Subject: Re: Simultaneous fitting in IDL
Posted by Chris[6] on Fri, 15 May 2009 08:28:01 GMT
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On May 14, 6:54 am, Gianluca Li Causi <lica...@mporzio.astro.it>
wrote:
> Hi all,
> I need to *simultaneously* fit two sets of data, Y1 and Y2, with two
> functions, F1(X,P) and F2(X,P), having the same set of parameters P,
> by using the routine LMFIT.
>
> In order to do this I join the two datasets in a uniq vector Y=[Y1,Y2]
> and do the same for the model F=[F1,F2], as suggested also by Craig
> Markwardt in a past thread in this
group:http://groups.google.com/group/comp.lang.idl-pvwave/br owse_thread/thr...
>
> But my datasets contains a different number of points, N1 and N2, with
> N2<<N1, so that the smaller one is almost neglected because its weight
> in the uniq vector Y is proportional to N2 / N1.
>
> SO THAT: I've tried to multiply each error vector by the SQRT of its
> fraction:
>
> Y1_err *= SQRT(N1 / (N1+N2))
> Y2_err *= SQRT(N2 / (N1+N2))
>
> and now I get a nice fit for the two dataset simultaneously!
>
> BUT: when I compute the Reduced ChiSquare = ChiSquare / (N1 + N2 -
> N_parameters) I get a completely wrong result (vey high, far from
> 1.0), due to my modification of the true error vector !
>
> THUS: what I can do ?
> One idea is to force the Y1 and Y2 vectors to have the same number of
> elements M, which must be the minimum multiple of both N1 and N2, but
> it could be a very large number.....
>
> Could anybody help me ?!
> Thanks a lot!
> Gianluca

Can't you just set the errors back to their old values before
recomputing chi-squared?
chris