Package ‘waffle’

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Type Package
Title Create Waffle Chart Visualizations
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Maintainer Bob Rudis <bob@rud.is>
Description Square pie charts (a.k.a. waffle charts) can be used to communicate parts of a whole for categorical quantities. To emulate the percentage view of a pie chart, a 10x10 grid should be used with each square representing 1% of the total. Modern uses of waffle charts do not necessarily adhere to this rule and can be created with a grid of any rectangular shape. Best practices suggest keeping the number of categories small, just as should be done when creating pie charts. Tools are provided to create waffle charts as well as stitch them together, and to use glyphs for making isotype pictograms.

Encoding UTF-8
Copyright file inst/COPYRIGHTS
Suggests knitr, rmarkdown, dplyr, ggthemes
Depends R (>= 3.5.0), ggplot2 (>= 3.1.0)
License GPL (>= 2)
Imports RColorBrewer, grid, gridExtra, gtable, extrafont, curl, stringr, stats, htmlwidgets, DT, plyr, rlang, utils
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**Description**

For glyphs:

- Font Awesome by Dave Gandy - http://fontawesome.io
- License: SIL OFL 1.1
- URL: http://scripts.sil.org/OFL

**Description**

‘fa5_brand’ is shorthand for "FontAwesome5Brands-Regular"

**Usage**

fa5_brand

**Format**

An object of class character of length 1.
**fa5_solid**  

*Font Awesome 5 Solid*

---

**Description**

‘fa5_solid’ is shorthand for “FontAwesome5Free-Solid“

**Usage**

fa5_solid

**Format**

An object of class character of length 1.

---

**fa_grep**  

*Search Font Awesome glyph names for a pattern*

---

**Description**

Search Font Awesome glyph names for a pattern

**Usage**

fa_grep(pattern)

**Arguments**

- **pattern**
  
  pattern to search for in the names of Font Awesome fonts

---

**fa_list**  

*List all Font Awesome glyphs*

---

**Description**

List all Font Awesome glyphs

**Usage**

fa_list()
Description

There are two special/critical aes() mappings:

- label (so the geom knows which column to map the glyphs to)
- values (which column you’re mapping the filling for the squares with)

Usage

```r
geom_pictogram(
  mapping = NULL,
  data = NULL,
  n_rows = 10,
  make_proportional = FALSE,
  flip = FALSE,
  ..., 
  na.rm = FALSE,
  show.legend = NA,
  inherit.aes = TRUE
)
```

GeomPictogram

Arguments

- mapping: Set of aesthetic mappings created by aes() or aes_.() If specified and inherit.aes = TRUE (the default), it is combined with the default mapping at the top level of the plot. You must supply mapping if there is no plot mapping.
- data: The data to be displayed in this layer. There are three options:
  - If NULL, the default, the data is inherited from the plot data as specified in the call to ggplot().
  - A data.frame, or other object, will override the plot data. All objects will be fortified to produce a data frame. See fortify() for which variables will be created.
  - A function will be called with a single argument, the plot data. The return value must be a data.frame., and will be used as the layer data.
- n_rows: how many rows should there be in the waffle chart? default is 10
- make_proportional: compute proportions from the raw values? (i.e. each value n will be replaced with n/sum(n)); default is FALSE.
- flip: If TRUE, flip x and y coords. n_rows then becomes n_cols. Useful to achieve waffle column chart effect. Defaults is FALSE.
other arguments passed on to `layer()`. These are often aesthetics, used to set an aesthetic to a fixed value, like `color = "red"` or `size = 3`. They may also be parameters to the paired `geom/stat`.

`na.rm` If `FALSE`, the default, missing values are removed with a warning. If `TRUE`, missing values are silently removed.

`show.legend` logical. Should this layer be included in the legends? `NA`, the default, includes if any aesthetics are mapped. `FALSE` never includes, and `TRUE` always includes. It can also be a named logical vector to finely select the aesthetics to display.

`inherit.aes` If `FALSE`, overrides the default aesthetics, rather than combining with them. This is most useful for helper functions that define both data and aesthetics and shouldn’t inherit behaviour from the default plot specification, e.g. `borders()`.

**Format**

An object of class `GeomPictogram` (inherits from `GeomText`, `Geom`, `ggproto`, `gg`) of length 5.

---

**Description**

There are two special/critical `aes()` mappings:

- `fill` (so the geom knows which column to map the fills to)
- `values` (which column you’re mapping the filling for the squares with)

**Usage**

```r
gem_waffle(
  mapping = NULL,
  data = NULL,
  n_rows = 10,
  make_proportional = FALSE,
  flip = FALSE,
  na.rm = FALSE,
  show.legend = NA,
  radius = grid::unit(0, "npc"),
  inherit.aes = TRUE,
  ...
)
```

```
GeomWaffle
```

```r
stat_waffle(
  mapping = NULL,
  data = NULL,
```

```r
```
geom = "waffle",
n_rows = 10,
make_proportional = FALSE,
flip = FALSE,
radius = grid::unit(0, "npc"),
na.rm = FALSE,
show.legend = NA,
inherit.aes = TRUE,
...
)

StatWaffle

Arguments

mapping Set of aesthetic mappings created by aes() or aes_(). If specified and inherit.aes = TRUE (the default), it is combined with the default mapping at the top level of the plot. You must supply mapping if there is no plot mapping.

data The data to be displayed in this layer. There are three options:
If NULL, the default, the data is inherited from the plot data as specified in the call to ggplot().
A data.frame, or other object, will override the plot data. All objects will be fortified to produce a data frame. See fortify() for which variables will be created.
A function will be called with a single argument, the plot data. The return value must be a data.frame., and will be used as the layer data.
n_rows how many rows should there be in the waffle chart? default is 10
make_proportional compute proportions from the raw values? (i.e. each value n will be replaced with n/sum(n)); default is FALSE.
flip If TRUE, flip x and y coords. n_rows then becomes n_cols. Useful to achieve waffle column chart effect. Defaults is FALSE.
na.rm If FALSE, the default, missing values are removed with a warning. If TRUE, missing values are silently removed.
show.legend logical. Should this layer be included in the legends? NA, the default, includes if any aesthetics are mapped. FALSE never includes, and TRUE always includes. It can also be a named logical vector to finely select the aesthetics to display.
radius radius for round squares
inherit.aes If FALSE, overrides the default aesthetics, rather than combining with them. This is most useful for helper functions that define both data and aesthetics and shouldn't inherit behaviour from the default plot specification, e.g. borders().
... other arguments passed on to layer(). These are often aesthetics, used to set an aesthetic to a fixed value, like color = "red" or size = 3. They may also be parameters to the paired geom/stat.
geom geom to use (default is "waffle")
install_fa_fonts

Format

An object of class GeomWaffle (inherits from GeomRtile, GeomRrect, Geom, ggproto, gg) of length 5.

An object of class StatWaffle (inherits from Stat, ggproto, gg) of length 8.

Examples

data.frame(
  parts = factor(rep(month.abb[1:3], 3), levels=month.abb[1:3]),
  vals = c(10, 20, 30, 6, 14, 40, 30, 20, 10),
  fct = c(rep("Thing 1", 3), rep("Thing 2", 3), rep("Thing 3", 3))
) -> xdf

ggplot(xdf, aes(fill = parts, values = vals)) +
  geom_waffle() +
  facet_wrap(~fct)

install_fa_fonts

Install Font Awesome 5 Fonts

Description

Install Font Awesome 5 Fonts

Usage

install_fa_fonts()

iron

Veritical, left-aligned layout for waffle plots

Description

Left-align the waffle plots by x-axis. Use the pad parameter in waffle to pad each plot to the max width (num of squares), otherwise the plots will be scaled.

Usage

iron(...)

Arguments

... one or more waffle plots
Examples

```r
parts <- c(80, 30, 20, 10)
w1 <- waffle(parts, rows=8)
w2 <- waffle(parts, rows=8)
w3 <- waffle(parts, rows=8)
# print chart
## iron(w1, w2, w3)
```

---

**scale_label_pictogram**  
*Used with geom_pictogram() to map Font Awesome fonts to labels*

---

**Description**

Used with geom_pictogram() to map Font Awesome fonts to labels

**Usage**

```r
scale_label_pictogram(..., values, aesthetics = "label")
```

**Arguments**

- `...`
- `values`
- `aesthetics`

---

**theme_enhance_waffle**  
*Waffle chart theme cruft remover that can be used with any other theme*

---

**Description**

Removes:

**Usage**

```r
theme_enhance_waffle()
```

**Details**

- panel grid
- all axis text
- all axis ticks
- all axis titles
waffle  Make waffle (square pie) charts

Description

Given a named vector or a data frame, this function will return a ggplot object that represents a waffle chart of the values. The individual values will be summed up and each that will be the total number of squares in the grid. You can perform appropriate value transformation ahead of time to get the desired waffle layout/effect.

Usage

waffle(
  parts,
  rows = 10,
  keep = TRUE,
  xlab = NULL,
  title = NULL,
  colors = NA,
  size = 2,
  flip = FALSE,
  reverse = FALSE,
  equal = TRUE,
  pad = 0,
  use_glyph = FALSE,
  glyph_size = 12,
  glyph_font = "Font Awesome 5 Free Solid",
  glyph_font_family = "FontAwesome5Free-Solid",
  legend_pos = "right"
)

Arguments

- **parts**: named vector of values or a data frame to use for the chart
- **rows**: number of rows of blocks
- **keep**: keep factor levels (i.e. for consistent legends across waffle plots)
- **xlab**: text for below the chart. Highly suggested this be used to give the "1 sq == xyz" relationship if it’s not obvious
- **title**: chart title
- **colors**: exactly the number of colors as values in parts. If omitted, Color Brewer "Set2" colors are used.
- **size**: width of the separator between blocks (defaults to 2)
- **flip**: flips x & y axes
- **reverse**: reverses the order of the data
by default, waffle uses \texttt{coord_equal}; this can cause layout problems, so you an
use this to disable it if you are using \texttt{ggsave} or \texttt{knitr} to control output sizes (or
manually sizing the chart)

\texttt{pad} how many blocks to right-pad the grid with

\texttt{use_glyph} use specified glyph; if using built-in Font Awesome, can be the glyph name;
otherwise, it must be the unicode glyph from the custom font the caller is using.

\texttt{glyph_size} size of the Font Awesome font

\texttt{glyph_font, glyph_font_family}

if \texttt{use_glyph} is not \texttt{FALSE}, the \texttt{glyph_font} will be looked up in the font
database and the \texttt{glyph_font_family} used as the \texttt{family} parameter to gg-
plot for font display since fonts in R, Python and anything that relies on legacy
font C libraries are woefully messed up. You may need to adjust either of these
"font" parameters depending on your system & OS version due to the fact that
font names are different even between OS versions (sometimes).

The package comes with Font Awesome and helpers for it. Use of any other
fonts requires the caller to be familiar with using fonts in R. NOT ALL FONTS
will work with ggplot2 and definitely not under all graphics devices for ggplot2.

\texttt{legend_pos} position of legend

\textbf{Details}

If a data frame is used, the first two columns should contain the desired names and the values,
respectively.

If the vector is not named or only partially named, capital letters will be used instead.

It is highly suggested that you limit the number of elements to plot, just like you should if you ever
got wasted and decided that a regular pie chart was a good thing to create and then decide to be
totally evil and make one to pollute this beautiful world of ours.

Chart title and x-axis labels are optional, especially if you’ll just be exporting to another program
for use/display.

If you specify a string (vs \texttt{FALSE}) to \texttt{use_glyph} the function will map the input to a Font Awe-
some glyph name and use that glyph for the tile instead of a block (making it more like an isotype
pictogram than a waffle chart). You’ll need to install Font Awesome 5 and use the \texttt{extrafont}
package to be able to use Font Awesome 5 glyphs. Sizing is also up to the user since fonts do not
automatically scale with graphic resize.

Glyph idea inspired by Ruben C. Arslan (@r_c_a)

\textbf{Note}

You MUST use the Font Awesome 5 fonts bundled with the package. See \texttt{install_fa_fonts}().

\textbf{Examples}

\begin{verbatim}
parts <- c(80, 30, 20, 10)
waffle(parts, rows=8)
\end{verbatim}
```
parts <- data.frame(
  names = LETTERS[1:4],
  vals = c(80, 30, 20, 10)
)

waffle(parts, rows=8)

# library(extrafont)
# waffle(parts, rows=8, use_glyph="shield")

parts <- c(One=80, Two=30, Three=20, Four=10)
chart <- waffle(parts, rows=8)
# print(chart)
```
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