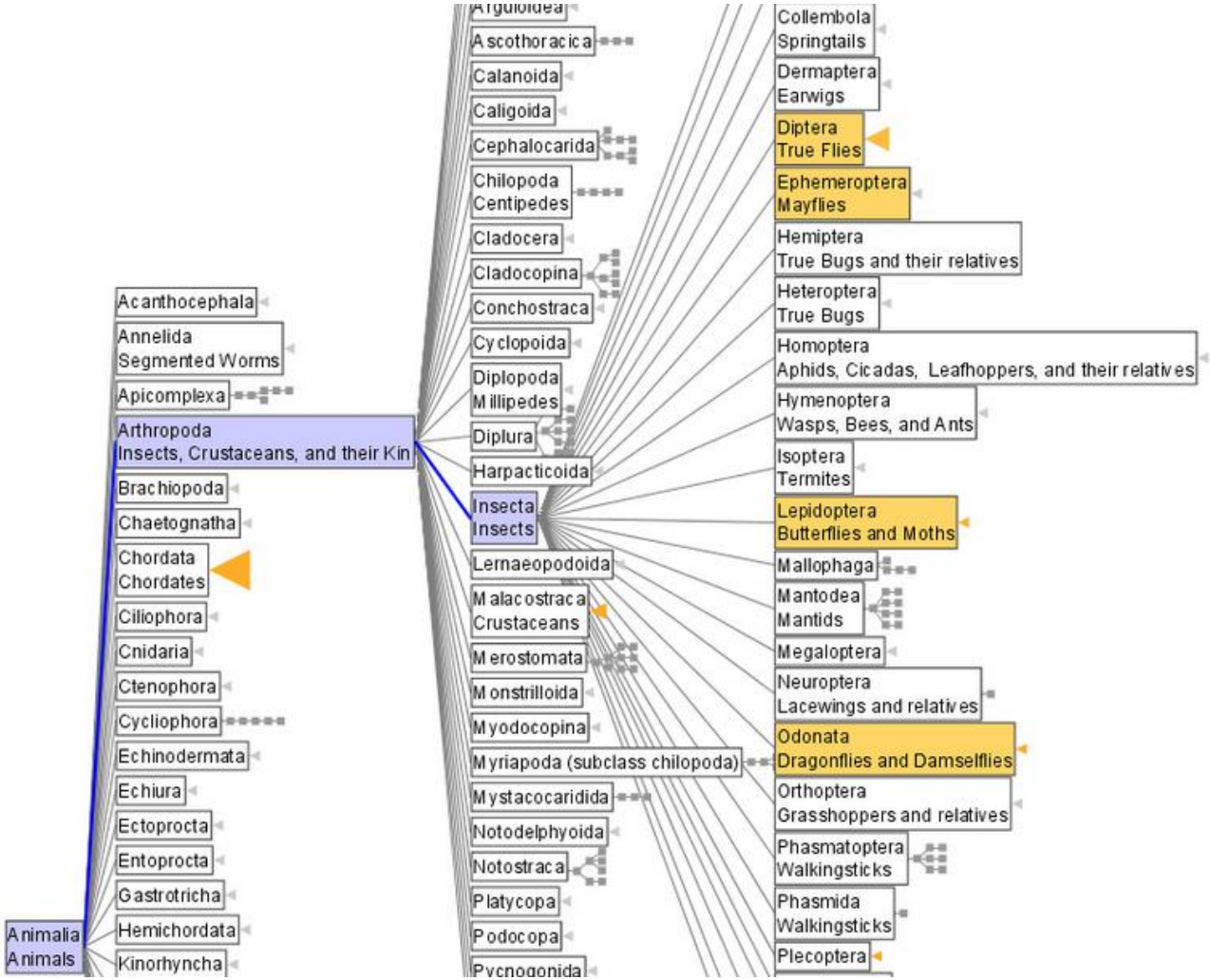
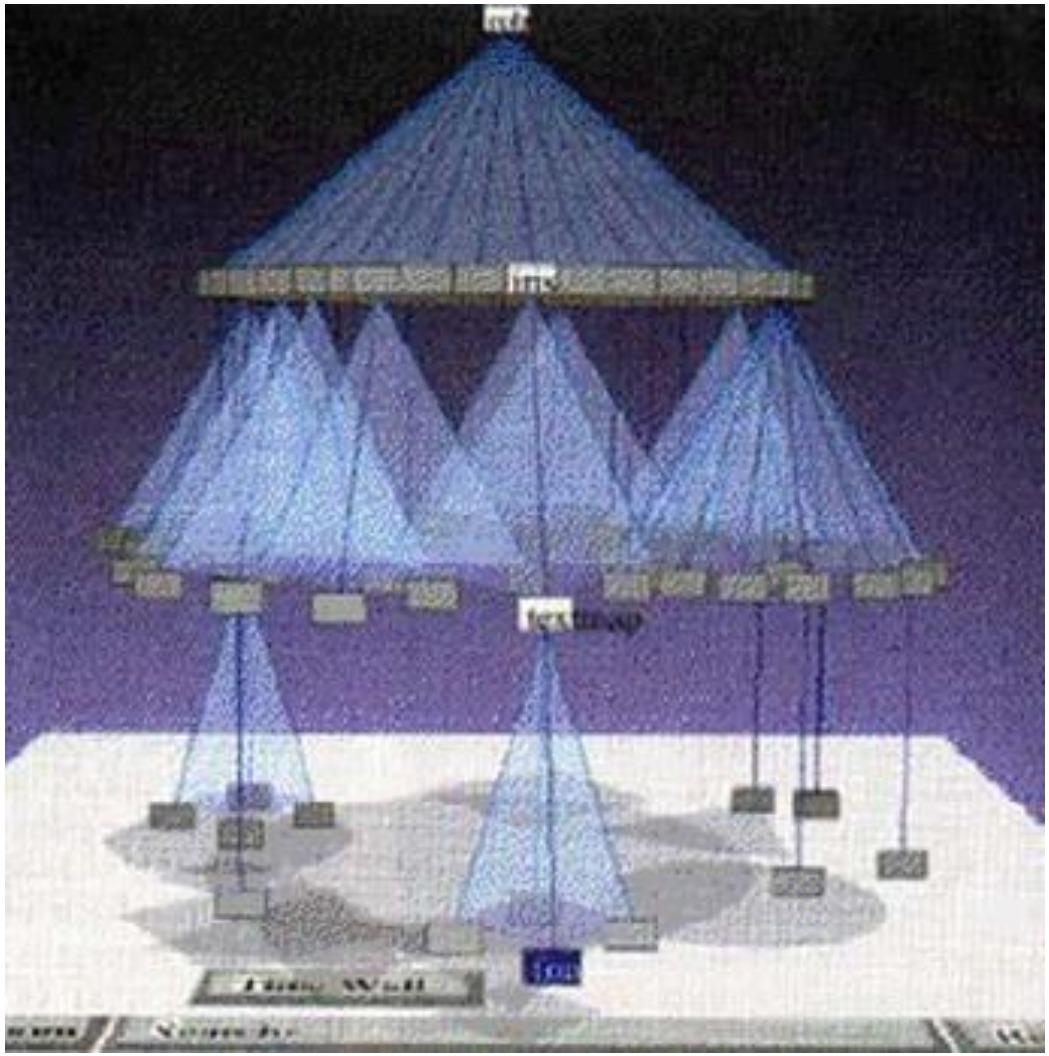
Space Tree



www.cs.umd.edu/hcil/spacetree

Cone Tree

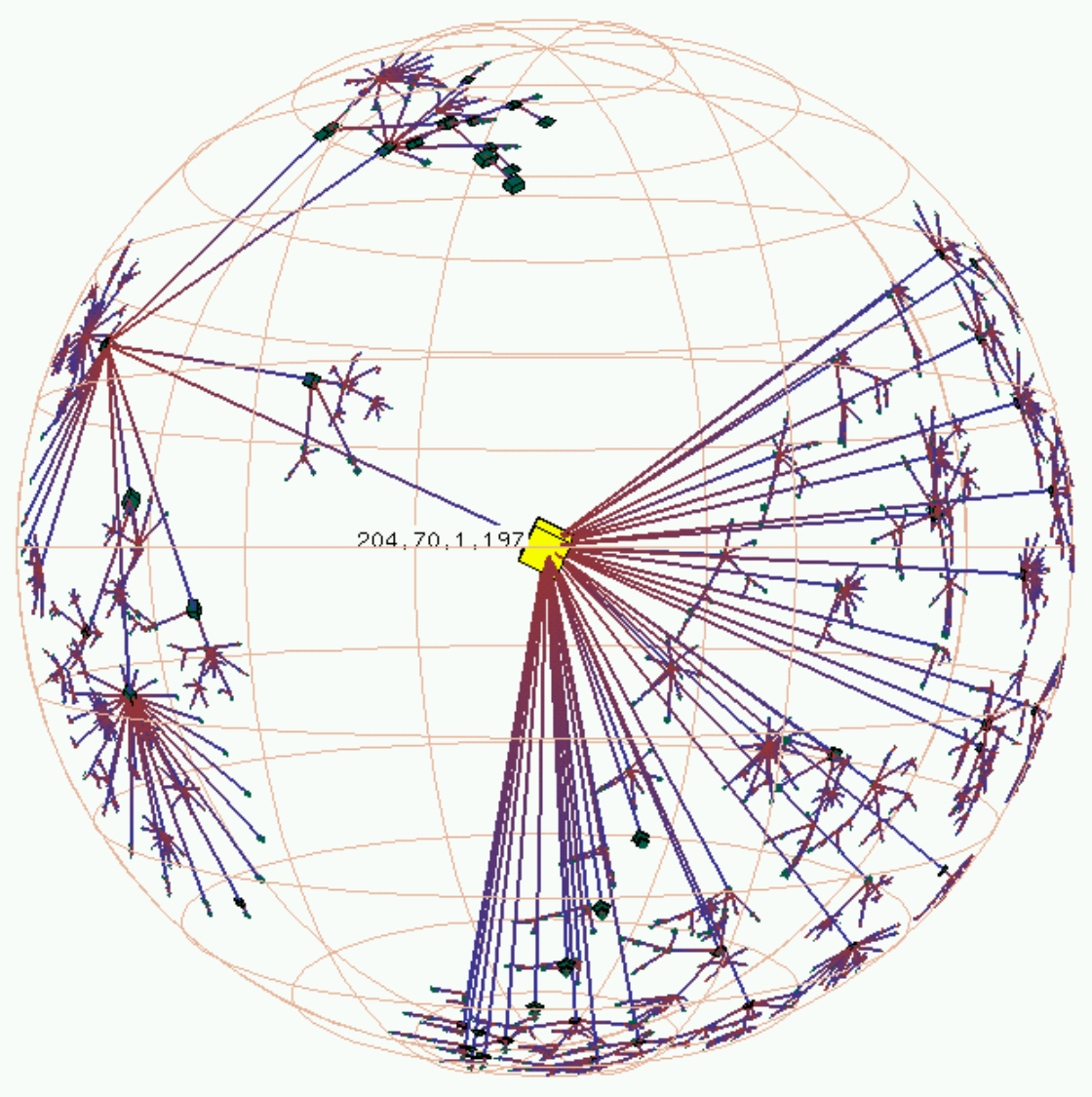
- Add a 3rd **dimension**
- Compromise of top-down and centered techniques



www.infovis-wiki.net/index.php?title=Cone_Trees

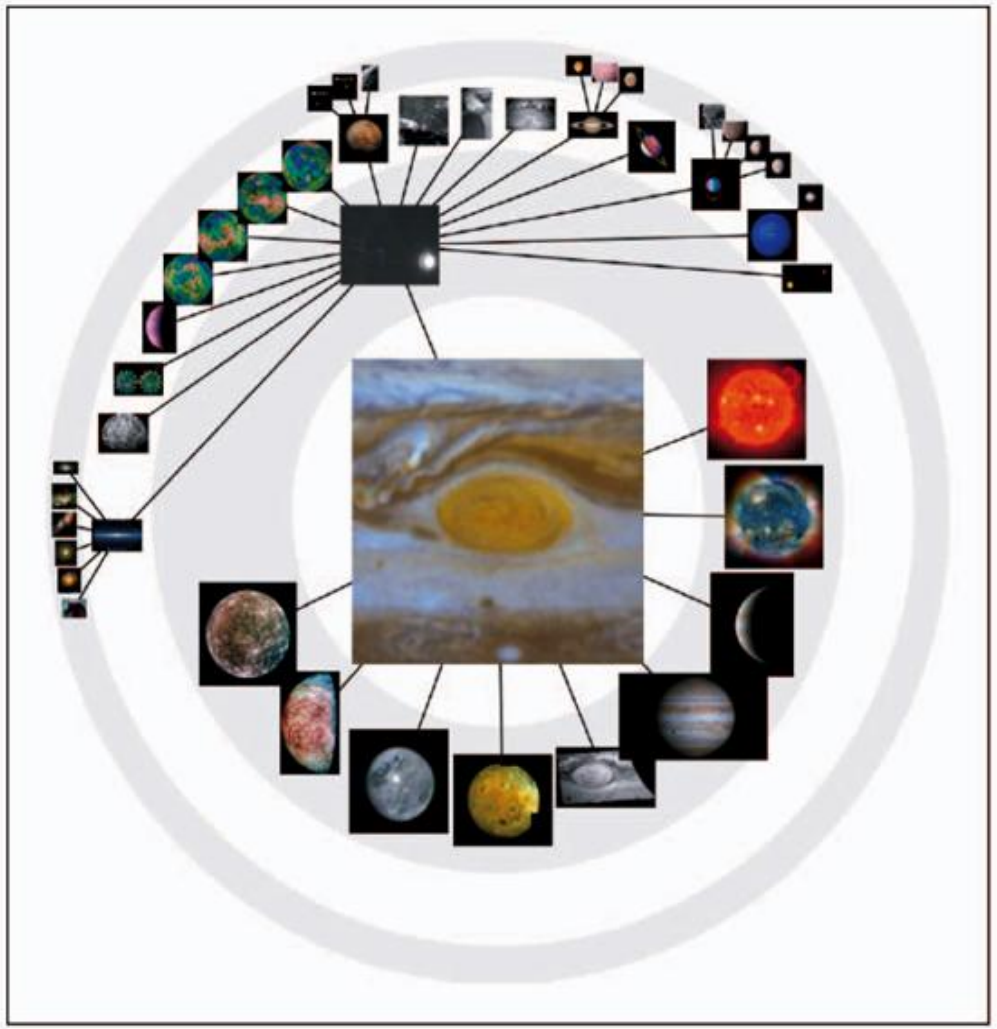
Hyperbolic Tree

- Transform **Hyperbolic Space** to 2D Euclidean space



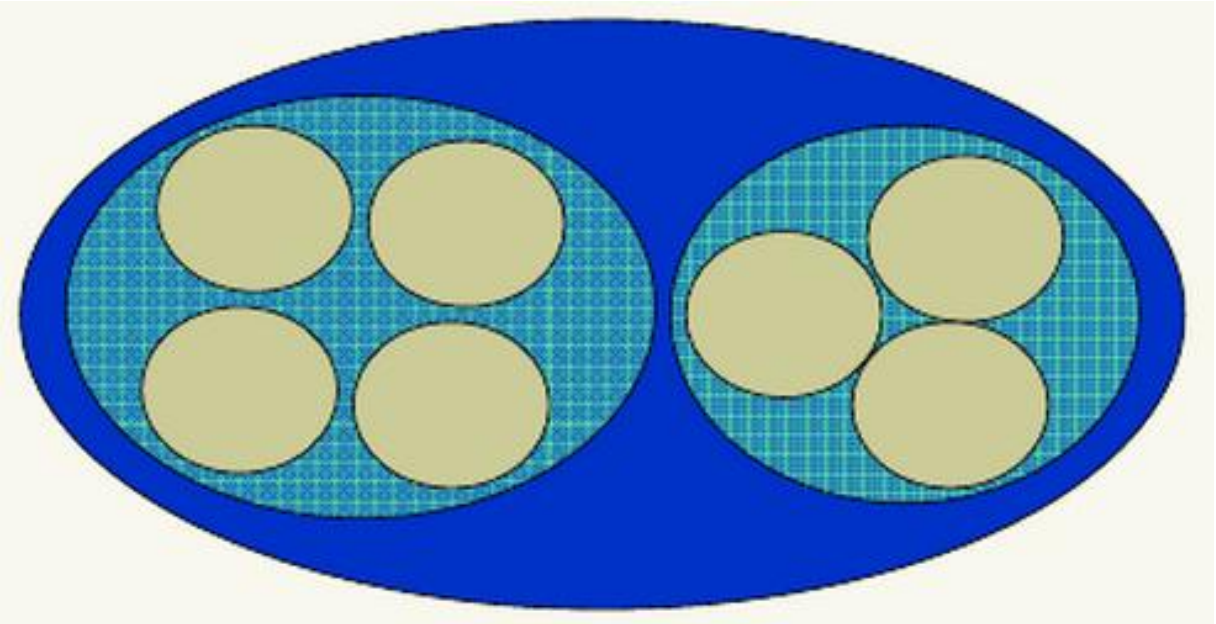
Hyperbolic Tree

- Accommodates **Exponential Number** of children nodes



2- Enclosure / Space-Filling

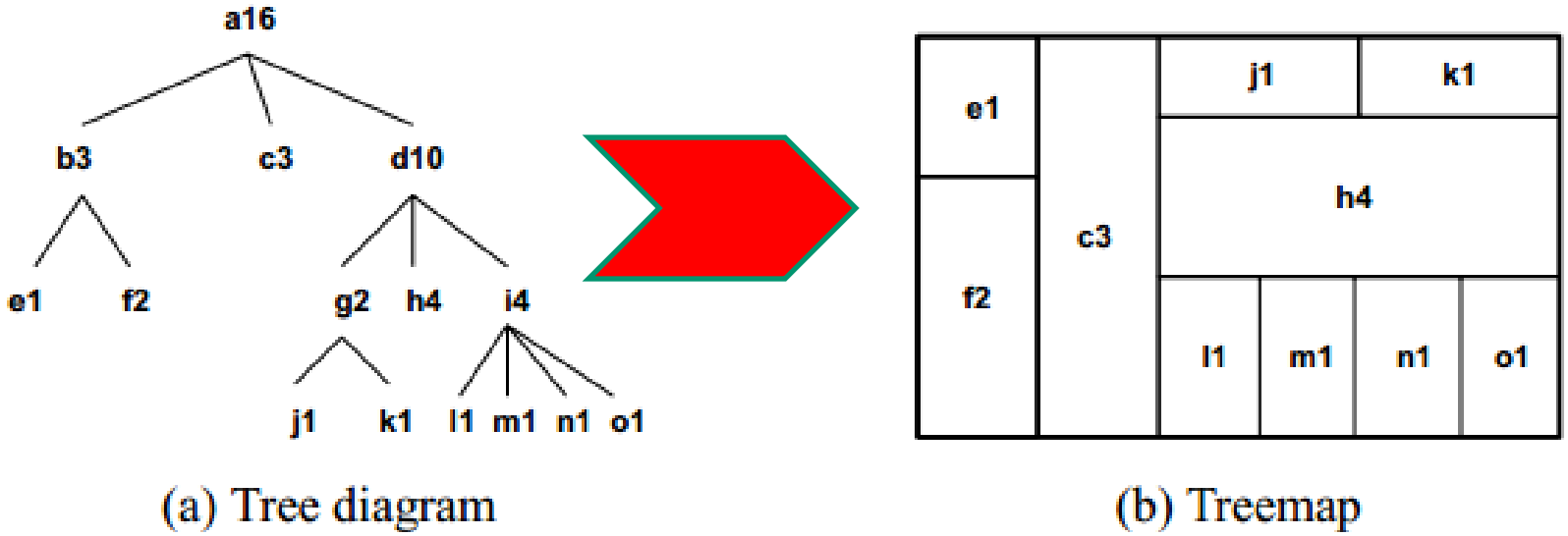
2- Enclosure/Space-Filling



- Each item occupies an area
- Children are “contained” within parent

Examples

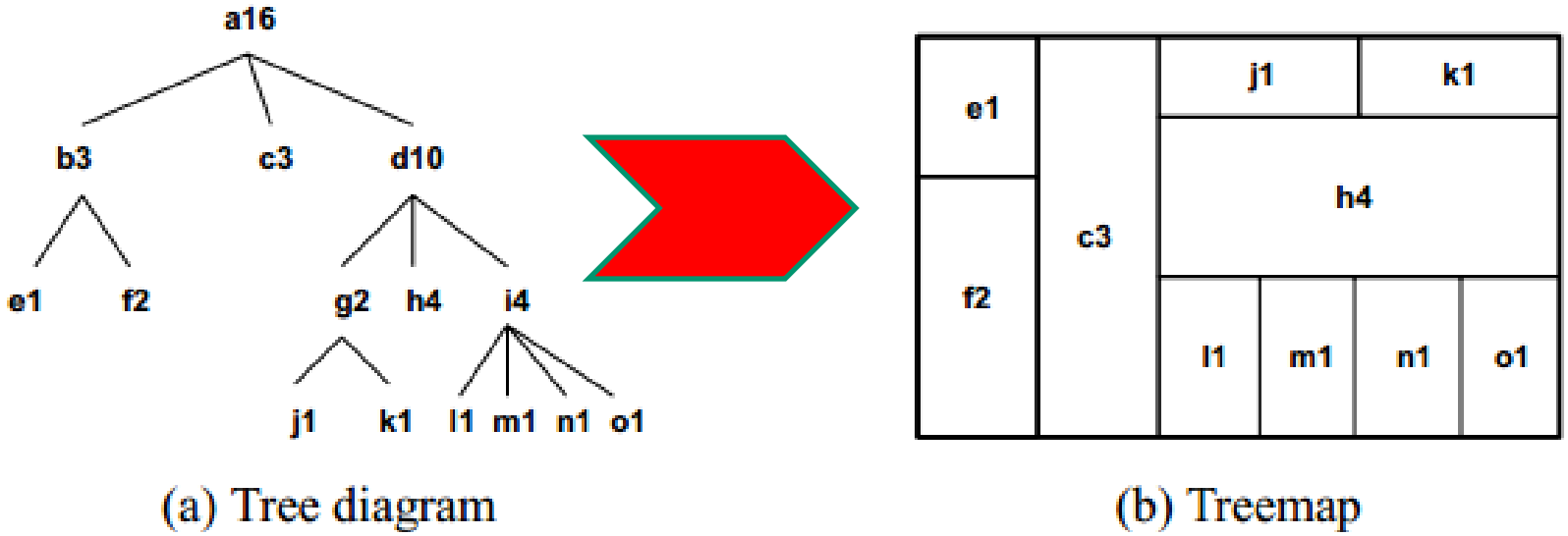
Tree Map



(a) Tree diagram

(b) Treemap

Tree Map

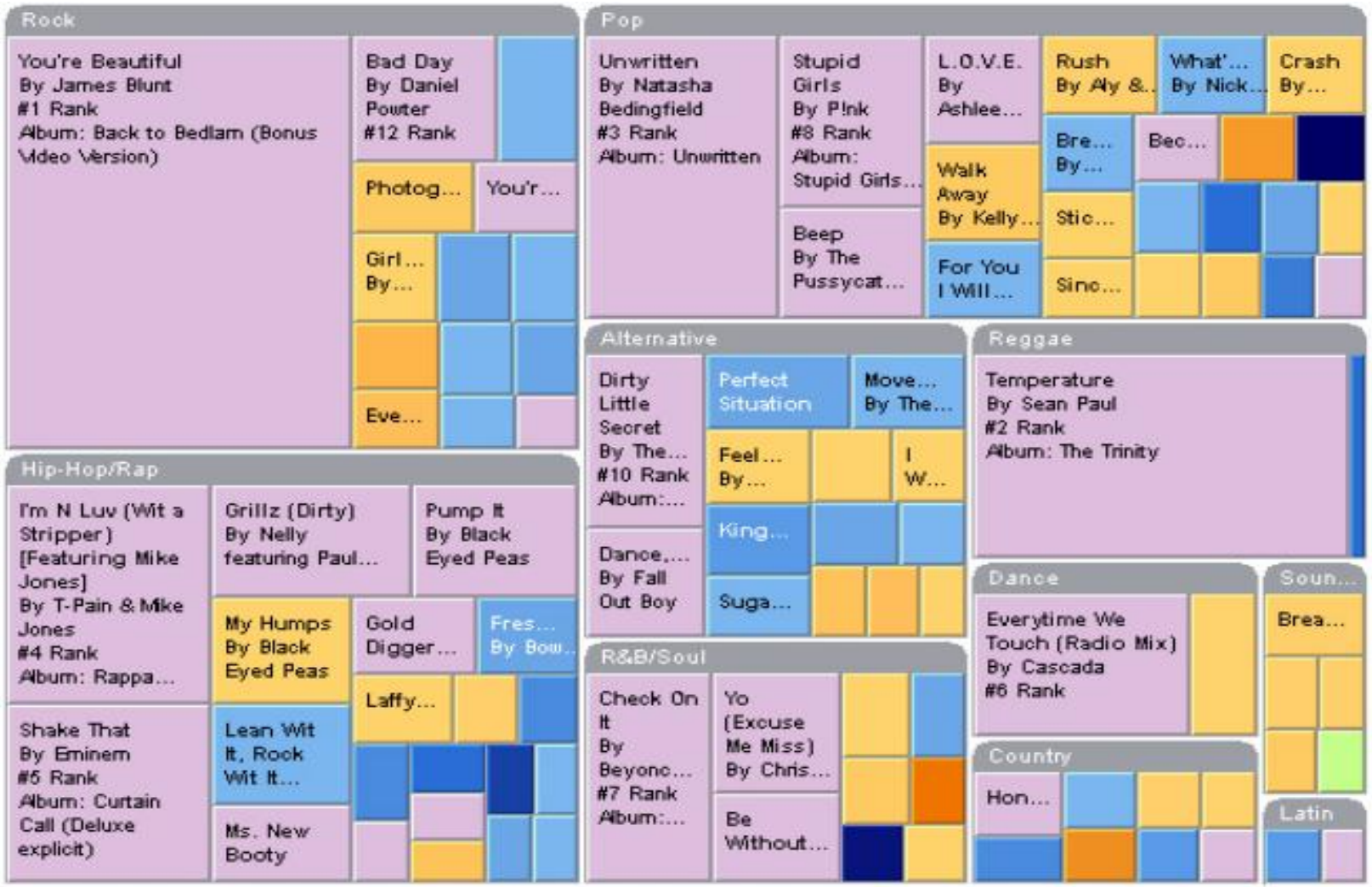


(a) Tree diagram (b) Treemap

- **No** scrolling or node expansion
- **Not suited** for traversal and nesting levels tasks

Tree Map Examples

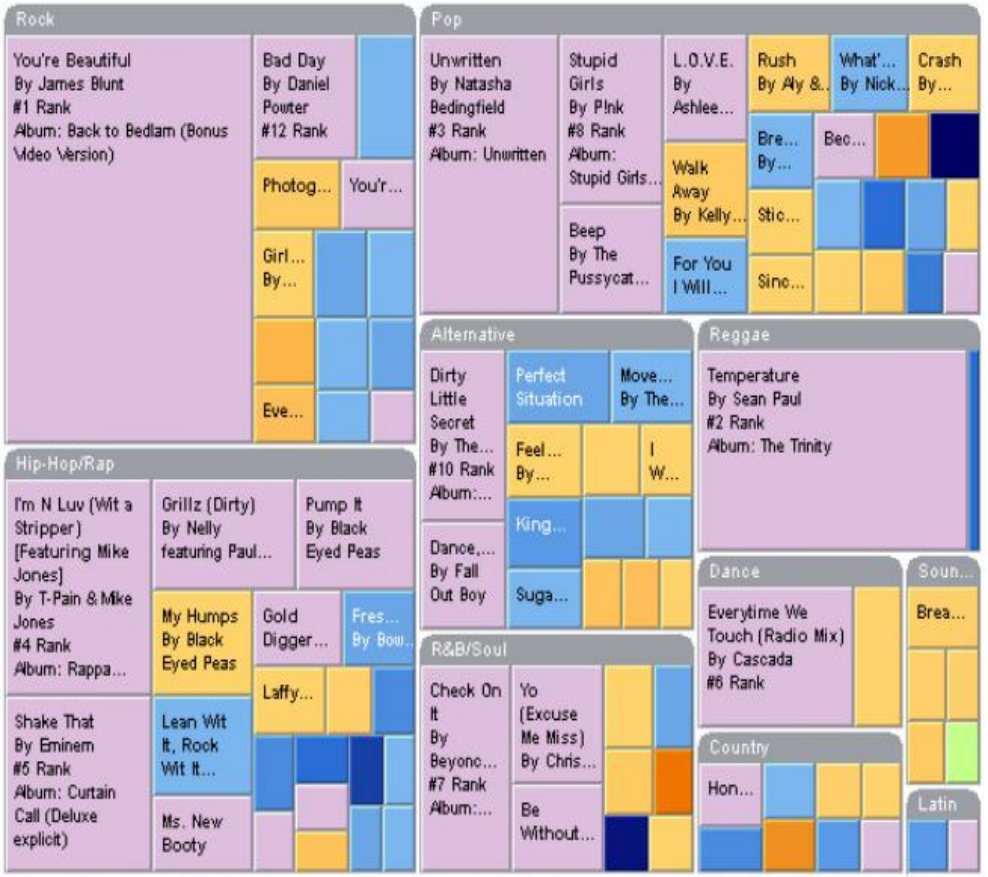
The Hive Group - iTunes Top 100



http://www.hivegroup.com/gallery/itunes.html

The Hive Group - iTunes Top 100

- Top 100 iTunes
- Grouped by genre
- Sized by chart position



- Colored by 24-hour change in chart position

Application by Marcos Weskamp

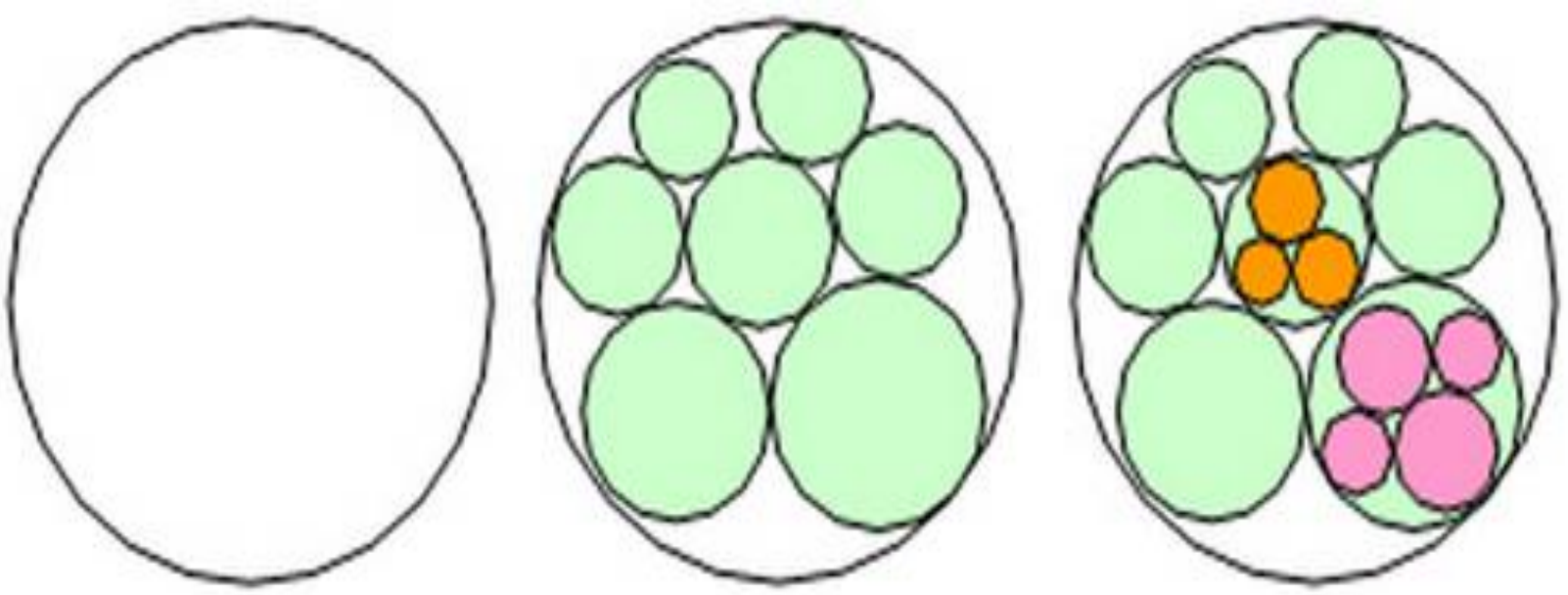
Application by Marcos Weskamp

Google News in to newsmap

Color ➡ type of news story

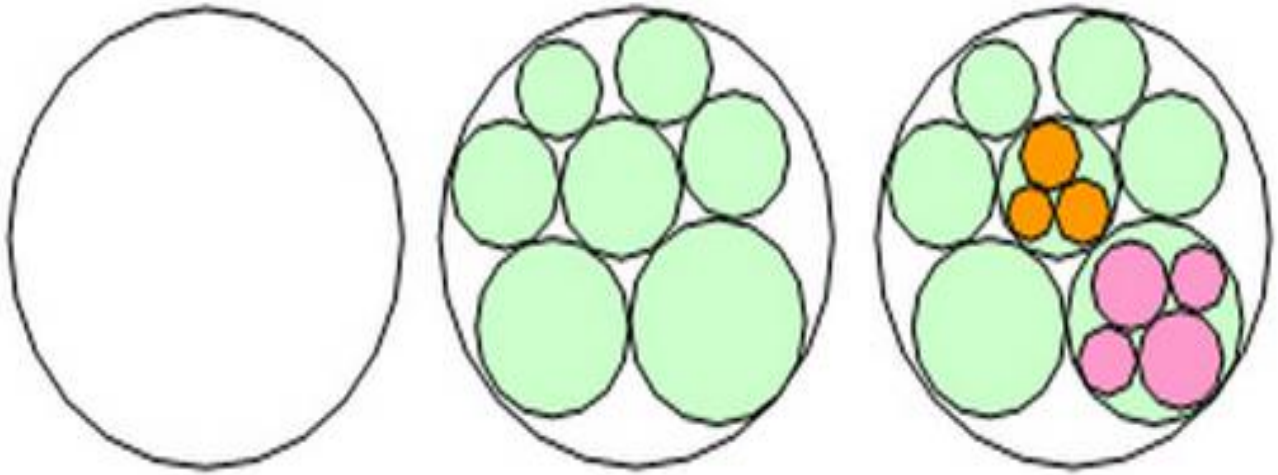
Size ➡ Most read story

Circle Packing



- Inspired by **Treemaps**

Circle Packing

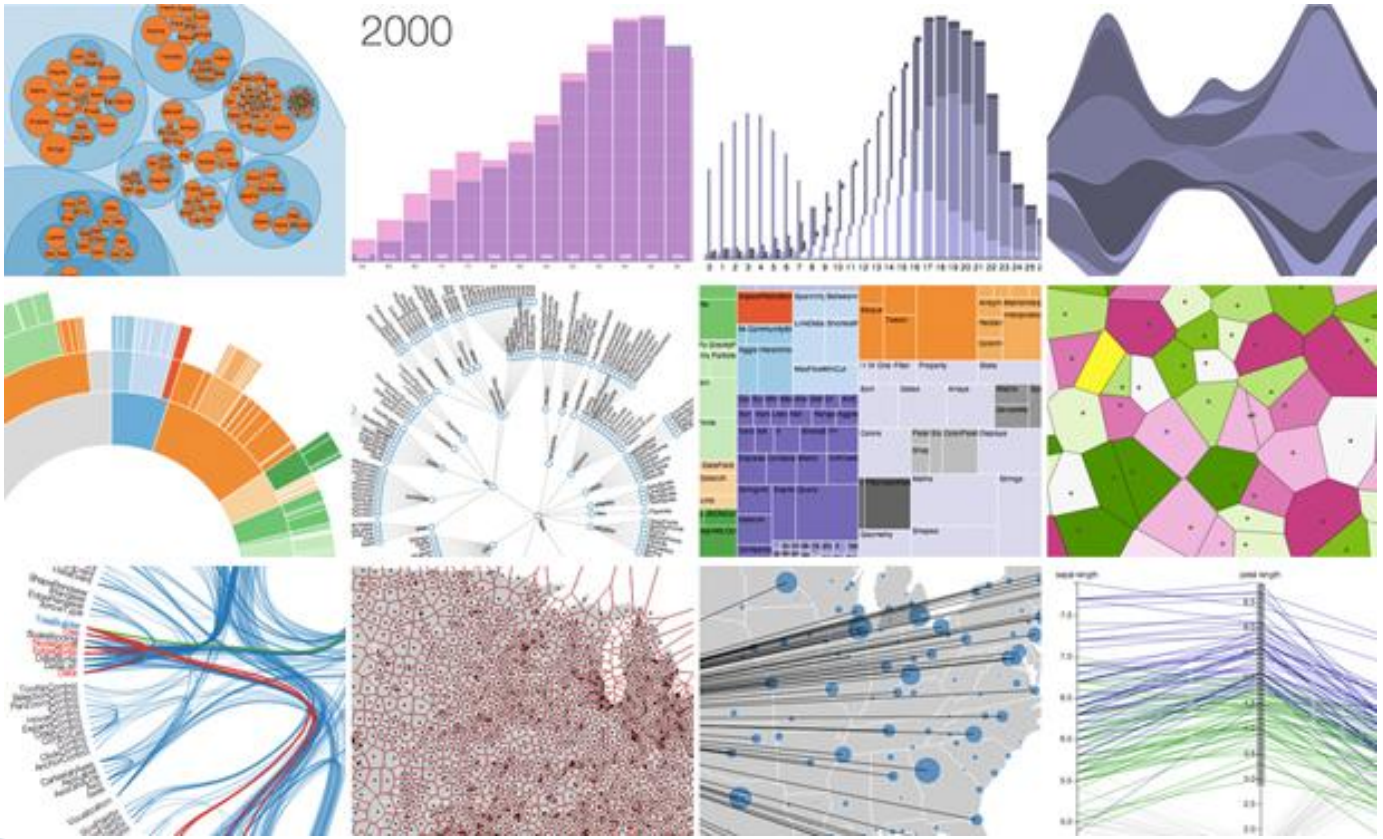


- **Inefficient** use of space as Treemaps
- "wasted" space **reveals the hierarchy**
- Size of a leaf-node can represent an arbitrary property, such as file size

Open-source ToolKits

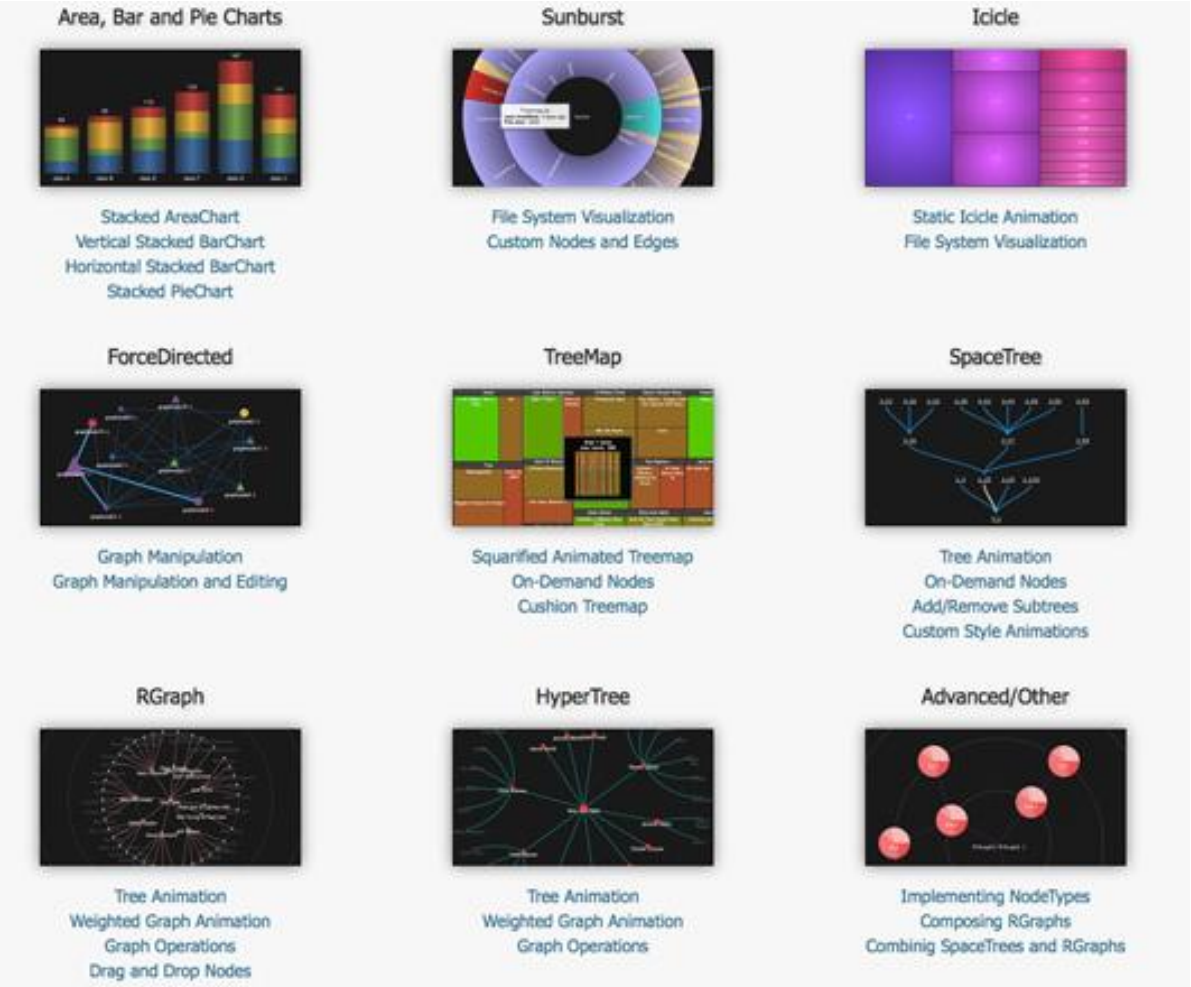
D3.js toolkit - http://d3js.org/

- D3 - Data-Driven Documents
- **JavaScript library** that supports SVG rendering



JavaScript Infovis - http://thejit.org/

- Create Interactive Data Visualizations for **Web**.
- Uses HTML5 - **Canvas** tag



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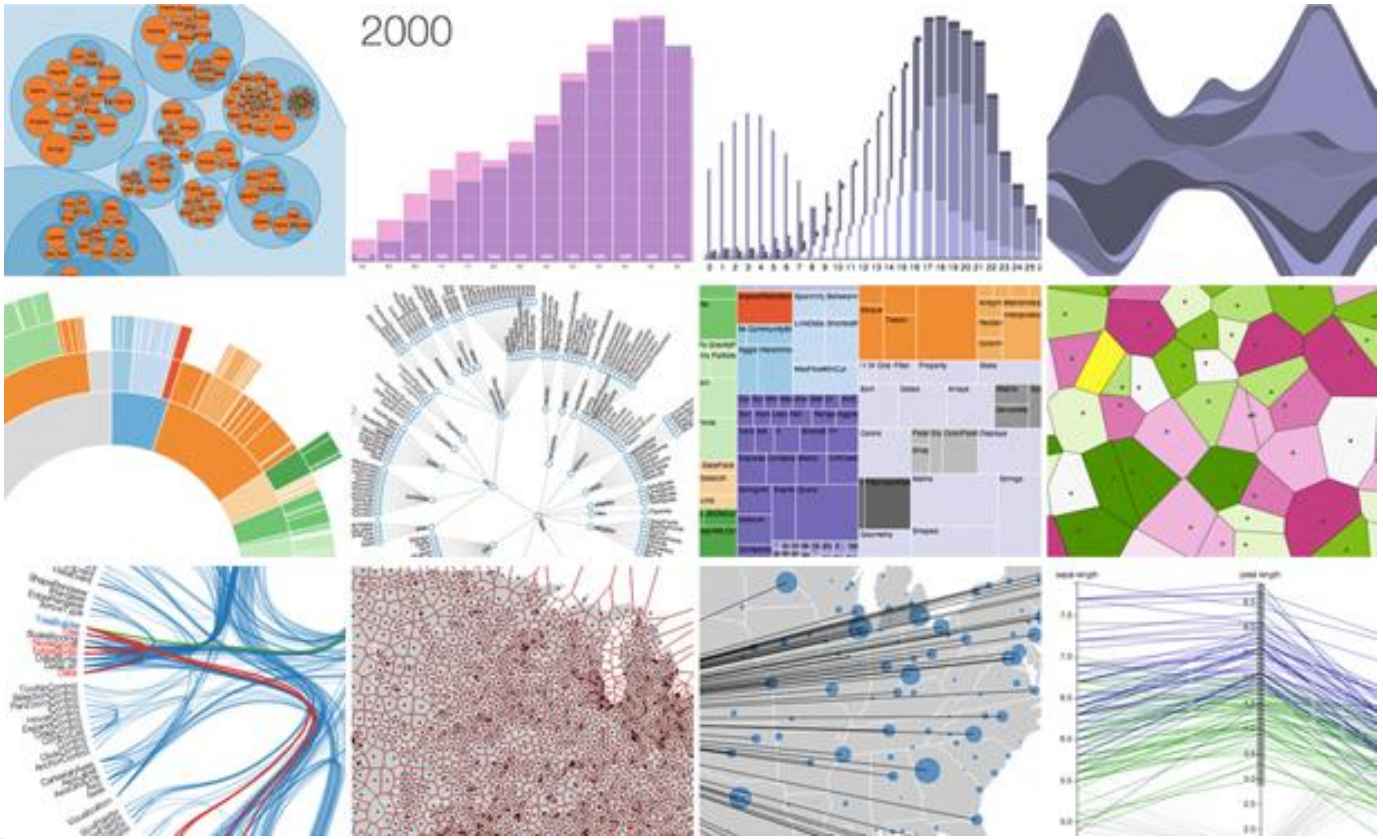

DEMO
HTML5 – Canvas & SVG tag

Issues on Small Screen Devices

- Limitation in the **size**, **resolution** and **colours** of the display
- The **Width/Height ratio** is very different from the usual 4:3
- Limited **Computational** power
- Limited **hardware**
  (CPU, memory, buses, graphic Hardware)

Issues on Small Screen Devices

- Human interaction techniques
  - (e.g. tiny keypads, micro-joysticks, rollers) are often inadequate for complex tasks
- Bandwidth
- Connectivity issues

  affecting the interactivity of application significantly for large data.

Issues on Small Screen Devices

- Animation
  (slower on aakash)
- Font size
  (12 px due to interactivity with finger)
- User Interaction Method
  (click, touch hold, touch move)
- Size of data
- Type of Data.
  E.g. labels only, labels + image, image only
- Level of Details for each node
  (on rendering and on node selection)

REFERENCES

L. Chittaro,\ Visualizing Information On Mobile Devices." IEEE Computer Society Press Los Alamitos, CA, USA , v.39 n.3, p.40-45, March 2006.
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Q. V. Nguyen, M. L. Huang,”A Space-Optimized Tree Visualization." In Proceedings of the 2002 IEEE Symposium on Information Visualization (InfoVis"02), pages 8592, 2002.

T. BARLO, P. NEVILLE,\A Comparison of 2-D Visualizations of Hierarchies.” Proceedings of the IEEE Symposium on Information Visualization, 2001 .