
Subject: Re: IDL - EXP fitting function

Posted by [Vince Hradil](#) on Fri, 27 Mar 2009 14:03:49 GMT

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On Mar 27, 8:50 am, Paolo <pgri...@gmail.com> wrote:

> Vince Hradil wrote:

>> On Mar 27, 8:27 am, Paolo <pgri...@gmail.com> wrote:

>>> Vince Hradil wrote:

>>>> On Mar 26, 5:55 pm, Christopher Thom <ct...@oddjob.uchicago.edu>

>>>> wrote:

>>>> > Quoth glen_a...@hotmail.com:

>

>>>> > > On Mar 26, 5:12 pm, David Fanning <n...@dfanning.com> wrote:

>>>> > > glen_a...@hotmail.com writes:

>>>> > > > Greetings everyone! My first post! I have some data x, y, that i would

>>>> > > > like to fit to a fitting function of the kind $y_{fit} = \text{EXP}(a + b \cdot x)$.

>>>> > > > where a and b are constants which i would like found. Any ideas on how

>>>> > > > to do this?

>

>>>> > > > $ab = \text{LinFit}(x, y)$

>>>> > > > $a = ab[0]$

>>>> > > > $b = ab[1]$

>

>>>> > > > Cheers,

>

>>>> > > > David

>>>> > > > --

>>>> > > > David Fanning, Ph.D.

>>>> > > > Fanning Software Consulting, Inc.

>>>> > > > Coyote's Guide to IDL Programming: <http://www.dfanning.com/>

>>>> > > > Sepore ma de ni thui. ("Perhaps thou speakest truth.")

>

>>>> > > Thanks for getting back to me David,

>

>>>> > > Does the linfit function work when i would like my data to be fitted to

>>>> > > an $\text{EXP}(a + bx)$ function? I didn't think that a linear function would be

>>>> > > correct when considering the EXP? Or am i getting confused going from

>>>> > > real space to log space!

>

>>>> > No, linfit() fits a linear model of the form $y = A + B \cdot x$, so it will not

>>>> > "just work". why don't you just fit a linear model in logspace?

>

>>>> > $res = \text{linfit}(x, \text{alog}(y_{fit}))$

>>>> > $a = res[0]$

>>>> > $b = res[1]$

>

>>>> > cheers

>>>> > chris

>
>>>> I'll second that. This is really a linear problem, so no need to
>>>> solve the non-linear equation.
>
>>> I disagree. If you have negative measurements, or positive
>>> but very small measurements, you will get bad results.
>>> Also the result will not be the least-squares best fit.
>
>>> Ciao,
>>> Paolo
>
>> It can still be fit as a linear system - just weight the residuals by
>> the measured values, like this:<http://mathworld.wolfram.com/LeastSquaresFittingExponential.html>
>
> Interesting... but I still do not see how they handle negative
> values...
>
> Ciao,
> Paolo

How about using $y_{\text{prime}} = y_i - \min(y_i) + \text{eps}$? Or does that change
the whole thing. It's too early - and I still have to get a cuppa.
I'll be back 8^]
