# Restricting the domain of a function plotted on Gnuplot



I am plotting a set of data on Gnuplot, and want to superimpose the function `x^2` on the same plot. I can do this like so:

```
plot "filename" using 1:2, x**2
```

Which produces a plot in which the function `x^2` stretches across the whole domain of the graph. I would like to make it such that the function is only shown on a small stretch of the graph, say from x=1 to x=2, while the size of the graph is dictated by `filename` to be from x=0 to x=10. I know that to plot the function by itself I could do:

```
plot [1:2] x**2
```

But how would I keep the superimposition together, given that what I tried intuitively did not work:

```
plot "filename" using 1:2, [1:2] x**2

invalid expression
```

The documentation seems to be hard to interpret when it comes to getting this to work.

gnuplot

asked Jan 11 '13 at 2:09

dplanet
**750** 2 11 28

## 1 Answer

The easiest way may be to define a piecewise function using the ternary operator `?` :

```
f(x) = (x > 1 && x < 2) ? x**2 : 1/0
plot "filename" using 1:2, f(x)
```

Another way is with the `replot` command:

```
plot "filename" using 1:2
replot [1:2] x**2
```

edited Nov 7 '14 at 13:39

answered Jan 11 '13 at 2:28

andyras
**8,196** 18 38

but this piecewise function shows a discontinuity ion the plot! Do you know how to remove that? Thanks for the answer you posted by the wey. – Strömungsmechanik Nov 7 '14 at 7:54

I am not sure what you mean by a discontinuity in the plot. When I plot f(x) I get x^2 from 1 to 2, as ordered. Could you please clarify the question? – andyras Nov 7 '14 at 13:38

@andyas Thank you for your quick reply! I mean the jump from 0 to the next value, since this function is not piecewise continuous. Cheers – Strömungsmechanik Nov 8 '14 at 11:16

Do you mean the jump from 1 to the first point plotted (slightly above 1)? That is because the function f(x) is sampled only at discrete points. The number of those points is determined by the `set sample` command--that might help. – andyras Nov 8 '14 at 22:39

Thank you so much for your help :) Cheers – Strömungsmechanik Nov 12 '14 at 7:19