

# Package ‘lgtdl’

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**Version** 1.1.1

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**Title** A set of methods for longitudinal data objects.

**Description** A very simple implementation of a class for longitudinal data. See my paper in the DSC-2001 proceedings.

**Depends** R(>= 1.2)

**License** GPL

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`as.lgtdl`*Longitudinal Class*

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**Description**

`as.lgtdl` coerces its argument to class `lgtdl` if possible. `is.lgtdl` returns TRUE if its argument is of class `lgtdl` and FALSE otherwise.

**Usage**

```
as.lgtdl(x, row.names=NULL)
is.lgtdl(x)
```

**Arguments**

<code>x</code>	An object which is coerced to a <code>lgtdl</code> object for <code>as.lgtdl</code> or tested with <code>is.lgtdl</code> .
<code>row.names</code>	An optional set of row names to be used for the names of the covariates in the resulting <code>lgtdl</code> object.

**Value**

<code>is.lgtdl</code>	Returns TRUE if its argument is of class <code>lgtdl</code> .
<code>as.lgtdl</code>	Returns an object of class <code>lgtdl</code> .

**Author(s)**

Robert Gentleman

**See Also**

[plot.lgtdl](#), [lgtdl](#)

**Examples**

```
x1<-data.frame(time=c(1,3,5), cov=c(4,6,8))
x2<-data.frame(time=c(11,13,15), interest=c(66,45,88))

x1<-as.lgtdl(x1)
x2<-as.lgtdl(x2)

is.lgtdl(TRUE)
```

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`getcov`*A function to extract the covariate from an object of class `lgt dl`.*

---

**Description**

The covariate component of the `lgt dl` object is returned.

**Usage**

```
getcov(x, ...)  
getcov.lgt dl(x, cov, ...)
```

**Arguments**

<code>x</code>	The <code>lgt dl</code> object.
<code>cov</code>	The name of the covariate to be extracted.
<code>...</code>	Ignored, there for potential future use.

**Value**

The covariate, as either a matrix or vector, is returned.

**Author(s)**

Robert Gentleman

**See Also**

[lgt dl](#), [as.lgt dl](#)

**Examples**

```
x1<-data.frame(time=c(1,3,5), cov=c(4,6,8))  
x2<-data.frame(time=c(11,13,15), interest=c(66,45,88))  
  
x1<-as.lgt dl(x1)  
x2<-as.lgt dl(x2)  
getcov(x1)  
getcov(x2)
```

---

interplinear	<i>A function to provide estimates of the response for a longitudinal data object. The estimate is obtained by linear interpolation from the preceding and following observations.</i>
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### Description

A linear interpolation, using [approx](#), is used to obtain estimates of the covariate at times other than those observed.

### Usage

```
interplinear(x, ...)  
interplinear.lgtdl(x, time, cov = NULL, ...)  
interplinear.AsIs(x, ...)
```

### Arguments

x	The lgtdl object that is to be interpolated.
time	The time(s) at which interpolation is desired.
cov	The name of the covariate in the lgtdl object on which the interpolation should be based. It is not required if there is only one covariate.
...	Ignored.

### Value

A vector containing the interpolated estimates of the covariate values at the requested times.

### Author(s)

Robert Gentleman

### See Also

[interpprev](#)

### Examples

```
x1<-data.frame(time=c(1,3,5), cov=c(4,6,8))  
x2<-data.frame(time=c(11,13,15), interest=c(66,45,88))  
x1<-as.lgtdl(x1)  
x2<-as.lgtdl(x2)  
interpprev(x1, 4)  
interpprev(x2, c(12, 14))
```

---

`interpprev`*Interpolation Using the Previous Value*

---

**Description**

These functions provide an interpolation mechanism for objects of class `lgtدل`. The `AsIs` method is the vectorized version.

**Usage**

```
interpprev(x, ...)  
interpprev.lgtدل(x, time, cov, ...)  
interpprev.AsIs(x, ...)
```

**Arguments**

<code>x</code>	<code>x</code> is either an object of class <code>lgtدل</code> or of class <code>AsIs</code> . It is the object on which interpolation is to be performed.
<code>time</code>	A vector of times at which interpolation is requested.
<code>cov</code>	The name of the covariate on which interpolation is requested. It is only required if <code>x</code> has more than one covariate.
<code>...</code>	Ignored.

**Details**

If objects of class `lgtدل` are inserted into a data frame they become a vector with class `AsIs`. In order to operate on these we provide a method for that class. The method is simply a vectorized version.

**Value**

`interpprev.lgtدل` returns a numeric vector of the interpolated values of the covariate at the time(s) specified by `time`. `interpprev.AsIs` returns a vector of interpolated values of the covariate. In this case the vector contains one value for each element `x`. `time` must be either the same length as `x` or of length one. In the latter case all interpolations are done at that time.

**Author(s)**

Robert Gentleman

**See Also**

[interplinear](#)

**Examples**

```
x1<-data.frame(time=c(1,3,5), cov=c(4,6,8))
x2<-data.frame(time=c(11,13,15), interest=c(66,45,88))
x1<-as.lgtdl(x1)
x2<-as.lgtdl(x2)
interpprev(x1, c(2,4))
interpprev(x2, c(12, 14))
```

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`lgtdl`*Longitudinal Class*

---

**Description**

The `lgtdl` class is a simple class of R/S objects that make it simpler to manipulate longitudinal data.

**Author(s)**

Robert Gentleman

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`plot.lgtdl`*A function for plotting lgtdl objects.*

---

**Description**

A `lgtdl` object consists of a time component and one or more covariates measured or observed at the times specified in the time component. This function plots the covariate trajectories as lines on the y axis.

**Usage**

```
plot.lgtdl(x, ...)
```

**Arguments**

`x` An object of class `lgtdl`.  
`...` Optional arguments to control the plotting.

**Details**

One should be able to specify values for any of the graphics parameters to change the appearance of the plot.

**Value**

No value is returned. A line plot of the longitudinal object is rendered on the active graphics device.

**Author(s)**

Robert Gentleman

**See Also**[lgtdl](#)**Examples**

```
x1<-data.frame(time=c(1,3,5), cov=c(4,6,8))
x2<-data.frame(time=c(11,13,15), interest=c(66,45,88))
```

```
x1<-as.lgtdl(x1)
x2<-as.lgtdl(x2)
plot(x1)
plot(x2)
```

---

`toString.lgtdl`*Produce a character string suitable for printing.*

---

**Description**

Data frames can contain `lgtdl` objects as elements. When the data frame is printed this function provides a suitable string for printing.

**Usage**

```
toString.lgtdl(x, width, ...)
```

**Arguments**

<code>x</code>	The object to be formatted.
<code>width</code>	To control the width of the returned string-ignored.
<code>...</code>	Ignored.

**Value**

A character string. Currently it is "lgtdl, length = " with the length of the time component added.

**Author(s)**

Robert Gentleman

**See Also**`toString`

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