

Hierarchical Edge Bundling Tool



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Chapter 1. About us

Behavox is a complex data analytics platform designed to help companies to organize petabytes of unstructured and structured data. In order to do that Behavox provides a collection of sophisticated analytical tools allowing to manipulate and visualize data in myriad different ways.

Chapter 2. Hierarchical edge bundling

Hierarchical edge bundling enables you to explore the relationships between software classes and discover dependencies without having to navigate confusing and deeply nested hierarchies.

The problem

If you have ever looked for a file on your computer, you know that the information is stored in directories. Files and directories are logically grouped in meaningful way that impose an order and structure. As more information is added, more directories are used to ensure groups are conveniently sized and categorized. Eventually, directories themselves have to be sorted and grouped together to until you end up with a file system that consists of nested directories in a hierarchy. The most common way to visualize a hierarchy of directories is a tree structure.



The utility of this model begins to break down as the structure accommodates more information. It is difficult to discern relationships between files as the file paths become increasingly layered and divergent.

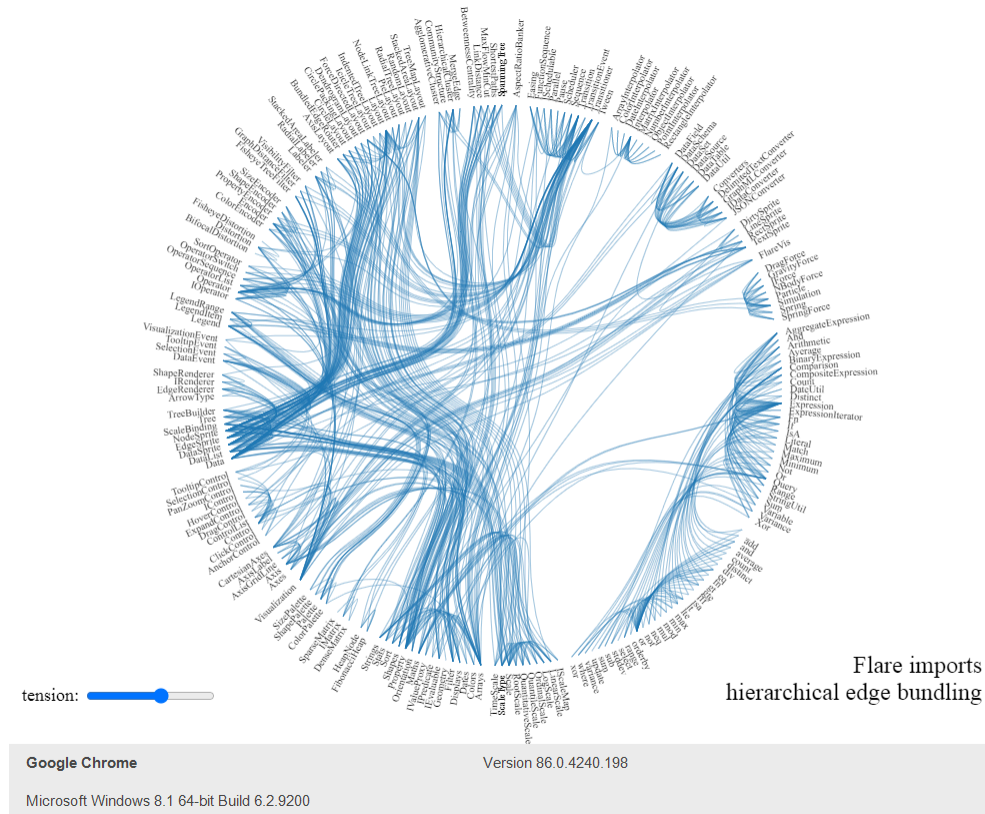
Moving this scenario to an object-oriented software development environment, or library, makes the problem even more complicated. Discrete pieces of reusable code can be sorted and organized hierarchically, but there are additional adjacency relations and dependencies between nodes, classes and objects.

The solution

The elements of the software library are visualized in a special diagram called a dendrogram. Adjacent classes are grouped together, and dependencies between the children of a node are readily apparent.

When a dependency exists between classes that inhabit different nodes, a bezier curve displays the relationship. The curve connects dependent classes and details where adjacency occurs in the parent nodes. This method solves the problems of accommodating adjacency between a large number of classes (by bundling them on the edge) and visualizing adjacency between parent nodes.

Figure 1. Behavox hierarchical edge bundling tool



Opening the tool

You can open the tool through any web browser.

Click <http://mbostock.github.io/d3/talk/20111116/bundle.html>

Exploring class relationships

Class relationships and dependencies are displayed with the Hierarchical Edge Bundling Tool.

 **Note:** Several features make the tool easier to use:

- Click and hold on the disk to spin it. This feature allows you to read class names upright.
- Hold **Ctrl** and scroll the mouse wheel to adjust the zoom level of your browser.
- Use the tension slider to declutter the disk and make it easier to follow dependencies.

Select the class you want to examine.

Mouse over the class of interest. The class name will turn blue to indicate it is under observation.

The tool displays outgoing classes in green and incoming classes in red.

Closing the tool

You can close the tool by shutting your browser window.