

How to Make a Contribution to Base R



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April 14, 2022

Contributing to R

R is maintained by the R Core Team

Members of the R Community can contribute in various ways:

- Analysing and fixing bugs
- Translating R's messages, warnings and errors
- Testing pre-release versions of R
- Developing new features

In this demo we'll focus on bug fixing!

How to find a good bug to work on


Bugzilla, <https://bugs.r-project.org>

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Welcome to the R bug tracking system




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R: R is a free software environment for statistical computing and graphics.

Rtools: Compiler toolchain, libraries and tools to build R and R packages for Windows.

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R

R is a free software environment for statistical computing and graphics.

Select a component to see open bugs in that component.

Component	Default Assignee
Accuracy	R-core Issues related to accuracy
Add-ons	R-core Issues with add-ons
Analyses	R-core Analyses
Documentation	R-core Issues in the documentation

Bugzilla – Bug List

For information on using this system, please visit [this page](#).

Mon Apr 3 2023 16:09:48 UTC

[Hide Search Description](#)

Component: DocumentationResolution: ---Product: R

42 bugs found.

ID	Product	Comp	Assignee	Status	Resolution	Summary	Changed
18499	R	Document	R-core	UNCO	---	Examples for functions that involve writing files	Sat 07:23
18402	R	Document	R-core	UNCO	---	Provide a mechanism for adding custom CSS styles to HTML documentation headers.	2022-11-05
17770	R	Document	maechler	ASSI	---	xtabs does not act as documented for na.action = na.pass	2022-10-03
18408	R	Document	R-core	UNCO	---	Using CMake section "\$ (SHLIB): mylibs" did not work for me	2022-09-22
18182	R	Document	R-core	UNCO	---	generated EPUB documentation files are invalid according to epubcheck	2022-09-08
18350	R	Document	R-core	CONF	---	Clarification needed in ?c	2022-07-18



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Bug List: (6 of 42) [First](#) [Last](#) [Prev](#) [Next](#) [Show last search results](#)

Bug 18350 - Clarification needed in ?c

Status: CONFIRMED

Alias: None

Product: R

Component: Documentation ([show other bugs](#))

Version: R 4.2.x

Hardware: All All

Importance: P5 normal

Assignee: R-core

Reported: 2022-06-02 18:28 UTC by Michael Chirico

Modified: 2022-07-18 06:02 UTC ([History](#))

CC List: 1 user ([show](#))

See Also:

Note

You need to [log in](#) before you can comment on or make changes to this bug.

Michael Chirico 2022-06-02 18:28:54 UTC

Description

This section in ?c is too non-specific:

*c is sometimes used for its side effect of removing attributes except names, for example to turn an array into a vector. `as.vector` is a more intuitive way to do *this*, but also drops names. Note that **methods** other than the default are not required to do **this** (and `_they` will almost certainly preserve a class attribute).*

I think the first *this* is clear enough (this="remove attributes"), but the latter **this** is not clear -- is it also referring to removing attributes? Except names? Turning an array into a vector?

Also, it's not clear which generic's **methods** are referred to in the last sentence -- those of `c`, or those of `as.vector`? Both?

Martin Maechler 2022-06-07 15:36:49 UTC

Comment 1

(In reply to Michael Chirico from [comment #0](#))

This section in ?c is too non-specific:

What to look for

Good: a bug report where the next step is clear.

- A minimal reproducible example
- Checking in R-devel
- A diagnosis
- A fix

Even better: an [R Core](#) member supports the next step in a comment.

What to avoid

- Too new
- Too old
- Commenters disagree on how to fix
- Someone else is clearly working on it
- Clearly requires specific expertise you lack

Shortcuts

Get help finding a good first issue:

- [R Contributor Office Hours](#)
- [R Contributor Slack #work-out-loud](#) channel
- [Bug BBQ](#)

Getting to the root of the issue

Bug 17863

See report on Bugzilla:

https://bugs.r-project.org/show_bug.cgi?id=17863

A 1-factor factor analysis:

```
1 test <- factanal(mtcars[, 1:4], factors = 1)
```

Printing the result

Good

```
1 print(test)
```

```
Call:
factanal(x = mtcars[, 1:4], factors = 1)
```

```
Uniquenesses:
   mpg   cyl  disp    hp
0.199 0.078 0.120 0.261
```

```
Loadings:
      Factor1
mpg  -0.895
cyl   0.960
disp  0.938
hp    0.859
```

```

      Factor1
SS loadings    3.342
Proportion Var 0.835
```

Bad

```
1 print(test, sort = TRUE)
```

```
Call:
factanal(x = mtcars[, 1:4], factors = 1)
```

```
Uniquenesses:
   mpg   cyl  disp    hp
0.199 0.078 0.120 0.261
```

```
Loadings:
[1] -0.895  0.960  0.938  0.859
```

```

      Factor1
SS loadings    3.342
Proportion Var 0.835
```

Test of the hypothesis that 1 factor is sufficient.
The chi square statistic is 0.5 on 2 degrees of freedom.

Finding the print method (1)

```
1 class(test)
```

```
[1] "factanal"
```

```
1 getAnywhere(print.factanal)
```

A single object matching 'print.factanal' was found
It was found in the following places
 registered S3 method for print from namespace stats
 namespace:stats
with value

```
function (x, digits = 3, ...)  
{  
  cat("\nCall:\n", deparse(x$call), "\n\n", sep = "")  
  cat("Uniquenesses:\n")  
  print(round(x$uniquenesses, digits), ...)  
  print(x$loadings, digits = digits, ...)  
  if (!is.null(x$rotmat)) {  
    tmat <- solve(x$rotmat)  
    R <- tmat %*% t(tmat)  
    factors <- x$factors  
    rownames(R) <- colnames(R) <- paste0("Factor", 1:factors)  
    if (TRUE != all.equal(c(R), c(diag(factors)))) {  
      cat("\nFactor Correlations:\n")  
    }  
  }  
}
```


Finding the print method (2)

```
1 class(test$loadings)
```

```
[1] "loadings"
```

```
1 getAnywhere(print.loadings)
```

A single object matching 'print.loadings' was found
It was found in the following places
 registered S3 method for print from namespace stats
 namespace:stats
with value

```
function (x, digits = 3L, cutoff = 0.1, sort = FALSE, ...)  
{  
  Lambda <- unclass(x)  
  p <- nrow(Lambda)  
  factors <- ncol(Lambda)  
  if (sort) {  
    mx <- max.col(abs(Lambda))  
    ind <- cbind(1L:p, mx)  
    mx[abs(Lambda[ind]) < 0.5] <- factors + 1  
    Lambda <- Lambda[order(mx, 1L:p), ]  
  }  
  cat("\nLoadings:\n")  
  fx <- setNames(format(round(Lambda, digits)), NULL)
```

Debugging print.loadings

```
1 debugonce(stats::print.loadings)
```

Error: 'print.loadings' is not an exported object from 'namespace:stats'

```
1 debugonce(stats:::print.loadings)
2 print(test, sort = TRUE)
```

Call:

```
factanal(x = mtcars[, 1:4], factors = 1)
```

Uniquenesses:

```
mpg   cyl  disp    hp
0.199 0.078 0.120 0.261
```

```
debugging in: print.loadings(x$loadings, digits = digits, ...)
```

```
debug: {
  Lambda <- unclass(x)
  p <- nrow(Lambda)
  factors <- ncol(Lambda)
  if (sort) {
    mx <- max.col(abs(Lambda))
    ind <- cbind(1L:p, mx)
    mx[abs(Lambda[ind]) < 0.5] <- factors + 1
    Lambda <- Lambda[order(mx, 1L:p), ]
  }
  cat("\nLoadings:\n")
  fx <- setNames(format(round(Lambda, digits)), NULL)
```

Press Enter to step through line by line

```
Browse[2]>
debug: Lambda <- unclass(x)

Browse[2]>
debug: p <- nrow(Lambda)

Browse[2]>
debug: factors <- ncol(Lambda)

Browse[2]>
debug: if (sort) {
  mx <- max.col(abs(Lambda))
  ind <- cbind(1L:p, mx)
  mx[abs(Lambda[ind]) < 0.5] <- factors + 1
  Lambda <- Lambda[order(mx, 1L:p), ]
}

Browse[2]>
debug: mx <- max.col(abs(Lambda))

Browse[2]>
debug: ind <- cbind(1L:p, mx)

Browse[2]>
debug: mx[abs(Lambda[ind]) < 0.5] <- factors + 1

Browse[2]>
debug: Lambda <- Lambda[order(mx, 1L:p), ]
```

Print objects

```
Browse[2]> Lambda[order(mx, 1L:p), ]  
      mpg      cyl      disp      hp  
-0.8947285  0.9603623  0.9381177  0.8594404  
  
Browse[2]> Lambda  
      Factor1  
mpg  -0.8947285  
cyl   0.9603623  
disp  0.9381177  
hp    0.8594404  
  
Browse[2]> Lambda[order(mx, 1L:p), , drop = FALSE]  
      Factor1  
mpg  -0.8947285  
cyl   0.9603623  
disp  0.9381177  
hp    0.8594404  
Browse[2]>
```

Modify function

```
1 print.loadings <- function (x, digits = 3L, cutoff = 0.1, sort = FALSE, ..
2 {
3   Lambda <- unclass(x)
4   p <- nrow(Lambda)
5   factors <- ncol(Lambda)
6   if (sort) {
7     mx <- max.col(abs(Lambda))
8     ind <- cbind(1L:p, mx)
9     mx[abs(Lambda[ind]) < 0.5] <- factors + 1
10    Lambda <- Lambda[order(mx, 1L:p), , drop = FALSE]
11  }
12  cat("\nLoadings:\n")
13  fx <- setNames(format(round(Lambda, digits)), NULL)
14  nc <- nchar(fx[1L], type = "c")
15  fx[abs(Lambda) < cutoff] <- strrep(" ", nc)
16  print(fx, quote = FALSE, ...)
17  vx <- colSums(x^2)
18  varex <- rbind(`SS loadings` = vx)
```

Check

```
1 print.loadings(test$loadings, sort = TRUE)
```

Loadings:

	Factor1
mpg	-0.895
cyl	0.960
disp	0.938
hp	0.859

	Factor1
SS loadings	3.342
Proportion Var	0.835

How to propose a fix

Comment on Bugzilla

Heather Turner 2022-11-03 16:44:28 UTC

[Comment 1](#)

We reviewed this bug in the R Contributor Office Hour and tracked it down to the `stats:::print.loadings` function:

```
print.loadings <- function(x, digits = 3L, cutoff = 0.1, sort = FALSE, ...)  
{  
  Lambda <- unclass(x)  
  p <- nrow(Lambda)  
  factors <- ncol(Lambda)  
  if (sort) {  
    mx <- max.col(abs(Lambda))  
    ind <- cbind(1L:p, mx)  
    mx[abs(Lambda[ind]) < 0.5] <- factors + 1  
    Lambda <- Lambda[order(mx, 1L:p),]  
  }  
  ...  
}
```

The issue is in the last line, where the matrix is ordered - this returns a vector rather than a matrix.

Instead we want

```
Lambda <- Lambda[order(mx, 1L:p), , drop = FALSE]
```

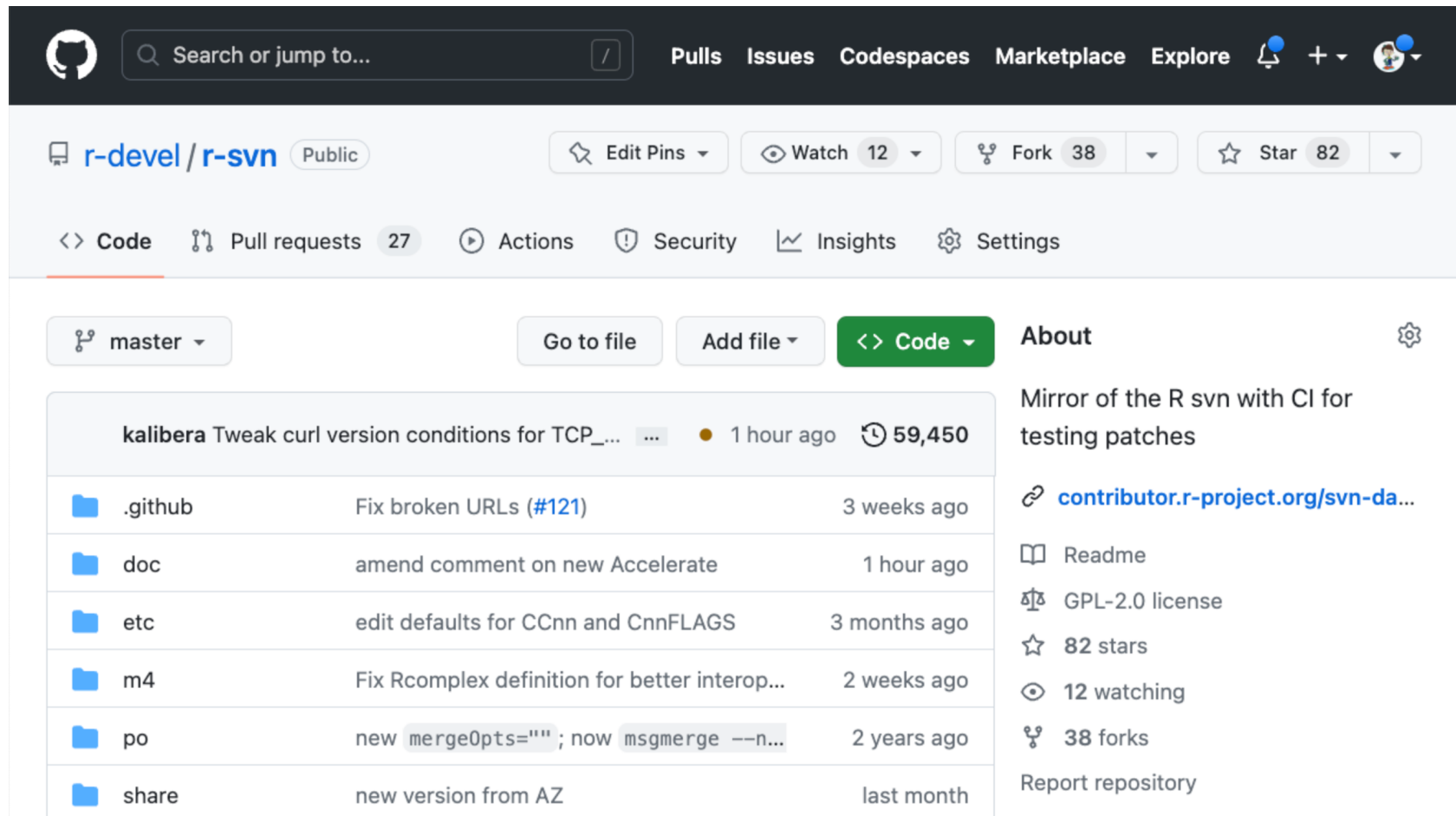
With this change, the function prints as expected

```
> print.loadings(test$loadings, sort = TRUE)  
Loadings:  
  Factor1  
mpg -0.895
```

(Requires an [account](#))

Create a patch via GitHub

Alternatively, create a patch using the r-svn mirror of the R sources:
<https://github.com/r-devel/r-svn>



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r-devel / r-svn Public

Edit Pins Watch 12 Fork 38 Star 82

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master Go to file Add file <> Code About

kalibera Tweak curl version conditions for TCP_... 1 hour ago 59,450

.github	Fix broken URLs (#121)	3 weeks ago
doc	amend comment on new Accelerate	1 hour ago
etc	edit defaults for CCnn and CnnFLAGS	3 months ago
m4	Fix Rcomplex definition for better interop...	2 weeks ago
po	new mergeOpts="" ; now msgmerge --n...	2 years ago
share	new version from AZ	last month

Mirror of the R svn with CI for testing patches

contributor.r-project.org/svn-da...

Readme

GPL-2.0 license

82 stars

12 watching

38 forks

Report repository

Find source file to edit

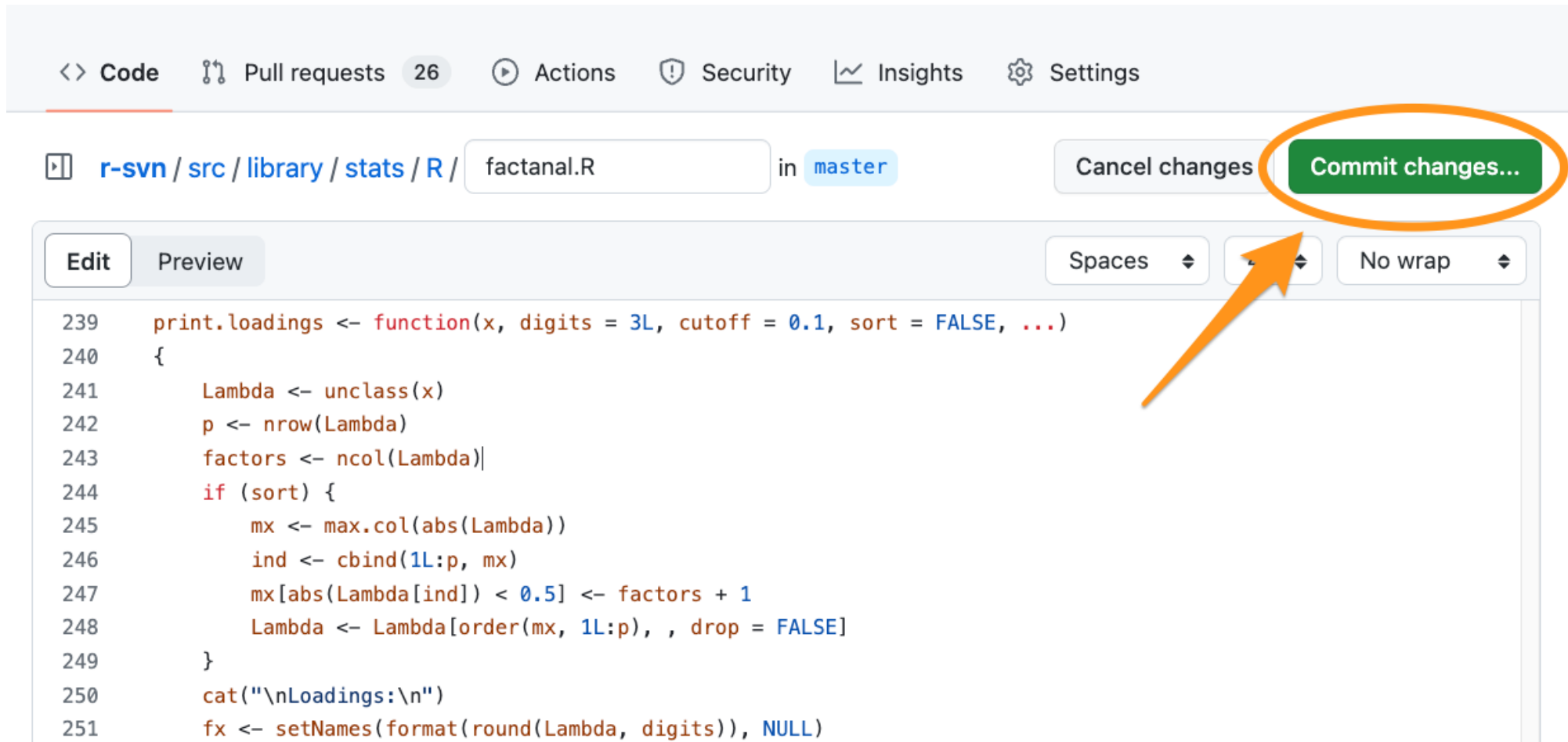


The screenshot shows the GitHub interface for the file `factanal.R` in the `r-svn / src / library / stats / R` directory. The file is 345 lines long, 11.9 KB, and is on the `master` branch. The `Code` tab is selected. In the top right corner, there is a toolbar with buttons for `Raw`, `Copy`, `Download`, `Edit` (pencil icon), and `Compare` (dual arrows icon). The `Edit` button is circled in orange, and an orange arrow points to it from the right. The main content area displays the R source code for `factanal.R`, starting with line 235: `class(ans) <- "factanal"` and ending with line 251: `fx <- setNames(format(round(Lambda, digits)), NULL)`.

```
235     class(ans) <- "factanal"
236     ans
237 }
238
239 print.loadings <- function(x, digits = 3L, cutoff = 0.1, sort = FALSE, ...)
240 {
241     Lambda <- unclass(x)
242     p <- nrow(Lambda)
243     factors <- ncol(Lambda)
244     if (sort) {
245         mx <- max.col(abs(Lambda))
246         ind <- cbind(1L:p, mx)
247         mx[abs(Lambda[ind]) < 0.5] <- factors + 1
248         Lambda <- Lambda[order(mx, 1L:p), , drop=FALSE]
249     }
250     cat("\nLoadings:\n")
251     fx <- setNames(format(round(Lambda, digits)), NULL)
```

This will create a fork of the r-svn repo on your GitHub account.

Edit the code in the browser



Committing changes will create a branch on your fork

Open a PR (1)

hturner / r-svn Public

Pin

Watch 0

Fork 38

Star 0

forked from r-devel/r-svn

<> Code

Pull requests

Actions

Projects

Security

Insights

Settings

hturner-patch-1 had recent pushes 1 minute ago

Compare & pull request

master

Go to file

Add file

<> Code

This branch is up to date with r-devel/r-svn:master.

Contribute

Sync fork

kalibera Handle Alt+F4 in Windows dialogs (PR#...

2 hours ago

🕒 59,442

.github

Fix broken URLs (r-devel#121)

3 weeks ago

About

Mirror of the R svn with CI for testing patches

contributor.r-project.org/svn-da...

Readme

GPL-2.0 license

0 stars

0 watching

38 forks

Open a PR (2)

The screenshot shows the GitHub interface for opening a pull request. At the top, the repository is identified as `r-devel / r-svn` (Public). Navigation links include `<> Code`, `🔗 Pull requests 26`, `🎬 Actions`, `🛡 Security`, `📈 Insights`, and `⚙ Settings`. Repository statistics show `👁 Watch 12`, `🍴 Fork 38`, and `★ Star 82`.

Comparing changes

Choose two branches to see what's changed or to start a new pull request. If you need to, you can also [compare across forks](#).

The comparison configuration shows:

- base repository: `r-devel/r-svn`
- base: `master`
- head repository: `hturner/r-svn`
- compare: `hturner-patch-1`

A green checkmark indicates: **✓ Able to merge.** These branches can be automatically merged.

The pull request title is `Minor change for demo`, which is circled in orange with an arrow pointing to it. Below the title are tabs for `Write` and `Preview`. A rich text editor toolbar is visible with icons for headings (`H`), bold (`B`), italic (`I`), list (`≡`), code (`<>`), link (`🔗`), unlink (`🔗`), quote (`🗣`), mention (`@`), insert image (`🖼`), undo (`↶`), and redo (`↷`). A comment box at the bottom is labeled `Leave a comment`.

On the right side, the `Reviewers` section shows `No reviews`, and the `Assignees` section shows `No one—assign yourself`.

Automated checks

Minor change for demo #124

[Open](#) hturner wants to merge 1 commit into `r-devel:master` from `hturner:hturner-patch-1`

Conversation 0

Commits 1

Checks 0

Files changed 1

+1 -1

hturner commented 1 minute ago

Member Tip

No description provided.

Minor change for demo

Verified 2a7229c

Add more commits by pushing to the `hturner-patch-1` branch on `hturner/r-svn`.

Some checks haven't completed yet

6 in progress and 1 queued checks

Build from SVN / Linux (gcc, debian:stable) (pull_reque...

Hide all checks

Details

Reviewers

No reviews

Still in progress? Convert to draft

Assignees

No one—assign yourself

Labels

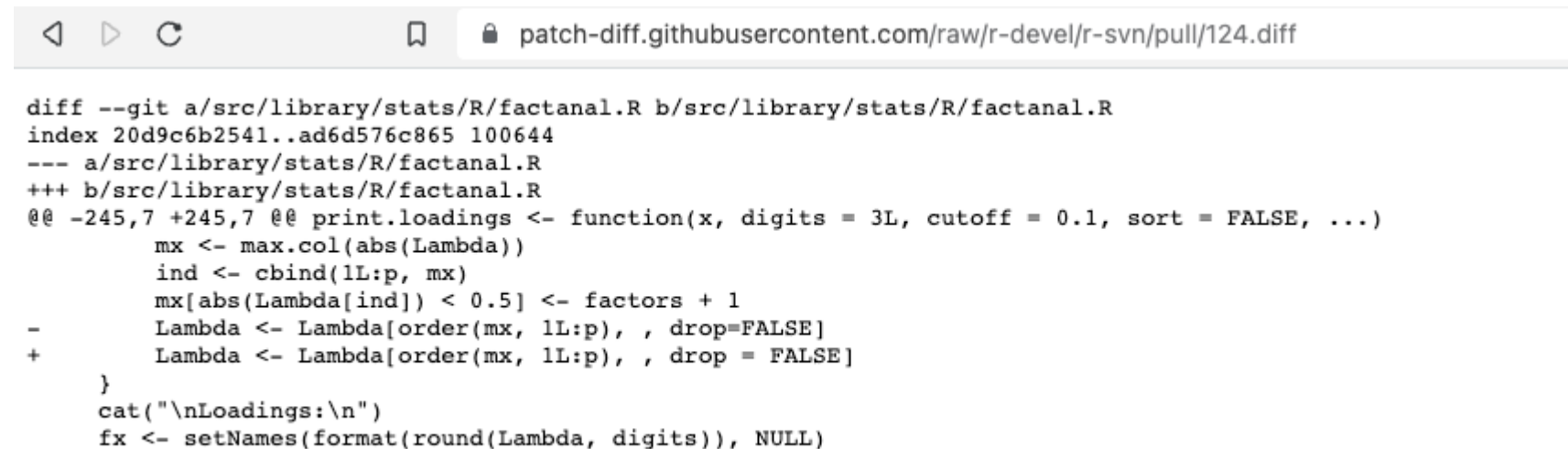
None yet

Projects

None yet

Create a patch

Add `.diff` to the URL for your PR, e.g. <https://github.com/r-devel/r-svn/pull/124.diff>

A screenshot of a web browser window. The address bar shows the URL 'patch-diff.githubusercontent.com/raw/r-devel/r-svn/pull/124.diff'. The main content area displays a diff for the file 'factanal.R'. The diff shows changes between two versions of the file, with lines prefixed by '-' for deletions and '+' for additions. The code is in R and involves loading calculations and setting names for a matrix.

```
diff --git a/src/library/stats/R/factanal.R b/src/library/stats/R/factanal.R
index 20d9c6b2541..ad6d576c865 100644
--- a/src/library/stats/R/factanal.R
+++ b/src/library/stats/R/factanal.R
@@ -245,7 +245,7 @@ print.loadings <- function(x, digits = 3L, cutoff = 0.1, sort = FALSE, ...)
     mx <- max.col(abs(Lambda))
     ind <- cbind(1L:p, mx)
     mx[abs(Lambda[ind]) < 0.5] <- factors + 1
-    Lambda <- Lambda[order(mx, 1L:p), , drop=FALSE]
+    Lambda <- Lambda[order(mx, 1L:p), , drop = FALSE]
   }
   cat("\nLoadings:\n")
   fx <- setNames(format(round(Lambda, digits)), NULL)
```

Right-click to save `.diff` file.

This patch can be attached to the Bugzilla report, with a comment.

Where next?

- [R Development Guide](#)
- [R Contributor Events](#)
- [R Contributor Slack](#)



Links

- R Core: <https://www.r-project.org/contributors.html>
- R Contributor Office Hours: <https://contributor.r-project.org/events/office-hours/>
- R Contributor Slack: <https://contributor.r-project.org/slack>
- Bug BBQ: <https://contributor.r-project.org/events/bug-bbq/>
- How to get a Bugzilla account: <https://contributor.r-project.org/rdevguide/BugTrack.html#RCorePkgBug>
- R Development Guide: <https://contributor.r-project.org/rdevguide/>
- Slides for this demo: <https://hturner.github.io/contributing-demo>

