Package: ggredist (via r-universe)

August 26, 2024

Title Scales, Geometries, and Extensions of 'ggplot2' for Election
Mapping

Version 0.0.2

Description Provides 'ggplot2' extensions for political map making.
Implements new geometries for groups of simple feature
geometries. Adds palettes and scales for red to blue color
mapping and for discrete maps. Implements tools for easy label
generation and placement, automatic map coloring, and themes.

Depends R (>= 2.10)

Imports grDevices, ggplot2, scales, palette

Suggests sf, geos, redist

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URL https://github.com/alarm-redist/ggredist,
https://alarm-redist.org/ggredist/

BugReports https://github.com/alarm-redist/ggredist/issues

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Repository https://alarm-redist.r-universe.dev

RemoteUrl https://github.com/alarm-redist/ggredist

RemoteRef HEAD

RemoteSha d2ebbfe595e84fe3a5a884fad14939f14e0e5832

Contents

---

cities   *U.S. Cities*

Description

This data contains the location, name, and 2020 population of U.S. cities and large towns.

Usage

```
data("cities")
```

Format

sf object

name City name.

state City state.

pop_2020 City population in 2020

GEOID Census GEOID for the corresponding Census Designated Place.

geometry The sf geometry column containing the geographic information.

Examples

```
data(cities)
```

---

geom_district *Aggregate and Plot Map Regions*

Description

Aggregates shapefile according to the group aesthetic. If just group is provided, then by default
map regions will be colored by group so that adjacent regions do not share a color (set fill to force
a particular color, or NA for no fill). If fill is provided, the values in fill will be summed within
the groups defined by group. If denom is provided, the values in denom will be summed within the
groups defined by group, and then used to divide the summed values of fill. For example, fill
and denom can be used together to plot the partisan or demographic characteristics congressional
districts (see examples).

Usage

```
geom_district(
  mapping = NULL,
  data = NULL,
  position = "identity",
  na.rm = FALSE,
  is_coverage = FALSE,
  min_col = FALSE,
  buffer = 0,
  show.legend = NA,
  inherit.aes = TRUE,
  ...
)

stat_district(
  mapping = NULL,
  data = NULL,
  geom = GeomDistrict,
  position = "identity",
  na.rm = FALSE,
  is_coverage = FALSE,
  min_col = FALSE,
  buffer = 0,
  show.legend = NA,
  inherit.aes = TRUE,
  ...
)
```

Arguments

mapping	Set of aesthetic mappings created by [aes()](#)
data	The data to be displayed in this layer

position	Position adjustment
na.rm	if TRUE, will silently remove missing values from calculations
is_coverage	As in `sf::st_union()`. May speed up plotting for large shapefiles if geos is not installed or the shapefile is not projected.
min_col	If TRUE, try to minimize the number of colors used. May be necessary for short palettes.
buffer	Optionally buffer the merged geometries. Negative values will shrink geometries towards the center and can be used for a "glowing boundary" effect (see examples).
show.legend	Should this layer be included in the legends?
inherit.aes	If FALSE, overrides the default aesthetics, rather than combining with them.
...	Passed onto the underlying geoms.
geom	The geometric object to use display the data

Value

a `ggproto` object

Examples

```
library(ggplot2)
data(oregon)

ggplot(oregon, aes(group=county)) +
    geom_district() +
    scale_fill_penn82() +
    theme_map()

ggplot(oregon, aes(group=county, fill=pop)) +
    geom_district() +
    theme_map()

ggplot(oregon, aes(group=cd_2020, fill=ndv, denom=ndv+nrv)) +
    geom_district() +
    scale_fill_party_c(limits=c(0.4, 0.6)) +
    theme_map()

ggplot(oregon, aes(group=county)) +
    geom_district() +
    geom_district(buffer=-5000, fill="#ffffffcc", color=NA) +
    scale_fill_natgeo() +
    theme_map()
```

geom_district_text   *Label Map Regions*

Description

Aggregates shapefile according to the group aesthetic and positions labels for each region defined by group. By default, labels will be sized in rough proportion to the available area.

Usage

```
geom_district_text(
  mapping = NULL,
  data = NULL,
  position = "identity",
  na.rm = FALSE,
  adjust = 1,
  check_overlap = FALSE,
  parse = FALSE,
  show.legend = NA,
  inherit.aes = TRUE,
  ...
)

geom_district_label(
  mapping = NULL,
  data = NULL,
  position = "identity",
  na.rm = FALSE,
  label.padding = ggplot2::unit(0.25, "lines"),
  label.r = ggplot2::unit(0.15, "lines"),
  label.size = 0.25,
  check_overlap = FALSE,
  parse = FALSE,
  adjust = 1,
  show.legend = NA,
  inherit.aes = TRUE,
  ...
)

stat_district_coordinates(
  mapping = NULL,
  data = NULL,
  geom = "text",
  position = "identity",
  na.rm = FALSE,
  adjust = 1,
  show.legend = NA,
```

```
    inherit.aes = TRUE,
    ...
)
```

Arguments

`mapping`	Set of aesthetic mappings created by [`aes()`](#)
`data`	The data to be displayed in this layer
`position`	Position adjustment
`na.rm`	if TRUE, will silently remove missing values from calculations
`adjust`	A multiplicative scaling factor for the default label sizes
`check_overlap`	If TRUE, text that overlaps previous text in the same layer will not be plotted.
`parse`	If TRUE, the labels will be parsed into expressions and displayed as described in [`?plotmath`](#).
`show.legend`	Should this layer be included in the legends?
`inherit.aes`	If FALSE, overrides the default aesthetics, rather than combining with them.
`...`	Passed onto the underlying geoms.
`label.padding`	Padding around label
`label.r`	Radius of rounded corners
`label.size`	Size of label border (mm)
`geom`	The geometric object to use display the data

Value

a `ggproto` object

Examples

```
library(ggplot2)
data(oregon)

ggplot(oregon, aes(group=county)) +
    geom_district() +
    geom_district_text() +
    scale_fill_randmcnally() +
    theme_map()

ggplot(oregon, aes(group=cd_2020)) +
  geom_district(lwd=0.9, color="#442222") +
  geom_district(aes(group=county), lwd=0.4, lty="dashed", fill=NA) +
  geom_district_text(aes(group=county, label=toupper(county)),
                     size=2.2, check_overlap=TRUE) +
  geom_district_text(adjust=2) +
  scale_fill_penn82() +
  theme_map()
```

---

geom_places   *Emphasize Populated Regions of a Map with greyed out Places*

Description

Identifies relevant census places and plots them.

Usage

```
geom_places(
  mapping = NULL,
  data = NULL,
  position = "identity",
  na.rm = FALSE,
  state = NULL,
  show.legend = NA,
  inherit.aes = TRUE,
  ...
)

stat_places(
  mapping = NULL,
  data = NULL,
  geom = ggplot2::GeomSf,
  position = "identity",
  na.rm = FALSE,
  state = NULL,
  show.legend = NA,
  inherit.aes = TRUE,
  ...
)
```

Arguments

mapping	Set of aesthetic mappings created by [aes()](aes())
data	The data to be displayed in this layer
position	Position adjustment
na.rm	if TRUE, will silently remove missing values from calculations
state	state to use. Guesses based on overlap if not provided.
show.legend	Should this layer be included in the legends?
inherit.aes	If FALSE, overrides the default aesthetics, rather than combining with them.
...	Passed onto the underlying geoms.
geom	The geometric object to use display the data

Value

a ggproto object

Examples

```
library(ggplot2)
data(oregon)

ggplot(oregon, aes(group = cd_2020)) +
  geom_district() +
  theme_map()
ggplot(oregon, aes(group = cd_2020)) +
  geom_district() +
  theme_map()
```

---

ggredist   *Redistricting Color Palettes*

Description

Included palettes:

- **partisan**, a perceptually uniform red-white-blue scale
- **dra**, the Dave's Redistricting App classic color palette
- **penn82**, historic categorical color palette from the 1982 published Pennsylvania congressional district map
- **randmcnally** and **natgeo**, colors taken from Rand-McNally and National Geographic political maps
- **coast** and **larch**, inspired by natural scenery
- **fivethirtyeight**, FiveThirtyEight-inspired color palette
- **wiki_dem_pres**: Wikipedia Presidential Democratic palette
- **wiki_rep_pres**: Wikipedia Presidential Republican palette
- **wiki_dem**: Wikipedia downballot Democratic palette
- **wiki_rep**: Wikipedia downballot Republican palette
- **wiki_proposal**: Wikipedia proposal support palette
- **jacksonville**, Jacksonville, FL inspired color palette
- **florida**, Florida inspired color palette
- **washington**, Washington Redistricting Commission inspired color palette
- **alaska**, Alaska inspired color palette

Usage

ggredist

Format

list of character vectors of type [palette::palette](#) (which supports a plot(), print(), and pillar generics for visualization)

Details

For details on Wikipedia-based colors, see https://en.wikipedia.org/wiki/Wikipedia:WikiProject_Elections_and_Referendums/USA_legend_colors.

Examples

```
plot(ggredist$partisan)
plot(ggredist$dra)
plot(ggredist$penn82)
plot(ggredist$randmcnally)
plot(ggredist$natgeo)
plot(ggredist$coast)
plot(ggredist$larch)
plot(ggredist$fivethirtyeight)
plot(ggredist$wiki_dem_pres)
plot(ggredist$wiki_rep_pres)
plot(ggredist$wiki_dem)
plot(ggredist$wiki_rep)
plot(ggredist$wiki_proposal)
plot(ggredist$jacksonville)
plot(ggredist$florida)
plot(ggredist$washington)
plot(ggredist$alaska)
```

---

interstates   *Insterstate Shapefile*

Description

This data contains geometry information for the U.S. Interstate Highway System. It was processed from the U.S. Census Bureau TIGER/Line Shapefile system.

Usage

```
data("interstates")
```

Format

sf object

name Census Bureau name for the interstate

geometry The sf geometry column containing the geographic information.

Examples

```
data(interstates)
```

---

label_party_margin   *Label Partisan Vote Shares*

Description

For example, a 45% Democratic vote share becomes "R+10" or "55% R".

Usage

```
label_party_margin(midpoint = 0.5, reverse = FALSE, accuracy = 1)

label_party_pct(midpoint = 0.5, reverse = FALSE, accuracy = 1)
```

Arguments

midpoint   Either 0.5, the default, or 0. For label_party_margin(), if zero, scale will
                not be doubled (0.05 becomes "D+5" with midpoint=0, while 0.55 becomes
                "D+10" with 'midpoint=0.5)

reverse   If TRUE, reverse "D" and "R".

accuracy   As with [scales::number_format](#)

Value

A labeling function

Examples

```
labeler = label_party_margin(accuracy=0.1)
labeler(c(0.3, 0.5, 0.543))
labeler = label_party_margin(reverse=TRUE)
labeler(c(0.3, 0.5, 0.543))
```

---

map_coloring *Produce a Map Coloring*

Description

Finds colors for every element of a shapefile so that adjacent elements don't have the same color.

Usage

```
map_coloring(shp, min_coloring = TRUE)
```

Arguments

shp   an sf object

min_coloring   if TRUE, try to minimize the number of colors used

Value

an integer vector of the same length as shp, corresponding to the coloring.

Examples

```
data(oregon)
or_short = oregon[30:50, ]
map_coloring(or_short)

library(ggplot2)
ggplot(or_short, aes(fill = map_coloring(or_short))) +
    geom_sf() +
    theme_map()
```

---

oregon *Oregon Redistricting File*

Description

This data contains geographic, demographic, and political information on the 1,071 census tracts of the state of Oregon.

Usage

```
data("oregon")
```

Format

sf object

county The county the tract belongs to.

cd_2020 The 2210 congressional district assignment for the tract.

pop The total population of the tract, according to the 2020 Census.

pop_white The non-Hispanic white population of the precinct.

ndv Average number of votes for Democratic candidates in recent statewide elections.

nrv Average number of votes for Republican candidates in recent statewide elections.

geometry The sf geometry column containing the geographic information.

Examples

```
data(oregon)
oregon[, 1:6]
```

---

scale_fill_538   *FiveThirtyEight scales for* ggplot2

Description

FiveThirtyEight scales for ggplot2

Usage

```
scale_fill_538(...)

scale_color_538(...)
```

Arguments

...   additional arguments to ggplot::scale_* functions

Value

ggplot scale function

Examples

```
library(ggplot2)
data(oregon)

ggplot(oregon, aes(fill = ndv / (ndv + nrv))) +
    geom_sf(size = 0) +
    scale_fill_538(name = '') +
    theme_map()
```

---

scale_fill_alaska   *Alaska Color Scales for* ggplot2

Description

Alaska Color Scales for ggplot2

Usage

```
scale_fill_alaska(...)

scale_color_alaska(...)

scale_colour_alaska(...)
```

Arguments

```
...                        Arguments passed on to ggplot2::discrete_scale()
```

Value

ggplot scale function

Examples

```
library(ggplot2)
data(oregon)

ggplot(oregon, aes(group = county)) +
    geom_district() +
    scale_fill_alaska() +
    theme_map()
```

---

scale_fill_coast   *Nature-derived Color Scales for* ggplot2

Description

Nature-derived Color Scales for ggplot2

Usage

```
scale_fill_coast(...)

scale_color_coast(...)

scale_colour_coast(...)

scale_fill_larch(...)

scale_color_larch(...)

scale_colour_larch(...)
```

Arguments

...   Arguments passed on to `ggplot2::discrete_scale()`

Value

ggplot scale function

Examples

```
library(ggplot2)
data(oregon)

ggplot(oregon, aes(group = county)) +
    geom_district() +
    scale_fill_coast() +
    theme_map()

ggplot(oregon, aes(group = county)) +
    geom_district() +
    scale_fill_larch() +
    theme_map()
```

---

scale_fill_dra   *Dave's Redistricting App classic scale for* `ggplot2`

Description

Dave's Redistricting App classic scale for `ggplot2`

Usage

```
scale_fill_dra(...)

scale_color_dra(...)

scale_colour_dra(...)
```

Arguments

...	Arguments passed on to [ggplot2::discrete_scale()](#)

Value

ggplot scale function

Examples

```
library(ggplot2)
data(oregon)

ggplot(oregon, aes(group = county, fill=county)) +
    geom_district() +
    scale_fill_dra() +
    theme_map()
```

---

scale_fill_jacksonville

Jacksonville and Florida Color Scales for ggplot2

Description

Jacksonville and Florida Color Scales for ggplot2

Usage

```
scale_fill_jacksonville(...)

scale_color_jacksonville(...)

scale_colour_jacksonville(...)

scale_fill_florida(...)

scale_color_florida(...)

scale_colour_florida(...)
```

Arguments

...   Arguments passed on to ggplot2::discrete_scale()

Value

ggplot scale function

Examples

```
library(ggplot2)
data(oregon)

ggplot(oregon, aes(group = county)) +
    geom_district() +
    scale_fill_jacksonville() +
    theme_map()

ggplot(oregon, aes(group = county)) +
    geom_district() +
    scale_fill_florida() +
    theme_map()
```

---

scale_fill_penn82   *Historical Pennsylvania Color Scale for* ggplot2

Description

Historical Pennsylvania Color Scale for ggplot2

Usage

```
scale_fill_penn82(...)

scale_color_penn82(...)

scale_colour_penn82(...)
```

Arguments

...   Arguments passed on to ggplot2::discrete_scale()

Value

ggplot scale function

Examples

```
library(ggplot2)
data(oregon)

ggplot(oregon, aes(group = county)) +
    geom_district() +
    scale_fill_penn82() +
    theme_map()
```

scale_fill_randmcnally

Rand-McNally and National Geographic Color Scales for ggplot2

Description

Rand-McNally and National Geographic Color Scales for ggplot2

Usage

```
scale_fill_randmcnally(...)

scale_color_randmcnally(...)

scale_colour_randmcnally(...)

scale_fill_natgeo(...)

scale_color_natgeo(...)

scale_colour_natgeo(...)
```

Arguments

...   Arguments passed on to [ggplot2::discrete_scale()](#)

Value

ggplot scale function

Examples

```
library(ggplot2)
data(oregon)

ggplot(oregon, aes(group = county)) +
    geom_district() +
    scale_fill_randmcnally() +
```

```
    theme_map()

ggplot(oregon, aes(group = county)) +
    geom_district() +
    scale_fill_natgeo() +
    theme_map()
```

---

scale_fill_washington   *Washington Redistricting Commission Color Scales for* ggplot2

Description

Washington Redistricting Commission Color Scales for ggplot2

Usage

```
scale_fill_washington(...)

scale_color_washington(...)

scale_colour_washington(...)
```

Arguments

...	Arguments passed on to `ggplot2::discrete_scale()`

Value

ggplot scale function

Examples

```
library(ggplot2)
data(oregon)

ggplot(oregon, aes(group = county)) +
    geom_district() +
    scale_fill_washington() +
    theme_map()
```

scale_fill_wiki_rep *Wikipedia Style Election Map scales for* ggplot2

Description

Wikipedia Style Election Map scales for ggplot2

Usage

```
scale_fill_wiki_rep(...)

scale_color_wiki_rep(...)

scale_fill_wiki_dem(...)

scale_color_wiki_dem(...)

scale_fill_wiki_rep_pres(...)

scale_color_wiki_rep_pres(...)

scale_fill_wiki_dem_pres(...)

scale_color_wiki_dem_pres(...)
```

Arguments

... additional arguments to ggplot::scale_* functions

Value

ggplot scale function

Examples

```
library(ggplot2)
data(oregon)

ggplot(oregon, aes(fill = ndv / (ndv + nrv))) +
    geom_sf(size = 0) +
    scale_fill_wiki_dem(name = 'Dem Share') +
    theme_map()
```

---

scale_party   *Partisan scales for* ggplot2

Description

Partisan scales for ggplot2

Usage

```
scale_fill_party_c(
  name = "Vote share",
  midpoint = 0.5,
  limits = 0:1,
  labels = label_party_pct(),
  oob = scales::squish,
  reverse = FALSE,
  ...
)

scale_color_party_c(
  name = "Vote share",
  midpoint = 0.5,
  limits = 0:1,
  labels = label_party_pct(),
  oob = scales::squish,
  reverse = FALSE,
  ...
)

scale_fill_party_d(labels = c("Rep.", "Dem."), reverse = FALSE, ...)

scale_color_party_d(labels = c("Rep.", "Dem."), reverse = FALSE, ...)

scale_fill_party_b(
  name = "Vote share",
  midpoint = 0.5,
  limits = 0:1,
  labels = label_party_pct(),
  oob = scales::squish,
  reverse = FALSE,
  nice.breaks = FALSE,
  ...
)

scale_color_party_b(
  name = "Vote share",
  midpoint = 0.5,
```

```
    limits = 0:1,
    labels = label_party_pct(),
    oob = scales::squish,
    reverse = FALSE,
    nice.breaks = FALSE,
    ...
)

scale_colour_party_d(labels = c("Rep.", "Dem."), reverse = FALSE, ...)

scale_colour_party_c(
    name = "Vote share",
    midpoint = 0.5,
    limits = 0:1,
    labels = label_party_pct(),
    oob = scales::squish,
    reverse = FALSE,
    ...
)

scale_colour_party_b(
    name = "Vote share",
    midpoint = 0.5,
    limits = 0:1,
    labels = label_party_pct(),
    oob = scales::squish,
    reverse = FALSE,
    nice.breaks = FALSE,
    ...
)
```

Arguments

name	Name for scale. Default is `"Vote share"`.
midpoint	Scale midpoint value. Default is `0.5`.
limits	Lower and upper limits for scale. Default is `0:1`.
labels	Function to adjust scale labels. Default is `scales::percent`.
oob	Function to deal with out of bounds. Default is `scales::squish()`.
reverse	Whether to reverse red and blue.
...	Additional arguments to `ggplot::scale_*` functions
nice.breaks	If `TRUE`, attempt to place breaks at nice values instead of exactly evenly spaced between the limits.

Value

ggplot scale function

Examples

```
library(ggplot2)
data(oregon)

ggplot(oregon, aes(fill = ndv / (ndv + nrv))) +
    geom_sf(size = 0) +
    scale_fill_party_c(limits=c(0.3, 0.7)) +
    theme_map()

ggplot(oregon, aes(fill = ndv / (ndv + nrv))) +
    geom_sf(size = 0) +
    scale_fill_party_b() +
    theme_map()
```

---

stat_cities   *Annotate a Map with Roads and Cities*

Description

Clips the interstates and cities datasets to the bounding box of the map and plots them.

Usage

```
stat_cities(
  mapping = NULL,
  data = NULL,
  geom = ggplot2::GeomSf,
  position = "identity",
  na.rm = FALSE,
  adjust = 1,
  min_pop = 1e+05,
  show.legend = NA,
  inherit.aes = TRUE,
  ...
)

stat_interstates(
  mapping = NULL,
  data = NULL,
  geom = ggplot2::GeomSf,
  position = "identity",
  na.rm = FALSE,
  show.legend = NA,
  inherit.aes = TRUE,
  ...
)
```

Arguments

`mapping`	Set of aesthetic mappings created by [aes()](#)
`data`	The data to be displayed in this layer
`geom`	The geometric object to use display the data
`position`	Position adjustment
`na.rm`	if `TRUE`, will silently remove missing values from calculations
`adjust`	A multiplicative scaling factor for the default label sizes
`min_pop`	The minimum population a city must have had in 2006 to be shown.
`show.legend`	Should this layer be included in the legends?
`inherit.aes`	If `FALSE`, overrides the default aesthetics, rather than combining with them.
`...`	Passed onto the underlying geoms.

Value

a `ggproto` object

Examples

```
library(ggplot2)
data(oregon)

ggplot(oregon, aes(group=cd_2020)) +
  geom_district() +
  stat_interstates(size=1.4, color="#0044aa55") +
  stat_cities(geom="text", min_pop=130e3, fontface="bold", adjust=0.8) +
  scale_fill_penn82() +
  theme_map()
```

---

theme_map	*Map Theme*

Description

Theme for maps which uses the `'Times'` family and has a transparent background.

Usage

```
theme_map(...)
```

Arguments

`...`	additional parameters

Value

ggplot2 theme

Examples

```
library(ggplot2)
data(oregon)

ggplot(oregon, aes(group = county)) +
    geom_district() +
    scale_fill_penn82() +
    theme_map()
```

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