


Simple 

tips, tricks & tools

A brief history of R & R

2

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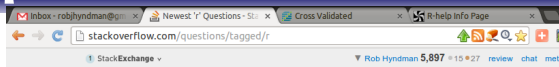
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- 2006: I contributed my first package to CRAN (`forecast`).

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Getting help

StackOverflow.com

■ For *programming* questions.



stackoverflow

Questions

Tags

Users

Badges

Unanswered

Tagged Questions

info

newest

featured

faq

votes

active

unanswered

R is a free, open source programming language and software environment for statistical computing and graphics. It is advised to supplement your question with a reproducible example (<http://stackoverflow.com/q/5963269>); for statistical questions please use crossvalidated.com.

[learn more...](#) | [improve tag wiki](#) | [top users](#) | [synonyms \(1\)](#)

0

votes

0

answers

13 views

Estimating a multinomial probit model in R

I'm having trouble estimating a multinomial probit model in R. I've found two packages, but I haven't gotten either to give satisfactory results. Is there a bug in my code? Am I using the packages ...

r

asked 1 hour ago



Adrian
53

0

votes

1

answer

25 views

How to display the median value in a boxplot in ggplot?

I am trying to show the median value (i.e the horizontal bar) in the a box plot by using ggplot(). R keeps asking to specify y axis. I am a bit stuck. `p <- structure(list(TYPE = structure(c(3L, 3L, ...`

r

ggplot2

asked 2 hours ago



Luo Lei
12

0

votes

1

answer

43 views

sampling without replacement in C for use in R code

I am trying to write a function in C that will be called by R. Within it I need to take a random sample without replacement from a vector. Is it possible with Rmath.h to use something like `sample()` ...

c

r

asked 2 hours ago



scotyz
115

1

vote

1

answer

20 views

Plotting PCA : way to label data points

I can use `Plot` function. Could use `plot` to get the pca results. But not sure how to label these points according to datapoints which are rownames(Sample) numbered 1 to 90 ...

r

asked 3 hours ago



user329
18

0

votes

1

answer

platform-independent version of `trellis.device(device="windows")`, ...)

Is there a platform-independent way of arraying lattice plots for screen output? My approach involves using: `trellis.device(device="windows") print(chart.hist, split = c(1,1,1,2), more = TRUE)` ...

Getting help

StackOverflow.com

- For *programming* questions.

CrossValidated.com

- For *statistical* questions.

The screenshot shows the CrossValidated website interface. At the top, there's a navigation bar with the site logo, user profile (Rob Hyndman), and various statistics (11,886 questions, 32 answers, 78 reviews). Below the navigation bar, there's a section titled "Top Questions" with a filter set to "active". The list of questions includes:

- Fisher's exact test for results of Wilcoxon-Mann-Whitney** (1 vote, 1 answer, 77 views) - tags: fisher, mann-whitney-u-test
- Is it necessary to correct alfa in repeated measures ANOVA before any Post-hoc comparisons?** (0 votes, 0 answers, 2 views) - tags: repeated-measures, multiple-comparisons, p-value
- Need to analyze: Unequal variances, Factorial Completer Randomized Design** (1 vote, 0 answers, 2 views) - tags: variance, nonparametric, heteroscedasticity, kruskal-wallis, glimm
- Comparing Variance of Regression Estimators** (0 votes, 0 answers, 5 views) - tags: regression, variance
- How to compute the characteristic function of two random variables with different distributions?** (2 votes, 1 answer, 56 views) - tag: probability
- what can I say about the following kernel estimation?** (0 votes, 0 answers, 6 views) - tags: estimation, kernel
- Reducing no of variables subsetting based on depth for PCA** (1 vote, 0 answers, 13 views) - tags: clustering, pca, factor-analysis
- Mixed (type III) model ANOVA in R and GraphPad Prism** (0 votes, 2 answers, 53 views) - tags: r, anova
- Simple customer response modelling problem** (0 votes, 0 answers, 0 views)

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R-help mailing lists

- `stat.ethz.ch/mailman/listinfo`
- `r-help`
- Only when all-else fails.

The screenshot shows a web browser window with the address bar displaying `www.mail-archive.com/r-help@stat.math.ethz.ch/`. The page title is "r-help". Below the title, there are tabs for "Thread", "Date", and "Search", along with a "Earlier messages" link and a "Like" button. The main content area is titled "Messages by Thread" and lists several message threads. The first thread is titled "[R] POSIXct dates on x-axis using xyplot" by jim holtman. Other threads include "[R] R-pkgs] scuba 1.1-8" by adrian, "[R] Install packages automatically" by Wensui Liu, "[R] what am I missing" by Jan de Leeuw, "[R] Generating Replicate Datasets (using loops or other means)" by VTLT1999, "[R] R-pkgs] new package 'trackObs' - mirror objects to files, provide summaries & modification times" by Moshe Olshansky, "[R] using bootstrap for tree selection step in rpart" by Fiona Callaghan, "[R] MLE Function" by Terence Broderick, "[R] pers() problem" by Economics Guy, "[R] Too many warnings when updating R" by A Lenzo, "[R] finding the minimum positive value of some data" by dxc13, "[R] finding the minimum positive value of some data" by Henrique Dallazuanna, "[R] finding the minimum positive value of some data" by Marc Schwartz, "[R] finding the minimum positive value of some data" by Gabor Grothendieck, "[R] Is clustering analysis possible with R?" by Maura E Monville, "[R] clustering analysis is certainly possible with R" by Vladimir Eremeev, "[R] S-plus 'resample' package and associated functions" by Robert A. LaBudde, "[R] S-plus 'resample' package and associated functions" by Patrick Burns, "[R] overlay lattice histograms with goodness-of-fit pdfs" by Brad Christoffersen, "[R] overlay lattice histograms with goodness-of-fit pdfs" by Fredrick Aakmann Tøgersen, "[R] Loop and loop output [Cox model, for, function, loglik]" by David Lloyd, "[R] off-topic: better OS for statistical computing" by Wensui Liu, "[R] off-topic: better OS for statistical computing" by Gabor Grothendieck, "[R] off-topic: better OS for statistical computing" by Patrick Connolly, "[R] off-topic: better OS for statistical computing" by Gabor Grothendieck, "[R] off-topic: better OS for statistical computing" by Rolf Turner, "[R] machine learning on ordered (ranked) feature" by Weiwei Shi, "[R] RWinEdit installation problems with Vista" by Kevin, "[R] RWinEdit installation problems with Vista" by Stefan Grosse, "[R] mode or parameters of readBin" by Sjoepert Klinka, "[R] mode or parameters of readBin" by Duncan Murdoch, "[R] mode or parameters of readBin" by Thomas Lumley, "[R] uxxxx in libraries" by R Help, "[R] corrected sampled t-test" by Christian Schäfer, "[R] I can't do it again on an other PC: R+RMySQL -> error loading dll" by Ptit Bleu, "[R] Help in installing and loading the BradleyTerry add on package in R" by Kalyan Roy (DEL/MSG!), "[R] Help in installing and loading the BradleyTerry add on package in R" by Jim Lemon, "[R] Help in installing and loading the BradleyTerry add on package in R" by Turner, Heather, "[R] Information theoretic approach" by Adela González Megías, "[R] statistical tests under serial dependence" by Millo Giovanni, "[R] Are the error messages of ConstrOptim() consistent with each other?" by Yuchen Luo, "[R] Are the error messages of ConstrOptim() consistent with each other?" by Duncan Murdoch, "[R] Are the error messages of ConstrOptim() consistent with each other?" by Yuchen Luo, "[R] Are the error messages of ConstrOptim() consistent with each other?" by Thomas Lumley.

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- 1 Getting help
- 2 Finding functions
- 3 Digging into functions
- 4 Writing functions
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How to find the right function

Functions in installed packages

`help.search("neural")`. Equivalently: `??neural`
Also built into RStudio help.

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- `findFn` only searches functions.

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rseek.org

- Google customized search on R-related sites.

CRAN Task Views

7

cran.r-project.org/web/views/

- Curated reviews of packages by subject



The screenshot shows a web browser window with the address bar displaying cran.r-project.org/web/views/. The page title is "CRAN Task Views". The content is a list of subject areas, each with a blue hyperlink on the left and a descriptive text on the right. The subjects listed are: Bayesian, ChemPhys, ClinicalTrials, Cluster, DifferentialEquations, Distributions, Econometrics, Environmetrics, ExperimentalDesign, Finance, Genetics, Graphics, HighPerformanceComputing, MachineLearning, MedicalImaging, Multivariate, NaturalLanguageProcessing, OfficialStatistics, Optimization, Pharmacokinetics, Phylogenetics, Psychometrics, ReproducibleResearch, Robust, SocialSciences, Spatial, Survival, TimeSeries, and gR. The text on the right for each subject is a brief description of the field.

Subject	Description
Bayesian	Bayesian Inference
ChemPhys	Chemometrics and Computational Physics
ClinicalTrials	Clinical Trial Design, Monitoring, and Analysis
Cluster	Cluster Analysis & Finite Mixture Models
DifferentialEquations	Differential Equations
Distributions	Probability Distributions
Econometrics	Computational Econometrics
Environmetrics	Analysis of Ecological and Environmental Data
ExperimentalDesign	Design of Experiments (DoE) & Analysis of Experimental Data
Finance	Empirical Finance
Genetics	Statistical Genetics
Graphics	Graphic Displays & Dynamic Graphics & Graphic Devices & Visualization
HighPerformanceComputing	High-Performance and Parallel Computing with R
MachineLearning	Machine Learning & Statistical Learning
MedicalImaging	Medical Image Analysis
Multivariate	Multivariate Statistics
NaturalLanguageProcessing	Natural Language Processing
OfficialStatistics	Official Statistics & Survey Methodology
Optimization	Optimization and Mathematical Programming
Pharmacokinetics	Analysis of Pharmacokinetic Data
Phylogenetics	Phylogenetics, Especially Comparative Methods
Psychometrics	Psychometric Models and Methods
ReproducibleResearch	Reproducible Research
Robust	Robust Statistical Methods
SocialSciences	Statistics for the Social Sciences
Spatial	Analysis of Spatial Data
Survival	Survival Analysis
TimeSeries	Time Series Analysis
gR	gRaphical Models in R

CRAN Task Views

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cran.r-project.org/web/views/

- Curated reviews of packages by subject
- Use `install.views()` and `update.views()` in the `ctv` package.



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Digging into functions

Example: How does forecast for ets work?

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- **Type** `package::function` **for hidden functions.**

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- Be aware of classes and methods.
- Type `package::function` for hidden functions.
- Download the `tar.gz` file from CRAN if you want to see any underlying C or Fortran code.

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Good habits

- indenting and commenting.

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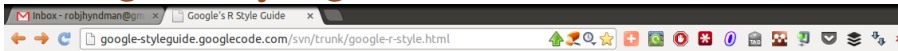
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- **Google R style guide:**



Google's R Style Guide

R is a high-level programming language used primarily for statistical computing and graphics. The goal of the R Programming Style Guide is to make our R code easier to read, share, and verify. The rules below were designed in collaboration with the entire R user community at Google.

Summary: R Style Rules

1. File Names: end in `.R`
2. Identifiers: `variable.name`, `FunctionName`, `kConstantName`
3. Line Length: maximum 80 characters
4. Indentation: two spaces, no tabs
5. Spacing
6. Curly Braces: first on same line, last on own line
7. Assignment: use `<-`, not `=`
8. Semicolons: don't use them
9. General Layout and Ordering
10. Commenting Guidelines: all comments begin with `#` followed by a space; inline comments need two spaces before the `#`

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- **Hadley's R style guide:**

The screenshot shows a web browser displaying the GitHub repository page for 'hadley/devtools/wiki/Style'. The browser's address bar shows the URL 'https://github.com/hadley/devtools/wiki/Style'. The GitHub interface includes a search bar, navigation links (Explore, Gist, Blog, Help), and user information (robjhyndman). The repository page shows the 'Style' wiki page, with tabs for Code, Network, Pull Requests (5), Issues (31), Wiki (selected), and Graphs. The 'Style' page content begins with the heading 'Style' and a paragraph: 'Good coding style is like using correct punctuation when writing: you can manage without it, but it sure makes things easier to read. As with punctuation, there are many possible variations, and the main thing is to be consistent. The following guide describes the style that I use - you don't have to use it, but you need to have some consistent style that you do follow. My style is based on Google's R style guide, with a few tweaks.'

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More extensive debugging tools discussed at

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RStudio plans to have debugging tools in a future release.

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Basic idea

- Every paper, book or consulting report is a “project”.

R projects

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- Every paper, book or consulting report is a “project”.
- Every project has its own folder and R workspace.
- Every project is entirely scripted. That is, all analysis, graphs and tables must be able to be generated by running one R script. The final report must be able to be generated by processing one \LaTeX file.

R projects

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- Tables generated via `xtable` or `texreg` packages.
- Graphics in pdf format.
- Report or paper in \LaTeX pulls in the tables and graphics.

Advantages over Sweave and knitr

- ➔ Keeps R and \LaTeX files separate.

R projects

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- ➔ Easier to collaborate.

Figures without whitespace²⁰

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```
savepdf <- function(file, width=16, height=10)
{
  fname <- paste("figs/",file,".pdf",sep="")
  pdf(fname, width=width/2.54, height=height/2.54,
      pointsize=10)
  par(mgp=c(2.2,0.45,0), tcl=-0.4, mar=c(3.3,3.6,1.1,1.1))
}

savepdf("fig1")
plot(x,y)
dev.off()
```

R with Makefiles

A Makefile provides instructions about how to compile a project.

Makefile

```
# list R files
RFILES := $(wildcard *.R)
# pdf figures created by R
PDFFIGS := $(wildcard figs/*.pdf)
# Indicator files to show R file has run
OUT_FILES:= $(RFILES:.R=.Rdone)

all: $(OUT_FILES)

# RUN EVERY R FILE
%.Rdone: %.R functions.R
    Rscript $< && touch $@
```


Makefiles for R & \LaTeX

Makefile

```
# Usually, only these lines need changing
TEXFILE= paper
RDIR= ./figs
FIGDIR= ./figs

# list R files
RFILES := $(wildcard $(RDIR)/*.R)
# pdf figures created by R
PDFFIGS := $(wildcard $(FIGDIR)/*.pdf)
# Indicator files to show R file has run
OUT_FILES:= $(RFILES:.R=.Rdone)
# Indicator files to show pdfcrop has run
CROP_FILES:= $(PDFFIGS:.pdf=.pdfcrop)

all: $(TEXFILE).pdf $(OUT_FILES) $(CROP_FILES)
```

Makefile continued ...

```
# May need to add something here if some R files  
# depend on others.
```

```
# RUN EVERY R FILE
```

```
$(RDIR)/%.Rdone: $(RDIR)/%.R $(RDIR)/functions.R  
    Rscript $< && touch $@
```

```
# CROP EVERY PDF FIG FILE
```

```
$(FIGDIR)/%.pdfcrop: $(FIGDIR)/%.pdf  
    pdfcrop $< $< && touch $@
```

```
# Compile main tex file
```

```
$(TEXTFILE).pdf: $(TEXTFILE).tex $(OUT_FILES) $(CROP_FILES)  
    latexmk -pdf -quiet $(TEXTFILE)
```

The magic of RStudio



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- An RStudio project can have an associated Makefile. Then building and cleaning can be done from within RStudio.

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