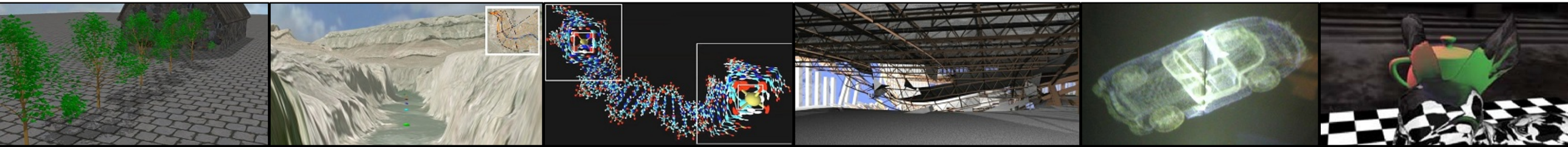
CIS 4930/6930-002
DATA VISUALIZATION

FILTERING & AGGREGATION

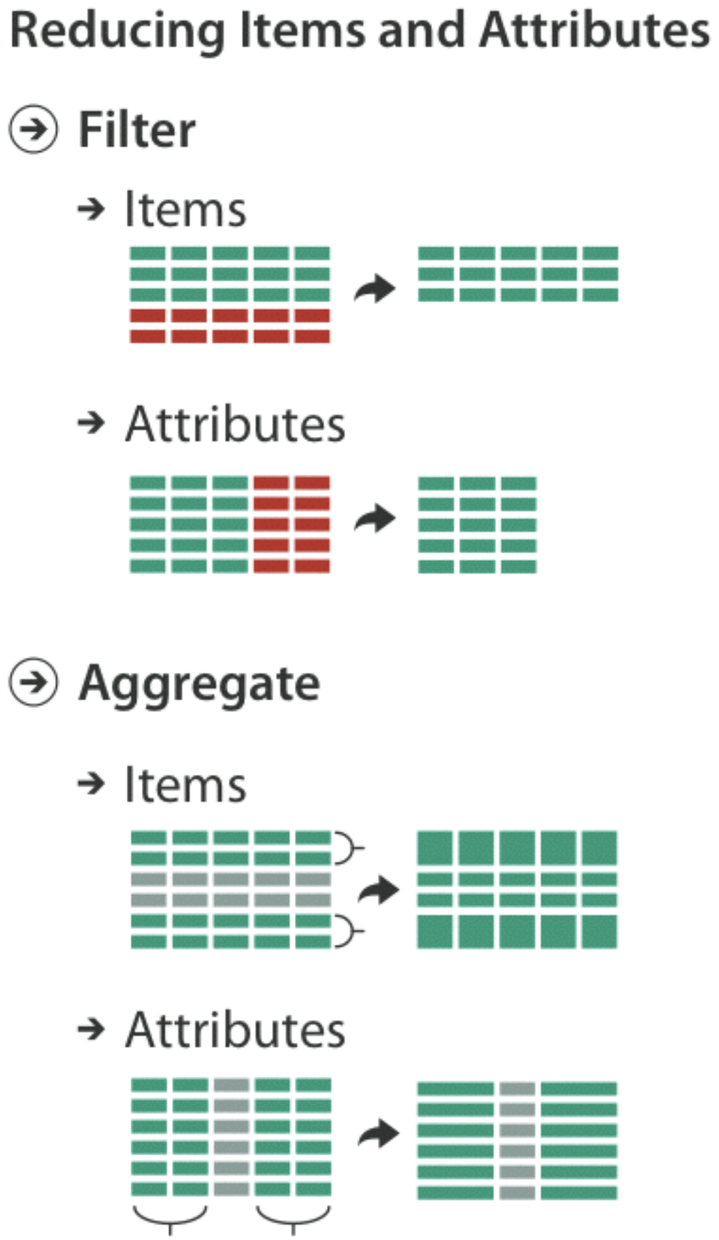
Paul Rosen
Assistant Professor
University of South Florida

slides credits Miriah Meyer (U of Utah)



TODAY

filtering & aggregation



WHY REDUCE?

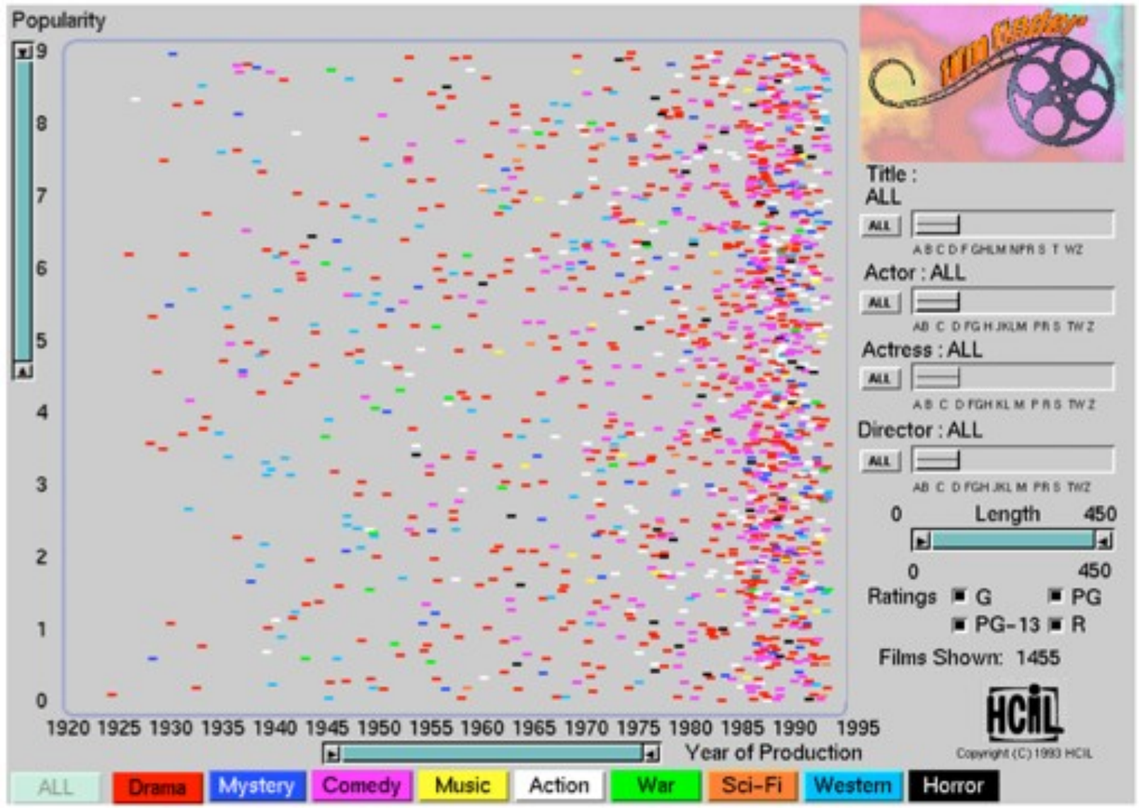
FILTER

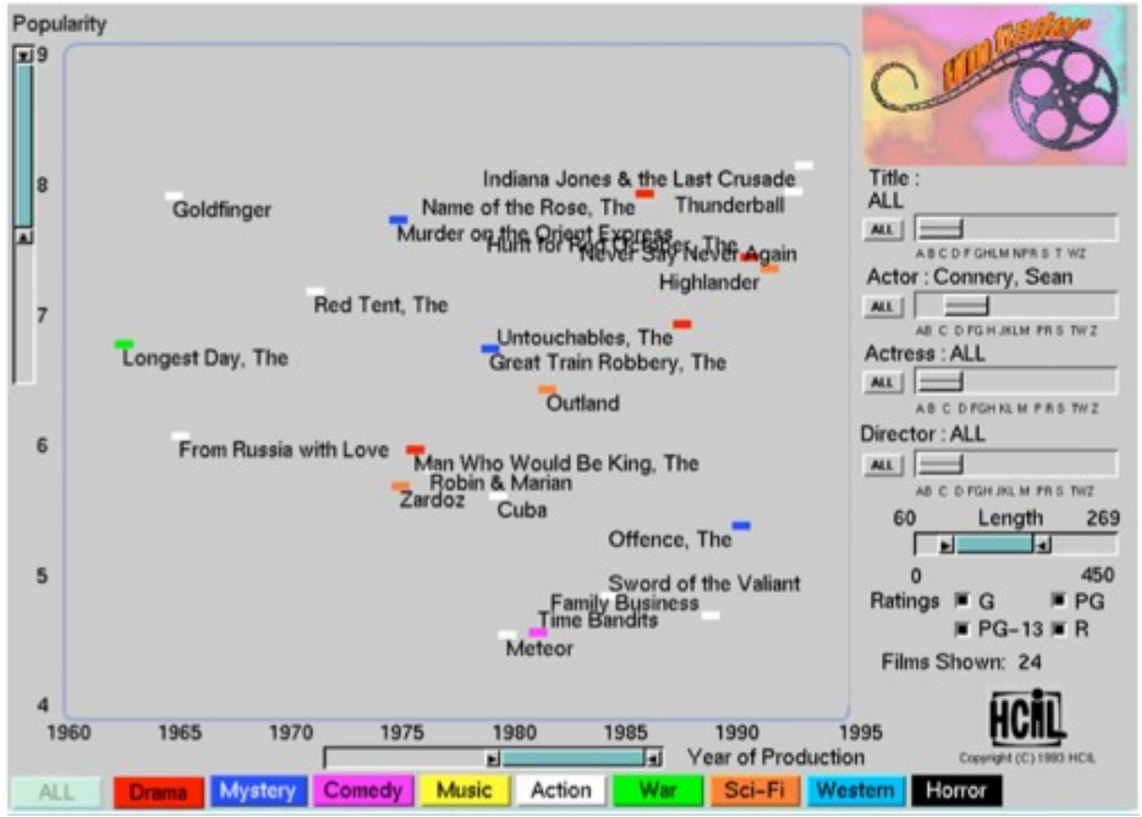
elements are eliminated

dynamic queries

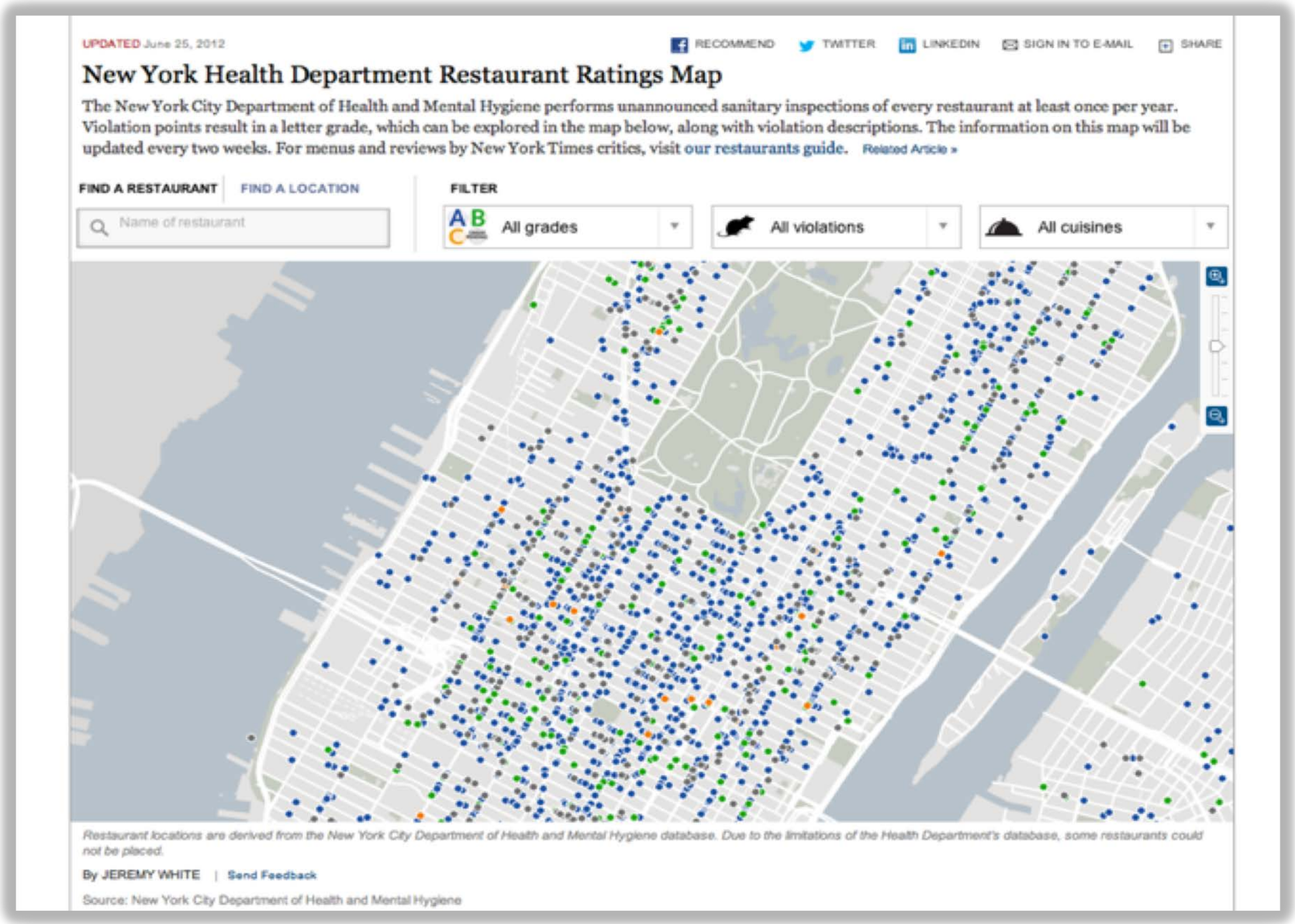
coupling between encoding and interaction so that user can immediately see the results of an action

ITEM FILTERING





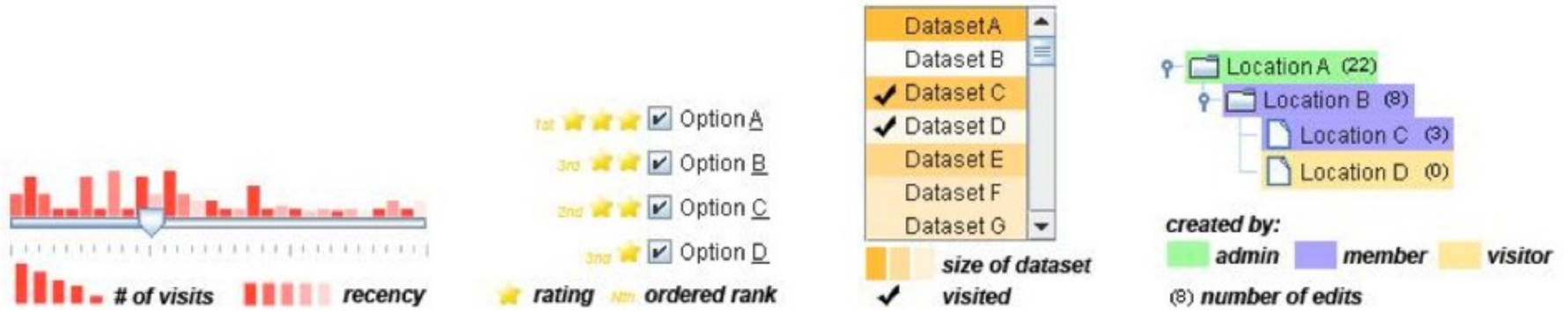
AHLBERG 1994


UPDATED June 25, 2012
RECOMMEND
TWITTER
LINKEDIN
SIGN IN TO E-MAIL
SHARE
New York Health Department Restaurant Ratings Map
The New York City Department of Health and Mental Hygiene performs unannounced sanitary inspections of every restaurant at least once per year. Violation points result in a letter grade, which can be explored in the map below, along with violation descriptions. The information on this map will be updated every two weeks. For menus and reviews by New York Times critics, visit our restaurants guide.
Related Article »
FIND A RESTAURANT
FIND A LOCATION
Name of restaurant
FILTER
All grades
All violations
All cuisines
Restaurant locations are derived from the New York City Department of Health and Mental Hygiene database. Due to the limitations of the Health Department's database, some restaurants could not be placed.
By JEREMY WHITE
Send Feedback
Source: New York City Department of Health and Mental Hygiene

SCENTED WIDGETS

information scent: user gets sense of data

GOAL: lower the cost of information forging through better cues

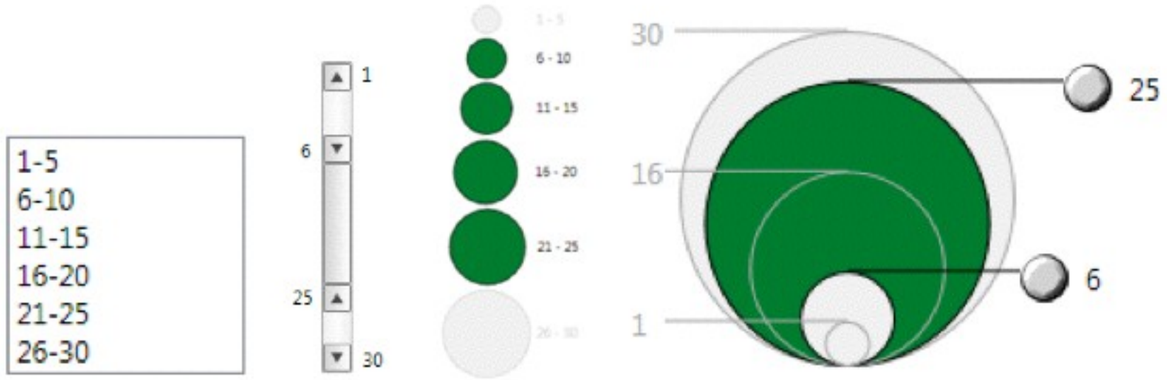


WILLETT 2007

INTERACTIVE LEGENDS

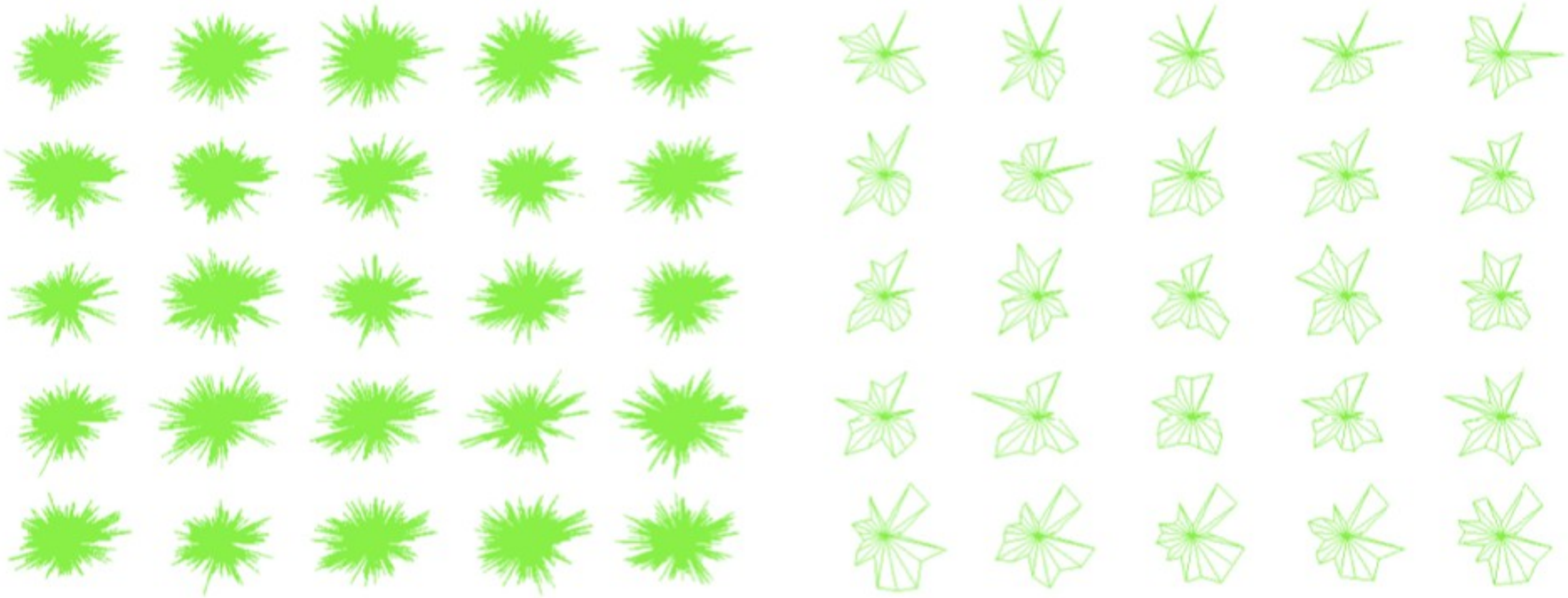
controls combining the visual representation of static legends with interaction mechanisms of widgets

define and control visual display together



RICHE 2010

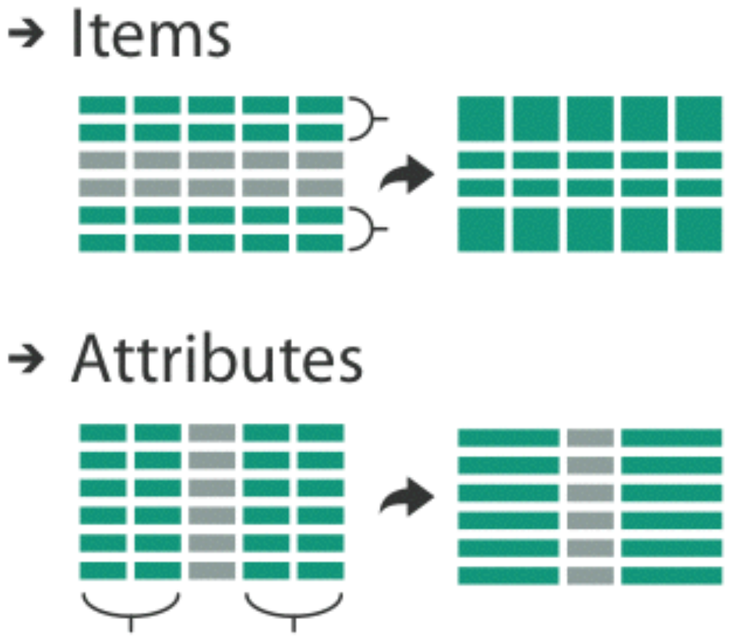
ATTRIBUTE FILTERING



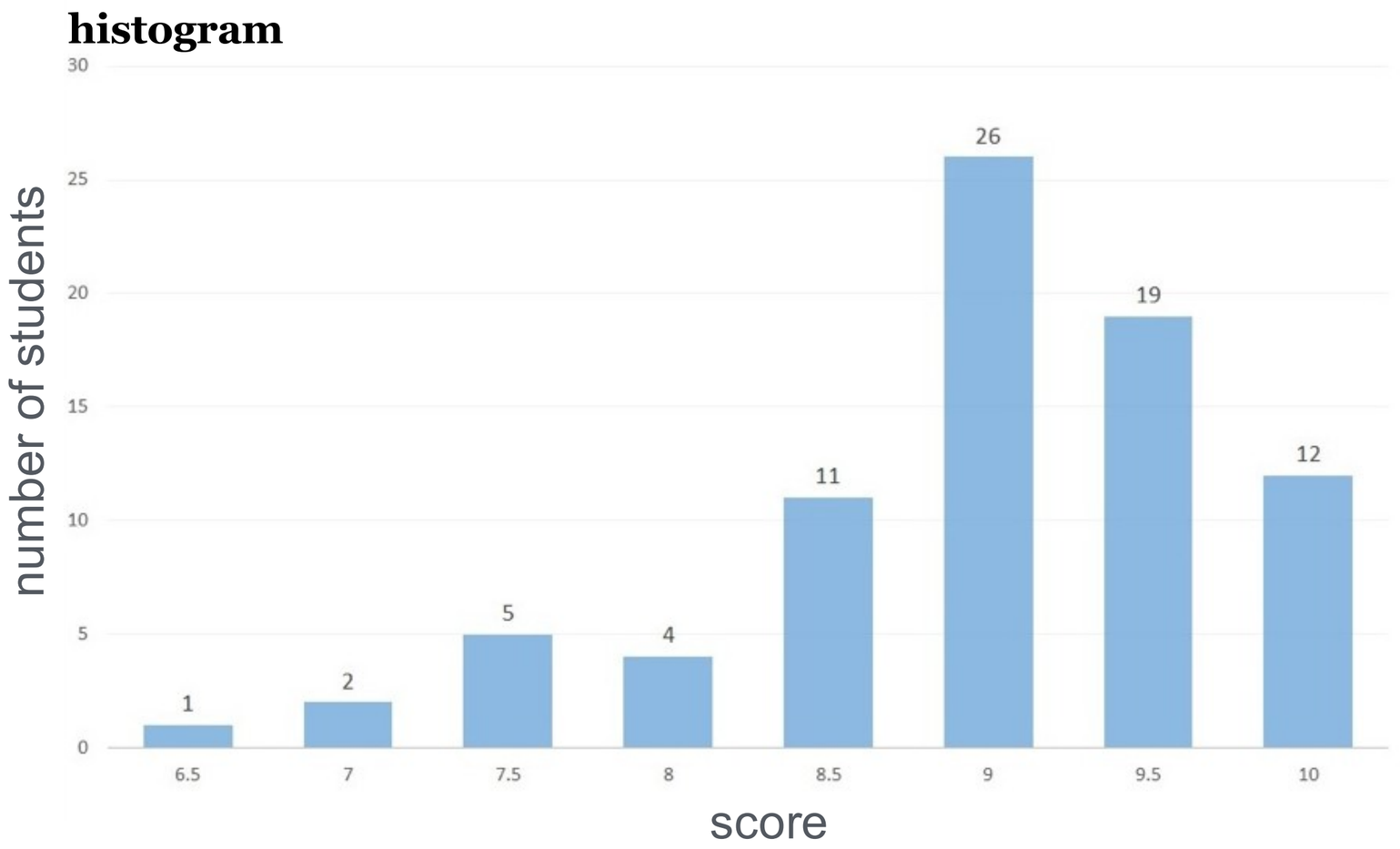
WANG 2003

AGGREGATE

a group of elements is represented by a new derived element that stands in for the entire group

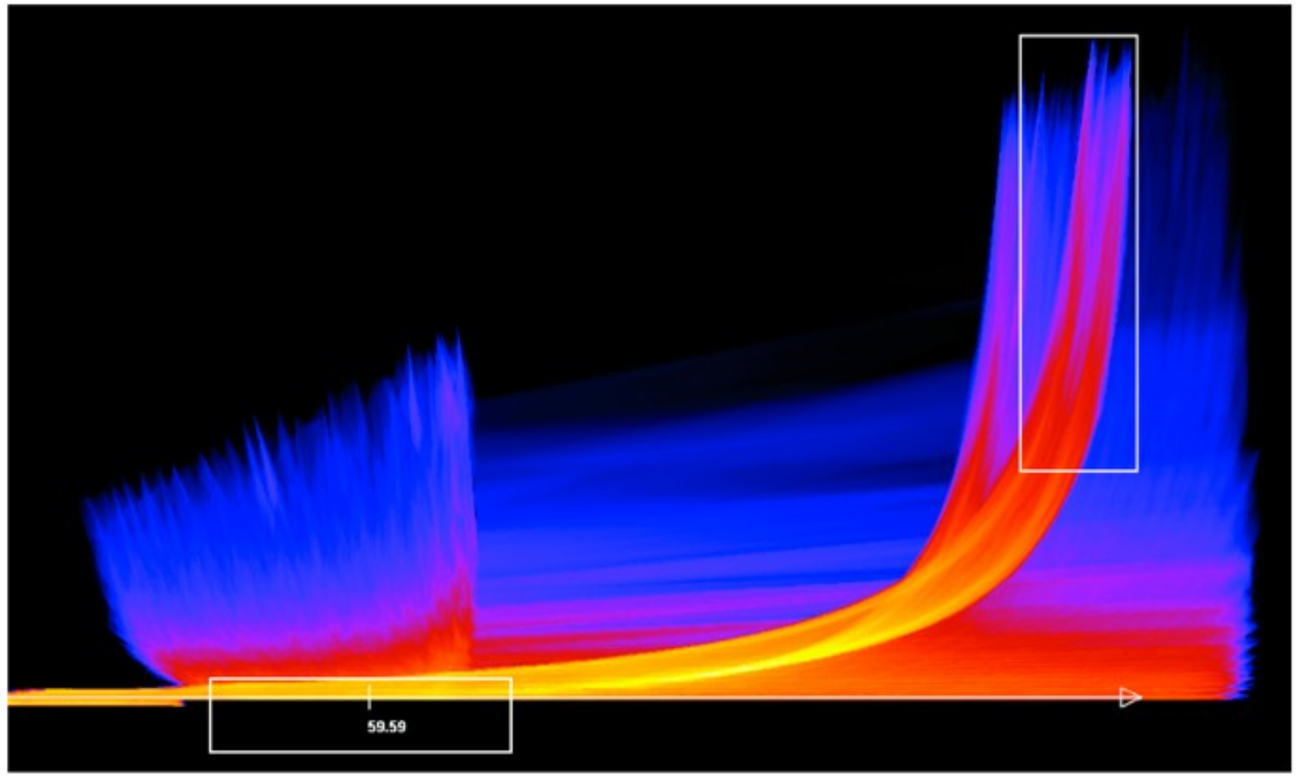


ITEM AGGREGATION



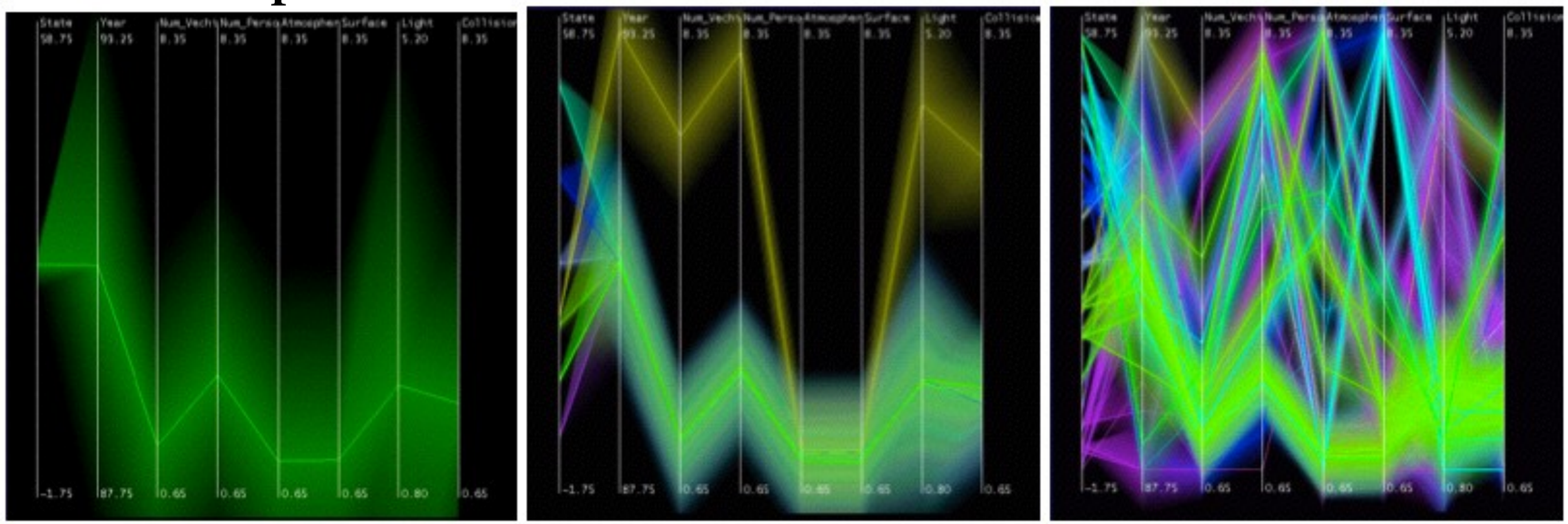
ITEM AGGREGATION

continuous scatterplot

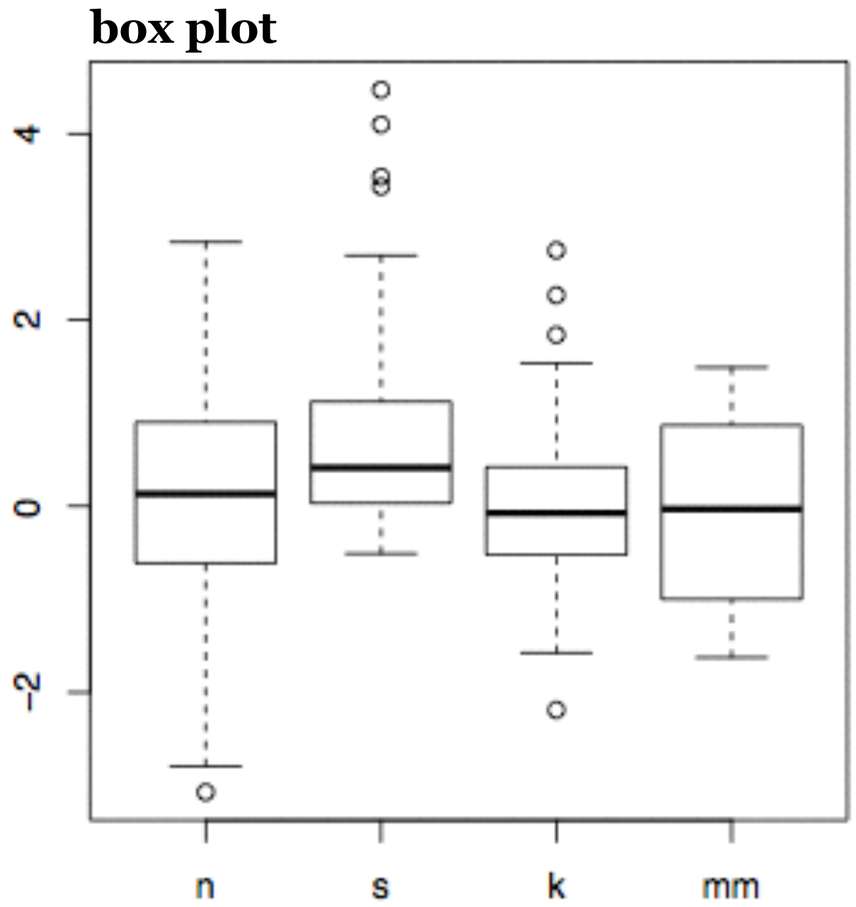


ITEM AGGREGATION

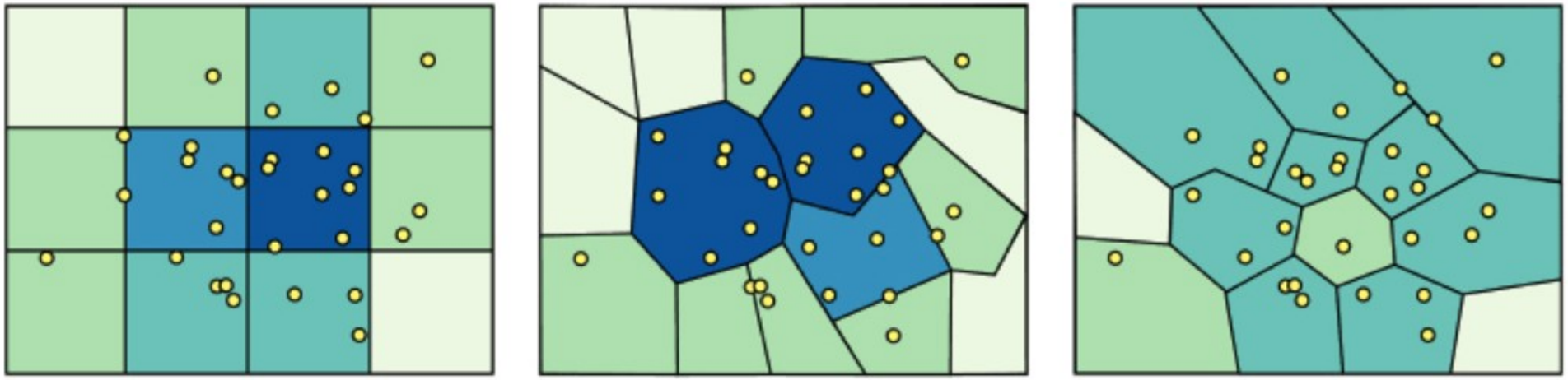
hierarchical parallel coordinates



ITEM AGGREGATION



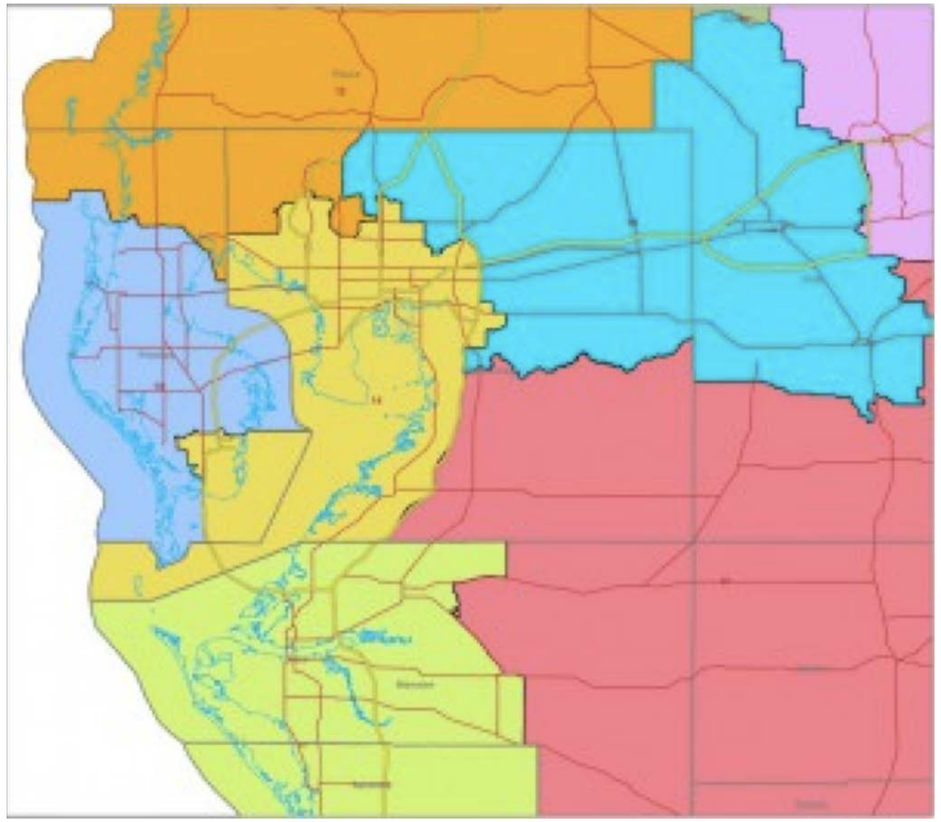
SPATIAL AGGREGATION



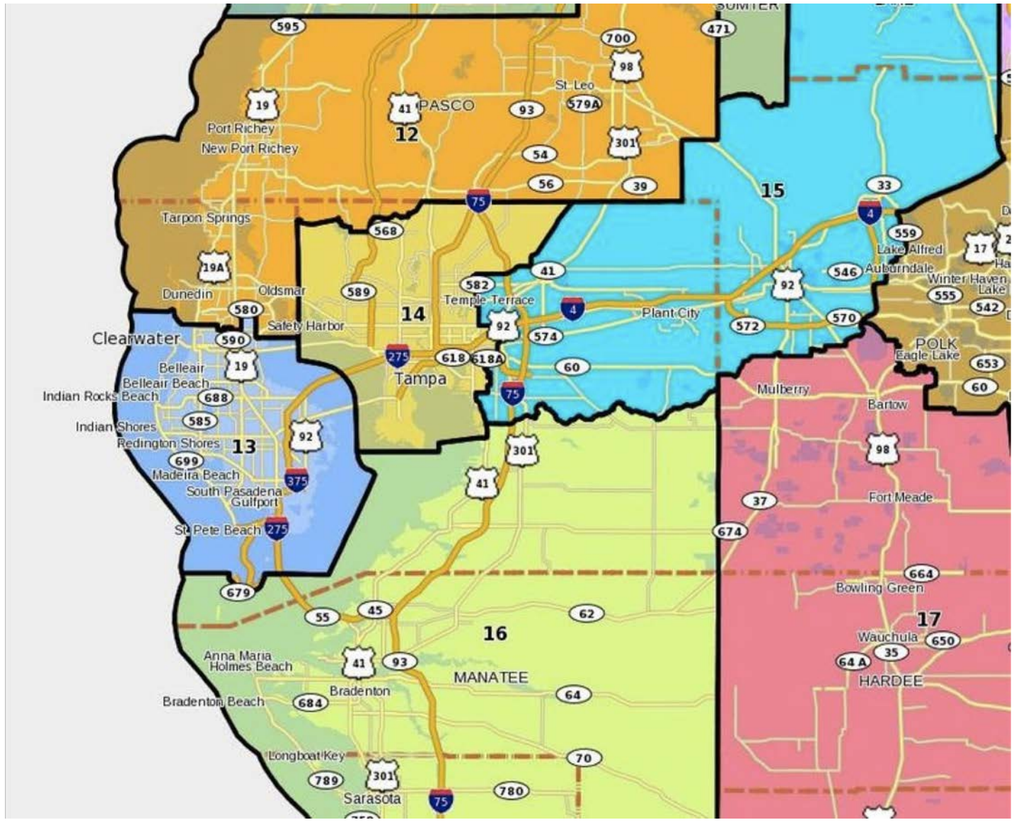
MODIFIABLE AREAL UNIT PROBLEM

in cartography, changing the boundaries of the regions used to analyze data can yield dramatically different results

CONGRESSIONAL DISTRICTS



2014



Proposed 2015

ATTRIBUTE AGGREGATION

group attributes and compute a similarity score across the set

dimensionality reduction to preserve meaningful structure

SIMILARITY SCORES

correlation

measure of similarity between 2 or more attributes

many variants—pearson, rank, multi-way, etc.

regression

fit a model to the data

measure the quality of fit (i.e. R^2)

WHERE DO WE GO FROM HERE?

Big Data 3 V's – Variety, Velocity, Volume

Large & high-dimensional (multi-attribute) data

Solutions: statistics and probability, data mining and machine learning, and computational topology