

Package ‘ggpackets’

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Title Package Plot Layers for Easier Portability and Modularization

Version 0.2.2

Description Create groups of 'ggplot2' layers that can be easily migrated from one plot to another, reducing redundant code and improving the ability to format many plots that draw from the same source 'ggpacket' layers.

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Imports utils, methods, rlang

Suggests testthat, dplyr, backports, knitr, rmarkdown, stringi, covr

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URL <https://github.com/dgkf/ggpackets>,
<https://dgkf.github.io/ggpackets/>

BugReports <https://github.com/dgkf/ggpackets/issues>

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ggpackets-package	<i>ggpackets: Package Plot Layers for Easier Portability and Modularization</i>
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Description

Create groups of ggplot layers that can be easily migrated from one plot to another, reducing redundant code and improving the ability to format many plots that draw from the same source ggpacket layers.

Author(s)

Maintainer: Doug Kelkhoff <doug.kelkhoff@gmail.com>

See Also

Useful links:

- <https://github.com/dgkf/ggpackets>
- <https://dgkf.github.io/ggpackets/>
- Report bugs at <https://github.com/dgkf/ggpackets/issues>

Examples

```
library(ggplot2)

# Prep a tidy data.frame to plot with
airquality_long <- rbind(
  data.frame(
    airquality[,c("Month", "Day")],
    Variable = "Temp",
    Measurement = airquality$Temp),
  data.frame(
    airquality[,c("Month", "Day")],
    Variable = "Ozone",
    Measurement = airquality$Ozone))

# Build our new composite ggplot geom
geom_error_line <- ggpacket() %>%
  geom_ribbon(
    .id = "box",
    mapping = aes(fill = ..color..),
    stat = 'summary',
    fun = mean,
    fun.min = ~mean(.) - sd(.),
    fun.max = ~mean(.) + sd(.),
    alpha = 0.15,
    color = NA) %>%
  geom_line(
    .id = "line",
    stat = 'summary',
    fun = mean,
    alpha = 0.8)

# Try it out!
ggplot(airquality_long) +
  aes(x = round((Month * 30 + Day) / 4), y = Measurement, color = Variable) +
  geom_error_line(na.rm = TRUE, line.size = 1.5) +
  scale_y_log10() +
  labs(x = "Week")

# for further examples, check out the vignettes
vignette(package = "ggpackets")
```

<code>.all_aesthetics</code>	<i>Extracted .all_aesthetics from internal ggplot2 with hardcoded fallback</i>
------------------------------	--

Description

Extracted .all_aesthetics from internal ggplot2 with hardcoded fallback

Usage

```
.all_aesthetics()
```

```
as.list,ggpacket-method
```

Convert a ggpacket to a list of ggcalls

Description

Convert a ggpacket to a list of ggcalls

Usage

```
## S4 method for signature 'ggpacket'
as.list(x, ...)
```

Arguments

<code>x</code>	A ggpacket object
<code>...</code>	Additional arguments unused

<code>collapse_data</code>	<i>Collapse data arguments</i>
----------------------------	--------------------------------

Description

Reduce data arguments using update_data

Usage

```
collapse_data(args)
```

Arguments

<code>args</code>	A list of arguments. If multiple elements are named "data" they will be collapsed into a single mapping argument, appropriately updating datasets and applying functions as needed.
-------------------	---

collapse_mappings	<i>Collapse aesthetic mappings arguments</i>
-------------------	--

Description

Reduce aesthetic mapping arguments using update_mapping

Usage

```
collapse_mappings(args)
```

Arguments

args	A list of arguments. If multiple elements are named "mapping" they will be collapsed into a single mapping argument, appropriately updating aesthetic mappings.
------	---

deduplicate_params	<i>Remove arguments with duplicated names</i>
--------------------	---

Description

Remove arguments with duplicated names

Usage

```
deduplicate_params(args)
```

Arguments

args	A list of arguments to deduplicate.
------	-------------------------------------

expand_dots	<i>Expand dot arguments into named arguments</i>
-------------	--

Description

Expand dot arguments into named arguments

Usage

```
expand_dots(expr, envir = parent.frame(2L))
```

Arguments

expr	An expression whose arguments need to be expanded.
envir	An environment in which to evaluate expansion.

<code>filter_by_ggcall_ids</code>	<i>Filter a named list by ids</i>
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Description

Filter a named list (often an aesthetic mapping or argument list) for only unprefixed elements, elements which don't match any of `all_ids` and those which match one of `call_ids`. For those that match, remove the id prefix.

Usage

```
filter_by_ggcall_ids(x, call_ids, all_ids)
```

Arguments

<code>x</code>	A named list to filter.
<code>call_ids</code>	A character vector of valid ids.
<code>all_ids</code>	A character vector of all possible ids.

<code>ggpacket</code>	<i>A container for lazy ggplot layers</i>
-----------------------	---

Description

`ggpackets` present a mechanism for easily collecting loose `ggplot` layers into objects that can be reused across multiple plots, as well as handling of hierarchical argument propagation, as well as data and aesthetic scoping.

Usage

```
ggpacket(...)
```

Arguments

<code>...</code>	Arguments passed on to ggpacket_call
<code>data</code>	The data argument to use for all layers within the <code>ggpacket</code>
<code>mapping</code>	The aesthetic mapping to use as a basis for all layers within the <code>ggpacket</code> . Layer-specific mappings will update the value of the mapping, and assigning <code>..reset..</code> to any aesthetic field will return the propagated aesthetic mapping to a default, unmapped state for that layer.
<code>.id</code>	an optional identifier tag for the <code>ggpacket</code> , used for filtering arguments and aesthetics that are propagated into the contained <code>ggplot</code> layers.

Details

The ggpacket object behaves like a function, returning an updated ggpacket. As well, it contains a few slots which can be used for programmatically accessing the lazy ggplot calls.

Within ggpacket and subsequent ggplot layer calls, aesthetic mappings can contain references to previously mapped aesthetics using the double-dot keywords (e.g. `..x..`). In addition, the keyword `..reset..` can be used to revert aesthetics within the ggpacket or layer to an un-specified state.

Because ggpackets will tolerate a more flexible syntax for layer specifications, it's preferable to use the ggplot composition operator `%%` (instead of `+`). This allows for duplicate argument names and non-standard aesthetics to be passed, which are both handled internally within the ggpacket call, but will trigger warnings when using a bare `+`.

Value

A new ggpacket object

Slots

`data` A lazy reference to the data parameter of the ggpacket, allowing for scoping the data used by a block of ggplot layers.

`mapping` A lazy reference to the mapping parameter of the ggpacket, allowing for scoping of aesthetic mappings over a block of ggplot layers.

`dots` Quosures representing arguments to be passed to all of the ggpacket's ggplot layers.

`ggcalls` A list containing the layers stored within the ggpacket

Examples

```
library(ggplot2)

# create a ggpacket directly, setting some fixed argument settings
ggpk_simple <- ggpacket() %%% geom_line(color = "red") %%% geom_point()
ggplot(mtcars, aes(x = wt, y = mpg)) + ggpk_simple()

# any non-fixed arguments can be modified in the ggpacket call
ggplot(mtcars, aes(x = wt, y = mpg)) + ggpk_simple(color = "green")

# arguments can be specified for only specific layers by prefixing them
ggplot(mtcars, aes(x = wt, y = mpg)) + ggpk_simple(point.size = 5)

# allow masking of preset arguments by wrapping the ggpacket in a function
ggpk_func <- function(...) {
  ggpacket() %%%
  geom_line(...) %%%
  geom_point(color = "red", ...)
}

ggplot(mtcars, aes(x = wt, y = mpg)) +
  ggpk_func(color = "purple", line.linewidth = 2, point.size = 4)
```

ggpacket-class	<i>A ggpacket object</i>
----------------	--------------------------

Description

A ggpacket object

Add a ggpacket object to another, arbitrary object

Display contents of a ggpacket

Usage

```
## S4 method for signature 'ggpacket,ANY'
e1 + e2
```

```
## S4 method for signature 'ggpacket'
show(object)
```

Arguments

e1	A ggpacket object.
e2	Any object.
object	A ggpacket object to show.

Slots

data A dataset or waiver to use within the ggpacket ggcalls.

mapping A ggplot aesthetic mapping to use within the ggpacket ggcalls.

dots Arguments which should be passed before prespecified arguments to each ggcall.

ggcalls A list of lazily evaluated ggplot layer construction expressions.

ggpacket_call	<i>The function used when a ggpacket is called as a function</i>
---------------	--

Description

The function used when a ggpacket is called as a function

Usage

```
ggpacket_call(mapping = NULL, data = NULL, ..., .id = character(0L))
```

Arguments

mapping	The aesthetic mapping to use as a basis for all layers within the ggpacket. Layer-specific mappings will update the value of the mapping, and assigning <code>..reset..</code> to any aesthetic field will return the propagated aesthetic mapping to a default, unmapped state for that layer.
data	The data argument to use for all layers within the ggpacket
...	additional arguments passed to all bundled ggplot layers, and will be overwritten by layer-specific arguments if provided.
.id	an optional identifier tag for the ggpacket, used for filtering arguments and aesthetics that are propagated into the contained ggplot layers.

Value

A new ggpacket object with the new defaults applied

ggpacket_plus_ANY	<i>Swallow calls when a ggpacket is added to any expression</i>
-------------------	---

Description

Swallow calls when a ggpacket is added to any expression

Usage

```
ggpacket_plus_ANY(e1, e2)
```

Arguments

e1	A ggpacket object.
e2	Any object.

gg_plus_ggpacket	<i>Add a gg object to a ggpacket object</i>
------------------	---

Description

Add a gg object to a ggpacket object

Usage

```
gg_plus_ggpacket(e1, e2)
```

Arguments

e1	A ggplot ggproto object.
e2	A ggpacket object.

handle_reset_mapping	<i>Specific handling of ..reset.. aesthetic</i>
----------------------	---

Description

Specific handling of ..reset.. aesthetic

Usage

```
handle_reset_mapping(mapping)
```

Arguments

mapping	A ggplot2 aesthetic mapping.
---------	------------------------------

length,ggpacket-method	<i>Get the number of ggcalls within a ggpacket</i>
------------------------	--

Description

Get the number of ggcalls within a ggpacket

Usage

```
## S4 method for signature 'ggpacket'  
length(x)
```

Arguments

x	A ggpacket object
---	-------------------

match_unnamed_args	<i>Match unnamed arguments</i>
--------------------	--------------------------------

Description

Similar to `match.call`, but without evaluating arguments, avoiding possible syntactic errors that would arise due to `ggpackets`-specific syntax.

Usage

```
match_unnamed_args(f, args, envir = parent.frame())
```

Arguments

<code>f</code>	A function to match arguments against.
<code>args</code>	A list of arguments to match.
<code>envir</code>	An environment in which the function should be matched.

<code>names,ggpacket-method</code>	<i>Fetch the ids associated with each ggcall</i>
------------------------------------	--

Description

Fetch the ids associated with each `ggcall`

Usage

```
## S4 method for signature 'ggpacket'  
names(x)
```

Arguments

<code>x</code>	A <code>ggpacket</code> object
----------------	--------------------------------

`only_formals_and_dots` *Filter for only arguments that can be accepted by a given function*

Description

Filter for only arguments that can be accepted by a given function

Usage

```
only_formals_and_dots(f, args)
```

Arguments

<code>f</code>	A function to filter on.
<code>args</code>	A list of arguments to filter.

`required_aesthetics` *Check a ggpacket object for required aesthetic arguments*

Description

Check a ggpacket object for required aesthetic arguments

Usage

```
required_aesthetics(x)
```

Arguments

<code>x</code>	A ggpacket object or related ggplot component
----------------	---

`self` *Returning the calling object from within a function*

Description

Used for retrieving an S4 object being called as though it is a function

Usage

```
self(which = -1L)
```

Arguments

<code>which</code>	A relative environment offset in which to search for an object with a name of the calling expression.
--------------------	---

`smart_swap_mapping_data`*Mimic ggplot2 behavior of intelligently interpreting first layer argument*

Description

Like ggplot, if the first argument doesn't appear to be an aesthetic mapping, despite mappings being appropriately passed in the first argument, swap the first two arguments.

Usage

```
smart_swap_mapping_data(args)
```

Arguments

`args` a list of arguments to interpret

`substitute_ggcall_dot_aes`*Substitute a ggcall's dot aesthetics with their redirected values*

Description

Substitute a ggcall's dot aesthetics with their redirected values

Usage

```
substitute_ggcall_dot_aes(mapping, ggcall, envir = parent.frame())
```

Arguments

`mapping` A ggplot2 aesthetic mapping.
`ggcall` A ggcall list of expressions.
`envir` An environment in which the dot aesthetics should be evaluated.

substitute_quote	<i>Substitute a quoted expression in a given environment</i>
------------------	--

Description

Substitute a quoted expression in a given environment

Usage

```
substitute_quote(q, env = parent.frame())
```

Arguments

q	A quote to evaluate.
env	An environment in which the quote should be evaluated.

update_data	<i>Reduce data parameters, iteratively applying functions or masking</i>
-------------	--

Description

Reduce data parameters, iteratively applying functions or masking

Usage

```
update_data(d1, d2, ...)
```

Arguments

d1	A plot data object to update
d2	A second plot data object with which to update d1
...	Additional objects to sequentially collapse.

update_mapping	<i>Reduce a list of mappings, iteratively routing aesthetics</i>
----------------	--

Description

Reduce a list of mappings, iteratively routing aesthetics

Usage

```
update_mapping(...)
```

Arguments

...	A series of mappings to be sequentially collapsed
-----	---

`with_ignore_unknown_params`*Evaluate an expression, ignoring warnings about unknown parameters*

Description

Evaluate an expression, ignoring warnings about unknown parameters

Usage

```
with_ignore_unknown_params(expr, envir = parent.frame())
```

Arguments

<code>expr</code>	An expression to evaluate.
<code>envir</code>	An environment to evaluate the given expression in.

`with_ignore_unused_argument`*Evaluate a call, ignore base R errors for unused arguments*

Description

In actuality, the expression is repeatedly called while catching errors and removing error-causing arguments.

Usage

```
with_ignore_unused_argument(call, envir = parent.frame())
```

Arguments

<code>call</code>	A call to evaluate.
<code>envir</code>	An environment to evaluate the given expression in.

[,ggpacket-method	<i>Index into a ggpacket object</i>
-------------------	-------------------------------------

Description

Index into a ggpacket object

Usage

```
## S4 method for signature 'ggpacket'
x[i, j, ..., drop = TRUE]
```

Arguments

x	A ggpacket object.
i	A character or numeric vector for indexing.
j	Unused.
...	Unused.
drop	Unused.

[.ggpacket	<i>Subset a ggpacket for a selection of ggcalls</i>
------------	---

Description

Subset a ggpacket for a selection of ggcalls

Usage

```
## S3 method for class 'ggpacket'
x[i, ...]
```

Arguments

x	A ggpacket to subset.
i	A vector upon which to subset the ggpacket ggcalls.
...	Additional arguments unused.

[[.ggpacket-method	<i>Index into a ggpacket object</i>
--------------------	-------------------------------------

Description

Index into a ggpacket object

Usage

```
## S4 method for signature 'ggpacket'
x[[i, j, ...]]
```

Arguments

x	A ggpacket object.
i	A character or numeric value for indexing.
j	Unused.
...	Unused.

[[.ggpacket	<i>Subset a ggpacket for a selection of ggcalls</i>
-------------	---

Description

Subset a ggpacket for a selection of ggcalls

Usage

```
## S3 method for class 'ggpacket'
x[[i, ...]]
```

Arguments

x	A ggpacket to subset.
i	A vector upon which to subset the ggpacket ggcalls.
...	Additional arguments unused.

%+%	<i>Lazy handler for ggplot addition</i>
-----	---

Description

Lazy handler for ggplot addition

Usage

e1 %+% e2

Arguments

- e1 Addition lhs.
- e2 Addition rhs.

Value

A new ggpacket object with e2 appended as an additional layer or layers.

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