Multivariate Network Exploration and Presentation: From Detail to Overview via Selections and Aggregations

Stef van den Elzen
Jarke J. van Wijk

Infovis – Nov 11, 2014
presented by Francisco Escalona
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What?

Why?

How?

Who?

Stef van den Elzen
Jarke J. van Wijk

When?

Huh?
Multivariate Network

Example: Census data by county of USA

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<th>Physics</th>
<th>Dance</th>
<th>Drama</th>
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Nodes (also edges)
4 linked juxtaposed views: DOSA
Adjustable 2D projection of nodes
Selection: boxes, ranges
Within
Between – color map
Background
Combined
Overview

• Manual layout
• Scatterplots, parallel-coordinates, histograms, treemaps, small multiples
• Zooming
• Aggregation
Migration in highly populated counties
Scale

- 5-10 selections (2-6 expected)
- 1-2 dozen attributes
- 100s-1000s of nodes
  - more with aggregation
- $L < 4N$
Strengths

• Both network exploration and multivariate analysis
• Intuitive, easy to use (?)
• Dynamic exploration, visual querying
• Can be used by novices
• Expressive
  • Time
  • Topology
Limitations

• Partitions only by nodes
• Only supports ranges
• Limited scaling up

• No help on where to start
• Overview can be too summarized
• Axis can be difficult to see

• One tool in a toolkit
In Summary

A tool for **exploration and presentation** of **multivariate network** data using **selection and aggregation** in **juxtaposed linked views**