Matrix Browser
Visualizing Networked Information
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Typical Solution

(nets as nets)
Problem

Overview and Search in large networks is difficult

- Visual Search is impeded by arbitrary positioning of nodes
- Associated nodes are often placed far from neighbors
- Finding larger patterns or following long paths becomes difficult
State of the Art
(2001)
Hyperbolic Trees

- Better for hierarchical data
- User loses context because focus shifts
- Hard to follow a specific path
- Limited search and organizing tools
Matrix-view of Networks

(Becker ‘95)
Matrix Browser
Nodes

- Grouped hierarchically
- Organized using a standard tree-widget
- Sortable
- (Limited) filtering
- Represented by intersections between nodes on each axis called relations
- Higher level relations are inferred to make data hiding feasible (explicit, hidden, implicit inheritance / generalization)
- Can be uni-directional, bi-directional, or directionless
Demo
Benefits

- Uses known metaphors
- High interactivity
- User-controlled filtering
- Structured organization of data
Results

- vs. unstructured network graphs:
  - 50% search time \(\text{performance times}\)
  - 50% visual fixations \(\text{eye-tracking}\)

- vs. strong visual structured graphs:
  - 15% performance advantage \(\text{w/o interactive features}\)
Conclusions

Pros

‣ manages large number of nodes and arcs well

‣ Easy to find a given node or relationship

‣ Collapses detail while maintaining structural information
Conclusions

Cons

- Doesn’t handle spatial locality as well as one would like
- Tool seems “not ready for prime-time”