

into account, with which you can display these four variates at each grid point by laying out the glyphs to the map. Discuss your design goals and choices, and the properties of the resulting visualization.

3. *Gestalt laws*. What are gestalt laws? List at least six and briefly explain them.

Choose *two* of the problems 4–6 (only the first two answers read by the examiner will be graded):

4. *Essay*. Dimension reduction methods in information visualization: what to take into account when choosing a method to use.
5. *Essay*. Focus+context problem in information visualization and methods to solve it.
6. *Essay*. Tufte's theory of data graphics.

T-61.5010 INFORMATION VISUALIZATION

EXAMINATION

T1, 9 March 2007 at 13–16

To pass the course you must also pass the exercise work. Results of this examination are valid for one year after the examination date.

This examination has two pages. To get full points you must complete all of the problems 1–3 and *two* of the three essays (problems 4–6).

You can answer in Finnish, Swedish or English. Please write clearly and leave a wide left or right margin. You do not need a calculator.

Instructions for the essays: Write in full sentences and structure your answer to paragraphs. The essay should be written in a manner understandable to your learned colleague who has asked you to tell her about the topic of the essay.

The results will be posted to the (blue binder at the) notice board on 9 April 2007, at latest, and also emailed to an address of form 12345X@students.hut.fi, where 12345X is your student number.

Please fill the course feedback form (open 2–16 March 2007) at <http://www.cs.hut.fi/Opinnot/Palaute/kurssipalaute.html>

You can keep this paper.

1. *Concepts*. Explain the following concepts briefly:
 - (a) affordance theory
 - (b) CIELuv
 - (c) depth cues
 - (d) aesthetic principles (in graph drawing, give some examples)
 - (e) visual attention
 - (f) geons
2. *Glyph design*. Assume that you have two-dimensional four-variate meteorological data. For each point in the map grid (2d), you have a measurement of temperature, air pressure, wind speed and wind direction (4v). Design a glyph, taking the properties of human perception

