Interactive Parallel Coordinates Plot Based on Qt

Yihui Xie

Department of Statistics, Iowa State University

The cranvas package

- next generation of GGobi

  – interactive statistical graphics in R

- infrastructures:

  – painting (drawing): **qtbase** & **qtpaint** (connect R with Qt)
  – data structure: **plumbr** & **objectSignals** (mutaframes, reference classes, signals)
  – aesthetics: **scales**

- cranvas is still under active development

  - histogram, scatter plot, mosaic plot, parallel coordinates plot, bar plot, maps, ... (see later talks)

- all available at `http://github.com/ggobi` (to be released on Bioconductor & CRAN)

  - refer to the wiki for installation under Linux & Mac
  - of course, we are trying to make Windoze happy too

Usage

1. create a data object (mutaframe) from a data frame

```
> library(cranvas)
> mf = qdata(df, color = "black", fill = "grey30",
+       size = 1, brushed = FALSE, visible = TRUE)
```

2. plot it

```
> qhist(variable, data = mf)
```

Common Features

- color palettes (using **scales**)

  ```
  > mf = qdata(df, color = x1, fill = x2, size = x3)
  ```

- mouse interactions

  – left click and move the brush; right click to resize the brush
  – brush mode and identify mode (use ? to toggle)

- keyboard interactions

- selection mode: `AND, OR, XOR, NOT, COMPLEMENT` (use the initial letters)
- `Delete` makes elements invisible; `F5`: all visible
- + and − changes the alpha transparency
- `PageDown` and `PageUp` navigates through brush history

Parallel Coordinates Plot

- idea: each variable is plotted on an axis; all axes are parallel (in theory, can plot infinitely many variables)

- problems with static par-coords plots:

  - the order of axes (it matters a lot!)
  - easy to get messy (lines twisting together like spaghetti)

- demo time!

Questions & Comments?

- Testing and bug reports (`https://github.com/ggobi/cranvas/issues`) are welcome (a little bit early, though).

- Thanks!