Subject: Re: Minimization: Determine a constant across data sets
Posted by on Fri, 06 Apr 2012 09:43:33 GMT
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Den fredagen den 6:e april 2012 kl. 04:42:40 UTC+2 skrev Justin:
> Hi all!
>
> I have several data sets that follow the form:
>
> data = A* e^(-t/t0)+ y
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> I suspect EVERY data set to have the same t0, but different A & y values. (ie: (A1,y1),(A2,y2)...)
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> It would seem simple enough to fix t0 in MPFITFUN if I knew what the value was beforehand, but I don't :) Is there a way to minimize t0 across several data sets such that A & y are allowed to vary, but t0 is tied to every data set?

Sounds like you could describe your problem something like this:

data = [data1, data2, data3, ...]
model = [A1*e^(-t,t0)+y1, A2*e^(-t/t0)+y2, A3*e^(t/t0), ...]

If you code the model MYFUNCT with the parameter array interpreted as
p[0,1,2,3,...]=[t0,A1,y1,A2,y2,...]
you should be able to keep using mpfitfun.

/Mats

Subject: Re: Minimization: Determine a constant across data sets
Posted by Craig Markwardt on Sun, 08 Apr 2012 03:05:13 GMT
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On Friday, April 6, 2012 5:43:33 AM UTC-4, Mats Löfdahl wrote:
> Den fredagen den 6:e april 2012 kl. 04:42:40 UTC+2 skrev Justin:
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> If you code the model MYFUNCT with the parameter array interpreted as
> p[0,1,2,3,...]=[t0,A1,y1,A2,y2,...]
> you should be able to keep using mpfitfun.

Yep, what Mats said.

MPFIT and MPFITFUN don't care how many data sets you are fitting. Just concatenate the two data sets and the two model functions. (and the hardest part is managing all of the parameters.)

Craig Markwardt

Subject: Re: Minimization: Determine a constant across data sets
Posted by Justin Cantrell on Tue, 10 Apr 2012 14:58:52 GMT
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On Thursday, April 5, 2012 10:42:40 PM UTC-4, Justin wrote:
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> I tried doing this in grids, but it was very computationally time consuming to search an unknown gridspace of t0 in an double for loop.
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> Thanks!

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> Thanks!
> Justin

Awesome, I think I got it. Took a while to get the dimensions to agree.

```
result=mpfitfun('myfun',x,y(*,*),1.,guess,bestnorm=chisq)

FUNCTION myfun, X, P
;create the function from the inputs
s=size(p)
cols=(s(1)-1)/2
model=dblarr(cols,n_elements(x))
for i=0, cols-1 do begin
model(i,*)=[P[i]* EXP(-x/P[cols])+P[i+cols+1] ]
endfor
  RETURN, model


END
```

Subject: Re: Minimization: Determine a constant across data sets

On Tuesday, April 10, 2012 10:58:52 AM UTC-4, justinr...@gmail.com wrote:
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> endfor
> RETURN, model

Now you are an advanced MPFIT user :-)
