

Package ‘RWmisc’

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Type Package

Title Miscellaneous Spatial Functions

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Description Contains convenience functions for working with spatial data across multiple UTM zones, raster-vector operations common in the analysis of conflict data, and converting degrees, minutes, and seconds latitude and longitude coordinates to decimal degrees.

Depends R (>= 3.4.0)

Imports sf, sp, raster, units

Suggests ggplot2, geosphere, lwgeom, microbenchmark, knitr, rmarkdown, testthat (>= 2.1.0), covr

License GPL (>= 3)

Encoding UTF-8

URL <https://github.com/jayrobwilliams/RWmisc>

BugReports <https://github.com/jayrobwilliams/RWmisc/issues>

VignetteBuilder knitr

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NeedsCompilation no

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dms2dd	<i>Convert from degrees, minutes, and seconds to decimal degrees</i>
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Description

Convert latitudes and longitudes from degrees, minutes, and seconds to decimal degrees for conversion to spatial objects.

Usage

```
dms2dd(lon, lat)
```

Arguments

- lon a character vector of longitude coordinates in degrees, minutes, and seconds; see details
- lat a character vector of latitude coordinates in degrees, minutes, and seconds; see details

Details

lon and lat are expected to be in the format "degrees° minutes' seconds" (direction)" where direction is optional. If direction is not present, dms2dd will use negative signs (-) to determine positioning of coordinates.

Value

An $n * 2$ matrix where n is the length of lon and lat.

Examples

```
ll <- data.frame(lon = c("-122° 19' 55\"",  
                      "71° 3' 32\" W"),  
                  lat = c("47° 36' 22\"",  
                      "42° 21' 36\" N"),  
                  stringsAsFactors = FALSE)  
dms2dd(ll[, 'lon'], ll[, 'lat'])
```

gadm.extract

*Extract layers by country from GADM GeoPackage file***Description**

Extract one or more levels of administrative unit geometries from the GADM database in GeoPackage format

Usage

```
gadm.extract(input, output, countries = NULL, level = 0:5, ...)
```

Arguments

input	GeoPackage file to read from
output	name of file to save output to
countries	country or countries to limit results to, if NULL returns all countries
level	level(s) of administrative units 0:5 to extract; note not all levels are defined for all countries
...	additional arguments passed to <code>sf::st_write()</code>

Details

This function is designed to extract subsets of the **Database of Global Administrative Areas (GADM)**. It uses the version of the database in GeoPackage format that provides one layer for each level of administrative division, available at https://gadm.org/download_world.html. The current version of this file is `gadm36_levels.gpkg`. It is intended for programmatic and reproducible subsetting of the database without requiring the user to individually download specific country data files.

Examples

```
## Not run:
## extract
gadm.extract("gadm36_levels.gpkg", "Nordics.gpkg",
             c("Denmark", "Finland", "Iceland", "Norway", "Sweden"),
             level = 0:2)

## add layers 3 and 4, use delete_layer = TRUE to rewrite existing layers
gadm.extract("gadm36_levels.gpkg", "Nordics.gpkg",
             c("Denmark", "Finland", "Iceland", "Norway", "Sweden"),
             level = 0:4, delete_layer = TRUE)

## End(Not run)
```



```

      crs = st_crs('OGC:CRS84'))
raster_t <- raster(nrows = 10, ncols = 10, xmn = 0,
                  xmx = 10, ymn = 0, ymx = 10,
                  vals = 1:100,
                  crs = CRS(st_crs(polys_t)$proj4string))
overlap.weight(raster_t, polys_t)

```

point.poly.dist	<i>Point-Polygon Distances</i>
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Description

Calculate the maximum or minimum possible distance from a point to the edge of a given polygon.

Usage

```
point.poly.dist(point, poly, max = TRUE, by_element = FALSE)
```

Arguments

point	A simplefeatures object of class point.
poly	A simplefeatures object of class polygon or multipolygon.
max	Logical; return maximum or minimum distance? default TRUE
by_element	Logical; return total maximum or minimum, or for each input point? default FALSE

Value

Maximum or minimum distance between a point and a polygon.

Examples

```

library(sf)
polys <- st_sfc(st_polygon(list(rbind(c(0,0), c(0,1), c(1,1), c(1,0), c(0,0)))))
crs = st_crs('OGC:CRS84')
points <- st_sfc(st_multipoint(rbind(c(.25, .5), c(.75, .5), c(.5, .5))),
                  crs = st_crs('OGC:CRS84'))
point.poly.dist(points, polys)

```

`projectUTM`*Project to UTM*

Description

Project an object in latitude/longitude to UTM.

Usage

```
projectUTM(x)

## S3 method for class 'sf'
projectUTM(x)

## S3 method for class 'sfc'
projectUTM(x)

## S3 method for class 'SpatialPointsDataFrame'
projectUTM(x)

## S3 method for class 'SpatialPoints'
projectUTM(x)

## S3 method for class 'SpatialPolygonsDataFrame'
projectUTM(x)

## S3 method for class 'SpatialPolygons'
projectUTM(x)
```

Arguments

`x` An sf or sp object in latitude-longitude CRS.

Value

An sf or sp object projected to UTM CRS.

Examples

```
library(sf)
nc <- st_read(system.file("shape/nc.shp", package="sf"))
st_crs(projectUTM(nc))
```

theme_rw	<i>Blank Theme</i>
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Description

A ggplot theme with no grid elements or gray background.

Usage

```
theme_rw()
```

Value

A ggplot [theme](#) object.

Examples

```
ggplot2::ggplot(mtcars, ggplot2::aes(x = hp, y = mpg)) +  
ggplot2::geom_point() +  
theme_rw()
```

UTM.functions	<i>UTM Convenience Functions</i>
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Description

Functions for converting latitude-longitude data to UTM.

Usage

```
long2UTM(long)
```

```
UTMzones(long)
```

```
chooseUTM(long)
```

Arguments

long A vector of longitude values.

Value

UTM vector of zone numbers.

UTM vector of zone numbers.

UTM zone number.

Examples

```
long2UTM(c(-90, 0, 90))  
UTMzones(c(-90, 90, 90))  
chooseUTM(c(-90, -80, -70))
```


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