Subject: Re: Speaking of curve fitting... Posted by pgrigis on Thu, 31 Jan 2008 16:34:17 GMT

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I guess this may have something to do with the finite precision of your computer, which affects differently a polynomial of 6th order evaluated at x=1000 than a polynomial of 6th order evaluated at x=2E6 (as the ratio between the term of different order in x is different in the two cases).

Whatever algorithm poly_fit use is likely to run into a problem in the latter case, where the lower order terms are so small in comparison with the high order terms. As the fit critically depend in balancing out all the coefficients, this may well lead to failure. It is not a good idea to use high order polynomial on large numbers anyway...

Ciao, Paolo

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Lasse Clausen wrote:
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> ... run the following code, spot the difference and explain, s'il vous
> plait.
>
> nn = 1000
> xx1 = dindgen(nn)
> xx2 = timegen(nn, start=julday(5,25,1980,11,23))
> yy1 = sin(2.*2.*!pi*xx1/(nn-1.))
>
> d = poly fit(xx1, yy1, 6, yfit=yfit1, /double)
> d = poly_fit(xx2, yy1, 6, yfit=yfit2, /double)
>
> !p.multi = [0,1,2]
> plot, xx1, yy1, /xstyle
> oplot, xx1, yfit1, linestyle=1
> plot, xx2, yy1,/xstyle
> oplot, xx2, yfit2, linestyle=1
> end
>
 I had a quick look at POLY_FIT.PRO but I can spot nothing which could
  explain the above behaviour. I run 32bit IDL 6.4 on some Linux.
>
> Cheers
> Lasse Clausen
```