
Subject: Re: Curvefit

Posted by [thompson](#) on Wed, 21 May 1997 07:00:00 GMT

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zanotti@bali.saclay.cea.fr (J.M. Zanotti) writes:

> Hi,

> I use CURVEFIT (on PV-WAVE CL Version 6.05 (sun4 solaris sparc)) to perform

> non-linear least squares fitting. It works rather well, but once the fit is

> performed, the vector of standard deviations for parameters (named Sigmaa)

> seems to give very large values:

> for a given set of data, the error on parameters is ten times greater with

> Curvefit than, for exemple, with Kaleidagraph.

> In fact, Curvefit is based on the Gradient-expansion algorithm, and the way

> the programm calculates the error (i.e SIGMAA = SQRT(ARRAY(DIAG)/ALPHA(DIAG))

>) is perharps wrong (something missing ???).

> Does anybody has an idea ?

It probably depends on the weighting function that you give it. If the weights are related to true errors on the measurements, i.e. $1/\sigma^2$, then the SIGMAA values should normally be realistic. However, if the weights have an arbitrary normalization, then the SIGMAA values will also be off. A good test is to look at the chi-squared value, which is returned in the keyword CHI2. Realistic weights should result in a chi-squared close to 1. If far away from 1, then the SIGMAA values will be off as well. One way to adjust for this is to multiply the SIGMAA values by $\text{SQRT}(\text{CHI2})$.

Bill Thompson
