Package 'rmapshaper'

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Type Package

Title Client for 'mapshaper' for 'Geospatial' Operations

Version 0.4.6

Description Edit and simplify 'geojson', 'Spatial', and 'sf' objects. This is wrapper around the 'mapshaper' 'JavaScript' library by Matthew Bloch <https://github.com/mbloch/mapshaper/> to perform topologically-aware polygon simplification, as well as other operations such as clipping, erasing, dissolving, and converting 'multi-part' to 'single-part' geometries. It relies on the 'geojsonio' package for working with 'geojson' objects, the 'sf' package for working with 'sf' objects, and the 'sp' and 'rgdal' packages for working with 'Spatial' objects.

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URL https://github.com/ateucher/rmapshaper

BugReports https://github.com/ateucher/rmapshaper/issues

Imports geojsonio (>= 0.9.4), geojsonlint (>= 0.4.0), jsonlite (>= 1.7.0), methods, readr (>= 1.4.0), sf (>= 0.9-0), sp (>= 1.4-0), V8 (>= 3.4.2)

Suggests knitr, magrittr, rgdal, rgeos, rmarkdown, testthat (>= 2.1.0), covr, units

VignetteBuilder knitr

Encoding UTF-8

RoxygenNote 7.1.2

NeedsCompilation no

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R **topics documented:**

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apply_mapshaper_commands

Apply a mapshaper command string to a geojson object

Description

Apply a mapshaper command string to a geojson object

Usage

```
apply_mapshaper_commands(
  data,
  command,
  force_FC = TRUE,
  sys = FALSE,
  sys_mem = 8
)
```

Arguments

data   geojson object or path to geojson file. If a file path, sys must be true

command   valid mapshaper command string

force_FC   should the output be forced to be a FeatureCollection (or Spatial*DataFrame)
            even if there are no attributes? Default TRUE. FeatureCollections are more com-
            patible with rgdal::readOGR and geojsonio::geojson_sp. If FALSE and there are
            no attributes associated with the geometries, a GeometryCollection (or Spatial
            object with no dataframe) will be output.

sys	Should the system mapshaper be used instead of the bundled mapshaper? Gives better performance on large files. Requires the mapshaper node package to be installed and on the PATH.
sys_mem	How much memory (in GB) should be allocated if using the system mapshaper (sys = TRUE)? Default 8. Ignored if sys = FALSE.

Value

geojson

---

check_sys_mapshaper   *Check the system mapshaper*

Description

Check the system mapshaper

Usage

```
check_sys_mapshaper(command = "mapshaper-xl", verbose = TRUE)
```

Arguments

command	either "mapshaper-xl" (default) or "mapshaper"
verbose	Print a message stating mapshaper's current version? Default TRUE

Value

character path to mapshaper executable if appropriate version is installed, otherwise throws an error

---

drop_null_geometries   *Drop features from a* geo_list *or* geo_json *FeatureCollection with null geometries*

Description

Drop features from a geo_list or geo_json FeatureCollection with null geometries

Usage

```
drop_null_geometries(x)
```

Arguments

x	a geo_list or geo_json FeatureCollection

Value

a geo_list or geo_json FeatureCollection with Features with null geometries removed

---

ms_clip	*Remove features or portions of features that fall outside a clipping area.*

Description

Removes portions of the target layer that fall outside the clipping layer or bounding box.

Usage

```
ms_clip(
  target,
  clip = NULL,
  bbox = NULL,
  remove_slivers = FALSE,
  force_FC = TRUE,
  sys = FALSE,
  sys_mem = 8
)
```

Arguments

target	the target layer from which to remove portions. One of:
	• geo_json or character points, lines, or polygons;
	• geo_list points, lines, or polygons;
	• SpatialPolygons, SpatialLines, SpatialPoints;
	• sf or sfc points, lines, or polygons object
clip	the clipping layer (polygon). One of:
	• geo_json or character polygons;
	• geo_list polygons;
	• SpatialPolygons*;
	• sf or sfc polygons object
bbox	supply a bounding box instead of a clipping layer to extract from the target layer. Supply as a numeric vector: c(minX, minY, maxX, maxY).
remove_slivers	Remove tiny sliver polygons created by clipping. (Default FALSE)
force_FC	should the output be forced to be a FeatureCollection (or Spatial*DataFrame) even if there are no attributes? Default TRUE. FeatureCollections are more compatible with rgdal::readOGR and geojsonio::geojson_sp. If FALSE and there are no attributes associated with the geometries, a GeometryCollection (or Spatial object with no dataframe) will be output.
sys	Should the system mapshaper be used instead of the bundled mapshaper? Gives better performance on large files. Requires the mapshaper node package to be installed and on the PATH.
sys_mem	How much memory (in GB) should be allocated if using the system mapshaper (sys = TRUE)? Default 8. Ignored if sys = FALSE.

Value

clipped target in the same class as the input target

Examples

```
if (rmapshaper:::check_v8_major_version() >= 6L) {
  library(geojsonio, quietly = TRUE)
  library(sp)

  poly <- structure("{\"type\":\"FeatureCollection\",
    \"features\":[{\"type\":\"Feature\",\"properties\":{},
    \"geometry\":{\"type\":\"Polygon\",\"coordinates\":
    [[[52.8658,-44.7219],[53.7702,-40.4873],[55.3204,-37.5579],
    [56.2757,-37.917],[56.184,-40.6443],[61.0835,-40.7529],
    [58.0202,-43.634],[61.6699,-45.0678],[62.737,-46.2841],
    [55.7763,-46.2637],[54.9742,-49.1184],[52.799,-45.9386],
    [52.0329,-49.5677],[50.1747,-52.1814],[49.0098,-52.3641],
    [52.7068,-45.7639],[43.2278,-47.1908],[48.4755,-45.1388],
    [50.327,-43.5207],[48.0804,-41.2784],[49.6307,-40.6159],
    [52.8658,-44.7219]]]}}]}", class = c("json", "geo_json"))
  poly <- geojson_sp(poly)
  plot(poly)

  clip_poly <- structure('{
  "type": "Feature",
  "properties": {},
  "geometry": {
  "type": "Polygon",
  "coordinates": [
  [
  [51, -40],
  [55, -40],
  [55, -45],
  [51, -45],
  [51, -40]
  ]
  ]
  }
  }', class = c("json", "geo_json"))
  clip_poly <- geojson_sp(clip_poly)
  plot(clip_poly)

  out <- ms_clip(poly, clip_poly)
  plot(out, add = TRUE)
}
```

---

ms_dissolve   *Aggregate shapes in a polygon or point layer.*

Description

Aggregates using specified field, or all shapes if no field is given. For point layers, replaces a group of points with their centroid.

Usage

```
ms_dissolve(
  input,
  field = NULL,
  sum_fields = NULL,
  copy_fields = NULL,
  weight = NULL,
  snap = TRUE,
  force_FC = TRUE,
  sys = FALSE,
  sys_mem = 8
)
```

Arguments

input	spatial object to dissolve. One of: • `geo_json` or `character` points or polygons; • `geo_list` points or polygons; • `SpatialPolygons`, or `SpatialPoints`
field	the field to dissolve on
sum_fields	fields to sum
copy_fields	fields to copy. The first instance of each field will be copied to the aggregated feature.
weight	Name of an attribute field for generating weighted centroids (points only).
snap	Snap together vertices within a small distance threshold to fix small coordinate misalignment in adjacent polygons. Default TRUE.
force_FC	should the output be forced to be a FeatureCollection (or Spatial*DataFrame) even if there are no attributes? Default TRUE. FeatureCollections are more compatible with rgdal::readOGR and geojsonio::geojson_sp. If FALSE and there are no attributes associated with the geometries, a GeometryCollection (or Spatial object with no dataframe) will be output.
sys	Should the system mapshaper be used instead of the bundled mapshaper? Gives better performance on large files. Requires the mapshaper node package to be installed and on the PATH.
sys_mem	How much memory (in GB) should be allocated if using the system mapshaper (sys = TRUE)? Default 8. Ignored if sys = FALSE.

Value

the same class as the input

Examples

```
library(geojsonio)
library(sp)

poly <- structure('{"type":"FeatureCollection",
  "features":[
  {"type":"Feature",
  "properties":{"a": 1, "b": 2},
  "geometry":{"type":"Polygon","coordinates":[[
  [102,2],[102,3],[103,3],[103,2],[102,2]
  ]]}}
  ,{"type":"Feature",
  "properties":{"a": 5, "b": 3},
  "geometry":{"type":"Polygon","coordinates":[[
  [100,0],[100,1],[101,1],[101,0],[100,0]
  ]]}}]}', class = c("json", "geo_json"))
poly <- geojson_sp(poly)
plot(poly)
length(poly)
poly@data

# Dissolve the polygon
out <- ms_dissolve(poly)
plot(out)
length(out)
out@data

# Dissolve and summing columns
out <- ms_dissolve(poly, sum_fields = c("a", "b"))
plot(out)
out@data
```

---

ms_erase   *Remove features or portions of features that fall inside a specified area*

Description

Removes portions of the target layer that fall inside the erasing layer or bounding box.

Usage

```
ms_erase(
  target,
  erase = NULL,
  bbox = NULL,
  remove_slivers = FALSE,
  force_FC = TRUE,
  sys = FALSE,
```

```
    sys_mem = 8
)
```

Arguments

target	the target layer from which to remove portions. One of:

- geo_json or character points, lines, or polygons;
- geo_list points, lines, or polygons;
- SpatialPolygons, SpatialLines, SpatialPoints

erase	the erase layer (polygon). One of:

- geo_json or character polygons;
- geo_list polygons;
- SpatialPolygons*

bbox	supply a bounding box instead of an erasing layer to remove from the target layer. Supply as a numeric vector: c(minX, minY, maxX, maxY).
remove_slivers	Remove tiny sliver polygons created by erasing. (Default FALSE)
force_FC	should the output be forced to be a FeatureCollection (or Spatial*DataFrame) even if there are no attributes? Default TRUE. FeatureCollections are more compatible with rgdal::readOGR and geojsonio::geojson_sp. If FALSE and there are no attributes associated with the geometries, a GeometryCollection (or Spatial object with no dataframe) will be output.
sys	Should the system mapshaper be used instead of the bundled mapshaper? Gives better performance on large files. Requires the mapshaper node package to be installed and on the PATH.
sys_mem	How much memory (in GB) should be allocated if using the system mapshaper (sys = TRUE)? Default 8. Ignored if sys = FALSE.

Value

erased target in the same format as the input target

Examples

```
if (rmapshaper:::check_v8_major_version() >= 6L) {
  library(geojsonio, quietly = TRUE)
  library(sp)

  points <- structure("{\"type\":\"FeatureCollection\",
    \"features\":[{\"type\":\"Feature\",\"properties\":{},
    \"geometry\":{\"type\":\"Point\",\"coordinates\":
    [52.8658,-44.7219]}},{\"type\":\"Feature\",\"properties\":{},
    \"geometry\":{\"type\":\"Point\",\"coordinates\":
    [53.7702,-40.4873]}},{\"type\":\"Feature\",\"properties\":{},
    \"geometry\":{\"type\":\"Point\",\"coordinates\":[55.3204,-37.5579]}},
    {\"type\":\"Feature\",\"properties\":{},\"geometry\":
    {\"type\":\"Point\",\"coordinates\":[56.2757,-37.917]}},
    {\"type\":\"Feature\",\"properties\":{},\"geometry\":
```

```
          {\"type\":\"Point\",\"coordinates\":[56.184,-40.6443]}},
          {\"type\":\"Feature\",\"properties\":{},\"geometry\":
          {\"type\":\"Point\",\"coordinates\":[61.0835,-40.7529]}},
          {\"type\":\"Feature\",\"properties\":{},\"geometry\":
          {\"type\":\"Point\",\"coordinates\":[58.0202,-43.634]}}]}",
          class = c("json", "geo_json"))
  points <- geojson_sp(points)
  plot(points)

  erase_poly <- structure('{
  "type": "Feature",
  "properties": {},
  "geometry": {
  "type": "Polygon",
  "coordinates": [
  [
  [51, -40],
  [55, -40],
  [55, -45],
  [51, -45],
  [51, -40]
  ]
  ]
  }
  }', class = c("json", "geo_json"))
  erase_poly <- geojson_sp(erase_poly)

  out <- ms_erase(points, erase_poly)
  plot(out, add = TRUE)
}
```

---

ms_explode   *Convert multipart lines or polygons to singlepart*

Description

For objects of class `Spatial` (e.g., `SpatialPolygonsDataFrame`), you may find it faster to use `sp::disaggregate`.

Usage

```
ms_explode(input, force_FC = TRUE, sys = FALSE, sys_mem = 8)
```

Arguments

input   One of:

- `geo_json` or `character` multipart lines, or polygons;
- `geo_list` multipart lines, or polygons;

- multipart `SpatialPolygons`, `SpatialLines`;
- `sf` or `sfc` multipart lines, or polygons object

force_FC   should the output be forced to be a FeatureCollection (or Spatial*DataFrame)
                 even if there are no attributes? Default `TRUE`. FeatureCollections are more com-
                 patible with rgdal::readOGR and geojsonio::geojson_sp. If FALSE and there are
                 no attributes associated with the geometries, a GeometryCollection (or Spatial
                 object with no dataframe) will be output.

sys   Should the system mapshaper be used instead of the bundled mapshaper? Gives
                 better performance on large files. Requires the mapshaper node package to be
                 installed and on the PATH.

sys_mem   How much memory (in GB) should be allocated if using the system mapshaper
                 (`sys = TRUE`)? Default 8. Ignored if `sys = FALSE`.

Details

There is currently no method for SpatialMultiPoints

Value

same class as input

Examples

```
library(geojsonio)
library(sp)

poly <- structure("{\"type\":\"FeatureCollection\",\"crs\":
          {\"type\":\"name\",\"properties\":{\"name\":
          \"urn:ogc:def:crs:OGC:1.3:CRS84\"}},\"features\":
          [\n{\"type\":\"Feature\",\"geometry\":{\"type\":
          \"MultiPolygon\",\"coordinates\":[[[[102,2],[102,3],
          [103,3],[103,2],[102,2]]],[[[100,0],[100,1],[101,1],
          [101,0],[100,0]]]]},\"properties\":{\"rmapshaperid\":0}}\n]}",
          class = c("json", "geo_json"))

poly <- geojson_sp(poly)
plot(poly)
length(poly)
poly@data

# Explode the polygon
out <- ms_explode(poly)
plot(out)
length(out)
out@data
```

---

ms_filter_fields *Delete fields in the attribute table*

Description

Removes all fields except those listed in the `fields` parameter

Usage

```
ms_filter_fields(input, fields, sys = FALSE, sys_mem = 8)
```

Arguments

input	spatial object to filter fields on. One of:
	• `geo_json` or `character` points, lines, or polygons;
	• `geo_list` points, lines, or polygons;
	• `SpatialPolygonsDataFrame`, `SpatialLinesDataFrame`, `SpatialPointsDataFrame`;
	• `sf` object
fields	character vector of fields to retain.
sys	Should the system mapshaper be used instead of the bundled mapshaper? Gives better performance on large files. Requires the mapshaper node package to be installed and on the PATH.
sys_mem	How much memory (in GB) should be allocated if using the system mapshaper (`sys = TRUE`)? Default 8. Ignored if `sys = FALSE`.

Value

object with only specified attributes retained, in the same class as the input

Examples

```
library(geojsonio)
library(sp)

poly <- structure("{\"type\":\"FeatureCollection\",
                   \"features\":[{\"type\":\"Feature\",
                   \"properties\":{\"a\": 1, \"b\":2, \"c\": 3},
                   \"geometry\":{\"type\":\"Polygon\",
                   \"coordinates\":[[[102,2],[102,4],[104,4],[104,2],[102,2]]]}}]}",
                   class = c("json", "geo_json"))
poly <- geojson_sp(poly)
poly@data

# Filter (keep) fields a and b, drop c
out <- ms_filter_fields(poly, c("a", "b"))
out@data
```

---

ms_filter_islands *Remove small detached polygons (islands)*

Description

Remove small detached polygons, keeping those with a minimum area and/or a minimum number of vertices. Optionally remove null geometries.

Usage

```
ms_filter_islands(
  input,
  min_area = NULL,
  min_vertices = NULL,
  drop_null_geometries = TRUE,
  force_FC = TRUE,
  sys = FALSE,
  sys_mem = 8
)
```

Arguments

input	spatial object to filter. One of:

- geo_json or character polygons;
- geo_list polygons;
- SpatialPolygons*;
- sf or sfc polygons object

min_area	minimum area of polygons to retain. Area is calculated using planar geometry, except for the area of unprojected polygons, which is calculated using spherical geometry in units of square meters.
min_vertices	minimum number of vertices in polygons to retain.
drop_null_geometries	
	should features with empty geometries be dropped? Default TRUE. Ignored for SpatialPolyons*, as it is always TRUE.
force_FC	should the output be forced to be a FeatureCollection (or Spatial*DataFrame) even if there are no attributes? Default TRUE. FeatureCollections are more compatible with rgdal::readOGR and geojsonio::geojson_sp. If FALSE and there are no attributes associated with the geometries, a GeometryCollection (or Spatial object with no dataframe) will be output.
sys	Should the system mapshaper be used instead of the bundled mapshaper? Gives better performance on large files. Requires the mapshaper node package to be installed and on the PATH.
sys_mem	How much memory (in GB) should be allocated if using the system mapshaper (sys = TRUE)? Default 8. Ignored if sys = FALSE.

Value

object with only specified features retained, in the same class as the input

Examples

```
library(geojsonio)
library(sp)

poly <- structure("{\"type\":\"FeatureCollection\",
            \"features\":[{\"type\":\"Feature\",\"properties\":{},
            \"geometry\":{\"type\":\"Polygon\",
            \"coordinates\":[[[102,2],[102,4],[104,4],[104,2],[102,2]]]}},
            {\"type\":\"Feature\",\"properties\":{},
            \"geometry\":{\"type\":\"Polygon\",
            \"coordinates\":[[[100,2],[98,4],[101.5,4],[100,2]]]}},
            {\"type\":\"Feature\",\"properties\":{},
            \"geometry\":{\"type\":\"Polygon\",
            \"coordinates\":[[[100,0],[100,1],[101,1],[101,0],[100,0]]]}}]}",
            class = c("json", "geo_json"))

poly <- geojson_sp(poly)
plot(poly)

out <- ms_filter_islands(poly, min_area = 12391399903)
plot(out)
```

---

ms_innerlines	*Create a line layer consisting of shared boundaries with no attribute data*

Description

Create a line layer consisting of shared boundaries with no attribute data

Usage

```
ms_innerlines(input, force_FC = TRUE, sys = FALSE, sys_mem = 8)
```

Arguments

input   input polygons object to convert to inner lines. One of:

- geo_json or character polygons;
- geo_list polygons;
- SpatialPolygons*;
- sf or sfc polygons object

force_FC	should the output be forced to be a FeatureCollection (or Spatial*DataFrame) even if there are no attributes? Default `TRUE`. FeatureCollections are more compatible with rgdal::readOGR and geojsonio::geojson_sp. If FALSE and there are no attributes associated with the geometries, a GeometryCollection (or Spatial object with no dataframe) will be output.
sys	Should the system mapshaper be used instead of the bundled mapshaper? Gives better performance on large files. Requires the mapshaper node package to be installed and on the PATH.
sys_mem	How much memory (in GB) should be allocated if using the system mapshaper (sys = TRUE)? Default 8. Ignored if `sys = FALSE`.

Value

lines in the same class as the input layer, but without attributes

Examples

```
library(geojsonio)
library(sp)

poly <- structure('{"type":"FeatureCollection",
            "features":[
              {"type":"Feature",
                "properties":{"foo": "a"},
                "geometry":{"type":"Polygon","coordinates":[[
                  [102,2],[102,3],[103,3],[103,2],[102,2]
                  ]]}}
              ,{"type":"Feature",
                "properties":{"foo": "a"},
                "geometry":{"type":"Polygon","coordinates":[[
                  [103,3],[104,3],[104,2],[103,2],[103,3]
                  ]]}},
              {"type":"Feature",
                "properties":{"foo": "b"},
                "geometry":{"type":"Polygon","coordinates":[[
                  [102,1],[102,2],[103,2],[103,1],[102,1]
                  ]]}},
              {"type":"Feature",
                "properties":{"foo": "b"},
                "geometry":{"type":"Polygon","coordinates":[[
                  [103,1],[103,2],[104,2],[104,1],[103,1]
                  ]]}}]}', class = c("json", "geo_json"))

poly <- geojson_sp(poly)
plot(poly)

out <- ms_innerlines(poly)
plot(out)
```

Description

Convert polygons to topological boundaries (lines)

Usage

```
ms_lines(input, fields = NULL, force_FC = TRUE, sys = FALSE, sys_mem = 8)
```

Arguments

input	input polygons object to convert to inner lines. One of: • `geo_json` or `character` polygons; • `geo_list` polygons; • `SpatialPolygons*`; • `sf` or `sfc` polygons object
fields	character vector of field names. If left as NULL (default), external (unshared) boundaries are attributed as TYPE 0 and internal (shared) boundaries are TYPE 1. Giving a field name adds an intermediate level of hierarchy at TYPE 1, with the lowest-level internal boundaries set to TYPE 2. Supplying a character vector of field names adds additional levels of hierarchy.
force_FC	should the output be forced to be a FeatureCollection (or Spatial*DataFrame) even if there are no attributes? Default TRUE. FeatureCollections are more compatible with rgdal::readOGR and geojsonio::geojson_sp. If FALSE and there are no attributes associated with the geometries, a GeometryCollection (or Spatial object with no dataframe) will be output.
sys	Should the system mapshaper be used instead of the bundled mapshaper? Gives better performance on large files. Requires the mapshaper node package to be installed and on the PATH.
sys_mem	How much memory (in GB) should be allocated if using the system mapshaper (sys = TRUE)? Default 8. Ignored if sys = FALSE.

Value

topological boundaries as lines, in the same class as the input

Examples

```
library(geojsonio)
library(sp)

poly <- structure('{"type":"FeatureCollection",
             "features":[
```

```
              {"type":"Feature",
              "properties":{"foo": "a"},
              "geometry":{"type":"Polygon","coordinates":[[
              [102,2],[102,3],[103,3],[103,2],[102,2]
              ]]}}
              ,{"type":"Feature",
              "properties":{"foo": "a"},
              "geometry":{"type":"Polygon","coordinates":[[
              [103,3],[104,3],[104,2],[103,2],[103,3]
              ]]}},
              {"type":"Feature",
              "properties":{"foo": "b"},
              "geometry":{"type":"Polygon","coordinates":[[
              [102.5,1],[102.5,2],[103.5,2],[103.5,1],[102.5,1]
              ]]}}]}', class = c("json", "geo_json"))

poly <- geojson_sp(poly)
summary(poly)
plot(poly)

out <- ms_lines(poly)
summary(out)
plot(out)
```

---

ms_points   *Create points from a polygon layer*

Description

Can be generated from the polygons by specifying `location` to be `"centroid"` or `"inner"`, OR by specifying fields in the attributes of the layer containing x and y coordinates.

Usage

```
ms_points(
  input,
  location = NULL,
  x = NULL,
  y = NULL,
  force_FC = TRUE,
  sys = FALSE,
  sys_mem = 8
)
```

Arguments

input   input polygons object to convert to points. One of:

- `geo_json` or `character` polygons;

- geo_list polygons;
- SpatialPolygons*;
- sf or sfc polygons object

location   either "centroid" or "inner". If "centroid", creates points at the centroid of
                the largest ring of each polygon feature. if "inner", creates points in the interior
                of the largest ring of each polygon feature. Inner points are located away from
                polygon boundaries. Must be NULL if x and y are specified. If left as NULL
                (default), will use centroids.

x   name of field containing x coordinate values. Must be NULL if location is
                specified.

y   name of field containing y coordinate values. Must be NULL if location is
                specified.

force_FC   should the output be forced to be a FeatureCollection (or Spatial*DataFrame)
                even if there are no attributes? Default TRUE. FeatureCollections are more com-
                patible with rgdal::readOGR and geojsonio::geojson_sp. If FALSE and there are
                no attributes associated with the geometries, a GeometryCollection (or Spatial
                object with no dataframe) will be output.

sys   Should the system mapshaper be used instead of the bundled mapshaper? Gives
                better performance on large files. Requires the mapshaper node package to be
                installed and on the PATH.

sys_mem   How much memory (in GB) should be allocated if using the system mapshaper
                (sys = TRUE)? Default 8. Ignored if sys = FALSE.

Value

points in the same class as the input.

Examples

```
library(geojsonio)
library(sp)

poly <- structure("{\"type\":\"FeatureCollection\",
          \"features\":[{\"type\":\"Feature\",\"properties\":
          {\"x_pos\": 1, \"y_pos\": 2},
          \"geometry\":{\"type\":\"Polygon\",
          \"coordinates\":[[[102,2],[102,4],[104,4],[104,2],[102,2]]]}},
          {\"type\":\"Feature\",\"properties\":{\"x_pos\": 3, \"y_pos\": 4},
          \"geometry\":{\"type\":\"Polygon\",
          \"coordinates\":[[[100,2],[98,4],[101.5,4],[100,2]]]}},
          {\"type\":\"Feature\",\"properties\":{\"x_pos\": 5, \"y_pos\": 6},
          \"geometry\":{\"type\":\"Polygon\",
          \"coordinates\":[[[100,0],[100,1],[101,1],[101,0],[100,0]]]}}]}",
          class = c("json", "geo_json"))

poly <- geojson_sp(poly)
summary(poly)
plot(poly)
```

```
# Convert to points using centroids
out <- ms_points(poly, location = "centroid")
summary(out)
plot(out)

# Can also specify locations using attributes in the data
out <- ms_points(poly, x = "x_pos", y = "y_pos")
summary(out)
plot(out)
```

---

ms_simplify   *Topologically-aware geometry simplification.*

Description

Uses mapshaper to simplify polygons.

Usage

```
ms_simplify(
  input,
  keep = 0.05,
  method = NULL,
  weighting = 0.7,
  keep_shapes = FALSE,
  no_repair = FALSE,
  snap = TRUE,
  explode = FALSE,
  force_FC = TRUE,
  drop_null_geometries = TRUE,
  snap_interval = NULL,
  sys = FALSE,
  sys_mem = 8
)
```

Arguments

input   spatial object to simplify. One of:

- geo_json or character polygons or lines;
- geo_list polygons or lines;
- SpatialPolygons* or SpatialLines*;
- sf or sfc polygons or lines object

keep   proportion of points to retain (0-1; default 0.05)

method	simplification method to use: `"vis"` for Visvalingam algorithm, or `"dp"` for Douglas-Peuker algorithm. If left as `NULL` (default), uses Visvalingam simplification but modifies the area metric by underweighting the effective area of points at the vertex of more acute angles, resulting in a smoother appearance. See this <https://github.com/mbloch/mapshaper/wiki/Simplification-Tips>link for more information.
weighting	Coefficient for weighting Visvalingam simplification (default is 0.7). Higher values produce smoother output. weighting=0 is equivalent to unweighted Visvalingam simplification.
keep_shapes	Prevent small polygon features from disappearing at high simplification (default `FALSE`)
no_repair	disable intersection repair after simplification (default `FALSE`).
snap	Snap together vertices within a small distance threshold to fix small coordinate misalignment in adjacent polygons. Default `TRUE`.
explode	Should multipart polygons be converted to singlepart polygons? This prevents small shapes from disappearing during simplification if `keep_shapes = TRUE`. Default `FALSE`
force_FC	should the output be forced to be a FeatureCollection (or Spatial*DataFrame) even if there are no attributes? Default `TRUE`. FeatureCollections are more compatible with rgdal::readOGR and geojsonio::geojson_sp. If FALSE and there are no attributes associated with the geometries, a GeometryCollection (or Spatial object with no dataframe) will be output.
drop_null_geometries	
	should Features with null geometries be dropped? Ignored for `Spatial*` objects, as it is always `TRUE`.
snap_interval	Specify snapping distance in source units, must be a numeric. Default `NULL`
sys	Should the system mapshaper be used instead of the bundled mapshaper? Gives better performance on large files. Requires the mapshaper node package to be installed and on the PATH.
sys_mem	How much memory (in GB) should be allocated if using the system mapshaper (`sys = TRUE`)? Default 8. Ignored if `sys = FALSE`.

Value

a simplified representation of the geometry in the same class as the input

Examples

```
# With a simple geojson object
poly <- structure('{
 "type": "Feature",
 "properties": {},
 "geometry": {
   "type": "Polygon",
   "coordinates": [[
     [-70.603637, -33.399918],
     [-70.614624, -33.395332],
```

```
        [-70.639343, -33.392466],
        [-70.659942, -33.394759],
        [-70.683975, -33.404504],
        [-70.697021, -33.419406],
        [-70.701141, -33.434306],
        [-70.700454, -33.446339],
        [-70.694274, -33.458369],
        [-70.682601, -33.465816],
        [-70.668869, -33.472117],
        [-70.646209, -33.473835],
        [-70.624923, -33.472117],
        [-70.609817, -33.468107],
        [-70.595397, -33.458369],
        [-70.587158, -33.442901],
        [-70.587158, -33.426283],
        [-70.590591, -33.414248],
        [-70.594711, -33.406224],
        [-70.603637, -33.399918]
    ]]
 }
}', class = c("json", "geo_json"))

ms_simplify(poly, keep = 0.1)

# With a SpatialPolygonsDataFrame:

poly_sp <- geojsonio::geojson_sp(poly)
ms_simplify(poly_sp, keep = 0.5)
```

---

rmapshaper   *rmapshaper: Client for 'mapshaper' for 'Geospatial' Operations*

Description

Edit and simplify 'geojson', 'Spatial', and 'sf' objects. This is wrapper around the 'mapshaper'
'javascript' library by Matthew Bloch <https://github.com/mbloch/mapshaper/> to perform topologically-
aware polygon simplification, as well as other operations such as clipping, erasing, dissolving, and
converting 'multi-part' to 'single-part' geometries. It relies on the 'geojsonio' package for work-
ing with 'geojson' objects, the 'sf' package for working with 'sf' objects, and the 'sp' and 'rgdal'
packages for working with 'Spatial' objects.

rmapshaper functions

All functions

- `ms_simplify` - simplify polygons or lines
- `ms_clip` - clip an area out of a layer using a polygon layer or a bounding box. Works on
  polygons, lines, and points

- `ms_erase` - erase an area from a layer using a polygon layer or a bounding box. Works on polygons, lines, and points
- `ms_dissolve` - aggregate polygon features, optionally specifying a field to aggregate on. If no field is specified, will merge all polygons into one.
- `ms_explode` - convert multipart shapes to single part. Works with polygons, lines, and points in geojson format, but currently only with polygons and lines in the `Spatial` classes (not `SpatialMultiPoints` and `SpatialMultiPointsDataFrame`).
- `ms_lines` - convert polygons to topological boundaries (lines)
- `ms_innerlines` - convert polygons to shared inner boundaries (lines)
- `ms_points` - create points from a polygon layer
- `ms_filter_fields` - Remove fields from the attributes
- `ms_filter_islands` - Remove small detached polygons

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