

## Multivariate Visualization

This practical is mainly about the use of `ggobi` and `ggvis`. You will need to do some background reading — see the website.

### 1 RANDU

This dataset arises in simulation; it consists of 500 triples of numbers in  $[0, 1]$  as successive triples from the random number generator `randu`. The script `randu.R` on the website allows you to explore it.

### 2 Forensic glass

The forensic glass dataset has online help in library `MASS`. We can look at projections and MDS representations of it in various ways: see the script `fgl.R`.

Experiment with MDS in `GGvis` in 2 and 3 dimensions (and 4 if you like).

### 3 University League Tables

Datasets `Times` and `FT` (in file `mult.RData` on the website) contain the 1998 league tables from the *Times* and *Financial Times* respectively. Investigate them.

You will find background information on the Web site, and a script file `LTables.R` which will give you some hints.

### 4 Dermatology

File <http://www.stats.ox.ac.uk/pub/bdr/derma.dat> contains a data matrix of 34 numerical measurements on 366 dermatology patients. Thirty-two of the measurements are on a scale 0 1 2 3 with 0 indicating absence and 3 the largest possible amount. Family history is binary (0 designating no history), and age is in years.

Look for interesting structure in this dataset.