Package ‘ggsoccer’

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Title Plot Soccer Event Data
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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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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

```r
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
direction_label

Examples

```r
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()
```

---

**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**

```r
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

```r
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**

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

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

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

```r
ggplot(shots_data, aes(x = x, y = y)) +
  annotate_pitch(goals = ~ goals_box(..., offset = 4)) +
  geom_point()
```

## 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

```r
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

```r
library(ggplot2)
library(ggsoccer)

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

Format

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

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
rescale_coordinates

- "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

The following pitch dimensions are provided
- "pitch_opta" For Opta f24 data
- "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

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

```r
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

```r
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

```r
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() +
```
\begin{verbatim}
geom_point()

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

# Free aspect
p + theme_pitch(aspect_ratio = NULL)
\end{verbatim}
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