

Unpackable Treemaps

Project Update
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22 November 2004

Domain/Objectives

- Create a browsable map of web-browser's history
 - Show hierarchy
 - Show chronological progression
 - Display parts of web pages in map
 - Allow visualization of cycles
 - Handle large amounts of data

Solution

- "Unpackable" treemaps

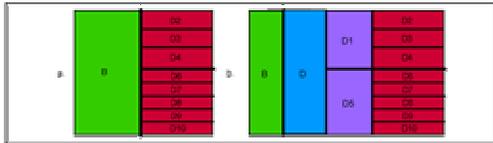
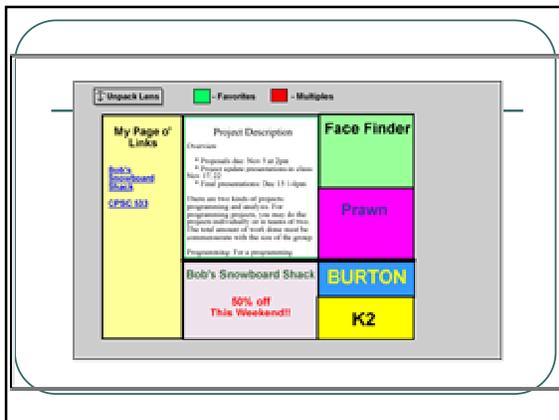


Figure 1: (a) Treemap before unpacking. Nodes D1, D5 and D are beneath the D leaf nodes. (b) Treemap after "unpacking" parents of the D leaf nodes.

Scenario

- User will browse, then open treemap tool to visualize history
- History will be linked to browser so user can open previously-browsed links
- Cycles will be highlighted
- Favorites will be highlighted
- User can "unpack" tree using a tool



Cycles

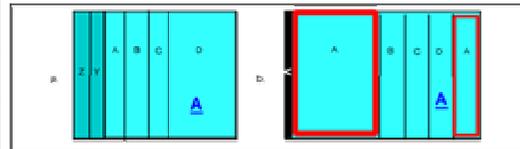


Figure 4: Using the example from Figure 3, when hyperlink 'A' is selected and leaf node 'A' is added while original node 'A' gets the focus, older nodes 'Z' and 'Y' are shifted behind 'A'. An arrow on the left side of 'A' indicates that it has parent nodes which can be displayed.

Tree Growth

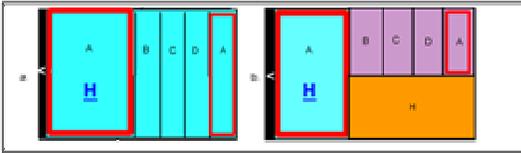


Figure 5: (a) The user has navigated back to a previously visited node, 'A', and follows a different hyperlink out of the page, 'H'. (b) The treemap is updated with a new child node for 'A'.

Implementation

- Tool is Mozilla extension – accesses Mozilla's internal history file. Draws treemap as applet.
- Treemap drawn using InfoVis Toolkit.

Challenges

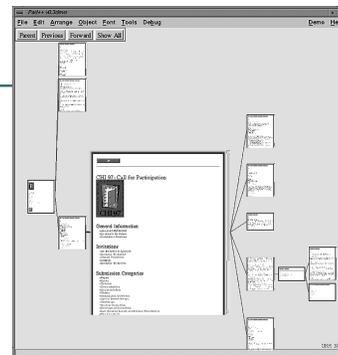
- Communication between Java and Mozilla is complicated.
- InfoVis Toolkit is painful to use – poorly documented.
- NetBeans' native applet handling broken.

Planned Features

- Unpacking lens
- Clustering by keyword
- Cycle visualization
- Favorites designation
- Navigation from tool (linking)
- Page content visualized
- Zooming?

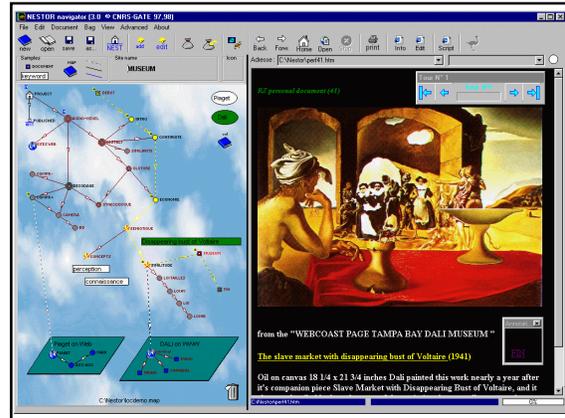
Previous Work

- A Zooming Web Browser
Benjamin B. Bederson, James D. Hollan, Jason Stewart, David Rogers, David Vic
 - Implemented in Pad++
 - Shows page content
 - Shows explicit tree structure
 - Space inefficient



Previous Work

- **Implementing a Constructivist Approach to Web Navigation support.**
Romain Zeiliger, Claire Belisle, Teresa Cerratto
 - History tree of “document objects”
 - Pages in separate window
 - Personal web



References

- A Zooming Web Browser
Benjamin B. Bederson, James D. Hollan,
Jason Stewart, David Rogers, David Vic
- Implementing a Constructivist Approach
to Web Navigation support
Romain Zeiliger, Claire Belisle, Teresa
Cerratto