

Package: prepr (via r-universe)

January 12, 2025

Type Package

Title Automatic Repair of Spatial Polygons

Version 0.3.1

Description Automatically repair broken spatial polygons using constrained triangulation. The computational methodology is derived from Ledoux et al. (2014) [<doi:10.1016/j.cageo.2014.01.009>](https://doi.org/10.1016/j.cageo.2014.01.009).

Imports Rcpp (>= 1.0.12), sf (>= 1.0.8)

Suggests testthat (>= 2.0.1), knitr (>= 1.2.0), roxygen2 (>= 6.1.1), rmarkdown (>= 1.10),

Depends R (>= 4.2.0)

LinkingTo Rcpp (>= 1.0.12), BH (>= 1.71.0.0), sf (>= 1.0.8), RcppCGAL (>= 5.6.2), RcppEigen (>= 0.3.4.0.0)

SystemRequirements gmp (>= 4.2.3), mpfr (>= 3.0.0) gdal (>= 2.0.1)

License GPL-3

Encoding UTF-8

URL <https://github.com/prioritizr/prepr>

BugReports <https://github.com/prioritizr/prepr/issues>

VignetteBuilder knitr

RoxygenNote 7.3.1

Collate 'RcppExports.R' 'package.R' 'utils.R' 'st_prepar.R'

Roxygen list(markdown = TRUE)

Config/testthat/edition 3

Config/pak/sysreqs libgdal-dev gdal-bin libgeos-dev libgmp3-dev make libmpfr-dev libssl-dev libproj-dev libsqlite3-dev libudunits2-dev

Repository <https://prioritizr.r-universe.dev>

RemoteUrl <https://github.com/prioritizr/prepr>

RemoteRef debug-autoconf

RemoteSha dbfcd69dec76388d843d4328b407963d68197cd4

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Description

This package contains functions to repair single polygons according to the international standards ISO 19107 using a constrained triangulation approach. It is based on the prepair C++ tool.

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See Also

Useful links:

- <https://github.com/prioritizr/prepr>
- Report bugs at <https://github.com/prioritizr/prepr/issues>

`st_prepair`*Automatic repair of polygon geometries*

Description

Repair polygon geometries according to the international standards ISO 19107 using a constrained triangulation approach (van Oosterom et al. 2005; Ledoux et al. 2014)

Usage

```
st_prepair(x)
```

Arguments

`x` [sf::st_sf\(\)](#), [sf::st_sfc\(\)](#) or `sfg` object (containing POLYGON or MULTIPOLYGON geometries).

Details

The function supports two algorithms:

- `oddeven`: an extension of the odd-even algorithm to handle polygons containing inner rings and degeneracies;
- `setdiff`: one where we follow a point set difference rule for the rings (outer - inner).

Value

A [sf::st_sf\(\)](#), [sf::st_sfc\(\)](#) or `sfg` object (same as the argument to `x`).

References

Ledoux H, Arroyo Ohori K, and Meijers M (2014) A triangulation-based approach to automatically repair GIS polygons. *Computers & Geosciences* 66:121–131.

van Oosterom P, Quak W, and Tijssen T (2005) *About Invalid, Valid and Clean Polygons* In: Developments in Spatial Data Handling. Springer, Berlin, Heidelberg

See Also

See [sf::st_make_valid\(\)](#) for another approach to repair polygon geometries.

Examples

```
## Not run:
# create an object containing a broken polygon geometry
x <- sf::st_as_sfc("POLYGON((0 0, 0 10, 10 0, 10 10, 0 0))")

# check if this polygon is indeed broken
sf::st_is_valid(x)
```

```
# repair the polygon
y <- st_repair(x)

# check that the repaired polygon has been fixed
print(st_is_valid(y))

## End(Not run)
```

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