

Package ‘spnet’

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Description

Facilitates the rendering of networks for which nodes have a specific position on a map (cities, participants in a political debate, etc.). Map data and network data are stored together in a single object which handles the match between network nodes and their respective position on the map. The plot method renders both the map and the network data. Several networks can be plot simultaneously. The graphic is highly customisable and the legend is automatically printed. Map data have to be supplied as 'SpatialPolygons' objects (from the 'sp' package) and network data as 'named matrix'.

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color2blackwhite *Convert colors to contrasted gray level for black and white rendering*

Description

This function converts color codes (given in hexadecimal format) to contrasted gray levels. This is useful to enhance readability when printing in black and white. The conversion from color to gray levels is performed using the luminosity method ($0.21R + 0.72G + 0.07B$), then levels are linearly scaled to `[contrast.min;contrast.max]`.

Usage

```
color2blackwhite(x, increase.contrast = TRUE, contrast.min = 0.02,
  contrast.max = 0.98)
```

Arguments

`x` a character, the vector of color codes given in hexadecimal format (ex "#21AD5C").

`increase.contrast` a logical, if TRUE the scaling is performed.

`contrast.min` the minimal gray value to use in the scaling (0 = white, 1 = black).

`contrast.max` the maximal gray value to use in the scaling (0 = white, 1 = black).

Examples

```
mycols = c("#BA364E", "#32BAA1", "#12AA91")
color2blackwhite(mycols)

barplot(1:3, axes=FALSE, col=mycols)
barplot(1:3, axes=FALSE, col=color2blackwhite(mycols, increase.contrast = FALSE))
barplot(1:3, axes=FALSE, col=color2blackwhite(mycols))
barplot(1:3, axes=FALSE, col=color2blackwhite(mycols, contrast.min = 0, contrast.max = 1))
```

graph.barplot.bgcolor *Get the barplot background color of a SpatialNetwork object*

Description

This generic method intends to extract the barplot background color of a SpatialNetwork object.

Usage

```
graph.barplot.bgcolor(object)

## S4 method for signature 'SpatialNetwork'
graph.barplot.bgcolor(object)

## S4 replacement method for signature 'SpatialNetwork,character'
graph.barplot.bgcolor(object) <- value
```

Arguments

object	a SpatialNetwork object.
value	the new color.

Methods (by class)

- SpatialNetwork: method for SpatialNetwork objects.
- object = SpatialNetwork,value = character: method for SpatialNetwork objects.

```
graph.barplot.bgcolor<-
```

Set the barplot background color of a SpatialNetwork object

Description

This generic method intends to set or replace the barplot background color of a SpatialNetwork object.

Usage

```
graph.barplot.bgcolor(object) <- value
```

Arguments

object	a SpatialNetwork object.
value	the new color.

```
graph.barplot.bound.lower
```

Get the barplot lower bound position of a SpatialNetwork object

Description

This generic method intends to extract the barplot lower bound position of a SpatialNetwork object.

Usage

```
graph.barplot.bound.lower(object)
```

```
## S4 method for signature 'SpatialNetwork'
graph.barplot.bound.lower(object)
```

```
## S4 replacement method for signature 'SpatialNetwork,numeric'
graph.barplot.bound.lower(object) <- value
```

Arguments

object	a SpatialNetwork object.
value	a numeric vector of coordinates, c(x,y), specifying a shift from the center of each country.

Methods (by class)

- SpatialNetwork: method for SpatialNetwork objects.
- object = SpatialNetwork,value = numeric: method for SpatialNetwork objects.

`graph.barplot.bound.lower<-`

Set the barplot lower bound position of a SpatialNetwork object

Description

This generic method intends to set or replace the barplot lower bound position of a `SpatialNetwork` object.

Usage

```
graph.barplot.bound.lower(object) <- value
```

Arguments

<code>object</code>	a <code>SpatialNetwork</code> object.
<code>value</code>	a numeric vector of coordinates, <code>c(x,y)</code> , specifying a shift from the center of each country.

`graph.barplot.bound.upper`

Get the barplot upper bound position of a SpatialNetwork object

Description

This generic method intends to extract the barplot upper bound position of a `SpatialNetwork` object.

Usage

```
graph.barplot.bound.upper(object)
```

```
## S4 method for signature 'SpatialNetwork'  
graph.barplot.bound.upper(object)
```

```
## S4 replacement method for signature 'SpatialNetwork,numeric'  
graph.barplot.bound.upper(object) <- value
```

Arguments

<code>object</code>	a <code>SpatialNetwork</code> object.
<code>value</code>	a numeric vector of coordinates, <code>c(x,y)</code> , specifying a shift from the center of each country.

Methods (by class)

- `SpatialNetwork`: method for `SpatialNetwork` objects.
- `object = SpatialNetwork, value = numeric`: method for `SpatialNetwork` objects.

```
graph.barplot.bound.upper<-
    Set the barplot upper bound position of a SpatialNetwork object
```

Description

This generic method intends to set or replace the barplot upper bound position of a `SpatialNetwork` object.

Usage

```
graph.barplot.bound.upper(object) <- value
```

Arguments

<code>object</code>	a <code>SpatialNetwork</code> object.
<code>value</code>	a numeric vector of coordinates, <code>c(x,y)</code> , specifying a shift from the center of each country.

```
graph.barplot.fgcolor Get the barplot foreground color of a SpatialNetwork object
```

Description

This generic method intends to extract the barplot foreground color of a `SpatialNetwork` object.

Usage

```
graph.barplot.fgcolor(object)

## S4 method for signature 'SpatialNetwork'
graph.barplot.fgcolor(object)

## S4 replacement method for signature 'SpatialNetwork,character'
graph.barplot.fgcolor(object) <- value
```

Arguments

<code>object</code>	a <code>SpatialNetwork</code> object.
<code>value</code>	the color.

Methods (by class)

- `SpatialNetwork`: method for `SpatialNetwork` objects.
- `object = SpatialNetwork, value = character`: method for `SpatialNetwork` objects.

```
graph.barplot.fgcolor<-  
    Set the barplot foreground color of a SpatialNetwork object
```

Description

This generic method intends to set or replace the barplot foreground color of a `SpatialNetwork` object.

Usage

```
graph.barplot.fgcolor(object) <- value
```

Arguments

<code>object</code>	a <code>SpatialNetwork</code> object.
<code>value</code>	the color.

```
graph.barplot.list    Get the list of all barplot parameters of a SpatialNetwork object
```

Description

This generic method intends to extract barplot parameters of a `SpatialNetwork` object.

Usage

```
graph.barplot.list(object)  
  
## S4 method for signature 'SpatialNetwork'  
graph.barplot.list(object)  
  
## S4 replacement method for signature 'SpatialNetwork,list'  
graph.barplot.list(object) <- value
```

Arguments

<code>object</code>	the <code>SpatialNetwork</code> object for which we want to get parameters.
<code>value</code>	a list of parameters.

Methods (by class)

- SpatialNetwork: method for SpatialNetwork objects.
- object = SpatialNetwork, value = list: method for SpatialNetwork objects.

```
graph.barplot.list<- Set the list of all barplot parameters of a SpatialNetwork object
```

Description

This generic method intends to set or replace barplot parameters of a SpatialNetwork object.

Usage

```
graph.barplot.list(object) <- value
```

Arguments

object	the SpatialNetwork object for which we want to set parameters.
value	a list of parameters.

```
graph.barplot.variable  
Get the barplot variable of a SpatialNetwork object
```

Description

This generic method intends to extract the barplot variable of a SpatialNetwork object.

Usage

```
graph.barplot.variable(object)  
  
## S4 method for signature 'SpatialNetwork'  
graph.barplot.variable(object)  
  
## S4 replacement method for signature 'SpatialNetwork,character'  
graph.barplot.variable(object) <- value
```

Arguments

object	a SpatialNetwork object.
value	the name of the variable to use for plotting barplots.

Methods (by class)

- SpatialNetwork: method for SpatialNetwork objects.
- object = SpatialNetwork, value = character: method for SpatialNetwork objects.

```
graph.barplot.variable<-  
    Set the barplot variable of a SpatialNetwork object
```

Description

This generic method intends to set or replace the barplot variable of a `SpatialNetwork` object.

Usage

```
graph.barplot.variable(object) <- value
```

Arguments

object	a <code>SpatialNetwork</code> object.
value	the name of the variable to use for plotting barplots.

```
graph.barplot.width    Get the barplot width of a SpatialNetwork object
```

Description

This generic method intends to extract the barplot width of a `SpatialNetwork` object.

Usage

```
graph.barplot.width(object)  
  
## S4 method for signature 'SpatialNetwork'  
graph.barplot.width(object)  
  
## S4 replacement method for signature 'SpatialNetwork,numeric'  
graph.barplot.width(object) <- value
```

Arguments

object	a <code>SpatialNetwork</code> object.
value	a numeric.

Methods (by class)

- `SpatialNetwork`: method for `SpatialNetwork` objects.
- `object = SpatialNetwork, value = numeric`: method for `SpatialNetwork` objects.

```
graph.barplot.width<- Set the barplot width of a SpatialNetwork object
```

Description

This generic method intends to set or replace the barplot width of a `SpatialNetwork` object.

Usage

```
graph.barplot.width(object) <- value
```

Arguments

<code>object</code>	a <code>SpatialNetwork</code> object.
<code>value</code>	a numeric.

```
graph.blackwhite.enable  
Get the black and white mode status of a SpatialNetwork object
```

Description

This generic method intends to extract the black and white mode status of a `SpatialNetwork` object.

Usage

```
graph.blackwhite.enable(object)

## S4 method for signature 'SpatialNetwork'
graph.blackwhite.enable(object)

## S4 replacement method for signature 'SpatialNetwork,logical'
graph.blackwhite.enable(object) <- value
```

Arguments

<code>object</code>	a <code>SpatialNetwork</code> object.
<code>value</code>	a logical, the black and white mode status.

Methods (by class)

- `SpatialNetwork`: method for `SpatialNetwork` objects.
- `object = SpatialNetwork, value = logical`: method for `SpatialNetwork` objects.

`graph.blackwhite.enable<-`*Set the black and white mode status of a SpatialNetwork object*

Description

This generic method intends to set or replace the black and white mode status of a SpatialNetwork object.

Usage

```
graph.blackwhite.enable(object) <- value
```

Arguments

object	a SpatialNetwork object.
value	a logical, the black and white mode status.

```
graph.blackwhite.list Get the list of all black and white mode parameters of a SpatialNetwork object
```

Description

This generic method intends to extract black and white mode parameters of a SpatialNetwork object.

Usage

```
graph.blackwhite.list(object)
```

```
## S4 method for signature 'SpatialNetwork'  
graph.blackwhite.list(object)
```

```
## S4 replacement method for signature 'SpatialNetwork,list'  
graph.blackwhite.list(object) <- value
```

Arguments

object	the SpatialNetwork object for which we want to get parameters.
value	a list of parameters.

Methods (by class)

- SpatialNetwork: method for SpatialNetwork objects.
- object = SpatialNetwork,value = list: method for SpatialNetwork objects.

```
graph.blackwhite.list<-
    Set the list of all black and white mode parameters of a
    SpatialNetwork object
```

Description

This generic method intends to set or replace black and white mode parameters of a `SpatialNetwork` object.

Usage

```
graph.blackwhite.list(object) <- value
```

Arguments

object	the <code>SpatialNetwork</code> object for which we want to set parameters.
value	a list of parameters.

```
graph.blackwhite.max Get the black and white mode maximal gray value of a
    SpatialNetwork object
```

Description

This generic method intends to extract the black and white mode maximal gray value (from 0 to 1) of a `SpatialNetwork` object.

Usage

```
graph.blackwhite.max(object)

## S4 method for signature 'SpatialNetwork'
graph.blackwhite.max(object)

## S4 replacement method for signature 'SpatialNetwork,numeric'
graph.blackwhite.max(object) <- value
```

Arguments

object	a <code>SpatialNetwork</code> object.
value	a logical, the black and white mode maximal gray value.

Methods (by class)

- `SpatialNetwork`: method for `SpatialNetwork` objects.
- `object = SpatialNetwork, value = numeric`: method for `SpatialNetwork` objects.

```
graph.blackwhite.max<-
```

Set the black and white mode maximal gray value of a SpatialNetwork object

Description

This generic method intends to set or replace the black and white mode maximal gray value (from 0 to 1) of a SpatialNetwork object.

Usage

```
graph.blackwhite.max(object) <- value
```

Arguments

object	a SpatialNetwork object.
value	a numeric, the black and white mode maximal gray value.

```
graph.blackwhite.min
```

Get the black and white mode minimal gray value of a SpatialNetwork object

Description

This generic method intends to extract the black and white mode minimal gray value (from 0 to 1) of a SpatialNetwork object.

Usage

```
graph.blackwhite.min(object)
```

```
## S4 method for signature 'SpatialNetwork'
graph.blackwhite.min(object)
```

```
## S4 replacement method for signature 'SpatialNetwork,numeric'
graph.blackwhite.min(object) <- value
```

Arguments

object	a SpatialNetwork object.
value	a logical, the black and white mode minimal gray value.

Methods (by class)

- SpatialNetwork: method for SpatialNetwork objects.
- object = SpatialNetwork,value = numeric: method for SpatialNetwork objects.

```
graph.blackwhite.min<-
```

Set the black and white mode minimal gray value of a SpatialNetwork object

Description

This generic method intends to set or replace the black and white mode minimal gray value (from 0 to 1) of a SpatialNetwork object.

Usage

```
graph.blackwhite.min(object) <- value
```

Arguments

object	a SpatialNetwork object.
value	a numeric, the black and white mode minimal gray value.

```
graph.color.background
```

Get the background color of a SpatialNetwork object

Description

This generic method intends to extract the background color of a SpatialNetwork object.

Usage

```
graph.color.background(object)
```

```
## S4 method for signature 'SpatialNetwork'
graph.color.background(object)
```

```
## S4 replacement method for signature 'SpatialNetwork,character'
graph.color.background(object) <- value
```

Arguments

object	a SpatialNetwork object.
value	a character, the color.

Methods (by class)

- SpatialNetwork: method for SpatialNetwork objects.
- object = SpatialNetwork,value = character: method for SpatialNetwork objects.

```
graph.color.background<-  
    Set the background color of a SpatialNetwork object
```

Description

This generic method intends to set or replace the background color of a `SpatialNetwork` object.

Usage

```
graph.color.background(object) <- value
```

Arguments

object	a <code>SpatialNetwork</code> object.
value	a character, the color.

```
graph.color.border    Get the border color of a SpatialNetwork object
```

Description

This generic method intends to extract the border color of a `SpatialNetwork` object.

Usage

```
graph.color.border(object)  
  
## S4 method for signature 'SpatialNetwork'  
graph.color.border(object)  
  
## S4 replacement method for signature 'SpatialNetwork,character'  
graph.color.border(object) <- value
```

Arguments

object	a <code>SpatialNetwork</code> object.
value	a character, the color.

Methods (by class)

- `SpatialNetwork`: method for `SpatialNetwork` objects.
- `object = SpatialNetwork, value = character`: method for `SpatialNetwork` objects.

```
graph.color.border<- Set the border color of a SpatialNetwork object
```

Description

This generic method intends to set or replace the border color of a SpatialNetwork object.

Usage

```
graph.color.border(object) <- value
```

Arguments

object	a SpatialNetwork object.
value	a character, the color.

```
graph.color.legend Get the color legend of a SpatialNetwork object
```

Description

This generic method intends to extract the color legend of a SpatialNetwork object.

Usage

```
graph.color.legend(object)
```

```
## S4 method for signature 'SpatialNetwork'  
graph.color.legend(object)
```

```
## S4 replacement method for signature 'SpatialNetwork,character'  
graph.color.legend(object) <- value
```

Arguments

object	a SpatialNetwork object.
value	the color legend.

Methods (by class)

- SpatialNetwork: method for SpatialNetwork objects.
- object = SpatialNetwork,value = character: method for SpatialNetwork objects.

```
graph.color.legend<- Set the color legend of a SpatialNetwork object
```

Description

This generic method intends to set or replace the color legend of a SpatialNetwork object.

Usage

```
graph.color.legend(object) <- value
```

Arguments

object	a SpatialNetwork object.
value	the color legend.

```
graph.color.list Get the list of all color parameters of a SpatialNetwork object
```

Description

This generic method intends to extract color parameters of a SpatialNetwork object.

Usage

```
graph.color.list(object)

## S4 method for signature 'SpatialNetwork'
graph.color.list(object)

## S4 replacement method for signature 'SpatialNetwork,list'
graph.color.list(object) <- value
```

Arguments

object	the SpatialNetwork object for which we want to get parameters.
value	a list of parameters.

Methods (by class)

- SpatialNetwork: method for SpatialNetwork objects.
- object = SpatialNetwork,value = list: method for SpatialNetwork objects.

```
graph.color.list<-      Set the list of all color parameters of a SpatialNetwork object
```

Description

This generic method intends to set or replace color parameters of a `SpatialNetwork` object.

Usage

```
graph.color.list(object) <- value
```

Arguments

<code>object</code>	the <code>SpatialNetwork</code> object for which we want to set parameters.
<code>value</code>	a list of parameters.

```
graph.color.node      Get the default color of a node of a SpatialNetwork object
```

Description

This generic method intends to extract the default color of a node of a `SpatialNetwork` object.

Usage

```
graph.color.node(object)

## S4 method for signature 'SpatialNetwork'
graph.color.node(object)

## S4 replacement method for signature 'SpatialNetwork,character'
graph.color.node(object) <- value
```

Arguments

<code>object</code>	a <code>SpatialNetwork</code> object.
<code>value</code>	a character, the color.

Methods (by class)

- `SpatialNetwork`: method for `SpatialNetwork` objects.
- `object = SpatialNetwork, value = character`: method for `SpatialNetwork` objects.

```
graph.color.node<-      Set the default color of a node of a SpatialNetwork object
```

Description

This generic method intends to set or replace the default color of a node of a `SpatialNetwork` object.

Usage

```
graph.color.node(object) <- value
```

Arguments

object	a <code>SpatialNetwork</code> object.
value	a character, the color.

```
graph.color.region      Get the default color of a region of a SpatialNetwork object
```

Description

This generic method intends to extract the default color of a region of a `SpatialNetwork` object.

Usage

```
graph.color.region(object)

## S4 method for signature 'SpatialNetwork'
graph.color.region(object)

## S4 replacement method for signature 'SpatialNetwork,character'
graph.color.region(object) <- value
```

Arguments

object	a <code>SpatialNetwork</code> object.
value	a character, the color.

Methods (by class)

- `SpatialNetwork`: method for `SpatialNetwork` objects.
- `object = SpatialNetwork, value = character`: method for `SpatialNetwork` objects.

```
graph.color.region<- Set the default color of a region of a SpatialNetwork object
```

Description

This generic method intends to set or replace the default color of a region of a `SpatialNetwork` object.

Usage

```
graph.color.region(object) <- value
```

Arguments

object	a <code>SpatialNetwork</code> object.
value	a character, the color.

```
graph.color.variable Get the color variable of a SpatialNetwork object
```

Description

This generic method intends to extract the color variable of a `SpatialNetwork` object.

Usage

```
graph.color.variable(object)

## S4 method for signature 'SpatialNetwork'
graph.color.variable(object)

## S4 replacement method for signature 'SpatialNetwork,character'
graph.color.variable(object) <- value
```

Arguments

object	a <code>SpatialNetwork</code> object.
value	the new color, for example "#000000".

Methods (by class)

- `SpatialNetwork`: method for `SpatialNetwork` objects.
- `object = SpatialNetwork, value = character`: method for `SpatialNetwork` objects.

`graph.color.variable<-`

Set the color variable of a SpatialNetwork object

Description

This generic method intends to set or replace the color variable of a `SpatialNetwork` object.

Usage

```
graph.color.variable(object) <- value
```

Arguments

<code>object</code>	a <code>SpatialNetwork</code> object.
<code>value</code>	the new color, for example "#000000".

`graph.label.cex`

Get the label cex of a SpatialNetwork object

Description

This generic method intends to extract the label cex of a `SpatialNetwork` object.

Usage

```
graph.label.cex(object)
```

```
## S4 method for signature 'SpatialNetwork'  
graph.label.cex(object)
```

```
## S4 replacement method for signature 'SpatialNetwork,numeric'  
graph.label.cex(object) <- value
```

Arguments

<code>object</code>	a <code>SpatialNetwork</code> object.
<code>value</code>	numeric; the cex parameter.

Methods (by class)

- `SpatialNetwork`: method for `SpatialNetwork` objects.
- `object = SpatialNetwork, value = numeric`: method for `SpatialNetwork` objects.

```
graph.label.cex<-      Set the label cex of a SpatialNetwork object
```

Description

This generic method intends to set or replace the label cex of a `SpatialNetwork` object.

Usage

```
graph.label.cex(object) <- value
```

Arguments

<code>object</code>	a <code>SpatialNetwork</code> object.
<code>value</code>	numeric; the cex parameter.

```
graph.label.color      Get the label color of a SpatialNetwork object
```

Description

This generic method intends to extract the label color of a `SpatialNetwork` object.

Usage

```
graph.label.color(object)

## S4 method for signature 'SpatialNetwork'
graph.label.color(object)

## S4 replacement method for signature 'SpatialNetwork,character'
graph.label.color(object) <- value
```

Arguments

<code>object</code>	a <code>SpatialNetwork</code> object.
<code>value</code>	the new label, for example "#000000".

Methods (by class)

- `SpatialNetwork`: method for `SpatialNetwork` objects.
- `object = SpatialNetwork,value = character`: method for `SpatialNetwork` objects.

```
graph.label.color<- Set the label color of a SpatialNetwork object
```

Description

This generic method intends to set or replace the label color of a SpatialNetwork object.

Usage

```
graph.label.color(object) <- value
```

Arguments

object	a SpatialNetwork object.
value	the new label, for example "#000000".

```
graph.label.list Get the list of all label parameters of a SpatialNetwork object
```

Description

This generic method intends to extract label parameters of a SpatialNetwork object.

Usage

```
graph.label.list(object)

## S4 method for signature 'SpatialNetwork'
graph.label.list(object)

## S4 replacement method for signature 'SpatialNetwork,list'
graph.label.list(object) <- value
```

Arguments

object	the SpatialNetwork object for which we want to get parameters.
value	a list of parameters.

Methods (by class)

- SpatialNetwork: method for SpatialNetwork objects.
- object = SpatialNetwork,value = list: method for SpatialNetwork objects.

```
graph.label.list<-      Set the list of all label parameters of a SpatialNetwork object
```

Description

This generic method intends to set or replace label parameters of a `SpatialNetwork` object.

Usage

```
graph.label.list(object) <- value
```

Arguments

<code>object</code>	the <code>SpatialNetwork</code> object for which we want to set parameters.
<code>value</code>	a list of parameters.

```
graph.label.variable  Get the label variable of a SpatialNetwork object
```

Description

This generic method intends to extract the label variable of a `SpatialNetwork` object.

Usage

```
graph.label.variable(object)

## S4 method for signature 'SpatialNetwork'
graph.label.variable(object)

## S4 replacement method for signature 'SpatialNetwork,character'
graph.label.variable(object) <- value
```

Arguments

<code>object</code>	a <code>SpatialNetwork</code> object.
<code>value</code>	the new label, for example "#000000".

Methods (by class)

- `SpatialNetwork`: method for `SpatialNetwork` objects.
- `object = SpatialNetwork, value = character`: method for `SpatialNetwork` objects.

```
graph.label.variable<-
```

Set the label variable of a SpatialNetwork object

Description

This generic method intends to set or replace the label variable of a SpatialNetwork object.

Usage

```
graph.label.variable(object) <- value
```

Arguments

object	a SpatialNetwork object.
value	the new label, for example "#000000".

```
graph.layout.list
```

Get the list of all layout parameters of a SpatialNetwork object

Description

This generic method intends to extract layout parameters of a SpatialNetwork object.

Usage

```
graph.layout.list(object)
```

```
## S4 method for signature 'SpatialNetwork'
```

```
graph.layout.list(object)
```

```
## S4 replacement method for signature 'SpatialNetwork,list'
```

```
graph.layout.list(object) <- value
```

Arguments

object	the SpatialNetwork object for which we want to get parameters.
value	a list of parameters.

Methods (by class)

- SpatialNetwork: method for SpatialNetwork objects.
- object = SpatialNetwork,value = list: method for SpatialNetwork objects.

```
graph.layout.list<- Set the list of all layout parameters of a SpatialNetwork object
```

Description

This generic method intends to set or replace layout parameters of a `SpatialNetwork` object.

Usage

```
graph.layout.list(object) <- value
```

Arguments

<code>object</code>	the <code>SpatialNetwork</code> object for which we want to set parameters.
<code>value</code>	a list of parameters.

```
graph.legend.cex Get the legend cex parameter of a SpatialNetwork object
```

Description

This generic method intends to extract the legend cex parameter of a `SpatialNetwork` object.

Usage

```
graph.legend.cex(object)

## S4 method for signature 'SpatialNetwork'
graph.legend.cex(object)

## S4 replacement method for signature 'SpatialNetwork,numeric'
graph.legend.cex(object) <- value
```

Arguments

<code>object</code>	a <code>SpatialNetwork</code> object.
<code>value</code>	a numeric.

Methods (by class)

- `SpatialNetwork`: method for `SpatialNetwork` objects.
- `object = SpatialNetwork,value = numeric`: method for `SpatialNetwork` objects.

graph.legend.cex<- *Set the legend cex parameter of a SpatialNetwork object*

Description

This generic method intends to set or replace the legend cex parameter of a SpatialNetwork object.

Usage

```
graph.legend.cex(object) <- value
```

Arguments

object	a SpatialNetwork object.
value	a numeric.

graph.legend.horiz *Get the legend horizontal or vertical setting of a SpatialNetwork object*

Description

This generic method intends to extract the legend horizontal or vertical setting of a SpatialNetwork object.

Usage

```
graph.legend.horiz(object)

## S4 method for signature 'SpatialNetwork'
graph.legend.horiz(object)

## S4 replacement method for signature 'SpatialNetwork,logical'
graph.legend.horiz(object) <- value
```

Arguments

object	a SpatialNetwork object.
value	a logical.

Methods (by class)

- SpatialNetwork: method for SpatialNetwork objects.
- object = SpatialNetwork, value = logical: method for SpatialNetwork objects.

```
graph.legend.horiz<- Set the legend horizontal or vertical setting of a SpatialNetwork object
```

Description

This generic method intends to set or replace the legend horizontal or vertical setting of a SpatialNetwork object.

Usage

```
graph.legend.horiz(object) <- value
```

Arguments

object	a SpatialNetwork object.
value	a logical.

```
graph.legend.line.width  
Get the legend line width parameter of a SpatialNetwork object
```

Description

This generic method intends to extract the legend line width parameter of a SpatialNetwork object.

Usage

```
graph.legend.line.width(object)

## S4 method for signature 'SpatialNetwork'
graph.legend.line.width(object)

## S4 replacement method for signature 'SpatialNetwork,numeric'
graph.legend.line.width(object) <- value
```

Arguments

object	a SpatialNetwork object.
value	a logical.

Methods (by class)

- SpatialNetwork: method for SpatialNetwork objects.
- object = SpatialNetwork,value = numeric: method for SpatialNetwork objects.

```
graph.legend.line.width<-
```

Set the legend line width parameter of a SpatialNetwork object

Description

This generic method intends to set or replace the legend line width parameter of a SpatialNetwork object.

Usage

```
graph.legend.line.width(object) <- value
```

Arguments

object	a SpatialNetwork object.
value	a logical.

```
graph.legend.list
```

Get the list of all legend parameters of a SpatialNetwork object

Description

This generic method intends to extract legend parameters of a SpatialNetwork object.

Usage

```
graph.legend.list(object)

## S4 method for signature 'SpatialNetwork'
graph.legend.list(object)

## S4 replacement method for signature 'SpatialNetwork,list'
graph.legend.list(object) <- value
```

Arguments

object	the SpatialNetwork object for which we want to get parameters.
value	a list of parameters.

Methods (by class)

- SpatialNetwork: method for SpatialNetwork objects.
- object = SpatialNetwork,value = list: method for SpatialNetwork objects.

```
graph.legend.list<- Set the list of all legend parameters of a SpatialNetwork object
```

Description

This generic method intends to set or replace legend parameters of a `SpatialNetwork` object.

Usage

```
graph.legend.list(object) <- value
```

Arguments

object	the <code>SpatialNetwork</code> object for which we want to set parameters.
value	a list of parameters.

```
graph.legend.ncol Get the legend number of columns of a SpatialNetwork object
```

Description

This generic method intends to extract the legend number of columns of a `SpatialNetwork` object.

Usage

```
graph.legend.ncol(object)

## S4 method for signature 'SpatialNetwork'
graph.legend.ncol(object)

## S4 replacement method for signature 'SpatialNetwork,numeric'
graph.legend.ncol(object) <- value
```

Arguments

object	a <code>SpatialNetwork</code> object.
value	a numeric.

Methods (by class)

- `SpatialNetwork`: method for `SpatialNetwork` objects.
- `object = SpatialNetwork,value = numeric`: method for `SpatialNetwork` objects.

```
graph.legend.ncol<- Set the legend number of columns of a SpatialNetwork object
```

Description

This generic method intends to set or replace the legend number of columns of a SpatialNetwork object.

Usage

```
graph.legend.ncol(object) <- value
```

Arguments

object	a SpatialNetwork object.
value	a numeric.

```
graph.legend.print Get the legend print (yes/no) status of a SpatialNetwork object
```

Description

This generic method intends to extract the legend print (yes/no) status of a SpatialNetwork object.

Usage

```
graph.legend.print(object)

## S4 method for signature 'SpatialNetwork'
graph.legend.print(object)

## S4 replacement method for signature 'SpatialNetwork,logical'
graph.legend.print(object) <- value
```

Arguments

object	a SpatialNetwork object.
value	a logical.

Methods (by class)

- SpatialNetwork: method for SpatialNetwork objects.
- object = SpatialNetwork,value = logical: method for SpatialNetwork objects.

```
graph.legend.print<- Set the legend print (yes/no) status of a SpatialNetwork object
```

Description

This generic method intends to set or replace the legend print (yes/no) status of a SpatialNetwork object.

Usage

```
graph.legend.print(object) <- value
```

Arguments

object	a SpatialNetwork object.
value	a logical.

```
graph.map Get the map to a SpatialNetwork object
```

Description

This generic method intends to extract the map object. Currently only SpatialPolygons from the sp package are supported.

Usage

```
graph.map(object)

## S4 method for signature 'SpatialNetwork'
graph.map(object)

## S4 replacement method for signature 'SpatialNetwork,SpatialPolygons'
graph.map(object) <- value
```

Arguments

object	the SpatialNetwork object for which we want to get the map.
value	the map.

Methods (by class)

- SpatialNetwork: method for SpatialPolygons objects.
- object = SpatialNetwork,value = SpatialPolygons: method for SpatialPolygons objects.

```
graph.map.plot.position
```

Plot a map labelled with the ID numbering

Description

The `graph.map.plot.position` function allows to plot maps defined as for example `SpatialNetwork` or `SpatialPolygons` objects, and render the ID numbering.

Usage

```
graph.map.plot.position(x, label = "", ...)  
  
## S4 method for signature 'SpatialPolygons'  
graph.map.plot.position(x, label = "", ...)  
  
## S4 method for signature 'SpatialNetwork'  
graph.map.plot.position(x, label = "", ...)
```

Arguments

<code>x</code>	an object for which a <code>graph.map.plot.position</code> method is defined.
<code>label</code>	a character of length 1 for prefixing seat numbering.
<code>...</code>	other arguments to pass to the plot function. The main usage is setting the <code>cex</code> value.

Methods (by class)

- `SpatialPolygons`: method for `SpatialPolygons` objects.
- `SpatialNetwork`: method for `SpatialNetwork` objects.

See Also

Other res: [SpatialNetwork-class](#)

Examples

```
## The world map  
data(world.map.simplified, package = "spnet")  
  
graph.map.plot.position(world.map.simplified)  
graph.map.plot.position(world.map.simplified, cex = 0.4)  
graph.map.plot.position(world.map.simplified, label = 'ID ', cex = 0.3)
```

```
graph.map<-
```

Set the map to a SpatialNetwork object

Description

This generic method intends to set or replace the map object. Currently only SpatialPolygons from the sp package are supported.

Usage

```
graph.map(object) <- value
```

Arguments

object	the SpatialNetwork object for which we want to set the map.
value	the map.

```
graph.network.arrow.color
```

Get the arrow color of a given network of a SpatialNetwork object

Description

This generic method intends to extract the arrow color of a given network of a SpatialNetwork object.

Usage

```
graph.network.arrow.color(object, network.name)
```

```
## S4 method for signature 'SpatialNetwork,character'
graph.network.arrow.color(object,
  network.name)
```

```
## S4 replacement method for signature 'SpatialNetwork,character,character'
graph.network.arrow.color(object,
  network.name) <- value
```

Arguments

object	a SpatialNetwork object.
network.name	character; the name of the network.
value	the arrow color.

Methods (by class)

- object = SpatialNetwork, network.name = character: method for SpatialNetwork objects.
- object = SpatialNetwork, network.name = character, value = character: method for SpatialNetwork objects.

```
graph.network.arrow.color<-
    Set the arrow color of a given network of a SpatialNetwork object
```

Description

This generic method intends to set or replace the arrow color of a given network of a SpatialNetwork object.

Usage

```
graph.network.arrow.color(object, network.name) <- value
```

Arguments

object	a SpatialNetwork object.
network.name	character; the name of the network.
value	the arrow color.

```
graph.network.arrow.head.lth
    Get the arrow head length of a given network of a SpatialNetwork object
```

Description

This generic method intends to extract the arrow head length of a given network of a SpatialNetwork object.

Usage

```
graph.network.arrow.head.lth(object, network.name)

## S4 method for signature 'SpatialNetwork,character'
graph.network.arrow.head.lth(object,
    network.name)

## S4 replacement method for signature 'SpatialNetwork,character,numeric'
graph.network.arrow.head.lth(object,
    network.name) <- value
```

Arguments

object	a SpatialNetwork object.
network.name	character; the name of the network.
value	the arrow head length.

Methods (by class)

- object = SpatialNetwork, network.name = character: method for SpatialNetwork objects.
- object = SpatialNetwork, network.name = character, value = numeric: method for SpatialNetwork objects.

```
graph.network.arrow.head.lth<-
```

Set the arrow head length of a given network of a SpatialNetwork object

Description

This generic method intends to set or replace the arrow head length of a given network of a SpatialNetwork object.

Usage

```
graph.network.arrow.head.lth(object, network.name) <- value
```

Arguments

object	a SpatialNetwork object.
network.name	character; the name of the network.
value	the arrow head length.

```
graph.network.arrow.head.type
```

Get the arrow head type of a given network of a SpatialNetwork object

Description

This generic method intends to extract the arrow head type of a given network of a SpatialNetwork object.

Usage

```
graph.network.arrow.head.type(object, network.name)

## S4 method for signature 'SpatialNetwork,character'
graph.network.arrow.head.type(object,
  network.name)

## S4 replacement method for signature 'SpatialNetwork,character,character'
graph.network.arrow.head.type(object,
  network.name) <- value
```

Arguments

object	a SpatialNetwork object.
network.name	character; the name of the network.
value	type of arrowhead to draw, one of "simple", "curved", "triangle", "circle", "ellipse" or "T". See Arrows for details.

Methods (by class)

- object = SpatialNetwork,network.name = character: method for SpatialNetwork objects.
- object = SpatialNetwork,network.name = character,value = character: method for SpatialNetwork objects.

```
graph.network.arrow.head.type<-
  Set the arrow head type of a given network of a SpatialNetwork object
```

Description

This generic method intends to set or replace the arrow head type of a given network of a SpatialNetwork object.

Usage

```
graph.network.arrow.head.type(object, network.name) <- value
```

Arguments

object	a SpatialNetwork object.
network.name	character; the name of the network.
value	type of arrowhead to draw, one of "simple", "curved", "triangle", "circle", "ellipse" or "T". See Arrows for details.

```
graph.network.arrow.line.type
```

Get the arrow line type of a given network of a SpatialNetwork object

Description

This generic method intends to extract the arrow line type of a given network of a SpatialNetwork object.

Usage

```
graph.network.arrow.line.type(object, network.name)
```

```
## S4 method for signature 'SpatialNetwork,character'
graph.network.arrow.line.type(object,
  network.name)
```

```
## S4 replacement method for signature 'SpatialNetwork,character,numeric'
graph.network.arrow.line.type(object,
  network.name) <- value
```

Arguments

object	a SpatialNetwork object.
network.name	character; the name of the network.
value	a numeric; the arrow line type.

Methods (by class)

- object = SpatialNetwork, network.name = character: method for SpatialNetwork objects.
- object = SpatialNetwork, network.name = character, value = numeric: method for SpatialNetwork objects.

```
graph.network.arrow.line.type<-
```

Set the arrow line type of a given network of a SpatialNetwork object

Description

This generic method intends to set or replace the arrow line type of a given network of a SpatialNetwork object.

Usage

```
graph.network.arrow.line.type(object, network.name) <- value
```

Arguments

object	a SpatialNetwork object.
network.name	character; the name of the network.
value	a numeric; the arrow line type.

```
graph.network.arrow.opacity
```

Get the arrow opacity of a given network of a SpatialNetwork object

Description

This generic method intends to extract the arrow opacity of a given network of a SpatialNetwork object.

Usage

```
graph.network.arrow.opacity(object, network.name)
```

```
## S4 method for signature 'SpatialNetwork,character'
graph.network.arrow.opacity(object,
  network.name)
```

```
## S4 replacement method for signature 'SpatialNetwork,character,numeric'
graph.network.arrow.opacity(object,
  network.name) <- value
```

Arguments

object	a SpatialNetwork object.
network.name	character; the name of the network.
value	the arrow opacity.

Methods (by class)

- object = SpatialNetwork, network.name = character: method for SpatialNetwork objects.
- object = SpatialNetwork, network.name = character, value = numeric: method for SpatialNetwork objects.

```
graph.network.arrow.opacity<-
    Set the arrow opacity of a given network of a SpatialNetwork object
```

Description

This generic method intends to set or replace the arrow opacity of a given network of a SpatialNetwork object.

Usage

```
graph.network.arrow.opacity(object, network.name) <- value
```

Arguments

object	a SpatialNetwork object.
network.name	character; the name of the network.
value	the arrow opacity.

```
graph.network.arrow.shift.x
    Get the arrow shift on the x axis of a given network of a SpatialNetwork object
```

Description

This generic method intends to extract the arrow shift on the x axis of a given network of a SpatialNetwork object.

Usage

```
graph.network.arrow.shift.x(object, network.name)

## S4 method for signature 'SpatialNetwork,character'
graph.network.arrow.shift.x(object,
    network.name)

## S4 replacement method for signature 'SpatialNetwork,character,numeric'
graph.network.arrow.shift.x(object,
    network.name) <- value
```

Arguments

<code>object</code>	a <code>SpatialNetwork</code> object.
<code>network.name</code>	character; the name of the network.
<code>value</code>	the arrow shift on the x axis.

Methods (by class)

- `object = SpatialNetwork, network.name = character`: method for `SpatialNetwork` objects.
- `object = SpatialNetwork, network.name = character, value = numeric`: method for `SpatialNetwork` objects.

`graph.network.arrow.shift.x<-`

Set the arrow shift on the x axis of a given network of a `SpatialNetwork` object

Description

This generic method intends to set or replace the arrow shift on the x axis of a given network of a `SpatialNetwork` object.

Usage

```
graph.network.arrow.shift.x(object, network.name) <- value
```

Arguments

<code>object</code>	a <code>SpatialNetwork</code> object.
<code>network.name</code>	character; the name of the network.
<code>value</code>	the arrow shift on the x axis.

`graph.network.arrow.shift.y`

Get the arrow shift on the y axis of a given network of a `SpatialNetwork` object

Description

This generic method intends to extract the arrow shift on the y axis of a given network of a `SpatialNetwork` object.

Usage

```
graph.network.arrow.shift.y(object, network.name)

## S4 method for signature 'SpatialNetwork,character'
graph.network.arrow.shift.y(object,
  network.name)

## S4 replacement method for signature 'SpatialNetwork,character,numeric'
graph.network.arrow.shift.y(object,
  network.name) <- value
```

Arguments

object	a SpatialNetwork object.
network.name	character; the name of the network.
value	the arrow shift on the y axis.

Methods (by class)

- object = SpatialNetwork,network.name = character: method for SpatialNetwork objects.
- object = SpatialNetwork,network.name = character,value = numeric: method for SpatialNetwork objects.

```
graph.network.arrow.shift.y<-
  Set the arrow shift on the y axis of a given network of a
  SpatialNetwork object
```

Description

This generic method intends to set or replace the arrow shift on the y axis of a given network of a SpatialNetwork object.

Usage

```
graph.network.arrow.shift.y(object, network.name) <- value
```

Arguments

object	a SpatialNetwork object.
network.name	character; the name of the network.
value	the arrow shift on the y axis.

```
graph.network.arrow.shorten
    Get the arrow shortening of a given network of a SpatialNetwork
    object
```

Description

This generic method intends to extract the arrow shortening of a given network of a SpatialNetwork object.

Usage

```
graph.network.arrow.shorten(object, network.name)

## S4 method for signature 'SpatialNetwork,character'
graph.network.arrow.shorten(object,
    network.name)

## S4 replacement method for signature 'SpatialNetwork,character,numeric'
graph.network.arrow.shorten(object,
    network.name) <- value
```

Arguments

object	a SpatialNetwork object.
network.name	character; the name of the network.
value	the arrow shortening.

Methods (by class)

- object = SpatialNetwork,network.name = character: method for SpatialNetwork objects.
- object = SpatialNetwork,network.name = character,value = numeric: method for SpatialNetwork objects.

```
graph.network.arrow.shorten<-
    Set the arrow shortening of a given network of a SpatialNetwork
    object
```

Description

This generic method intends to set or replace the arrow shortening of a given network of a SpatialNetwork object.

Usage

```
graph.network.arrow.shorten(object, network.name) <- value
```

Arguments

object	a SpatialNetwork object.
network.name	character; the name of the network.
value	the arrow shortening.

```
graph.network.arrow.thickness
```

Get the arrow thickness of a given network of a SpatialNetwork object

Description

This generic method intends to extract the arrow thickness of a given network of a SpatialNetwork object.

Usage

```
graph.network.arrow.thickness(object, network.name)
```

```
## S4 method for signature 'SpatialNetwork,character'
graph.network.arrow.thickness(object,
  network.name)
```

```
## S4 replacement method for signature 'SpatialNetwork,character,numeric'
graph.network.arrow.thickness(object,
  network.name) <- value
```

Arguments

object	a SpatialNetwork object.
network.name	character; the name of the network.
value	the arrow thickness.

Methods (by class)

- object = SpatialNetwork, network.name = character: method for SpatialNetwork objects.
- object = SpatialNetwork, network.name = character, value = numeric: method for SpatialNetwork objects.

```
graph.network.arrow.thickness<-  
    Set the arrow thickness of a given network of a SpatialNetwork ob-  
    ject
```

Description

This generic method intends to set or replace the arrow thickness of a given network of a `SpatialNetwork` object.

Usage

```
graph.network.arrow.thickness(object, network.name) <- value
```

Arguments

<code>object</code>	a <code>SpatialNetwork</code> object.
<code>network.name</code>	character; the name of the network.
<code>value</code>	the arrow thickness.

```
graph.network.data    Get the data of a given network of a SpatialNetwork object
```

Description

This generic method intends to extract the data of a given network of a `SpatialNetwork` object.

Usage

```
graph.network.data(object, network.name)  
  
## S4 method for signature 'SpatialNetwork,character'  
graph.network.data(object, network.name)  
  
## S4 replacement method for signature 'SpatialNetwork,character,matrix'  
graph.network.data(object,  
    network.name) <- value
```

Arguments

<code>object</code>	a <code>SpatialNetwork</code> object.
<code>network.name</code>	character; the name of the network.
<code>value</code>	the network data. Currently only support a matrix object.

Methods (by class)

- `object = SpatialNetwork, network.name = character`: method for `SpatialNetwork` objects.
- `object = SpatialNetwork, network.name = character, value = matrix`: method for `SpatialNetwork` objects.

`graph.network.data<-` *Set the data of a given network of a SpatialNetwork object*

Description

This generic method intends to set or replace the data of a given network of a `SpatialNetwork` object.

Usage

```
graph.network.data(object, network.name) <- value
```

Arguments

<code>object</code>	a <code>SpatialNetwork</code> object.
<code>network.name</code>	character; the name of the network.
<code>value</code>	the network data. Currently only support a <code>matrix</code> object.

`graph.network.exists` *Test if a network exist*

Description

This function tests if the network name given in parameter match the name of a network defined within a `SpatialNetwork` object.

Usage

```
graph.network.exists(object, network.name)
```

Arguments

<code>object</code>	a <code>SpatialNetwork</code> object.
<code>network.name</code>	a character; the name of the network.

graph.network.label *Get the label of a given network of a SpatialNetwork object*

Description

This generic method intends to extract the label of a given network of a SpatialNetwork object.

Usage

```
graph.network.label(object, network.name)

## S4 method for signature 'SpatialNetwork,character'
graph.network.label(object, network.name)

## S4 replacement method for signature 'SpatialNetwork,character,character'
graph.network.label(object,
  network.name) <- value
```

Arguments

object	a SpatialNetwork object.
network.name	character; the name of the network.
value	the network label.

Methods (by class)

- object = SpatialNetwork, network.name = character: method for SpatialNetwork objects.
- object = SpatialNetwork, network.name = character, value = character: method for SpatialNetwork objects.

graph.network.label<- *Set the label of a given network of a SpatialNetwork object*

Description

This generic method intends to set or replace the label of a given network of a SpatialNetwork object.

Usage

```
graph.network.label(object, network.name) <- value
```

Arguments

object	a SpatialNetwork object.
network.name	character; the name of the network.
value	the network label.

<code>graph.network.list</code>	<i>Get the list of all parameters of a given network of a SpatialNetwork object</i>
---------------------------------	---

Description

This generic method intends to extract all parameters of a given network of a SpatialNetwork object.

Usage

```
graph.network.list(object, network.name)

## S4 method for signature 'SpatialNetwork,character'
graph.network.list(object, network.name)

## S4 replacement method for signature 'SpatialNetwork,character,list'
graph.network.list(object,
  network.name) <- value
```

Arguments

object	the SpatialNetwork object for which we want to get parameters.
network.name	character; the name of the network.
value	a list of parameters.

Methods (by class)

- `object = SpatialNetwork, network.name = character`: method for SpatialNetwork objects.
- `object = SpatialNetwork, network.name = character, value = list`: method for SpatialNetwork objects.

`graph.network.list<-` *Set the list of all parameters of a given network of a SpatialNetwork object*

Description

This generic method intends to set or replace all parameters of a given network of a `SpatialNetwork` object.

Usage

```
graph.network.list(object, network.name) <- value
```

Arguments

`object` the `SpatialNetwork` object for which we want to set parameters.
`network.name` character; the name of the network.
`value` a list of parameters.

`graph.networks.add<-` *Add a network*

Description

This function defines a new network item in a `SpatialNetwork` object.

Usage

```
graph.networks.add(object) <- value
```

```
## S4 replacement method for signature 'SpatialNetwork,character'  
graph.networks.add(object) <- value
```

Arguments

`object` a `SpatialNetwork` object.
`value` a character; the name of the network.

`graph.networks.list` *Get the list of all networks parameters of a SpatialNetwork object*

Description

This generic method intends to extract networks parameters of a SpatialNetwork object.

Usage

```
graph.networks.list(object)

## S4 method for signature 'SpatialNetwork'
graph.networks.list(object)

## S4 replacement method for signature 'SpatialNetwork,list'
graph.networks.list(object) <- value

## S4 replacement method for signature 'SpatialNetwork,list'
graph.title.list(object) <- value
```

Arguments

<code>object</code>	the SpatialNetwork object for which we want to get parameters.
<code>value</code>	a list of parameters.

Methods (by class)

- SpatialNetwork: method for SpatialNetwork objects.
- `object = SpatialNetwork, value = list`: method for SpatialNetwork objects.
- `object = SpatialNetwork, value = list`: method for SpatialNetwork objects.

`graph.networks.list<-` *Set the list of all networks parameters of a SpatialNetwork object*

Description

This generic method intends to set or replace networks parameters of a SpatialNetwork object.

Usage

```
graph.networks.list(object) <- value
```

Arguments

<code>object</code>	the SpatialNetwork object for which we want to set parameters.
<code>value</code>	a list of parameters.

```
graph.networks.remove<-
      Remove a network
```

Description

This function remove a network item in a SpatialNetwork object.

Usage

```
graph.networks.remove(object) <- value

## S4 replacement method for signature 'SpatialNetwork,character'
graph.networks.remove(object) <- value
```

Arguments

object	a SpatialNetwork object.
value	a character; the name of the network.

```
graph.par.list      Get the list of all par parameters of a SpatialNetwork object
```

Description

This generic method intends to extract par parameters of a SpatialNetwork object.

Usage

```
graph.par.list(object)

## S4 method for signature 'SpatialNetwork'
graph.par.list(object)

## S4 replacement method for signature 'SpatialNetwork,list'
graph.par.list(object) <- value
```

Arguments

object	the SpatialNetwork object for which we want to get parameters.
value	a list of parameters.

Methods (by class)

- SpatialNetwork: method for SpatialNetwork objects.
- object = SpatialNetwork,value = list: method for SpatialNetwork objects.

`graph.par.list<-` *Set the list of all par parameters of a SpatialNetwork object*

Description

This generic method intends to set or replace par parameters of a SpatialNetwork object.

Usage

```
graph.par.list(object) <- value
```

Arguments

<code>object</code>	the SpatialNetwork object for which we want to set parameters.
<code>value</code>	a list of parameters.

`graph.symbol.cex` *Get the symbol cex parameter of a SpatialNetwork object*

Description

This generic method intends to extract the symbol cex parameter of a SpatialNetwork object.

Usage

```
graph.symbol.cex(object)

## S4 method for signature 'SpatialNetwork'
graph.symbol.cex(object)

## S4 replacement method for signature 'SpatialNetwork,numeric'
graph.symbol.cex(object) <- value
```

Arguments

<code>object</code>	a SpatialNetwork object.
<code>value</code>	the new cex parameter.

Methods (by class)

- SpatialNetwork: method for SpatialNetwork objects.
- `object = SpatialNetwork,value = numeric`: method for SpatialNetwork objects.

```
graph.symbol.cex<-      Set the symbol cex parameter of a SpatialNetwork object
```

Description

This generic method intends to set or replace the symbol cex parameter of a SpatialNetwork object.

Usage

```
graph.symbol.cex(object) <- value
```

Arguments

object	a SpatialNetwork object.
value	the new cex parameter.

```
graph.symbol.color      Get the symbol color of a SpatialNetwork object
```

Description

This generic method intends to extract the symbol color of a SpatialNetwork object.

Usage

```
graph.symbol.color(object)

## S4 method for signature 'SpatialNetwork'
graph.symbol.color(object)

## S4 replacement method for signature 'SpatialNetwork,character'
graph.symbol.color(object) <- value
```

Arguments

object	a SpatialNetwork object.
value	the color.

Methods (by class)

- SpatialNetwork: method for SpatialNetwork objects.
- object = SpatialNetwork,value = character: method for SpatialNetwork objects.

```
graph.symbol.color<- Set the symbol color of a SpatialNetwork object
```

Description

This generic method intends to set or replace the symbol color of a `SpatialNetwork` object.

Usage

```
graph.symbol.color(object) <- value
```

Arguments

object	a <code>SpatialNetwork</code> object.
value	the color.

```
graph.symbol.legend Get the symbol legend of a SpatialNetwork object
```

Description

This generic method intends to extract the symbol legend of a `SpatialNetwork` object.

Usage

```
graph.symbol.legend(object)
```

```
## S4 method for signature 'SpatialNetwork'
graph.symbol.legend(object)
```

```
## S4 replacement method for signature 'SpatialNetwork,character'
graph.symbol.legend(object) <- value
```

Arguments

object	a <code>SpatialNetwork</code> object.
value	the new legend.

Methods (by class)

- `SpatialNetwork`: method for `SpatialNetwork` objects.
- `object = SpatialNetwork,value = character`: method for `SpatialNetwork` objects.

graph.symbol.legend<- *Set the symbol legend of a SpatialNetwork object*

Description

This generic method intends to set or replace the symbol legend of a SpatialNetwork object.

Usage

```
graph.symbol.legend(object) <- value
```

Arguments

object	a SpatialNetwork object.
value	the new legend.

graph.symbol.list *Get the list of all symbol parameters of a SpatialNetwork object*

Description

This generic method intends to extract symbol parameters of a SpatialNetwork object.

Usage

```
graph.symbol.list(object)

## S4 method for signature 'SpatialNetwork'
graph.symbol.list(object)

## S4 replacement method for signature 'SpatialNetwork,list'
graph.symbol.list(object) <- value
```

Arguments

object	the SpatialNetwork object for which we want to get parameters.
value	a list of parameters.

Methods (by class)

- SpatialNetwork: method for SpatialNetwork objects.
- object = SpatialNetwork,value = list: method for SpatialNetwork objects.

```
graph.symbol.list<- Set the list of all symbol parameters of a SpatialNetwork object
```

Description

This generic method intends to set or replace symbol parameters of a SpatialNetwork object.

Usage

```
graph.symbol.list(object) <- value
```

Arguments

object	the SpatialNetwork object for which we want to set parameters.
value	a list of parameters.

```
graph.symbol.shift.x Get the symbol shift on the x axis of a SpatialNetwork object
```

Description

This generic method intends to extract the value of symbol shift on the x axis of a SpatialNetwork object.

Usage

```
graph.symbol.shift.x(object)

## S4 method for signature 'SpatialNetwork'
graph.symbol.shift.x(object)

## S4 replacement method for signature 'SpatialNetwork,numeric'
graph.symbol.shift.x(object) <- value
```

Arguments

object	a SpatialNetwork object.
value	a numeric; the value of the shift.s

Methods (by class)

- SpatialNetwork: method for SpatialNetwork objects.
- object = SpatialNetwork,value = numeric: method for SpatialNetwork objects.

```
graph.symbol.shift.x<-
```

Set the symbol shift on the x axis of a SpatialNetwork object

Description

This generic method intends to set or replace the value of symbol shift on the x axis of a SpatialNetwork object.

Usage

```
graph.symbol.shift.x(object) <- value
```

Arguments

object	a SpatialNetwork object.
value	a numeric; the value of the shift.

```
graph.symbol.shift.y
```

Get the symbol shift on the y axis of a SpatialNetwork object

Description

This generic method intends to extract the value of the symbol shift on the y of a SpatialNetwork object.

Usage

```
graph.symbol.shift.y(object)
```

```
## S4 method for signature 'SpatialNetwork'  
graph.symbol.shift.y(object)
```

```
## S4 replacement method for signature 'SpatialNetwork,numeric'  
graph.symbol.shift.y(object) <- value
```

Arguments

object	a SpatialNetwork object.
value	a numeric; the value of the shift.

Methods (by class)

- SpatialNetwork: method for SpatialNetwork objects.
- object = SpatialNetwork,value = numeric: method for SpatialNetwork objects.

```
graph.symbol.shift.y<-
```

Set the symbol shift on the y axis of a SpatialNetwork object

Description

This generic method intends to set or replace the value of the symbol shift on the y axis of a SpatialNetwork object.

Usage

```
graph.symbol.shift.y(object) <- value
```

Arguments

object	a SpatialNetwork object.
value	a numeric; the value of the shift.

```
graph.symbol.variable Get the symbol variable of a SpatialNetwork object
```

Description

This generic method intends to extract the symbol variable of a SpatialNetwork object.

Usage

```
graph.symbol.variable(object)
```

```
## S4 method for signature 'SpatialNetwork'
graph.symbol.variable(object)
```

```
## S4 replacement method for signature 'SpatialNetwork,character'
graph.symbol.variable(object) <- value
```

Arguments

object	a SpatialNetwork object.
value	the symbol variable.

Methods (by class)

- SpatialNetwork: method for SpatialNetwork objects.
- object = SpatialNetwork,value = character: method for SpatialNetwork objects.

```
graph.symbol.variable<-
```

Set the symbol variable of a SpatialNetwork object

Description

This generic method intends to set or replace the symbol variable of a SpatialNetwork object.

Usage

```
graph.symbol.variable(object) <- value
```

Arguments

object	a SpatialNetwork object.
value	the symbol variable.

```
graph.title.list
```

Get the list of all title parameters of a SpatialNetwork object

Description

This generic method intends to extract title parameters of a SpatialNetwork object.

Usage

```
graph.title.list(object)
```

```
## S4 method for signature 'SpatialNetwork'
```

```
graph.title.list(object)
```

Arguments

object	the SpatialNetwork object for which we want to get parameters.
--------	--

Methods (by class)

- SpatialNetwork: method for SpatialNetwork objects.

```
graph.title.list<-      Set the list of all title parameters of a SpatialNetwork object
```

Description

This generic method intends to set or replace title parameters of a `SpatialNetwork` object.

Usage

```
graph.title.list(object) <- value
```

Arguments

<code>object</code>	the <code>SpatialNetwork</code> object for which we want to set parameters.
<code>value</code>	a list of parameters.

```
graph.title.main      Get the main title of a SpatialNetwork object
```

Description

This generic method intends to extract the main title of a `SpatialNetwork` object.

Usage

```
graph.title.main(object)

## S4 method for signature 'SpatialNetwork'
graph.title.main(object)

## S4 replacement method for signature 'SpatialNetwork,character'
graph.title.main(object) <- value
```

Arguments

<code>object</code>	a <code>SpatialNetwork</code> object.
<code>value</code>	the new title.

Methods (by class)

- `SpatialNetwork`: method for `SpatialNetwork` objects.
- `object = SpatialNetwork,value = character`: method for `SpatialNetwork` objects.

`graph.title.main<-` *Set the main title of a SpatialNetwork object*

Description

This generic method intends to set or replace the main title of a SpatialNetwork object.

Usage

```
graph.title.main(object) <- value
```

Arguments

object	a SpatialNetwork object.
value	the new title.

`graph.title.sub` *Get the sub title of a SpatialNetwork object*

Description

This generic method intends to extract the sub title of a SpatialNetwork object.

Usage

```
graph.title.sub(object)

## S4 method for signature 'SpatialNetwork'
graph.title.sub(object)

## S4 replacement method for signature 'SpatialNetwork,character'
graph.title.sub(object) <- value
```

Arguments

object	a SpatialNetwork object.
value	the new title.

Methods (by class)

- SpatialNetwork: method for SpatialNetwork objects.
- object = SpatialNetwork,value = character: method for SpatialNetwork objects.

```
graph.title.sub<-      Set the sub title of a SpatialNetwork object
```

Description

This generic method intends to set or replace the sub title of a SpatialNetwork object.

Usage

```
graph.title.sub(object) <- value
```

Arguments

object	a SpatialNetwork object.
value	the new title.

```
SpatialNetwork-class  Class "SpatialNetwork"
```

Description

Allow to store spatial networks, especially for rendering them

Slots

```
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map object of class "SpatialPolygons"
networks object of class "list"
plot.title object of class "list"
plot.label object of class "list"
plot.color object of class "list"
plot.blackwhite object of class "list"
plot.symbol object of class "list"
plot.arrow object of class "list"
plot.barplot object of class "list"
plot.legend object of class "list"
plot.layout object of class "list"
plot.par object of class "list"
infos object of class "list"
meta object of class "list"
warnings object of class "list"
names object of class "character"
row.names object of class "data.frameRowLabels"
.S3Class object of class "character"
```


Objects from the Class

Objects can be created with the `spnet` function (official class builder).

See Also

Other res: [graph.map.plot.position](#), [graph.map.plot.position](#), [SpatialNetwork-method](#), [graph.map.plot.position](#), [SpatialPolygons-method](#)

Examples

```
people <- c("John", "Elsa", "Brian", "Kate")
position <- c(2,4,6,8)

net1.df <- data.frame(
  'NODE' = people,
  'POSITION' = position
)

net1 <- spnet.create(
  x = net1.df
)
net1

net2 <- spnet.create(
  x = people
)
net2
```

spnet

Plotting social networks on maps

Description

The `spnet` package offers methods for dealing with spacial social networks. It allows to plot networks for which actors have a specific location on a map (participants in a political debate, cities, etc.). `SpatialPolygons` objects from the `sp` package are supported.

References

Rousseaux E., Deville M. and Ritschard G. (2014), "The SPNET package: Plotting social networks on maps with R", In 3èmes Rencontres R, Montpellier, France, June 25-27th.

 spnet.create

 Create a SpatialNetwork object

Description

The `spnet.create` function is the official builder for creating `SpatialNetwork` objects.

Usage

```
spnet.create(x, map, networks, plot.title = list(main =
  "Untitled SPNET object", sub = "", cex = 2, col = "#333333"),
  plot.label = list(cex = 1, col = "#333333"), plot.color,
  plot.blackwhite = list(enable = FALSE, min = 0.02, max = 0.98), plot.symbol,
  plot.barplot = list(variable = "", bound.lower = c(-0.5, -0.5), bound.upper =
  c(0.5, 0.5), fgcolor = "#666666", bgcolor = "#eeeeee", width = 8),
  plot.arrow, plot.legend = list(print = TRUE, cex = 1, ncol = 1, horiz =
  FALSE, lwd = 1), plot.layout = list(ratios = c(title = 1/10, graphic = 7/10,
  legend = 2/10), mat = NULL, reset = TRUE), plot.par = list(mar = c(1, 1, 1,
  1)), infos, quiet = FALSE)
```

Arguments

<code>x</code>	a data.frame containing at least two columns: <code>NODE</code> and <code>POSITION</code> .
<code>map</code>	a <code>SpatialPolygons</code> object.
<code>networks</code>	a list of the networks to plot.
<code>plot.title</code>	a list of parameters for setting the title.
<code>plot.label</code>	a list of parameters to be passed to the <code>text</code> function for setting labels.
<code>plot.color</code>	a list of parameters for setting colors.
<code>plot.blackwhite</code>	a list of parameters for setting the black and white mode.
<code>plot.symbol</code>	a list of parameters for setting symbols.
<code>plot.barplot</code>	a list of parameters for setting barplots.
<code>plot.arrow</code>	a list of parameters for setting arrows.
<code>plot.legend</code>	a list of parameters for setting the legend.
<code>plot.layout</code>	a list of parameters for setting the layout.
<code>plot.par</code>	a list of graphical parameters.
<code>infos</code>	a list of meta information about the instance of the object.
<code>quiet</code>	= <code>FALSE</code> a logical, suppress all messages.

Author(s)

Emmanuel Rousseaux

Examples

```
people <- c("John", "Elsa", "Brian", "Kate")
position <- c(2,4,6,8)

net1.df <- data.frame(
  'NODE' = people,
  'POSITION' = position
)

net1 <- spnet.create(
  x = net1.df
)
net1

net2 <- spnet.create(
  x = people
)
net2
```

spnet.example.basic *Spnet basic examples*

Description

Create SpatialNetwork object examples for demonstration and testing purpose.

Usage

```
spnet.example.basic(map = TRUE, color = TRUE, symbol = TRUE,
  network1 = TRUE, network2 = TRUE, barplot = TRUE, title = TRUE)

spnet.example.basic.full()

spnet.example.basic.map()
```

Arguments

map	logical; if TRUE an example of map is provided.
color	logical; if TRUE an example of map colorization is provided.
symbol	logical; if TRUE an example of symbol use is provided.
network1	logical; if TRUE a first example of network is provided.
network2	logical; if TRUE a second example of network is provided.
barplot	logical; if TRUE a example of barplot rendering of a numeric variable is provided.
title	logical; if TRUE a example of title is provided.

Value

a SpatialNetwork object.

Examples

```
data(world.map.simplified, package = "spnet")
net1 <- spnet.example.basic()
plot(net1)
```

```
spnet.get.local.user.manual
```

Get the local copy of the spnet user manual

Description

This function copies the spnet user manual to a user defined directory.

Usage

```
spnet.get.local.user.manual(where = getwd(), overwrite = FALSE)
```

Arguments

where	the location where to copy the user manual. Default is the working directory.
overwrite	logical; should existing destination files be overwritten?

```
world.map.simplified
```

The TM_WORLD_BORDERS_SIMPL-0.3 world map.

Description

The simplified version of the world map provided by Bjorn Sandvik, thematicmapping.org.

Format

A SpatialPolygonsDataFrame.

Details

The map was imported in R as follows:

```
require(maptools)
world.map.simplified <- readShapeSpatial("~/TM_WORLD_BORDERS_SIMPL-0.3/TM_WORLD_BORDERS_SIMPL-0.3")
slot(world.map.simplified, 'data')[, 'NAME'] <- iconv(slot(world.map.simplified, 'data')[, 'NAME'], 'UTF-8')
save(world.map.simplified, file="data/world.map.simplified.rda")
```

The result is a `SpatialPolygonsDataFrame` object. Its data slot contains a data frame with 246 observations and 11 variable:

- **FIPS.** FIPS 10-4 Country Code
- **ISO2.** ISO 3166-1 Alpha-2 Country Code
- **ISO3.** ISO 3166-1 Alpha-3 Country Code
- **UN.** ISO 3166-1 Numeric-3 Country Code
- **NAME.** Name of country/area
- **AREA.** Land area, FAO Statistics (2002)
- **POP2005.** Population, World Population Prospects (2005)
- **REGION.** Macro geographical (continental region), UN Statistics
- **SUBREGION.** Geographical sub-region, UN Statistics
- **LON.** Longitude
- **LAT.** Latitude

Note

Note from the `TM_WORLD_BORDERS_SIMPL-0.3`'s README file:

- Use this dataset with care, as several of the borders are disputed.
- The original shapefile (`world_borders.zip`, 3.2 MB) was downloaded from the Mapping Hacks website: <http://www.mappinghacks.com/data/>. The dataset was derived by Schuyler Erle from public domain sources. Sean Gilles did some clean up and made some enhancements.

[

Extract or replace parts of a SpatialNetwork object

Description

Extract or replace parts of a `SpatialNetwork` object
set parts of `SpatialNetwork`

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