Template(?) for a `pairs()` option in `ggplot2`

...also showing a good choice for
`knit_theme` and `\lslset` definitions

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/KAUST/CEMSE/STAT

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Contents

Code ∧ graph

```
# <r code> -----
# other option for the function pairs()
library(brinla) ; data(usair, package = "brinla")

library(ggplot2); library(GGally)

ggpairs(usair
        , lower = list(continuous = "cor")
        , upper = list(continuous = "points")
        , axisLabels = "none") +
  theme_bw()
# </r code> -----
```

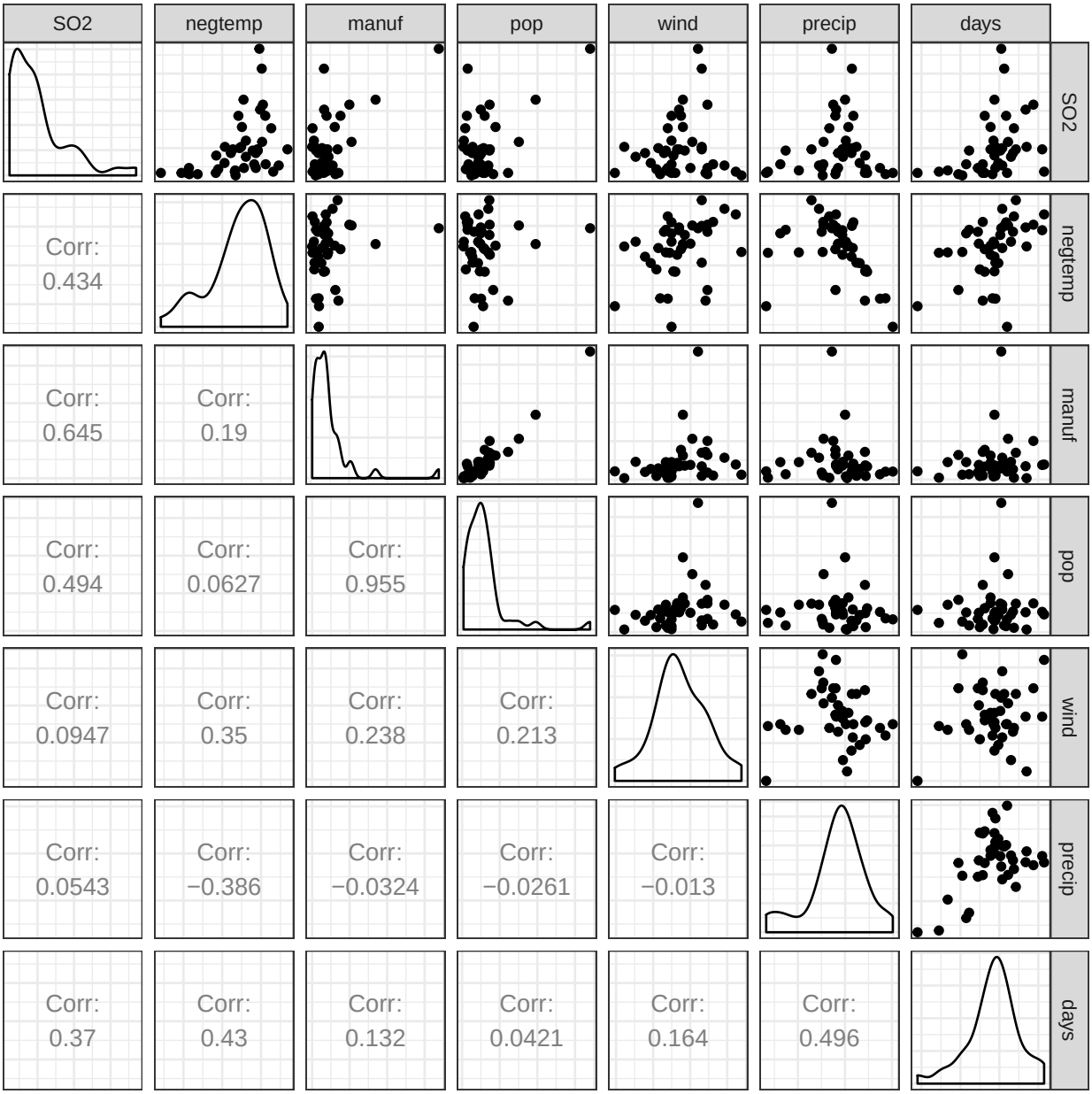

Figure 1: Descriptive analysis of the quantitative features. upper triangular matrix: scatterplots; lower triangular matrix: correlations.

```r
# <r code> -----
library(INLA)
# simulating data, 100 points
n <- 100 ; x <- seq(0, 1, length.out = n)

f.true <- (sin(2*pi*x**3))**3 ; y <- f.true + rnorm(n, sd = .2)

data.inla <- list(y = y, x = x)
```

```r
# fitting the random walk 1 model for smoothing splines,
# without the intercept
formula <- y ~ -1 + f(x, model = "rw1", constr = FALSE)
result <- inla(formula, data = data.inla)

f.hat <- result$summary.random$x$mean # posterior mean
f.lb <- result$summary.random$x$'0.025quant' # 2.5% percentile
f.ub <- result$summary.random$x$'0.975quant' # 97.5% percentile

data.plot <- data.frame(y = y, x = x,
                        f.true = f.true, f.hat = f.hat,
                        f.lb = f.lb, f.ub = f.ub)
ggplot(data.plot, aes(x = x, y = y)) +
  geom_line(aes(y = f.hat), col = "#0080ff", size = .75) +
  geom_line(aes(y = f.true), linetype = 2, size = .75) +
  geom_ribbon(aes(ymin = f.lb, ymax = f.ub),
              alpha = .25, fill = "orange", col = "#0080ff") +
  geom_point(aes(y = y)) +
  theme_minimal() +
  labs(title = "Random walk 1 model for smoothing splines")
# </r code> -----
```

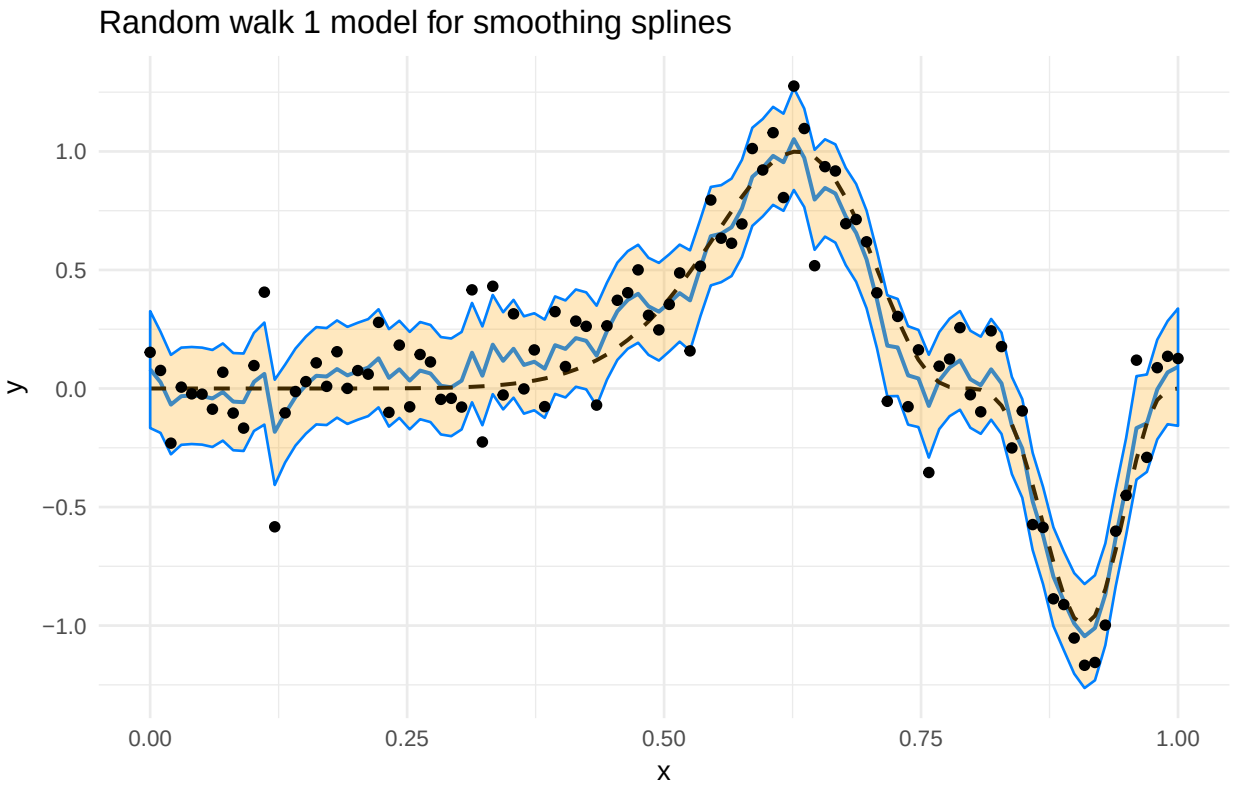

Figure 2: Posterior mean and 95% credible interval of a random walk 1 model for smoothing splines without intercept.

lstlisting

```
# <r code> -----
library(knitr)

tema <- knit_theme$get("clarity") # acid

knit_theme$set(tema)

opts_chunk$set(size='small'
               , cache=TRUE
               , cache.path='cache/'
               , comment=NA
               , warning=FALSE
               , message=FALSE
               , fig.align='center'
               , dpi=100
               , fig.path='iBagens/'
               , fig.pos='H'
               , results='hold'
               , fig.show='hold')
# </r code> -----
# <r code> -----
# other option for the function pairs()
library(brinla) ; data(usair, package = "brinla")

library(ggplot2); library(GGally)

ggpairs(usair
        , lower = list(continuous = "cor")
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# <r code> -----
library(INLA)
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f.true <- (sin(2*pi*x**3))**3 ; y <- f.true + rnorm(n, sd = .2)

data.inla <- list(y = y, x = x)

# fitting the random walk 1 model for smoothing splines,
# without the intercept
formula <- y ~ -1 + f(x, model = "rw1", constr = FALSE)
result <- inla(formula, data = data.inla)
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```
46
47 f.hat <- result$summary.random$x$mean # posterior mean
48 f.lb <- result$summary.random$x$'0.025quant' # 2.5% percentile
49 f.ub <- result$summary.random$x$'0.975quant' # 97.5% percentile
50
51 data.plot <- data.frame(y = y, x = x,
52                         f.true = f.true, f.hat = f.hat,
53                         f.lb = f.lb, f.ub = f.ub)
54 ggplot(data.plot, aes(x = x, y = y)) +
55   geom_line(aes(y = f.hat), col = "#0080ff", size = .75) +
56   geom_line(aes(y = f.true), linetype = 2, size = .75) +
57   geom_ribbon(aes(ymin = f.lb, ymax = f.ub),
58               alpha = .25, fill = "orange", col = "#0080ff") +
59   geom_point(aes(y = y)) +
60   theme_minimal() +
61   labs(title = "Random walk 1 model for smoothing splines")
62 # </r code> -----
63 ## # <r code> -----
64 ## # extracting R code to insert after with \lstinputlisting{}
65 ## purl("~/Dropbox/stuff.Rnw", documentation = 0)
66 ## # kl-17766:~ laureaha$ mv stuff.R ~/Dropbox/
67 ## # </r code> -----
```