

# Package: prepr (via r-universe)

December 13, 2024

**Type** Package

**Title** Automatic Repair of Spatial Polygons

**Version** 0.3.0

**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 libmpfr-dev libssl-dev libproj-dev libsqlite3-dev libudunits2-dev

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

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

**RemoteRef** HEAD

**RemoteSha** c3953e86555a0de97c983fddfb15da73260cc420

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prepr-package	<i>A package for automatically repairing broken polygons</i>
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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>

## 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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