
Subject: Re: How to determine the WEIGHTS in MPFITFUN for distribution function fit?

Posted by [Vince Hradil](#) on Tue, 11 Sep 2007 14:15:02 GMT

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On Sep 6, 11:43 pm, "dux...@gmail.com" <dux...@gmail.com> wrote:

>> Boy, that's a good question ... Here are some questions for you.
>> How do you measure the counts? How sure are you of the number of
>> counts?
>> If they are truly counts, the errors may be Poisson distributed, yerr
>> ~ 1/y. Have you tried this?
>
> Yerr ~ 1/y? Do you means that the keyword WEIGHTS should be 1/y?
>
>> Are you really interested in the standard errors of the parameters, or
>> just the parameters? The estimate of the parameters is fairly robust
>> with mpfitfun, so the P values are good estimates regardless of the
>> estimated error.
>
>> If you can't estimate the 1-sigma errors for Y you could always use
>> the bootstrap to estimate the P-errors. I've found this very helpful
>> - and really easy to do.
>
> Could you explain for me what the bootstrap is?
> Is it a IDL procedure or a mathematic method to estimate the P-error?
> I cannot find it in the IDL Help files.
>
> Thanks for your reply.
>
> jdu

http://en.wikipedia.org/wiki/Bootstrapping_%28statistics%29

Bootstrapping is a statistical method of resampling. The simplest way (but perhaps not the correct depending on the problem) to apply bootstrapping for your problem would be:

- 1- estimate yhat using mpfit
- 2- create an array of (yhat-y), the residuals.
- 3- resample the errors (with replacement) to get a bootstrap sample of residuals.
- 4- add the bootstrap residuals to yhat -> yboot
- 5- fit yboot using mpfit -> pboot (the parameters from the fit)
- 6- repeat 3-5 several (about 200 times should be sufficient)
- 7- determine confidence limits of the parameters from the distribution of pboot

It's really quite simple, and has worked really well for me in the

past.

Look at the wikipedia entry and the references for further details.

Especially: http://www.crcpress.com/shopping_cart/products/product_detail.asp?sku=C4231&isbn=0412042312&parent_id=&pc=
(a very good read!)
