Subject: Re: Constrained fit of a straight line: fixed intercept
Posted by Joe Daal on Fri, 27 Aug 2010 20:57:57 GMT
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On Aug 27, 5:45 am, David Grier <david.gr...@nyu.edu> wrote:
> On 8/27/10 4:39 AM, David Grier wrote:
>
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>
>> On 8/27/10 12:36 AM, Joe Daal wrote:
>>> Hi,
>
>>> I am not sure how easy this problem is, but it sure gave me hell
>>> today.
>>> I have the following vector arrays: X, Y,& Y_errors. There are 5
>>> elements in each and they do form a nice line describes by Y = A + BX.
>>> I need to fit this line with B as a free parameter and constrain A to
>>> pass by the the third point.
>>> So the problem narrows down to one parameter as: Y = (Y0 - BX0) + BX,
>>> whre Y0 and B0 and the third point values (i.e., X[2] and Y[2]).
>>> I tried using MPFIT with the PARINFO keyword. It just didn't work.
>>> Any ideas? Thanks....
>
>>> -Joe
>
>> How about:
>
>> pivot = 2
>> dy = y - y[pivot]
>> dx = x - x[pivot]
>> w = where(dx ne 0, count)
>> if count gt 0 then $
>> B = mean(dy[w]/dx[w]) $
>> else $
>> B = 0.
>
> ... and if you want to weight the results by the experimental errors:
>
> weights = abs(1./y_errors[w]) ; for instrumental errors
> B = mean(weights * dy[w] / dx[w]) / mean(weights)
>
> TTFN,
>
> David

Great! Thank you.
-Joe