T-61.5010 Information visualization

Problem set 4. Tue, 17th Feb., 2009, 10-12 T2

1. Browse through works of arts (paintings, drawings, etchings, etc.) for examples of pictorial depth cues (you can look for example in the Web Gallery of Art). Find examples of several different types of depth cues (they can appear in the same painting or in different ones). Look with a critical eye. Are the depth cues always consistent or they sometimes contradict each other? Are some cues stronger than other? In what situations does it make sense to use depth cues in a visualization.

2. The fisheye view tries to solve the so called focus+context problem by displaying detailed information of a chosen point, while giving only a coarse overview of more distant points.

   (a) Explain how a viewer based on the fisheye paradigm would operate on some structured data of your choice (e.g. text, program code, social network).

   (b) Discuss weaknesses of the fisheye approach. Why does it not work in some cases? Give an example of such a situation.

3. Create a box plot (http://en.wikipedia.org/wiki/Box_plot) of the Iris data set from exercise session 2. Plot boxes of the three different classes for one of the four numerical features that you choose. What can be read from the box plots? Compare the plot to the scatterplots of exercise session 2. In what situation would one type of plot be more useful than the other?

4. Download the Congressional Voting data set (link on course page). The first column contains the political party of a representative (0 - democrat, 1 - republican). The other columns are votes on various issues (0 - no, 1 - yes, -1 - did not vote). The names of the actual issues can be read from the description file. Make a scatterplot of the political affiliation plotted against the vote on a certain issue that you choose. The data is categorical. How is this different from visualizing continuous data ?