Subject: Re: probability scale on 2D line plot?
Posted by Peter Mason on Fri, 11 Dec 1998 08:00:00 GMT
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Embarassed by my previous, useless post, I'll duel with the Send button again.

I guess you're really after something similar to IDL's log scaling in functionality, but with the remapping done according to a cumulative normal distribution. You can't do this with a simple switch in the PLOT call (as with log scaling); you have to do it by steam power...

Say you have a vector DAT(N) that you want to plot stretched in this way. You also have the mean DAV and the standard deviation DSD of the underlying distribution. (Maybe you just calculate these from DAT.)
First you have to decide how much to stretch - how many standard deviations to cover. Say you pick 3.
The stretched data is: DAT1=GAUSSINT((DAT-DAV)/(3.0*DSD)).
Then you just use DAT1 instead of DAT in the plot call.

However, the plot's axis labels would now be "wrong". You could come right by doing something like this:

```
 NT=6      ;6 ticks, say
 TVAL=( FINDGEN(NT) * ((6*DSD)/(NT-1)) ) - 3*DSD ;over -3SD..3SD
 TVAL1=GAUSSINT( (TVAL-DAV)/(3.0*DSD) )  ;stretch them
```

Then in the plot call:

```
 PLOT, DAT1, ... YTICKS=NT-1, YTICKV=TVAL1, YTICKNAMES=STRTRIM(TVAL,2)
```

If you wanted "correct" DATA cursor readouts from your plot, you'd have to handle their *inverse* mapping.

Peter Mason