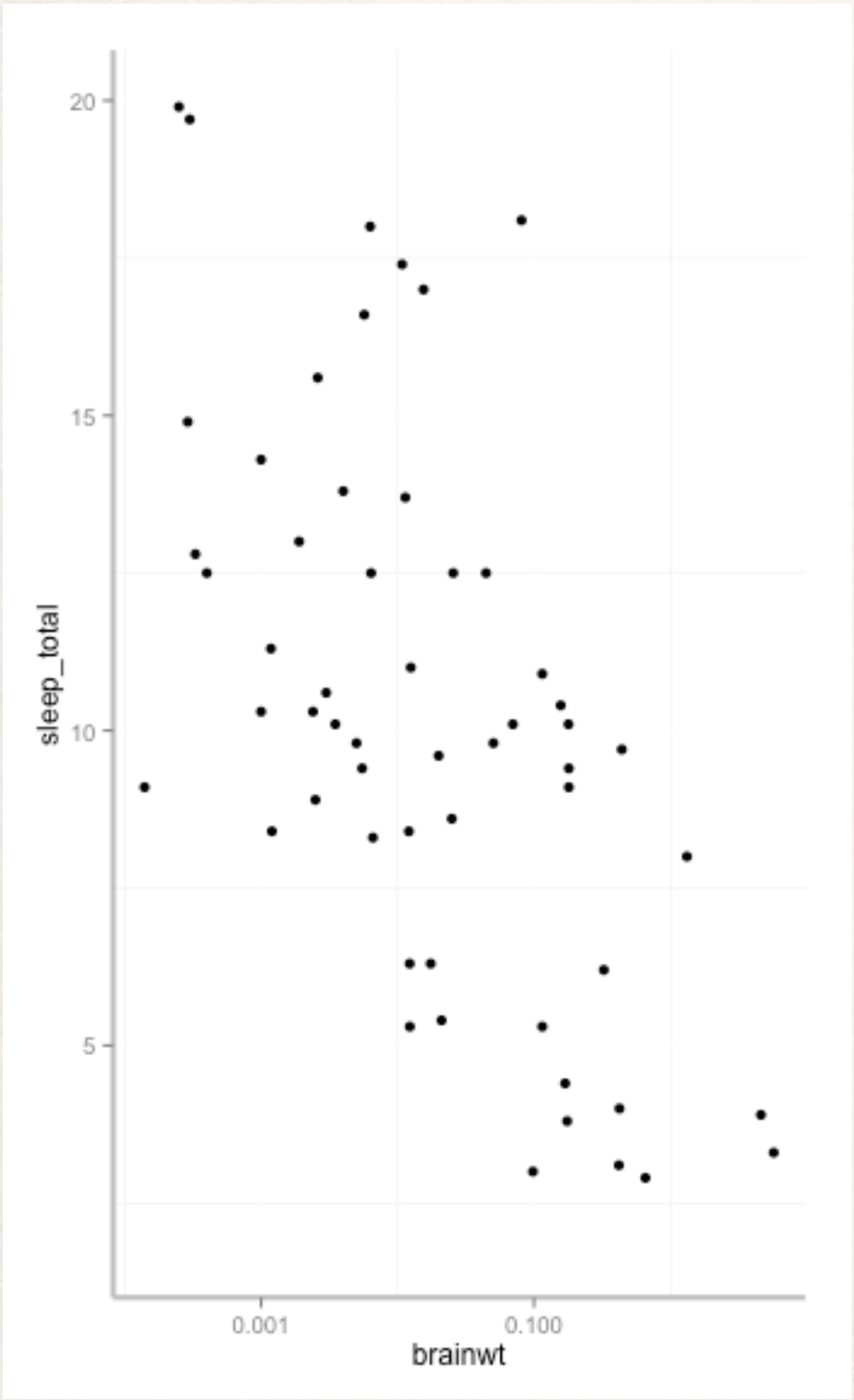

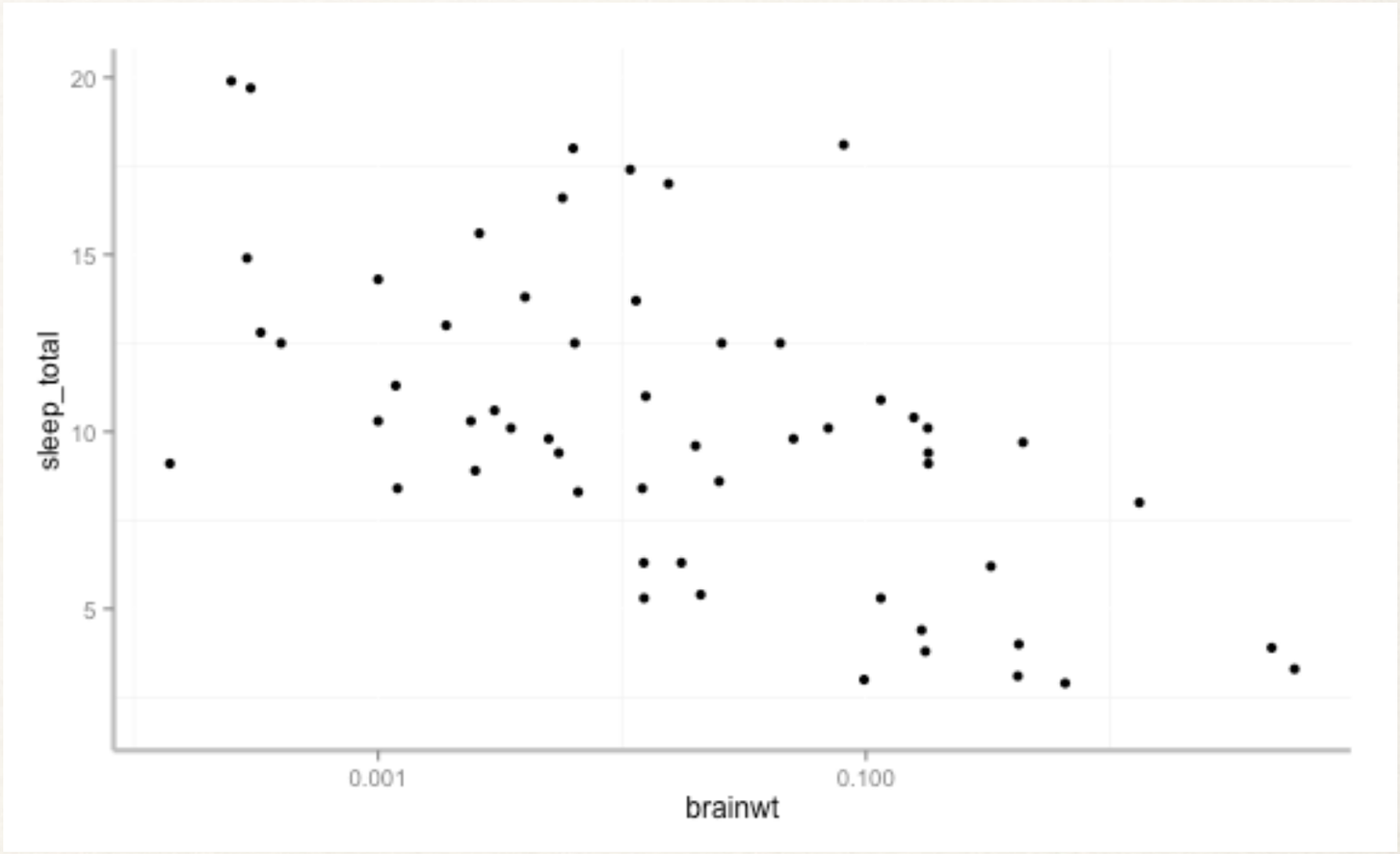

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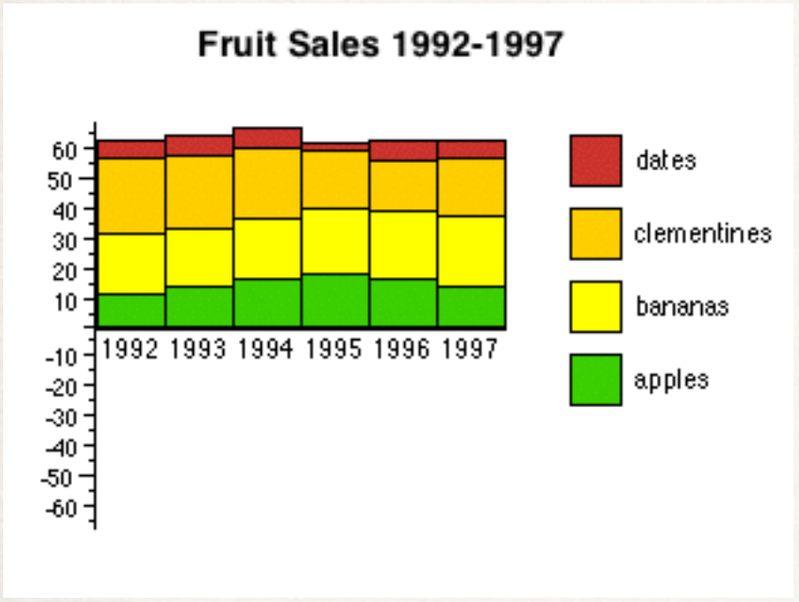
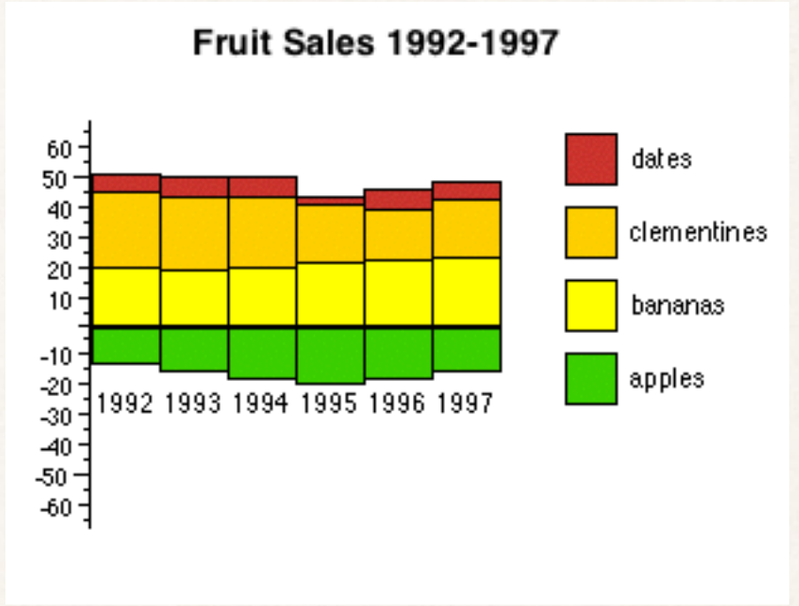
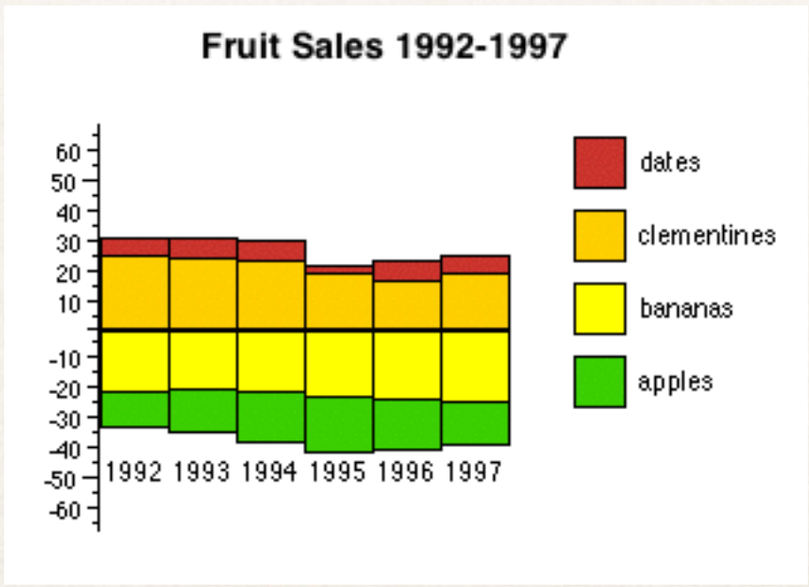
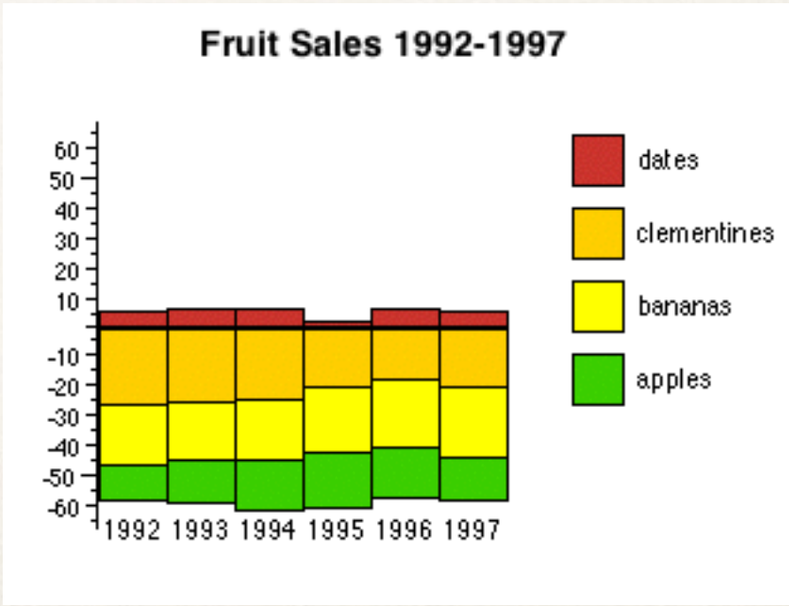




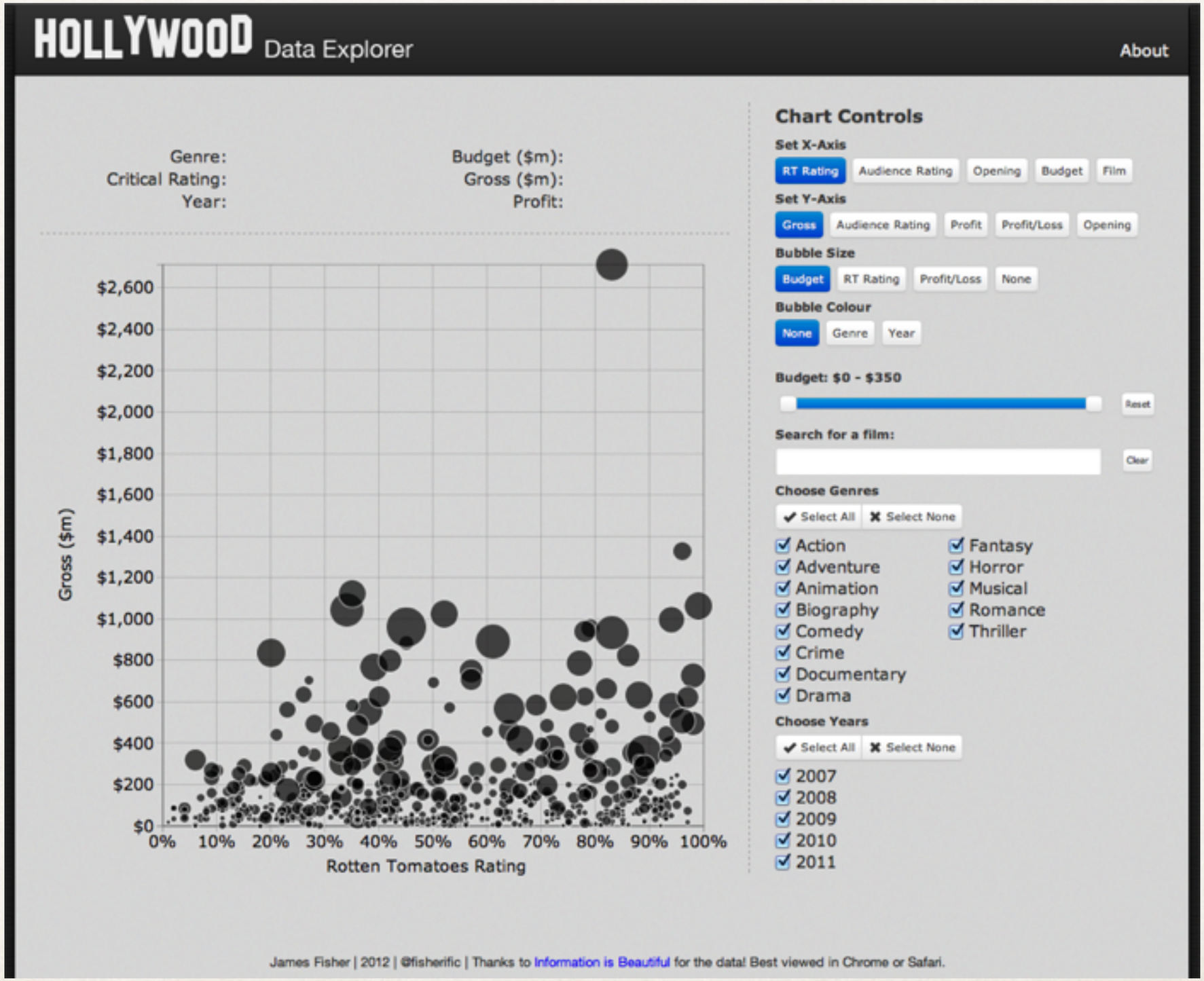




http://www.meandeviation.com/dancing-histograms/

Reconfigure

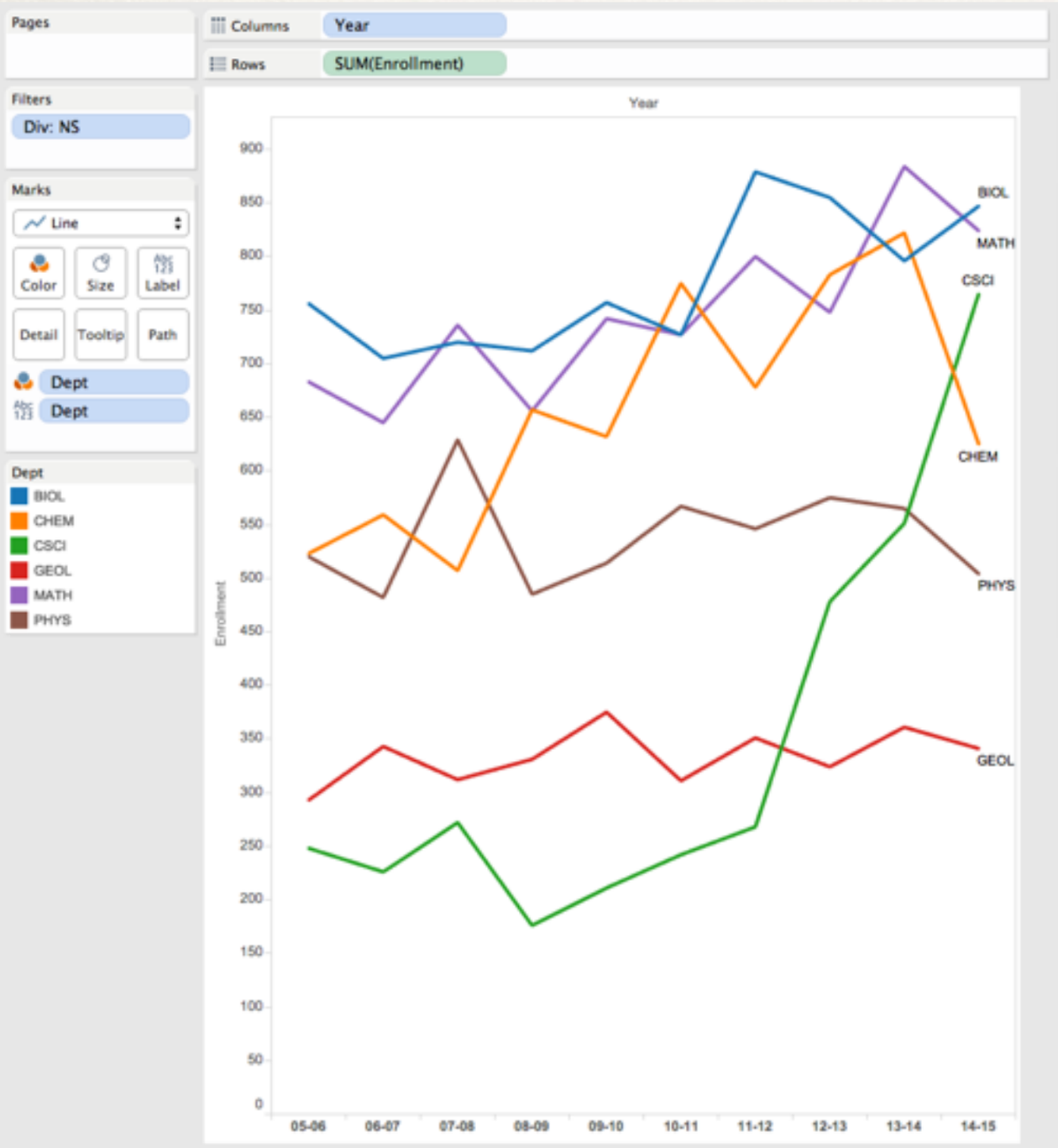
show me different arrangements

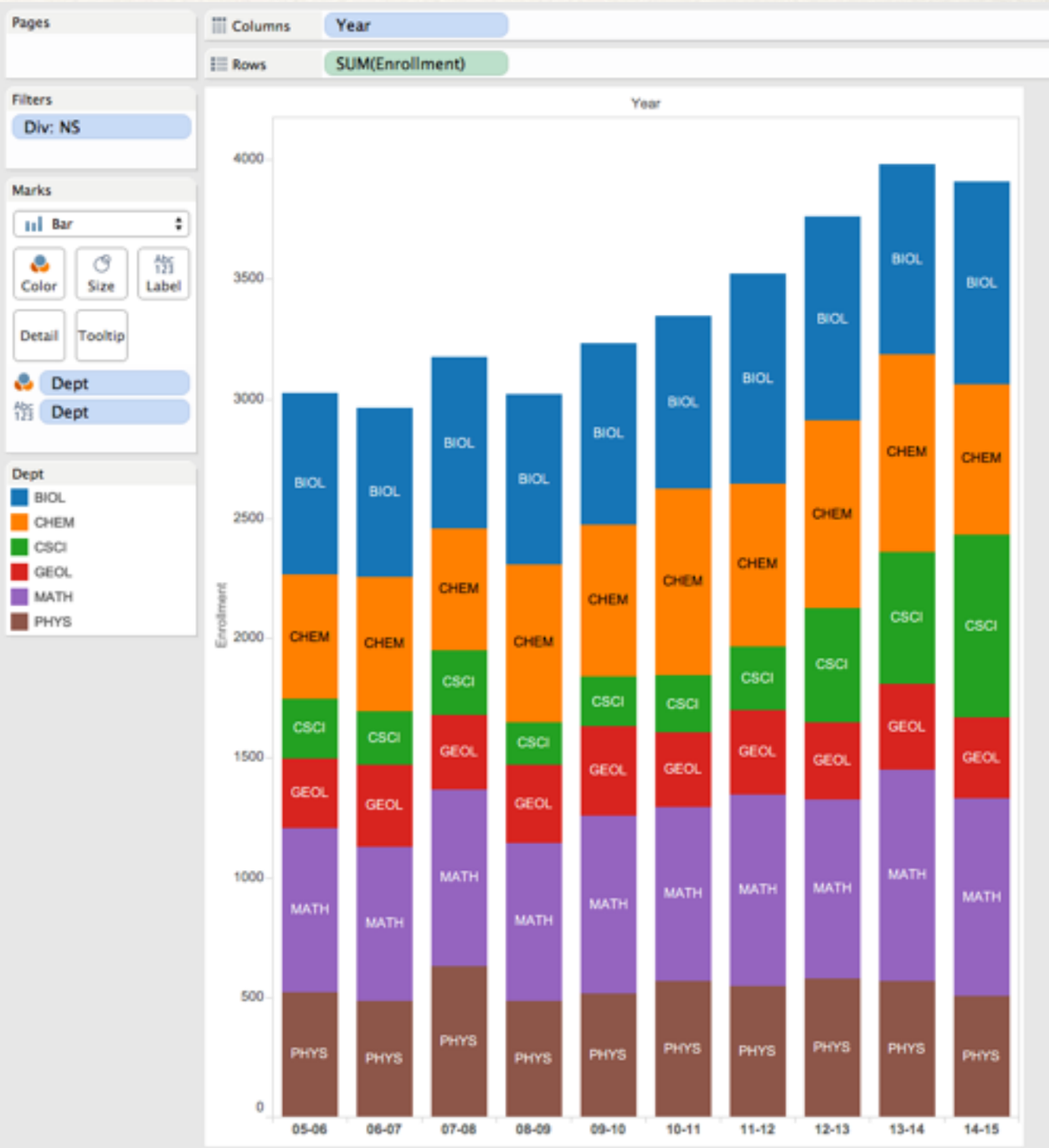


http://indexity.net/vis/hw/

Encode

change the visual representations





Abstract/Elaborate

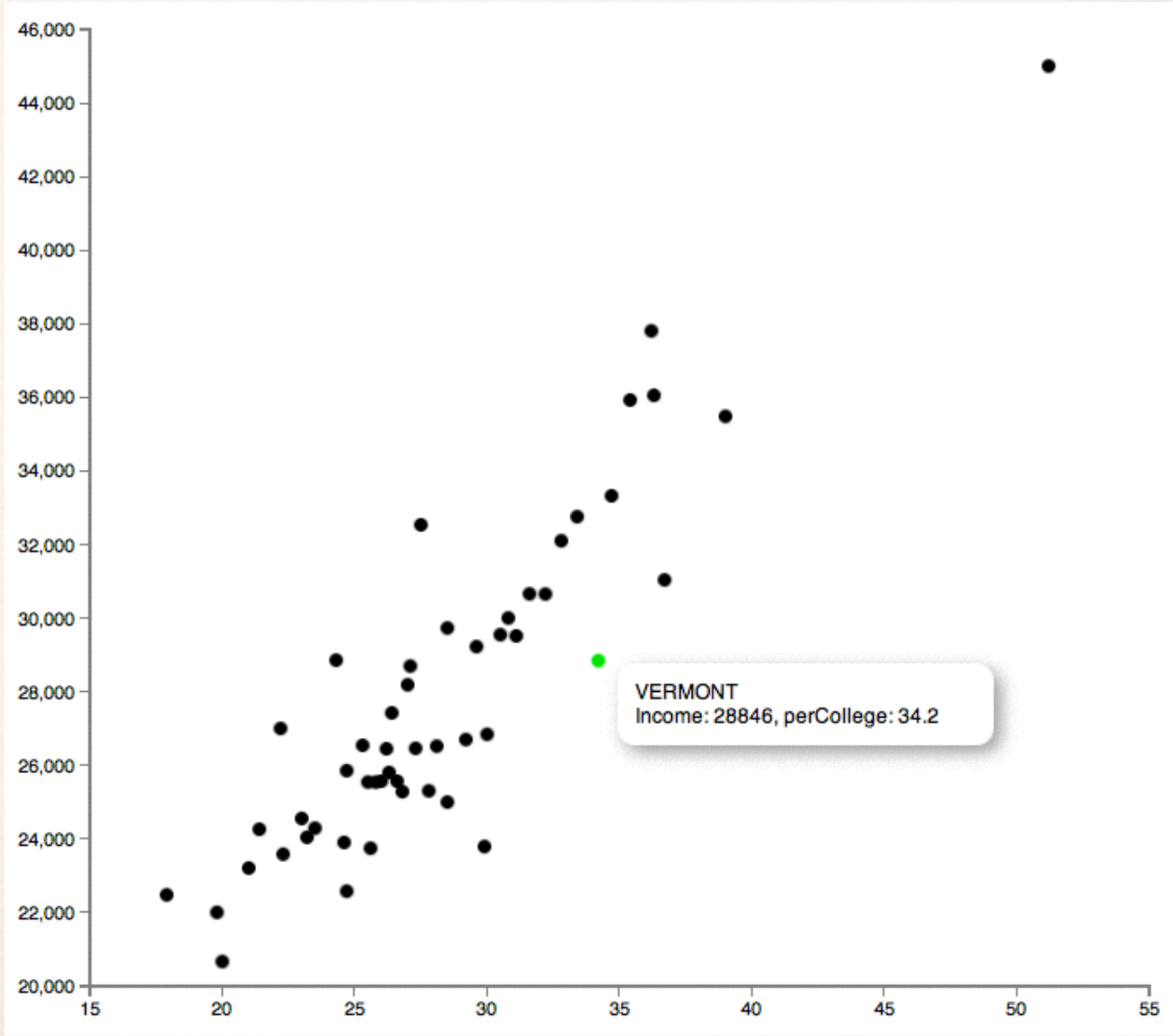
show me more or less detail

DaisyDisk

Abstract/Elaborate

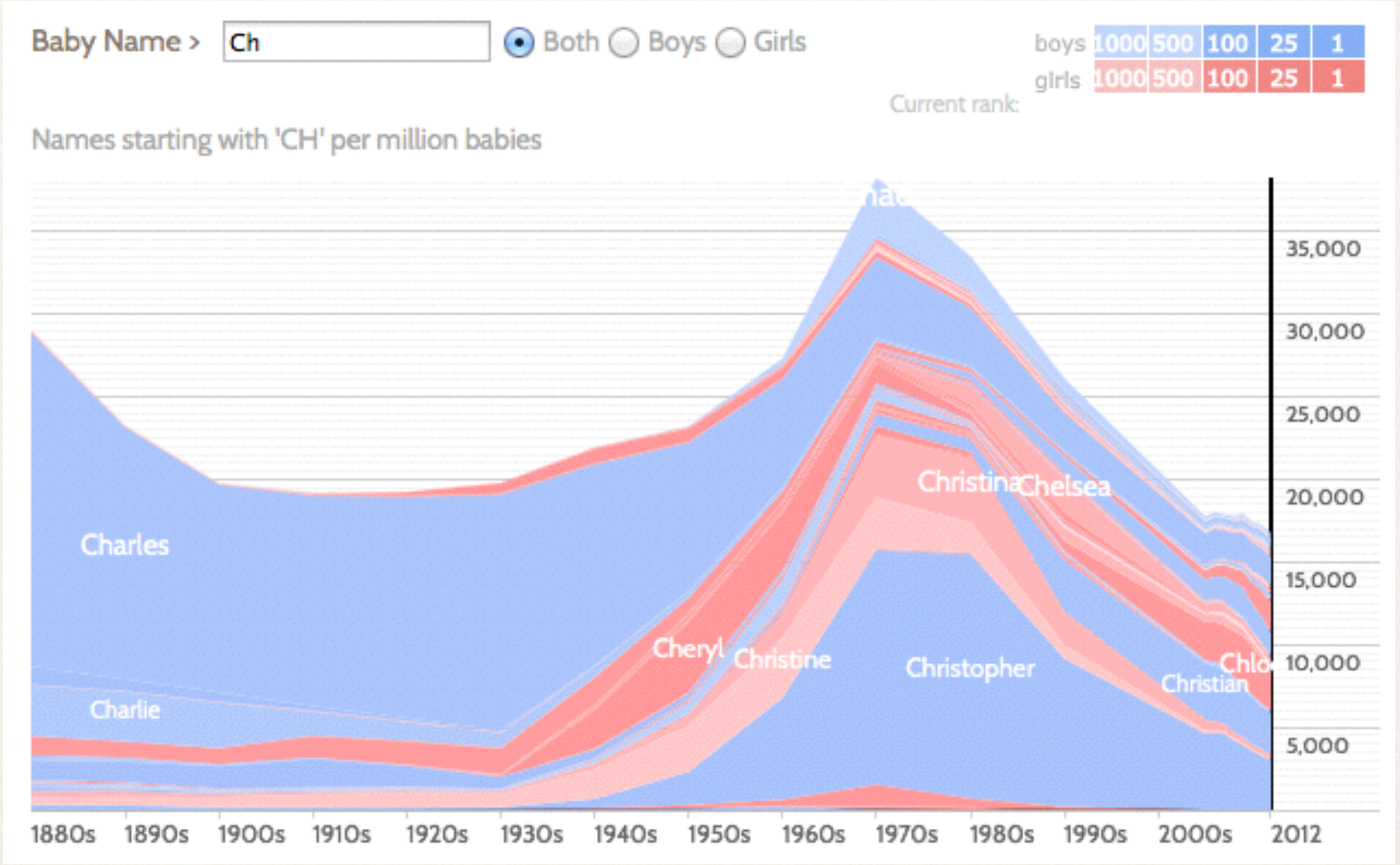
show me more or less detail

"details on demand"



Filter

conditionally show me something



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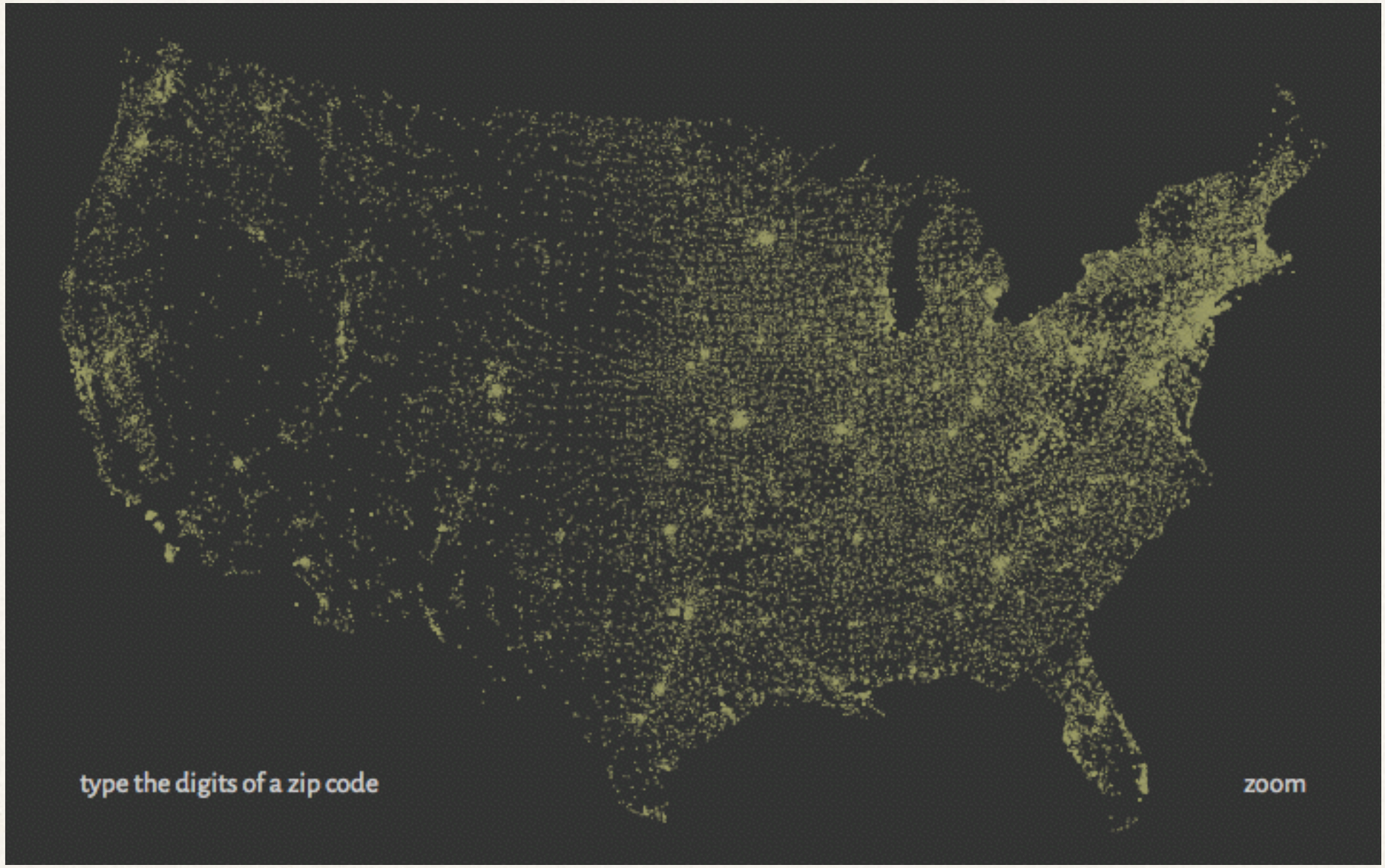


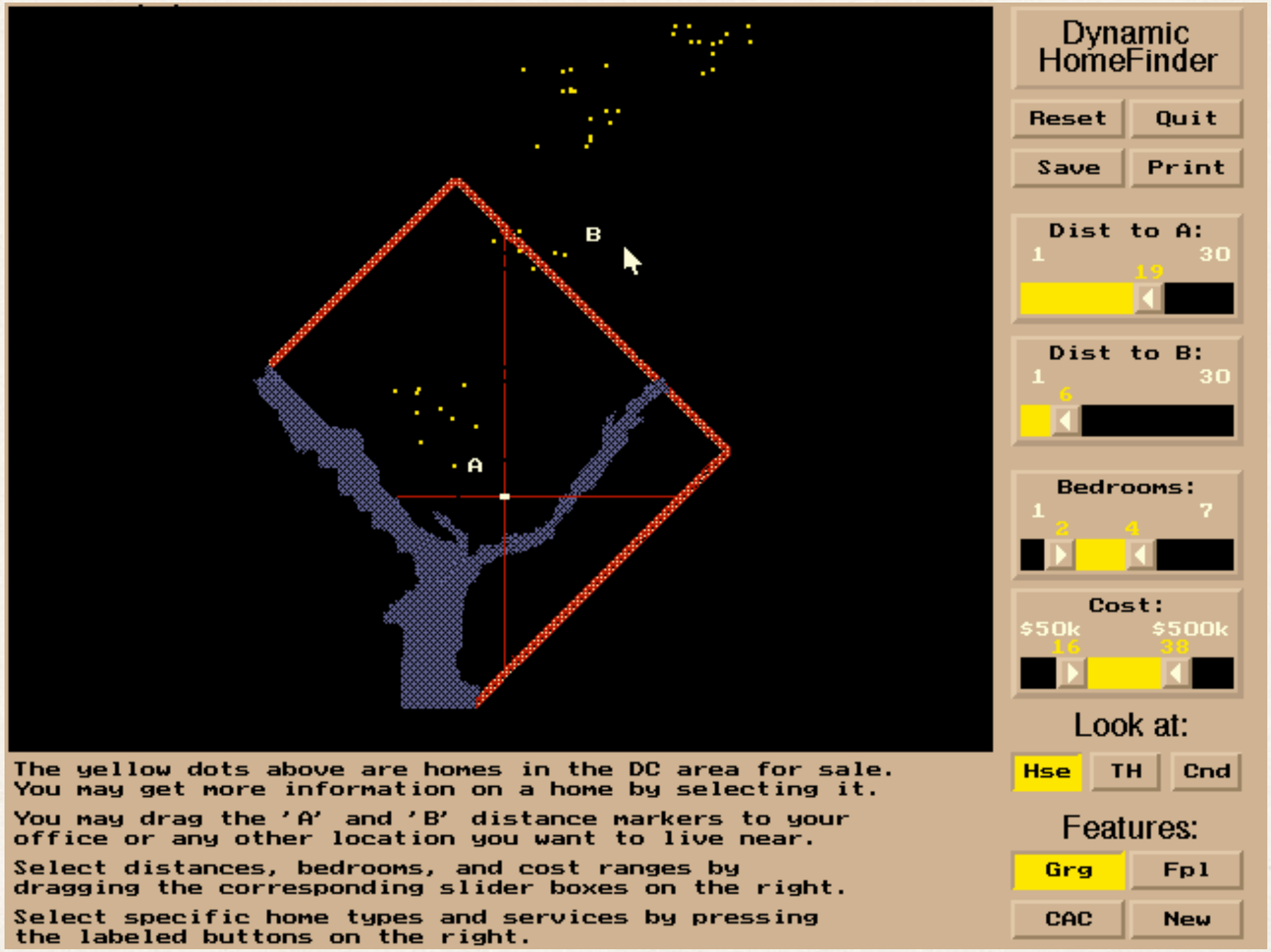
http://benfry.com/zipdecode/

Query language

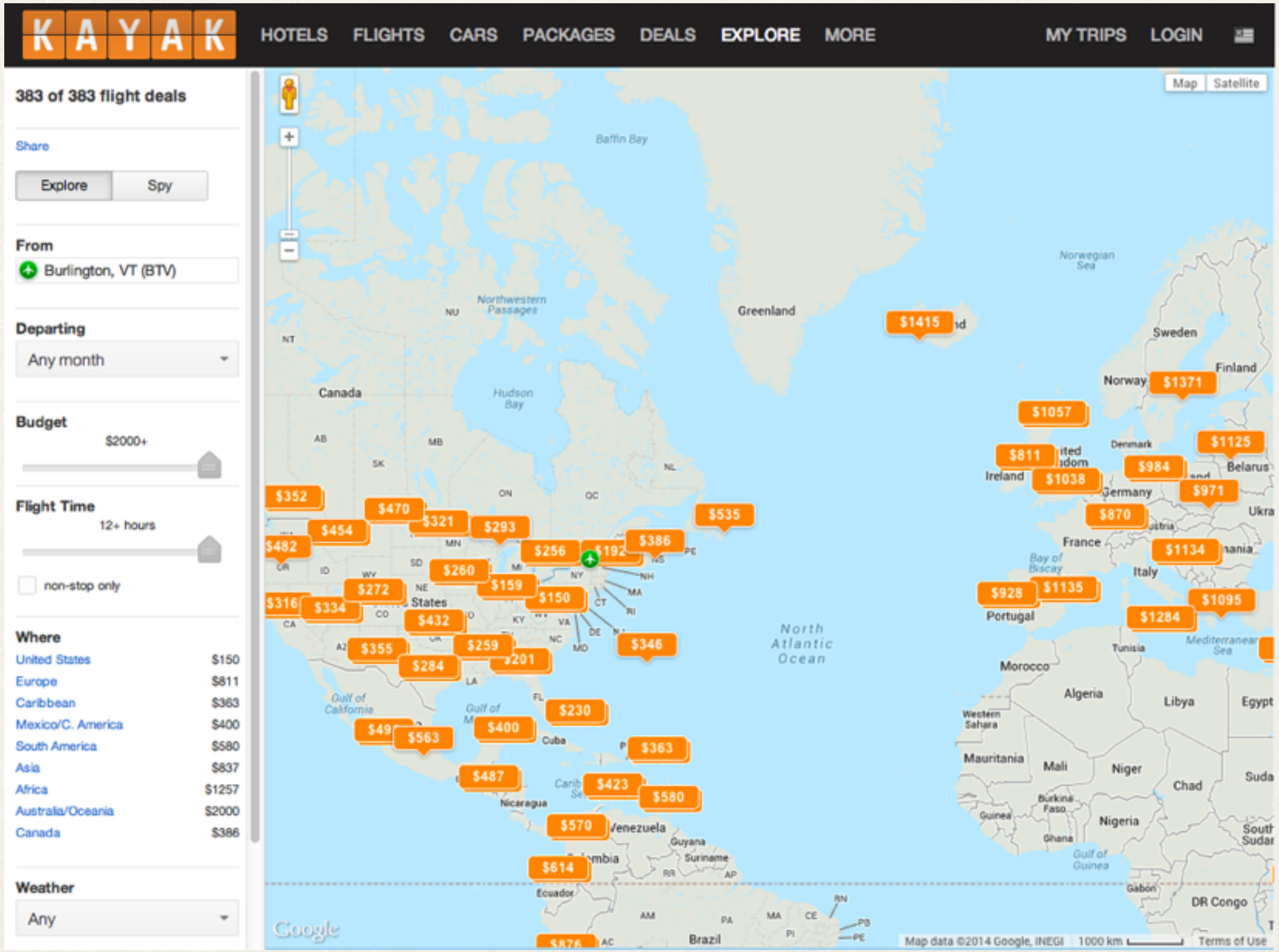
```
SELECT address FROM realestateDB WHERE sqFoot >= 1500
AND bedrooms >= 3 AND garage == TRUE AND price <=
$300000
```

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

Dynamic queries

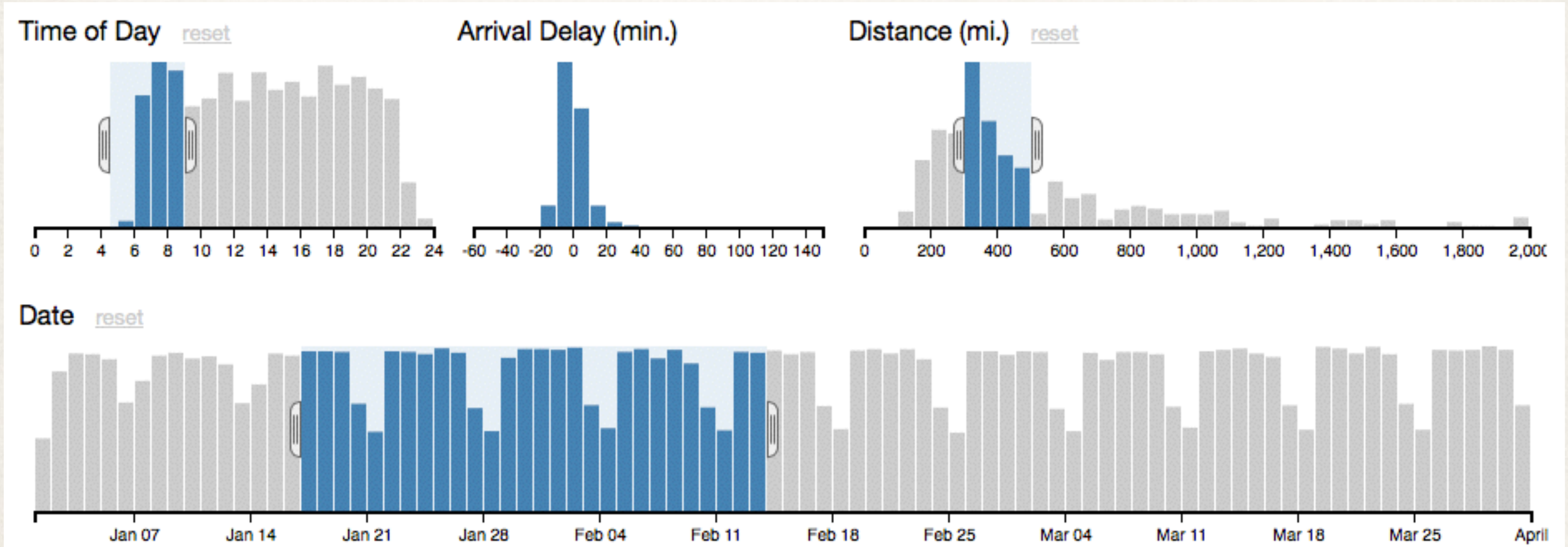


Dynamic queries



http://www.kayak.com/explore/

Brushed histograms

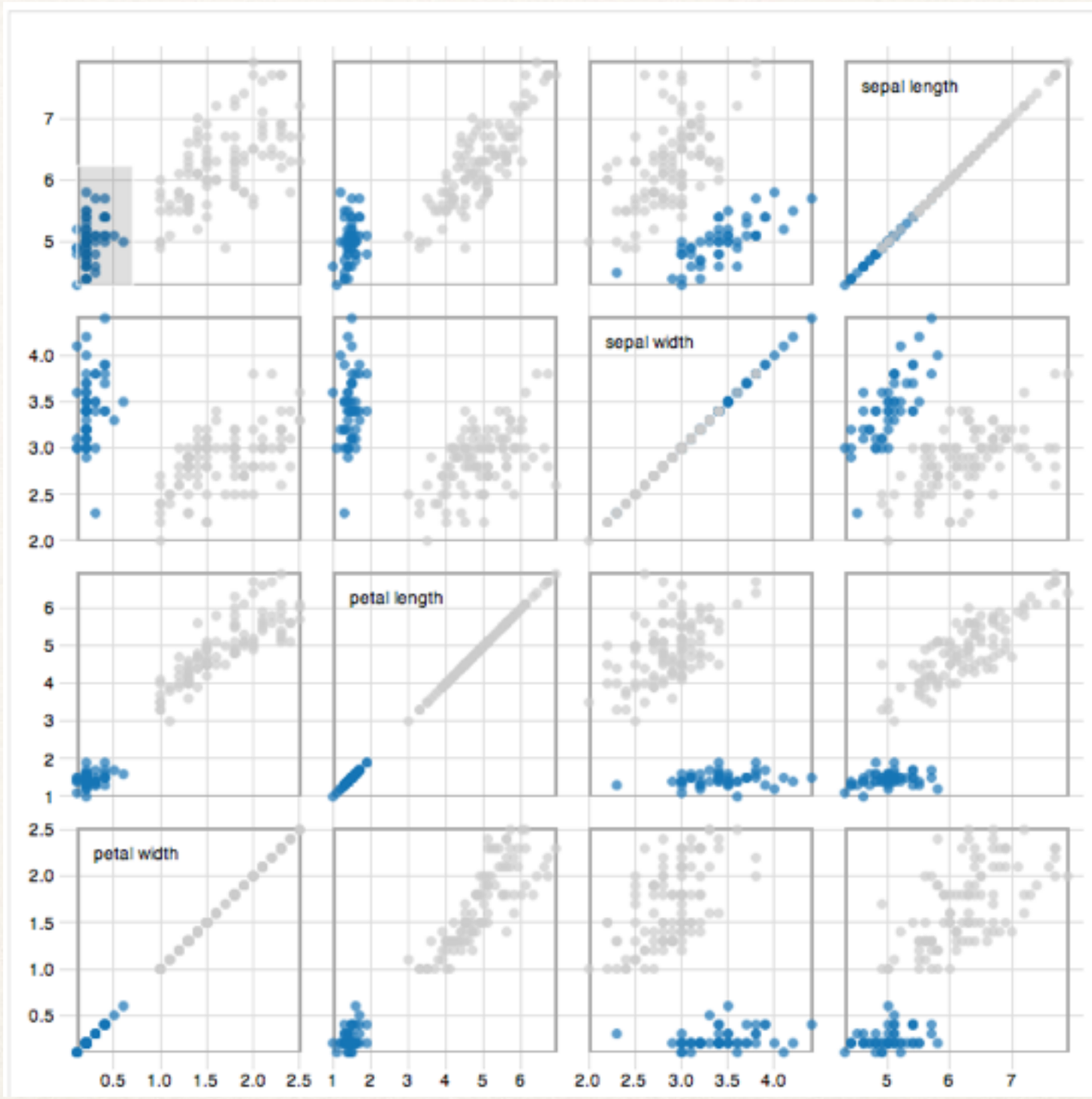


http://square.github.io/crossfilter/

Connect

show me related items

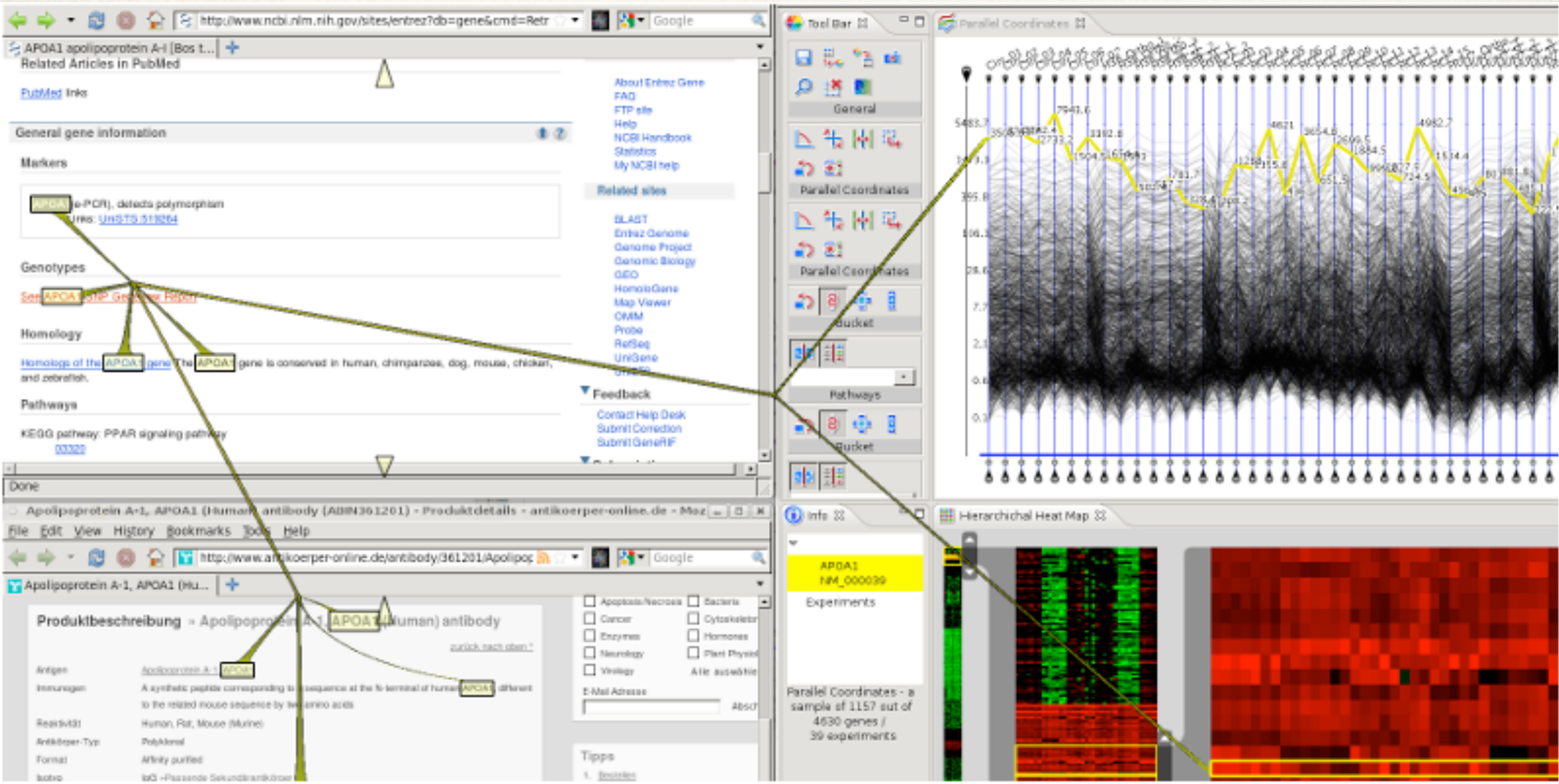
brush and link



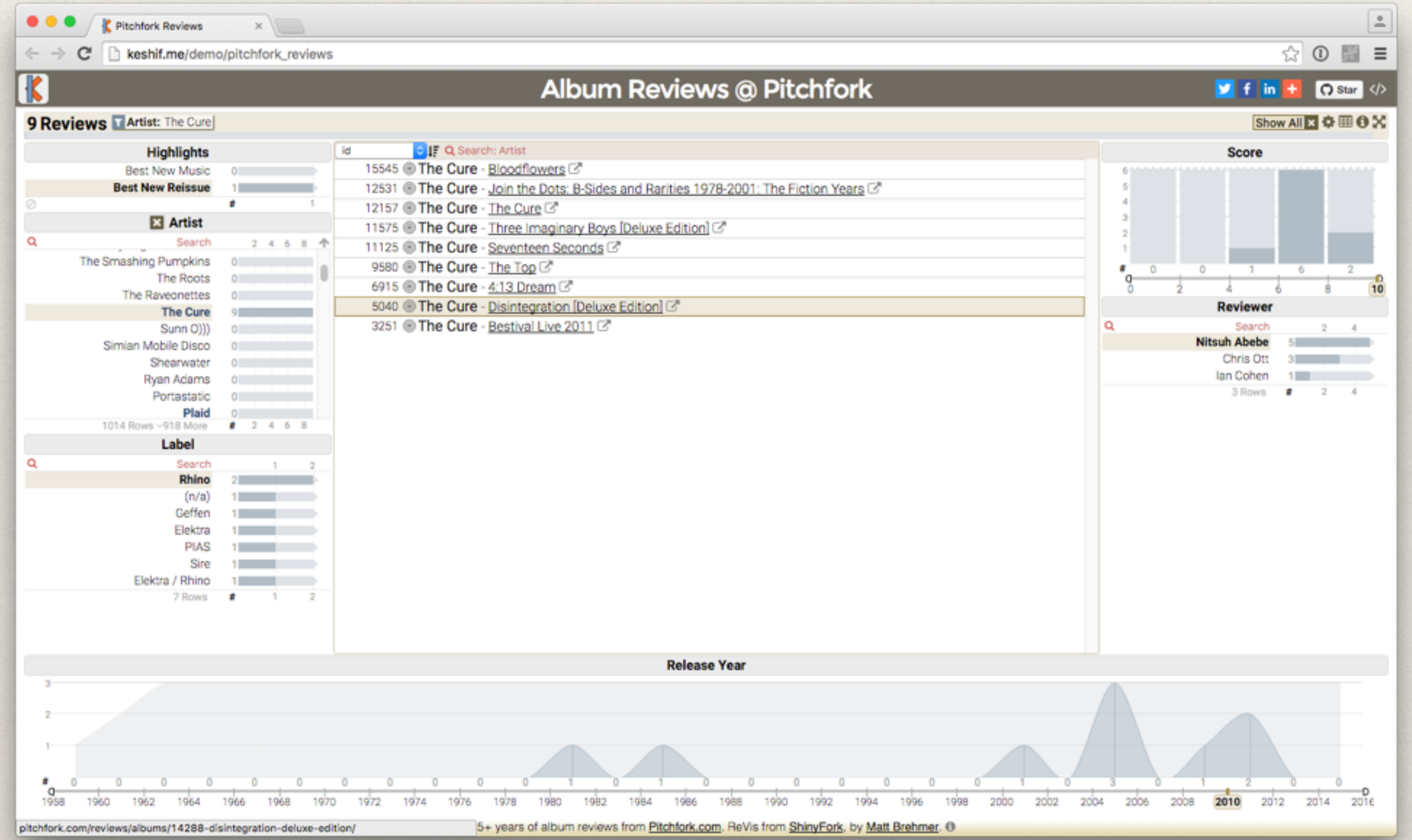
http://bl.ocks.org/mbostock/4063663

Connect

show me related items



Waldner et al. “Visual Links Across Applications”, 2010



http://keshif.me/demo/pitchfork_reviews