

The Problem of Inductive Inference*

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PART I. GENERAL IDEAS

1. *Introduction*

The words "inductive inference" in the title of the subject on which I was invited to speak, are used as a "prescientific concept" (Carnap) referring to all attempts at practical utilization of the results of observation. The nature of inductive inference, the possible ways of making the concept precise and of constructing its consistent theory have been the subject of a number of penetrating studies. The two latest are due to Rudolf Carnap [1] and R. B. Braithwaite [2]. Both authors devote a substantial amount of space to the ideas that prevail in most of the current statistical literature and, in particular, to the logical system which originated a quarter of a century ago out of my joint work with Egon S. Pearson. It is not unnatural that some of our ideas are presented by the two authors in a manner different from our own, at least different from the one that I would use now. In some cases, and this applies particularly to Professor Carnap's work, the differences are quite substantial and suggest that my previous writings must have been insufficiently clear. As a result, when Professor Carnap criticizes some attitudes which he represents as consistent with my point of view, I readily join him in his criticism without, however, accepting the responsibility for the criticized paragraphs.

The purpose of the present paper is, then, to make another attempt at a consistent presentation of the system of ideas that underly the sections of the theory of statistics for which I am at least partly responsible. In the second part of the paper these ideas are illustrated on the particular problem of homogeneity of neutral V -particles.

The point of view presented is substantially closer to that of Braithwaite than to that of Carnap. For this reason, and for the sake of brevity, most of the references given in the text will be addressed to Carnap's work, particularly to the points on which there is disagreement. An additional reason for this selection of material is that real progress in clarifying a situation is more frequently achieved by constructively discussing the existing differences of opinion rather than by emphasizing points on which there is a complete harmony.

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