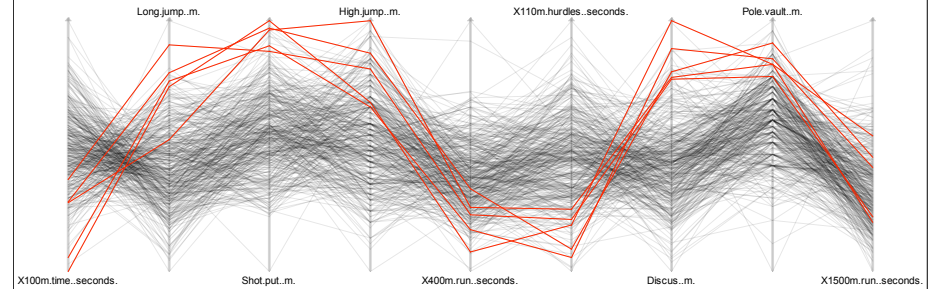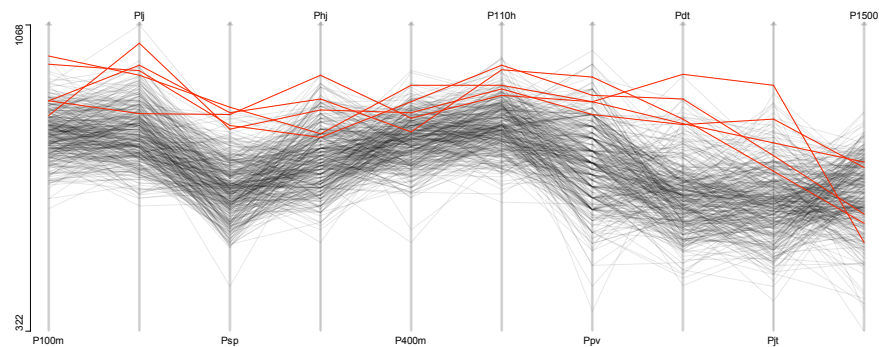# Decathlon data

- Best performances each year, 1985 to 2006, by individual decathletes, 7968 cases
- Only complete, not hand-timed
- 10 events, results, points, competition dates
- Nationality, birthday
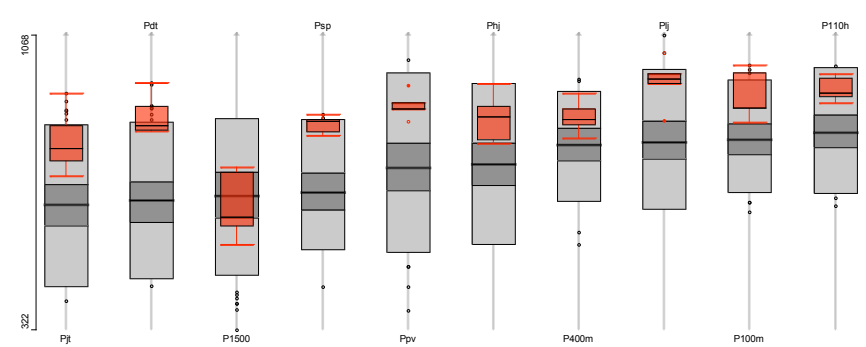- Source: www.decathlon2000.ee

Decathlon performances

Best 5 performances 1985 to 2006 are highlighted

Points and common scaling

Best 5 performances 1985 to 2006 are highlighted
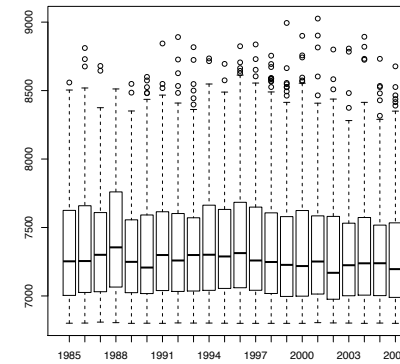
Events sorted by median

Best 5 performances 1985 to 2006 are highlighted
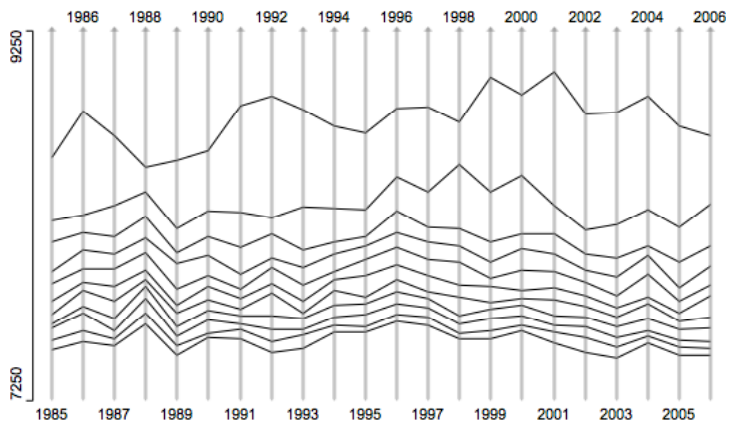
Different Parallel plots

- Distinguish between

  - Parallel coordinate plots of cases across all variables

  - Parallel boxplots of cases across all variables

  - Boxplots of one variable by different groups of cases
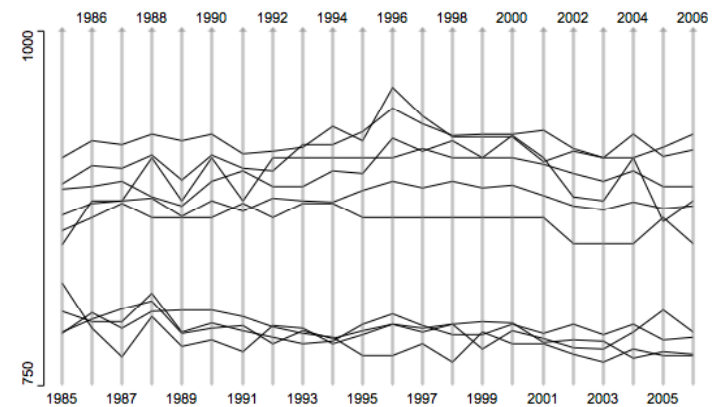
Total scores over time


```
boxplot(ZKq$Total.points~ZKq$yearE)
```
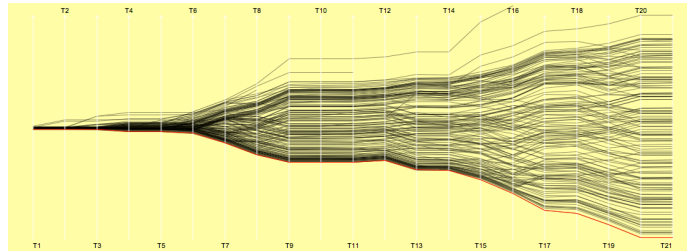
Best over time: 1st, 10th,..
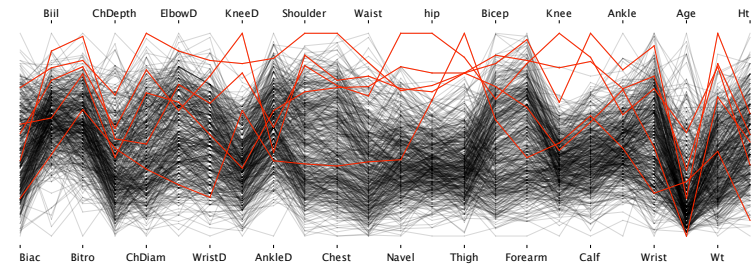

25th Best Event Performances

Tour de France

- Times for each stage and rider
- Years 2005 to 2009
- www.theusrus.de/blog/

Parallel coordinate plots in R

- `parcoord`
- `cparcoord` (library `gclus`)
- `ggpcp` (library `ggplot2`)
- `ipcp` (library `iplots`) with interaction

```
> ipcp(bodyX[,1:24])
```

Biil ChDepth ElbowD KneeD Shoulder Waist hip Bicep Knee Ankle Age Ht

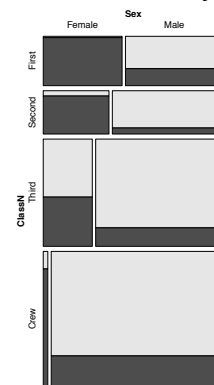Biac Bitro ChDiam WristD AnkleD Chest Navel Thigh Forearm Calf Wrist Wt
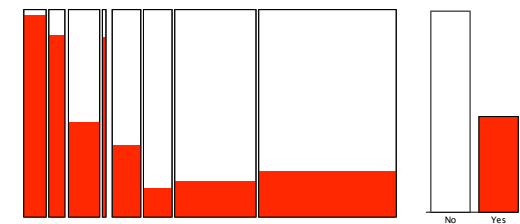
Parallel coordinates

- Common scale
- Rescale (including standardisation and inverting)
- Order of axes
  - by hand
  - by sorting
  - permuting
- Delete/add axes
- Alignment
- Display as boxplots

Mosaicplots in R

`mosaic` (library `vcd`)
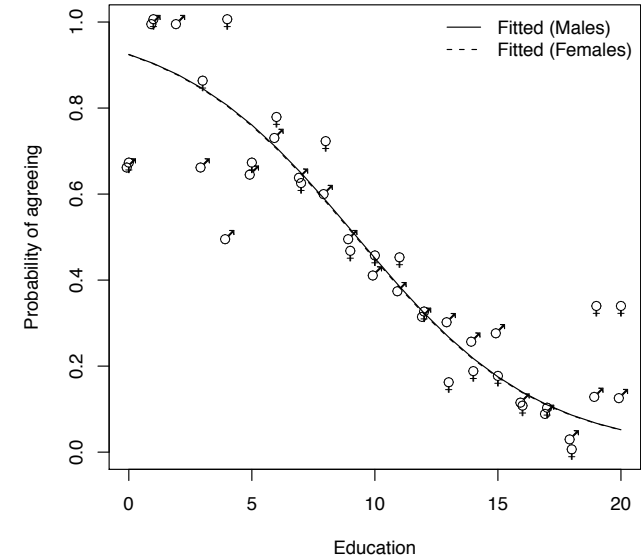
`imosaic` (library `iplots`) with interaction

```
ibar(Survived)
imosaic(Sex,ClassN)
```

```
mosaic(Survived ~ ClassN+Sex, data = Titanic)
```

Womensrole

- Survey data 1974/5 (in package *HSAUR2*)

- Years in education, gender, agree/disagree with the statement "Women should take care of running their homes and leave running the country up to men."
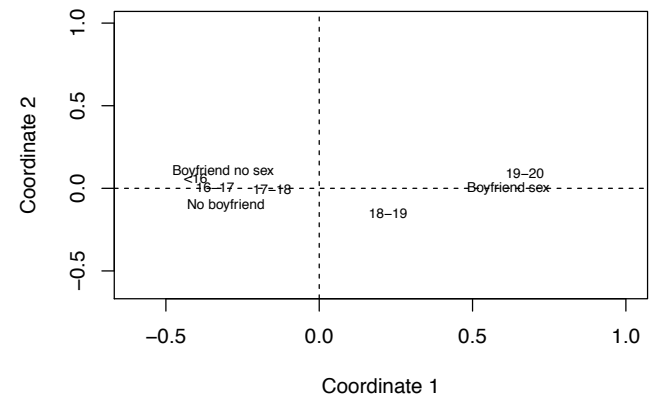

from
Everitt
and
Hothorn

Figure 7.6 Fitted (from `womensrole_glm_1`) and observed probabilities of agreeing for the `womensrole` data.

Teen sex

- Discussed in Chapter 4 of Everitt & Hothorn's book "An Introduction to Applied Multivariate Analysis with R" (no original source is given).

- There are 139 teenage girls split into 5 age groups and by whether they have no boyfriend, a boyfriend but no sex, a boyfriend and sex.

- Code giving a two-way table of the data and a plot showing the results of a correspondence analysis is available in the MDS demo in the package *MVA*.

Teen sex: Correspondence analysis plot

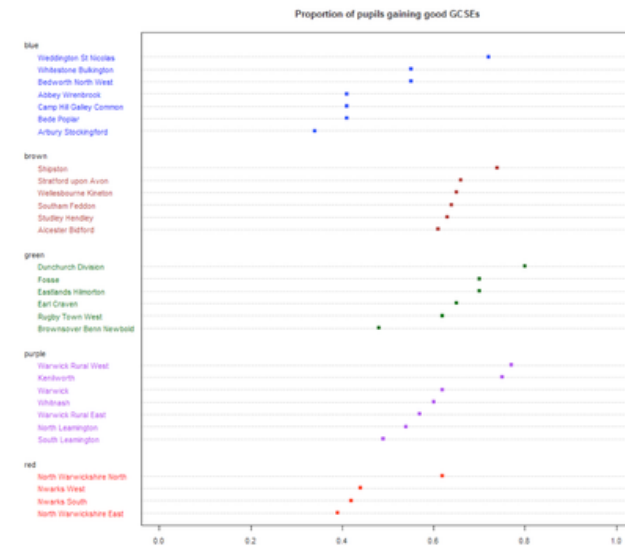Using the code from Everitt and Hothorn in *MVA*

Mosaicplots

- Change order of variables
- Remove/add variables
- Rotate variable
- Change order of categories within variables
- Alternative displays (fluctuation, multiple barcharts, ...)
- Zooming (+ censored zooming)
- Cellsize distribution
- Compare with models (e.g., logistic regresssion)
- Querying/labelling/orientation

Comparisons

- What is the right group to compare a selection with?
  - with all
    - as in histograms, barcharts, scatterplots, ...
  - with rest
    - as in boxplots y by x
  - with appropriate other subgroups
    - as in mosaicplots
- Could comparisons be interactively suggested?
- What is a suitable test (or tests) to judge the comparison?
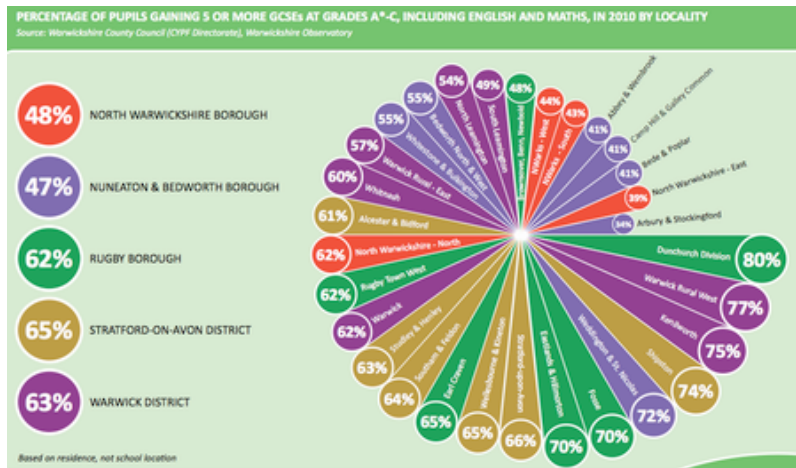
junkcharts.typepad.com/junk_charts/2011/11/ornaments-or-fireworks-for-christmas.html

Junk Charts' alternative