Package ‘sabre’

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Title Spatial Association Between Regionalizations


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Encoding UTF-8

LazyData true

ByteCompile true

Suggests testthat, covr, knitr, rmarkdown

RoxygenNote 6.1.1

Depends R (>= 3.3.0)

Imports dplyr, entropy, raster, rlang, sf, tibble, tidyr

VignetteBuilder knitr

URL https://nowosad.github.io/sabre/

BugReports https://github.com/Nowosad/sabre/issues

NeedsCompilation no

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Description

Bailey’s Ecoregions of the Conterminous United States

Usage

eco_us

Format

An object of class sf (inherits from data.frame) with 330 rows and 5 columns.

Source

https://www.sciencebase.gov/catalog/item/54244abde4b037b608f9e23d

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Description

Mapcurves: a quantitative method for comparing categorical maps.

Usage

mapcurves(x, y, z = NULL)
mapcurves_calc

Arguments

x  A numeric vector, representing a categorical values.
y  A numeric vector, representing a categorical values.
z  A numeric matrix. The goodness of fit (GOF) value for each pair of classes in x and y. By default this argument is set to NULL, and the value of z is calculated based on x and y.

Value

A list with two elements:

- "ref_map" - the map to be used as reference ("x" or "y")
- "gof" - the Mapcurves’s goodness of fit value

References


Examples

set.seed(2018-03-21)
A = floor(matrix(runif(100, 0, 9), 10))
B = floor(matrix(runif(100, 0, 9), 10))
mapcurves(A, B)

---

mapcurves_calc  Mapcurves calculation

Description

It calculates the Mapcurves’s goodness-of-fit (GOF)

Usage

mapcurves_calc(x, y, x_name, y_name, precision = NULL)

## S3 method for class 'sf'
mapcurves_calc(x, y, x_name, y_name, precision = NULL)

## S3 method for class 'RasterLayer'
mapcurves_calc(x, y, x_name = NULL,
               y_name = NULL, precision = NULL)
Arguments

- **x**
  - An object of class sf with a POLYGON or MULTIPOLYGON geometry type.
- **y**
  - An object of class sf with a POLYGON or MULTIPOLYGON geometry type.
- **x_name**
  - A name of the column with regions/clusters names.
- **y_name**
  - A name of the column with regions/clusters names.
- **precision**
  - numeric, or object of class units with distance units (but see details); see `st_as_binary` for how to do this.

Value

A list with four elements:

- "map1" - the sf object containing the first map used for calculation of GOF
- "map2" - the sf object containing the second map used for calculation of GOF
- "ref_map" - the map used as a reference ("x" or "y")
- "gof" - the Mapcurves’s goodness of fit value

References


Examples

```r
library(sf)
data("regions1")
data("regions2")

mc = mapcurves_calc(x = regions1, y = regions2, x_name = z, y_name = z)
mc
plot(mc$map1)
plot(mc$map2)
```

partitions1

*Red regionalization (raster version)*

Description

Raster data of the red regionalization used in Figure 1 of Stepinski and Nowosad (2018)

Usage

`partitions1`
partitions2

**Format**

An object of class `RasterLayer` of dimension 8 x 10 x 1.

**References**


---

regions1

**Description**

Data of the red regionalization used in Figure 1 of Stepinski and Nowosad (2018)

**Usage**

`regions1`

**Format**

An object of class `sf` (inherits from `data.frame`) with 4 rows and 2 columns.
References


---

regions2

Blue regionalization

Description

Data of the blue regionalization used in Figure 1 of Stepinski and Nowosad (2018)

Usage

regions2

Format

An object of class sf (inherits from data.frame) with 3 rows and 2 columns.

References


---

vmeasure

V-measure

Description

A conditional entropy-based external cluster evaluation measure.

Usage

vmeasure(x, y, z = NULL, B = 1)

Arguments

x A numeric vector, representing a categorical values.
y A numeric vector, representing a categorical values.
z A numeric matrix. A contingency table of the counts at each combination of categorical levels. By default this argument is set to NULL, and the value of z is calculated based on x and y.
B A numeric value. If B > 1 then completeness is weighted more strongly than homogeneity, and if B < 1 then homogeneity is weighted more strongly than completeness. By default this value is 1.
vmeasure_calc

Value

A list with three elements:

- "v_measure"
- "homogeneity"
- "completeness"

References


Examples

```r
x = c(1, 1, 1, 2, 2, 3, 3, 3, 1, 1, 2, 2, 2, 3, 3)
y = c(rep(1, 5), rep(2, 5), rep(3, 5))
vmeasure(x, y)
```

Description

It calculates a degree of spatial association between regionalizations using an information-theoretical measure called the V-measure.

Usage

```r
vmeasure_calc(x, y, x_name, y_name, B = 1, precision = NULL)
```

## S3 method for class 'sf'

```r
vmeasure_calc(x, y, x_name, y_name, B = 1,
              precision = NULL)
```

## S3 method for class 'RasterLayer'

```r
vmeasure_calc(x, y, x_name = NULL, y_name = NULL,
              B = 1, precision = NULL)
```

Arguments

- `x`: An object of class sf with a POLYGON or MULTIPOLYGON geometry type.
- `y`: An object of class sf with a POLYGON or MULTIPOLYGON geometry type.
- `x_name`: A name of the column with regions/clusters names.
- `y_name`: A name of the column with regions/clusters names.
\textit{B} A numeric value. If $B > 1$ then completeness is weighted more strongly than homogeneity, and if $B < 1$ then homogeneity is weighted more strongly than completeness. By default this value is 1.

**precision** numeric, or object of class \texttt{units} with distance units (but see details); see \texttt{st_as_binary} for how to do this.

**Value**

A list with five elements:

- "\texttt{map1}" - the sf object containing the first preprocessed map used for calculation of GOF with two attributes - \texttt{map1} (name of the category) and \texttt{rih} (region inhomogeneity)
- "\texttt{map2}" - the sf object containing the second preprocessed map used for calculation of GOF with two attributes - \texttt{map1} (name of the category) and \texttt{rih} (region inhomogeneity)
- "\texttt{v\_measure}"
- "\texttt{homogeneity}"
- "\texttt{completeness}"

**References**


**Examples**

```
library(sf)
data("regions1")
data("regions2")
vm = vmeasure_calc(x = regions1, y = regions2, x_name = z, y_name = z)
vm
plot(vm$map1["rih")]
plot(vm$map2["rih")]
```
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