

Package ‘spartyR’

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Title Plot Scaled 'ggplot' Representations of Sports Playing Surfaces

Version 1.0.1

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Description Create scaled 'ggplot' representations of playing surfaces.
Playing surfaces are drawn pursuant to rule-book specifications.
This package should be used as a baseline plot for displaying player tracking data.

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Encoding UTF-8

RoxygenNote 7.1.1

Imports ggplot2, glue, dplyr

Depends R (>= 3.3)

Suggests testthat (>= 3.0.0), vdiffr (>= 0.3.3), roxygen2

Config/testthat/edition 3

URL <https://github.com/rossdrucker/spartyR>

BugReports <https://github.com/rossdrucker/spartyR/issues>

NeedsCompilation no

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cani_color_league_features

Check to see what features of a surface can be colored by a user

Description

Check to see what features of a surface can be colored by a user

Usage

```
cani_color_league_features(league_code, sport_name = NULL)
```

Arguments

| | |
|-------------|---|
| league_code | The case-insensitive league code to be plotted |
| sport_name | The name of a sport to use in the event that the league_code supplied has more than one sport associated with it. Default: NULL |

Value

Nothing, but a message is sent to the console for the user

Examples

```
cani_color_league_features('NCAA', 'basketball')
```

cani_plot_league

Check to see if a league can be plotted, and alert the user as to which functions that league will work for

Description

Check to see if a league can be plotted, and alert the user as to which functions that league will work for

Usage

```
cani_plot_league(league_code)
```

Arguments

`league_code` The case-insensitive league code to be plotted

Value

Nothing, but a message is sent to the console for the user

Examples

```
cani_plot_league('MLB')
```

| | |
|------------------------------|---|
| <code>cani_plot_sport</code> | <i>Check to see if a sport can be plotted, and alert the user as to which leagues are plottable for the sport</i> |
|------------------------------|---|

Description

Check to see if a sport can be plotted, and alert the user as to which leagues are plottable for the sport

Usage

```
cani_plot_sport(sport)
```

Arguments

`sport` The case-insensitive sport name

Value

Nothing, but a message is sent to the console for the user

Examples

```
cani_plot_sport('basketball')
```

| | |
|---------------|---|
| convert_units | <i>Function to convert all units, regardless of starting and ending units</i> |
|---------------|---|

Description

Function to convert all units, regardless of starting and ending units

Usage

```
convert_units(meas, from_unit, to_unit, conversion_columns = NULL)
```

Arguments

| | |
|--------------------|--|
| meas | A measurement in any unit of length |
| from_unit | A string containing the original unit of measure to be converted |
| to_unit | A string containing the ending unit of measure |
| conversion_columns | A vector containing the columns to convert if meas is of type data.frame |

Value

The measurement in converted units

Examples

```
convert_units(1, 'in', 'cm')
convert_units(100, 'cm', 'm')
```

| | |
|---------------|--|
| geom_baseball | <i>Generate a ggplot2 instance containing a regulation baseball field for a specified league</i> |
|---------------|--|

Description

Generate a ggplot2 instance containing a regulation baseball field for a specified league

Usage

```
geom_baseball(league, ...)
```

Arguments

| | |
|--------|--|
| league | The league for which to draw the surface |
| ... | Additional arguments to pass to the function. These should be the colors to pass to the mlb_features_set_colors() function, or units with which to draw the plot |

Value

A ggplot2 instance with a full-surface representation of a baseball field

Examples

```
geom_baseball(league = "MLB")
```

| | |
|-----------------|---|
| geom_basketball | <i>Create a ggplot2 instance of a scale model of a basketball court</i> |
|-----------------|---|

Description

Create a ggplot2 instance of a scale model of a basketball court

Usage

```
geom_basketball(  
  league,  
  full_surf = TRUE,  
  rotate = FALSE,  
  rotation_dir = "ccw",  
  ...  
)
```

Arguments

| | |
|--------------|---|
| league | The league for which to draw the surface |
| full_surf | A boolean indicating whether or not to plot a full surface representation of the surface. Default: TRUE |
| rotate | A boolean indicating whether or not this feature needs to be rotated. Default: FALSE |
| rotation_dir | A string indicating which direction to rotate the feature. Default: 'ccw' |
| ... | Additional arguments to pass to the function. These should be the colors to pass to the <code>mlb_features_set_colors()</code> function, or units with which to draw the plot |

Value

A ggplot2 instance with a full-surface representation of a basketball court

Examples

```
geom_basketball(league = "NBA")  
geom_basketball(league = "NCAA", full_surf = FALSE)  
geom_basketball(league = "FIBA", rotate = TRUE, rotation_dir = "ccw")
```

| | |
|---------------|---|
| geom_football | <i>This draws a football field in its standard coordinate system, with (0, 0) being the bottom left corner of the left-most endzone. Each unit on the coordinate system corresponds to 1 yard. Generate a ggplot2 instance containing a regulation football field for a specified league.</i> |
|---------------|---|

Description

This draws a football field in its standard coordinate system, with (0, 0) being the bottom left corner of the left-most endzone. Each unit on the coordinate system corresponds to 1 yard. Generate a ggplot2 instance containing a regulation football field for a specified league.

Usage

```
geom_football(
  league,
  full_surf = TRUE,
  rotate = FALSE,
  rotation_dir = "ccw",
  ...
)
```

Arguments

| | |
|--------------|--|
| league | The league for which to draw the surface |
| full_surf | A boolean indicating whether or not to draw a full-surface representation of the playing surface. Default: TRUE |
| rotate | A boolean indicating whether or not this feature needs to be rotated. Default: FALSE |
| rotation_dir | A string indicating which direction to rotate the feature. Default: 'ccw' |
| ... | Additional arguments to pass to the function. These should be the colors to pass to the {league}_features_set_colors() function, (although the colors are defined in the rule book) or units with which to draw the plot |

Value

A ggplot2 instance with a full-surface representation of a football field

Examples

```
geom_football(league = "NFL")
geom_football(league = "NCAA", rotate = TRUE, rotation_dir = "ccw")
```

| | |
|-------------|--|
| geom_hockey | <i>Generate a ggplot2 instance containing an ice rink for a specified league</i> |
|-------------|--|

Description

Generate a ggplot2 instance containing an ice rink for a specified league

Usage

```
geom_hockey(  
  league,  
  full_surf = TRUE,  
  rotate = FALSE,  
  rotation_dir = "ccw",  
  ...  
)
```

Arguments

| | |
|--------------|--|
| league | The league for which to draw the surface |
| full_surf | A boolean indicating whether or not to plot a full surface representation of the surface. Default: TRUE |
| rotate | A boolean indicating whether or not the final rink plot needs to be rotated. Default: FALSE |
| rotation_dir | A string indicating which direction to rotate the final rink plot Default: 'ccw' |
| ... | Additional arguments to pass to the function. These should be the colors to pass to the {league}_features_set_colors() function, (although the colors are defined in the rule book) or units with which to draw the plot |

Value

A ggplot2 instance with a full-surface representation of an ice hockey rink

Examples

```
geom_hockey(league = "NHL")  
geom_hockey(league = "IIHF", full_surf = FALSE)  
geom_hockey(league = "NCAA", rotate = TRUE, rotation_dir = "ccw")
```

| | |
|-------------|---|
| geom_soccer | <i>Generate a ggplot2 instance containing a soccer pitch for a specified league</i> |
|-------------|---|

Description

Generate a ggplot2 instance containing a soccer pitch for a specified league

Usage

```
geom_soccer(
  league,
  touchline_length = 120,
  goal_line_length = 90,
  full_surf = TRUE,
  rotate = FALSE,
  rotation_dir = "ccw",
  ...
)
```

Arguments

| | |
|------------------|---|
| league | The league for which to draw the surface |
| touchline_length | The length of the touchline. This should be the entire length (both halves) of the pitch. Default: 120 |
| goal_line_length | The length of the goal line. Default: 90 |
| full_surf | A boolean indicating whether or not to plot a full surface representation of the surface. Default: TRUE |
| rotate | A boolean indicating whether or not this feature needs to be rotated. Default: FALSE |
| rotation_dir | A string indicating which direction to rotate the feature. Default: 'ccw' |
| ... | Additional arguments to pass to the function. These should be the colors to pass to the <code>mlb_features_set_colors()</code> function, or units with which to draw the plot |

Value

A ggplot2 instance with a full-surface representation of a soccer pitch

Examples

```
geom_soccer(league = "MLS")
geom_soccer(league = "PREMIER", rotate = TRUE, rotation_dir = "ccw")
```

| | |
|---------|---|
| reflect | <i>Perform a mathematical reflection of coordinates over a specified axis</i> |
|---------|---|

Description

Perform a mathematical reflection of coordinates over a specified axis

Usage

```
reflect(df, over_x = FALSE, over_y = TRUE)
```

Arguments

| | |
|--------|--|
| df | The data frame to reflect. It must have x and y columns |
| over_x | A boolean indicating whether or not to reflect over the x axis. Default: FALSE |
| over_y | A boolean indicating whether or not to reflect over the y axis. Default: TRUE |

Value

The reflected data frame

Examples

```
reflect(data.frame(x = 1, y = 0))
```

| | |
|---------------|---|
| rotate_coords | <i>Perform a mathematical rotation about (0, 0) of coordinates. This rotation is given as $x' = x \cos(\theta) - y \sin(\theta)$ $y' = x \sin(\theta) + y \cos(\theta)$</i> |
|---------------|---|

Description

Perform a mathematical rotation about (0, 0) of coordinates. This rotation is given as $x' = x \cos(\theta) - y \sin(\theta)$ $y' = x \sin(\theta) + y \cos(\theta)$

Usage

```
rotate_coords(df, rotation_dir = "ccw", angle = 0.5)
```

Arguments

| | |
|--------------|--|
| df | The data frame to rotate. It must have x and y columns |
| rotation_dir | The direction in which to rotate the coordinates. ccw corresponds to counter-clockwise |
| angle | the angle (in radians, divided by pi) through which to rotate the coordinates |

Value

The rotated data frame

Examples

```
rotate_coords(data.frame(x = 0, y = 1))
```

translate

Perform a mathematical translation of coordinates

Description

Perform a mathematical translation of coordinates

Usage

```
translate(df, translate_x = 0, translate_y = 0)
```

Arguments

| | |
|-------------|---|
| df | The data frame to translate It must have x and y columns |
| translate_x | The number of units (in the input data frame's units) to translate the points in the +x direction. Default: 0 |
| translate_y | The number of units (in the input data frame's units) to translate the points in the +y direction. Default: 0 |

Value

The translated data frame

Examples

```
translate(data.frame(x = 0, y = 1), translate_x = 1)  
translate(data.frame(x = 0, y = 1), translate_y = 1)
```

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