
Subject: Notes on CURVEFIT.PRO

Posted by [landsman](#) on Tue, 06 Oct 1992 03:16:00 GMT

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The version of CURVEFIT.PRO in the IDL User's library in V2.3.2 (and presumably in earlier versions) contains a typo in line 133

```
FLAMBDA = FLAMBDA/100. ;DECREASE FLAMBDA BY FACTOR OF 10
```

According to the versions of this procedure in both Bevington and "Numerical Recipes" the comment (and not the code) is correct, i.e. the denominator should be 10. and not 100. The effect of this typo is to slow down convergence when the initial parameters are far from the best-fit parameters. (The version with the typo actually converges *faster* when the initial guesses are close to the best-fit parameters.) I suspect that this typo is responsible for some convergence problems I have had with CURVEFIT although I am not sure of this.

CURVEFIT also gives the following definition of the weight vector:

```
; W: A row vector of weights, the same length as x and y.  
; For no weighting,  
; w(i) = 1.0.  
; For instrumental weighting,  
; w(i) = 1.0/y(i), etc.
```

This is not correct. For Poisson statistics the weight is given by $w(i) = 1.0/y(i)$ but for instrumental errors $\text{sigmay}(i)$ the weighting is given by $w(i) = 1.0/(\text{sigmay}(i)^2)$.

Finally, I would like to suggest some additional options to CURVEFIT. (They are simple enough to add by individual users but I think it would be better if RSI would standardize them.)

- (1) Add a keyword determining the maximum number of iterations to be attempted.
 - (2) Add a keyword giving the chi square of the final fit.
 - (3) Add a /DEBUG or /VERBOSE keyword giving the results of each iteration (these are now commented lines in the code)
 - (4) Add a parameter to choose which parameters to hold constant and which parameters to vary
 - (5) Maybe use the STATUS parameter of the INVERT function to signal a small pivot element
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