Package ‘ggtikz’

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discretize  
Replace Infinites by discrete values

Description
The replacement values correspond to the edges of the available coordinate space

Usage
discretize(coord_values, xrange, yrange)

Arguments
coord_values  numeric. The coordinate x and y values, potentially containing Inf or -Inf
xrange         Numeric vector of length 2, minimum and maximum values in the x direction
yrange         Numeric vector of length 2, minimum and maximum values in the y direction

get_padding_from_elements
Calculate length of padding from plot elements

Description
To prevent overlap with panel borders or axis lines, annotations are clipped to a viewport that is reduced in size by the width of these lines. They depend on the current plot theme.

Usage
get_padding_from_elements(
  gg_plot,
  elements_t,
  elements_r,
  elements_b,
  elements_l
)
Arguments

- `gg_plot`: A ggplot2 object.
- `elements_t`: character vector with names of elements to consider for padding at the top.
- `elements_r`: character vector with names of elements to consider for padding on the right.
- `elements_b`: character vector with names of elements to consider for padding at the bottom.
- `elements_l`: character vector with names of elements to consider for padding on the left.

Value

A vector grid::units of paddings for t, r, b, l (in pt)

See Also

- `uninfinite_coord` for construction of the complete replaced coordinate.

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**ggtikz**

Create a canvas and add a TikZ annotation.

**Description**

This is a helper function for quick one-step annotations. It creates a ggtikzCanvas from a ggplot, adds one annotation to it, and optionally draws the plot and the annotations.

**Usage**

```r
ggtikz(gg_plot, ..., draw = TRUE)
```

**Arguments**

- `gg_plot`: A ggplot object on which annotations should be made.
- `...`: Passed to `ggtikzAnnotation`.
- `draw`: TRUE or FALSE. Should `gg_plot` and the resulting annotation be drawn immediately? A tikz device needs to be open.

**Details**

For finer control, see `ggtikzCanvas()` and `ggtikzAnnotation()`.

**Value**

A `ggtikzCanvas` object with one `ggtikzAnnotation` (specified in ...) already added. If `draw` = TRUE, the `gg_plot` and the annotations are drawn to the currently active device. This must be a tikzDevice, or an error will be raised.
See Also

`ggtikzCanvas` for creating a canvas which can store multiple annotations.

`ggtikzAnnotation` for creating an annotation, which can then be added to a canvas.

Examples

```r
## Not run:
library(ggplot2)
library(tikzDevice)
library(ggtikz)
p <- ggplot(mtcars, aes(disp, mpg)) + geom_point()
out <- tempfile(fileext = ".tikz")
tikz(out)
# Add a red circle in the middle of the plot.
ggtikz(p, "\\fill[red] (0.5,0.5) circle (2mm);", xy="plot")
dev.off()
## End(Not run)
```

---

**ggtikzAnnotation**  
Prepare a TikZ annotation for a ggplot.

Description

`ggtikzAnnotation` objects are meant to be added to a `ggtikzCanvas` object.

Usage

```r
ggtikzAnnotation(
  tikz_code,
  x = c("data", "panel"),
  y = c("data", "panel"),
  xy = NULL,
  panelx = NULL,
  panely = NULL,
  transform = TRUE,
  replace_inf = TRUE,
  clip = "on"
)
```

Arguments

- **tikz_code**: The tikz code to use for annotation. Backslashes must be escaped!
- **x**: Reference frame for the x coordinates. Either "data" or "panel".
- **y**: Reference frame for the y coordinates. Either "data" or "panel".
- **xy**: Reference frame for both x and y coordinates. Trumps x and y. Either "data" or "panel" or "plot".
panelx  x position of the panel to use as coordinate reference, starting from the left, 1-based.
panely  y position of the panel to use as coordinate reference, starting from the top, 1-based.
transform Should TikZ coordinates be transformed according to the scale transformation? If TRUE, coordinates in \texttt{tikz\_code} are replaced by the transformation of the x/y scale, as appropriate. Coordinates components with physical lengths are not changed. See \texttt{ggtikzTransform} for details.
replace\_inf Should annotation coordinates containing ’Inf’ or ‘-Inf’ be adjusted so these values correspond to the edge of the available space? This is analogous to the behavior of \texttt{ggplot} when infinite values are encountered. See also \texttt{ggtikzUninfinite}
clip Should annotations be clipped to the panel boundaries? See the clip argument to \texttt{viewport}

Details
This function prepares TikZ annotations in a form understandable to a \texttt{ggtikzCanvas} object. An annotation can be added to multiple \texttt{ggtikzCanvas} objects, provided that each underlying \texttt{ggplot} object has the necessary panels to know what to do with this information.

Value
A \texttt{ggtikzAnnotation} object, which can be added to a \texttt{ggtikzCanvas} object.

See Also
\texttt{grid.tikzAnnotate} for annotation of base graphics
\texttt{ggtikz} for a helper function for quick one-step annotations.
\texttt{ggtikzCanvas} for information about initiating the annotation process.

---

\texttt{ggtikzCanvas} Create a canvas to store TikZ annotations to a ggplot.

Description
Annotations can be made relative to the whole plot, to a panel, or to data coordinates (of individual panels).

Usage
\texttt{ggtikzCanvas(gg\_plot)}

Arguments
\texttt{gg\_plot} A ggplot object on which annotations should be made.
Details

This function provides a canvas for TikZ annotations, and does not draw anything by itself. Its purpose is to provide information about the underlying ggplot object for coordinate calculations.

Value

A ggtikzCanvas object, to which annotations can be added.

See Also

grid.tikzAnnotate for annotation of base graphics.
ggtikz for a helper function for quick one-step annotations.
ggtikzAnnotation for more information about creating and adding ggtikz annotations.

Examples

## Not run:
library(ggplot2)
library(tikzDevice)
library(ggtikz)
p <- ggplot(mtcars, aes(disp, mpg)) + geom_point()

# Create a TikZ canvas on the plot
canvas <- ggtikzCanvas(p)

# Create annotations to add to the canvas

# Circle in the center of the plot
annotation1 <- ggtikzAnnotation(
  \"\fill[red] (0.5,0.5) circle (2mm);\",
  xy = "plot"
)

# Arrow to data coordinate (400,20)
annotation2 <- ggtikzAnnotation(
  \"\draw[<->] (400,20) -- ++(0,2.5);\",
  xy = "data", panelx = 1, panely = 1)

out <- tempfile(fileext = ".tikz")
tikz(out)
# First, draw the original plot
p
# Then, add the annotations to the canvas and draw it
canvas + annotation1 + annotation2

## End(Not run)
ggtikzTransform: Transform TikZ coordinates according to scale transformations

**Description**

ggtikzTransform extracts coordinates definitions in an annotation’s TikZ code and transforms them with the transformer functions stored in the underlying plot’s x or y scales, respectively.

**Usage**

ggtikzTransform(ggtikzCanvas, ggtikzAnnotation)

**Arguments**

- **ggtikzCanvas**: A link{ggtikzCanvas} object.
- **ggtikzAnnotation**: A link{ggtikzAnnotation} object.

**Details**

This function does not have to called directly. It is automatically called when annotations are added to a canvas, if `transform = TRUE` in the `ggtikzAnnotation` construction call.

Coordinates components with physical lengths are not changed. For a plot with a linear x scale and a log10-transformed y scale,

- the TikZ coordinate (10,10) becomes (10,1),
- the TikZ coordinate (10cm,10) becomes (10cm,1),
- the TikZ coordinate (10,10cm) becomes (10,10cm)
- the TikZ coordinate (0,0) will raise an error.

**Value**

A link{ggtikzAnnotation} object, with transformations applied to the coordinates in the TikZ code.
gg_to_npc.ggtikzCanvas

Description

Convert data coordinates to npc coordinates.

Usage

## S3 method for class 'ggtikzCanvas'
gg_to_npc(self, coord, panelx, panely, ...)

Arguments

self a ggtikzCanvas object
coord A numeric vector of length 2, with the x coordinate to convert at coord[1] and the y coordinate to convert at coord[2]
panelx X position (column) of the panel holding the data
panely X position (row) of the panel holding the data
... unused
**set_ggtikz_unclip_hook**

**Value**

The input coordinates from `coord` converted to npc coordinates in the form of a numeric vector of length 2. (0,0) corresponds to the lower left corner of the viewport containing the `ggplot` panel specified by `panelx` and `panely`, and (1,1) corresponds to the upper right corner.

---

**Description**

By default, plots produced with the tikzDevice are clipped to the plot area, which also clips `ggtikz` annotations extending beyond the plot boundaries. This function removes the `clip` and `use as bounding box` options in a tikz file.

**Usage**

```r
set_ggtikz_unclip_hook()

unset_ggtikz_unclip_hook()
```

**Value**

Called for side effects - the `unclip` knitr hook is set or unset, respectively.

**See Also**

`unclip`, the hook that is being set.

---

**split_coord**

*Split a TikZ coordinate.*

**Description**

Split a TikZ coordinate.

**Usage**

```r
split_coord(coord)
```

**Arguments**

- `coord` Coordinate string of the form "(x,y)"

**Value**

A character vector of length 2: The x and y components of the coordinate. These may contain spaces.
### tikz_exts_pattern

*Construct a regex pattern for possible tikzDevice extensions.*

**Description**

Construct a regex pattern for possible tikzDevice extensions.

**Usage**

`tikz_exts_pattern(options)`

**Arguments**

- **options**
  
  A list of knitr chunk options

**Value**

A regex pattern to match file extensions of tikz figures

---

### unclip

*knitr hook to remove clipping from plots produced with the tikzDevice.*

**Description**

Note that the chunk options `unclip = TRUE` and `external = FALSE` must be set for the hook to come into effect!

**Usage**

`unclip(before, options)`

**Arguments**

- **before**
  
  see `knit_hooks`

- **options**
  
  see `knit_hooks`

**Value**

Called for side effect. The files containing tikz plots are edited and overwritten.

**See Also**

- `set_ggtikz_unclip_hook` to set the knitr hook.
- `unclip_tikz`, the workhorse function for this hook.
unclip_tikz

Unclip a plot produced by the tikzDevice.

Description

By default, plots produced with the tikzDevice are clipped to the plot area, which also clips ggplot2 annotations extending beyond the plot boundaries. This function removes the ‘clip’ and ‘use as bounding box’ options in a tikz file.

Usage

unclip_tikz(fpath)

Arguments

fpath Path to the tikz file

Details

This function can be used for manual post-processing, however, see set_ggtikz_unclip_hook to set the corresponding knitr hook.

Value

Called for side effect. The file at fpath is edited and overwritten.

See Also

set_ggtikz_unclip_hook to set the knitr hook.

uninfinite_coord

Replace infinite values in TikZ coordinates

Description

Infinite values are replaced with the minimum or maximum value of the padding in the x or y direction, respectively. Additionally, the adjusted coordinate is padded so that it lies just next to the panel borders and axis lines without overlap.

Usage

uninfinite_coord(coord, xrange, yrange)

uninfinite_tikz(tikz_code, xrange, yrange)
Arguments

- **coord**: TikZ coordinate
- **xrange**: Numeric vector of length 2, minimum and maximum values in the x direction
- **yrange**: Numeric vector of length 2, minimum and maximum values in the y direction
- **tikz_code**: The TikZ code to replace Infinite values in.

Value

The adjusted TikZ coordinate with padding, as a string.
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