

Package ‘readobj’

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Type Package

Title Fast Reader for 'Wavefront' OBJ 3D Scene Files

Version 0.3.2

Description Wraps 'tiny_obj_loader' C++ library for reading the 'Wavefront' OBJ 3D file format including both mesh objects and materials files. The resultant R objects are either structured to match the 'tiny_obj_loader' internal data representation or in a form directly compatible with the 'rgl' package.

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LazyData TRUE

Imports Rcpp (>= 0.11.6), grDevices

LinkingTo Rcpp

Suggests testthat, rgl

URL <https://github.com/jefferis/readobj>

BugReports <https://github.com/jefferis/readobj/issues>

RoxygenNote 6.1.1

NeedsCompilation yes

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readobj-package	<i>Wrapper for tiny_obj_loader single file C++ library</i>
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Description

This package provides fast reading of Wavefront OBJ files with support for some material properties using the [tinyobjloader](#) C++ library. It is noticeably faster than the pure R [readOBJ](#) implemented in the [rgl](#) package.

Details

Note that the [rgl](#) package does provide a [writeOBJ](#) function, whereas this library only focusses on fast reading of OBJ files.

See Also

[read.obj](#), [readOBJ](#)

read.obj	<i>Read a Wavefront OBJ 3D scene file into an R list</i>
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Description

Read a Wavefront OBJ 3D scene file into an R list

Usage

```
read.obj(f, materialspath = NULL, convert.rgl = FALSE)
```

Arguments

<code>f</code>	Path to an OBJ file
<code>materialspath</code>	Path to a folder containing materials files. This is optional and only required if materials files are in a different folder from the OBJ file defined by <code>f</code> .
<code>convert.rgl</code>	Whether to convert the returned list to a <code>rgl::shapelist3d</code> object containing <code>rgl::mesh3d</code> objects.

Value

When `convert.rgl=FALSE`, the default, a named list with items `shapes` and `materials`, each containing sublists with one entry per object (`shapes`) or material (`materials`). Objects in the `shapes` list have the following structure

- positions 3xN set of 3D vertices

- normals 3xN set of normal directions for each vertex (has 3 rows and 0 cols when normals are not available)
- texcoords vector containing unprocessed texture coordinates
- indices 3/4xM set of indices into vertex array (trimesh/quadmesh) 0-indexed
- material_ids (0-indexed, -1 when not set)

When `convert.rgl=FALSE` a list of class `shapelist3d` containing a `mesh3d` for each object or group element in the original OBJ file. See [tinyobj2shapelist3d](#) for details of `rgl` conversion.

Sample files

Note that at the request of the CRAN maintainers the sample files have the file extension `.wavefront` instead of the standard `.obj` because this triggers a false positive R CMD check NOTE.

See Also

[tinyobj2shapelist3d](#), `rgl::readOBJ` for simpler, pure R implementation.

Examples

```
cube=read.obj(system.file("obj/cube.wavefront", package = "readobj"))
str(cube, max.level = 3)

# demonstrate direct conversion of result to rgl format
if(require('rgl')) {
  cuber=read.obj(system.file("obj/cube.wavefront", package = "readobj"),
    convert.rgl=TRUE)
  shade3d(cuber)
}
```

`tinyobj2shapelist3d` *Convert the raw tinyobjloader shapes/materials list into an rgl shapelist3d*

Description

Convert the raw `tinyobjloader` shapes/materials list into an `rgl shapelist3d`

Usage

```
tinyobj2shapelist3d(x)
```

Arguments

`x` A raw `tinyobjloader` shapes/materials list

Details

Not all materials settings can be processed at the moment. In particular only the following are used:

- diffuse -> mapped onto rgl material color field
- ambient
- specular
- emission

Value

a list of class shapelist3d containing a mesh3d for each object or group element in the original OBJ file.

See Also

[read.obj](#), [mesh3d](#), [shapelist3d](#), [rgl.material](#)

Examples

```
cube=read.obj(system.file("obj/cube.wavefront", package = "readobj"))
if(require("rgl")){
  cubesl=tinyobj2shapelist3d(cube)
  shade3d(cubesl)
}
```

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