

Package: ltxsparklines (via r-universe)

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Type Package

Title Lightweight Sparklines for a LaTeX Document

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Description Sparklines are small plots (about one line of text high), made popular by Edward Tufte. This package is the interface from R to the LaTeX package sparklines by Andreas Loeffler and Dan Luecking (<<http://www.ctan.org/pkg/sparklines>>). It can work with Sweave or knitr or other engines that produce TeX. The package can be used to plot vectors, matrices, data frames, time series (in ts or zoo format).

Suggests zoo

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URL <https://github.com/borisveytsman/ltxsparklines>

Repository <https://borisveytsman.r-universe.dev>

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ltxsparklines-package *Lightweight Sparklines for a LaTeX Document*

Description

Sparklines are small plots (about one line of text high), made popular by Edward Tufte. This package is the interface from R to the LaTeX package sparklines by Andreas Loeffler and Dan Luecking (<<http://www.ctan.org/pkg/sparklines>>). It can work with Sweave or knitr or other engines that produce TeX. The package can be used to plot vectors, matrices, data frames, time series (in ts or zoo format).

Details

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There are several packages that produce sparklines in R: SparkTable by Alexander Kowarik, Bernhard Meindl, Matthias Templ (<https://CRAN.R-project.org/package=sparkTable>), sparklines by Bart (<https://github.com/Bart6114/sparklines>). However, they either provide HTML-only output, or require Java libraries. This is a lightweight and easy to use package for LaTeX users.

The package provides one function, `sparkline`, which outputs LaTeX code compatible with LaTeX package sparklines (Andreas Loeffler and Dan Luecking, <http://www.ctan.org/pkg/sparklines>).

Package options and setup

Do not forget to add `\usepackage{sparklines}` to the preamble of your TeX document.

There are two sets of options for sparklines in LaTeX: those which are set from TeX, and those which are set from R. The TeX options should be set with `\renewcommand`, `\definecolor` or `\setlength`, for example,

```
% The height of the sparklines in ex units
\renewcommand\sparklineheight{1.75}
% The line width
\setlength\sparklinethickness{0.4pt}
% The color of the sparkline
\definecolor{sparklinecolor}{named}{blue}
% The color of the sparkline rectangle when present
\definecolor{sparkrectanglecolor}{gray}{0.8}
% The dot width
\setlength\sparkdotwidth{2pt}
% The color of the spikes
\definecolor{sparkspikecolor}{named}{red}
% The color of the bottom line when present
\definecolor{bottomlinecolor}{gray}{0.2}
% The thickness of the bottom line
```

```

\setlength\sparkbottomlinethickness{.2pt}
% The clipping separation (need sparklines v1.7 or later)
\setlength\sparklineclipsep{2pt}

```

See the documentation for the LaTeX sparklines package.

Most options set from R define the defaults for sparkline command. They can be overridden by the corresponding argument of sparkline, for example, sparkline(...,width=20).

ltxsparklines.width The width of the sparkline (10).

ltxsparklines.clip Whether to clip the sparklines in the drawing region (FALSE). You need LaTeX sparklines package at least v1.7 for clip=TRUE.

ltxsparklines.na.rm Whether to delete NA lines from the sparkline data (TRUE).

ltxsparklines.bottomline Whether to add the bottom line (FALSE). You need LaTeX sparklines package at least v1.6 to draw bottom line.

ltxsparklines.bottomlinex The dimensions of the extended bottom line (by default c(NA, NA), which means no extended bottom line). You need LaTeX sparklines package at least v1.7 to draw extended bottom line.

ltxsparklines.startdotcolor The color of the dot at the start of the sparkline. If NA (the default), do not draw the dot.

ltxsparklines.enddotcolor The color of the dot at the end of the sparkline. If NA (the default), do not draw the dot.

ltxsparklines.dotcolor The color of dots in the sparkline (blue).

ltxsparklines.output The output format (kni tr).

Author(s)

Boris Veytsman

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References

Andreas Loeffler and Dan Luecking, Sparklines, 2016, <http://www.ctan.org/pkg/sparklines>

See Also

[sparkline](#) vignette(ltxsparklines)

Examples

```

## Not run:
sparkline(x=c(1,3,6),
          y=c(5,8,9),
          startdotcolor='blue',
          enddotcolor='red')

## End(Not run)

```

```
## Not run:
sparkline(Nile)

## End(Not run)
```

 sparkline

Create a Sparkline

Description

The function creates a TeX expression for a sparkline from the data supplied.

Usage

```
sparkline(x = NULL, y = NULL, xspikes = NULL, yspikes = NULL,
          xdots = NULL, ydots = NULL, dotcolor = NULL,
          width = getOption("ltxsparklines.width"),
          rectangle = c(NA, NA),
          xlim = c(NA, NA), ylim = c(NA, NA),
          clip = getOption("ltxsparklines.clip"),
          na.rm = getOption("ltxsparklines.na.rm"),
          bottomline = getOption("ltxsparklines.bottomline"),
          bottomlinelength = NA,
          bottomlinex = getOption("ltxsparklines.bottomlinex"),
          startdotcolor = getOption("ltxsparklines.startdotcolor"),
          enddotcolor = getOption("ltxsparklines.enddotcolor"),
          output = getOption('ltxsparklines.output'))
```

Arguments

- | | |
|---------|--|
| x | The data for sparkline. If both x and y are present, they must be vectors of the same length, and interpreted as x and y coordinates for a sparkline. If only x or y is present, then the result depends on its class: <ul style="list-style-type: none"> • If it is a matrix or data frame, then its first column is assumed to be the x coordinate, and its second column is assumed to be the y coordinate. • If it is a time series (either ts or zoo), then it is assumed to be the y coordinate, and time(x) is assumed to be the x coordinate. • Otherwise it is assumed to be the y coordinate, and the sequence 1:length(x) is assumed to be x coordinate. |
| y | See x. |
| xspikes | The data for spikes: small bar chart similar to sparklines. If both xspikes and yspikes are present, they are x and y coordinates for spike. If only one is present, it is interpreted as x above. |
| yspikes | See xspikes above. |

<code>xdots</code>	The data for dots: small dot chart similar to sparklines. If both <code>xdots</code> and <code>ydots</code> are present, they are x and y coordinates for dots. If only one is present, it is interpreted as x above with one addition: if <code>xdots</code> is a data frame, and has three or more columns, and <code>dotcolor</code> is not set, the third column is interpreted as the dot color.
<code>ydots</code>	See <code>ydots</code> above
<code>dotcolor</code>	The color of dots as a LaTeX color. A vector like <code>c('red', 'blue', 'green')</code> . If it is larger than the number of dots, it will be truncated. If it is shorter than the number of dots, it will be recycled. If it is not set, and data do not provide it, <code>option('ltxsparklines.defaultdotcolor')</code> is used.
<code>width</code>	The width of the sparkline in ex of the current font. By default 10. To change the default, use <code>option(ltxsparklines.width=...)</code> .
<code>rectangle</code>	A vector <code>c(min,max)</code> for the bottom and top of the background rectangle (for example, to show IQR of the data). If NA, no rectangle is drawn.
<code>xlim</code>	A vector <code>c(min,max)</code> of the x range of the data mapped to the <code>c(0,1)</code> interval. If any of its components is NA, the default, the actual range is used.
<code>ylim</code>	A vector <code>c(min,max)</code> of the y range of the data mapped to the <code>c(0,1)</code> interval. If any of its components is NA, the default, the actual range is used.
<code>clip</code>	Whether to clip the sparkline to the drawing region. The default is not clipping. To change the default, use <code>option(ltxsparklines.clip=TRUE)</code> . You need LaTeX package at least v1.7 for clipping.
<code>na.rm</code>	Whether to delete NA lines from the spark data. If TRUE (the default), the sparkline is drawn over the gaps in the data. Otherwise gaps in the data lead to gaps in the line, so it is presented as a number of chunks. Note that continuous chunks of data must have at least two data points to be drawn. This parameter does not affect spikes or dots.
<code>bottomline</code>	Whether to draw a bottom line. By default, FALSE. To change the default, use <code>option(ltxsparklines.bottomline=...)</code> . You need LaTeX package at least v1.6 for bottom lines.
<code>bottomlinelength</code>	The length of bottom line. If NA (the default), the bottom line extends to the end of the spark rectangle.
<code>bottomlinex</code>	The dimensions of the extended bottom line. If <code>c(NA, NA)</code> (the default), the extended bottom line is not drawn. You need LaTeX package at least v1.7 for extended bottom lines.
<code>startdotcolor</code>	The color of the dot at the beginning of the spark line. If NA (the default), no dot is drawn. To change the default, use <code>option(ltxsparklines.startdotcolor=...)</code> .
<code>enddotcolor</code>	The color of the dot at the end of the spark line. If NA (the default), no dot is drawn. To change the default, use <code>option(ltxsparklines.enddotcolor=...)</code> .
<code>output</code>	The format of the output. Sweave uses special processing for inline (Sexpr) code. Thus you need to set <code>output</code> to <code>inlineSweave</code> if you use Sweave and Sexpr. If you use knitr or a Sweave chunk, set <code>output</code> to <code>knitr</code> . This is the default, to change it, use <code>option(ltxsparklines.output='inlineSweave')</code> . See Details below.

Details

Most of the parameters of the sparkline are defined by the TeX code. Thus all color values must be understandable to LaTeX. For example, you can put in the TeX file

```
\definecolor{startdot}{named}{red}
```

and then use it like `sparkline(Nile, startdotcolor="startdot")`.

You should use LaTeX command to change sparkline parameters, for example,

```
\setlength\sparklinethickness{0.3pt}
```

The output of `sparkline` is also a TeX command, so you want to put it inside `Sexpr` or a code chunk. Note that Sweave use a special processing for `Sexpr`, so you need to set `output="inlineSweave"` for inline Sweave output. Use `output="knitr"` for `knitr` (both inline and chunks) and Sweave chunks.

The parameters `xlim` and `ylim` define the mapping between the data and the sparkline rectangle. If there are data points outside the rectangle, they may overplot the text. You may set `clip` to `TRUE` to prevent this.

Value

The function returns a string executable by TeX, to be used in `\Sexpr`, for example Nile level changed over the years: `\Sexpr{sparkline(Nile)}`.

Do not forget to add `\usepackage{sparklines}` to the preamble of your TeX document.

Author(s)

Boris Veytsman

See Also

[ltxsparklines-package](#), `vignette{ltxsparklines}`

Examples

```
## Not run:
sparkline(x=c(1,3,6),
          y=c(5,8,9),
          startdotcolor="blue",
          enddotcolor="red")
```

```
## End(Not run)
## Not run:
sparkline(Nile)
```

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

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