Latticist CO2 demo

A demonstration of the **latticist** package

Felix Andrews

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Introduction

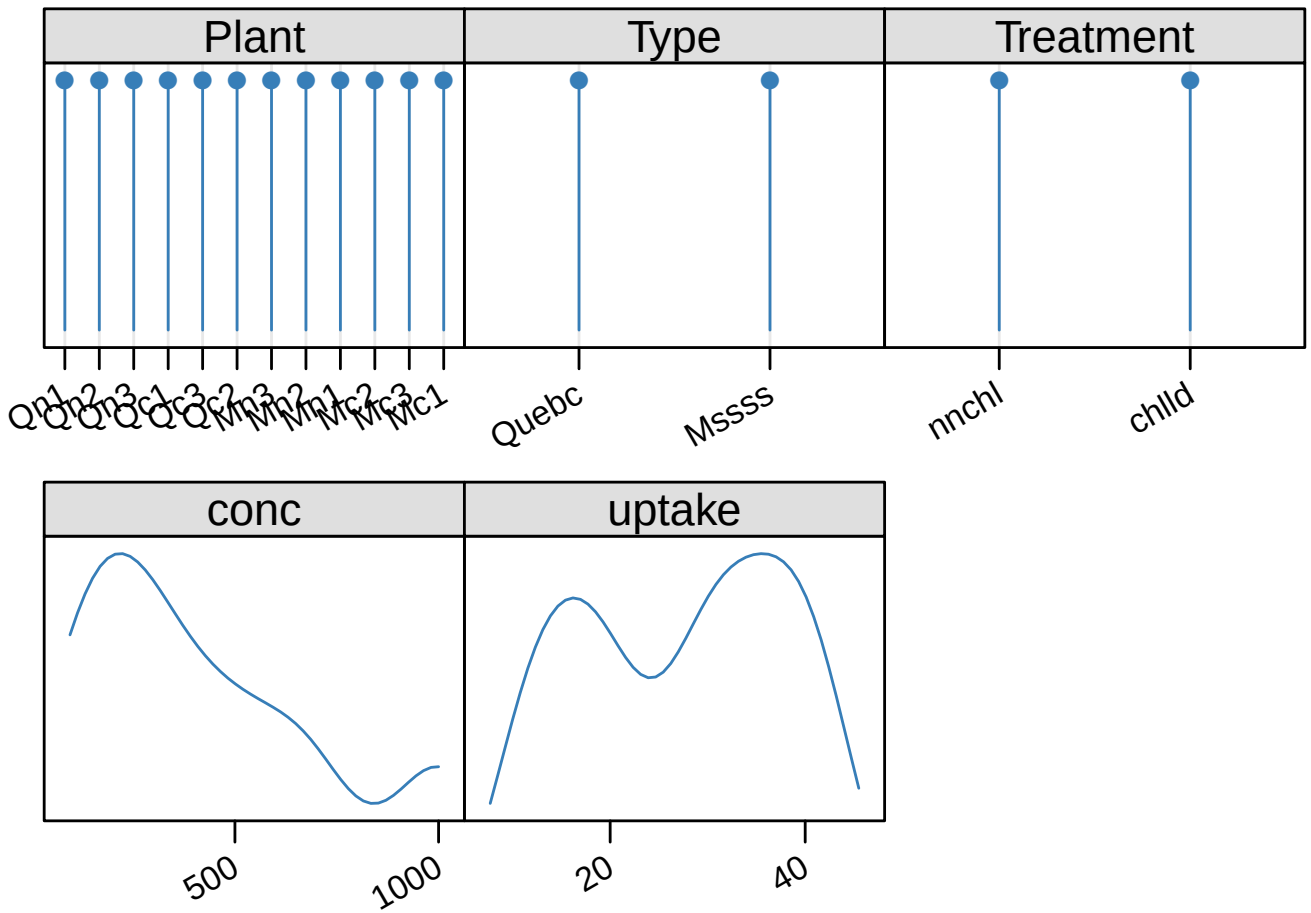
The **latticist** package provides a graphical user interface for exploratory visualisation in R. It is primarily an interface to the **lattice** graphics system, but also produces displays from the **vcd** package for categorical data.

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 `CO2`, available in R's **datasets** package. The data are from an experiment on the cold tolerance of a grass species. The CO2 uptake of six plants from Quebec and six plants from Mississippi was measured at several levels of ambient CO2 concentration. Half the plants of each type were chilled overnight before the experiment was conducted. – *from `?CO2`*

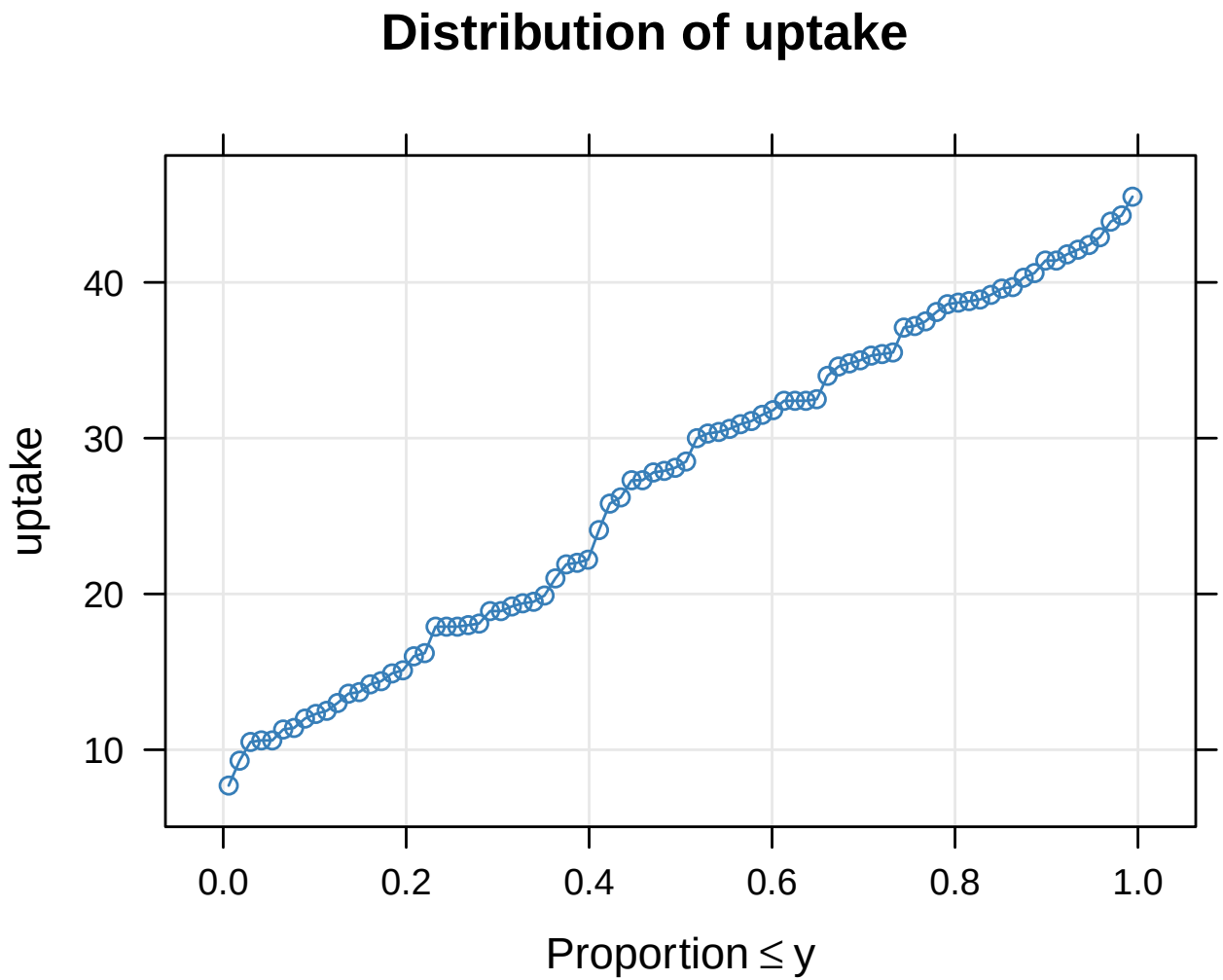
Initial display

```
> spec <- list()
> latticist(CO2, spec = spec)
marginal.plot(CO2, data = CO2, reorder =.... → p. 10
```



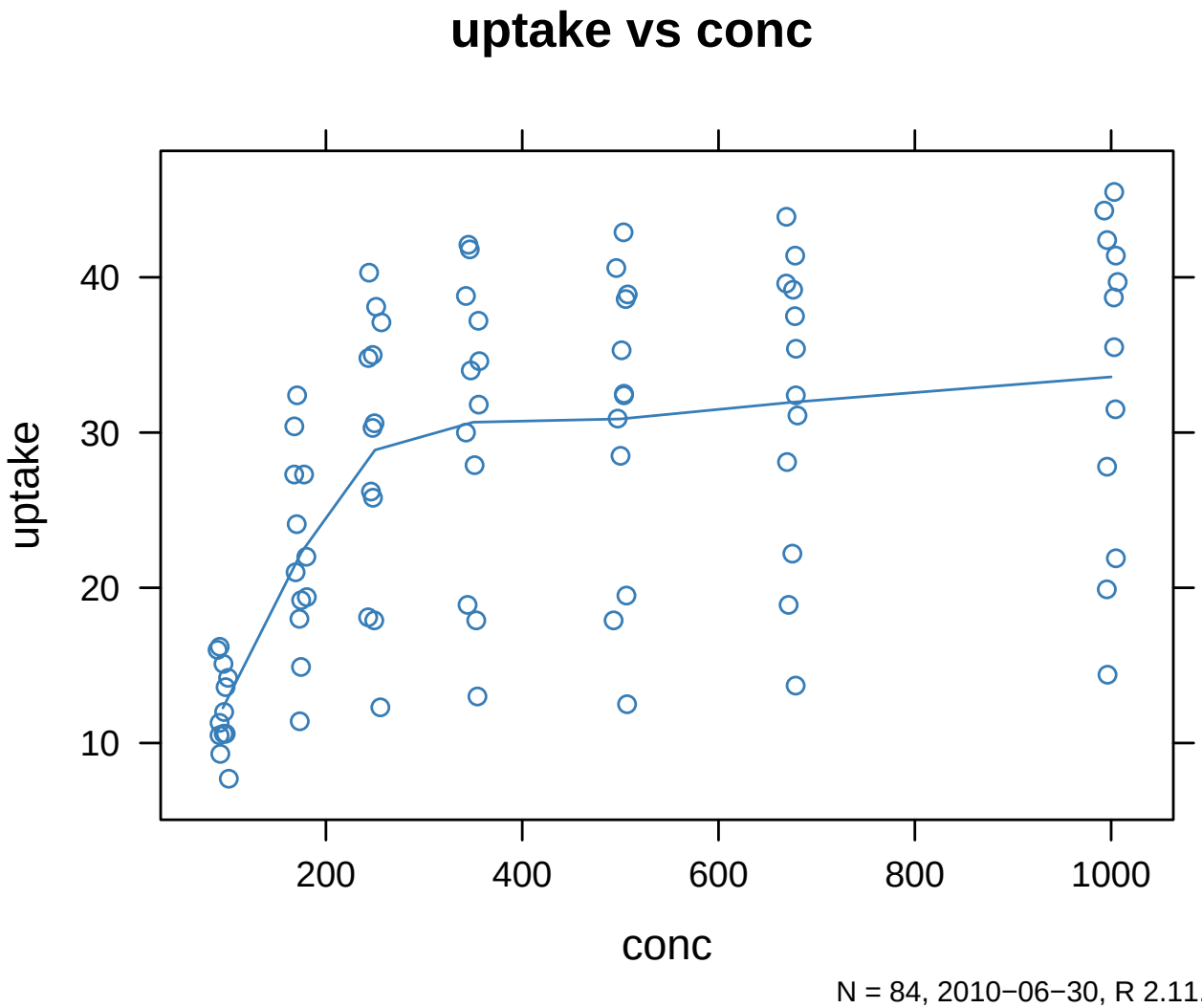
Set y variable

```
> spec$yvar <- "uptake"
qqmath(~uptake, data = CO2, main = "Dist.... → p. 11
```



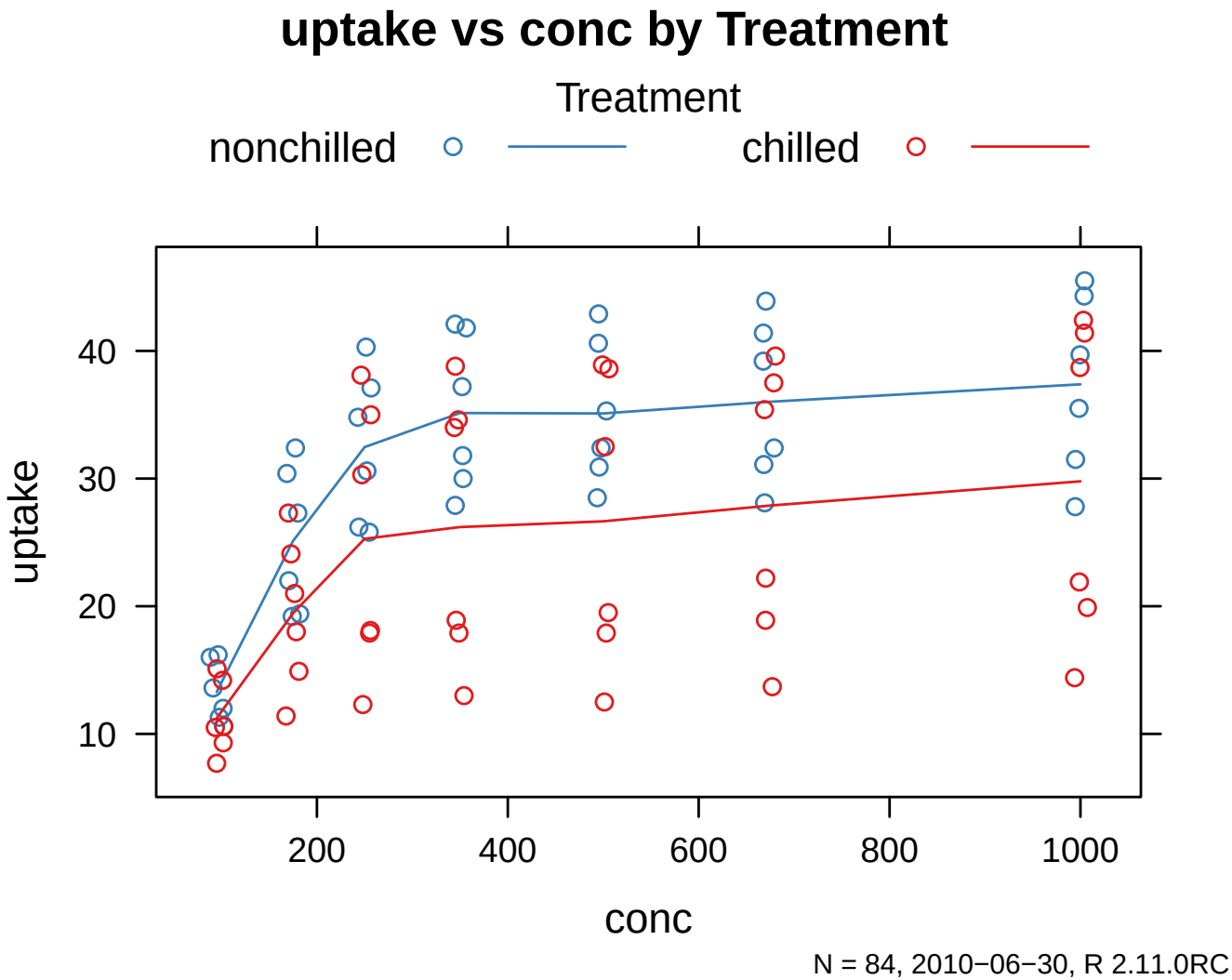
Set x variable

```
> spec$xvar <- "conc"
xyplot(uptake ~ conc, data = CO2, main =.... → p. 12
```



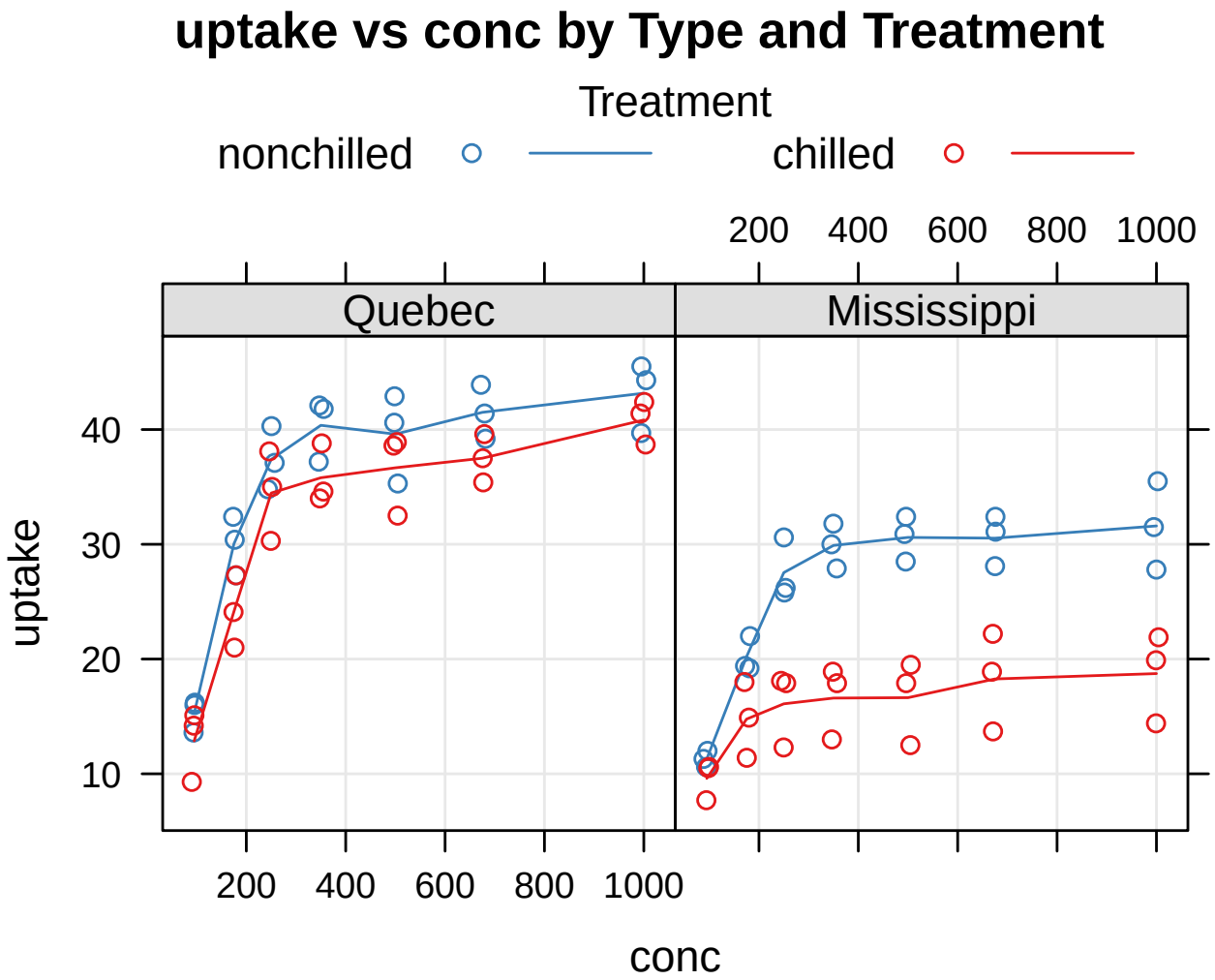
Set grouping variable

```
> spec$groups <- "Treatment"
xyplot(uptake ~ conc, data = CO2, groups.... → p. 13
```



Set conditioning variable

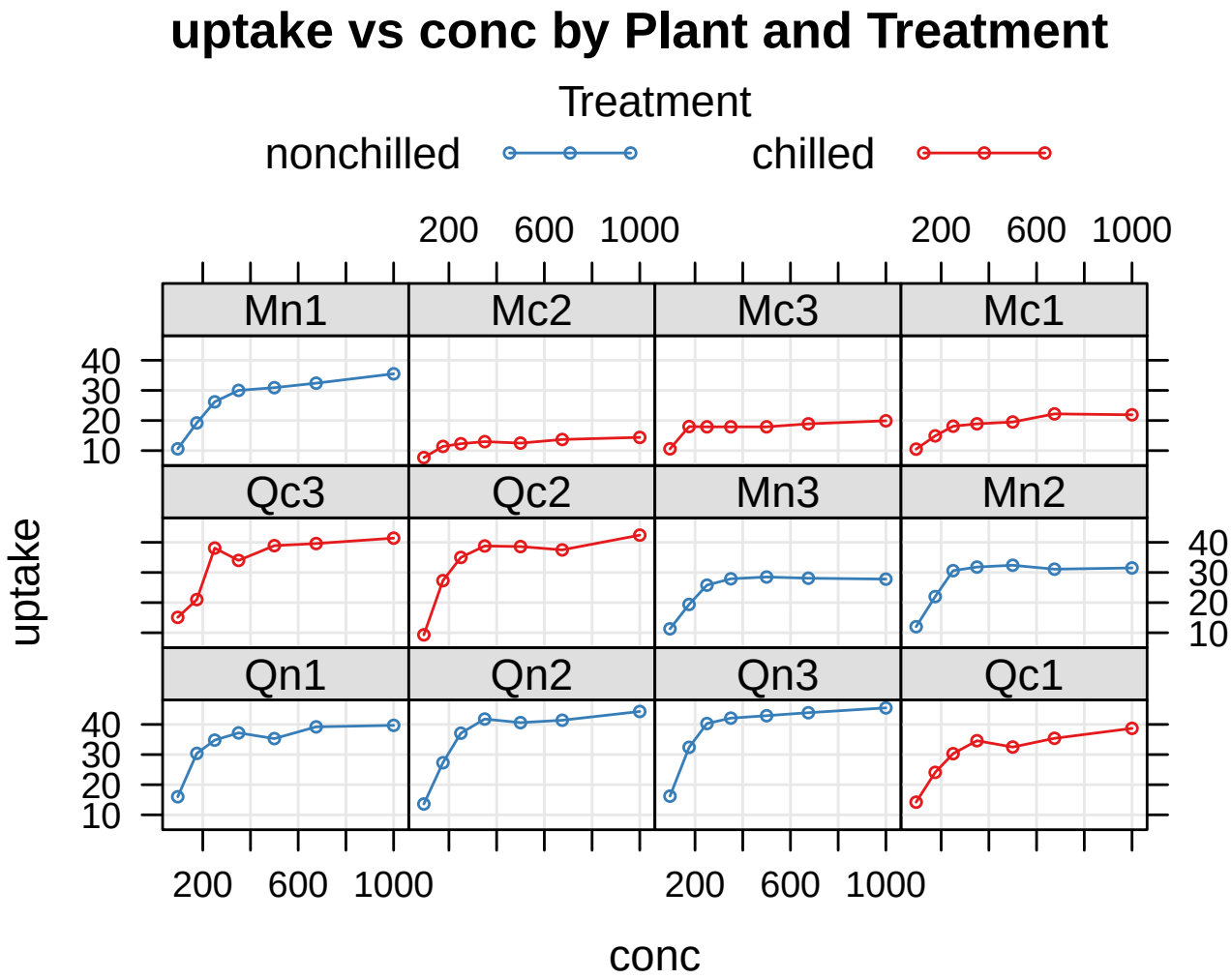
```
> spec$cond <- "Type"
xyplot(uptake ~ conc | Type, data = CO2,.... → p. 14
```



Each plant separately

```
> spec$cond <- "Plant"
```

`xyplot(uptake ~ conc | Plant, data = CO2....` → *p.* 15



Details

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

Appendix: Code

Code to produce the plot on page 3:

```
marginal.plot(CO2, data = CO2, reorder = FALSE, type
= c("p", "h"), sub = list("N = 84, 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:

```
qqmath(~uptake, data = CO2, main = "Distribution of
uptake", ylab = "uptake", type = c("g", "o"),
distribution = qunif, xlab = expression("Proportion"
<= y), prepanel = prepanel.qqmathline, par.settings =
simpleTheme(), sub = list("N = 84, 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:

```
xyplot(uptake ~ conc, data = CO2, main = "uptake vs
conc", xlab = "conc", ylab = "uptake", jitter.x =
TRUE, type = c("p", "a"), par.settings =
simpleTheme(), sub = list("N = 84, 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:

```
xyplot(uptake ~ conc, data = CO2, groups = Treatment,
main = "uptake vs conc by Treatment", xlab = "conc",
ylab = "uptake", jitter.x = TRUE, type = c("p", "a"),
par.settings = simpleTheme(), auto.key = list(lines =
TRUE, title = "Treatment", cex.title = 1, columns =
2), sub = list("N = 84, 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 7:

```
xyplot(uptake ~ conc | Type, data = CO2, groups =
Treatment, main = "uptake vs conc by Type and
Treatment", xlab = "conc", ylab = "uptake", jitter.x
= TRUE, type = c("g", "p", "a"), par.settings =
simpleTheme(), auto.key = list(lines = TRUE, title =
"Treatment", cex.title = 1, columns = 2), sub =
list("N = 84, 2010-06-30, R 2.11.0RC", x = 0.99, just
= "right", cex = 0.7, font = 1), subscripts = TRUE)
```

Appendix: Code

Code to produce the plot on page 8:

```
xyplot(uptake ~ conc | Plant, data = CO2, groups =
Treatment, main = "uptake vs conc by Plant and
Treatment", xlab = "conc", ylab = "uptake", type =
c("g", "o"), par.settings = simpleTheme(cex = 0.5),
auto.key = list(lines = TRUE, type = "o", points =
FALSE, title = "Treatment", cex.title = 1, columns =
2), sub = list("N = 84, 2010-06-30, R 2.11.0RC", x =
0.99, just = "right", cex = 0.7, font = 1),
subscripts = TRUE)
```