Latticist Aids2 demo

A demonstration of the **latticist** package

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Introduction

The **latticist** package provides a graphical user interface for exploratory visualisation in R. It is primarily an interface to the **lattice** graphics system, but also produces displays from the **vcd** package for categorical data.

While latticist is normally used interactively (as a GUI), this document gives a sequence of the plots produced, where each step can be taken in the graphical user interface. Note that the displays can be customised by editing the calls used to generate them (see appendix for full code).

The dataset here is `Aids2`, available in the **MASS** package. The data are on patients diagnosed with AIDS in Australia up to 1991. Note `diag` and `death` are the dates of diagnosis and death, `status` is "A" alive or "D" dead at end of observation, and `T.categ` is the reported transmission category. – *from ?Aids2*

Initial display

```
>    spec <- list()
>    latticist(Aids2, spec = spec)
marginal.plot(Aids2, data = Aids2, plot..... →˜p.˜14
```
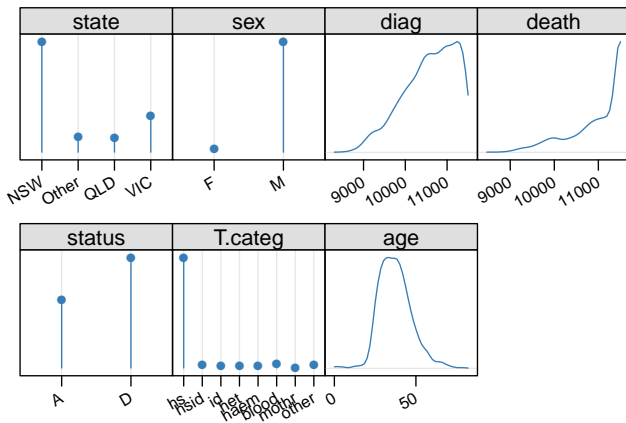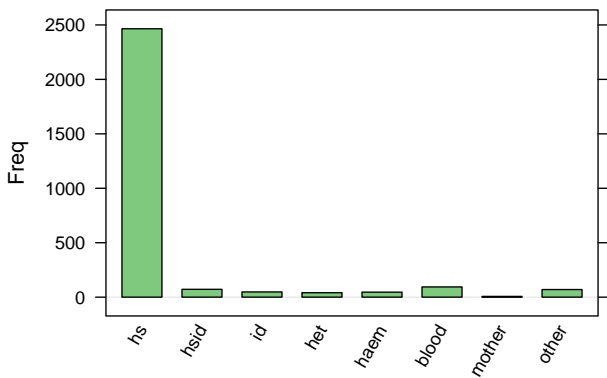
Set x variable

```
>     spec$xvar <- "T.categ"
```

```
barchart(xtabs(~T.categ, Aids2), main = .... →˜p.˜15
```
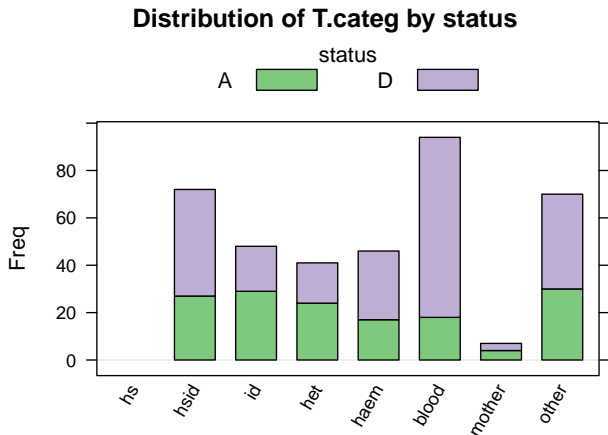
Distribution of T.categ

N = 2843, 2012–01–04, R 2.14.1

Set grouping variable

```
>     spec$groups <- "status"
>     spec$subset <- "T.categ != 'hs'"
barchart(xtabs(∼T.categ + status, Aids2,....  →˜p.˜16
```
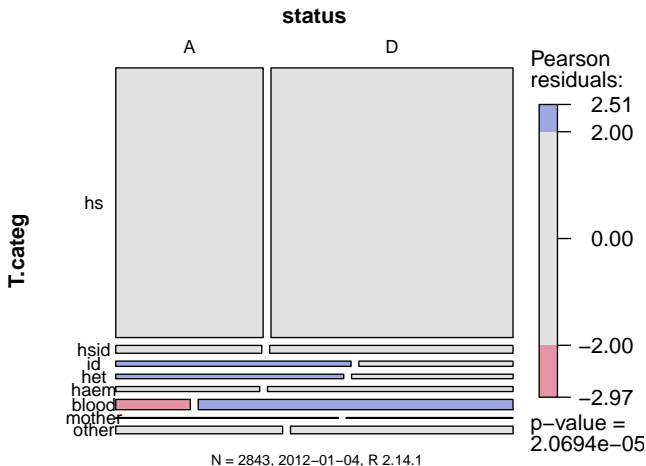

Distribution of T.categ by status

T.categ != 'hs', N = 378, 2012–01–04, R 2.14.1

Set x and y variables (categoricals)

```
>    spec <- list(yvar = "T.categ", xvar = "status")

mosaic(~T.categ + status, data = Aids2, .... →~p.~17
```


status

A   D

Pearson
residuals:

2.51
2.00

0.00

−2.00

−2.97

p−value =
2.0694e−05

T.categ

hs

hsid
id
het
haem
blood
mother
other

N = 2843, 2012−01−04, R 2.14.1

Set x and y variables (categorical vs numeric)

```
>    spec <- list(yvar = "T.categ", xvar = "age")
bwplot(reorder(T.categ, age, na.rm = TRU....  →˜p.˜18
```
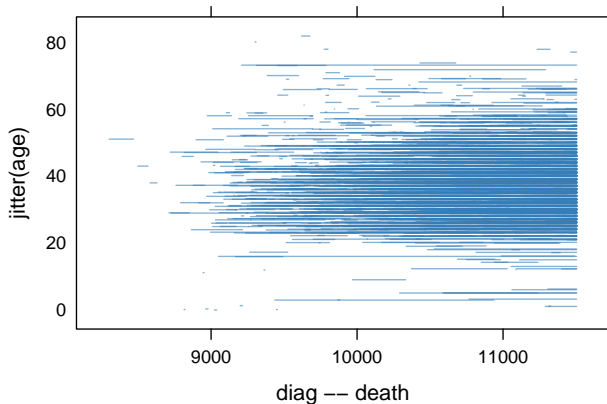

T.categ vs age
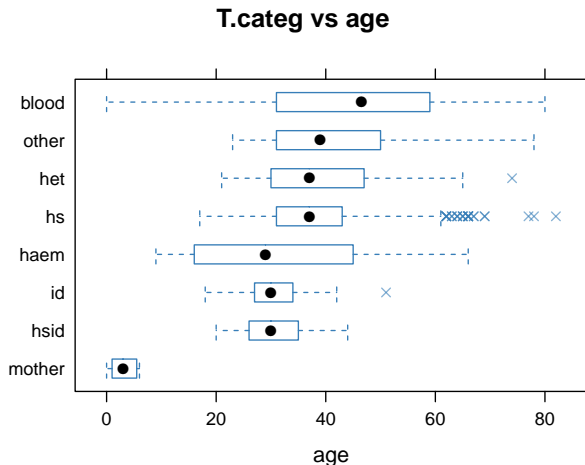
N = 2843, 2012–01–04, R 2.14.1

Time periods as segments

```
>    spec <- list(yvar = "jitter(age)", xvar = "diag",
               zvar = "death", doSegments = TRUE)
```

$\mathtt{segplot(jitter(age)} \sim \mathtt{diag + death, data....} \rightarrow \tilde{}p.\tilde{}19}$
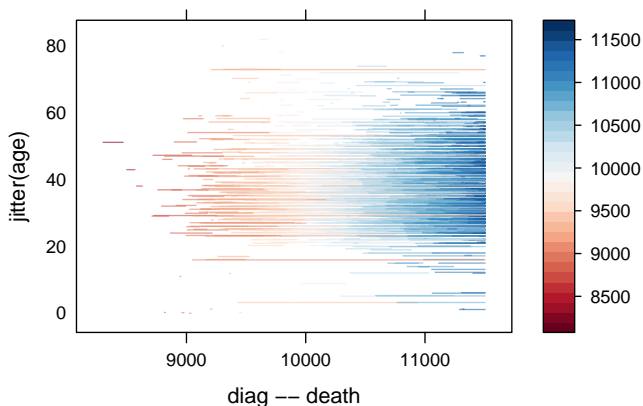

diag & death vs jitter(age)

N = 2843, 2012–01–04, R 2.14.1

Set grouping variable

```
>    spec$groups <- "diag"
```

segplot(jitter(age) $\sim$ diag + death, data.... $\to \tilde{\ } p. \tilde{\ } 20$
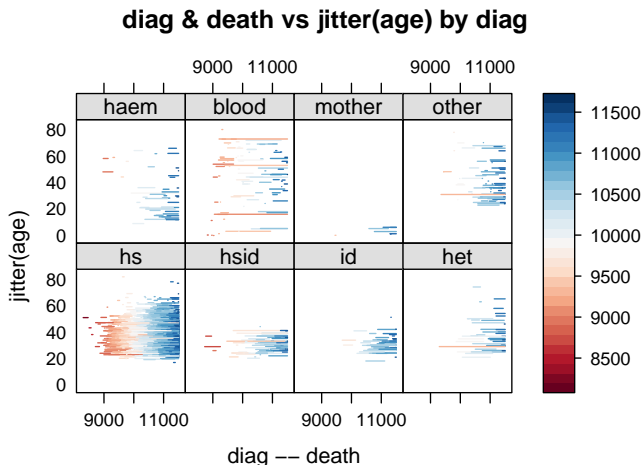

diag & death vs jitter(age) by diag

N = 2843, 2012–01–04, R 2.14.1

Set conditioning variable

```
>     spec$cond <- "T.categ"
```

segplot(jitter(age) ~ diag + death | T.c.... →~p.~21

diag & death vs jitter(age) by diag
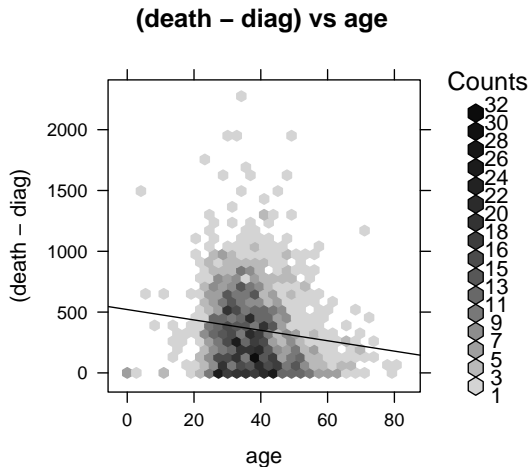
N = 2843, 2012–01–04, R 2.14.1

Set x and y variables (numerics) and subset

```
>    spec <- list(xvar = "age", yvar = "(death - diag)",
                  subset = "status == 'D'", doHexbin = TRUE)
```

hexbinplot((death - diag) $\sim$ age, data = ... $\rightarrow$ ~p.~22

(death – diag) vs age
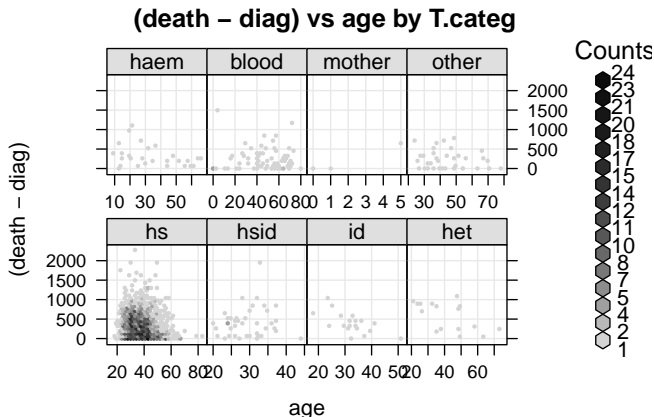

status == 'D', N = 1761, 2012–01–04, R 2.14.1

Set conditioning variable

```
>    spec <- modifyList(spec, list(cond = "T.categ",
                                    x.relation = "free",
                                    doLines = FALSE))
```

hexbinplot((death - diag) $\sim$ age | T.cate.... →~p.~23

(death – diag) vs age by T.categ

status == 'D', N = 1761, 2012–01–04, R 2.14.1

Details

The results in this document were obtained using R 2.14.1 with the packages **latticist** 0.9–44, **lattice** 0.20–0, **latticeExtra** 0.6–19, and **vcd** 1.2–12. R itself and all packages used are available from CRAN at `http://CRAN.R-project.org/`.

For an excellent introduction to and coverage of Lattice:

> Sarkar, Deepayan (2008). *Lattice: Multivariate Data Visualization with R*, Springer. `http://lmdvr.r-forge.r-project.org/`

The mosaic displays from **vcd** are well described in:

> David Meyer, Achim Zeileis, and Kurt Hornik (2006). The Strucplot Framework: Visualizing Multi-Way Contingency Tables with vcd. *Journal of Statistical Software*, 17(3), 1–48. `http://www.jstatsoft.org/v17/i03/`

Appendix: Code

Code to produce the plot on page~3:

```
marginal.plot(Aids2, data = Aids2, plot.points =
FALSE, reorder = FALSE, type = c("p", "h"), sub =
list("N = 2843, 2012-01-04, R 2.14.1", x = 0.99, just
= "right", cex = 0.7, font = 1))
```

Appendix: Code

Code to produce the plot on page~4:

```
barchart(xtabs(~T.categ, Aids2), main = "Distribution
of T.categ", groups = FALSE, stack = TRUE, horizontal
= FALSE, sub = list("N = 2843, 2012-01-04, R 2.14.1",
x = 0.99, just = "right", cex = 0.7, font = 1),
scales = list(x = list(rot = 60)))
```

Appendix: Code

Code to produce the plot on page~5:

```
barchart(xtabs(~T.categ + status, Aids2, subset =
T.categ != "hs"), groups = TRUE, main = "Distribution
of T.categ by status", stack = TRUE, horizontal =
FALSE, auto.key = list(title = "status", cex.title =
1, columns = 2), sub = list(paste("T.categ != 'hs'",
"N = 378, 2012-01-04, R 2.14.1", sep = ", "), x =
0.99, just = "right", cex = 0.7, font = 1), scales =
list(x = list(rot = 60)))
```

Appendix: Code

Code to produce the plot on page~6:

```
mosaic(~T.categ + status, data = Aids2, shade = TRUE,
labeling_args = list(gp_labels = gpar(fontsize = 10),
abbreviate = c(left = 6), rot_labels = c(left = 0),
just_labels = c(), offset_varnames = c(left = 1.8)),
margins = c(0, left = 4.8, top = 3),
keep_aspect_ratio = FALSE, sub = "N = 2843,
2012-01-04, R 2.14.1", sub_gp = gpar(cex = 0.7))
```

Appendix: Code

Code to produce the plot on page~7:

```
bwplot(reorder(T.categ, age, na.rm = TRUE) ~ age,
data = Aids2, main = "T.categ vs age", xlab = "age",
varwidth = FALSE, par.settings = simpleTheme(pch = 4,
alpha.points = 0.6), sub = list("N = 2843,
2012-01-04, R 2.14.1", x = 0.99, just = "right", cex
= 0.7, font = 1))
```

Appendix: Code

Code to produce the plot on page~8:

```
segplot(jitter(age) ~ diag + death, data = Aids2,
main = "diag & death vs jitter(age)", xlab = "diag -
death", ylab = "jitter(age)", par.settings =
simpleTheme(pch = 4, alpha.line = 0.6), sub = list("N
= 2843, 2012-01-04, R 2.14.1", x = 0.99, just =
"right", cex = 0.7, font = 1))
```

Appendix: Code

Code to produce the plot on page~9:

```
segplot(jitter(age) ~ diag + death, data = Aids2,
main = "diag & death vs jitter(age) by diag", xlab =
"diag - death", ylab = "jitter(age)", level = diag,
par.settings = simpleTheme(pch = 4, alpha.line =
0.6), sub = list("N = 2843, 2012-01-04, R 2.14.1", x
= 0.99, just = "right", cex = 0.7, font = 1))
```

Appendix: Code

Code to produce the plot on page~10:

```
segplot(jitter(age) ~ diag + death | T.categ, data =
Aids2, main = "diag & death vs jitter(age) by diag",
xlab = "diag - death", ylab = "jitter(age)", level =
diag, par.settings = simpleTheme(cex = 0.5), type =
c("g", "p"), sub = list("N = 2843, 2012-01-04, R
2.14.1", x = 0.99, just = "right", cex = 0.7, font =
1), subscripts = TRUE)
```

Appendix: Code

Code to produce the plot on page~11:

```
hexbinplot((death - diag) ~ age, data = Aids2, subset
= status == "D", main = "(death - diag) vs age", xlab
= "age", ylab = "(death - diag)", type = "r", aspect
= 1, par.settings = simpleTheme(), sub =
list(paste("status == 'D'", "N = 1761, 2012-01-04, R
2.14.1", sep = ", "), x = 0.99, just = "right", cex =
0.7, font = 1))
```

Appendix: Code

Code to produce the plot on page~12:

```
hexbinplot((death - diag) ~ age | T.categ, data =
Aids2, subset = status == "D", main = "(death - diag)
vs age by T.categ", xlab = "age", ylab = "(death -
diag)", type = "g", aspect = 1, par.settings =
simpleTheme(cex = 0.5), sub = list(paste("status ==
'D'", "N = 1761, 2012-01-04, R 2.14.1", sep = ", "),
x = 0.99, just = "right", cex = 0.7, font = 1),
subscripts = TRUE, scales = list(x = list(relation =
"free")))
```