

Package ‘ggghost’

August 29, 2016

Title Capture the Spirit of Your 'ggplot2' Calls

Version 0.2.1

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Description Creates a reproducible 'ggplot2' object by storing the data and calls.

Depends R (>= 3.2.0), ggplot2, animation

License GPL (>= 3)

Encoding UTF-8

LazyData true

URL <https://github.com/jonocarroll/ggghost>

BugReports <https://github.com/jonocarroll/ggghost/issues>

RoxygenNote 5.0.1

Suggests testthat

NeedsCompilation no

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Repository CRAN

Date/Publication 2016-08-20 10:35:17

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`+ .gg` *Add a New ggplot Component to a ggghost Object*

Description

This operator allows you to add objects to a ggghost object in the style of @hrbrmstr.

Usage

```
## S3 method for class 'gg'
e1 + e2
```

Arguments

<code>e1</code>	An object of class ggghost
<code>e2</code>	A component to add to e1

Value

Appends the e2 call to the ggghost structure

Examples

```
## create a ggghost object
tmpdata <- data.frame(x = 1:100, y = rnorm(100))

z %g<% ggplot(tmpdata, aes(x,y))
z <- z + geom_point(col = "steelblue")
z <- z + theme_bw()
z <- z + labs(title = "My cool ggplot")
z <- z + labs(x = "x axis", y = "y axis")
z <- z + geom_smooth()
```

`- .gg` *Remove a call from a ggghost object*

Description

Calls can be removed from the ggghost object via regex matching of the function name. All matching calls will be removed based on the match to the string up to the first bracket, so any arguments are irrelevant.

Usage

```
## S3 method for class 'gg'
e1 - e2
```

Arguments

e1	An object of class ggghost
e2	A component to remove from e1

Details

For example, subtracting `geom_line()` will remove all calls matching `geom_line` regardless of their arguments.

'`labs()`' has been identified as a special case, as it requires an argument in order to be recognised as a valid function. Thus, trying to remove it with an empty argument will fail. That said, the argument doesn't need to match, so it can be populated with a dummy string or anything that evaluates in scope. See examples.

Value

A ggghost structure with calls matching e2 removed, otherwise the same as e1

Examples

```
## create a ggghost object
tmpdata <- data.frame(x = 1:100, y = rnorm(100))

z %g<% ggplot(tmpdata, aes(x,y))
z <- z + geom_point(col = "steelblue")
z <- z + theme_bw()
z <- z + labs(title = "My cool ggplot")
z <- z + labs(x = "x axis", y = "y axis")
z <- z + geom_smooth()

## remove the geom_smooth
z - geom_smooth()

## remove the labels
## NOTE: argument must be present and able to be
## evaluated in scope
z - labs(TRUE) # works
z - labs(title) # works because of title(), but removes all labs()
```

ggghost

ggghost: Capture the spirit of your ggplot calls

Description

Creates a reproducible container for ggplot, storing the data and calls required to produce a plot.

Details

'ggplot' stores the information needed to build the graph as a 'grob', but that's what the ****computer**** needs to know about in order to build the graph. As humans, we're more interested in what commands were issued in order to build the graph. For good reproducibility, the calls need to be applied to the relevant data. While this is somewhat available by deconstructing the 'grob', it's not the simplest approach.

Here is one option that solves that problem.

'ggghost' stores the data used in a 'ggplot()' call, and collects 'ggplot' commands (usually separated by '+') as they are applied, in effect lazily collecting the calls. Once the object is requested, the 'print' method combines the individual calls back into the total plotting command and executes it. This is where the call would usually be discarded. Instead, a "ghost" of the commands lingers in the object for further investigation, subsetting, adding to, or subtracting from.

is.ggghost	<i>Reports whether x is a ggghost object</i>
------------	--

Description

Reports whether x is a ggghost object

Usage

```
is.ggghost(x)
```

Arguments

x	An object to test
---	-------------------

Value

logical; TRUE if x inherits class ggghost

print.ggghost	<i>Collect ggghost calls and produce the ggplot output</i>
---------------	--

Description

Collect ggghost calls and produce the ggplot output

Usage

```
## S3 method for class 'ggghost'
print(x, ...)
```

Arguments

x A ggghost object to be made into a ggplot grob
 ... Not used, provided for `print.default` generic consistency.

Value

The ggplot plot data (invisibly). Used for the side-effect of producing a ggplot plot.

reanimate	<i>Bring a ggplot to life (re-animate)</i>
-----------	--

Description

Creates an animation showing the stepwise process of building up a ggplot. Successively adds calls from a ggghost object and then combines these into an animated GIF.

Usage

```
reanimate(object, gifname = "ggghost.gif", interval = 1, ani.width = 600,
  ani.height = 600)
```

```
lazarus(object, gifname = "ggghost.gif", interval = 1, ani.width = 600,
  ani.height = 600)
```

Arguments

object A ggghost object to animate
 gifname Output filename to save the .gif to (not including any path, will be saved to current directory)
 interval A positive number to set the time interval of the animation (unit in seconds); see `animation::ani.options`
 ani.width width of image frames (unit in px); see `animation::ani.options`
 ani.height height of image frames (unit in px); see `animation::ani.options`

Value

TRUE if it gets that far

Examples

```
## Not run:
## create an animation showing the process of building up a plot
reanimate(z, "mycoolplot.gif")

## End(Not run)
```

recover_data	<i>Recover data Stored in a ggghost object</i>
--------------	--

Description

The data used to generate a plot is an essential requirement for a reproducible graphic. This is somewhat available from a ggplot grob (in raw form) but it is not easily accessible, and isn't named the same way as the original call.

Usage

```
recover_data(x, supp = TRUE)
```

Arguments

x	A ggghost object from which to extract the data.
supp	(logical) Should the supplementary data be extracted also?

Details

This function retrieves the data from the ggghost object as it was when it was originally called.

If supplementary data has also been attached using [supp_data](#) then this will also be recovered (if requested).

When used interactively, a warning will be produced if the data to be extracted exists in the workspace but not identical to the captured version.

Value

A data.frame of the original data, named as it was when used in `ggplot(data)`

subset.ggghost	<i>Extract a subset of a ggghost object</i>
----------------	---

Description

Alternative to subtracting calls using `'-.gg'`, this method allows one to select the desired components of the available calls and have those evaluated.

Usage

```
## S3 method for class 'ggghost'
subset(x, ...)
```

Arguments

`x` A ggghost object to subset

`...` A logical expression indicating which elements to select. Typically a vector of list numbers, but potentially a vector of logicals or logical expressions.

Value

Another ggghost object containing only the calls selected.

Examples

```
## create a ggghost object
tmpdata <- data.frame(x = 1:100, y = rnorm(100))

z %g<% ggplot(tmpdata, aes(x,y))
z <- z + geom_point(col = "steelblue")
z <- z + theme_bw()
z <- z + labs(title = "My cool ggplot")
z <- z + labs(x = "x axis", y = "y axis")
z <- z + geom_smooth()

## remove the labels and theme
subset(z, c(1,2,6))
## or
subset(z, c(TRUE,TRUE,FALSE,FALSE,FALSE,TRUE))
```

summary.ggghost

List the calls contained in a ggghost object

Description

Summarises a ggghost object by presenting the contained calls in the order they were added. Optionally concatenates these into a single ggplot call.

Usage

```
## S3 method for class 'ggghost'
summary(object, ...)
```

Arguments

`object` A ggghost object to present

`...` Mainly provided for `summary.default` generic consistency. When `combine` is passed as an argument (arbitrary value) the list of calls is concatenated into a single string as one might write the ggplot call.

Details

The data is also included in ggghost objects. If this is also desired in the output, use `str`. See example.

Value

Either a list of ggplot calls or a string of such concatenated with " + "

Examples

```
## present the ggghost object as a list
tmpdata <- data.frame(x = 1:100, y = rnorm(100))

z %g<% ggplot(tmpdata, aes(x,y))
z <- z + geom_point(col = "steelblue")
summary(z)

## present the ggghost object as a string
summary(z, combine = TRUE) # Note, value of 'combine' is arbitrary

## to inspect the data structure also captured, use str()
str(z)
```

`supp_data`*Inspect the supplementary data attached to a ggghost object*

Description

Inspect the supplementary data attached to a ggghost object

Usage

```
supp_data(x)
```

Arguments

x A ggghost object

Value

A list with two elements: the name of the supplementary data, and the supplementary data itself

supp_data<- *Attach supplementary data to a ggghost object*

Description

Attach supplementary data to a ggghost object

Usage

```
supp_data(x) <- value
```

Arguments

x	A ggghost object to which the supplementary data should be attached
value	Supplementary data to attach to the ggghost object, probably used as an additional data input to a scale_* or geom_* call

Value

The original object with suppdata attribute

%g<% *Begin constructing a ggghost cache*

Description

The data and initial ggplot() call are stored as a list (call) with attribute (data).

Usage

```
lhs %g<% rhs
```

Arguments

lhs	LHS of call
rhs	RHS of call

Details

The data must be passed into the ggplot call directly. Passing this in via a magrittr pipe remains as a future improvement. The newly created ggghost object is a list of length 1 containing the ggplot call, with attribute data; another list, containing the data_name and data itself.

Value

Assigns the ggghost structure to the lhs symbol.

Examples

```
## create a ggghost object
tmpdata <- data.frame(x = 1:100, y = rnorm(100))

z %g<% ggplot(tmpdata, aes(x,y))
```

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