Package ‘rLFT’

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Type Package
Title Processing Linear Features
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Maintainer Shannon E Albeke <salbeke@uwyo.edu>
Description Assists in the manipulation and processing of linear features with the help of the 'sf' package. Makes use of linear referencing to extract data from most shape files. Reference for this packages methods: Albeke, S.E. et al. (2010) <doi:10.1007/s10980-010-9528-4>.

BugReports https://gitlab.com/albekeecoinfolab/rlft/-/issues
Depends R (>= 3.3.0), Rcpp (>= 1.0.2), sf (>= 0.9-1)
Encoding UTF-8
License GPL (>= 3)
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LinkingTo Rcpp
RoxygenNote 7.1.2
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VignetteBuilder knitr
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Author Samuel Fay [aut],
William Kirkpatrick [aut],
Shannon E Albeke [aut, cre]
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addMValues

Description

Add M values to a given linear feature and store them in the m-coordinate of the sf object. Returns the new sf object with added m-values. For more information on m-values and linear referencing see: http://desktop.arcgis.com/en/arcmap/10.3/guide-books/linear-referencing/what-is-linear-referencing.htm

Usage

addMValues(sfDataObject)

Arguments

sfDataObject An sf object. Must be a LINestring, POLYGON, MULTIPOLYGON, or MULTILINESTRING

Value

Returns the new sfDataObject with added m-values. The class of the output is sf.

Examples

library(rLFT)
data("shpObject")
# Assign M Values to each vertex
mValues <- addMValues(shpObject)
print("M Values Added")
head(st_coordinates(mValues))
Boundary Convexity Tool

Description
Calculates raw convexity, convexity index, and sinuosity of a given sf object and returns a data frame with all measurements for each step and feature. If provided, the data will also be output to a tab delimited file.

Usage
bct(sfDataObject, step, window, ridName = NULL, filename = "")

Arguments
- **sfDataObject**: An sf Object containing shape file data.
- **step**: A numeric describing the distance between measurements along an arc.
- **window**: A numeric describing the diameter of the window used to measure convexity.
- **ridName**: A character denoting the column name where the unique ID for each feature is stored in given sf object.
- **filename**: A character denoting the name of the file you wish to output convexity data to in tab delimited format. Must have the .txt extension.

Details
This function will reject any sf object with a geographic coordinate system, so consider projecting your features. Your sf object must be of either type LINESTRING, MULTILINESTRING, POLYGON, or MULTIPOLYGON. If a given POLYGON or MULTIPOLYGON contains inner rings, they will be ignored. If a unique ID Column name is not provided, the function will generate a unique ID for each feature. The arguments step and window can be any non-negative numeric. The argument ridName MUST be a character indicating the name of the column in your sf object where the route id is stored.

Value
The output of this function is a data.frame that contains all measurements for each step and feature.

Reference
Examples

```r
library(rLFT)
data("shpObject")
#store convexity output data in a variable 'outputTable'
outputTable <- bct(shpObject, step = 50, window = 100, ridName = "RID")
```

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`latlongShpObject`  
An example sf object outlining boundaries of a group of islands in Alaska in the lat/lon CRS.

Description

A dataset with coordinates (x, y, z) of 3 linear features with a geometry type of MULTIPOLYGON and a geographic coordinate system (longlat)

Usage

`latlongShpObject`

Format

A data frame with 1 row and 10 variables

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`pointObject`  
An example sf object with geometry type of POINT, used for testing.

Description

An example sf object with geometry type of POINT, used for testing.

Usage

`pointObject`

Format

An object of class sf (inherits from data.frame) with 1 rows and 2 columns.
**polygonShpObject**

**Description**

An example sf object outlining boundaries of a group of islands in Alaska cast as POLYGON.

**Usage**

polygonShpObject

**Format**

A data frame with 37 rows and 2 variables

- **Id**  Id’s of all features
- **geometry**  coordinates of feature (x,y)

**shpObject**

An example sf object outlining boundaries of a group of islands in Alaska cast as LINESTRING.

**Description**

A dataset with coordinates (x, y) of 37 linear features with a geometry type of LINESTRING and a projected coordinate system (aea). These particular features represent several small islands in Alaska.

**Usage**

shpObject

**Format**

A data frame with 37 rows and 2 variables

- **RID**  Route ID of the features
- **geometry**  coordinates of feature (x, y)
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