Subject: Plotting functions in IDL
Posted by kunstman on Tue, 16 Jan 1996 08:00:00 GMT
View Forum Message <> Reply to Message

What is the best way of plotting a function in IDL? As far as I know,
it only handles vectors of discrete data and no equations.

Thanks

Thomas
--
Thomas Kunstmann
Technische Hochschule Darmstadt
kunstmann@pu.informatik.th-darmstadt.de
http://www.pu.informatik.th-darmstadt.de/~kunstman
Hey, you surprised? More than surprised?
To find the answers to the questions
Were always in your own eyes.
Derek W. Dick

Subject: Re: Plotting functions in IDL
Posted by hahn on Thu, 18 Jan 1996 08:00:00 GMT
View Forum Message <> Reply to Message

kunstman@pu.informatik.th-darmstadt.de (Thomas Kunstmann) wrote:

> What is the best way of plotting a function in IDL? As far as I know,
> it only handles vectors of discrete data and no equations.

Yes, IDL need the data in tables, either in core or on disk.
Actuall, I'm glad that this avoids error, because you have to
think of how to fill the table. I.e. try the following with
mathematica:

```
Plot[Sin[x*x],{x,-3Pi,3Pi}]
```

you won't believe your eyes!

What mathematica does - and many other packages do - is to divide the
given intervall into equal pieces and call the function at the pivots.
But due to the periodicy and due to rounding errors the function
are neither symmectrical to the y axis nor are the extremes always
found. Thus in this case you have a dip in the amplitude at x=7.1.
The minimum y value is -0.3 rather than -1.

So you either think of how to fill the table that IDL should plot or
use some other graphics package and believe the results!

Norbert Hahn
TH Darmstadt

Subject: Re: Plotting functions in IDL
Posted by korpela on Thu, 18 Jan 1996 08:00:00 GMT
View Forum Message <> Reply to Message

In article <4dgftr$1qr5@rs18.hrz.th-darmstadt.de>,
Thomas Kunstmann <kunstman@pu.informatik.th-darmstadt.de> wrote:
> What is the best way of plotting a function in IDL? As far as I know,
> it only handles vectors of discrete data and no equations.

First set up a range and then plot the function over the range.
The way I do it is, for example....

```
IDL> x=range(-3.*!pi,3.*!pi,0.01)
% Compiled module: RANGE.
IDL> plot,x,sin(x*x)
```

I have a function called range that looks like this.....

```
 ------------------------------------------------------------ ------------
Function range,lo,hi,delta

if (n_params(0) lt 2) or (n_params(0) gt 3) then begin
      print,'RANGE-- Incorrect number of parameters'
      return,-9999.0
endif
if (n_params(0) eq 2) then delta=1.0
number=long((float(hi)-float(lo))/float(delta))
outrange=float(lo)+findgen(number)*float(delta)
return,[outrange,hi]
end
 ------------------------------------------------------------ ------------
```

Eric

--
Eric Korpela | An object at rest can never be
korpela@ssl.berkeley.edu | stopped.

Click here for more info.

Subject: Re: Plotting functions in IDL
Posted by rivers on Fri, 19 Jan 1996 08:00:00 GMT
View Forum Message <> Reply to Message

In article <4dgftr$1qr5@rs18.hrz.th-darmstadt.de>, kunstman@pu.informatik.th-darmstadt.de
(Thomas Kunstmann) writes:
> What is the best way of plotting a function in IDL? As far as I know,
> it only handles vectors of discrete data and no equations.

>

I think what he is asking is whether IDL can plot "expressions" or "equations" which are not known at the time a procedure is written, but rather are determined at run time.

This is indeed possible in IDL, using the EXECUTE function. Here is an example of an IDL program which does so, and the output of a session using it.

```
 ************************************************************
print, 'Enter expression to be plotted'
expression=''
read, expression
t = execute('plot, '+expression+', title=expression')
end
 ************************************************************

; IDL Version 4.0.1 (vms alpha)
; Journal File for CARS3::RIVERS
; Working directory: USER_DISK:[RIVERS.IDL]
; Date: Fri Jan 19 16:51:12 1996

.run test_plot
;Enter expression to be plotted
; sin(findgen(100)/10.)
```

The procedure then draws the plot of the user-entered expression.

Mark Rivers (312) 702-2279 (office)
CARS (312) 702-9951 (secretary)
Univ. of Chicago (312) 702-5454 (FAX)
5640 S. Ellis Ave. (708) 922-0499 (home)
Chicago, IL 60637 rivers@cars3.uchicago.edu (Internet)