Dear Festin,

(Interlard with respect to this)

When a series of observations has been used to fit a function by least squares we often want a rough test of independence of the errors. A general test would be a matter of serial correlation with complications. But if a set of errors are independent, persistences or changes of sign are equally likely, and we can get a rough test by comparing their actual numbers with an even chance distribution. However one of the functions fitted \( y = E \times f(x) \) with the adjustable \( f \) is a constant we automatically introduce a change of sign at least by the fitting. Is there any general rule for the effect of fitting a form of different \( f(x) \)?

I have a paper by a man who has fitted a lot of mean planes of Earth over 20 years with 4 restricted orbital elements and means of the inner planets from them. He has fitted 16 parameters, the residuals in right ascension show 17 persistences \& 17 changes of sign, in declination 19 persistences \& 17 changes. I think that with the number of parameters fitted there ought to be a decided excess of changes if the errors were random.

Do you know anything to the point?

Yours sincerely,

Harold Jeffreys
Dear Fisher,

When a series of observations (ordered with respect to time,) have been used to fit a function by least squares we often want a rough test of independence of the errors. A general treatment would be a matter of serial correlation with complications. But if a set of errors are truly random, persistences and changes of sign are equally likely, and we can get a rough test by comparing their actual numbers with an even chance.

If however, one of the functions fitted \( y = \sum \alpha_m f_m(t) \) with \( \alpha_m \) adjustable is a constant, we automatically introduce one change of sign at least by the fitting. Is there any general rule for the effect of fitting \( \alpha \)'s for a lot of different \( f_m \) at once?

I have a paper by a man who has fitted a lot of mean places of \( \text{E} \) for over 20 years or so and reestimated orbital elements and masses of the inner planets from them. He has fitted 16 parameters; his residuals in right ascension show 17 persistences and 17 changes of sign, in declination 19 persistences and 17 changes. I think that with the number of parameters fitted there ought to be a decided excess of changes if the errors were random.

Do you know anything to the point?

Yours sincerely,

sgnd. Harold Jeffreys.