How to handle complexity: 1 previous strategy + 3 more

• derive new data to show within view
• change view over time
• facet across multiple views
• reduce items/attributes within single view

Idiom: FilmFinder
• dynamic queries/filters for items
  – tightly coupled interaction and visual encoding idioms, so user can immediately see results of action

Idiom: cross filtering
• item filtering
  – coordinate views/controls combined
  – all scanned histogram builders update when any ranges change

Exercise: Too much stuff
• Cars dataset: 7 attributes
  – MPG quantitative
  – Cylinders ordinal
  – Horsepower quantitative
  – Weight quantitative
  – Acceleration quantitative
  – Model/Year ordinal
  – Origin categorical

• This table has 100 million items
• Pair up, discuss how to have scalable approach, create sketch to illustrate
  – (8 min)
• Sacrifice: true when done

Idiom: Small multiples
• encoding same
data
• data: none shared
• idioms: different items
different condition keys,
same graph keys,
same attributes
expression values
for node colors
  – (same network layout
navigation: shared)
Idiom: histogram
- static item aggregation
- task-find distribution
- data: table
- derived data
- new table: keys are bins, values are counts
- bin size crucial
- pattern can change dramatically depending on discretization
- opportunity for interaction: control bin size on the fly

Histogram bins
- good if bins hard to predict
- make it interactive when possible
- rules of thumb
- bin = sqrt(n)
- bin = log2(n) + 1

Credits
- Visualization Analysis and Design (Ch 13, 14)
- Alex Lex & Miriah Meyer, http://dataviscourse.net/

KDE in D3: Interactive bandwidth controls

Idiom: Continuous scatterplot
- static item aggregation
- data: table
- derived data: table
- key attribs x,y for scatterplot vs list view
- also: interaction speed w/ scatterplot vs list view
- also great example of scrollytelling!

Interactive legends
- controls combining
- visual representation of static legends w/
- interaction mechanisms of widgets
- define & control visual display together

Violin plots
- boxplot + probability density function

Boxplots: four distributions with same boxplot
- a box-and-whisker plot
- show outliers as points
- bad for non-normal distributions
- really bad for bimodal or multimodal distributions
- 5 quant attribs
- lower upper fences: whiskers
- lower and upper quartile: boxes
- median: central line
- outliers beyond fence cutoffs explicitly shown
- scalability
- unlimited number of items!

Histos explained
- also great example of scrollytelling!