Package 'ggsoccer'

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Title Plot Soccer Event Data

Version 0.2.0

Description The 'ggplot2' package provides a powerful set of tools
for visualising and investigating data. The 'ggsoccer' package provides a
set of functions for elegantly displaying and exploring soccer event data
with 'ggplot2'. Providing extensible layers and themes, it is designed to
work smoothly with a variety of popular sports data providers.

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URL <https://torvaney.github.io/ggsoccer/>,
<https://github.com/Torvaney/ggsoccer>

Language en-GB

Depends R (>= 3.3.0)

Imports ggplot2, rlang

RoxygenNote 7.2.3

Encoding UTF-8

BugReports <https://github.com/Torvaney/ggsoccer/issues>

Suggests testthat (>= 2.1.0), pkgdown

NeedsCompilation no

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Repository CRAN

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Contents

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annotate_pitch   *Adds soccer pitch markings as a layer for use in a ggplot plot.*

Description

Adds soccer pitch markings as a layer for use in a ggplot plot.

Usage

```
annotate_pitch(
  colour = "dimgray",
  fill = "white",
  limits = TRUE,
  dimensions = pitch_opta,
  goals = goals_box,
  linewidth = 0.5,
  alpha = 1,
  linetype = "solid"
)
```

Arguments

colour	Colour of pitch outline.
fill	Colour of pitch fill.
limits	Whether to adjust the plot limits to display the whole pitch.
dimensions	A list containing the pitch dimensions to draw. See help(pitch_opta).
goals	A function for generating goal markings. Defaults to goals_box. See help(goals_box). Formulas are turned into functions with rlang::as_function.
linewidth	The linewidth of the pitch markings
alpha	The transparency of the pitch markings and fill
linetype	The linetype of the pitch markings (e.g. "dotted")

Value

list of ggplot geoms to be added to a ggplot plot

Examples

```
library(ggplot2)

shots_data <- data.frame(x = c(90, 85, 82, 78, 83),
                         y = c(43, 40, 52, 56, 44))

ggplot(shots_data, aes(x = x, y = y)) +
  annotate_pitch() +
  geom_point()
```

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direction_label	*Adds an arrow indicating the direction of play to a ggplot plot*

Description

Adds an arrow indicating the direction of play to a ggplot plot

Usage

```
direction_label(
  x_label = 50,
  y_label = -3,
  label_length = 20,
  colour = "dimgray",
  linewidth = 0.5,
  linetype = "solid",
  text_size = 3
)
```

Arguments

x_label	x position of the centre of the arrow on the plot
y_label	y position of the arrow on the plot
label_length	length of arrow (in x axis units)
colour	colour of the arrow and text
linewidth	thickness of the arrow
linetype	linetype of the arrow
text_size	size of label text (passed onto geom_text)

Value

list of ggplot layers to be added to a ggplot plot

Examples

```
library(ggplot2)

shots_data <- data.frame(x = c(90, 85, 82, 78, 83),
                         y = c(43, 40, 52, 56, 44))

p <- ggplot(shots_data, aes(x = x, y = y)) +
  annotate_pitch() +
  geom_point()

# Add direction of play label
p + direction_label()
```

---

goals_box   *Goals markings*

Description

Various functions can be supplied to `annotate_pitch` to specify the appearance of goals in the resulting plot.

Usage

```
goals_box(
  colour,
  fill,
  dimensions,
  linewidth = 1,
  alpha = 1,
  linetype = "solid",
  offset = 2,
  ...
)

goals_strip(
  colour,
  fill,
  dimensions,
  linewidth = 1,
  alpha = 1,
  linetype = "solid",
  offset = 1,
  lineend = "round",
  ...
)
```

```
goals_line(
  colour,
  fill,
  dimensions,
  ...,
  linewidth = 1,
  linetype = NULL,
  relative_width = 3
)
```

Arguments

colour	Colour of pitch outline.
fill	Colour of pitch fill.
dimensions	A list containing the pitch dimensions to draw. See help(pitch_opta).
linewidth	Determines line thickness in goals_strip and goals_line.
alpha	Determines alpha in goals_box.
linetype	Determines linetype in goals_box and goals_strip.
offset	Determines how deep the goal extends.
...	Passed onto underlying ggplot2::annotate calls.
lineend	Determines lineend in goals_strip and goals_line.
relative_width	Determines relative width of the goal marking to the pitch markings in goals_line.

Details

Each function takes colour, fill, and dimensions arguments. User-defined functions with the same arguments can also be used

Value

list of ggplot geoms to be added to a ggplot plot

Examples

```
library(ggplot2)

shots_data <- data.frame(x = c(90, 85, 82, 78, 83),
                         y = c(43, 40, 52, 56, 44))

# Default
ggplot(shots_data, aes(x = x, y = y)) +
  annotate_pitch(goals = goals_box) +
  geom_point()

# Other goals markings
ggplot(shots_data, aes(x = x, y = y)) +
  annotate_pitch(goals = goals_strip) +
  geom_point()
```

```
# Partial functions can be used to customise further
ggplot(shots_data, aes(x = x, y = y)) +
  annotate_pitch(goals = ~ goals_box(..., offset = 4)) +
  geom_point()
```

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make_pitch_tracab   *Create Tracab dimensions object from pitch length and width*

Description

When the actual length and width of a pitch are known, for example from Tracab file metadata,
make_pitch_tracab can be used to replace the 105m x 68m defaults hardcoded in pitch_tracab.
The remaining pitch markings are taken from the UEFA Category 4 standard (pitch_international).

Usage

```
make_pitch_tracab(length = 105, width = 68)
```

Arguments

length   Length of the pitch in metres

width   Width of the pitch in metres

Value

A named list of pitch marking coordinates.

See Also

pitch_tracab

Examples

```
library(ggplot2)
library(ggsoccer)

ggplot() +
  annotate_pitch(dimensions = make_pitch_tracab(110, 70)) +
  theme_pitch()
```

---

pitch_opta   *Pitch dimensions*

Description

The coordinate system used to generate pitch markings in can be customised by supplying a pitch specification to the dimensions argument of annotate_pitch.

ggsoccer provides pitch specifications for a few popular data providers by default. However, user-defined specifications can also be used.

Usage

```
pitch_opta

pitch_statsperform

pitch_statsbomb

pitch_wyscout

pitch_international

pitch_tracab

pitch_impect
```

Format

An object of class list of length 10.
An object of class list of length 10.
An object of class list of length 11.
An object of class list of length 10.
An object of class list of length 11.
An object of class list of length 11.
An object of class list of length 11.

Details

A "pitch specification" is simply a list of dimensions that define a coordinate system. The required dimensions are:

- "length": The length of the pitch from one goal to the other (x axis)
- "width": The width of the pitch from touchline to the other (y axis)
- "penalty_box_length": The distance from the goalline to the edge of the penalty area

- "penalty_box_width": The width of the penalty area
- "six_yard_box_length": The distance from the goalline to the edge of the six-yard box
- "six_yard_box_width": The width of the six-yard box
- "penalty_spot_distance": The distance from the goalline to the penalty spot
- "goal_width": The distance from one goal post to the other
- "origin_x": The minimum x coordinate of the pitch
- "origin_y": The minimum y coordinate of the pitch
- "penalty_arc_radius": The radius of the arc above the penalty box (Optional). Defaults to `penalty_spot_distance`

The following pitch dimensions are provided:

- "pitch_statsperform": For StatsPerform/Opta f24 data
- "pitch_opta": Alias for "pitch_statsperform"
- "pitch_statsbomb": For Statsbomb data
- "pitch_wyscout": For Wyscout data
- "pitch_international": As per UEFA Category 4 stadium regulations
- "pitch_tracab": "For ChyronHego Tracab, using the 105m x 68m default size"
- "pitch_impect": For IMPECT data

See Also

```
make_pitch_tracab
```

Examples

```
library(ggplot2)
library(ggsoccer)

ggplot() +
  annotate_pitch(dimensions = pitch_statsbomb) +
  theme_pitch()
```

---

rescale_coordinates   *Rescale x-y coordinates*

Description

Returns a list containing 2 functions to translate x and y coordinates, from one set of pitch dimensions (i.e. data provider) to another.

Any x or y coordinate is rescaled linearly between the nearest two pitch markings. For example, the edge of the penalty box and the half way-line.

Usage

```
rescale_coordinates(from, to)

rescale_international(from)
```

Arguments

from	The dimensions to convert from (see help(dimensions))
to	The dimensions to convert to (see help(dimensions))

Details

pitch_international creates a rescaler to pitch_international coordinates.

Examples

```
opta_to_wyscout <- rescale_coordinates(
  from = pitch_opta,
  to   = pitch_wyscout
)

opta_xs <- c(10, 22, 55, 78)
opta_ys <- c(10, 22, 55, 78)

opta_to_wyscout$x(opta_xs)
#> c(9.75000, 21.15152, 55.15152, 78.84848)

opta_to_wyscout$y(opta_ys)
#> c(9.004739, 20.031847, 55.172414, 79.968153)
```

---

theme_pitch	*Removes background and axes details from a ggplot plot.*

Description

Functionally very similar to ggplot2::theme_void.

Usage

```
theme_pitch(aspect_ratio = 68/105)
```

Arguments

aspect_ratio	Aspect ratio (y / x) for the plot. Use NULL to let the plot take any aspect ratio.

Value

list of ggplot themes to be added to a ggplot plot

Examples

```
library(ggplot2)

shots_data <- data.frame(x = c(90, 85, 82, 78, 83),
                         y = c(43, 40, 52, 56, 44))

p <- ggplot(shots_data, aes(x = x, y = y)) +
  annotate_pitch() +
  geom_point()

# Pitch fixed to 68/105 by default
p + theme_pitch()

# Free aspect
p + theme_pitch(aspect_ratio = NULL)
```

Index