February 10, 1940

Dear Professor Fréchet,

I doubt if we shall be able to get to a clearer understanding
of the problem of fiducial probability, unless you are willing to
accept it as a fact which I demonstrated to you by quotation in
my last letter, that for the population of cases relative to
which a fiducial probability is defined, the value of any
relevant statistic T is not regarded as fixed. This I have
deliberately exerted myself to make clear since my first writings
on the subject. You will understand, therefore, that I find it
a little disappointing when, on the third page of your letter of
February 3rd, I find you saying: "this linear function which was
random in the proof of the law of t, whereas μ was fixed, becomes
here fixed whereas μ is random in the statement of the law of μ.

I shall be glad to give you all possible support in
dissuading mathematicians from thinking that they can obtain a
true probability statement logically equivalent to one of the
kind aimed at by Bayes' theorem, yet without using the approximate
basis of this theorem. Believe me, I have never attempted
anything so foolish. The inferences which can be drawn without

without the aid of Bayes axium seem to me of great importance, and quite precisely defined, but are certainly not statements of the distribution of a parameter over its possible values in a population defined by random samples selected to give a fixed estimate T.

I am sending your enclosure on to Dr Dugué, who understands these things really much better than I do.

Yours sincerely,

P.S.   You say you cannot reconcile the point of view I have been expressing since 1930 with a too sweeping statement I made in the Phil. Trans. in 1922.   The explanation is that fiducial probability was discovered in the interim. My 1922 statement was simply intended as a rejection of probability statement based on the Laplacian principle of insufficient reason, which were the only statements concerning the probability of parameters made, I believe, up to that date.   I did not then realise that state-ments of a logically different kind were possible, and rigorously deducible from the data.   It is sad, but true, that every advance in Natural Science, including mathematics, means that some previous work is erroneous, inadequate, or obsolete.