# Package 'googleVis'

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**Type** Package

**Title** R Interface to Google Charts

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**Description** R interface to Google Charts API, allowing users to create interactive charts based on data frames. Charts are displayed locally via the R HTTP help server. A modern browser with an Internet connection is required and for some charts a Flash player. The data remains local and is not uploaded to Google.

**Depends** R (>= 3.0.2)

**Imports** methods, jsonlite, utils

**Suggests** shiny (>= 0.4.0), httpuv (>= 1.2.0), knitr (>= 1.5), wbstats, data.table

**License** GPL (>= 2)

**URL** https://github.com/mages/googleVis#googlevis

**BugReports** https://github.com/mages/googleVis/issues

**LazyLoad** yes

**LazyData** yes

**VignetteBuilder** knitr

**RoxygenNote** 5.0.1

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`googleVis-package` *R Interface to Google Charts*

---

## Description

R interface to Google Charts API, allowing users to create interactive charts based on data frames. Charts are displayed locally via the R HTTP help server. A modern browser with Internet connection is required and for some charts Flash. The data remains local and is not uploaded to Google.

Please visit the project web site for more information: `http://github.com/mages/googleVis`.

You find further notes on Markus' blog: `http://www.magesblog.com/search/label/googleVis`

## Note

See `vignette("googleVis")` for an introduction to the `googleVis` package.

### Author(s)

Markus Gesmann, Diego de Castillo

### References

- Google Charts API: https://developers.google.com/chart/
- Google Terms of Use: https://developers.google.com/terms/
- Google Maps API Terms of Service: https://developers.google.com/maps/terms

### Examples

```
## Not run:
  demo(googleVis)
  ## For other demos see
  demo(package='googleVis')

## End(Not run)
```

---

`Andrew` *Hurricane Andrew: googleVis example data set*

---

### Description

Hurricane Andrew storm path from 16 August to 28 August 1992

### Usage

```
data(Andrew)
```

### Format

A data frame with 47 observations on the following 8 variables.

`Date/Time UTC` a POSIXct

`Lat` a numeric vector

`Long` a numeric vector

`Pressure_mb` a numeric vector

`Speed_kt` a numeric vector

`Category` a factor with levels `Hurricane` `Tropical Depression` `Tropical Storm`

`LatLong` a character vector

`Tip` a character vector

### Source

National Hurricane Center: http://www.nhc.noaa.gov/1992andrew.html

## Examples

```
data(Andrew)

AndrewGeoMap <- gvisGeoMap(Andrew, locationvar='LatLong', numvar='Speed_kt',
                           hovervar='Category',
                           options=list(width=800,height=400,
                           region='US', dataMode='Markers'))

AndrewMap <- gvisMap(Andrew, 'LatLong' , 'Tip',
                            options=list(showTip=TRUE, showLine=TRUE,
                            enableScrollWheel=TRUE,
                            mapType='hybrid', useMapTypeControl=TRUE,
   width=800,height=400))

AndrewTable <- gvisTable(Andrew,options=list(width=800))

## Combine the outputs into one page:

AndrewVis <- gvisMerge(AndrewGeoMap, AndrewMap)

plot(AndrewVis)
```

---

# Cairo *Daily temperature data for Cairo*

---

## Description

The average air temperature (C) in Cairo from 2002 to 2004.

## Usage

```
data(Cairo)
```

## Format

A data frame with 1091 observations on the following 2 variables.

`Date` calendar date

`Temp` average temperatur in Celsius

## References

Wood, S.N. (2006) Generalized Additive Models: An Introduction with R

## Examples

```
data(Cairo)
plot(gvisCalendar(Cairo))
```

## CityPopularity *CityPopularity: googleVis example data set*

### Description

Example data set to illustrate the use of the googleVis package.

### Usage

```
data(CityPopularity)
```

### Format

A data frame with 6 observations on the following 2 variables.

`City` a factor with levels `Boston` `Chicago` `Houston` `Los Angeles` `Miami` `New York`

`Popularity` a numeric vector

### Source

Google Geo Map API: https://google-developers.appspot.com/chart/interactive/docs/gallery/geomap.html

### Examples

```
data(CityPopularity)
str(CityPopularity)
```

## createGoogleGadget *Create a Google Gadget*

### Description

Create a Google Gadget based on a Google Visualisation Object

### Usage

```
createGoogleGadget(gvis)
```

### Arguments

| | |
|---|---|
| `gvis` | an object of class 'gvis', e.g. output of a googleVis visualisation functions. |

### Value

createGoogleGadget returns a Google Gadget XML string.

## Note

Google Gadgets can be embedded in various Google products, for example as part of a Google Code wiki page, Blogger or Google Sites. In all cases the XML gadget file has to be hosted online, e.g. using Google Docs.

In Blogger the gadgets can be embedded via the design tab, and in a Google Sites via the menu "Insert" -> "More gadgets ..." -> "Add gadget ULR".

In a Google Code wiki the gadget can be embedded via

```
<wiki:gadget url="http://example.com/gadget.xml" height="200" border="0" />
```

## Author(s)

Markus Gesmann

## References

For more information about Google Gadgets see: https://developers.google.com/gadgets/

## See Also

See also as print.gvis, cat

## Examples

```
M <- gvisMotionChart(Fruits, idvar="Fruit", timevar="Year")
gdgt <- createGoogleGadget(M)
cat(gdgt)
```

---

# dino *Dinosaur data*

---

## Description

Lenght of dinosaurs

## Usage

```
data(dino)
```

## Format

A data frame with 28 observations on 2 variables, dinosaur and length.

## Source

https://developers.google.com/chart/interactive/docs/gallery/histogram

## Examples

```
data(dino)
str(dino)
```

## Exports *Exports: googleVis example data set*

### Description

Example data set to illustrate the use of the googleVis package.

### Usage

```
data(Exports)
```

### Format

A data frame with 10 observations on the following 3 variables.

`Country` a factor with levels `Brazil`, `Germany` ...

`Profit` a numeric vector

`Online` a logical vector

### Examples

```
data(Exports)
str(Exports)
```

## Fruits *Fruits: googleVis example data set*

### Description

Example data set to illustrate the use of the googleVis package.

### Usage

```
data(Fruits)
```

### Format

A data frame with 9 observations on the following 7 variables.

`Fruit` a factor with levels `Apples` `Bananas` `Oranges`

`Year` a numeric vector

`Location` a factor with levels `East` `West`

`Sales` a numeric vector

`Expenses` a numeric vector

`Profit` a numeric vector

`Date` a Date

## Examples

```
data(Fruits)
M <- gvisMotionChart(Fruits, idvar="Fruit", timevar="Year")

## Not run:
 plot(M)

## End(Not run)
```

---

gvis Methods *Print and plot gvis objects*

---

## Description

Methods to print and plot gvis objects

## Usage

```
## S3 method for class 'gvis'
print(x, tag=NULL, file = "", ...)

## S3 method for class 'gvis'
plot(x, tag=NULL,...)
```

## Arguments

| | |
|---|---|
| x | An object of class gvis, or a HTML file in case of plot.gvis. |
| tag | Default NULL. Name tag of the objects to be extracted from a gvis object. If tag is missing then the values of getOption("gvis.print.tag"), getOption("gvis.plot.tag") will be used for print.gvis and plot.gvis respectively.<br>A complete list of available tags is given by the command getOption("gvis.tags").<br>The default value of gvis.print.tag is "html", which means print.gvis will show a complete web page with the visualisation, while the tag "chart" will present the code for the visualisation chart only. For more information see the details section.<br>The default tag for plot.gvis.tag is NULL, which will result in R opening a browser window, while any tag which is not NULL will give the same behaviour as print.gvis, e.g. tag='chart' or setting options(gvis.plot.tag='chart') will produce the same output as print(x, tag='chart'). This behaviour is particular helpful when googleVis is used in scripts, like knitr or R.rsp. The plot commands can be used initially in an interactive mode and with one change in options() produce the HTML output required for a programmatic run of the script. See the example section below for a knitr case study.<br>plot.gvis ignores the argument tag it x is a HTML file name. |
| file | file name. If "" (the default), output will be printed to the standard output connection, the console unless redirected by sink. |
| ... | arguments passed on to cat (print.gvis) or browseURL (plot.gvis). |

## Details

An object of class "gvis" is a list containing at least the following components (tags):

`type` Google visualisation type, e.g. 'MotionChart'

`chartid` character id of the chart object. Unique chart ids are required to place several charts on the same page.

`html` a list with the building blocks for a page

`header` a character string of a html page header: `<html>...<body>`,

`chart` a named character vector of the chart's building blocks:

`jsHeader` Opening `<script>` tag and reference to Google's JavaScript library.

`jsData` JavaScript function defining the input `data` as a JSON object.

`jsDrawChart` JavaScript function combing the data with the visualisation API and user options.

`jsDisplayChart` JavaScript function calling the handler to display the chart.

`jsFooter` End tag `</script>`.

`jsChart` Call of the `jsDisplayChart` function.

`divChart` `<div>` container to embed the chart into the page.

`caption` character string of a standard caption, including data name and chart id.

`footer` character string of a html page footer: `</body>...</html>`, including the used R and googleVis version and link to Google's Terms of Use.

## Value

| | |
|---|---|
| `print.gvis` | None (invisible `NULL`). |
| `plot.gvis` | Returns the file name invisibly. |

## Note

The `plot` command does not open a graphics device in the traditional way. Instead it creates HTML files in a temporary directory and uses the R HTTP server to display the output of a `googleVis` function locally. A browser with Flash and Internet connection is required. The displayed page includes a link (click on the chart id) to a further page, which shows the code of the chart for the user to copy and paste into her own page.

## Author(s)

Markus Gesmann `<markus.gesmann@gmail.com>`,

Diego de Castillo `<decastillo@gmail.com>`

## References

Please see also the package vignette for the usage of the googleVis package with RApache, brew, knitr and R.rsp.

## See Also

See also `cat`, `browseURL`, `createGoogleGadget` and `gvisMerge` for combining charts.

## Examples

```
## Show gvis options
sapply(c("gvis.print.tag", "gvis.plot.tag", "gvis.tags"), getOption)

M <- gvisMotionChart(Fruits, "Fruit", "Year")
str(M)
## The output for a complete web page
M

## Access only the plot,
M$html$chart

## wrap it in cat and it becomes more readable,
cat(unlist(M$html$chart))

## or use the print function.
print(M, tag="chart")

## Extract the data as a JavaScript function.
print(M, tag="jsData")

## Display the visualisation.
## A web browser with Internet connection and Flash is required.
plot(M)

## Combine with another chart, e.g. table
#tbl <- gvisTable(Fruits, options=list(height=220))
#Mtbl <- gvisMerge(M, tbl)
#plot(Mtbl)


## Example of using googleVis with knitr and markdown

## Not run:
## Simple knitr/markdown file with googleVis
knitrRmd <-"
# Markdown example with knitr and googleVis
==========================================
This is a little Markdown example file.
Set the googleVis options first.
In this case change the behaviour of plot.gvis
```{r setOptions, message=FALSE}
library(googleVis)
op <- options(gvis.plot.tag='chart')
```
The following plot statements will automatically return  the HTML
required for the 'knitted' output.

## Combo chart
```{r ComboExample, results='asis', tidy=FALSE}
## Add the mean
CityPopularity$Mean=mean(CityPopularity$Popularity)
CC <- gvisComboChart(CityPopularity, xvar='City',
          yvar=c('Mean', 'Popularity'),
          options=list(seriesType='bars',
                       width=450, height=300,
```
```

```
                      title='City Popularity',
                      series='{0: {type:\"line\"}}'))
plot(CC)
```
```
Example of gvisComboChart with R code shown above.

## Place two charts next to each other
```{r gvisMergeExample, results='asis', echo=FALSE}
Geo <- gvisGeoChart(Exports, locationvar='Country', colorvar='Profit',
                    options=list(height=300, width=350))
Tbl <- gvisTable(Exports, options=list(height=300, width=200))
plot(gvisMerge(Geo, Tbl, horizontal=TRUE))
``````
Example of a gvisGeoChart with gvisTable and R code hidden.

## Motion Chart
```{r MotionChartExample, results='asis', tidy=FALSE}
M <- gvisMotionChart(Fruits, 'Fruit', 'Year',
         options=list(width=400, height=350))
plot(M)
```
Please note that the Motion Chart is only displayed when hosted on a
web server, or is placed in a directory which has been added to the
trusted sources in the [security settings of Macromedia]
(http://www.macromedia.com/support/documentation/en/flashplayer/help/settings_manager04.html).
See the googleVis package vignette for more details.

```{r resetOptions}
## Set options back to original options
options(op)
```
"

## Write the content of knitrRmd into a Rmd-file, knit it and convert it
## into a html output. Finally show the file with the R-help http
## server, this will ensure that also the motion chart is visible.

library(knitr)
library(markdown)

wd <- getwd()
setwd(tempdir())
fn=tempfile()
fn.Rmd <- paste(fn, ".Rmd", sep="")
fn.md <- paste(fn, ".md", sep="")
fn.html <- paste(fn, "-out.html", sep="")
## Write R Markdown into a file
cat(knitrRmd, file=fn.Rmd)
render_markdown()
knit(fn.Rmd, fn.md)
knit2html(fn.md)

## Open output in browser
## Use plot.gvis which will use the R-help http server
## The URL will start with http://127.0.0.1...
## The HTML file will be copied into a temporary directory
plot.gvis(fn.html)
```

```
## Compare to browseURL, its URL will start with file://... the motion
## chart is unlikely to be displayed because of Flash security
## settings. See the googleVis vignette for more details.
browseURL(fn.html)
setwd(wd)

## End(Not run)

## Not run:
## Updating the data of an existing googleVis web page

## Suppose you have an existing web page in which you embedded a
## motion chart with the id "mtnc".
## Now you have a new set of data, but you would like to avoid
## touching the html file again.
## The idea is to write the data and JavaScript functions into separate
## files and to refer to these in the html page.

## In this example we call the chart id "mtnc"
## To display the example we use the R HTTP server again, and
## write the files into a temp directory

myChartID <- "mtnc"
## baseURL should reflect your web address, e.g. http://myHomePage.com
baseURL <- sprintf("http://127.0.0.1:%s/custom/googleVis", tools:::httpdPort)
wwwdir <- tempdir() ## the www repository on your computer


## Create a motion chart
M=gvisMotionChart(Fruits, "Fruit", "Year", chartid=myChartID)

## Here is our plot again
plot(M)

## Write the data and functions into separate files:
cat(M$html$chart['jsData'], file=file.path(wwwdir, "gvisData.js"))
cat(M$html$chart[c('jsDrawChart', 'jsDisplayChart', 'jsChart')],
    file=file.path(wwwdir, "gvisFunctions.js"))


## Create a html page with reference to the above
## JavaScript files

html <- sprintf('
<html>
  <head>
  <script type="text/javascript" src="http://www.google.com/jsapi">
  </script>
  <script type="text/javascript" src="%s/gvisFunctions.js"></script>
  <script type="text/javascript" src="%s/gvisData.js"></script>
  <script type="text/javascript">
  displayChart%s()
  </script>
  </head>
  <body>
  <div id="%s" style="width: 600px; height: 500px;"></div>
  </body>
```

```
  </html>
  ', baseURL, baseURL, myChartID, myChartID)

## Write html scaffold into a file
cat(html, file=file.path(wwwdir, paste("Chart", myChartID, ".html", sep="")))

## Display the result via
URL <- paste(baseURL,"/Chart", myChartID, ".html", sep="")
browseURL(URL)

## Update the data, say the data should have shown North and South
## instead of East and West as a location
FruitsUpdate <- Fruits
levels(FruitsUpdate$Location)=c("North", "South")

Mupdate=gvisMotionChart(FruitsUpdate, "Fruit", "Year", chartid=myChartID)

## Only update the file gvisData.js:
cat(Mupdate$html$chart['jsData'], file=file.path(wwwdir, "gvisData.js"))

## Redisplay the chart with the updated data
browseURL(URL)


## End(Not run)
```

---

`gvisAnnotatedTimeLine` *Google Annotated Time Line with R*

---

## Description

The gvisAnnotatedTimeLine function reads a data.frame and creates text output referring to the Google Visualisation API, which can be included into a web page, or as a stand-alone page.

## Usage

```
gvisAnnotatedTimeLine(data, datevar = "", numvar = "", idvar = "",
  titlevar = "", annotationvar = "", date.format = "%Y/%m/%d",
  options = list(), chartid)
```

## Arguments

| | |
|---|---|
| `data` | a `data.frame`. The data has to have at least two columns, one with date information (`datevar`) and one numerical variable. |
| `datevar` | column name of `data` which shows the date dimension. The information has to be of class `Date` or `POSIX*` time series. |
| `numvar` | column name of `data` which shows the values to be displayed against `datevar`. The information has to be `numeric`. |
| `idvar` | column name of `data` which identifies different groups of the data. The information has to be of class `character` or `factor`. |
| `titlevar` | column name of `data` which shows the title of the annotations. The information has to be of class `character` or `factor`. Missing information can be set to `NA`. See section 'Details' for more details. |

annotationvar — column name of data which shows the annotation text. The information has to be of class character or factor. Missing information can be set to NA. See section 'Details' for more details.

date.format — if datevar is of class Date then this argument specifies how the dates are reformatted to be used by JavaScript.

options — list of configuration options, see:
https://developers.google.com/chart/interactive/docs/gallery/annotatedtimeline#Configuration_Options
The parameters can be set via a named list. The parameters have to map those of the Google documentation.

- Boolean arguments are set to either TRUE or FALSE, using the R syntax.
- Google API parameters with a single value and with names that don't include a "." are set like one would do in R, that is `options=list(width=200, height=300)`. Exceptions to this rule are the width and height options for gvisAnnotatedTimeLine and gvisAnnotationChart. For those two functions, width and height must be character strings of the format "Xpx", where X is a number, or "automatic". For example, `options=list(width="200px", height="300px")`.
- Google API parameters with names that don't include a ".", but require multivalues are set as a character, wrapped in "[ ]" and separated by commas, e.g.
`options=list(colors="['#cbb69d', '#603913', '#c69c6e']")`
- Google API parameters with names that do include a "." present parameters with several sub-options and have to be set as a character wrapped in " ". The values of those sub-options are set via parameter:value. Boolean values have to be stated as 'true' or 'false'. For example the Google documentaion states the formating options for the vertical axis and states the parameter as vAxis.format. Then this paramter can be set in R as:
`options=list(vAxis="{format:'#,###%'}")`.
- If several sub-options have to be set, e.g. titleTextStyle.color, titleTextStyle.fontName and titleTextStyle.fontSize, then those can be combined in one list item such as:
`options=list(titleTextStyle="{color:'red', fontName:'Courier', fontSize:16}")`
- paramters that can have more than one value per sub-options are wrapped in "[ ]". For example to set the labels for left and right axes use:
`options=list(vAxes="[{title:'val1'}, {title:'val2'}]")`
- gvis.editor a character label for an on-page button that opens an in-page dialog box enabling users to edit, change and customise the chart. By default no value is given and therefore no button is displayed.

For more details see the Google API documentation and the R examples below.

chartid — character. If missing (default) a random chart id will be generated based on chart type and tempfile

## Details

An annotated time line is an interactive time series line chart with optional annotations. The chart is rendered within the browser using Flash.

## Value

gvisAnnotatedTimeLine returns list of class "gvis" and "list". An object of class "gvis" is a list containing at least the following components:

`type` Google visualisation type

`chartid` character id of the chart object. Unique chart ids are required to place several charts on the same page.

`html` a list with the building blocks for a page

`header` a character string of a html page header: `<html>...<body>`,

`chart` a named character vector of the chart's building blocks:

`jsHeader` Opening `<script>` tag and reference to Google's JavaScript library.

`jsData` JavaScript function defining the input `data` as a JSON object.

`jsDrawChart` JavaScript function combing the data with the visualisation API and user options.

`jsDisplayChart` JavaScript function calling the handler to display the chart.

`jsFooter` End tag `</script>`.

`jsChart` Call of the `jsDisplayChart` function.

`divChart` `<div>` container to embed the chart into the page.

`caption` character string of a standard caption, including data name and chart id.

`footer` character string of a html page footer: `</body>...</html>`, including the used R and googleVis version and link to Google's Terms of Use.

## Warnings

Because of Flash security settings the chart might not work correctly when accessed from a file location in the browser (e.g., file:///c:/webhost/myhost/myviz.html) rather than from a web server URL (e.g. http://www.myhost.com/myviz.html). See the googleVis package vignette and the Macromedia web site (http://www.macromedia.com/support/documentation/en/flashplayer/help/) for more details.

Important: To use this visualization, you must specify the height and width of the container element explicitly on your page. So, for example: options=list(width="600px", height="350px")

Use codegvisAnnotationChart for a non-Flash version of this plot.

## Author(s)

Markus Gesmann `<markus.gesmann@gmail.com>`,

Diego de Castillo `<decastillo@gmail.com>`

## References

Google Chart Tools API: http://developers.google.com/chart/interactive/docs/gallery/annotatedtimeline

## See Also

See also `print.gvis`, `plot.gvis` for printing and plotting methods. Further see `reshape` for reshaping data, e.g. from a wide format into a long format.

## Examples

```
## Please note that by default the googleVis plot command
## will open a browser window and requires Flash and Internet
## connection to display the visualisation.
```

```
data(Stock)
Stock
A1 <- gvisAnnotatedTimeLine(Stock, datevar="Date",
                            numvar="Value", idvar="Device",
                            titlevar="Title", annotationvar="Annotation",
                            options=list(displayAnnotations=TRUE,
                             legendPosition='newRow',
                             width="600px", height="350px")
                            )
plot(A1)

## Two Y-axis
A2 <- gvisAnnotatedTimeLine(Stock, datevar="Date",
                            numvar="Value", idvar="Device",
                            titlevar="Title", annotationvar="Annotation",
                            options=list(displayAnnotations=TRUE,
                             width="600px", height="350px", scaleColumns='[0,1]',
                             scaleType='allmaximized')
                           )
plot(A2)

## Zoom into the time window, no Y-axis ticks
A3 <- gvisAnnotatedTimeLine(Stock, datevar="Date",
                            numvar="Value", idvar="Device",
                            titlevar="Title", annotationvar="Annotation",
                            options=list(
                              width="600px", height="350px",
                             zoomStartTime=as.Date("2008-01-04"),
                             zoomEndTime=as.Date("2008-01-05"))
                           )
plot(A3)



## Colouring the area below the lines to create an area chart
A4 <- gvisAnnotatedTimeLine(Stock, datevar="Date",
                            numvar="Value", idvar="Device",
                            titlevar="Title", annotationvar="Annotation",
                            options=list(
                              width="600px", height="350px",
                              fill=10, displayExactValues=TRUE,
                              colors="['#0000ff','#00ff00']")
                            )

plot(A4)


## Data with POSIXct datetime variable
A5 <- gvisAnnotatedTimeLine(Andrew, datevar="Date/Time UTC",
                             numvar="Pressure_mb",
                             options=list(scaleType='maximized',
                                          width="600px", height="350px")
                             )

plot(A5)
```

```
## Not run:

## Plot Apple's monthly stock prices since 1984

## Get current date
d <- Sys.time()
current.year <- format(d, "%Y")
current.month <- format(d, "%m")
current.day <- format(d, "%d")

## Yahoo finance sets January to 00 hence:
month <- as.numeric(current.month)  - 1
month <- ifelse(month < 10, paste("0",month, sep=""), m)

## Get weekly stock prices from Apple Inc.
tckr <- 'AAPL'
yahoo <- 'http://ichart.finance.yahoo.com/table.csv'

fn <- sprintf('%s?s=%s&a=08&b=7&c=1984&d=%s&e=%s&f=%s&g=w&ignore=.csv',
      yahoo, tckr, month, current.day, current.year)

## Get data from Yahoo! Finance
data <- read.csv(fn, colClasses=c("Date", rep("numeric",6)))

AAPL <- reshape(data[,c("Date", "Close", "Volume")], idvar="Date",
      times=c("Close", "Volume"),
                timevar="Type",
                varying=list(c("Close", "Volume")),
                v.names="Value",
                direction="long")

## Calculate previous two years for zoom start time
lyd <- as.POSIXlt(as.Date(d))
lyd$year <- lyd$year-2
lyd <- as.Date(lyd)

aapl <- gvisAnnotatedTimeLine(AAPL, datevar="Date",
                           numvar="Value", idvar="Type",
                          options=list(
                            colors="['blue', 'lightblue']",
                            zoomStartTime=lyd,
                            zoomEndTime=as.Date(d),
                            legendPosition='newRow',
                            width="600px", height="400px", scaleColumns='[0,1]',
                            scaleType='allmaximized')
                           )

plot(aapl)

## End(Not run)
```

---

gvisAnnotationChart *Google Annotation Chart with R*

---

## Description

gvisAnnotationChart charts are interactive time series line charts that support annotations. Unlike the gvisAnnotatedTimeLine, which uses Flash, annotation charts are SVG/VML and should be preferred whenever possible.

## Usage

```
gvisAnnotationChart(data, datevar = "", numvar = "", idvar = "",
  titlevar = "", annotationvar = "", date.format = "%Y/%m/%d",
  options = list(), chartid)
```

## Arguments

| | |
|---|---|
| data | a data.frame. The data has to have at least two columns, one with date information (datevar) and one numerical variable. |
| datevar | column name of data which shows the date dimension. The information has to be of class Date or POSIX* time series. |
| numvar | column name of data which shows the values to be displayed against datevar. The information has to be numeric. |
| idvar | column name of data which identifies different groups of the data. The information has to be of class character or factor. |
| titlevar | column name of data which shows the title of the annotations. The information has to be of class character or factor. Missing information can be set to NA. See section 'Details' for more details. |
| annotationvar | column name of data which shows the annotation text. The information has to be of class character or factor. Missing information can be set to NA. See section 'Details' for more details. |
| date.format | if datevar is of class Date then this argument specifies how the dates are reformatted to be used by JavaScript. |
| options | list of configuration options, see:<br>https://developers.google.com/chart/interactive/docs/gallery/annotationchart#Configuration_Options<br>The parameters can be set via a named list. The parameters have to map those of the Google documentation.<br>• Boolean arguments are set to either TRUE or FALSE, using the R syntax.<br>• Google API parameters with a single value and with names that don't include a "." are set like one would do in R, that is options=list(width=200, height=300). Exceptions to this rule are the width and height options for gvisAnnotatedTimeLine and gvisAnnotationChart. For those two functions, width and height must be character strings of the format "Xpx", where X is a number, or "automatic". For example, options=list(width="200px", height="300px").<br>• Google API parameters with names that don't include a ".", but require multivalues are set as a character, wrapped in "[ ]" and separated by commas, e.g.<br>options=list(colors="['#cbb69d', '#603913', '#c69c6e']")<br>• Google API parameters with names that do include a "." present parameters with several sub-options and have to be set as a character wrapped in " ". The values of those sub-options are set via parameter:value. Boolean values have to be stated as 'true' or 'false'. For example the Google |

documentaion states the formating options for the vertical axis and states the parameter as `vAxis.format`. Then this paramter can be set in R as: `options=list(vAxis="{format:'#,###%'}")`.

- If several sub-options have to be set, e.g. `titleTextStyle.color`, `titleTextStyle.fontName` and `titleTextStyle.fontSize`, then those can be combined in one list item such as: `options=list(titleTextStyle="{color:'red', fontName:'Courier', fontSize:16}")`
- paramters that can have more than one value per sub-options are wrapped in "[ ]". For example to set the labels for left and right axes use: `options=list(vAxes="[{title:'val1'}, {title:'val2'}]")`
- `gvis.editor` a character label for an on-page button that opens an in-page dialog box enabling users to edit, change and customise the chart. By default no value is given and therefore no button is displayed.

For more details see the Google API documentation and the R examples below.

`chartid` character. If missing (default) a random chart id will be generated based on chart type and `tempfile`.

## Value

gvisAnnotationChart returns list of `class` "`gvis`" and "`list`". An object of class "`gvis`" is a list containing at least the following components:

`type` Google visualisation type

`chartid` character id of the chart object. Unique chart ids are required to place several charts on the same page.

`html` a list with the building blocks for a page

`header` a character string of a html page header: `<html>...<body>`,

`chart` a named character vector of the chart's building blocks:

`jsHeader` Opening `<script>` tag and reference to Google's JavaScript library.

`jsData` JavaScript function defining the input `data` as a JSON object.

`jsDrawChart` JavaScript function combing the data with the visualisation API and user options.

`jsDisplayChart` JavaScript function calling the handler to display the chart.

`jsFooter` End tag `</script>`.

`jsChart` Call of the `jsDisplayChart` function.

`divChart` `<div>` container to embed the chart into the page.

`caption` character string of a standard caption, including data name and chart id.

`footer` character string of a html page footer: `</body>...</html>`, including the used R and googleVis version and link to Google's Terms of Use.

## Author(s)

Markus Gesmann `<markus.gesmann@gmail.com>`, Diego de Castillo `<decastillo@gmail.com>`

## References

Google Chart Tools API: http://developers.google.com/chart/interactive/docs/gallery/annotationchart

## See Also

See also print.gvis, plot.gvis for printing and plotting methods. Further see reshape for reshaping data, e.g. from a wide format into a long format.

## Examples

```
## Please note that by default the googleVis plot command
## will open a browser window and requires Internet
## connection to display the visualisation.


data(Stock)
Stock
A1 <- gvisAnnotationChart(Stock, datevar="Date",
                          numvar="Value", idvar="Device",
                          titlevar="Title", annotationvar="Annotation",
                          options=list(displayAnnotations=TRUE,
                           legendPosition='newRow',
                           width=600, height=350)
                          )
plot(A1)

## Two Y-axis
A2 <- gvisAnnotationChart(Stock, datevar="Date",
                          numvar="Value", idvar="Device",
                          titlevar="Title", annotationvar="Annotation",
                          options=list(displayAnnotations=TRUE,
                           width=600, height=350, scaleColumns='[0,1]',
                           scaleType='allmaximized')
                         )
plot(A2)

## Zoom into the time window, no Y-axis ticks
A3 <- gvisAnnotationChart(Stock, datevar="Date",
                          numvar="Value", idvar="Device",
                          titlevar="Title", annotationvar="Annotation",
                          options=list(
                            width=600, height=350,
                           zoomStartTime=as.Date("2008-01-04"),
                           zoomEndTime=as.Date("2008-01-05"))
                         )
plot(A3)



## Colouring the area below the lines to create an area chart
A4 <- gvisAnnotationChart(Stock, datevar="Date",
                          numvar="Value", idvar="Device",
                          titlevar="Title", annotationvar="Annotation",
                          options=list(
                            width=600, height=350,
                            fill=10, displayExactValues=TRUE,
                            colors="['#0000ff','#00ff00']")
                          )
```

```
plot(A4)


## Data with POSIXct datetime variable
A5 <- gvisAnnotationChart(Andrew, datevar="Date/Time UTC",
                            numvar="Pressure_mb",
                            options=list(scaleType='maximized')
                            )

plot(A5)


## Not run:

## Plot Apple's monthly stock prices since 1984

## Get current date
d <- Sys.time()
current.year <- format(d, "%Y")
current.month <- format(d, "%m")
current.day <- format(d, "%d")

## Yahoo finance sets January to 00 hence:
month <- as.numeric(current.month)  - 1
month <- ifelse(month < 10, paste("0",month, sep=""), m)

## Get weekly stock prices from Apple Inc.
tckr <- 'AAPL'
yahoo <- 'http://ichart.finance.yahoo.com/table.csv'

fn <- sprintf('%s?s=%s&a=08&b=7&c=1984&d=%s&e=%s&f=%s&g=w&ignore=.csv',
      yahoo, tckr, month, current.day, current.year)

## Get data from Yahoo! Finance
data <- read.csv(fn, colClasses=c("Date", rep("numeric",6)))

AAPL <- reshape(data[,c("Date", "Close", "Volume")], idvar="Date",
      times=c("Close", "Volume"),
                timevar="Type",
                varying=list(c("Close", "Volume")),
                v.names="Value",
                direction="long")

## Calculate previous two years for zoom start time
lyd <- as.POSIXlt(as.Date(d))
lyd$year <- lyd$year-2
lyd <- as.Date(lyd)

aapl <- gvisAnnotationChart(AAPL, datevar="Date",
                            numvar="Value", idvar="Type",
                           options=list(
                             colors="['blue', 'lightblue']",
                             zoomStartTime=lyd,
                             zoomEndTime=as.Date(d),
                             legendPosition='newRow',
                             width=600, height=400, scaleColumns='[0,1]',
                             scaleType='allmaximized')
```

```
                              )

plot(aapl)

## End(Not run)
```

---

gvisAreaChart *Google Area Chart with R*

---

## Description

The gvisAreaChart function reads a data.frame and creates text output referring to the Google Visualisation API, which can be included into a web page, or as a stand-alone page.

## Usage

```
gvisAreaChart(data, xvar = "", yvar = "", options = list(), chartid)
```

## Arguments

| | |
|---|---|
| data | a data.frame to be displayed as an area chart |
| xvar | name of the character column which contains the category labels for the x-axes. |
| yvar | a vector of column names of the numerical variables to be plotted. Each column is displayed as a separate line. |
| options | list of configuration options, see:<br>https://developers.google.com/chart/interactive/docs/gallery/areachart#Configuration_Options<br>The parameters can be set via a named list. The parameters have to map those of the Google documentation.<br>• Boolean arguments are set to either TRUE or FALSE, using the R syntax.<br>• Google API parameters with a single value and with names that don't include a "." are set like one would do in R, that is options=list(width=200, height=300). Exceptions to this rule are the width and height options for gvisAnnotatedTimeLine and gvisAnnotationChart. For those two functions, width and height must be character strings of the format "Xpx", where X is a number, or "automatic". For example, options=list(width="200px", height="300px").<br>• Google API parameters with names that don't include a ".", but require multivalues are set as a character, wrapped in "[ ]" and separated by commas, e.g.<br>options=list(colors="['#cbb69d', '#603913', '#c69c6e']")<br>• Google API parameters with names that do include a "." present parameters with several sub-options and have to be set as a character wrapped in " ". The values of those sub-options are set via parameter:value. Boolean values have to be stated as 'true' or 'false'. For example the Google documentaion states the formating options for the vertical axis and states the parameter as vAxis.format. Then this paramter can be set in R as:<br>options=list(vAxis="{format:'#,###%'}"). |

- If several sub-options have to be set, e.g. `titleTextStyle.color`, `titleTextStyle.fontName` and `titleTextStyle.fontSize`, then those can be combined in one list item such as: `options=list(titleTextStyle="{color:'red', fontName:'Courier', fontSize:16}")`
- paramters that can have more than one value per sub-options are wrapped in "[ ]". For example to set the labels for left and right axes use: `options=list(vAxes="[{title:'val1'}, {title:'val2'}]")`
- `gvis.editor` a character label for an on-page button that opens an in-page dialog box enabling users to edit, change and customise the chart. By default no value is given and therefore no button is displayed.

For more details see the Google API documentation and the R examples below.

`chartid` character. If missing (default) a random chart id will be generated based on chart type and `tempfile`

## Details

The area chart is rendered within the browser using SVG or VML and displays tips when hovering over points.

## Value

gvisAreaChart returns list of `class` "`gvis`" and "`list`". An object of class "`gvis`" is a list containing at least the following components:

`type` Google visualisation type

`chartid` character id of the chart object. Unique chart ids are required to place several charts on the same page.

`html` a list with the building blocks for a page

`header` a character string of a html page header: `<html>...<body>`,

`chart` a named character vector of the chart's building blocks:

`jsHeader` Opening `<script>` tag and reference to Google's JavaScript library.

`jsData` JavaScript function defining the input `data` as a JSON object.

`jsDrawChart` JavaScript function combing the data with the visualisation API and user options.

`jsDisplayChart` JavaScript function calling the handler to display the chart.

`jsFooter` End tag `</script>`.

`jsChart` Call of the `jsDisplayChart` function.

`divChart` `<div>` container to embed the chart into the page.

`caption` character string of a standard caption, including data name and chart id.

`footer` character string of a html page footer: `</body>...</html>`, including the used R and googleVis version and link to Google's Terms of Use.

## Author(s)

Markus Gesmann `<markus.gesmann@gmail.com>`,

Diego de Castillo `<decastillo@gmail.com>`

## References

Google Chart Tools API: http://developers.google.com/chart/interactive/docs/gallery/areachart

## See Also

See also print.gvis, plot.gvis for printing and plotting methods

## Examples

```
## Please note that by default the googleVis plot command
## will open a browser window and requires an internet
## connection to display the visualisation.

df=data.frame(country=c("US", "GB", "BR"), val1=c(1,3,4), val2=c(23,12,32))

## Area chart
Area1 <- gvisAreaChart(df, xvar="country", yvar=c("val1", "val2"))
plot(Area1)

## Stacked chart
Area2 <- gvisAreaChart(df, xvar="country", yvar=c("val1", "val2"),
      options=list(isStacked=TRUE))
plot(Area2)


## Add a customised title
Area3 <- gvisAreaChart(df, xvar="country", yvar=c("val1", "val2"),
             options=list(title="Hello World",
                          titleTextStyle="{color:'red',fontName:'Courier',fontSize:16}"))
plot(Area3)

## Not run:
## Change y-axis to percentages
Area3 <- gvisAreaChart(df, xvar="country", yvar=c("val1", "val2"),
                       options=list(vAxis="{format:'#,###%'}"))
plot(Area3)

## End(Not run)
```

---

gvisBarChart *Google Bar Chart with R*

---

## Description

The gvisBarChart function reads a data.frame and creates text output referring to the Google Visualisation API, which can be included into a web page, or as a stand-alone page. The actual chart is rendered by the web browser using SVG or VML.

## Usage

```
gvisBarChart(data, xvar = "", yvar = "", options = list(), chartid)
```

## Arguments

| | |
|---|---|
| data | a data.frame to be displayed as a bar chart |
| xvar | name of the character column which contains the category labels for the x-axes. |
| yvar | a vector of column names of the numerical variables to be plotted. Each column is displayed as a separate bar/column. |
| options | list of configuration options, see: https://developers.google.com/chart/interactive/docs/gallery/barchart#Configuration_Options<br>The parameters can be set via a named list. The parameters have to map those of the Google documentation.<br>• Boolean arguments are set to either TRUE or FALSE, using the R syntax.<br>• Google API parameters with a single value and with names that don't include a "." are set like one would do in R, that is options=list(width=200, height=300). Exceptions to this rule are the width and height options for gvisAnnotatedTimeLine and gvisAnnotationChart. For those two functions, width and height must be character strings of the format "Xpx", where X is a number, or "automatic". For example, options=list(width="200px", height="300px").<br>• Google API parameters with names that don't include a ".", but require multivalues are set as a character, wrapped in "[ ]" and separated by commas, e.g. options=list(colors="['#cbb69d', '#603913', '#c69c6e']")<br>• Google API parameters with names that do include a "." present parameters with several sub-options and have to be set as a character wrapped in " ". The values of those sub-options are set via parameter:value. Boolean values have to be stated as 'true' or 'false'. For example the Google documentaion states the formating options for the vertical axis and states the parameter as vAxis.format. Then this paramter can be set in R as: options=list(vAxis="{format:'#,###%'}").<br>• If several sub-options have to be set, e.g. titleTextStyle.color, titleTextStyle.fontName and titleTextStyle.fontSize, then those can be combined in one list item such as: options=list(titleTextStyle="{color:'red', fontName:'Courier', fontSize:16}")<br>• paramters that can have more than one value per sub-options are wrapped in "[ ]". For example to set the labels for left and right axes use: options=list(vAxes="[{title:'val1'}, {title:'val2'}]")<br>• gvis.editor a character label for an on-page button that opens an in-page dialog box enabling users to edit, change and customise the chart. By default no value is given and therefore no button is displayed.<br>For more details see the Google API documentation and the R examples below. |
| chartid | character. If missing (default) a random chart id will be generated based on chart type and tempfile |

## Value

gvisBarChart returns list of class "gvis" and "list". An object of class "gvis" is a list containing at least the following components:

type Google visualisation type

chartid character id of the chart object. Unique chart ids are required to place several charts on the same page.

`html` a list with the building blocks for a page

`header` a character string of a html page header: `<html>...<body>`,

`chart` a named character vector of the chart's building blocks:

`jsHeader` Opening `<script>` tag and reference to Google's JavaScript library.

`jsData` JavaScript function defining the input `data` as a JSON object.

`jsDrawChart` JavaScript function combing the data with the visualisation API and user options.

`jsDisplayChart` JavaScript function calling the handler to display the chart.

`jsFooter` End tag `</script>`.

`jsChart` Call of the `jsDisplayChart` function.

`divChart` `<div>` container to embed the chart into the page.

`caption` character string of a standard caption, including data name and chart id.

`footer` character string of a html page footer: `</body>...</html>`, including the used R and googleVis version and link to Google's Terms of Use.

## Author(s)

Markus Gesmann `<markus.gesmann@gmail.com>`,

Diego de Castillo `<decastillo@gmail.com>`

## References

Google Chart Tools API: http://developers.google.com/chart/interactive/docs/gallery/barchart

## See Also

See also `print.gvis`, `plot.gvis` for printing and plotting methods

## Examples

```
## Please note that by default the googleVis plot command
## will open a browser window and requires an internet
## connection to display the visualisation.

df <- data.frame(country=c("US", "GB", "BR"),
                           val1=c(1,3,4),
                           val2=c(23,12,32))

## Bar chart
Bar1 <- gvisBarChart(df, xvar="country", yvar=c("val1", "val2"))
plot(Bar1)

## Stacked bar chart
Bar2 <- gvisBarChart(df, xvar="country", yvar=c("val1", "val2"),
     options=list(isStacked=TRUE))
plot(Bar2)


## Add a customised title and change width of bars
Bar3 <- gvisBarChart(df, xvar="country", yvar=c("val1", "val2"),
             options=list(title="Hello World",
```

```
                          titleTextStyle="{color:'red',fontName:'Courier',fontSize:16}",
                          bar="{groupWidth:'100%'}"))
plot(Bar3)

## Not run:
## Change x-axis to percentages
Bar4 <- gvisBarChart(df, xvar="country", yvar=c("val1", "val2"),
                       options=list(hAxis="{format:'#,###%'}"))
plot(Bar4)

## The following example reads data from a Wikipedia table and displays
## the information in a bar chart.
## We use the readHMLTable function of the XML package to get the data
library(XML)
## Get the data of the biggest ISO container companies from Wikipedia
##(table 3):
df=readHTMLTable(readLines("http://en.wikipedia.org/wiki/Intermodal_freight_transport"))[[3]][,1:2]
## Rename the second column
names(df)[2]="TEU capacity"
## The numbers are displayed with commas to separate thousands, so let's
## get rid of them:
df[,2]=as.numeric(gsub(",", "", as.character(df[,2])))

## Finally we can create a nice bar chart:
Bar5 <- gvisBarChart(df, options=list(
                    chartArea="{left:250,top:50,width:\"50%\",height:\"75%\"}",
                    legend="bottom",
                   title="Top 20 container shipping companies in order of TEU capacity"))

plot(Bar5)


## End(Not run)
```

---

`gvisBubbleChart` *Google Bubble Chart with R*

---

## Description

The gvisBubbleChart function reads a data.frame and creates text output referring to the Google Visualisation API, which can be included into a web page, or as a stand-alone page.

## Usage

```
gvisBubbleChart(data, idvar = "", xvar = "", yvar = "", colorvar = "",
  sizevar = "", options = list(), chartid)
```

## Arguments

| | |
|---|---|
| `data` | a `data.frame` to be displayed as a bubble chart. The data has to have at least three columns for `idvar`, `xvar`, and `yvar`. |
| `idvar` | column name of `data` with the bubble |

xvar — column name of a numerical vector in data to be plotted on the x-axis.

yvar — column name of a numerical vector in data to be plotted on the y-axis.

colorvar — column name of data that identifies bubbles in the same series. Use the same value to identify all bubbles that belong to the same series; bubbles in the same series will be assigned the same color. Series can be configured using the series option.

sizevar — values in this column are mapped to actual pixel values using the sizeAxis option.

options — list of configuration options, see:
https://developers.google.com/chart/interactive/docs/gallery/bubblechart#Configuration_Options
The parameters can be set via a named list. The parameters have to map those of the Google documentation.

- Boolean arguments are set to either TRUE or FALSE, using the R syntax.
- Google API parameters with a single value and with names that don't include a "." are set like one would do in R, that is options=list(width=200, height=300). Exceptions to this rule are the width and height options for gvisAnnotatedTimeLine and gvisAnnotationChart. For those two functions, width and height must be character strings of the format "Xpx", where X is a number, or "automatic". For example, options=list(width="200px", height="300px").
- Google API parameters with names that don't include a ".", but require multivalues are set as a character, wrapped in "[ ]" and separated by commas, e.g.
options=list(colors="['#cbb69d', '#603913', '#c69c6e']")
- Google API parameters with names that do include a "." present parameters with several sub-options and have to be set as a character wrapped in " ". The values of those sub-options are set via parameter:value. Boolean values have to be stated as 'true' or 'false'. For example the Google documentaion states the formating options for the vertical axis and states the parameter as vAxis.format. Then this paramter can be set in R as:
options=list(vAxis="{format:'#,###%'}").
- If several sub-options have to be set, e.g.
titleTextStyle.color, titleTextStyle.fontName and titleTextStyle.fontSize, then those can be combined in one list item such as:
options=list(titleTextStyle="{color:'red', fontName:'Courier', fontSize:16}")
- paramters that can have more than one value per sub-options are wrapped in "[ ]". For example to set the labels for left and right axes use:
options=list(vAxes="[{title:'val1'}, {title:'val2'}]")
- gvis.editor a character label for an on-page button that opens an in-page dialog box enabling users to edit, change and customise the chart. By default no value is given and therefore no button is displayed.

For more details see the Google API documentation and the R examples below.

chartid — character. If missing (default) a random chart id will be generated based on chart type and tempfile.

## Details

A bubble chart is used to visualize a data set with 2 to 4 dimensions. The first two dimensions are visualized as coordinates, the 3rd as color and the 4th as size.

The bubble chart is rendered within the browser using SVG or VML and displays tips when hovering over points.

## Value

gvisBubbleChart returns list of class "gvis" and "list". An object of class "gvis" is a list containing at least the following components:

`type` Google visualisation type

`chartid` character id of the chart object. Unique chart ids are required to place several charts on the same page.

`html` a list with the building blocks for a page

`header` a character string of a html page header: <html>...<body>,

`chart` a named character vector of the chart's building blocks:

`jsHeader` Opening <script> tag and reference to Google's JavaScript library.

`jsData` JavaScript function defining the input data as a JSON object.

`jsDrawChart` JavaScript function combing the data with the visualisation API and user options.

`jsDisplayChart` JavaScript function calling the handler to display the chart.

`jsFooter` End tag </script>.

`jsChart` Call of the `jsDisplayChart` function.

`divChart`  container to embed the chart into the page.

`caption` character string of a standard caption, including data name and chart id.

`footer` character string of a html page footer: </body>...</html>, including the used R and googleVis version and link to Google's Terms of Use.

## Author(s)

Markus Gesmann <markus.gesmann@gmail.com>,

Diego de Castillo <decastillo@gmail.com>

## References

Google Chart Tools API: http://developers.google.com/chart/interactive/docs/gallery/bubblechart

## See Also

See also gvisMotionChart for a moving bubble chart over time, and print.gvis, plot.gvis for printing and plotting methods.

## Examples

```
bubble1 <- gvisBubbleChart(Fruits, idvar="Fruit", xvar="Sales", yvar="Expenses")
plot(bubble1)

## Set color and size
bubble2 <- gvisBubbleChart(Fruits, idvar="Fruit", xvar="Sales", yvar="Expenses",
                           colorvar="Location", sizevar="Profit",
                           options=list(hAxis='{minValue:75, maxValue:125}'))

plot(bubble2)
```

```
## Use year to color the bubbles
bubble3 <- gvisBubbleChart(Fruits, idvar="Fruit", xvar="Sales", yvar="Expenses",
                           colorvar="Year", sizevar="Profit",
                           options=list(hAxis='{minValue:75, maxValue:125}'))
plot(bubble3)

## Gradient colour example
bubble4 <- gvisBubbleChart(Fruits, idvar="Fruit", xvar="Sales", yvar="Expenses",
                          sizevar="Profit",
                          options=list(hAxis='{minValue:75,  maxValue:125}',
                                  colorAxis="{colors: ['lightblue', 'blue']}"))
plot(bubble4)

## Not run:
## Moving bubble chart over time, aka motion chart

M <- gvisMotionChart(Fruits, Fruit, Year)
plot(M)

## End(Not run)
```

---

gvisCalendar *Google Calendar Chart with R*

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## Description

A calendar chart is a visualization used to show activity over the course of a long span of time, such as months or years. They're best used when you want to illustrate how some quantity varies depending on the day of the week, or how it trends over time.

## Usage

```
gvisCalendar(data, datevar = "", numvar = "", options = list(), chartid)
```

## Arguments

| | |
|---|---|
| data | a data.frame. The data has to have at least two columns, one with date information (datevar) and one numerical variable. |
| datevar | column name of data which shows the date dimension. The information has to be of class Date or POSIX* time series. |
| numvar | column name of data which shows the values to be displayed against datevar. The information has to be numeric. |
| options | list of configuration options, see: https://developers.google.com/chart/interactive/docs/gallery/Calendar#Configuration_Options<br>The parameters can be set via a named list. The parameters have to map those of the Google documentation.<br>• Boolean arguments are set to either TRUE or FALSE, using the R syntax. |

- Google API parameters with a single value and with names that don't include a "." are set like one would do in R, that is `options=list(width=200, height=300)`. Exceptions to this rule are the width and height options for `gvisAnnotatedTimeLine` and `gvisAnnotationChart`. For those two functions, width and height must be character strings of the format `"Xpx"`, where `X` is a number, or `"automatic"`. For example, `options=list(width="200px", height="300px")`.
- Google API parameters with names that don't include a ".", but require multivalues are set as a character, wrapped in "[ ]" and separated by commas, e.g.
  `options=list(colors="['#cbb69d', '#603913', '#c69c6e']")`
- Google API parameters with names that do include a "." present parameters with several sub-options and have to be set as a character wrapped in " ". The values of those sub-options are set via parameter:value. Boolean values have to be stated as `'true'` or `'false'`. For example the Google documentaion states the formating options for the vertical axis and states the parameter as `vAxis.format`. Then this paramter can be set in R as:
  `options=list(vAxis="{format:'#,###%'}")`.
- If several sub-options have to be set, e.g.
  `titleTextStyle.color`, `titleTextStyle.fontName` and `titleTextStyle.fontSize`, then those can be combined in one list item such as:
  `options=list(titleTextStyle="{color:'red', fontName:'Courier', fontSize:16}")`
- paramters that can have more than one value per sub-options are wrapped in "[ ]". For example to set the labels for left and right axes use:
  `options=list(vAxes="[{title:'val1'}, {title:'val2'}]")`
- `gvis.editor` a character label for an on-page button that opens an in-page dialog box enabling users to edit, change and customise the chart. By default no value is given and therefore no button is displayed.

For more details see the Google API documentation and the R examples below.

`chartid` character. If missing (default) a random chart id will be generated based on chart type and `tempfile`.

## Value

gvisCalendar returns list of `class` "gvis" and "list". An object of class "gvis" is a list containing at least the following components:

`type` Google visualisation type

`chartid` character id of the chart object. Unique chart ids are required to place several charts on the same page.

`html` a list with the building blocks for a page

`header` a character string of a html page header: `<html>...<body>`,

`chart` a named character vector of the chart's building blocks:

`jsHeader` Opening `<script>` tag and reference to Google's JavaScript library.

`jsData` JavaScript function defining the input `data` as a JSON object.

`jsDrawChart` JavaScript function combing the data with the visualisation API and user options.

`jsDisplayChart` JavaScript function calling the handler to display the chart.

`jsFooter` End tag `</script>`.

`jsChart` Call of the `jsDisplayChart` function.

`divChart` `<div>` container to embed the chart into the page.

`caption` character string of a standard caption, including data name and chart id.

`footer` character string of a html page footer: `</body>...</html>`, including the used R and googleVis version and link to Google's Terms of Use.

## Warning

The calendar chart may be undergoing substantial revisions in future Google Charts releases.

## Author(s)

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Diego de Castillo <decastillo@gmail.com>

## References

Google Chart Tools API: http://developers.google.com/chart/interactive/docs/gallery/Calendar

## See Also

See also `print.gvis`, `plot.gvis` for printing and plotting methods.

## Examples

```
cl1 <- gvisCalendar(Cairo, datevar="Date", numvar="Temp")
plot(cl1)

## Not all months shown?
## We can change the setting of the width ...

cl2 <- gvisCalendar(Cairo, datevar="Date", numvar="Temp",
                    options=list(width=1000))
plot(cl2)

## ... or the cell size
cl3 <- gvisCalendar(Cairo, datevar="Date",
                    numvar="Temp",
                    options=list(calendar="{ cellSize: 10 }"))
plot(cl3)

## Example with many options set
cl4 <- gvisCalendar(Cairo, datevar="Date", numvar="Temp",
                    options=list(
                    title="Daily temperature in Cairo",
                    height=320,
                    calendar="{yearLabel: { fontName: 'Times-Roman',
                               fontSize: 32, color: '#1A8763', bold: true},
                               cellSize: 10,
                               cellColor: { stroke: 'red', strokeOpacity: 0.2 },
                               focusedCellColor: {stroke:'red'}}")
                  )
plot(cl4)
```

gvisCandlestickChart *Google Candlestick chart with R*

## Description

An interactive candlestick chart.

## Usage

```
gvisCandlestickChart(data, xvar = "", low = "", open = "", close = "",
  high = "", options = list(), chartid)
```

## Arguments

| | |
|---|---|
| data | a data.frame to be displayed as a candlestick chart. The data has to have at least 5 columns. |
| xvar | name of the character column which contains the category labels for the x-axes. |
| low | name of the numeric column specifying the low/minimum value of this marker. This is the base of the candle's center line. |
| open | name of the numeric column specifying the opening/initial value of this marker. This is one vertical border of the candle. If less than the close value, the candle will be filled; otherwise it will be hollow. |
| close | name of the numeric column specifying the closing/final value of this marker. This is the second vertical border of the candle. If less than the open value, the candle will be hollow; otherwise it will be filled. |
| high | name of the numeric column specifying the high/maximum value of this marker. This is the top of the candle's center line. |
| options | list of configuration options, see:<br>https://developers.google.com/chart/interactive/docs/gallery/candlestickchart#Configuration_Options<br>The parameters can be set via a named list. The parameters have to map those of the Google documentation.<br>• Boolean arguments are set to either TRUE or FALSE, using the R syntax.<br>• Google API parameters with a single value and with names that don't include a "." are set like one would do in R, that is options=list(width=200, height=300). Exceptions to this rule are the width and height options for gvisAnnotatedTimeLine and gvisAnnotationChart. For those two functions, width and height must be character strings of the format "Xpx", where X is a number, or "automatic". For example, options=list(width="200px", height="300px").<br>• Google API parameters with names that don't include a ".", but require multivalues are set as a character, wrapped in "[ ]" and separated by commas, e.g.<br>options=list(colors="['#cbb69d', '#603913', '#c69c6e']")<br>• Google API parameters with names that do include a "." present parameters with several sub-options and have to be set as a character wrapped in " ". The values of those sub-options are set via parameter:value. Boolean values have to be stated as 'true' or 'false'. For example the Google |

documentaion states the formating options for the vertical axis and states the parameter as `vAxis.format`. Then this paramter can be set in R as: `options=list(vAxis="{format:'#,###%'}")`.

- If several sub-options have to be set, e.g. `titleTextStyle.color`, `titleTextStyle.fontName` and `titleTextStyle.fontSize`, then those can be combined in one list item such as: `options=list(titleTextStyle="{color:'red', fontName:'Courier', fontSize:16}")`
- paramters that can have more than one value per sub-options are wrapped in "[ ]". For example to set the labels for left and right axes use: `options=list(vAxes="[{title:'val1'}, {title:'val2'}]")`
- `gvis.editor` a character label for an on-page button that opens an in-page dialog box enabling users to edit, change and customise the chart. By default no value is given and therefore no button is displayed.

For more details see the Google API documentation and the R examples below.

`chartid` character. If missing (default) a random chart id will be generated based on chart type and `tempfile`

## Details

The gvisCandlestickChart function reads a data.frame and creates text output referring to the Google Visualisation API, which can be included into a web page, or as a stand-alone page. The actual chart is rendered by the web browser using SVG or VML.

A candlestick chart is used to show an opening and closing value overlaid on top of a total variance. Candlestick charts are often used to show stock value behavior. In this chart, items where the opening value is less than the closing value (a gain) are drawn as filled boxes, and items where the opening value is more than the closing value (a loss) are drawn as hollow boxes.

## Value

gvisCandlestickChart returns list of `class` "`gvis`" and "`list`". An object of class "`gvis`" is a list containing at least the following components:

`type` Google visualisation type

`chartid` character id of the chart object. Unique chart ids are required to place several charts on the same page.

`html` a list with the building blocks for a page

- `header` a character string of a html page header: `<html>...<body>`,
- `chart` a named character vector of the chart's building blocks:
  - `jsHeader` Opening `<script>` tag and reference to Google's JavaScript library.
  - `jsData` JavaScript function defining the input `data` as a JSON object.
  - `jsDrawChart` JavaScript function combing the data with the visualisation API and user options.
  - `jsDisplayChart` JavaScript function calling the handler to display the chart.
  - `jsFooter` End tag `</script>`.
  - `jsChart` Call of the `jsDisplayChart` function.
  - `divChart` `<div>` container to embed the chart into the page.
- `caption` character string of a standard caption, including data name and chart id.
- `footer` character string of a html page footer: `</body>...</html>`, including the used R and googleVis version and link to Google's Terms of Use.

### Author(s)

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### References

Google Chart Tools API: http://developers.google.com/chart/interactive/docs/gallery/candlestickchart

### See Also

See also print.gvis, plot.gvis for printing and plotting methods

### Examples

```
## Please note that by default the googleVis plot command
## will open a browser window and requires an internet
## connection to display the visualisation.

## Example data set
OpenClose

C1 <- gvisCandlestickChart(OpenClose, xvar="Weekday", low="Low",
                                      open="Open", close="Close",
                                      high="High",
                                      options=list(legend='none'))

plot(C1)
```

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## gvisColumnChart *Google Column Chart with R*

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### Description

The gvisColumnChart function reads a data.frame and creates text output referring to the Google Visualisation API, which can be included into a web page, or as a stand-alone page. The actual chart is rendered by the web browser using SVG or VML.

### Usage

```
gvisColumnChart(data, xvar = "", yvar = "", options = list(), chartid)
```

### Arguments

| | |
|---|---|
| data | a data.frame to be displayed as a column chart |
| xvar | name of the character column which contains the category labels for the x-axes. |
| yvar | a vector of column names of the numerical variables to be plotted. Each column is displayed as a separate bar/column. |

options — list of configuration options, see:
https://developers.google.com/chart/interactive/docs/gallery/columnchart#Configuration_Options

The parameters can be set via a named list. The parameters have to map those of the Google documentation.

- Boolean arguments are set to either TRUE or FALSE, using the R syntax.
- Google API parameters with a single value and with names that don't include a "." are set like one would do in R, that is `options=list(width=200, height=300)`. Exceptions to this rule are the width and height options for gvisAnnotatedTimeLine and gvisAnnotationChart. For those two functions, width and height must be character strings of the format "Xpx", where X is a number, or "automatic". For example, `options=list(width="200px", height="300px")`.
- Google API parameters with names that don't include a ".", but require multivalues are set as a character, wrapped in "[ ]" and separated by commas, e.g.
  `options=list(colors="['#cbb69d', '#603913', '#c69c6e']")`
- Google API parameters with names that do include a "." present parameters with several sub-options and have to be set as a character wrapped in " ". The values of those sub-options are set via parameter:value. Boolean values have to be stated as 'true' or 'false'. For example the Google documentaion states the formating options for the vertical axis and states the parameter as vAxis.format. Then this paramter can be set in R as: `options=list(vAxis="{format:'#,###%'}")`.
- If several sub-options have to be set, e.g. titleTextStyle.color, titleTextStyle.fontName and titleTextStyle.fontSize, then those can be combined in one list item such as:
  `options=list(titleTextStyle="{color:'red', fontName:'Courier', fontSize:16}")`
- paramters that can have more than one value per sub-options are wrapped in "[ ]". For example to set the labels for left and right axes use:
  `options=list(vAxes="[{title:'val1'}, {title:'val2'}]")`
- gvis.editor a character label for an on-page button that opens an in-page dialog box enabling users to edit, change and customise the chart. By default no value is given and therefore no button is displayed.

For more details see the Google API documentation and the R examples below.

chartid — character. If missing (default) a random chart id will be generated based on chart type and tempfile

## Value

gvisColumnChart returns list of class "gvis" and "list". An object of class "gvis" is a list containing at least the following components:

type Google visualisation type

chartid character id of the chart object. Unique chart ids are required to place several charts on the same page.

html a list with the building blocks for a page

header a character string of a html page header: <html>...<body>,

chart a named character vector of the chart's building blocks:

jsHeader Opening <script> tag and reference to Google's JavaScript library.

jsData JavaScript function defining the input data as a JSON object.

`jsDrawChart` JavaScript function combing the data with the visualisation API and user options.

`jsDisplayChart` JavaScript function calling the handler to display the chart.

`jsFooter` End tag `</script>`.

`jsChart` Call of the `jsDisplayChart` function.

`divChart` `<div>` container to embed the chart into the page.

`caption` character string of a standard caption, including data name and chart id.

`footer` character string of a html page footer: `</body>...</html>`, including the used R and googleVis version and link to Google's Terms of Use.

## Author(s)

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## References

Google Chart Tools API: http://developers.google.com/chart/interactive/docs/gallery/columnchart

## See Also

See also print.gvis, plot.gvis for printing and plotting methods

## Examples

```
## Please note that by default the googleVis plot command
## will open a browser window and requires an internet
## connection to display the visualisation.

df=data.frame(country=c("US", "GB", "BR"), val1=c(1,3,4), val2=c(23,12,32))

## Column chart
Col1 <- gvisColumnChart(df, xvar="country", yvar=c("val1", "val2"))
plot(Col1)

## Stacked column chart
Col2 <- gvisColumnChart(df, xvar="country", yvar=c("val1", "val2"),
     options=list(isStacked=TRUE))
plot(Col2)


## Add a customised title and and change width of columns
Col3 <- gvisColumnChart(df, xvar="country", yvar=c("val1", "val2"),
             options=list(title="Hello World",
                          titleTextStyle="{color:'red',fontName:'Courier',fontSize:16}",
                          bar="{groupWidth:'100%'}"))
plot(Col3)

## Not run:
## Change y-axis to percentages
Col4 <- gvisColumnChart(df, xvar="country", yvar=c("val1", "val2"),
                        options=list(vAxis="{format:'#,###%'}"))
plot(Col4)
```

```
## End(Not run)
```

---

gvisComboChart *Google Combo Chart with R*

---

## Description

A chart that lets you render each series as a different marker type from the following list: columns, lines, and area lines.

## Usage

```
gvisComboChart(data, xvar = "", yvar = "", options = list(), chartid)
```

## Arguments

| | |
|---|---|
| data | a data.frame to be displayed as a columns, line and area chart. |
| xvar | name of the character column which contains the category labels for the x-axes. |
| yvar | a vector of column names of the numerical variables to be plotted. Each column is displayed as a separate column, line or area series. |
| options | list of configuration options, see: https://developers.google.com/chart/interactive/docs/gallery/combochart#Configuration_Options The parameters can be set via a named list. The parameters have to map those of the Google documentation. |

- Boolean arguments are set to either TRUE or FALSE, using the R syntax.
- Google API parameters with a single value and with names that don't include a "." are set like one would do in R, that is `options=list(width=200, height=300)`. Exceptions to this rule are the width and height options for gvisAnnotatedTimeLine and gvisAnnotationChart. For those two functions, width and height must be character strings of the format "Xpx", where X is a number, or "automatic". For example, `options=list(width="200px", height="300px")`.
- Google API parameters with names that don't include a ".", but require multivalues are set as a character, wrapped in "[ ]" and separated by commas, e.g. `options=list(colors="['#cbb69d', '#603913', '#c69c6e']")`
- Google API parameters with names that do include a "." present parameters with several sub-options and have to be set as a character wrapped in " ". The values of those sub-options are set via parameter:value. Boolean values have to be stated as 'true' or 'false'. For example the Google documentaion states the formating options for the vertical axis and states the parameter as vAxis.format. Then this paramter can be set in R as: `options=list(vAxis="{format:'#,###%'}")`.
- If several sub-options have to be set, e.g. titleTextStyle.color, titleTextStyle.fontName and titleTextStyle.fontSize, then those can be combined in one list item such as: `options=list(titleTextStyle="{color:'red', fontName:'Courier', fontSize:16}")`

- paramters that can have more than one value per sub-options are wrapped in "[ ]". For example to set the labels for left and right axes use: `options=list(vAxes="[{title:'val1'}, {title:'val2'}]")`
- `gvis.editor` a character label for an on-page button that opens an in-page dialog box enabling users to edit, change and customise the chart. By default no value is given and therefore no button is displayed.

For more details see the Google API documentation and the R examples below.

`chartid` character. If missing (default) a random chart id will be generated based on chart type and `tempfile`

## Details

The gvisComboChart function reads a data.frame and creates text output referring to the Google Visualisation API, which can be included into a web page, or as a stand-alone page. The actual chart is rendered by the web browser using SVG or VML.

## Value

gvisComboChart returns list of `class` "`gvis`" and "`list`". An object of class "`gvis`" is a list containing at least the following components:

`type` Google visualisation type

`chartid` character id of the chart object. Unique chart ids are required to place several charts on the same page.

`html` a list with the building blocks for a page

`header` a character string of a html page header: `<html>...<body>`,

`chart` a named character vector of the chart's building blocks:

`jsHeader` Opening `<script>` tag and reference to Google's JavaScript library.

`jsData` JavaScript function defining the input `data` as a JSON object.

`jsDrawChart` JavaScript function combing the data with the visualisation API and user options.

`jsDisplayChart` JavaScript function calling the handler to display the chart.

`jsFooter` End tag `</script>`.

`jsChart` Call of the `jsDisplayChart` function.

`divChart` `<div>` container to embed the chart into the page.

`caption` character string of a standard caption, including data name and chart id.

`footer` character string of a html page footer: `</body>...</html>`, including the used R and googleVis version and link to Google's Terms of Use.

## Author(s)

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Diego de Castillo `<decastillo@gmail.com>`

## References

Google Chart Tools API: `http://developers.google.com/chart/interactive/docs/gallery/combochart`

## See Also

See also print.gvis, plot.gvis for printing and plotting methods

## Examples

```
## Please note that by default the googleVis plot command
## will open a browser window and requires an internet
## connection to display the visualisation.

CityPopularity
## Add the mean
CityPopularity$Mean=mean(CityPopularity$Popularity)

C1 <- gvisComboChart(CityPopularity, xvar="City",
                                     yvar=c("Mean", "Popularity"),
                                   options=list(seriesType="bars",
                                                title="City Popularity",
                                                series='{0: {type:"line"}}'))
plot(C1)

## Changing the width of columsn
C2 <- gvisComboChart(CityPopularity, xvar="City",
                                     yvar=c("Mean", "Popularity"),
                                   options=list(seriesType="bars",
                                                bar="{groupWidth:'100%'}",
                                                title="City Popularity",
                                                series='{0: {type:"line"}}'))
plot(C2)
```

---

gvisGauge *Google Gauge with R*

---

## Description

The gvisGauge function reads a data.frame and creates text output referring to the Google Visualisation API, which can be included into a web page, or as a stand-alone page. The actual chart is rendered by the web browser using SVG or VML.

## Usage

```
gvisGauge(data, labelvar = "", numvar = "", options = list(), chartid)
```

## Arguments

| | |
|---|---|
| data | a data.frame to be displayed as a gauge |
| labelvar | name of the character column which contains the category labels for the slice labels. |
| numvar | a vector of column names of the numerical variables of the slice values. |

options — list of configuration options, see:
https://developers.google.com/chart/interactive/docs/gallery/gauge#Configuration_Options

The parameters can be set via a named list. The parameters have to map those of the Google documentation.

- Boolean arguments are set to either TRUE or FALSE, using the R syntax.
- Google API parameters with a single value and with names that don't include a "." are set like one would do in R, that is options=list(width=200, height=300). Exceptions to this rule are the width and height options for gvisAnnotatedTimeLine and gvisAnnotationChart. For those two functions, width and height must be character strings of the format "Xpx", where X is a number, or "automatic". For example, options=list(width="200px", height="300px").
- Google API parameters with names that don't include a ".", but require multivalues are set as a character, wrapped in "[ ]" and separated by commas, e.g.
options=list(colors="['#cbb69d', '#603913', '#c69c6e']")
- Google API parameters with names that do include a "." present parameters with several sub-options and have to be set as a character wrapped in " ". The values of those sub-options are set via parameter:value. Boolean values have to be stated as 'true' or 'false'. For example the Google documentaion states the formating options for the vertical axis and states the parameter as vAxis.format. Then this paramter can be set in R as:
options=list(vAxis="{format:'#,###%'}").
- If several sub-options have to be set, e.g.
titleTextStyle.color, titleTextStyle.fontName and titleTextStyle.fontSize, then those can be combined in one list item such as:
options=list(titleTextStyle="{color:'red', fontName:'Courier', fontSize:16}")
- paramters that can have more than one value per sub-options are wrapped in "[ ]". For example to set the labels for left and right axes use:
options=list(vAxes="[{title:'val1'}, {title:'val2'}]")
- gvis.editor a character label for an on-page button that opens an in-page dialog box enabling users to edit, change and customise the chart. By default no value is given and therefore no button is displayed.

For more details see the Google API documentation and the R examples below.

chartid — character. If missing (default) a random chart id will be generated based on chart type and tempfile

## Value

gvisGauge returns list of class "gvis" and "list". An object of class "gvis" is a list containing at least the following components:

type Google visualisation type

chartid character id of the chart object. Unique chart ids are required to place several charts on the same page.

html a list with the building blocks for a page

header a character string of a html page header: <html>...<body>,

chart a named character vector of the chart's building blocks:

jsHeader Opening <script> tag and reference to Google's JavaScript library.

jsData JavaScript function defining the input data as a JSON object.

`jsDrawChart` JavaScript function combing the data with the visualisation API and user options.

`jsDisplayChart` JavaScript function calling the handler to display the chart.

`jsFooter` End tag `</script>`.

`jsChart` Call of the `jsDisplayChart` function.

`divChart` `<div>` container to embed the chart into the page.

`caption` character string of a standard caption, including data name and chart id.

`footer` character string of a html page footer: `</body>...</html>`, including the used R and googleVis version and link to Google's Terms of Use.

## Author(s)

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## References

Google Chart Tools API: http://developers.google.com/chart/interactive/docs/gallery/gauge

## See Also

See also `print.gvis`, `plot.gvis` for printing and plotting methods

## Examples

```
## Please note that by default the googleVis plot command
## will open a browser window and requires an internet
## connection to display the visualisation.

Gauge1 <- gvisGauge(CityPopularity, options=list(min=0, max=800, greenFrom=500,
                    greenTo=800, yellowFrom=300, yellowTo=500,
                    redFrom=0, redTo=300))

plot(Gauge1)
```

---

`gvisGeoChart` *Google Geo Chart with R*

---

## Description

The gvisGeoChart function reads a data.frame and creates text output referring to the Google Visualisation API, which can be included into a web page, or as a stand-alone page.

## Usage

```
gvisGeoChart(data, locationvar = "", colorvar = "", sizevar = "",
  hovervar = "", options = list(), chartid)
```

## Arguments

| | |
|---|---|
| data | a data.frame. The data has to have at least one column with location name (locationvar), value to be mapped to location. The format of the data varies depending on which display mode that you use: Regions or Markers. |
| locationvar | column name of data with the geo locations to be analysed. The locations can be provide in two formats:<br>**Format 1** 'latitude:longitude'. See the example below.<br>**Format 2** Address, country name, region name locations, or US metropolitan area codes, see http://code.google.com/apis/adwords/docs/developer/adwords_api_us_metros.html. This format works with the dataMode option set to either 'markers' or 'regions'. The following formats are accepted: A specific address (for example, "1600 Pennsylvania Ave"). A country name as a string (for example, "England"), or an uppercase ISO-3166 code or its English text equivalent (for example, "GB" or "United Kingdom"). An uppercase ISO-3166-2 region code name or its English text equivalent (for example, "US-NJ" or "New Jersey"). |
| colorvar | column name of data with the optional numeric column used to assign a color to this marker, based on the scale specified in the colorAxis.colors property. If this column is not present, all markers will be the same color. If the column is present, null values are not allowed. Values are scaled relative to each other, or absolutely to values specified in the colorAxis.values property. |
| sizevar | only used for displayMode='markers'. Column name of data with the optional numeric column used to assign the marker size, relative to the other marker sizes. If this column is not present, the value from the previous column will be used (or default 'size, if no color column is provided as well). If the column is present, null valuesare not allowed. |
| hovervar | column name of data with the additional string text displayed when the user hovers over this region. |
| options | list of configuration options, see:<br>https://developers.google.com/chart/interactive/docs/gallery/geochart#Configuration_Options<br>The parameters can be set via a named list. The parameters have to map those of the Google documentation.<br>• Boolean arguments are set to either TRUE or FALSE, using the R syntax.<br>• Google API parameters with a single value and with names that don't include a "." are set like one would do in R, that is options=list(width=200, height=300). Exceptions to this rule are the width and height options for gvisAnnotatedTimeLine and gvisAnnotationChart. For those two functions, width and height must be character strings of the format "Xpx", where X is a number, or "automatic". For example, options=list(width="200px", height="300px").<br>• Google API parameters with names that don't include a ".", but require multivalues are set as a character, wrapped in "[ ]" and separated by commas, e.g.<br>options=list(colors="['#cbb69d', '#603913', '#c69c6e']")<br>• Google API parameters with names that do include a "." present parameters with several sub-options and have to be set as a character wrapped in " ". The values of those sub-options are set via parameter:value. Boolean values have to be stated as 'true' or 'false'. For example the Google |

documentaion states the formating options for the vertical axis and states the parameter as `vAxis.format`. Then this paramter can be set in R as: `options=list(vAxis="{format:'#,###%'}")`.

- If several sub-options have to be set, e.g. `titleTextStyle.color`, `titleTextStyle.fontName` and `titleTextStyle.fontSize`, then those can be combined in one list item such as: `options=list(titleTextStyle="{color:'red', fontName:'Courier', fontSize:16}")`
- paramters that can have more than one value per sub-options are wrapped in "[ ]". For example to set the labels for left and right axes use: `options=list(vAxes="[{title:'val1'}, {title:'val2'}]")`
- `gvis.editor` a character label for an on-page button that opens an in-page dialog box enabling users to edit, change and customise the chart. By default no value is given and therefore no button is displayed.

For more details see the Google API documentation and the R examples below.

`chartid` character. If missing (default) a random chart id will be generated based on chart type and `tempfile`

## Details

A geo chart is a map of a country, a continent, or a region with two modes: The region mode colorizes whole regions, such as countries, provinces, or states. The marker mode marks designated regions using bubbles that are scaled according to a value that you specify.

A geo chart is rendered within the browser using SVG or VML. Note that the map is not scrollable or draggable.

## Value

gvisGeoChart returns list of `class` "`gvis`" and "`list`". An object of class "`gvis`" is a list containing at least the following components:

`type` Google visualisation type

`chartid` character id of the chart object. Unique chart ids are required to place several charts on the same page.

`html` a list with the building blocks for a page

`header` a character string of a html page header: `<html>...<body>`,

`chart` a named character vector of the chart's building blocks:

`jsHeader` Opening `<script>` tag and reference to Google's JavaScript library.

`jsData` JavaScript function defining the input `data` as a JSON object.

`jsDrawChart` JavaScript function combing the data with the visualisation API and user options.

`jsDisplayChart` JavaScript function calling the handler to display the chart.

`jsFooter` End tag `</script>`.

`jsChart` Call of the `jsDisplayChart` function.

`divChart` `<div>` container to embed the chart into the page.

`caption` character string of a standard caption, including data name and chart id.

`footer` character string of a html page footer: `</body>...</html>`, including the used R and googleVis version and link to Google's Terms of Use.

## Author(s)

Markus Gesmann `<markus.gesmann@gmail.com>`, Diego de Castillo `<decastillo@gmail.com>`

## References

Google Chart Tools API: http://developers.google.com/chart/interactive/docs/gallery/geochart

## See Also

See also print.gvis, plot.gvis for printing and plotting methods.

## Examples

```
## Please note that by default the googleVis plot command
## will open a browser window and requires Internet
## connection to display the visualisation.

## Regions examples
## The regions style fills entire regions (typically countries) with
## colors corresponding to the values that you assign

G1a <- gvisGeoChart(Exports, locationvar='Country', colorvar='Profit')

plot(G1a)

## Change projection
G1b <- gvisGeoChart(Exports, locationvar='Country', colorvar='Profit',
                    options=list(projection="kavrayskiy-vii"))

plot(G1b)

## Plot only Europe
G2 <- gvisGeoChart(Exports, "Country", "Profit",
                    options=list(region="150"))

plot(G2)


## Example showing US data by state
require(datasets)

states <- data.frame(state.name, state.x77)
G3 <- gvisGeoChart(states, "state.name", "Illiteracy",
                  options=list(region="US", displayMode="regions",
                               resolution="provinces",
     width=600, height=400))
plot(G3)

## Markers Example
## A marker style map renders bubble-shaped markers at specified
## locations with the color and size that you specify.

G4 <- gvisGeoChart(CityPopularity, locationvar='City', colorvar='Popularity',
                      options=list(region='US', height=350,
                                   displayMode='markers',
   colorAxis="{values:[200,400,600,800],
                                   colors:[\'red', \'pink\', \'orange',\'green']}")
                      )
```

```
plot(G4)

G5 <- gvisGeoChart(Andrew, "LatLong", colorvar='Speed_kt',
                   options=list(region="US"))
plot(G5)


G6 <- gvisGeoChart(Andrew, "LatLong", sizevar='Speed_kt',
                   colorvar="Pressure_mb", options=list(region="US"))
plot(G6)

## Create lat:long values and plot a map of Oceania
## Set background colour to light-blue

require(stats)
data(quakes)
head(quakes)
quakes$latlong<-paste(quakes$lat, quakes$long, sep=":")

G7 <- gvisGeoChart(quakes, "latlong", "depth", "mag",
                   options=list(displayMode="Markers", region="009",
                   colorAxis="{colors:['red', 'grey']}",
                   backgroundColor="lightblue"))

plot(G7)

## Not run:
# Plot S&P countries' credit rating sourced from Wikipedia
# Use the hovervar to show the rating
library(XML)
url <- "http://en.wikipedia.org/wiki/List_of_countries_by_credit_rating"
x <- readHTMLTable(readLines(url), which=3)
levels(x$Rating) <- substring(levels(x$Rating), 4,
                              nchar(levels(x$Rating)))
x$Ranking <- x$Rating
levels(x$Ranking) <- nlevels(x$Rating):1
x$Ranking <- as.character(x$Ranking)
x$Rating <- paste(x$Country, x$Rating, sep=": ")
#### Create a geo chart
G8 <- gvisGeoChart(x, "Country", "Ranking", hovervar="Rating",
                options=list(gvis.editor="S&P",
                             colorAxis="{colors:['#91BFDB', '#FC8D59']}"))
plot(G8)


## Plot world wide earth quakes of the last 30 days with magnitude >= 4.0
library(XML)
## Get earthquake data of the last 30 days
eq <- read.csv("http://earthquake.usgs.gov/earthquakes/feed/v0.1/summary/2.5_week.csv")
eq$loc=paste(eq$Latitude, eq$Longitude, sep=":")

G9 <- gvisGeoChart(eq, "loc", "Depth", "Magnitude",
                   options=list(displayMode="Markers",
                   colorAxis="{colors:['purple', 'red', 'orange', 'grey']}",
                   backgroundColor="lightblue"), chartid="EQ")
plot(G9)
```

```
## End(Not run)
```

---

gvisGeoMap *Google Geo Map with R*

---

## Description

The gvisGeoMap function reads a data.frame and creates text output referring to the Google Visualisation API, which can be included into a web page, or as a stand-alone page.

A geo map is a map of a country, continent, or region map, with colours and values assigned to specific regions. Values are displayed as a colour scale, and you can specify optional hover-text for regions. The map is rendered in the browser. Note that the map is not scroll-able or drag-gable, but can be configured to allow zooming.

## Usage

```
gvisGeoMap(data, locationvar = "", numvar = "", hovervar = "",
  options = list(), chartid)
```

## Arguments

| | |
|---|---|
| data | data.frame. The data has to have at least two columns with location name (locationvar), value to be mapped to location (numvar) and an optional variable to display any text while the mouse hovers over the location (hovervar). |
| locationvar | column name of data with the geo locations to be analysed. The locations can be provide in two formats:<br>**Format 1** 'latitude:longitude'. See the example below.<br>**Format 2** Address, country name, region name locations, or US metropolitan area codes, see http://code.google.com/apis/adwords/docs/developer/adwords_api_us_metros.html. This format works with the dataMode option set to either 'markers' or 'regions'. The following formats are accepted: A specific address (for example, "1600 Pennsylvania Ave"). A country name as a string (for example, "England"), or an uppercase ISO-3166 code or its English text equivalent (for example, "GB" or "United Kingdom"). An uppercase ISO-3166-2 region code name or its English text equivalent (for example, "US-NJ" or "New Jersey"). |
| numvar | column name of data with the numeric value displayed when the user hovers over this region. |
| hovervar | column name of data with the additional string text displayed when the user hovers over this region. |
| options | list of configuration options. The options are documented in detail by Google online:<br>https://developers.google.com/chart/interactive/docs/gallery/geomap#Configuration_Options<br>The parameters can be set via a named list. The parameters have to map those of the Google documentation.<br>• Boolean arguments are set to either TRUE or FALSE, using the R syntax. |

- Google API parameters with a single value and with names that don't include a "." are set like one would do in R, that is `options=list(width=200, height=300)`. Exceptions to this rule are the width and height options for `gvisAnnotatedTimeLine` and `gvisAnnotationChart`. For those two functions, width and height must be character strings of the format `"Xpx"`, where `X` is a number, or `"automatic"`. For example, `options=list(width="200px", height="300px")`.
- Google API parameters with names that don't include a ".", but require multivalues are set as a character, wrapped in "[ ]" and separated by commas, e.g.
  `options=list(colors="['#cbb69d', '#603913', '#c69c6e']")`
- Google API parameters with names that do include a "." present parameters with several sub-options and have to be set as a character wrapped in " ". The values of those sub-options are set via parameter:value. Boolean values have to be stated as `'true'` or `'false'`. For example the Google documentaion states the formating options for the vertical axis and states the parameter as `vAxis.format`. Then this paramter can be set in R as:
  `options=list(vAxis="{format:'#,###%'}")`.
- If several sub-options have to be set, e.g.
  `titleTextStyle.color`, `titleTextStyle.fontName` and `titleTextStyle.fontSize`, then those can be combined in one list item such as:
  `options=list(titleTextStyle="{color:'red', fontName:'Courier', fontSize:16}")`
- paramters that can have more than one value per sub-options are wrapped in "[ ]". For example to set the labels for left and right axes use:
  `options=list(vAxes="[{title:'val1'}, {title:'val2'}]")`
- `gvis.editor` a character label for an on-page button that opens an in-page dialog box enabling users to edit, change and customise the chart. By default no value is given and therefore no button is displayed.

For more details see the Google API documentation and the R examples below.

`chartid` character. If missing (default) a random chart id will be generated based on chart type and `tempfile`

## Value

gvisGeoMap returns list of `class` "gvis" and "list". An object of class "gvis" is a list containing at least the following components:

`type` Google visualisation type

`chartid` character id of the chart object. Unique chart ids are required to place several charts on the same page.

`html` a list with the building blocks for a page

`header` a character string of a html page header: `<html>...<body>`,

`chart` a named character vector of the chart's building blocks:

`jsHeader` Opening `<script>` tag and reference to Google's JavaScript library.

`jsData` JavaScript function defining the input `data` as a JSON object.

`jsDrawChart` JavaScript function combing the data with the visualisation API and user options.

`jsDisplayChart` JavaScript function calling the handler to display the chart.

`jsFooter` End tag `</script>`.

`jsChart` Call of the `jsDisplayChart` function.

`divChart` `<div>` container to embed the chart into the page.

`caption` character string of a standard caption, including data name and chart id.

`footer` character string of a html page footer: `</body>...</html>`, including the used R and googleVis version and link to Google's Terms of Use.

## Warnings

Because of Flash security settings the chart might not work correctly when accessed from a file location in the browser (e.g., file:///c:/webhost/myhost/myviz.html) rather than from a web server URL (e.g. http://www.myhost.com/myviz.html). See the googleVis package vignette and the Macromedia web site (http://www.macromedia.com/support/documentation/en/flashplayer/help/) for more details.

## Author(s)

Markus Gesmann <markus.gesmann@gmail.com>, Diego de Castillo <decastillo@gmail.com>

## References

Google Chart Tools API: http://developers.google.com/chart/interactive/docs/gallery/geomap

## Examples

```
## Please note that by default the googleVis plot command
## will open a browser window and requires Internet
## connection to display the visualisation.

## Regions Example
## The regions style fills entire regions (typically countries) with colors
## corresponding to the values that you assign. Specify the regions style
## by assigning options['dataMode'] = 'regions' in your code.

G1 <- gvisGeoMap(Exports, locationvar='Country', numvar='Profit',
                 options=list(dataMode="regions"))

plot(G1)

## Markers Example
## The "markers" style displays a circle, sized and colored to indicate
## a value, over the regions that you specify.
G2 <- gvisGeoMap(CityPopularity, locationvar='City', numvar='Popularity',
                 options=list(region='US', height=350,
                              dataMode='markers',
                              colors='[0xFF8747, 0xFFB581, 0xc06000]'))

plot(G2)

## Example showing US data by state

require(datasets)
states <- data.frame(state.name, state.x77)

G3 <- gvisGeoMap(states, "state.name", "Illiteracy",
                 options=list(region="US", dataMode="regions",
                              width=600, height=400))
plot(G3)
```

```
## Example with latitude and longitude information
## Show Hurricane Andrew (1992) storm track
G4 <- gvisGeoMap(Andrew, locationvar="LatLong", numvar="Speed_kt",
                 hovervar="Category",
                 options=list(height=350, region="US", dataMode="markers"))

plot(G4)

## World population
WorldPopulation=data.frame(Country=Population$Country,
                           Population.in.millions=round(Population$Population/1e6,0),
                           Rank=paste(Population$Country, "Rank:", Population$Rank))

G5 <- gvisGeoMap(WorldPopulation, "Country", "Population.in.millions", "Rank",
                 options=list(dataMode="regions", width=600, height=300))
plot(G5)
```

---

`gvisHistogram` *Google Histogram Chart with R*

---

## Description

The gvisHistogram function reads a data.frame and creates text output referring to the Google Visualisation API, which can be included into a web page, or as a stand-alone page. The actual chart is rendered by the web browser using SVG or VML.

## Usage

```
gvisHistogram(data, options = list(), chartid)
```

## Arguments

| | |
|---|---|
| `data` | a `data.frame` to be displayed as a histogram. Each column will be displayed as a histogram. |
| `options` | list of configuration options, see https://developers.google.com/chart/interactive/docs/gallery/histogram#Configuration_Options<br>The parameters can be set via a named list. The parameters have to map those of the Google documentation.<br>• Boolean arguments are set to either `TRUE` or `FALSE`, using the R syntax.<br>• Google API parameters with a single value and with names that don't include a "." are set like one would do in R, that is `options=list(width=200, height=300)`. Exceptions to this rule are the width and height options for `gvisAnnotatedTimeLine` and `gvisAnnotationChart`. For those two functions, width and height must be character strings of the format `"Xpx"`, where `X` is a number, or `"automatic"`. For example, `options=list(width="200px", height="300px")`.<br>• Google API parameters with names that don't include a ".", but require multivalues are set as a character, wrapped in "[ ]" and separated by commas, e.g.<br>`options=list(colors="['#cbb69d', '#603913', '#c69c6e']")` |

- Google API parameters with names that do include a "." present parameters with several sub-options and have to be set as a character wrapped in " ". The values of those sub-options are set via parameter:value. Boolean values have to be stated as `'true'` or `'false'`. For example the Google documentaion states the formating options for the vertical axis and states the parameter as `vAxis.format`. Then this paramter can be set in R as: `options=list(vAxis="{format:'#,###%'}")`.
- If several sub-options have to be set, e.g. `titleTextStyle.color`, `titleTextStyle.fontName` and `titleTextStyle.fontSize`, then those can be combined in one list item such as: `options=list(titleTextStyle="{color:'red', fontName:'Courier', fontSize:16}")`
- paramters that can have more than one value per sub-options are wrapped in "[ ]". For example to set the labels for left and right axes use: `options=list(vAxes="[{title:'val1'}, {title:'val2'}]")`
- `gvis.editor` a character label for an on-page button that opens an in-page dialog box enabling users to edit, change and customise the chart. By default no value is given and therefore no button is displayed.

For more details see the Google API documentation and the R examples below.

`chartid` character. If missing (default) a random chart id will be generated based on chart type and `tempfile`.

## Value

gvisHistogram returns list of `class` "`gvis`" and "`list`". An object of class "`gvis`" is a list containing at least the following components:

`type` Google visualisation type

`chartid` character id of the chart object. Unique chart ids are required to place several charts on the same page.

`html` a list with the building blocks for a page

`header` a character string of a html page header: `<html>...<body>`,

`chart` a named character vector of the chart's building blocks:

`jsHeader` Opening `<script>` tag and reference to Google's JavaScript library.

`jsData` JavaScript function defining the input `data` as a JSON object.

`jsDrawChart` JavaScript function combing the data with the visualisation API and user options.

`jsDisplayChart` JavaScript function calling the handler to display the chart.

`jsFooter` End tag `</script>`.

`jsChart` Call of the `jsDisplayChart` function.

`divChart` `<div>` container to embed the chart into the page.

`caption` character string of a standard caption, including data name and chart id.

`footer` character string of a html page footer: `</body>...</html>`, including the used R and googleVis version and link to Google's Terms of Use.

## Author(s)

Markus Gesmann `<markus.gesmann@gmail.com>`,

Diego de Castillo `<decastillo@gmail.com>`

## References

Google Chart Tools API: http://developers.google.com/chart/interactive/docs/gallery/histogram

## See Also

See also print.gvis, plot.gvis for printing and plotting methods

## Examples

```
## Please note that by default the googleVis plot command
## will open a browser window and requires an internet
## connection to display the visualisation.


hist1 <- gvisHistogram(dino)
plot(hist1)

## Histogram of the top 20 countries
pop <- Population[1:20,c("Country", "Population")]
pop=transform(pop, Population=round(Population/1e6))

hist2 <- gvisHistogram(pop, option=list(title="Country Populations",
                                    legend="{ position: 'none' }",
                                    colors="['green']"))
plot(hist2)

set.seed(123)
dat=data.frame(A=rpois(100, 20),
               B=rpois(100, 5),
               C=rpois(100, 50))
hist3 <- gvisHistogram(dat, options=list(
                       legend="{ position: 'top', maxLines: 2 }",
                       colors="['#5C3292', '#1A8763', '#871B47']"))

plot(hist3)
```

---

# gvisIntensityMap *Google Intensity Map with R*

---

## Description

An intensity map highlights regions or countries based on relative values.

## Usage

```
gvisIntensityMap(data, locationvar = "", numvar = "", options = list(),
  chartid)
```

## Arguments

| | |
|---|---|
| data | a data.frame. The data has to have at least two columns with location name (locationvar) and any number of numeric columns (numvar) to be mapped. |
| locationvar | column name of data with the geo locations to be analysed. The location has to contain country ISO codes or USA state codes. |
| numvar | column names of data with the numeric values to be displayed. |
| options | list of configuration options, see:<br>https://developers.google.com/chart/interactive/docs/gallery/intensitymap#Configuration_Options<br>The parameters can be set via a named list. The parameters have to map those of the Google documentation.<br>• Boolean arguments are set to either TRUE or FALSE, using the R syntax.<br>• Google API parameters with a single value and with names that don't include a "." are set like one would do in R, that is options=list(width=200, height=300). Exceptions to this rule are the width and height options for gvisAnnotatedTimeLine and gvisAnnotationChart. For those two functions, width and height must be character strings of the format "Xpx", where X is a number, or "automatic". For example, options=list(width="200px", height="300px").<br>• Google API parameters with names that don't include a ".", but require multivalues are set as a character, wrapped in "[ ]" and separated by commas, e.g.<br>options=list(colors="['#cbb69d', '#603913', '#c69c6e']")<br>• Google API parameters with names that do include a "." present parameters with several sub-options and have to be set as a character wrapped in " ". The values of those sub-options are set via parameter:value. Boolean values have to be stated as 'true' or 'false'. For example the Google documentaion states the formating options for the vertical axis and states the parameter as vAxis.format. Then this paramter can be set in R as: options=list(vAxis="{format:'#,###%'}").<br>• If several sub-options have to be set, e.g. titleTextStyle.color, titleTextStyle.fontName and titleTextStyle.fontSize, then those can be combined in one list item such as: options=list(titleTextStyle="{color:'red', fontName:'Courier', fontSize:16}")<br>• paramters that can have more than one value per sub-options are wrapped in "[ ]". For example to set the labels for left and right axes use: options=list(vAxes="[{title:'val1'}, {title:'val2'}]")<br>• gvis.editor a character label for an on-page button that opens an in-page dialog box enabling users to edit, change and customise the chart. By default no value is given and therefore no button is displayed.<br>For more details see the Google API documentation and the R examples below. |
| chartid | character. If missing (default) a random chart id will be generated based on chart type and tempfile |

## Details

The gvisIntensityMap function reads a data.frame and creates text output referring to the Google Visualisation API, which can be included into a web page, or as a stand-alone page.

## Value

gvisIntensityMap returns list of class "gvis" and "list". An object of class "gvis" is a list containing at least the following components:

`type` Google visualisation type

`chartid` character id of the chart object. Unique chart ids are required to place several charts on the same page.

`html` a list with the building blocks for a page

`header` a character string of a html page header: <html>...<body>,

`chart` a named character vector of the chart's building blocks:

`jsHeader` Opening <script> tag and reference to Google's JavaScript library.

`jsData` JavaScript function defining the input `data` as a JSON object.

`jsDrawChart` JavaScript function combing the data with the visualisation API and user options.

`jsDisplayChart` JavaScript function calling the handler to display the chart.

`jsFooter` End tag </script>.

`jsChart` Call of the `jsDisplayChart` function.

`divChart`  container to embed the chart into the page.

`caption` character string of a standard caption, including data name and chart id.

`footer` character string of a html page footer: </body>...</html>, including the used R and googleVis version and link to Google's Terms of Use.

## Note

Please note that the maximum height for this visualisation is 220 and the maximum width is 440. For more details see the Google documentation.

## Author(s)

Markus Gesmann <markus.gesmann@gmail.com>,

Diego de Castillo <decastillo@gmail.com>

## References

Google Chart Tools API: http://developers.google.com/chart/interactive/docs/gallery/intensitymap

## See Also

See also `print.gvis`, `plot.gvis` for printing and plotting methods, `gvisMap` and `gvisGeoMap` for an alternative to `gvisIntensityMap`.

## Examples

```
## Please note that by default the googleVis plot command
## will open a browser window and requires Internet
## connection to display the visualisation.

df=data.frame(country=c("US", "GB", "BR"), val1=c(1,3,4), val2=c(23,12,32))
Intensity1 <- gvisIntensityMap(df, locationvar="country", numvar=c("val1", "val2"))
```

```
plot(Intensity1)

## Set colours for each tab
Intensity2 <- gvisIntensityMap(df,
              options=list(colors="['#4682b4', '#0073CF']"))
plot(Intensity2)
```

---

gvisLineChart *Google Line Chart with R*

---

## Description

The gvisLineChart function reads a data.frame and creates text output referring to the Google Visualisation API, which can be included into a web page, or as a stand-alone page. The actual chart is rendered by the web browser using SVG or VML.

## Usage

```
gvisLineChart(data, xvar = "", yvar = "", options = list(), chartid)
```

## Arguments

| | |
|---|---|
| data | a data.frame to be displayed as a line chart |
| xvar | name of the character column which contains the category labels for the x-axes. |
| yvar | a vector of column names of the numerical variables to be plotted. Each column is displayed as a separate line. |
| options | list of configuration options, see https://developers.google.com/chart/interactive/docs/gallery/linechart#Configuration_Options<br>The parameters can be set via a named list. The parameters have to map those of the Google documentation.<br>• Boolean arguments are set to either TRUE or FALSE, using the R syntax.<br>• Google API parameters with a single value and with names that don't include a "." are set like one would do in R, that is options=list(width=200, height=300). Exceptions to this rule are the width and height options for gvisAnnotatedTimeLine and gvisAnnotationChart. For those two functions, width and height must be character strings of the format "Xpx", where X is a number, or "automatic". For example, options=list(width="200px", height="300px").<br>• Google API parameters with names that don't include a ".", but require multivalues are set as a character, wrapped in "[ ]" and separated by commas, e.g. options=list(colors="['#cbb69d', '#603913', '#c69c6e']")<br>• Google API parameters with names that do include a "." present parameters with several sub-options and have to be set as a character wrapped in " ". The values of those sub-options are set via parameter:value. Boolean values have to be stated as 'true' or 'false'. For example the Google documentaion states the formating options for the vertical axis and states the parameter as vAxis.format. Then this paramter can be set in R as: options=list(vAxis="{format:'#,###%'}"). |

- If several sub-options have to be set, e.g. `titleTextStyle.color`, `titleTextStyle.fontName` and `titleTextStyle.fontSize`, then those can be combined in one list item such as: `options=list(titleTextStyle="{color:'red', fontName:'Courier', fontSize:16}")`
- paramters that can have more than one value per sub-options are wrapped in "[ ]". For example to set the labels for left and right axes use: `options=list(vAxes="[{title:'val1'}, {title:'val2'}]")`
- `gvis.editor` a character label for an on-page button that opens an in-page dialog box enabling users to edit, change and customise the chart. By default no value is given and therefore no button is displayed.

For more details see the Google API documentation and the R examples below.

`chartid` character. If missing (default) a random chart id will be generated based on chart type and `tempfile`

## Value

gvisLineChart returns list of `class` "`gvis`" and "`list`". An object of class "`gvis`" is a list containing at least the following components:

`type` Google visualisation type

`chartid` character id of the chart object. Unique chart ids are required to place several charts on the same page.

`html` a list with the building blocks for a page

`header` a character string of a html page header: `<html>...<body>`,

`chart` a named character vector of the chart's building blocks:

`jsHeader` Opening `<script>` tag and reference to Google's JavaScript library.

`jsData` JavaScript function defining the input `data` as a JSON object.

`jsDrawChart` JavaScript function combing the data with the visualisation API and user options.

`jsDisplayChart` JavaScript function calling the handler to display the chart.

`jsFooter` End tag `</script>`.

`jsChart` Call of the `jsDisplayChart` function.

`divChart` `<div>` container to embed the chart into the page.

`caption` character string of a standard caption, including data name and chart id.

`footer` character string of a html page footer: `</body>...</html>`, including the used R and googleVis version and link to Google's Terms of Use.

## Author(s)

Markus Gesmann `<markus.gesmann@gmail.com>`,

Diego de Castillo `<decastillo@gmail.com>`

## References

Google Chart Tools API: `http://developers.google.com/chart/interactive/docs/gallery/linechart`

## See Also

See also `print.gvis`, `plot.gvis` for printing and plotting methods

## Examples

```
## Please note that by default the googleVis plot command
## will open a browser window and requires an internet
## connection to display the visualisation.

df <- data.frame(country=c("US", "GB", "BR"), val1=c(1,3,4), val2=c(23,12,32))

## Line chart
Line1 <- gvisLineChart(df, xvar="country", yvar=c("val1", "val2"))
plot(Line1)


## Add a customised title and smoothed curve
Line2 <- gvisLineChart(df, xvar="country", yvar=c("val1", "val2"),
             options=list(title="Hello World",
                          titleTextStyle="{color:'red',fontName:'Courier',fontSize:16}",
                          curveType='function'))
plot(Line2)

## Not run:
## Change y-axis to percentages
Line3 <- gvisLineChart(df, xvar="country", yvar=c("val1", "val2"),
                       options=list(vAxis="{format:'#,###%'}"))
plot(Line3)


## End(Not run)

## Create a chart with two y-axis:
Line4 <-  gvisLineChart(df, "country", c("val1","val2"),
                        options=list(series="[{targetAxisIndex: 0},
                                              {targetAxisIndex:1}]",
                          vAxes="[{title:'val1'}, {title:'val2'}]"
                          ))
plot(Line4)

## Line chart with edit button
Line5 <- gvisLineChart(df, xvar="country", yvar=c("val1", "val2"),
                       options=list(gvis.editor="Edit me!"))
plot(Line5)

## Customizing lines
Dashed <-  gvisLineChart(df, xvar="country", yvar=c("val1","val2"),
             options=list(
             series="[{color:'green', targetAxisIndex: 0,
                       lineWidth: 1, lineDashStyle: [2, 2, 20, 2, 20, 2]},
                      {color: 'blue',targetAxisIndex: 1,
                       lineWidth: 2, lineDashStyle: [4, 1]}]",
                       vAxes="[{title:'val1'}, {title:'val2'}]"
                       ))
plot(Dashed)
```

gvisMap *Google Maps with R*

## Description

The gvisMap function reads a data.frame and creates text output referring to the Google Visualisation API, which can be included into a web page, or as a stand-alone page.

## Usage

```
gvisMap(data, locationvar = "", tipvar = "", options = list(), chartid)
```

## Arguments

| | |
|---|---|
| data | a data.frame. The data has to have at least two columns with location name (locationvar) and the variable to display the text in the tip icon (tipvar). |
| locationvar | column name of data with the geo locations to be analysed. The locations can be provide in two formats:<br>**Format 1** 'latitude:longitude'. See the example below.<br>**Format 2** The first column should be a string that contains an address. This address should be as complete as you can make it. |
| tipvar | column name of data with the string text displayed over the tip icon. |
| options | list of configuration options for Google Map.<br>https://developers.google.com/chart/interactive/docs/gallery/map#Configuration_Options<br>The parameters can be set via a named list. The parameters have to map those of the Google documentation.<br>• Boolean arguments are set to either TRUE or FALSE, using the R syntax.<br>• Google API parameters with a single value and with names that don't include a "." are set like one would do in R, that is options=list(width=200, height=300). Exceptions to this rule are the width and height options for gvisAnnotatedTimeLine and gvisAnnotationChart. For those two functions, width and height must be character strings of the format "Xpx", where X is a number, or "automatic". For example, options=list(width="200px", height="300px").<br>• Google API parameters with names that don't include a ".", but require multivalues are set as a character, wrapped in "[ ]" and separated by commas, e.g.<br>options=list(colors="['#cbb69d', '#603913', '#c69c6e']")<br>• Google API parameters with names that do include a "." present parameters with several sub-options and have to be set as a character wrapped in " ". The values of those sub-options are set via parameter:value. Boolean values have to be stated as 'true' or 'false'. For example the Google documentaion states the formating options for the vertical axis and states the parameter as vAxis.format. Then this paramter can be set in R as: options=list(vAxis="{format:'#,###%'}").<br>• If several sub-options have to be set, e.g. titleTextStyle.color, titleTextStyle.fontName and titleTextStyle.fontSize, then those can be combined in one list item such as:<br>options=list(titleTextStyle="{color:'red', fontName:'Courier', fontSize:16}") |

- paramters that can have more than one value per sub-options are wrapped in "[ ]". For example to set the labels for left and right axes use: `options=list(vAxes="[{title:'val1'}, {title:'val2'}]")`
- `gvis.editor` a character label for an on-page button that opens an in-page dialog box enabling users to edit, change and customise the chart. By default no value is given and therefore no button is displayed.

For more details see the Google API documentation and the R examples below.

`chartid` character. If missing (default) a random chart id will be generated based on chart type and `tempfile`

## Details

The maps are the well known Google Maps.

## Value

gvisMap returns list of `class` "gvis" and "list". An object of class "gvis" is a list containing at least the following components:

`type` Google visualisation type

`chartid` character id of the chart object. Unique chart ids are required to place several charts on the same page.

`html` a list with the building blocks for a page

`header` a character string of a html page header: `<html>...<body>`,

`chart` a named character vector of the chart's building blocks:

`jsHeader` Opening `<script>` tag and reference to Google's JavaScript library.

`jsData` JavaScript function defining the input `data` as a JSON object.

`jsDrawChart` JavaScript function combing the data with the visualisation API and user options.

`jsDisplayChart` JavaScript function calling the handler to display the chart.

`jsFooter` End tag `</script>`.

`jsChart` Call of the `jsDisplayChart` function.

`divChart` `<div>` container to embed the chart into the page.

`caption` character string of a standard caption, including data name and chart id.

`footer` character string of a html page footer: `</body>...</html>`, including the used R and googleVis version and link to Google's Terms of Use.

## Author(s)

Markus Gesmann `<markus.gesmann@gmail.com>`,

Diego de Castillo `<decastillo@gmail.com>`

## References

Google Chart Tools API: http://developers.google.com/chart/interactive/docs/gallery/map

## See Also

See also `print.gvis`, `plot.gvis` for printing and plotting methods, `gvisGeoMap` and `gvisIntensityMap` for an alternative to `gvisMap`.

## Examples

```
## Please note that by default the googleVis plot command
## will open a browser window and requires Internet
## connection to display the visualisation.

## Example with latitude and longitude information
## Plot Hurricane Andrew (1992) storm path:

data(Andrew)

M1 <- gvisMap(Andrew, "LatLong" , "Tip",
              options=list(showTip=TRUE, showLine=TRUE, enableScrollWheel=TRUE,
                           mapType='hybrid', useMapTypeControl=TRUE,
                           width=800,height=400))

plot(M1)


## Example with address, here UK post-code and some html code in tooltip

df <- data.frame(Postcode=c("EC3M 7HA", "EC2P 2EJ"),
                 Tip=c("<a href='http://www.lloyds.com'>Lloyd's</a>",
                 "<a href='http://www.guildhall.cityoflondon.gov.uk/'>Guildhall</a>"))

M2 <- gvisMap(df, "Postcode", "Tip",
              options=list(showTip=TRUE, mapType='normal',
              enableScrollWheel=TRUE))

plot(M2)

## Change mapping icons
M3 <- gvisMap(df, "Postcode", "Tip",
              options=list(showTip=TRUE, mapType='normal',
              enableScrollWheel=TRUE,
              icons=paste0("{",
              "'default': {'normal': 'http://icons.iconarchive.com/",
              "icons/icons-land/vista-map-markers/48/",
              "Map-Marker-Ball-Azure-icon.png',\n",
              "'selected': 'http://icons.iconarchive.com/",
              "icons/icons-land/vista-map-markers/48/",
              "Map-Marker-Ball-Right-Azure-icon.png'",
              "}}")))

plot(M3)
```

---

`gvisMerge` *Merge two googleVis charts into one gvis-object*

---

## Description

gvisMerge merges two gvis-objects, either next or below each other into one gvis-object. The objects are arranged in a HTML table.

## Usage

```
gvisMerge(x, y, horizontal = FALSE,
                tableOptions = "border=\"0\"", chartid)
```

## Arguments

| | |
|---|---|
| x | a gvis-object. |
| y | a gvis-object. |
| horizontal | boolean. Default FALSE. If FALSE the two gvis-objects are arranged below each other, otherwise next to each other. |
| tableOptions | a valid HTML table option string. Default "border=\"0\"". |
| chartid | character. If missing (default) a random chart id will be generated based on chart type and tempfile |

## Value

gvisMerge returns list of class "gvis" and "list".

An object of class "gvis" is a list containing at least the following components:

| | |
|---|---|
| type | Google visualisation type, here 'gvisMerge' |
| chartid | character id of the chart object. Unique chart ids are required to place several charts on the same page. |
| html | a list with the building blocks for a page |

header a character string of a html page header: <html>...<body>,

chart a named character vector of the chart's building blocks:

- jsHeader Opening <script> tag and reference to Google's JavaScript library.
- jsData JavaScript function defining the input data as a JSON object.
- jsDrawChart JavaScript function combing the data with the visualisation API and user options.
- jsDisplayChart JavaScript function calling the handler to display the chart.
- jsFooter End tag </script>.
- jsChart Call of the jsDisplayChart function.
- divChart  container to embed the chart into the page.

caption character string of a standard caption, including data name and chart id.

footer character string of a html page footer: </body>...</html>, including the used R and googleVis version and link to Google's Terms of Use.

## Author(s)

Markus Gesmann <markus.gesmann@gmail.com>,

## References

Google Chart Tools API: https://developers.google.com/chart/

Follow the link for Google's data policy.

## See Also

See also print.gvis, plot.gvis for printing and plotting methods

## Examples

```
## Please note that by default the googleVis plot command
## will open a browser window and requires Internet
## connection to display the visualisation.

Pie1 <- gvisPieChart(CityPopularity)

## Doughnut chart - a pie with a hole
Pie2 <- gvisPieChart(CityPopularity, options=list(
  slices="{4: {offset: 0.2}, 0: {offset: 0.3}}",
  title='City popularity',
  legend='none',
  pieSliceText='label',
  pieHole=0.5))

plot(gvisMerge(Pie2, Pie1,
        tableOptions = "cellspacing=\"20\" bgcolor=\"#AABBCC\"",
        horizontal=TRUE))

## Nested charts

G <- gvisGeoChart(Exports, "Country", "Profit",
                  options=list(width=250, height=100))
T <- gvisTable(Exports,
                  options=list(width=250, height=300))

GT <- gvisMerge(G,T, horizontal=FALSE)
plot(GT)

M <- gvisMotionChart(Fruits, "Fruit", "Year",
                     options=list(width=400, height=410))

GTM <- gvisMerge(GT, M, horizontal=TRUE,
                     tableOptions="cellspacing=10")
plot(GTM)


line <- gvisLineChart(OpenClose, "Weekday", c("Open", "Close"),
        options=list(legend='none', width=300, height=150))
column <- gvisColumnChart(OpenClose, "Weekday", c("Open", "Close"),
              options=list(legend='none', width=300, height=150))
area <- gvisAreaChart(OpenClose, "Weekday", c("Open", "Close"),
              options=list(legend='none', width=300, height=150))
bar <- gvisBarChart(OpenClose, "Weekday", c("Open", "Close"),
              options=list(legend='none', width=300, height=150))
LBCA <- gvisMerge(gvisMerge(line, bar), gvisMerge(column, area),
                  horizontal=TRUE, tableOptions="bgcolor=\"#AABBCC\"")

plot(LBCA)

## Applying gvisMerge successively
```

```
p <- Reduce(gvisMerge, list(line, column, area, bar))
plot(p)
```

---

gvisMotionChart *Google Motion Chart with R*

---

## Description

The gvisMotionChart function reads a data.frame and creates text output referring to the Google Visualisation API, which can be included into a web page, or as a stand-alone page. The actual chart is rendered by the web browser in Flash. A motion chart is a dynamic chart to explore several indicators over time.

## Usage

```
gvisMotionChart(data, idvar = "id", timevar = "time", xvar = "",
  yvar = "", colorvar = "", sizevar = "", date.format = "%Y/%m/%d",
  options = list(), chartid)
```

## Arguments

| | |
|---|---|
| data | a data.frame. The data has to have at least four columns with subject name (idvar), time (timevar) and two columns of numeric values. Further columns, numeric and character/factor are optional. The combination of idvar and timevar has to describe a unique row. The column names of the idvar and timevar have to be specified. Further columns, if not specified by the other arguments (xvar, yvar,colorvar, sizevar), will be assumed to be in the order of the arguments. |
| idvar | column name of data with the subject to be analysed. |
| timevar | column name of data which shows the time dimension. The information has to be either numeric, of class Date or a character which follows the pattern 'YYYYWww' (e.g. '2010W04' for weekly data) or 'YYYYQq' (e.g. '2010Q1' for quarterly data). |
| xvar | column name of a numerical vector in data to be plotted on the x-axis. |
| yvar | column name of a numerical vector in data to be plotted on the y-axis. |
| colorvar | column name of data that identifies bubbles in the same series. Use the same value to identify all bubbles that belong to the same series; bubbles in the same series will be assigned the same color. Series can be configured using the series option. |
| sizevar | values in this column are mapped to actual pixel values using the sizeAxis option. |
| date.format | if timevar is of class Date then this argument specifies how the dates are reformatted to be used by JavaScript. |
| options | list of configuration options for Google Motion Chart. The options are documented in detail by Google online: https://developers.google.com/chart/interactive/docs/gallery/motionchart#Configuration_Options The parameters can be set via a named list. The parameters have to map those of the Google documentation. |

- Boolean arguments are set to either TRUE or FALSE, using the R syntax.
- Google API parameters with a single value and with names that don't include a "." are set like one would do in R, that is options=list(width=200, height=300). Exceptions to this rule are the width and height options for gvisAnnotatedTimeLine and gvisAnnotationChart. For those two functions, width and height must be character strings of the format "Xpx", where X is a number, or "automatic". For example, options=list(width="200px", height="300px").
- Google API parameters with names that don't include a ".", but require multivalues are set as a character, wrapped in "[ ]" and separated by commas, e.g. options=list(colors="['#cbb69d', '#603913', '#c69c6e']")
- Google API parameters with names that do include a "." present parameters with several sub-options and have to be set as a character wrapped in " ". The values of those sub-options are set via parameter:value. Boolean values have to be stated as 'true' or 'false'. For example the Google documentaion states the formating options for the vertical axis and states the parameter as vAxis.format. Then this paramter can be set in R as: options=list(vAxis="{format:'#,###%'}").
- If several sub-options have to be set, e.g. titleTextStyle.color, titleTextStyle.fontName and titleTextStyle.fontSize, then those can be combined in one list item such as: options=list(titleTextStyle="{color:'red', fontName:'Courier', fontSize:16}")
- paramters that can have more than one value per sub-options are wrapped in "[ ]". For example to set the labels for left and right axes use: options=list(vAxes="[{title:'val1'}, {title:'val2'}]")
- gvis.editor a character label for an on-page button that opens an in-page dialog box enabling users to edit, change and customise the chart. By default no value is given and therefore no button is displayed.

For more details see the Google API documentation and the R examples below.

chartid character. If missing (default) a random chart id will be generated based on chart type and tempfile

## Value

gvisMotionChart returns list of class "gvis" and "list". An object of class "gvis" is a list containing at least the following components:

type Google visualisation type

chartid character id of the chart object. Unique chart ids are required to place several charts on the same page.

html a list with the building blocks for a page

header a character string of a html page header: <html>...<body>,

chart a named character vector of the chart's building blocks:

jsHeader Opening <script> tag and reference to Google's JavaScript library.

jsData JavaScript function defining the input data as a JSON object.

jsDrawChart JavaScript function combing the data with the visualisation API and user options.

jsDisplayChart JavaScript function calling the handler to display the chart.

jsFooter End tag </script>.

jsChart Call of the jsDisplayChart function.

divChart  container to embed the chart into the page.

caption character string of a standard caption, including data name and chart id.

footer character string of a html page footer: </body>...</html>, including the used R and googleVis version and link to Google's Terms of Use.

## Warnings

Because of Flash security settings the chart might not work correctly when accessed from a file location in the browser (e.g., file:///c:/webhost/myhost/myviz.html) rather than from a web server URL (e.g. http://www.myhost.com/myviz.html). See the googleVis package vignette and the Macromedia web site (http://www.macromedia.com/support/documentation/en/flashplayer/help/) for more details.

## Note

Please note that a timevar with values less than 100 will be shown as years 19xx.

## Author(s)

Markus Gesmann <markus.gesmann@gmail.com>, Diego de Castillo <decastillo@gmail.com>

## References

Google Chart Tools API: http://developers.google.com/chart/interactive/docs/gallery/motionchart

## See Also

See also print.gvis, plot.gvis for printing and plotting methods.

## Examples

```
## Please note that by default the googleVis plot command
## will open a browser window and requires Flash and Internet
## connection to display the visualisation.
M1 <- gvisMotionChart(Fruits, idvar="Fruit", timevar="Year")
plot(M1)

## Not run:
## Usage of date variable
M2 <- gvisMotionChart(Fruits, idvar="Fruit", timevar="Date",
                      date.format = "\%Y\%m\%d")
                      plot(M2)

## Display weekly data:
M3 <- gvisMotionChart(Fruits, "Fruit", "Date", date.format="\%YW\%W")
plot(M3)

## End(Not run)
## Options: no side panel on the right
M4 <- gvisMotionChart(Fruits,"Fruit", "Year",
                      options=list(showSidePanel=FALSE))
plot(M4)

## Options: trails un-ticked
```

```
M5 <- gvisMotionChart(Fruits, "Fruit", "Year",
                      options=list(state='{"showTrails":false};'))

plot(M5)

## You can change some of displaying settings via the browser,
## e.g. the level of opacity of non-selected items, or the chart type.
## The state string from the 'Advanced' tab can be used to set those
## settings via R. Just copy and past the string from the browser into
## the argument state of the options list.
## Here is an example of a motion chart, with an initial line chart
## displayed. Ensure that you have a newline at the start and end of
## your settings string.

myStateSettings <-'
{"xZoomedDataMin":1199145600000,"colorOption":"2",
"duration":{"timeUnit":"Y","multiplier":1},"yLambda":1,
"yAxisOption":"4","sizeOption":"_UNISIZE",
"iconKeySettings":[],"xLambda":1,"nonSelectedAlpha":0,
"xZoomedDataMax":1262304000000,"iconType":"LINE",
"dimensions":{"iconDimensions":["dim0"]},
"showTrails":false,"uniColorForNonSelected":false,
"xAxisOption":"_TIME","orderedByX":false,"playDuration":15000,
"xZoomedIn":false,"time":"2010","yZoomedDataMin":0,
"yZoomedIn":false,"orderedByY":false,"yZoomedDataMax":100}
'
M6a <- gvisMotionChart(Fruits, "Fruit", "Year",
                       options=list(state=myStateSettings))
plot(M6a)

## Newline set explicitly
myStateSettings <-'\n{"iconType":"LINE"}\n'
M6b <- gvisMotionChart(Fruits, "Fruit", "Year",
                       options=list(state=myStateSettings))
plot(M6b)


## Define which columns are used for the initial setup of the various
## dimensions
M7 <- gvisMotionChart(Fruits, idvar="Fruit", timevar="Year",
                      xvar="Profit", yvar="Expenses",
                      colorvar="Location", sizevar="Sales")
plot(M7)
## For more information see:
## https://developers.google.com/chart/interactive/docs/gallery/motionchart

## See also the demo(WorldBank). It demonstrates how you can access
## country level data from the World Bank to create Gapminder-like
## plots.
```

---

gvisOrgChart *Google Org Chart with R*

---

## Description

An organizational chart that supports selection.

## Usage

```
gvisOrgChart(data, idvar = "", parentvar = "", tipvar = "",
  options = list(), chartid)
```

## Arguments

| | |
|---|---|
| data | a data.frame. The data has to have at least three columns. Each row in the data table describes one node (a rectangle in the graph). Each node (except the root node) has one or more parent nodes. Each node is sized and colored according to its values relative to the other nodes currently shown. |
| idvar | column name of data describing the ID for each node. It should be unique among all nodes, and can include any characters, including spaces. This is shown on the node. You can specify a formatted value to show on the chart instead, but the unformatted value is still used as the ID. |
| parentvar | column name of data that match to entries in idvar. If this is a root node, leave this NA. Only one root is allowed. |
| tipvar | column name of data for the tip variable. Tool-tip text to show, when a user hovers over this node. |
| options | list of configuration options, see: https://developers.google.com/chart/interactive/docs/gallery/orgchart#Configuration_Options<br>The parameters can be set via a named list. The parameters have to map those of the Google documentation.<br>• Boolean arguments are set to either TRUE or FALSE, using the R syntax.<br>• Google API parameters with a single value and with names that don't include a "." are set like one would do in R, that is options=list(width=200, height=300). Exceptions to this rule are the width and height options for gvisAnnotatedTimeLine and gvisAnnotationChart. For those two functions, width and height must be character strings of the format "Xpx", where X is a number, or "automatic". For example, options=list(width="200px", height="300px").<br>• Google API parameters with names that don't include a ".", but require multivalues are set as a character, wrapped in "[ ]" and separated by commas, e.g. options=list(colors="['#cbb69d', '#603913', '#c69c6e']")<br>• Google API parameters with names that do include a "." present parameters with several sub-options and have to be set as a character wrapped in " ". The values of those sub-options are set via parameter:value. Boolean values have to be stated as 'true' or 'false'. For example the Google documentaion states the formating options for the vertical axis and states the parameter as vAxis.format. Then this paramter can be set in R as: options=list(vAxis="{format:'#,###%'}").<br>• If several sub-options have to be set, e.g. titleTextStyle.color, titleTextStyle.fontName and titleTextStyle.fontSize, then those can be combined in one list item such as: options=list(titleTextStyle="{color:'red', fontName:'Courier', fontSize:16}") |

- paramters that can have more than one value per sub-options are wrapped in "[ ]". For example to set the labels for left and right axes use: `options=list(vAxes="[{title:'val1'}, {title:'val2'}]")`
- `gvis.editor` a character label for an on-page button that opens an in-page dialog box enabling users to edit, change and customise the chart. By default no value is given and therefore no button is displayed.

For more details see the Google API documentation and the R examples below.

`chartid` character. If missing (default) a random chart id will be generated based on chart type and `tempfile`

## Details

The gvisOrgChart function reads a data.frame and creates text output referring to the Google Visualisation API, which can be included into a web page, or as a stand-alone page. The actual chart is rendered by the web browser.

## Value

gvisOrgChart returns list of `class` "`gvis`" and "`list`". An object of class "`gvis`" is a list containing at least the following components:

`type` Google visualisation type

`chartid` character id of the chart object. Unique chart ids are required to place several charts on the same page.

`html` a list with the building blocks for a page

`header` a character string of a html page header: `<html>...<body>`,

`chart` a named character vector of the chart's building blocks:

`jsHeader` Opening `<script>` tag and reference to Google's JavaScript library.

`jsData` JavaScript function defining the input `data` as a JSON object.

`jsDrawChart` JavaScript function combing the data with the visualisation API and user options.

`jsDisplayChart` JavaScript function calling the handler to display the chart.

`jsFooter` End tag `</script>`.

`jsChart` Call of the `jsDisplayChart` function.

`divChart` `<div>` container to embed the chart into the page.

`caption` character string of a standard caption, including data name and chart id.

`footer` character string of a html page footer: `</body>...</html>`, including the used R and googleVis version and link to Google's Terms of Use.

## Author(s)

Markus Gesmann `<markus.gesmann@gmail.com>`,

Diego de Castillo `<decastillo@gmail.com>`

## References

Google Chart Tools API: `http://developers.google.com/chart/interactive/docs/gallery/orgchart`

## See Also

See also print.gvis, plot.gvis for printing and plotting methods.

## Examples

```
## Please note that by default the googleVis plot command
## will open a browser window and requires Internet
## connection to display the visualisation.

Regions
Org1 <- gvisOrgChart(Regions, idvar = "Region", parentvar = "Parent",
            tipvar="Val")
plot(Org1)

## Set a few options
Org2 <- gvisOrgChart(Regions, idvar = "Region", parentvar = "Parent",
            tipvar="Val",
           options=list(width=600, height=400,
                                size='large', allowCollapse=TRUE))
plot(Org2)
```

---

gvisPieChart *Google Pie Chart with R*

---

## Description

The gvisPieChart function reads a data.frame and creates text output referring to the Google Visualisation API, which can be included into a web page, or as a stand-alone page. The actual chart is rendered by the web browser using SVG or VML.

## Usage

```
gvisPieChart(data, labelvar = "", numvar = "", options = list(), chartid)
```

## Arguments

| | |
|---|---|
| data | a data.frame to be displayed as a pie chart |
| labelvar | Name of the character column which contains the category labels for the slice labels. |
| numvar | a vector of column names of the numerical variables of the slice values. |
| options | list of configuration options for Google Pie Charts, see: https://developers.google.com/chart/interactive/docs/gallery/piechart#Configuration_Options<br>The parameters can be set via a named list. The parameters have to map those of the Google documentation.<br>• Boolean arguments are set to either TRUE or FALSE, using the R syntax. |

- Google API parameters with a single value and with names that don't include a "." are set like one would do in R, that is `options=list(width=200, height=300)`. Exceptions to this rule are the width and height options for `gvisAnnotatedTimeLine` and `gvisAnnotationChart`. For those two functions, width and height must be character strings of the format `"Xpx"`, where `X` is a number, or `"automatic"`. For example, `options=list(width="200px", height="300px")`.
- Google API parameters with names that don't include a ".", but require multivalues are set as a character, wrapped in "[ ]" and separated by commas, e.g.
  `options=list(colors="['#cbb69d', '#603913', '#c69c6e']")`
- Google API parameters with names that do include a "." present parameters with several sub-options and have to be set as a character wrapped in " ". The values of those sub-options are set via parameter:value. Boolean values have to be stated as `'true'` or `'false'`. For example the Google documentaion states the formating options for the vertical axis and states the parameter as `vAxis.format`. Then this paramter can be set in R as:
  `options=list(vAxis="{format:'#,###%'}")`.
- If several sub-options have to be set, e.g.
  `titleTextStyle.color`, `titleTextStyle.fontName` and `titleTextStyle.fontSize`, then those can be combined in one list item such as:
  `options=list(titleTextStyle="{color:'red', fontName:'Courier', fontSize:16}")`
- paramters that can have more than one value per sub-options are wrapped in "[ ]". For example to set the labels for left and right axes use:
  `options=list(vAxes="[{title:'val1'}, {title:'val2'}]")`
- `gvis.editor` a character label for an on-page button that opens an in-page dialog box enabling users to edit, change and customise the chart. By default no value is given and therefore no button is displayed.

For more details see the Google API documentation and the R examples below.

`chartid` character. If missing (default) a random chart id will be generated based on chart type and `tempfile`

## Value

gvisPieChart returns list of `class` "gvis" and "list". An object of class "gvis" is a list containing at least the following components:

`type` Google visualisation type

`chartid` character id of the chart object. Unique chart ids are required to place several charts on the same page.

`html` a list with the building blocks for a page

`header` a character string of a html page header: `<html>...<body>`,

`chart` a named character vector of the chart's building blocks:

`jsHeader` Opening `<script>` tag and reference to Google's JavaScript library.

`jsData` JavaScript function defining the input `data` as a JSON object.

`jsDrawChart` JavaScript function combing the data with the visualisation API and user options.

`jsDisplayChart` JavaScript function calling the handler to display the chart.

`jsFooter` End tag `</script>`.

`jsChart` Call of the `jsDisplayChart` function.

`divChart` `<div>` container to embed the chart into the page.

`caption` character string of a standard caption, including data name and chart id.

`footer` character string of a html page footer: `</body>...</html>`, including the used R and googleVis version and link to Google's Terms of Use.

## Author(s)

Markus Gesmann <markus.gesmann@gmail.com>,

Diego de Castillo <decastillo@gmail.com>

## References

Google Chart Tools API: http://developers.google.com/chart/interactive/docs/gallery/piechart

## See Also

See also `print.gvis`, `plot.gvis` for printing and plotting methods

## Examples

```
## Please note that by default the googleVis plot command
## will open a browser window and requires an internet
## connection to display the visualisation.

Pie1 <- gvisPieChart(CityPopularity)
plot(Pie1)

## Doughnut chart - a pie with a hole
Pie2 <- gvisPieChart(CityPopularity, options=list(
                    slices="{4: {offset: 0.2}, 0: {offset: 0.3}}",
                    title='City popularity',
                    legend='none',
                    pieSliceText='label',
                    pieHole=0.5))
plot(Pie2)
```

---

`gvisSankey` *Google Sankey Chart with R*

---

## Description

A sankey diagram is a visualization used to depict a flow from one set of values to another. The things being connected are called nodes and the connections are called links. They're named after Captain Sankey, who created a diagram of steam engine efficiency that used arrows having widths proportional to heat loss.

## Usage

```
gvisSankey(data, from = "", to = "", weight = "", options = list(),
  chartid)
```

## Arguments

| | |
|---|---|
| data | data.frame that contains the data to be visualised |
| from | a string that referes to the column name in data for the source nodes to be used |
| to | a string that referes to the column name in data for the destination nodes to be used |
| weight | name of the column with the numerical weight of the connections |
| options | list of configuration options. The options are documented in detail by Google online:<br>https://developers.google.com/chart/interactive/docs/gallery/sankey#Configuration_Options<br>The parameters can be set via a named list. The parameters have to map those of the Google documentation.<br>• Boolean arguments are set to either TRUE or FALSE, using the R syntax.<br>• Google API parameters with a single value and with names that don't include a "." are set like one would do in R, that is options=list(width=200, height=300). Exceptions to this rule are the width and height options for gvisAnnotatedTimeLine and gvisAnnotationChart. For those two functions, width and height must be character strings of the format "Xpx", where X is a number, or "automatic". For example, options=list(width="200px", height="300px").<br>• Google API parameters with names that don't include a ".", but require multivalues are set as a character, wrapped in "[ ]" and separated by commas, e.g. options=list(colors="['#cbb69d', '#603913', '#c69c6e']")<br>• Google API parameters with names that do include a "." present parameters with several sub-options and have to be set as a character wrapped in " ". The values of those sub-options are set via parameter:value. Boolean values have to be stated as 'true' or 'false'. For example the Google documentaion states the formating options for the vertical axis and states the parameter as vAxis.format. Then this paramter can be set in R as: options=list(vAxis="{format:'#,###%'}").<br>• If several sub-options have to be set, e.g. titleTextStyle.color, titleTextStyle.fontName and titleTextStyle.fontSize, then those can be combined in one list item such as: options=list(titleTextStyle="{color:'red', fontName:'Courier', fontSize:16}")<br>• paramters that can have more than one value per sub-options are wrapped in "[ ]". For example to set the labels for left and right axes use: options=list(vAxes="[{title:'val1'}, {title:'val2'}]")<br>• gvis.editor a character label for an on-page button that opens an in-page dialog box enabling users to edit, change and customise the chart. By default no value is given and therefore no button is displayed.<br>For more details see the Google API documentation and the R examples below. |
| chartid | character. If missing (default) a random chart id will be generated based on chart type and tempfile |

## Value

gvisSankey returns list of class "gvis" and "list". An object of class "gvis" is a list containing at least the following components:

`type` Google visualisation type

`chartid` character id of the chart object. Unique chart ids are required to place several charts on the same page.

`html` a list with the building blocks for a page

`header` a character string of a html page header: `<html>...<body>`,

`chart` a named character vector of the chart's building blocks:

`jsHeader` Opening `<script>` tag and reference to Google's JavaScript library.

`jsData` JavaScript function defining the input `data` as a JSON object.

`jsDrawChart` JavaScript function combing the data with the visualisation API and user options.

`jsDisplayChart` JavaScript function calling the handler to display the chart.

`jsFooter` End tag `</script>`.

`jsChart` Call of the `jsDisplayChart` function.

`divChart` `<div>` container to embed the chart into the page.

`caption` character string of a standard caption, including data name and chart id.

`footer` character string of a html page footer: `</body>...</html>`, including the used R and googleVis version and link to Google's Terms of Use.

## Warning

The sankey chart may be undergoing substantial revisions in future Google Charts releases.

## Author(s)

Markus Gesmann `<markus.gesmann@gmail.com>`

## References

Google Chart Tools API: http://developers.google.com/chart/interactive/docs/gallery/sankey

## Examples

```
dat <- data.frame(From=c(rep("A",3), rep("B", 3)),
                  To=c(rep(c("X", "Y", "Z"),2)),
                  Weight=c(5,7,6,2,9,4))

sk1 <- gvisSankey(dat, from="From", to="To", weight="Weight")
plot(sk1)

sk2 <- gvisSankey(dat, from="From", to="To", weight="Weight",
                options=list(sankey="{link: {color: { fill: '#d799ae' } },
                                      node: { color: { fill: '#a61d4c' },
                                      label: { color: '#871b47' } }}"))
plot(sk2)
```

gvisScatterChart *Google Scatter Chart with R*

## Description

The gvisScatterChart function reads a data.frame and creates text output referring to the Google Visualisation API, which can be included into a web page, or as a stand-alone page. The actual chart is rendered by the web browser using SVG or VML.

## Usage

```
gvisScatterChart(data, options = list(), chartid)
```

## Arguments

| | |
|---|---|
| data | a data.frame to be displayed as a scatter chart. Two or more columns are required, all must be numeric. The values in the first column are used for the X-axis. The values in following columns are used for the Y-axis. Each column is displayed with a separate color. |
| options | list of configuration options, see:<br>https://developers.google.com/chart/interactive/docs/gallery/scatterchart#Configuration_Options<br>The parameters can be set via a named list. The parameters have to map those of the Google documentation.<br>• Boolean arguments are set to either TRUE or FALSE, using the R syntax.<br>• Google API parameters with a single value and with names that don't include a "." are set like one would do in R, that is options=list(width=200, height=300). Exceptions to this rule are the width and height options for gvisAnnotatedTimeLine and gvisAnnotationChart. For those two functions, width and height must be character strings of the format "Xpx", where X is a number, or "automatic". For example, options=list(width="200px", height="300px").<br>• Google API parameters with names that don't include a ".", but require multivalues are set as a character, wrapped in "[ ]" and separated by commas, e.g.<br>options=list(colors="['#cbb69d', '#603913', '#c69c6e']")<br>• Google API parameters with names that do include a "." present parameters with several sub-options and have to be set as a character wrapped in " ". The values of those sub-options are set via parameter:value. Boolean values have to be stated as 'true' or 'false'. For example the Google documentaion states the formating options for the vertical axis and states the parameter as vAxis.format. Then this paramter can be set in R as:<br>options=list(vAxis="{format:'#,###%'}").<br>• If several sub-options have to be set, e.g. titleTextStyle.color, titleTextStyle.fontName and titleTextStyle.fontSize, then those can be combined in one list item such as:<br>options=list(titleTextStyle="{color:'red', fontName:'Courier', fontSize:16}")<br>• paramters that can have more than one value per sub-options are wrapped in "[ ]". For example to set the labels for left and right axes use:<br>options=list(vAxes="[{title:'val1'}, {title:'val2'}]") |

- gvis.editor a character label for an on-page button that opens an in-page dialog box enabling users to edit, change and customise the chart. By default no value is given and therefore no button is displayed.

For more details see the Google API documentation and the R examples below.

chartid character. If missing (default) a random chart id will be generated based on chart type and tempfile

## Value

gvisScatterChart returns list of class "gvis" and "list". An object of class "gvis" is a list containing at least the following components:

type Google visualisation type

chartid character id of the chart object. Unique chart ids are required to place several charts on the same page.

html a list with the building blocks for a page

header a character string of a html page header: <html>...<body>,

chart a named character vector of the chart's building blocks:

jsHeader Opening <script> tag and reference to Google's JavaScript library.

jsData JavaScript function defining the input data as a JSON object.

jsDrawChart JavaScript function combing the data with the visualisation API and user options.

jsDisplayChart JavaScript function calling the handler to display the chart.

jsFooter End tag </script>.

jsChart Call of the jsDisplayChart function.

divChart  container to embed the chart into the page.

caption character string of a standard caption, including data name and chart id.

footer character string of a html page footer: </body>...</html>, including the used R and googleVis version and link to Google's Terms of Use.

## Author(s)

Markus Gesmann <markus.gesmann@gmail.com>,

Diego de Castillo <decastillo@gmail.com>

## References

Google Chart Tools API: http://developers.google.com/chart/interactive/docs/gallery/scatterchart

## See Also

See also print.gvis, plot.gvis for printing and plotting methods

## Examples

```
## Please note that by default the googleVis plot command
## will open a browser window and requires an internet
## connection to display the visualisation.
```

```
## Scatter chart
Scatter1 <- gvisScatterChart(women)
plot(Scatter1)

## Using optional arguments
Scatter2 <- gvisScatterChart(women, options=list(legend="none",
                lineWidth=2, pointSize=2,
                title="Women", vAxis="{title:'weight (lbs)'}",
                crosshair="{ trigger: 'both' }",
                hAxis="{title:'height (in)'}", width=500, height=400))

plot(Scatter2)


df=data.frame(x=sin(1:100/3),
              Circle=cos(1:100/3),
        Ellipse=cos(1:100/3)*0.5)

## Plot several variables as smooth curves
Scatter3 <- gvisScatterChart(df,
     options=list(curveType='function',
     pointSize=0,
     lineWidth=2))
plot(Scatter3)

## Two series in the same plot with different
## x-values
df <- data.frame(x=c(2,2,1,3,4),
                y1=c(0,3,NA,NA,NA),
                y2=c(NA,NA,0,3,2))
Scatter4 <- gvisScatterChart(df,
                            options=list(lineWidth=2,
                                         pointSize=2))
plot(Scatter4)

## Customize points
M <- matrix(nrow=6,ncol=6)
M[col(M)==row(M)] <- 1:6
dat <- data.frame(X=1:6, M)
SC <- gvisScatterChart(dat,
                       options=list(
                       title="Customizing points",
                       legend="right",
                       pointSize=30,
                       series="{
                            0: { pointShape: 'circle' },
                            1: { pointShape: 'triangle' },
                            2: { pointShape: 'square' },
                            3: { pointShape: 'diamond' },
                            4: { pointShape: 'star' },
                            5: { pointShape: 'polygon' }
                            }"))
plot(SC)
```

gvisSteppedAreaChart *Google Stepped Area Chart with R*

## Description

The gvisSteppedAreaChart function reads a data.frame and creates text output referring to the Google Visualisation API, which can be included into a web page, or as a stand-alone page.

## Usage

```
gvisSteppedAreaChart(data, xvar = "", yvar = "", options = list(),
  chartid)
```

## Arguments

| | |
|---|---|
| data | a data.frame to be displayed as a stepped area chart. |
| xvar | name of the character column which contains the category labels for the x-axes. |
| yvar | a vector of column names of the numerical variables to be plotted. Each column is displayed as a separate line. |
| options | list of configuration options, see: https://developers.google.com/chart/interactive/docs/gallery/steppedarechart#Configuration_Options<br>The parameters can be set via a named list. The parameters have to map those of the Google documentation.<br>• Boolean arguments are set to either TRUE or FALSE, using the R syntax.<br>• Google API parameters with a single value and with names that don't include a "." are set like one would do in R, that is options=list(width=200, height=300). Exceptions to this rule are the width and height options for gvisAnnotatedTimeLine and gvisAnnotationChart. For those two functions, width and height must be character strings of the format "Xpx", where X is a number, or "automatic". For example, options=list(width="200px", height="300px").<br>• Google API parameters with names that don't include a ".", but require multivalues are set as a character, wrapped in "[ ]" and separated by commas, e.g. options=list(colors="['#cbb69d', '#603913', '#c69c6e']")<br>• Google API parameters with names that do include a "." present parameters with several sub-options and have to be set as a character wrapped in " ". The values of those sub-options are set via parameter:value. Boolean values have to be stated as 'true' or 'false'. For example the Google documentaion states the formating options for the vertical axis and states the parameter as vAxis.format. Then this paramter can be set in R as: options=list(vAxis="{format:'#,###%'}").<br>• If several sub-options have to be set, e.g. titleTextStyle.color, titleTextStyle.fontName and titleTextStyle.fontSize, then those can be combined in one list item such as: options=list(titleTextStyle="{color:'red', fontName:'Courier', fontSize:16}")<br>• paramters that can have more than one value per sub-options are wrapped in "[ ]". For example to set the labels for left and right axes use: options=list(vAxes="[{title:'val1'}, {title:'val2'}]") |

- gvis.editor a character label for an on-page button that opens an in-page dialog box enabling users to edit, change and customise the chart. By default no value is given and therefore no button is displayed.

For more details see the Google API documentation and the R examples below.

chartid character. If missing (default) a random chart id will be generated based on chart type and tempfile

## Details

The stepped area chart is rendered within the browser using SVG or VML and displays tips when hovering over points.

## Value

gvisSteppedAreChart returns list of class "gvis" and "list". An object of class "gvis" is a list containing at least the following components:

type Google visualisation type

chartid character id of the chart object. Unique chart ids are required to place several charts on the same page.

html a list with the building blocks for a page

header a character string of a html page header: <html>...<body>,

chart a named character vector of the chart's building blocks:

jsHeader Opening <script> tag and reference to Google's JavaScript library.

jsData JavaScript function defining the input data as a JSON object.

jsDrawChart JavaScript function combing the data with the visualisation API and user options.

jsDisplayChart JavaScript function calling the handler to display the chart.

jsFooter End tag </script>.

jsChart Call of the jsDisplayChart function.

divChart  container to embed the chart into the page.

caption character string of a standard caption, including data name and chart id.

footer character string of a html page footer: </body>...</html>, including the used R and googleVis version and link to Google's Terms of Use.

## Author(s)

Markus Gesmann <markus.gesmann@gmail.com>,

Diego de Castillo <decastillo@gmail.com>

## References

Google Chart Tools API: http://developers.google.com/chart/interactive/docs/gallery/steppedarechart

## See Also

See also print.gvis, plot.gvis for printing and plotting methods

## Examples

```
## Please note that by default the googleVis plot command
## will open a browser window and requires an internet
## connection to display the visualisation.

df=data.frame(country=c("US", "GB", "BR"), val1=c(1,3,4), val2=c(23,12,32))

## Stepped Area chart
SteppedArea1 <- gvisSteppedAreaChart(df, xvar="country", yvar=c("val1", "val2"))
plot(SteppedArea1)

## Stacked chart
SteppedArea2 <- gvisSteppedAreaChart(df, xvar="country", yvar=c("val1", "val2"),
      options=list(isStacked=TRUE))
plot(SteppedArea2)


## Add a customised title
SteppedArea3 <- gvisSteppedAreaChart(df, xvar="country", yvar=c("val1", "val2"),
             options=list(title="Hello World",
                          titleTextStyle="{color:'red',fontName:'Courier',fontSize:16}"))
plot(SteppedArea3)

## Not run:
## Change y-axis to percentages
SteppedArea3 <- gvisSteppedAreaChart(df, xvar="country", yvar=c("val1", "val2"),
                        options=list(vAxis="{format:'#,###%'}"))
plot(SteppedArea3)

## End(Not run)
```

---

`gvisTable` *Google Table Chart with R*

---

## Description

The gvisTable function reads a data.frame and creates text output referring to the Google Visualisation API, which can be included into a web page, or as a stand-alone page. The actual chart is rendered by the web browser.

## Usage

```
gvisTable(data, options = list(), chartid, formats = NULL)
```

## Arguments

| | |
|---|---|
| `data` | a `data.frame` to be displayed as a table |
| `options` | list of configuration options, see:<br>https://developers.google.com/chart/interactive/docs/gallery/table#Configuration_Options<br>The parameters can be set via a named list. The parameters have to map those of the Google documentation. |

- Boolean arguments are set to either TRUE or FALSE, using the R syntax.
- Google API parameters with a single value and with names that don't include a "." are set like one would do in R, that is options=list(width=200, height=300). Exceptions to this rule are the width and height options for gvisAnnotatedTimeLine and gvisAnnotationChart. For those two functions, width and height must be character strings of the format "Xpx", where X is a number, or "automatic". For example, options=list(width="200px", height="300px").
- Google API parameters with names that don't include a ".", but require multivalues are set as a character, wrapped in "[ ]" and separated by commas, e.g. options=list(colors="['#cbb69d', '#603913', '#c69c6e']")
- Google API parameters with names that do include a "." present parameters with several sub-options and have to be set as a character wrapped in " ". The values of those sub-options are set via parameter:value. Boolean values have to be stated as 'true' or 'false'. For example the Google documentaion states the formating options for the vertical axis and states the parameter as vAxis.format. Then this paramter can be set in R as: options=list(vAxis="{format:'#,###%'}").
- If several sub-options have to be set, e.g. titleTextStyle.color, titleTextStyle.fontName and titleTextStyle.fontSize, then those can be combined in one list item such as: options=list(titleTextStyle="{color:'red', fontName:'Courier', fontSize:16}")
- paramters that can have more than one value per sub-options are wrapped in "[ ]". For example to set the labels for left and right axes use: options=list(vAxes="[{title:'val1'}, {title:'val2'}]")
- gvis.editor a character label for an on-page button that opens an in-page dialog box enabling users to edit, change and customise the chart. By default no value is given and therefore no button is displayed.

For more details see the Google API documentation and the R examples below.

chartid — character. If missing (default) a random chart id will be generated based on chart type and tempfile

formats — named list. If NULL (default) no specific format will be used. The named list needs to contain the column names of the data and the specified format. The format string is a subset of the ICU pattern set. For instance, pattern:'#,###%' will result in output values "1,000%", "750%", and "50%" for values 10, 7.5, and 0.5.

## Details

A table that can be sorted and paged. Table cells can be formatted using format strings, or by directly inserting HTML as cell values. Numeric values are right-aligned; boolean values are displayed as check marks. Users can select single rows either with the keyboard or the mouse. Users can sort rows by clicking on column headers. The header row remains fixed as the user scrolls. The table fires a number of events corresponding to user interaction.

## Value

gvisTable returns list of class "gvis" and "list". An object of class "gvis" is a list containing at least the following components:

type Google visualisation type

`chartid` character id of the chart object. Unique chart ids are required to place several charts on the same page.

`html` a list with the building blocks for a page

`header` a character string of a html page header: `<html>...<body>`,

`chart` a named character vector of the chart's building blocks:

`jsHeader` Opening `<script>` tag and reference to Google's JavaScript library.

`jsData` JavaScript function defining the input `data` as a JSON object.

`jsDrawChart` JavaScript function combing the data with the visualisation API and user options.

`jsDisplayChart` JavaScript function calling the handler to display the chart.

`jsFooter` End tag `</script>`.

`jsChart` Call of the `jsDisplayChart` function.

`divChart` `<div>` container to embed the chart into the page.

`caption` character string of a standard caption, including data name and chart id.

`footer` character string of a html page footer: `</body>...</html>`, including the used R and googleVis version and link to Google's Terms of Use.

## Author(s)

Markus Gesmann `<markus.gesmann@gmail.com>`,

Diego de Castillo `<decastillo@gmail.com>`

## References

Google Chart Tools API: http://developers.google.com/chart/interactive/docs/gallery/table

## See Also

See also `print.gvis`, `plot.gvis` for printing and plotting methods.

## Examples

```
## Please note that by default the googleVis plot command
## will open a browser window and requires Flash and Internet
## connection to display the visualisation.

## Table with links to wikipedia (flags)
tbl1 <- gvisTable(Population)
plot(tbl1)

## Table with enabled paging
tbl2 <- gvisTable(Population, options=list(page='enable',
                                           height='automatic',
                                           width='automatic'))

plot(tbl2)

## Table with formating options
tbl3 <- gvisTable(Population, formats=list(Population="#,###"))

Population[['% of World Population']] <- Population[['% of World Population']]/100
```

```
tbl4 <- gvisTable(Population, formats=list(Population="#,###",
                                           '% of World Population'='#.#%'))
plot(tbl4)
```

---

gvisTimeline *Google Timeline Chart with R*

---

## Description

A timeline is a chart that depicts how a set of resources are used over time. One popular type of timeline is the Gantt chart.

## Usage

```
gvisTimeline(data, rowlabel = "", barlabel = "", start = "", end = "",
  options = list(), chartid)
```

## Arguments

| | |
|---|---|
| data | data.frame that contains the data to be visualised |
| rowlabel | a string that referes to the column name in data for the row labels to be used |
| barlabel | a string that referes to the column name in data for the bar labels to be used |
| start | number, date or datetime for the start dates |
| end | number, date or datetime for the end dates |
| options | list of configuration options. The options are documented in detail by Google online: https://developers.google.com/chart/interactive/docs/gallery/timeline#Configuration_Options<br>The parameters can be set via a named list. The parameters have to map those of the Google documentation.<br>• Boolean arguments are set to either TRUE or FALSE, using the R syntax.<br>• Google API parameters with a single value and with names that don't include a "." are set like one would do in R, that is options=list(width=200, height=300). Exceptions to this rule are the width and height options for gvisAnnotatedTimeLine and gvisAnnotationChart. For those two functions, width and height must be character strings of the format "Xpx", where X is a number, or "automatic". For example, options=list(width="200px", height="300px").<br>• Google API parameters with names that don't include a ".", but require multivalues are set as a character, wrapped in "[ ]" and separated by commas, e.g. options=list(colors="['#cbb69d', '#603913', '#c69c6e']")<br>• Google API parameters with names that do include a "." present parameters with several sub-options and have to be set as a character wrapped in " ". The values of those sub-options are set via parameter:value. Boolean values have to be stated as 'true' or 'false'. For example the Google documentaion states the formating options for the vertical axis and states the parameter as vAxis.format. Then this paramter can be set in R as: options=list(vAxis="{format:'#,###%'}"). |

- If several sub-options have to be set, e.g. `titleTextStyle.color`, `titleTextStyle.fontName` and `titleTextStyle.fontSize`, then those can be combined in one list item such as: `options=list(titleTextStyle="{color:'red', fontName:'Courier', fontSize:16}")`
- paramters that can have more than one value per sub-options are wrapped in "[ ]". For example to set the labels for left and right axes use: `options=list(vAxes="[{title:'val1'}, {title:'val2'}]")`
- `gvis.editor` a character label for an on-page button that opens an in-page dialog box enabling users to edit, change and customise the chart. By default no value is given and therefore no button is displayed.

For more details see the Google API documentation and the R examples below.

`chartid` character. If missing (default) a random chart id will be generated based on chart type and `tempfile`

## Value

gvisTimeline returns list of `class` "`gvis`" and "`list`". An object of class "`gvis`" is a list containing at least the following components:

`type` Google visualisation type

`chartid` character id of the chart object. Unique chart ids are required to place several charts on the same page.

`html` a list with the building blocks for a page

`header` a character string of a html page header: `<html>...<body>`,

`chart` a named character vector of the chart's building blocks:

`jsHeader` Opening `<script>` tag and reference to Google's JavaScript library.

`jsData` JavaScript function defining the input `data` as a JSON object.

`jsDrawChart` JavaScript function combing the data with the visualisation API and user options.

`jsDisplayChart` JavaScript function calling the handler to display the chart.

`jsFooter` End tag `</script>`.

`jsChart` Call of the `jsDisplayChart` function.

`divChart` `<div>` container to embed the chart into the page.

`caption` character string of a standard caption, including data name and chart id.

`footer` character string of a html page footer: `</body>...</html>`, including the used R and googleVis version and link to Google's Terms of Use.

## Author(s)

Markus Gesmann `<markus.gesmann@gmail.com>`

## References

Google Chart Tools API: http://developers.google.com/chart/interactive/docs/gallery/timeline

## Examples

```
dat <- data.frame(Term=c("1","2","3"),
                  President=c("Whasington", "Adams", "Jefferson"),
                  start=as.Date(x=c("1789-03-29", "1797-02-03", "1801-02-03")),
                  end=as.Date(x=c("1797-02-03", "1801-02-03", "1809-02-03")))

tl <- gvisTimeline(data=dat[,-1], rowlabel="President",
                   start="start", end="end")
plot(tl)

tl <- gvisTimeline(data=dat, barlabel="President",
                   start="start", end="end")
plot(tl)

tl <- gvisTimeline(data=dat, rowlabel="President",
                   start="start", end="end",
                   options=list(timeline="{showRowLabels:false}"))
plot(tl)

dat <- data.frame(Position=c(rep("President", 3), rep("Vice", 3)),
                  Name=c("Washington", "Adams", "Jefferson",
                         "Adams", "Jefferson", "Burr"),
                  start=as.Date(x=rep(c("1789-03-29", "1797-02-03", "1801-02-03"),2)),
                  end=as.Date(x=rep(c("1797-02-03", "1801-02-03", "1809-02-03"),2)))

tl <- gvisTimeline(data=dat, rowlabel="Name",barlabel="Position",
                   start="start", end="end",
                   options=list(timeline="{showRowLabels:true}"))
plot(tl)

tl <- gvisTimeline(data=dat, rowlabel="Name",barlabel="Position",
                   start="start", end="end",
                   options=list(timeline="{groupByRowLabel:false}",
                                backgroundColor='#ffd', height=350,
                                colors="['#cbb69d', '#603913', '#c69c6e']"))

plot(tl)

# Datetime example
dat <- data.frame(Room=c("Room 1","Room 2","Room 3"),
                  Language=c("English", "German", "French"),
                  start=as.POSIXct(c("2014-03-14 14:00", "2014-03-14 15:00",
                                     "2014-03-14 14:30")),
                 end=as.POSIXct(c("2014-03-14 15:00", "2014-03-14 16:00",
                                  "2014-03-14 15:30")))
tl <- gvisTimeline(data=dat, rowlabel="Language",
                   start="start", end="end")
plot(tl)

## Not run:
require(timeline)
data(ww2)
timeline(ww2, ww2.events, event.spots=2, event.label='', event.above=FALSE)
ww2$Person <- gsub("\\n" ," ", ww2$Person)
plot(gvisTimeline(ww2, barlabel="Person", rowlabel="Group",
                  start="StartDate", end="EndDate",
```

```
     options=list(width=600, height=350))
)

## End(Not run)
```

---

gvisTreeMap *Google Tree Map with R*

---

## Description

The gvisTreeMap function reads a data.frame and creates text output referring to the Google Visualisation API, which can be included into a web page, or as a stand-alone page. The actual chart is rendered by the web browser.

## Usage

```
gvisTreeMap(data, idvar = "", parentvar = "", sizevar = "",
  colorvar = "", options = list(), chartid)
```

## Arguments

| | |
|---|---|
| data | a data.frame. The data has to have at least four columns. Each row in the data table describes one node (a rectangle in the graph). Each node (except the root node) has one or more parent nodes. Each node is sized and colored according to its values relative to the other nodes currently shown. |
| idvar | column name of data describing the ID for each node. It can be any valid JavaScript string, including spaces, and any length that a string can hold. This value is displayed as the node header. |
| parentvar | column name of data that match to entries in idvar. If this is a root node, leave this NA. Only one root is allowed per treemap. |
| sizevar | column name of data with positive values to define the size of maps. Any positive value is allowed. This value determines the size of the node, computed relative to all other nodes currently shown. This value is ignored for non-leaf nodes (it is actually calculated from the size of all its children). |
| colorvar | column name of data with values to define range of color. The value is used to calculate a color for this node. Any value, positive or negative, is allowed. The color value is first recomputed on a scale from minColorValue to maxColorValue, and then the node is assigned a color from the gradient between minColor and maxColor. |
| options | list of configuration options, see: https://developers.google.com/chart/interactive/docs/gallery/treemap#Configuration_Options<br>The parameters can be set via a named list. The parameters have to map those of the Google documentation.<br>• Boolean arguments are set to either TRUE or FALSE, using the R syntax.<br>• Google API parameters with a single value and with names that don't include a "." are set like one would do in R, that is options=list(width=200, height=300). Exceptions to this rule are the width and height options for gvisAnnotatedTimeLine and gvisAnnotationChart. For those two functions, width and height must be character strings of the format "Xpx", where X is a number, or "automatic". For example, options=list(width="200px", height="300px"). |

- Google API parameters with names that don't include a ".", but require multivalues are set as a character, wrapped in "[ ]" and separated by commas, e.g.
  `options=list(colors="['#cbb69d', '#603913', '#c69c6e']")`
- Google API parameters with names that do include a "." present parameters with several sub-options and have to be set as a character wrapped in " ". The values of those sub-options are set via parameter:value. Boolean values have to be stated as `'true'` or `'false'`. For example the Google documentaion states the formating options for the vertical axis and states the parameter as `vAxis.format`. Then this paramter can be set in R as:
  `options=list(vAxis="{format:'#,###%'}")`.
- If several sub-options have to be set, e.g.
  `titleTextStyle.color`, `titleTextStyle.fontName` and `titleTextStyle.fontSize`, then those can be combined in one list item such as:
  `options=list(titleTextStyle="{color:'red', fontName:'Courier', fontSize:16}")`
- paramters that can have more than one value per sub-options are wrapped in "[ ]". For example to set the labels for left and right axes use:
  `options=list(vAxes="[{title:'val1'}, {title:'val2'}]")`
- `gvis.editor` a character label for an on-page button that opens an in-page dialog box enabling users to edit, change and customise the chart. By default no value is given and therefore no button is displayed.

For more details see the Google API documentation and the R examples below.

`chartid` character. If missing (default) a random chart id will be generated based on chart type and `tempfile`

## Details

A tree map is a visual representation of a data tree, where each node can have zero or more children, and one parent (except for the root, which has no parents). Each node is displayed as a rectangle, sized and colored according to values that you assign. Sizes and colors are valued relative to all other nodes in the graph. You can specify how many levels to display simultaneously, and optionally to display deeper levels in a hinted fashion. If a node is a leaf node, you can specify a size and color; if it is not a leaf, it will be displayed as a bounding box for leaf nodes. The default behavior is to move down the tree when a user left-clicks a node, and to move back up the tree when a user right-clicks the graph.

The total size of the graph is determined by the size of the containing element that you insert in your page. If you have leaf nodes with names too long to show, the name will be truncated with an ellipsis (...).

## Value

gvisTreeMap returns list of `class` "`gvis`" and "`list`". An object of class "`gvis`" is a list containing at least the following components:

`type` Google visualisation type

`chartid` character id of the chart object. Unique chart ids are required to place several charts on the same page.

`html` a list with the building blocks for a page

`header` a character string of a html page header: `<html>...<body>`,

`chart` a named character vector of the chart's building blocks:

`jsHeader` Opening `<script>` tag and reference to Google's JavaScript library.

`jsData` JavaScript function defining the input data as a JSON object.

`jsDrawChart` JavaScript function combing the data with the visualisation API and user options.

`jsDisplayChart` JavaScript function calling the handler to display the chart.

`jsFooter` End tag `</script>`.

`jsChart` Call of the `jsDisplayChart` function.

`divChart` `<div>` container to embed the chart into the page.

`caption` character string of a standard caption, including data name and chart id.

`footer` character string of a html page footer: `</body>...</html>`, including the used R and googleVis version and link to Google's Terms of Use.

## Warning

Tree maps display a tree like structure where every child has to have a unique parent.

Values in column `sizevar` should be greater than zero and finite.

## Author(s)

Markus Gesmann `<markus.gesmann@gmail.com>`,

Diego de Castillo `<decastillo@gmail.com>`

## References

Google Chart Tools API: http://developers.google.com/chart/interactive/docs/gallery/treemap

## See Also

See also `print.gvis`, `plot.gvis` for printing and plotting methods.

Please note that the `treemap` package offeres a static version of tree maps via its `tmPlot` function.

## Examples

```
## Please note that by default the googleVis plot command
## will open a browser window and requires Internet
## connection to display the visualisation.

Tree <- gvisTreeMap(Regions,  idvar="Region", parentvar="Parent",
                    sizevar="Val", colorvar="Fac")
plot(Tree)


Tree2 <- gvisTreeMap(Regions,  "Region", "Parent", "Val", "Fac",
                    options=list(width=600, height=500,
                                 fontSize=16,
                                 minColor='#EDF8FB',
                                 midColor='#66C2A4',
                                 maxColor='#006D2C',
                                 headerHeight=20,
                                 fontColor='black',
                                 showScale=TRUE))
```

```
plot(Tree2)

## Simple static treemap with no drill down options based on US states
## and their area. However we still have to create a parent id to use
## gvisTreeMap

require(datasets)
states <- data.frame(state.name, state.area)

## Create parent variable

total=data.frame(state.area=sum(states$state.area), state.name="USA")

my.states <- rbind(total, states)
my.states$parent="USA"
## Set parent variable to NA at root level
my.states$parent[my.states$state.name=="USA"] <- NA

my.states$state.area.log=log(my.states$state.area)
statesTree <- gvisTreeMap(my.states, "state.name", "parent",
                          "state.area", "state.area.log")
plot(statesTree)


## We add US regions to the above data set to enable drill down capabilities

states2 <- data.frame(state.region, state.name, state.area)

regions <- aggregate(list(region.area=states2$state.area),
                     list(region=state.region), sum)

my.states2 <- data.frame(regionid=c("USA",
                                    as.character(regions$region),
                                    as.character(states2$state.name)),
                         parentid=c(NA, rep("USA", 4),
                                    as.character(states2$state.region)),
                         state.area=c(sum(states2$state.area),
                                      regions$region.area, states2$state.area))

my.states2$state.area.log=log(my.states2$state.area)

statesTree2 <- gvisTreeMap(my.states2, "regionid", "parentid",
                           "state.area", "state.area.log")

plot(statesTree2)

## Now we add another layer with US divisions

states3 <- data.frame(state.region, state.division, state.name, state.area)

regions <- aggregate(list(region.area=states3$state.area),
                     list(region=state.region), sum)

divisions <- aggregate(list(division.area=states3$state.area),
                     list(division=state.division, region=state.region),
                     sum)
```

```
my.states3 <- data.frame(regionid=c("USA",
                                    as.character(regions$region),
                                    as.character(divisions$division),
                                    as.character(states3$state.name)),
                         parentid=c(NA, rep("USA", 4),
                                    as.character(divisions$region),
                                    as.character(states3$state.division)),
                         state.area=c(sum(states3$state.area),
                                      regions$region.area,
                                      divisions$division.area,
                                      states3$state.area))

my.states3$state.area.log=log(my.states3$state.area)

statesTree3 <- gvisTreeMap(my.states3, "regionid", "parentid",
                           "state.area", "state.area.log")

plot(statesTree3)
```

---

`OpenClose` *OpenClose: googleVis example data set*

---

## Description

Example data set to illustrate the use of the googleVis package.

## Usage

```
data(OpenClose)
```

## Format

A data frame with 5 observations on the following 5 variables.

`Weekday` a factor with levels `Fri` `Mon` `Thurs` `Tues` `Wed`

`Low` a numeric vector

`Open` a numeric vector

`Close` a numeric vector

`High` a numeric vector

## Source

Google Visualisation: Candlestick Chart http://code.google.com/apis/chart/interactive/docs/gallery/candlestickchart.html

## Examples

```
OpenClose
plot(gvisCandlestickChart(OpenClose, options=list(legend='none')))
```

## Population *Population: googleVis example data set*

### Description

Example data set to illustrate the use of the googleVis package.

### Usage

```
data(Population)
```

### Format

A data frame with 195 observations on the following 7 variables.

`Rank` a numeric vector with population ranking

`Country` country name as character

`Population` population

`% of World Population` % of world population

`Flag` html image-tag to wikipedia with country flag

`Mode` logical test vector

`Date` date test vector

### Source

Sourced from Wikipedia (columns 1 to 5): http://en.wikipedia.org/wiki/List_of_countries_by_population, 9 October 2010.

### Examples

```
data(Population)
tbl <- gvisTable(Population)

## Not run:
plot(tbl)

## End(Not run)
```

## Regions *Regions: googleVis example data set*

### Description

Example data set to illustrate the use of the googleVis package.

### Usage

```
data(Regions)
```

### Format

A data frame with 11 observations on the following 4 variables.

`Region` a factor with levels `America`, `Asia` ...

`Parent` parent region identifier

`Val` a numeric vector

`Fac` a numeric vector

### Examples

```
data(Regions)
Tree <- gvisTreeMap(Regions,  "Region", "Parent", "Val", "Fac",
                    options=list(width=600, height=500,
                                 showScale=TRUE, fontSize=16))
## Not run:
plot(Tree)

## End(Not run)
```

---

## renderGvis *renderGvis*

---

### Description

This function lets you use googleVis charts as Shiny output. Use it to wrap a googleVis-generating function that you assign to an `output` element in `server.R`; then create an `htmlOutput` with the same name in `ui.R`.

### Usage

```
renderGvis(expr, env = parent.frame(), quoted = FALSE)
```

### Arguments

| | |
|---|---|
| `expr` | An expression that returns a gvis object. |
| `env` | The environment in which to evaluate `expr` |
| `quoted` | Is `expr` a quoted expression (with `quote()`)? This is useful if you want to save an expression in a variable. |

### Details

Use a googleVis Chart as Shiny Output

### Value

Returns a function that can be assigned to a Shiny `output` element.

### Details

More information about shiny is available online: http://www.rstudio.com/shiny/. You find further examples with googleVis on shiny on mages' blog: http://lamages.blogspot.co.uk/search/label/shiny

## Author(s)

Joe Cheng, <joe@rstudio.com>

## Examples

```
## Not run:
# To run this example:
shiny::runApp(system.file("shiny/", package="googleVis"))
# server.R
library(googleVis)

shinyServer(function(input, output) {
  datasetInput <- reactive({
    switch(input$dataset,
           "rock" = rock,
           "pressure" = pressure,
           "cars" = cars)
  })

  output$view <- renderGvis({
    gvisScatterChart(datasetInput(),
                     options=list(title=paste('Data:',input$dataset)))
  })
})

# ui.R
shinyUI(pageWithSidebar(
  headerPanel("googleVis on Shiny"),
  sidebarPanel(
    selectInput("dataset", "Choose a dataset:",
                choices = c("rock", "pressure", "cars"))
  ),
  mainPanel(
    htmlOutput("view")
  )
))

## End(Not run)
```

---

# Stock *Stock: googleVis example data set*

---

## Description

Example data set to illustrate the use of the googleVis package.

## Usage

```
data(Stock)
```

## Format

A data frame with 12 observations on the following 5 variables.

`Date` a Date

`Device` a character vector

`Value` a numeric vector

`Title` a factor with levels `Bought pencils` `Out of stock`

`Annotation` a factor with levels `Bought 200k pencils` `Ran of stock on pens at 4pm`

## Source

Google Annotated Time Line API: https://google-developers.appspot.com/chart/interactive/docs/gallery/annotatedtimeline.html

## Examples

```
## Create data as used by Google in their annotated time line example

 Date <- as.Date(paste("2008-1-", 1:6, sep=""))
 Pencils <- c(3000, 14045, 5502, 75284, 41476, 333222)
 Pencils.titles <-c(rep(NA,4), 'Bought pencils', NA)
 Pencils.annotation <-c(rep(NA,4), 'Bought 200k pencils', NA)
 Pens <- c(40645, 20374, 50766, 14334, 66467, 39463)
 Pens.titles <- c(rep(NA, 3), 'Out of stock', NA, NA)
 Pens.annotation <- c(rep(NA, 3), 'Ran of out stock of pens at 4pm', NA, NA)

 original.df=data.frame(Date, Pencils, Pencils.titles,
                        Pencils.annotation, Pens, Pens.titles,
                        Pens.annotation)


 Stock <- reshape(original.df, idvar="Date", times=c("Pencils", "Pens"),
                  timevar="Device",
                  varying=list(c("Pencils", "Pens"),
                               c("Pencils.titles", "Pens.titles"),
                               c("Pencils.annotation", "Pens.annotation")),
                   v.names=c("Value", "Title", "Annotation"),
                   direction="long")
```

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tempfile, *14*, *19*, *23*, *25*, *28*, *31*, *34*, *36*, *39*, *41*, *44*, *48*, *51*, *53*, *56*, *59*, *61*, *64*, *68*, *70*, *72*, *75*, *78*, *80*, *83*, *86*