Package 'mapcan'

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Type Package

Title Tools for Plotting Canadian Choropleth Maps and Choropleth Alternatives

Version 0.0.1

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Description A variety of functions that make it easy to plot standard choropleth maps as well as choropleth alternatives in 'ggplot2'.

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Encoding UTF-8

LazyData true

Depends R (>= 2.10)

RoxygenNote 6.1.1

Imports dplyr, ggplot2, magrittr

Suggests knitr

VignetteBuilder knitr

NeedsCompilation no

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Repository CRAN

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R topics documented:

census_divisions_2016   *Census divisions (2016)*

Description

A data set with geographic information for Canadian census divisions

Usage

```
census_divisions_2016
```

Format

A data.frame with 91430 rows and 13 variables:

long Longitude

lat Latitude

order Order of layers

hole Polygon hole (TRUE or FALSE)

piece Piece

id Uniquely identifies a census division (composed of the 2-digit province/territory unique identifier followed by the 2-digit census division code).

group Group

census_division_name Census division name

census_divison_type Census division type

pr_alpha Province or territory 2-letter identifier

pr_sgc_code Province Standard Geographical Classification (SGC) code.

pr_english Province name (English)

pr_french Province name (French)

Source

https://www12.statcan.gc.ca/census-recensement/2011/geo/bound-limit/bound-limit-2016-eng.cfm (under Statistics Canada Open Licence https://www.statcan.gc.ca/eng/reference/licence)

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census_divisions_2016_carto

Census divisions cartogram data frame (territories included) (2016)

Description

A data set with geographic information for Canadian census divisions, census boundary divisions distorted by population size, territories included

Usage

census_divisions_2016_carto

Format

A data.frame with 57513 rows and 18 variables:

long Longitude

lat Latitude

order Order of layers

hole Polygon hole (TRUE or FALSE)

piece Piece

census_code Uniquely identifies a census division (composed of the 2-digit province/territory unique identifier followed by the 2-digit census division code).

group Group

census_division_name Census division name

census_divison_type Census division type

pr_sgc_code Province Standard Geographical Classification (SGC) code.

population_2016 Population of census division in 2016

population_density_2016 Population density (individuals per square kilometer) in 2016

land_area_2016 Land area of census division

population_2011 Population of census division in 2011

pr_alpha Province or territory 2-letter identifier

pr_english Province name (English)

pr_french Province name (French)

Source

https://www12.statcan.gc.ca/census-recensement/2011/geo/bound-limit/bound-limit-2016-eng.cfm (under Statistics Canada Open Licence https://www.statcan.gc.ca/eng/reference/licence)

---

census_divisions_2016_noterr_carto

Census divisions cartogram data frame (territories excluded) (2016)

Description

A data set with geographic information for Canadian census divisions, census boundary divisions distorted by population size, territories excluded

Usage

census_divisions_2016_noterr_carto

Format

A data.frame with 35410 rows and 18 variables:

long Longitude

lat Latitude

order Order of layers

hole Polygon hole (TRUE or FALSE)

piece Piece

census_code Uniquely identifies a census division (composed of the 2-digit province/territory unique identifier followed by the 2-digit census division code).

group Group

census_division_name Census division name

census_divison_type Census division type

pr_sgc_code Province Standard Geographical Classification (SGC) code.

population_2016 Population of census division in 2016

population_2016 Population density (individuals per square kilometer) in 2016

land_area_2016 Land area of census division

population_2011 Population of census division in 2011

pr_alpha Province or territory 2-letter identifier

pr_english Province name (English)

pr_french Province name (French)

Source

<https://www12.statcan.gc.ca/census-recensement/2011/geo/bound-limit/bound-limit-2016-eng.cfm> (under Statistics Canada Open Licence <https://www.statcan.gc.ca/eng/reference/licence>)

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census_pop2016	*Census division population data for 2011 and 2016*

Description

A data set with population data at the census level for 2011 and 2016

Usage

```
census_pop2016
```

Format

A data.frame with 293 rows and 11 variables:

census_division_code Uniquely identifies a census division (composed of the 2-digit province/territory unique identifier followed by the 2-digit census division code).

census_division_name Census division name

census_divison_type Census division type

pr_sgc_code Province Standard Geographical Classification (SGC) code.

pr_english Province or territory name (English).

population_2016 2016 Population of Province

population_density_2016 Population density (individuals per square kilometer) in 2016

land_area_2016 Land area of census division

population_2011 2011 Population of Province

pr_alpha Province or territory 2-letter identifier

pr_french Province or territory name (French).

Source

https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/hlt-fst/pd-pl/comprehensive.cfm, (under Statistics Canada Open Licence https://www.statcan.gc.ca/eng/reference/licence)

`federal_election_results`

Canadian federal election results data

Description

A data set with information on Canadian federal election results, dating back to 1997

Usage

```
federal_election_results
```

Format

A data.frame with 37111 rows and 12 variables:

riding_name_english Federal electoral district name in English.

riding_name_french Federal electoral district name in French.

riding_code Uniquely identifies a federal electoral district (composed of the 2-digit province/territory unique identifier followed by the 3-digit federal electoral district code).

pr Province or territory name (English and French).

population Population of federal riding.

voter_turnout Voter turnout

candidate Name of winning candidate

election_year Year of election (1997, 2000, 2004, 2006, 2008, 2011, and 2015 election included.)

party Winning party in riding

pr_alpha Province or territory 2-letter identifier

pr_french Province or territory name (French).

pr_english Province or territory name (English).

pr_sgc_code Province Standard Geographical Classification (SGC) code.

Source

<http://www.elections.ca/content.aspx?section=ele&dir=pas&document=index&lang=e>, (under Open Government Licence <https://open.canada.ca/en/open-government-licence-canada>)

---

federal_ridings	*Federal ridings*

Description

A data set with geographic information for Canadian federal ridings (2013 representation order)

Usage

```
federal_ridings
```

Format

A data.frame with 46830 rows and 15 variables:

long Longitude

lat Latitude

order Order of layers

hole Polygon hole (TRUE or FALSE)

piece Piece

riding_code Uniquely identifies a federal electoral district (composed of the 2-digit province/territory unique identifier followed by the 3-digit federal electoral district code).

group Group

riding_name_english Federal electoral district name in English.

riding_name_french Federal electoral district name in French.

province_sgc_code Province Standard Geographical Classification (SGC) code

pr_english Province name (English)

pr_french Province name (French)

pr_alpha Province or territory 2-letter identifier

Source

https://www12.statcan.gc.ca/census-recensement/2011/geo/bound-limit/bound-limit-2016-eng.cfm, (under Statistics Canada Open Licence https://www.statcan.gc.ca/eng/reference/licence)

---

federal_riding_bins   *Canadian federal riding bins (used for tile plots)*

Description

A data set with coordinates for the mapcan::riding_binplot() function.

Usage

```
federal_riding_bins
```

Format

A data.frame with 944 rows and 8 variables:

y y-axis of riding bins (corresponds to longitude)

x x-axis of riding bins (corresponds to latitude)

pr_alpha Province or territory 2-letter identifier

representation_order Representation order. Specifies boundaries/number of seats for a given election (e.g. the 2015 election used the 2013 representation order, with 338 seats).

pr_french Province or territory name (French).

pr_english Province or territory name (English).

pr_sgc_code Province Standard Geographical Classification (SGC) code.

riding_code Uniquely identifies a federal electoral district (composed of the 2-digit province/territory unique identifier followed by the 3-digit federal electoral district code).

---

federal_riding_hexagons

Canadian federal riding hexagons (used for hexagonal tile plots)

Description

A data set with coordinates for the mapcan::riding_binplot() function.

Usage

```
federal_riding_hexagons
```

Format

A data.frame with 6629 rows and 15 variables:

long y-axis of riding hexagons

lat x-axis of riding hexagons

order Order of layers

hole Polygon hole (TRUE or FALSE)

piece Piece

group Group

representation_order Representation order. Specifies boundaries/seats for a given election (e.g. the 2015 election used the 2013 representation order, with 338 seats).

pr_french Province or territory name (French).

pr_english Province or territory name (English).

pr_sgc_code Province Standard Geographical Classification (SGC) code.

riding_code Uniquely identifies a federal electoral district (composed of the 2-digit province/territory unique identifier followed by the 3-digit federal electoral district code).

---

mapcan   *Canadian maps function*

Description

A function that returns a data frame with map data, for use in ggplot.

Usage

```
mapcan(boundaries, type, province = all, territories = TRUE)
```

Arguments

boundaries	Unquoted expression specifying boundary divisions. Options are `province`, `census`, and `ridings`.
type	Unquoted expression specifying type of map. Options are `standard` (for a standard geographic map), `cartogram` (for a map that alters the geography of the map based on population size at the province or census division level), and `bins` (for a binned map of federal electoral districts).
province	An unquoted expression specifying province to plot. Acceptable input is French or English province names, or two-letter provincial abbreviations. Default is to plot all provinces.
territories	A logical value indicating whether or not to include territories in the the returned data frame, default is `FALSE`

Examples

```
mapcan(boundaries = census, type = standard)
```

---

provinces_noterr_carto

Provinces and territories cartogram data (territories excluded)

Description

A data set with geographic information for Canadian provinces and territories, boundary divisions distorted by population size. Territories excluded.

Usage

```
provinces_noterr_carto
```

Format

A data.frame with 16797 rows and 11 variables:

long Longitude

lat Latitude

order Order of layers

hole Polygon hole (TRUE or FALSE)

piece Piece

pr_english Province or territory name (English).

group Group

population 2016 Population of Province

pr_alpha Province or territory 2-letter identifier

pr_french Province or territory name (French).

province_sgc_code Province Standard Geographical Classification (SGC) code

Source

https://www12.statcan.gc.ca/census-recensement/2011/geo/bound-limit/bound-limit-2016-eng.cfm, (under Statistics Canada Open Licence https://www.statcan.gc.ca/eng/reference/licence)

---

provinces_territories   *Provinces and territories standard geographic data*

Description

A data set with geographic information for Canadian provinces and territories

Usage

```
provinces_territories
```

Format

A data.frame with 37111 rows and 10 variables:

long Longitude

lat Latitude

order Order of layers

hole Polygon hole (TRUE or FALSE)

piece Piece

province_sgc_code Province Standard Geographical Classification (SGC) code

group Group

pr_english Province or territory name (English).

pr_french Province or territory name (French).

pr_alpha Province or territory 2-letter identifier

Source

<https://www12.statcan.gc.ca/census-recensement/2011/geo/bound-limit/bound-limit-2016-eng.cfm>, (under Statistics Canada Open Licence <https://www.statcan.gc.ca/eng/reference/licence>)

---

provinces_territories_carto

Provinces and territories cartogram data (territories included)

Description

A data set with geographic information for Canadian provinces and territories, boundary divisions distorted by population size. Territories included.

Usage

```
provinces_territories_carto
```

Format

A data.frame with 40064 rows and 12 variables:

long Longitude

lat Latitude

order Order of layers

hole Polygon hole (TRUE or FALSE)

piece Piece

pr_english Province or territory name (English).

group Group

population 2016 Population of Province

pr_alpha Province or territory 2-letter identifier

pr_french Province or territory name (French).

province_sgc_code Province Standard Geographical Classification (SGC) code

Source

https://www12.statcan.gc.ca/census-recensement/2011/geo/bound-limit/bound-limit-2016-eng.cfm, (under Statistics Canada Open Licence https://www.statcan.gc.ca/eng/reference/licence)

---

province_pop_annual　　　　*Annual provincial populations data frame dating back to 1971*

Description

A data set with annual information on provincial and territorial populations dating back to 1971.

Usage

```
province_pop_annual
```

Format

A data.frame with 638 rows and 3 variables:

province English name of province

population Population of province

year Year

---

quebec_provincial_results

Quebec provincial election results data

Description

A data set with information on 2018 Quebec provincial election results

Usage

quebec_provincial_results

Format

A data.frame with 125 rows and 6 variables:

party Winning party of riding.

vote_share Percentage of vote won by winning candidate.

riding_code Uniquely identifies a provincial electoral district

riding_name Riding name (lowercase)

riding_name Riding name (uppercase)

---

quebec_prov_ridings2018

Quebec provincial ridings geographic data

Description

A data set with geographic information for Quebec provincial ridings

Usage

quebec_prov_ridings2018

Format

A data.frame with 23995 rows and 11 variables:

long y-axis of riding hexagons

lat x-axis of riding hexagons

order Order of layers

hole Polygon hole (TRUE or FALSE)

piece Piece

riding_code Uniquely identifies a provincial electoral district

group Group

riding_name Riding name (lowercase)

riding_name Riding name (uppercase)

centroid_long Longitude for riding centroids (useful for labeling)

centroid_lat Latitude for riding centroids (useful for labeling)

---

quebec_riding_bins   *Quebec provincial riding bins (used for tile plots)*

Description

A data set with coordinates for the mapcan::riding_binplot() function.

Usage

```
quebec_riding_bins
```

Format

A data.frame with 125 rows and 6 variables:

y y-axis of riding bins (corresponds to longitude)

x x-axis of riding bins (corresponds to latitude)

riding_code Riding code

region Region

riding_simplified Simplified riding name

riding_name Riding name

---

quebec_riding_hexagons

Quebec provincial riding hexagons (used for hexagonal tile plots)

Description

A data set with coordinates for the mapcan::riding_binplot() function.

Usage

```
quebec_riding_hexagons
```

Format

A data.frame with 6629 rows and 15 variables:

long y-axis of riding hexagons

lat x-axis of riding hexagons

order Order of layers

hole Polygon hole (TRUE or FALSE)

piece Piece

group Group

y y-axis of riding hexagon center

x x-axis of riding hexagon center

region Region

riding_simplified Simplified riding name

riding_name Riding name

riding_code Riding code

---

riding_binplot   *Canadian federal ridings tile plot function*

Description

A function that returns a data frame with map data, for use in ggplot.

Usage

```
riding_binplot(riding_data, riding_col = riding_code, value_col,
  continuous = TRUE, arrange = FALSE, riding_border_col = "white",
  year = 2015, riding_border_size = 1, provincial = FALSE,
  shape = "square", province, legend_name = "default")
```

Arguments

riding_data	A dataframe with a continuous or categorical riding-level characteristic and a riding code variable.
riding_col	An unquoted character expression specifying the riding code variable from the dataframe provided in `riding_data`.
value_col	An unquoted character expression specifying the column or categorical riding level characteristic you would like to visualize.
continuous	logical. Specify as `FALSE` if the variable is categorical (e.g. for winning party) and `TRUE` if the variable is continuous.

arrange   logical. Specify as TRUE if variable should be ranked according to value within
                   provinces and FALSE to plot values according to riding coordinates. Because the
                   binned ridings are only a rough approximation of their actual location, arrange
                   = TRUE is often preferable.

riding_border_col
                   To ensure the appearance of stand alone tiles, set 'riding_border_col' to be the
                   same as the background colour of the plot. Default is "white".

year   Election year. Options are 1997, 2000, 2004, 2006, 2008, 2011 and 2015. This
                   will change the number of tiles to correspond to the number of ridings in the
                   election of the specified year. Default is 2015

riding_border_size
                   Change the size of tiles. Larger values make smaller tiles. Default is 1.

provincial   logical. Specify as FALSE for provincial (not federal) ridings of a single province.
                   If provincial = TRUE, specify a 2-letter provincial abbreviation for the province
                   in the province argument. Default is FALSE (i.e. the default is to provide federal
                   electoral boundaries). (Note: this argument is still in development, only Quebec
                   provincial boundaries are available at the moment.)

shape   Unquoted character expression specifying shape of tiles. Options are square and
                   hexagon, default is square.

province   An unquoted character expression specifying the 2-letter provincial abbreviation
                   of the province for which provincial electoral boundaries are desired. (Note:
                   this argument is still in development, only Quebec provincial boundaries are
                   available at the moment.)

legend_name   Quoted chacter expression specifying the title of the legend. The variable name
                   will be used as a default if no value is supplied.

Examples

```
election_2015 <- federal_election_results[federal_election_results$election_year == 2015, ]

riding_binplot(riding_data = election_2015, riding_col = riding_code,
value_col = party, continuous = FALSE, arrange = TRUE)
```

---

  riding_info   *Canadian federal riding population information*

Description

A data set with information on Canadian federal election results, dating back to 1997

Usage

```
riding_info
```

Format

A data.frame with 37111 rows and 12 variables:

party Winning party in riding

riding_code Riding code

population_2011 Population of riding in 2011

population_2016 Population of riding in 2016

Source

<http://www.elections.ca/content.aspx?section=ele&dir=pas&document=index&lang=e>, (under Open Government Licence <https://open.canada.ca/en/open-government-licence-canada>)

---

theme_mapcan *Mapcan theme*

Description

A ggplot theme that removes unnecessary components of map plots. Builds on theme_bw().

Usage

```
theme_mapcan(legend_position = "bottom", base_size = 12,
  base_family = "")
```

Arguments

legend_position

                Position of legend, default is "bottom"

base_size   Base font size (default is 12)

base_family   Base font family

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