
Subject: Re: Problems in non-linear fitting

Posted by [Craig Markwardt](#) on Thu, 15 Mar 2007 15:30:23 GMT

[View Forum Message](#) <> [Reply to Message](#)

"duxiyu@gmail.com" <duxiyu@gmail.com> writes:

- > I am using the MPFITFUN for curve-fitting.
- > It is easy and effectual.
- > But I have some confused points in using it.
- >
- > Could it give a value which can measure the quality of fitting?
- > For example, if you do a linear fitting, you can calculate the R^2 to
- > measure the quality of fitting.
- > This R maybe is the correlate coefficient between Y and Yfit. (I am not
- > sure for this. if you know how the R is calculated, please tell me.)
- > I do not know whether the R^2 can describe the quality of non-linear
- > fitting.

R does not necessarily measure the quality of fit, but rather the degree of *linear* correlation between two variables. Thus, it is only appropriate for linear fitting.

The χ^2 statistic is more commonly used for non-linear fitting; see the BESTNORM parameter of MPFIT & MPFITFUN.

- > Because when I select the different starting values of the parameters
- > to fit, I get the different results, I need a parameter to determine
- > which result is best.
- > If it not, I want to find a new parameter which can meet my request.

You may be getting different solutions for two different reasons that I can think of. One possibility is that there are multiple local minima. In that case, MPFIT is not the best method; perhaps monte carlo or simulated annealing would be more appropriate.

Another possibility is that you are using the automatic derivatives, but MPFIT is varying the parameters by too little to calculate an accurate derivative. In that case you should use the PARINFO parameter with the STEP or RELSTEP fields, to declare a step size to use for derivatives.

Good luck,
Craig

--

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

