Package ‘ggpackets’

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ggpackets: Package Plot Layers for Easier Portability and Modularization

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.

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See Also
Useful links:
- https://github.com/dgkf/ggpackets
- https://dgkf.github.io/ggpackets/
- Report bugs at https://github.com/dgkf/ggpackets/issues
Examples

```r
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 = "ggapackets")
```

(all_aesthetics)

Extracted .all_aesthetics from internal ggplot2 with hardcoded fallback

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

x  A ggpacket object

collapse_data  Collapsed data arguments

Description

Reduce data arguments using update_data

Usage

collapse_data(args)

Arguments

args  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  

**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  Remove arguments with duplicated names

**Description**
Remove arguments with duplicated names

**Usage**
deduplicate_params(args)

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

expand_dots  Expand dot arguments into named arguments

**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.
filter_by_ggcall_ids  
*Filter a named list by ids*

**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**

- `x`: A named list to filter.
- `call_ids`: A character vector of valid ids.
- `all_ids`: A character vector of all possible ids.

---

ggpacket  
*A container for lazy ggplot layers*

**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**

- `...`: Arguments passed on to `ggpacket_call`
- `data`: The data argument to use for all layers within the `ggpacket`
- `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 `..reset..` to any aesthetic field will return the propagated aesthetic mapping to a default, unmapped state for that layer.
- `.id`: An optional identifier tag for the `ggpacket`, used for filtering arguments and aesthetics that are propagated into the contained `ggplot` 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 preferrable 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.

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

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

gcalls  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", size = 2, point.size = 4)
```
### ggpacket-class

A `ggpacket` object

### Description

A `ggpacket` object

Add a `ggpacket` object to another, arbitrary object

Display contents of a `ggpacket`

### Usage

```r
## 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

The function used when a `ggpacket` is called as a function

### Description

The function used when a `ggpacket` is called as a function

### Usage

```r
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 `.reset` 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

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.

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  Specific handling of ..reset.. aesthetic

Description
Specific handling of ..reset.. aesthetic

Usage
handle_reset_mapping(mapping)

Arguments
mapping  A ggplot2 aesthetic mapping.

length.ggpacket-method  Get the number of ggcalls within a ggpacket

Description
Get the number of ggcalls within a ggpacket

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

Arguments
x  A ggpacket object
Description

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

Usage

```r
call_unnamed_args(f, args, envir = parent.frame())
```

Arguments

- **f**: A function to match arguments against.
- **args**: A list of arguments to match.
- **envir**: An environment in which the function should be matched.

Description

Fetch the ids associated with each ggcall

Usage

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

Arguments

- **x**: A ggpacket 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**

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

**Arguments**

- `f`  
  A function to filter on.
- `args`  
  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**

```r
required_aesthetics(x)
```

**Arguments**

- `x`  
  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**

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

**Arguments**

- `which`  
  A relative environment offset in which to search for an object with a name of the calling expression.
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 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**  
*Substitute a quoted expression in a given environment*

**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**  
*Reduce data parameters, iteratively applying functions or masking*

**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**  
*Reduce a list of mappings, iteratively routing aesthetics*

**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**

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

**Arguments**

- **expr**: An expression to evaluate.
- **envir**: An environment to evaluate the given expression in.

---

**[,]ggpacket-method**

Index into a ggpacket object

**Description**

Index into a ggpacket object

**Usage**

```r
## 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.
Description

Subset a ggpacket for a selection of ggcalls

Usage

```r
## 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.

Description

Index into a ggpacket object

Usage

```r
## 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]

**Subset a ggpacket for a selection of ggcalls**

---

**Description**

Subset a ggpacket for a selection of ggcalls

**Usage**

```r
## 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.

---

**%+%**

*Lazy handler for ggplot addition*

---

**Description**

Lazy handler for ggplot addition

**Usage**

```r
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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