Subject: Re: Function Maximum
Posted by Craig Markwardt on Thu, 19 Jun 2003 14:45:36 GMT
View Forum Message <> Reply to Message

faeriepunk@aol.com (Kate) writes:

> If I have a function definition, say it is
>
> FUNCTION MYGAMMA, X, P
> RETURN, P[0]*(X^P[1])*EXP(-1*X/P[2])
> END
>
> Where P holds my fit parameters that are already determined.
>
> If I want to find a local maximum in a certain range is it possible to
> do this with an existing written IDL function?

You question has an analytical solution. The function you describe has a global maximum at X_MAX = P[1]*P[2], with no other saddle-points.

For more complicated functions, you can use an optimizer. For example CONSTRAINED_MIN, or AMOEBA. Both of those are minimizers so you would have to minimize the *negative* of your function in order to maximize it. I also have a routine on my web page called TNMIN. It's a tad rough at the edges, but it doesn't require function derivatives, and has a MAXIMIZE keyword. [I use it all the time to maximize huge functions.]

Craig

http://cow.physics.wisc.edu/~craigm/idl/idl.html (under fitting)

--
---------- ----------
Craig B. Markwardt, Ph.D. EMAIL: craigmnet@cow.physics.wisc.edu
Astrophysics, IDL, Finance, Derivatives | Remove "net" for better response
---------- ----------