
Subject: Re: More problems with Curvefit

Posted by [Paul Van Delst\[1\]](#) on Mon, 30 Jun 2003 16:19:01 GMT

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Heather Williams wrote:

>
> Good afternoon, everyone. I'm having some problems using Curvefit (in
> IDL 5.4) to fit my data. I've reviewed the messages which have already
> been posted on this subject, and had a good look at the MPCURVEFIT
> substitute, but am no wiser.

>
> My code looks like this:

> PRO data_fit

>
> ;Define the vectors of tabulated:

>
> F18_x = FLTARR(12) & F18_x(0) = 9.055227833
> F18_x(1) = 9.908886278 & F18_x(2) = 11.86860889
> F18_x(3) = 13.281685 & F18_x(4) = 16.69834393
> F18_x(5) = 19.52864256 & F18_x(6) = 23.17273836
> F18_x(7) = 28.51793219 & F18_x(8) = 31.23624055
> F18_x(9) = 33.53401408 & F18_x(10) = 38.12262897
> F18_x(11) = 39.15701348
> F18_y = FLTARR(12) & F18_y(0) = 0.108598707
> F18_y(1) = 0.329883541 & F18_y(2) = 0.504690343
> F18_y(3) = 0.685805013 & F18_y(4) = 0.780161321
> F18_y(5) = 0.87284238 & F18_y(6) = 0.890067419
> F18_y(7) = 0.907523914 & F18_y(8) = 0.98011631
> F18_y(9) = 0.943832957 & F18_y(10) = 0.966238284
> F18_y(11) = 1

>
> X = FLTARR(12) & X(*) = F18_x(*) - F18_x(0)
> Y = FLTARR(12) & Y(*) = F18_y(*) - F18_x(0)

>
> ;Define a vector of weights:

> W = 1.0

Try doing

```
w = make_array(12, value = 1.0 )
```

or

```
w = replicate( 1.0, 12 )
```

to actually give you a vector for w. The IDL documentation is a wee bit misleading here as the actual words say "For no weighting, set Weightsi = 1.0" where the "i" suffix is an

indicator that `Weights` is an array but it's not entirely clear (to me at least.)

This made your code work for me.....but I got the following:

```
% CURVEFIT: Failed to converge- CHISQ increasing without bound.  
    1.00000    1.00000  
% Program caused arithmetic error: Floating overflow
```

Changing the line

```
yfit = CURVEFIT(X, Y, W, A, SIGMA_A, FUNCTION_NAME = 'fit_func')
```

to use Craig's MPCURVEFIT

```
yfit = MPCURVEFIT(X, Y, W, A, SIGMA_A, FUNCTION_NAME = 'fit_func')
```

gave me the following:

```
IDL> data_fit  
% Compiled module: MPCURVEFIT.  
% Compiled module: MPFIT.  
Iter   1  CHI-SQUARE =    1215.4340    DOF = 10  
    P(0) =      1.00000  
    P(1) =      1.00000  
Iter   2  CHI-SQUARE =    1212.4130    DOF = 10  
    P(0) =      0.887302  
    P(1) =      0.887302  
Iter   3  CHI-SQUARE =    1208.7012    DOF = 10  
    P(0) =      0.776462  
    P(1) =      0.776462  
Iter   4  CHI-SQUARE =    1203.9254    DOF = 10  
    P(0) =      0.665368  
    P(1) =      0.665368  
Iter   5  CHI-SQUARE =    1189.1635    DOF = 10  
    P(0) =      0.448375  
    P(1) =      0.448375  
Iter   6  CHI-SQUARE =     945.99725    DOF = 10  
    P(0) =      0.0271755  
    P(1) =      0.0271756  
Iter   7  CHI-SQUARE =     440.82562    DOF = 10  
    P(0) =     -0.0570307  
    P(1) =     -0.0570309  
    -0.0570307 -0.0570309  
% Program caused arithmetic error: Floating underflow  
% Program caused arithmetic error: Floating overflow  
% Program caused arithmetic error: Floating illegal operand
```

This output just *has* to be more meaningful wrt diagnostics than the curvefit output.

paulv

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Paul van Delst
CIMSS @ NOAA/NCEP/EMC
Ph: (301)763-8000 x7748
Fax:(301)763-8545
