Testing PGF and TikZ support in DocOnce

Kristian Gregorius Hustad (krihus@ifi.uio.no)

Dec 5, 2020

Abstract

Quick demo of how to make figures with TikZ in DocOnce.

1 Ideas

TikZ is a useful tool for making figures in LaTeX, and DocOnce supports these figures. If a figure file `myfig` exists in a version `myfig.tikz`, DocOnce will, for `latex` or `pdflatex` output, use the `myfig.tikz` figure directly. The problem is what do to with other output formats? In `html` format one can use a corresponding SVG version of the figure; for other formats, one needs a plain PNG file. DocOnce will automatically create these figure versions and store them with the `myfig.tikz` figure, as is done when other figure formats are automatically generated.

2 A modest beginning

Figure 1: This shape is commonly referred to as a *straight line*.

The most fundamental shape is the line in Figure 1. See the source code for how this TikZ figure is defined in LaTeX as a file `line.tikz` (and included in DocOnce through `FIGURE: [line, width=500] caption`). Such lines can be combined to form other shapes, e.g., a square. However, Figure 2 was created using the `rectangle` TikZ command.

A grid can also be easily made.

A circle, however, cannot be formed by a finite number of straight lines. It requires special code.

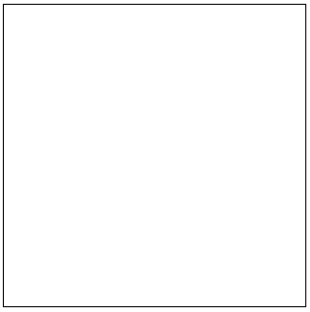


Figure 2: This square is formed by four straight lines.

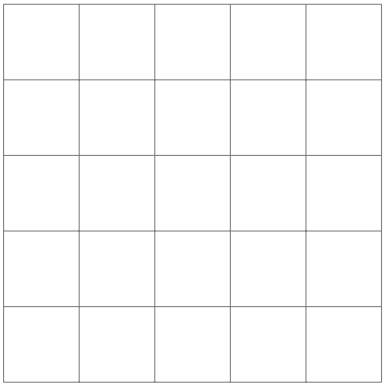


Figure 3: This is a grid with 5 x 5 cells

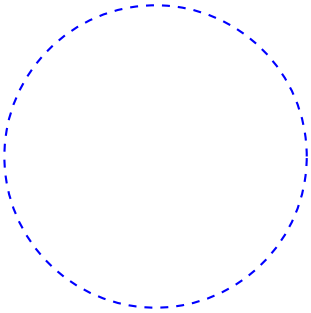


Figure 4: This circle is drawn in blue with a dashed line.

3 More advanced figures

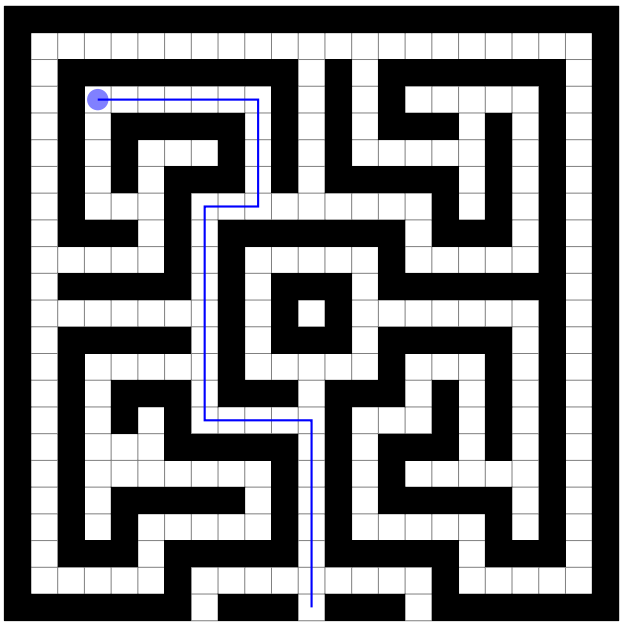


Figure 5: A maze can be drawn by combining rectangle elements.

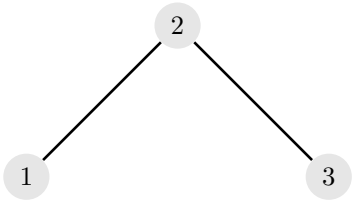
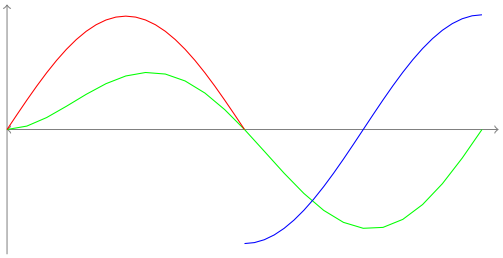


Figure 6: TikZ is well suited to draw graphs.

4 Plotting functions

TikZ can be used to plot functions. The next figure will be inlined.



See the source code for how you make this figure.

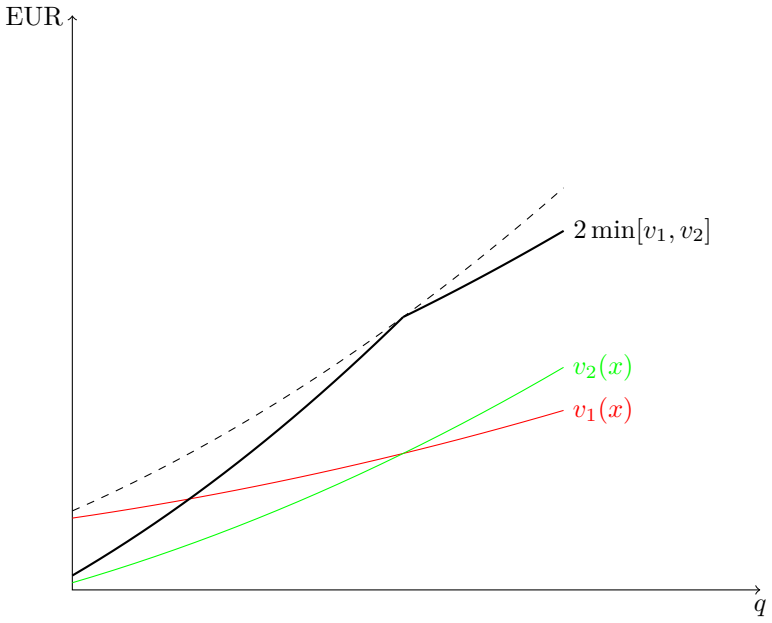


Figure 7: The functions can even be labeled!

All details are in the source code.