Package ‘tricolore’

October 14, 2022

Type Package
Title A Flexible Color Scale for Ternary Compositions
Version 1.2.2
Author Jonas Schöley, Ilya Kashnitsky
Maintainer Jonas Schöley <jschoeley@gmail.com>
Description A flexible color scale for ternary compositions with options for discretization, centering and scaling.
License GPL-3
Encoding UTF-8
LazyData true
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Imports grDevices, ggplot2 (>= 3.3.0), ggtern (>= 3.3.0), shiny, assertthat
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VignetteBuilder knitr
NeedsCompilation no
Repository CRAN
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R topics documented:

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**DemoTricolore**  
*Interactive Tricolore Demonstration*

**Description**
An interactive demonstration of the tricolore color scale inspired by the colorbrewer2.org application. Helps in picking the right color scale for your data.

**Usage**
```r
demoTricolore()
```

**Value**
Opens a shiny app session.

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**euro_basemap**  
*Flat Map of European Continent*

**Description**
A ggplot object rendering a flat background map of the European continent.

**Usage**
euro_basemap

**Format**
An object of class `gg` (inherits from `ggplot`) of length 9.

**Source**
Derived from Eurostats European Geodata. (c) EuroGeographics for the administrative boundaries.  
Description

A simple-features dataframe containing the NUTS-2 level polygons of European regions along with regional compositional data on education and labor-force.

Usage

euro_example

Format

A data frame with 312 rows and 9 variables:

- **id**  NUTS-2 code.
- **name** Name of NUTS-2 region.
- **ed_0to2** Share of population with highest attained education "lower secondary or less".
- **ed_3to4** Share of population with highest attained education "upper secondary".
- **ed_5to8** Share of population with highest attained education "tertiary".
- **lf_pri** Share of labor-force in primary sector.
- **lf_sec** Share of labor-force in secondary sector.
- **lf_ter** Share of labor-force in tertiary sector.
- **geometry** Polygon outlines for regions in sf package format.

Details

Variables starting with "ed" refer to the relative share of population ages 25 to 64 by educational attainment in the European NUTS-2 regions 2016.

Variables starting with "lf" refer to the relative share of workers by labor-force sector in the European NUTS-2 regions 2016. The original NACE (rev. 2) codes have been recoded into the three sectors "primary" (A), "secondary" (B-E & F) and "tertiary" (all other NACE codes).

Source

Derived from Eurostats European Geodata. (c) EuroGeographics for the administrative boundaries.

Education data derived from Eurostats table "edat_lfse_04".
Labor-force data derived from Eurostats table "lfst_r_lfe2en2".
Tricolore

Ternary Balance Color Scale

Description

Color-code three-part compositions with a ternary balance color scale and return a color key.

Usage

Tricolore(
  df,
  p1,
  p2,
  p3,
  center = rep(1/3, 3),
  breaks = ifelse(identical(center, rep(1/3, 3)), 4, Inf),
  hue = 0.2,
  chroma = 0.7,
  lightness = 0.8,
  contrast = 0.4,
  spread = 1,
  legend = TRUE,
  show_data = TRUE,
  show_center = ifelse(identical(center, rep(1/3, 3)), FALSE, TRUE),
  label_as = ifelse(identical(center, rep(1/3, 3)), "pct", "pct_diff"),
  crop = FALSE,
  input_validation = TRUE
)

Arguments

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>df</td>
<td>Data frame of compositional data.</td>
</tr>
<tr>
<td>p1</td>
<td>Column name for variable in df giving first proportion of ternary composition (string).</td>
</tr>
<tr>
<td>p2</td>
<td>Column name for variable in df giving second proportion of ternary composition (string).</td>
</tr>
<tr>
<td>p3</td>
<td>Column name for variable in df giving third proportion of ternary composition (string).</td>
</tr>
<tr>
<td>center</td>
<td>Ternary coordinates of the color scale center. (default = 1/3, 1/3, 1/3). NA puts center over the compositional mean of the data.</td>
</tr>
<tr>
<td>breaks</td>
<td>Number of per-axis breaks in the discrete color scale. An integer &gt;1. Values above 99 imply no discretization.</td>
</tr>
<tr>
<td>hue</td>
<td>Primary hue of the first ternary element (0 to 1).</td>
</tr>
<tr>
<td>chroma</td>
<td>Maximum possible chroma of mixed colors (0 to 1).</td>
</tr>
<tr>
<td>lightness</td>
<td>Lightness of mixed colors (0 to 1).</td>
</tr>
</tbody>
</table>
TricoloreSextant

- **contrast**: Lightness contrast of the color scale (0 to 1).
- **spread**: The spread of the color scale. Choose values > 1 to focus the color scale on the center.
- **legend**: Should a legend be returned along with the colors? (default=TRUE)
- **show_data**: Should the data be shown on the legend? (default=TRUE)
- **show_center**: Should the center be shown on the legend? (default=FALSE if center is at (1/3, 1/3, 1/3), otherwise TRUE)
- **label_as**: "pct" for percent-share labels or "pct_diff" for percent-point-difference from center labels. (default=’pct’ if center is at (1/3, 1/3, 1/3), otherwise ‘pct_diff’)
- **crop**: Should the legend be cropped to the data? (default=FALSE)
- **input_validation**: Should the function arguments be validated? (default=TRUE)

**Value**
- **legend=FALSE**: A vector of rgb hex-codes representing the ternary balance scheme colors.
- **legend=TRUE**: A list with elements "rgb" and "key".

**Examples**

```r
P <- as.data.frame(prop.table(matrix(rnorm(3^6), ncol = 3), 1))
Tricolore(P, 'V1', 'V2', 'V3')
```

**Description**

Color-code three-part compositions with a ternary sextant color scale and return a color key.

**Usage**

```r
TricoloreSextant(
df,
p1,
p2,
p3,
center = rep(1/3, 3),
values = c("FFFFFF00", "B3DCC3", "#01A0C6", "B8B3D8", "#F1D8C", "#FFB3B3"),
legend = TRUE,
show_data = TRUE,
show_center = TRUE,
label_as = ifelse(identical(center, rep(1/3, 3)), "pct", "pct_diff"),
crop = FALSE,
input_validation = TRUE
)
```
Arguments

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<tr>
<td>p3</td>
<td>Column name for variable in df giving third proportion of ternary composition (string).</td>
</tr>
<tr>
<td>center</td>
<td>Ternary coordinates of the color scale center. (default = 1/3,1/3,1/3). NA puts center over the compositional mean of the data.</td>
</tr>
<tr>
<td>values</td>
<td>6 element character vector of rgb-codes.</td>
</tr>
<tr>
<td>legend</td>
<td>Should a legend be returned along with the colors? (default=TRUE)</td>
</tr>
<tr>
<td>show_data</td>
<td>Should the data be shown on the legend? (default=TRUE)</td>
</tr>
<tr>
<td>show_center</td>
<td>Should the center be shown on the legend? (default=FALSE if center is at c(1/3, 1/3, 1/3), otherwise TRUE)</td>
</tr>
<tr>
<td>label_as</td>
<td>&quot;pct&quot; for percent-share labels or &quot;pct_diff&quot; for percent-point-difference from center labels. (default=’pct’ if center is at c(1/3, 1/3, 1/3), otherwise ‘pct_diff’)</td>
</tr>
<tr>
<td>crop</td>
<td>Should the legend be cropped to the data? (default=FALSE)</td>
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<tr>
<td>input_validation</td>
<td>Should the function arguments be validated? (default=TRUE)</td>
</tr>
</tbody>
</table>

Value

- legend=FALSE: A vector of rgbs hex-codes representing the ternary balance scheme colors.
- legend=TRUE: A list with elements "rgb" and "key".

Examples

```r
P <- as.data.frame(prop.table(matrix(runif(3^6), ncol = 3), 1))
TricoloreSextant(P, 'V1', 'V2', 'V3')
```
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