Sparklines

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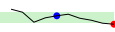
updated 19. March 2007

1 What are sparklines?

Sparklines are intense, simple, wordlike graphics (so named by Edward Tufte). In lieu of a more detailed introduction, Professor Tufte's site has an early release of a chapter on sparklines, see www.edwardtufte.com. A PHP implementation can be found at http://sparkline.sourceforge.net/.

A sparkline can be added using the `sparkline`–environment. Also, you can add sparkling rectangles for the median and special sparkling dots in red or blue. Sparklines do not appear within a dvi-file, they require either pdflatex or conversion to postscript with dvips. `Sparklines` does not work with `pictex`.

If we want to add a sparkline, be careful not to leave an empty line between the text left of the sparkline and the environment itself, since otherwise the sparkline starts at a new line.

This is an example of sparkline: Daimler Chrysler, 12%, 129)

The above sparkline was created with the following:

```
\begin{sparkline}{10}
  \sparkrectangle 0.3 0.5
  \sparkdot 0.5 0.62 blue
  \sparkdot 1 0.2 red
  \spark 0.1 0.95  0.2 0.8  0.3 0.3  0.4 0.52  0.5 0.62
         0.6 0.7   0.7 0.5  0.8 0.4  0.9 0.25  1 0.2 /
\end{sparkline}
```

The argument of the environment gives the width of the graphic as a multiple of the dimension unit `ex` (approximately the height of the lowercase 'x' in the current font). Within the environment, x-coordinates run from 0 (extreme left of the graphic) to 1 (extreme right).

The height of the graphic is given by the *macro* `\sparklineheight`, defined to produce `1.75` by default. The units are the same as for the width: the `ex` of the current font. You can redefine that macro (with `\renewcommand`) to force another height. Within the graphic, the y-coordinate runs from 0 (lowermost point) to 1 (uppermost).

The `\sparkrectangle` command produces a background rectangle. It must be followed by two numbers, each followed by a space or the end of the line. They are the y-coordinates of the bottom and top of the rectangle. This is supposed to show the 'normal range' of the y-data, so that a point outside that rectangle represents a departure from normal. The color of the rectangle is "sparkrectanglecolor", which the user may redefine (with `\definecolor`). The initial definition is given by

`\definecolor{sparkrectanglecolor}{gray}{0.9}`

The colored dots are produced by `\sparkdot`, the diameter of the dot is the value of the length `\sparkdotwidth`, which the user may change (with `\setlength`). The default value is `1.2pt`. The command takes three parameters, each of which must be followed by a space or the end of the line. The first two are the coordinates of the center of the dot, the third is the color.

Each pair of numbers after the macro `\spark` represents a coordinate pair, giving the location of a point in the above described coordinate system. The macro draws a line from each point to the next. Each number must be followed by a space, and the list is terminated by a `/`. Be careful that there are an even number of coordinates. The thickness of the line that is created is the value of the length `\sparklinethickness`, which the user may change (with `\setlength`). The default value is `0.2pt`.

Bar graphs can be drawn easily: ▪▫▮▮▫▫. This was created by the code:

```
\begin{sparkline}{4}
  \sparkspike .083 .18
  \sparkspike .25 .55
  \sparkspike .417 1
  \sparkspike .583 .62
  \sparkspike .75 .42
  \sparkspike .917 .5
\end{sparkline}.
```

The macro `\sparkspike` must be followed by a pair of numbers, each followed by a space or the end of the line. The first of the pair is the horizontal location of the

bar and the second is the height. The bars are drawn in color `sparkspikecolor` which the user may redefine (with `\definecolor`). The default is `black`. The width of each bar is the value of the length `\sparkspikewidth`, which the user may change (with `\setlength`). The default is `2pt`.

Version history

Mar 21, 2007

> version 1.3: User adjustable colors and parameters added by Dan Luecking ⟨luecking@uark.edu⟩

Mar 19, 2007

> version 1.2: Sparkbars added thanks to Harlan Harris ⟨harlan@harris.name⟩

Apr 21, 2005

> version 1.1: bug removed thanks to Mathias Hofmann ⟨mathias.hofmann@web.de⟩

Dec 12, 2004

> version 1.0: first version of sparklines