PGFPlot-Tikz package:A simple tutorial

Son To

June 13th, 2017

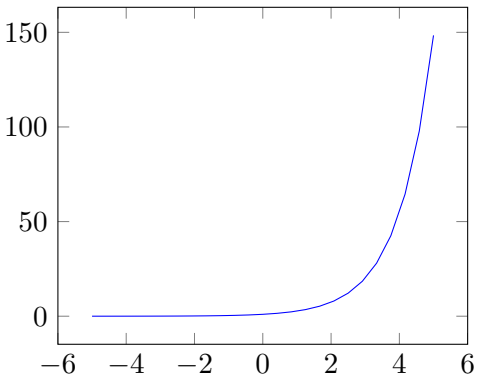
Contents

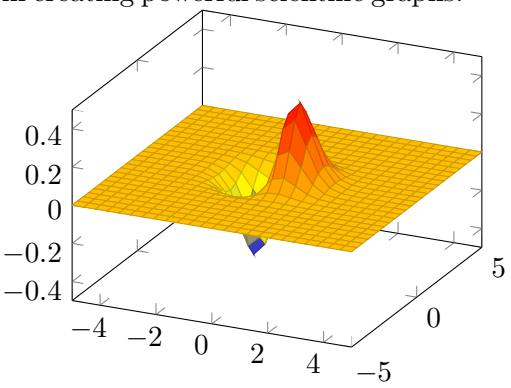
[1]

Part 1
PGFPLOTS

I The Basic

Pgfplots is a powerful package specialized in creating powerful scientific graphs.



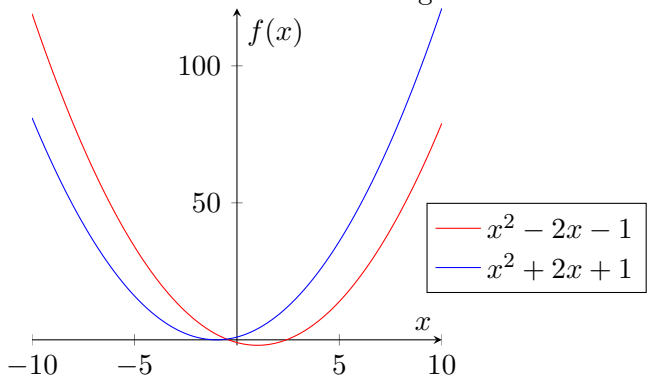


We now get to some more details on 2D plot.

[1] This tutorial is taken from this link with some modifications for personal pleasure!

II 2D Plot

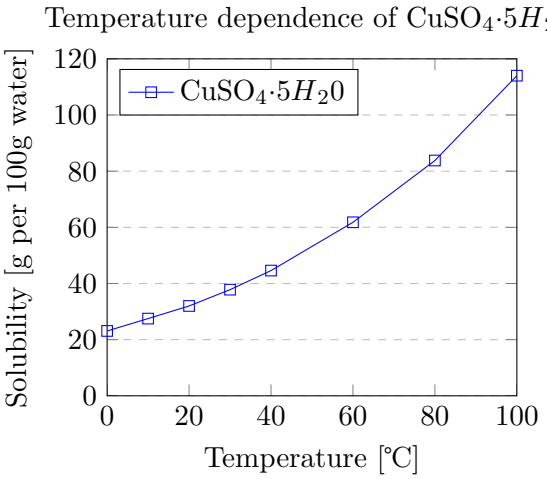
What the heck...Let's do some damage!



Come on man!!!! Let's make some plots from data.

II.1 Plotting from data

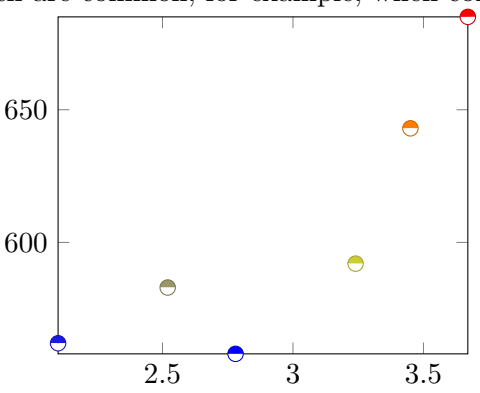
I love to test ℃



When the data is in a file, put `\addplot table {file_with_the_data.dat}` instead of using `\addplot coordinates {}`.

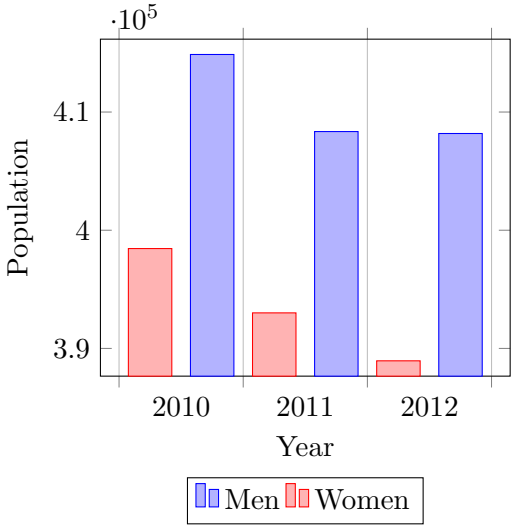
II.2 Scatter plots

Scatter plot is used to represent information by using some kind of marks, which are common, for example, when computing statistical regression.



II.3 Bar graphs

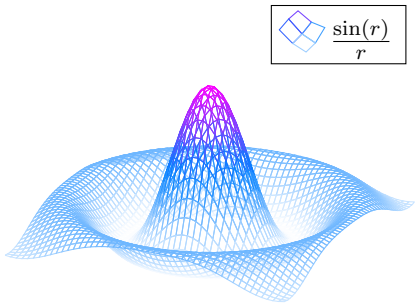
Bar graphs are used to display gathered data.



III 3D Plots

For the basic plot, we refer to section I. We now use mesh feature for the plot.

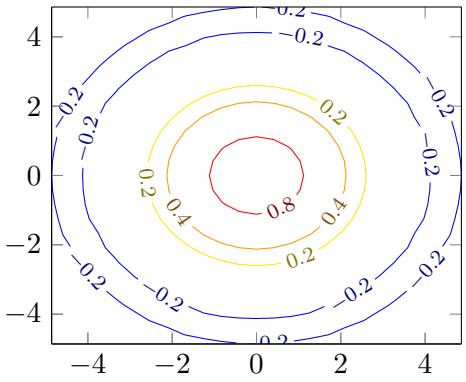
Example using the mesh parameter



III.1 Contour plot

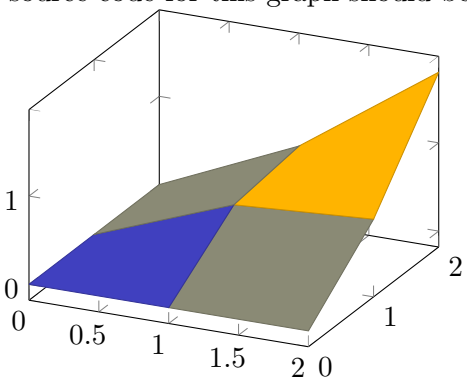
The data needs to be calculated by external programs(gnutplot, mathematica, etc. . .)

Contour plot, view from top



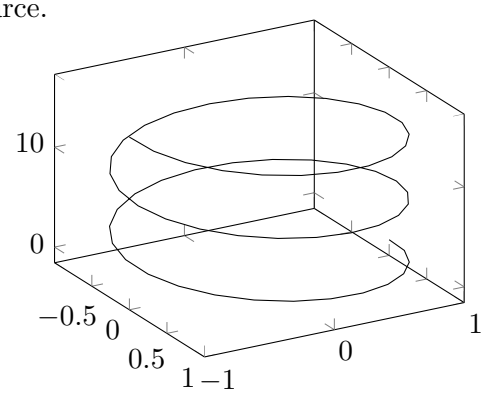
III.2 Plotting a surface from data

The source code for this graph should be self-explanatory.



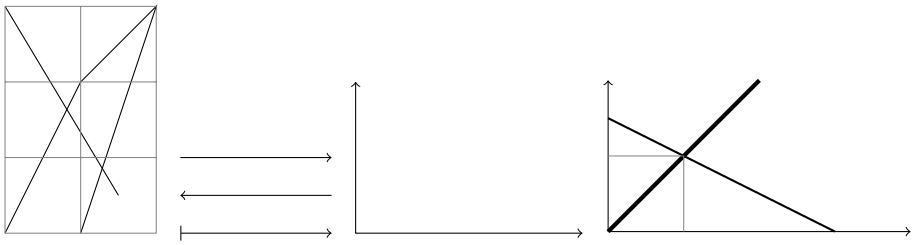
III.3 Ploting parametric curve

A sample of the parametric plot is here, but I do not know what a parametric means at this moment! Therefore, this is blindly copied from the tutorial source.



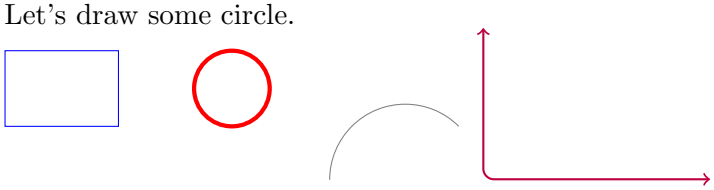
Part 2
Tikz package

[2] Since Tikz and Pgfplots packages are such gigantic packages, these intro will have to be enough until a later time. Addtional examples will be updated later in part 3 if I have free time, but the chances of which is virtually 0.

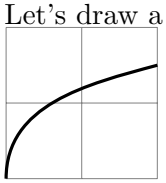


Drawing is an art... We can also use custom width for draw with `line width=...`The default width unit is point(pt).

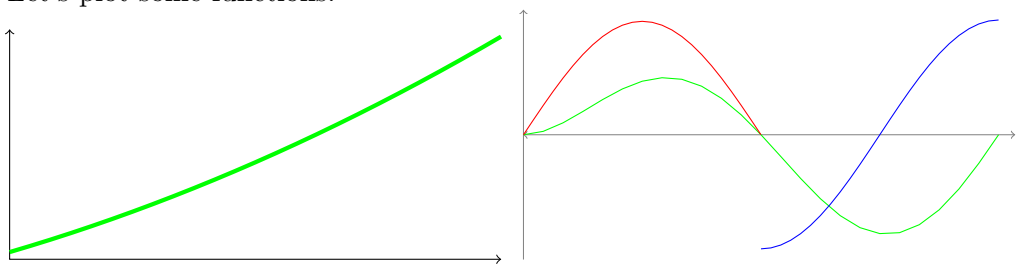
Let's draw some circle.



Let's draw a curve!



Let's plot some functions!



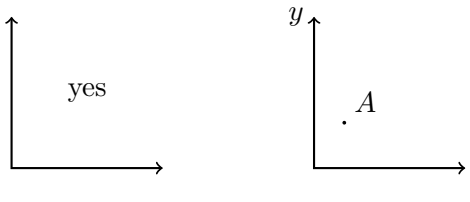
Let's fill up some simple areas.

[2] The tutorial is taken from `A very minimal introduction to Tikz` by Jacques Crémer

outline or not? with `\path`

Let's fill up some arbitrary areas:

Let's put some labels in the picture.



Mixing the `\node` by putting it right after the point of relative position, without the backslash `\`.