Latticist Employment 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 `Employment`, a table with 3 dimensions, available in the **vcd** package. The data are on Danish employees who had been laid off. The workers are classified by their employment status in 1975, the cause of their layoff and the length of employment before they were laid off. – *from ?Employment*

Initial display

```
> spec <- list()
> latticist(Employment, spec = spec)
marginal.plot(Employment, data = Employm....  → p. 11
```
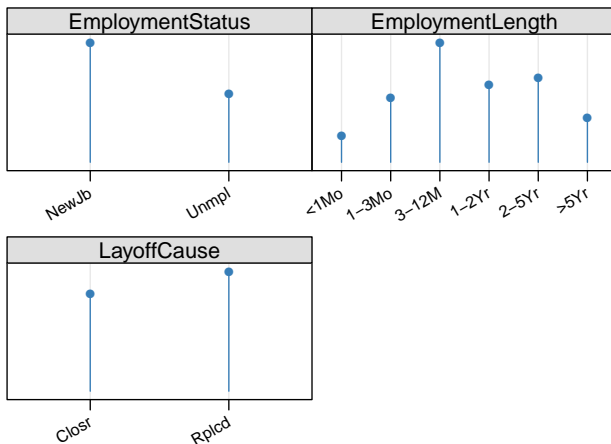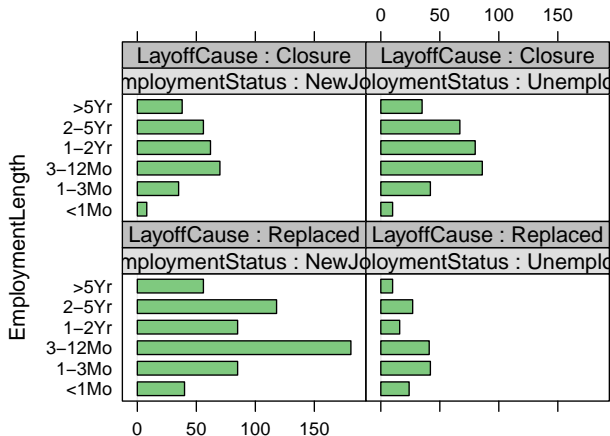
Table display

```
> spec$defaultPlot <- "parallel"
barchart(aperm(Employment, c(2, 1, 3)), .... → p. 12
```
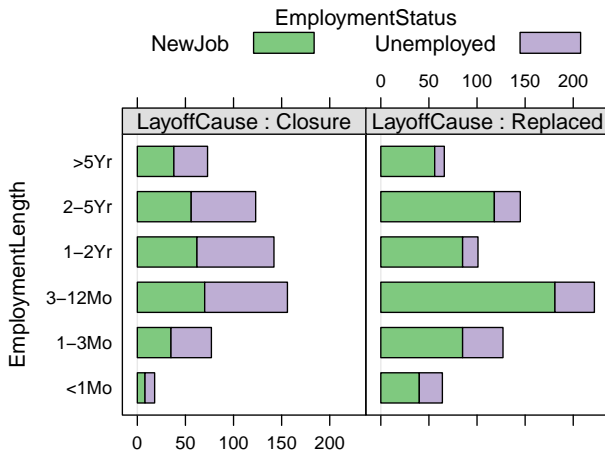
Set grouping variable

```
> spec$groups <- "EmploymentStatus"
barchart(aperm(Employment, c(2, 3, 1)), .... → p. 13
```

Set x and y variables
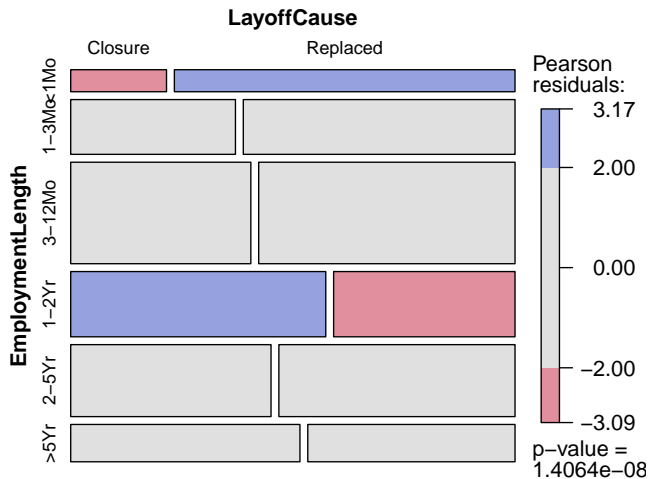
```
> spec <- list(xvar = "LayoffCause",
    yvar = "EmploymentLength")
mosaic(~EmploymentLength + LayoffCause, .... → p. 14
```


LayoffCause

N = 1314, 2010−06−30, R 2.11.0RC

Set grouping variable

```
> spec$groups <- "EmploymentStatus"
```
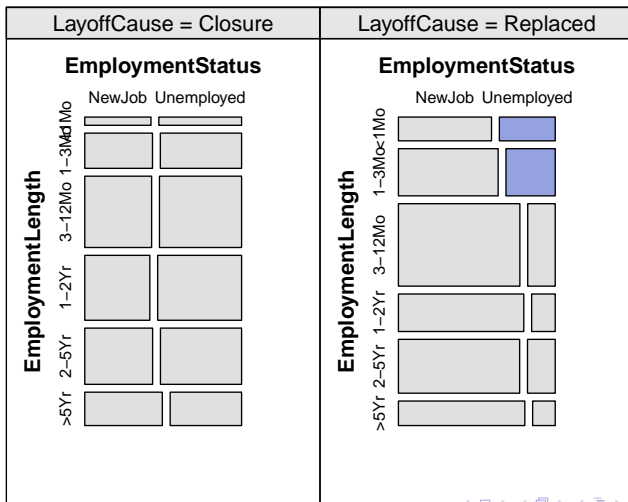
mosaic($\sim$EmploymentLength + LayoffCause +.... $\rightarrow$ *p.* 15
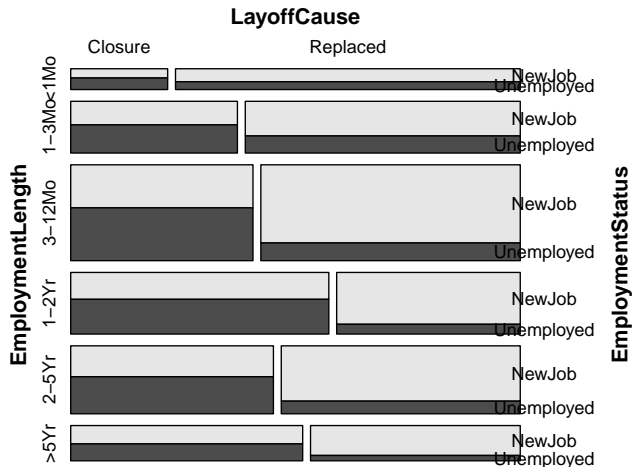
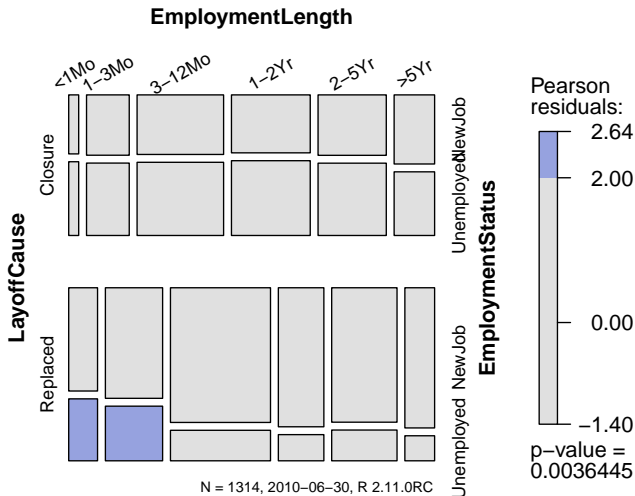N = 1314, 2010–06–30, R 2.11.0RC

Set conditioning variable

```
> spec <- list(xvar = "EmploymentStatus",
    yvar = "EmploymentLength", cond = "LayoffCause")
cotabplot(~EmploymentLength + Employment.... → p. 16
```

Conditioning as integrated strata

```
> spec$doSeparateStrata <- FALSE
mosaic(~EmploymentLength + EmploymentSta.... → p. 17
```


EmploymentLength

N = 1314, 2010–06–30, R 2.11.0RC

Details

The results in this document were obtained using R 2.11.0 with the packages **latticist** 0.9–43, **vcd** 1.2–8, **lattice** 0.19–6, and **latticeExtra** 0.6–13.

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/

Achim Zeileis, David Meyer, and Kurt Hornik (2007). Residual-based Shadings for Visualizing (Conditional) Independence. *Journal of Computational and Graphical Statistics*, 16(3), 507–525.

Appendix: Code

Code to produce the plot on page 3:

```
marginal.plot(Employment, data = Employment, reorder
= FALSE, type = c("p", "h"), sub = list("N = 1314,
2010-06-30, R 2.11.0RC", x = 0.99, just = "right",
cex = 0.7, font = 1))
```

Appendix: Code

Code to produce the plot on page 4:

```
barchart(aperm(Employment, c(2, 1, 3)), groups =
FALSE, strip = strip.custom(strip.names = TRUE), ylab
= "EmploymentLength", xlab = NULL, as.table = TRUE,
subscripts = TRUE, sub = list("N = 1314, 2010-06-30,
R 2.11.0RC", x = 0.99, just = "right", cex = 0.7,
font = 1))
```

Appendix: Code

Code to produce the plot on page 5:

```
barchart(aperm(Employment, c(2, 3, 1)), groups =
TRUE, stack = TRUE, strip = strip.custom(strip.names
= TRUE), ylab = "EmploymentLength", xlab = NULL,
as.table = TRUE, subscripts = TRUE, auto.key =
list(title = "EmploymentStatus", cex.title = 1,
columns = 2), sub = list("N = 1314, 2010-06-30, R
2.11.0RC", x = 0.99, just = "right", cex = 0.7, font
= 1))
```

Appendix: Code

Code to produce the plot on page 6:

```
mosaic(~EmploymentLength + LayoffCause, data =
Employment, shade = TRUE, labeling_args =
list(gp_labels = gpar(fontsize = 10)), margins = c(0,
left = 3, top = 3), keep_aspect_ratio = FALSE, sub =
"N = 1314, 2010-06-30, R 2.11.0RC", sub_gp = gpar(cex
= 0.7))
```

Appendix: Code

Code to produce the plot on page 7:

```
mosaic(~EmploymentLength + LayoffCause +
EmploymentStatus, data = Employment, highlighting =
"EmploymentStatus", labeling_args = list(gp_labels =
gpar(fontsize = 10), abbreviate = c(right = 6),
rot_labels = c(right = 0), just_labels = c(),
offset_varnames = c(right = 1.8)), margins = c(0,
left = 3, top = 3, right = 4.8), keep_aspect_ratio =
FALSE, sub = "N = 1314, 2010-06-30, R 2.11.0RC",
sub_gp = gpar(cex = 0.7))
```

Appendix: Code

Code to produce the plot on page 8:

```
cotabplot(~EmploymentLength + EmploymentStatus |
LayoffCause, data = Employment, shade = TRUE, legend
= FALSE, labeling_args = list(gp_labels =
gpar(fontsize = 9)), margins = 0.5, keep_aspect_ratio
= FALSE)
```

Appendix: Code

Code to produce the plot on page 9:

```
mosaic(~EmploymentLength + EmploymentStatus |
LayoffCause, data = Employment, shade = TRUE,
labeling_args = list(gp_labels = gpar(fontsize = 10),
abbreviate = c(top = 6), rot_labels = c(top = 30),
just_labels = c(), offset_varnames = c(top = 1)),
margins = c(0, left = 3, top = 4, right = 3),
keep_aspect_ratio = FALSE, sub = "N = 1314,
2010-06-30, R 2.11.0RC", sub_gp = gpar(cex = 0.7))
```