20th February, 1951.

My dear Smith,

I have been thinking about your letter of February 15th, and so far as I can recall, no one has published on such a test as you require.

The problem is necessarily rather a messy one, since, as soon as variations between sub-classes is recognised as significant, the sub-class means have no longer weights proportional to their membership, but of the form \( w = \frac{1}{\sigma^2 + \beta/n} \). I think the right way to work with provisional weights of this kind and values of \( \sigma \) derived from intra-sub-class comparisons, so that \( \lambda \) is a well defined likelihood function approximate, or if necessary, exact in the neighbourhood of this optimum.

Of course, the precision will depend upon \( \lambda \), but the fact that \( \lambda \) may be different in two analogous cases in which the values of \( \lambda \) are to be compared, does not seem to disturb the comparison more than other circumstances such as different numbers in the sub-classes.

Sincerely yours,