

March 8, 1940

Dear Professor Fréchet,

It was a pleasure to read your interesting letter of the 5th March. You there open up problems, the discussion of which would carry us far, and which I cannot easily attempt by way of correspondence. If someone would supply me with a list of the "usual axioms of the calculus of probability", or the "ordinary rules of the calculus of probabilities", I think you or I could, without much difficulty, ascertain whether the probability statements of the kind I call fiducial can be derived from them by a rigorously deductive process.

Now, I do not possess any such list, for an interesting reason which applies to much more ~~ix~~ of mathematics than our particular problem. Mathematics is the oldest discipline of the human mind, and mathematical truths seem to be the most enduring kind which the human mind can discover. They are not only as solid, but as precious as adamant, but the formulation of the axiomatic bases from which these truths might be derived is beset with difficulties which we cannot ignore, if only for the reason that the axioms have to be reformulated so frequently. Our palace of adamant rests upon foundations of gossamer which have to be

renewed two or three times a week by the indefatigable labours of mathematical logicians, and yet the superstructure seems to be secure and quite habitable.

Certainly one can show, and easily, that fiducial probability, defined as I previously explained, satisfies the laws of multiplication and addition, in fact that it represents ~~an~~^{VA} a well defined population the proportion of events which belong to a well defined class.

Yours sincerely,