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Plot matrix with the R package GGally

November 13, 2013

By [thiagogm](#)

(This article was first published on [Thiago G. Martins » R](#), and kindly contributed to [R-bloggers](#))

I am glad to have found the R package GGally. GGally is a convenient package built upon ggplot2 that contains templates for different plots to be combined into a plot matrix through the function `ggpairs`. It is a nice alternative to the more limited `pairs` function. The package has also functions to deal with parallel coordinate and network plots, none of which I have tried yet.

The following code shows how easy it is to create very informative plots like the one in Figure 1.

```
1 require(GGally)
2 data(tips, package="reshape")
3
4 ggpairs(data=tips, # data.frame with variables
5         columns=1:3, # columns to plot, default
6         title="tips data", # title of the plot
7         colour = "sex") # aesthetics, ggplot2
```



Figure 1

Plots like the one above are very helpful, among others things, in the pre-processing stage of a classification problem, where you want to analyze your predictors given the class labels. It is particularly amazing that we can now use the arguments `colour`, `shape`, `size` and `alpha` provided by `ggplot2`.

Controlling plot types

We have some control over which type of plots to use. We can choose which type of graph will be used for continuous vs. continuous (continuous), continuous vs. discrete (combo) and discrete vs. discrete (discrete). We can also have different plots for the upper diagonal (upper) and for the lower diagonal (lower).

For example, the code below

```
1 pm = ggpairs(data=tips,
2             columns=1:3,
3             upper = list(continuous = "densit
4             lower = list(combo = "facetdensit
5             title="tips data",
6             colour = "sex")
7 print(pm)
```

creates Figure 2, which uses the same data used in Figure 1, but with a density plot in the upper diagonal for continuous vs. continuous

variables and a density plot faceted by a discrete variable in a continuous vs. discrete scenario.

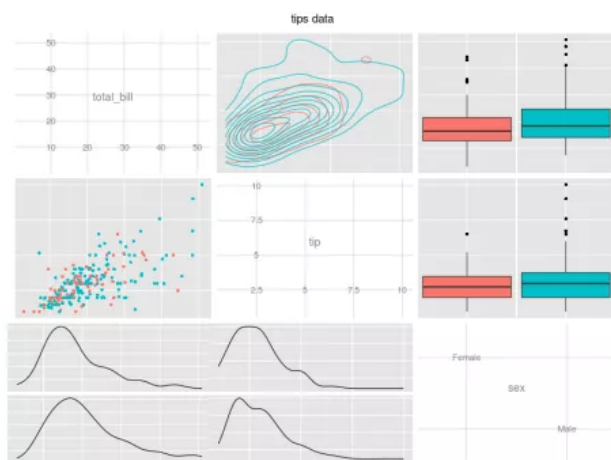


Figure 2

The details section of the help file of the `ggpairs` function describes which plots are available for each scenario. Currently, the following are described there:

- continuous: exactly one of 'points', 'smooth', 'density', 'cor' or 'blank';
- combo: exactly one of 'box', 'dot', 'facethist', 'facetdensity', 'denstrip' or 'blank';
- discrete: exactly one of 'facetbar', 'ratio' or 'blank'.

Auxiliary functions

We can insert a customized plot within a plot matrix created by `ggpairs` using the function `putPlot`. The following code creates a custom `ggplot` object `cp` and insert it in the second row and third column of the `ggpairs` object `pm`.

```
1 cp = ggplot(data.frame(x=1:10, y=1:10)) +
2   geom_point(aes(x, y))
3
4 putPlot(pm, cp, 2, 3)
```

We can also retrieve an specific `ggplot` object from a `ggpairs` object using the `getPlot` function, with the following syntax:

```
1 getPlot(plotMatrix, rowFromTop, columnFromLeft)
```

References:

[1] [GGally reference manual and help files](#).

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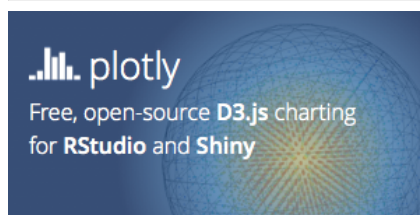
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