Attribute Signatures

Dynamic Visual Summaries for Analyzing Multivariate Geographical Data

CPSC 547 Presentation
Peter Beshai
November 17, 2014
Location
**Analysis: What?**

**Tables**

2001 & 2011 census data: England and Wales

- **41** attributes
- **181,000** regions

**Geometry**

Geographic data of England and Wales

**Derived**

Statistics at different aggregation resolutions
General Concept

Select a **constraint**: Location, Extent, Resolution

Select a **variation** type: Discrete, Continuous

Select a **statistic**: Effect Size, Median, Interquartile Range
General Concept

Select a **constraint**: Location, Extent, Resolution

Select a **variation** type: Discrete, Continuous

Select a **statistic**: Effect Size, Median, Interquartile Range
Video Demonstration

Attribute Signatures: Dynamic Visual Summaries for Analyzing Multivariate Geographical Data

Cagatay Turkay, Aidan Slingsby, Helwig Hauser, Jo Wood, Jason Dykes

http://vimeo.com/102220835
Attribute Signatures: Dynamic Visual Summaries for Analyzing Multivariate Geographical Data

Cagatay Turkay, Aidan Slingsby, Helwig Hauser, Jo Wood, Jason Dykes

http://vimeo.com/102220835
Analysis: Why?

Major Task
1. Discover and compare trends, features, and differences in multiple attributes across different geographic variations
Analysis: Why?

**Major Task**
1. Discover and compare trends, features, and differences in multiple attributes across different geographic variations

**Minor Tasks**
2. Discover effects of aggregation on statistical summaries at a single location
3. Compare attribute differences over time and across geographic variation
Analysis: How - Encode

Line Charts

Bar Charts

Coloured Marks on Map
Analysis: How - Facet

Small multiples
Partitioned by attribute
Coordinate
Linked highlighting
Shared navigation
Overview map
Analysis: How - Manipulate

Reorder

Select Regions

Change over time, geographic manipulation
Analysis: How - Reduce

Aggregate data at different resolutions (Task 2)
Critique: Weaknesses

Numbers

Visible thresholds

Landmarks

Arbitrarily reorder

Modify paths

One dataset

Reproduce analysis
Critique: Strengths

- Animation axis
- Spatial dimensions
- Linked highlighting
- Alignment
- Reordering by similarity
- Natural interactions
- Pixel use
Attribute Signatures
Thanks!

Attribute Signatures
Dynamic Visual Summaries for Analyzing Multivariate Geographical Data
CPSC 547: http://www.cs.ubc.ca/~tmm/courses/547-14/

Paper: http://dx.doi.org/10.1109/TVCG.2014.2346265