Package 'gghilbertstrings'

October 13, 2022

Title A Fast 'ggplot2'-Based Implementation of Hilbert Curves

Version 0.3.3

Description A set of functions that help to create plots based on Hilbert curves.
Hilbert curves are used to map one dimensional data into the 2D plane.
The package provides a function that generate a 2D coordinate from an
integer position. As a specific use case the package provides a function
that allows mapping a character column in a data frame into 2D space
using 'ggplot2'. This allows visually comparing long lists of URLs, words,
genes or other data that has a fixed order and position.

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Encoding UTF-8

RoxygenNote 7.1.1

URL <https://github.com/Sumidu/gghilbertstrings>

BugReports <https://github.com/Sumidu/gghilbertstrings/issues>

SystemRequirements C++11

Imports ggplot2, dplyr, magrittr, tibble, lifecycle, Rcpp, rlang

Suggests testthat, covr, spelling, profvis

Language en-US

RdMacros lifecycle

LinkingTo Rcpp

NeedsCompilation yes

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Repository CRAN

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R topics documented:

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create_coordinates   *Function to create coordinates for a Hilbert Curve This functions adds three columns to a data frame: reld, x, y*

Description

Function to create coordinates for a Hilbert Curve This functions adds three columns to a data frame: reld, x, y

Usage

```
create_coordinates(df, idcol)
```

Arguments

df   the dataframe to use

idcol   the column to use for mapping

Value

a data frame with three additional columns

Examples

```
mtcars %>% tibble::rownames_to_column() %>% create_id_column(rowname) %>% create_coordinates(gghid)
```

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create_id_column *Function to create an id column from a character column*

Description

Function to create an id column from a character column

Usage

```
create_id_column(df, col)
```

Arguments

df   the dataframe that is used

col   the column name in NSE format that should be converted

Value

a dataframe with an additional gghid column

Examples

```
mtcars %>% tibble::rownames_to_column() %>% create_id_column(rowname)
```

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d2xy *Returns the x/y-position for a distance d in n possible values*

Description

Returns the x/y-position for a distance d in n possible values

Usage

```
d2xy(n, d)
```

Arguments

n   First value
d   Second value

Value

Vector of x y

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d2xy2 *Returns the x/y-position for a Vector of distances d in n possible values*

Description

Returns the x/y-position for a Vector of distances d in n possible values

Usage

```
d2xy2(n, d)
```

Arguments

n	Size of
d	Second value

Value

Matrix of x y values

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gghilbertplot *Function to create the Hilbert Plot*

Description

Function to create the Hilbert Plot

Usage

```
gghilbertplot(
  df,
  idcol,
  color = NULL,
  size = NULL,
  label = NULL,
  alpha = 1,
  add_curve = FALSE,
  curve_alpha = 1,
  curve_color = "black",
  jitter = 0
)
```

Arguments

df	Data frame to generate plot from
idcol	The column name to be used for mapping (gghid)
color	The column to map to color
size	The column to map to size
label	The column that contains the label
alpha	The amount of alpha blending for the individual points
add_curve	Whether or not to add the underlying hilbert curve
curve_alpha	The amount of alpha blending for the hilbert curve
curve_color	The color of the hilbert curve
jitter	The amount of jitter to add to prevent overplotting

Value

a ggplot object

Examples

```
tibble::tibble(val = 1:128, size = runif(128, 1, 5), color = rep(c(1,2,3,4),32)) %>%
        gghilbertplot(val, color = factor(color), size = size, add_curve = TRUE)
```

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hilbertd2xy	*Hilbert conversion, distance to coordinates*

Description

Hilbert conversion, distance to coordinates

Usage

```
hilbertd2xy(n, d)
```

Arguments

n	Size (must be a 2^k value, such as 4,8,16,32)
d	A vector of values to be converted to coordinates (starts with 0)

Value

Tibble with columns x and y

Examples

```
hilbertd2xy(64,31)
```

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order4   *Finds the order of the next highest number to the power of 4*

Description

Finds the order of the next highest number to the power of 4

Usage

```
order4(n)
```

Arguments

n   number

Value

Order of next highest number 4^x

Index