Lecture 6: Space/Order
Information Visualization
CPSC 533C, Fall 2006
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Interactive Ordering: Table Lens
- click to sort by columns
- also, is focus+context approach
- demo: www.inxight.com/products/sdks/tl

Interactive Ordering: Rivet
- performance analysis of parallel system
  - order: machine name vs. lock acquisition time
- overview
- zoom
- reorder

Automatic Ordering: Trellis
- alphabetical site, variety
- use group median

Trellis Structure
- conditioning/trellising: choose structure
- pick how to subdivide into panels
- pick x/y axes for indiv panels
- small-scale: within panels
- main-effects: sort by group median
- derived space, from categorical to ordered

Multiscale Banking to 45
- frequency domain analysis

VisDB: Spacefilling Pixels
- how to draw pixels?
  - sort, color by relevance
  - local ordering
- spiral
- 2D


VisDB Results: Separate Dimensions
- grouped dimensions
- separate dimensions


Readings Covered
http://cm.bell-labs.com/stat/doc/trellis.jcgs.col.ps

Chapter 4: Small Multiples. Chapter 6: Narratives of Space and Time

http://www.dbs.informatik.uni-muenchen.de/dbs/projek/papers/visdb.ps

Confirmed Hypothesis
- dataset error with Morris switched?
- old trellis: yield against variety given year/site
- new trellis: yield against site and year given variety
- exploration suggested by previous main-effects ordering

Partial Residuals
- fixed dataset, Morris data switched
- explicitly show differences
  - take means into account
  - line is 10% trimmed mean (toss outliers)

Banking to 45 Degrees
- mentioned but not explained in this reading
- perceptual principle: most accurate angle judgement at 45 degrees
- pick aspect ratio (height/width) accordingly

Multiscale Banking to 45
- frequency domain analysis

VisDB Windows
grouped dimensions
separate dimensions

VisDB Results: Grouped Dimensions

Space vs. Time: Showing Change

 literal                                  abstract
 time for time                           space for time  
 animation: show time using temporal change
  - good: show process

 [www.geom.uiuc.edu/docs/outreach/oi/evert.mpg]

 Space vs. Time: Showing Change

 literal                                  abstract
 time for time                           space for time  
 small multiples: show time using space
  - overview: show each time step in array
  - compare: side-by-side easier than temporal
  - external cognition instead of internal memory

 [www.geom.uiuc.edu/docs/outreach/oi/evert.mpg]

 Derived Spaces: Slope

 literal                                  abstract
 time for time                           space for time  
 narrative of space and time
 Marey train schedule, 1885
  - horizontal line length: stop length
  - slope: speed
  - intersection: time/place of crossing


 Animation vs. Small Multiples

 Tversky argument: intuition that animation helps is wrong
  - meta-review of previous studies
  - often more info shown in animation view so not a fair comparison
  - carefully chosen segmentation into small multiples better than animation if equivalent information shown