T-61.5010 Information visualization

Problem set 3. (Tue OR Wed) Feb. (19 OR 20), 2007, 12-14 T3

You should *solve the exercises prior to the session*, where the solutions will then be presented and discussed. There will be a list to which you can mark which problems you have solved. You should *be prepared to present your solution for the class*. Handing in your answers is NOT necessary.

Tip for the term project: Before starting to write your report, please have a look at some scientific visualizations that appear in quality journals, such as Nature[1] or Science[2]. Full articles in both journals can be accessed from the TKK network. While it is probably very difficult to understand the actual content in most of the figures, try to pay attention to aspects related to their technical preparation, such as the type of graph, use of colors and shapes, etc.

This week's problems are:

1. Construct a visual grammar that will describe some process of your choice (some simple algorithm, workflow at a production facility, recipe, etc.). Which Gestalt laws can be used to interpret figures that make use of the grammar?

2. Design a glyph that enables the preattentive perception of as many variables (discrete or continuous) as possible. How many variables can you represent with the glyph and how accurate can the values be perceived? What should be taken into account when designing the glyph?

3. Create some images with conflicting pictoral depth cues. (For example, based on the first depth cue object A appears closer than object B, but based on the second depth cue B appears closer than A.) Are some depth cues stronger than others? If yes, try to create an example. In what situations does it make sense to use depth cues in a visualization?

[1] `http://www.nature.com/nature/current_issue`
[2] `http://www.sciencemag.org/current.dtl`