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Statistical Pronouncements

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"I do not see that the sex of the candidate is an argument against her admission. After all, we are a university, not a bathing establishment" - David Hilbert, regarding Emmy Amalie Noether's unsuccessful application to the faculty at Göttingen in 1915.

"As I understand De Moivre the 'Original Design' is the mean occurrence on an indefinite number of trials…The Deity fixed the 'means' and 'chance' provided the fluctuations…There is much value in the idea of the ultimate laws of the universe being statistical laws… [but] it is not an exactly dignified conception of the Deity to suppose him occupied solely with first moments and neglecting second and higher moments!" - Karl Pearson (1978, *The History of statistics in the 17th and 18th centuries against the changing background of intellectual, scientific and religious thought: Lectures given at University College London during the academic sessions 1921-1923*, p. 160.)

"We are passing from the scientific enthusiasm of the founders… to a period when men followed science as a profession, when the text-book writer appears seeking whom he may devour, and how his books will sell, rather than what new knowledge they may bring" - Karl Pearson (*ibid*, p. 176).

"You cannot too narrowly separate the history of statistics from the general history of science, still less from the history of philosophical and religious thought" - Karl Pearson (*ibid*, p. 213).

"Mathematicians have always been rather of a jealous nature…[and] there is some excuse…, for their reputation stands for posterity largely not on what they did, but on what their contemporaries attributed to them" - Karl Pearson, *ibid*, p. 226).

"It is idle to measure a man's real value by the number of memoirs he writes, although that is very influential just now in academic appointments on both sides of the Atlantic - it is easier to count than to weigh" - Karl Pearson (*ibid*, p. 245).

"History is to no purpose unless you try to grasp the general character of a man and of the age in which he lived" - Karl Pearson (*ibid*, p. 248).

"Extreme mathematical power is not necessarily combined with an extremely logical mind" - Karl Pearson (*ibid*, p. 249).

"Mixed up with mathematics is the philosophy and the theology of the day" - Karl Pearson (*ibid*, p. 249).

"The advance of a science even like statistics is linked up with the general history of human ideas" - Karl Pearson (*ibid*, p. 303).

"The religious belief of men colors not only what they collect, but how they interpret it" - Karl Pearson (*ibid*, p. 319).

"A wise reformer, if he wishes practically to influence his generation, must know not only what is true, but how much of that truth his contemporaries can possibly digest" - Karl Pearson (*ibid*, p. 349).

"Extreme repugnance for computing [is] a sin of too many mathematical statisticians" - Karl Pearson (*ibid*, p. 426).

"However beautiful a mathematical theory, however completely it be worked out, its weaknesses or its successes can only be ascertained, when it has been submitted to the test of numerical evaluation" - Karl Pearson (*ibid*, p. 456).

"Experiments must be capable of being considered to be a random sample of the population to which the conclusions are to be applied. Neglect of this rule has led to the estimate of the value of statistics which is expressed in the crescendo 'lies, damned lies, statistics'" - W. S. Gosset ("Student"), (1926, Mathematics and agronomy, *Journal of the American Society of Agronomy*, *18*, p. 703.)

"Sampling is the central problem in statistics" - George W. Snedecor (1946, *Statistical methods*, p. 453).

"Modern statistical method is a science in itself" - S. S. Wilks (1948, *Elementary statistical analysis*, p. 1).

"Human progress is based on 'permanencies' or, rather, on our ability to detect permanencies both in the objects surrounding us and in changes in these objects" - Jerzey Neyman (1950, *First course in probability and statistics*, p. 1).

"In practical applications we seldom meet cases where the assumption of the existence of an a priori probability distribution seems to be justified; and even in those rare cases in which the latter assumption can be made, we usually do not know the shape of the a priori probability distribution and this makes the application of Bayes' theorem impossible" - Abraham Wald (1950, *On the principles of statistical inference*, p. 26).

"An unfortunate publicity was given to discussions of the so-called foundations of probability, and thus the erroneous impression was created that essential disagreement can exist among mathematicians. Actually, these discussions concern only minor points which are of interest to but few specialists" - William Feller (1950, *An introduction to probability theory and its applications*, p. 6).

"The secret language of statistics, so appealing in a fact-minded culture, is employed to sensationalize, inflate, confuse, and oversimplify" - Darrell Huff, (1954, *How to lie with Statistics*, p. 8).

"I believe that the nonparametric techniques of hypothesis testing are uniquely suited to the data of the behavioral sciences" - Sidney Siegel (1956, *Nonparametric statistics for the behavioral sciences*, p. vii).

"Permutation tests are easy to define, but …the numerical calculations required to carry them out are usually hopelessly tedious" - Henry Scheffé (1959, *The analysis of variance*, p. 313).

"A good (although debatable) case can be made for means and variances as indices of location and dispersion when the normality assumption holds; the argument loses much of its force, however, when the assumption fails" - James V. Bradley (1968, *Distribution-free statistical tests*, p. 12).

"The easiest way to abuse any statistical technique is to disregard and/or violate the assumptions necessary for the validity of the procedure" - Jean Dickinson Gibbons (1976, *Nonparametric methods for quantitative analysis*, p. 24).

"The rather naïve objection might be raised that educational data are rarely sufficiently non-normal to warrant concern. Perhaps the most effective means of dealing with such a notion on the part of an educational researcher is to suggest that he/she routinely construct relative frequency histograms of the data that they submit to statistical analysis. This time-honored but often neglected practice usually paints pictures of distributions that are unimagined by researchers who think of data in terms of the normal curve" - R. C. Blair (1981, A reaction to 'Consequences of failure to meet assumptions underlying the fixed effects analysis of variance and covariance', *Review of Educational Research*, *51*, p. 503-504).

"Any reader who has penetrated this book to this point hardly needs convincing of the centrality of the concept of effect size… a moment's thought suggests that it is, after all, what science is all about" - Jacob Cohen (1988, *Statistical power analysis for the behavioral sciences*, p. 531-532.)

"There is no physical entity that is the number 1. If there were, it would surely be in a place of honor in some great scientific museum, and past it would file a steady stream of mathematicians, gazing at 1 in wonder and awe" - John B. Fraleigh (1989, *A first course in abstract algebra*, p. 20.)

"The Monte Carlo method provides the experimental scientist with one of the most powerful tools available for planning experiments and analyzing data" - R. Bevington and D. Keith Robinson (1992, *Data reduction and error analysis for the physical sciences*, p. 76).