

First (?) Occurrence of Common Terms in
Statistics and Probability
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1. Introduction

In this article an attempt is made to list the first occurrence in print of terms commonly used in statistics or probability. When and by whom a term was coined is often of historic interest. Moreover, the coining of a term may well be an important step in fixing and propagating a concept although, of course, the first date of the term does not necessarily signify the beginning of the underlying idea. Terms judged to be obsolete are not included in the list, nor are a few basic old terms whose current technical use is essentially a refinement of their everyday meaning, e.g., error, expectation, hypothesis, independence, mean, outlier, probability, random, sample, and stochastic. For these, refer to the 20-volume Oxford English Dictionary (OED) published in 1989. The OED is also helpful with a limited number of other terms.

Establishing a first occurrence is hazardous; hence the question mark in our title. We focus on terms in English, but when an earlier foreign coinage is known to me it is listed in parentheses, immediately following the English term, e.g., “Distribution function” is followed by “(Verteilungsfunktion)”. Entries are typically presented as nouns even when the first (?) occurrence was in a different form.

Earlier lists of first (?) occurrences and the methods used to construct them are given in David (1995, 1998, 2001, 2004). In the present list, slightly augmented from that in 2001, an appreciable number of the earlier entries have been improved with the help of JSTOR, the electronic journal archive. JSTOR provides excellent coverage of selected main line journals in many fields, including statistics and mathematics. Its main purpose is to make the chosen journals readily available. In its incidental use for finding first (?) occurrences, JSTOR cannot compete with our 2001 list, since it covers neither books (except occasionally through published reviews) nor some relevant journals. However, within its range of coverage, JSTOR is extremely effective. Some judgment had to be exercised on the early occurrences generated by JSTOR as to which first gives the term sought with its modern statistical meaning.

2. Some Special Terms

Before proceeding to our main list, we focus on a number of terms requiring more detailed attention. Much of the material is taken from David (2001).

Brownian motion. Under *Brownian* the OED gives only the now superseded *Brownian movement* which it traces back to 1872. Curiously, Brown in 1828 used *motion* repeatedly in a passage cited by Brush (1968). A.M. Hughes, Chief Science Editor of the OED, informs me that *Brownian motion* occurs in the OED entry for *pedetic* and was

used by Ramsey (1892). *Brownian* will be extended to *Brownian motion* in the revised version of the OED now in preparation.

Cumulant. This term, replacing *semi-invariant*, was first published by Fisher and Wishart (1931). In a private communication S. Stigler has pointed out that the term was actually suggested to Fisher by Hotelling. See the latter's review of the 4th edition (1932) of *Fisher's Statistical Methods for Research Workers* in *J. Amer. Statist. Ass.*, 28, 374-375 (1933).

Exchangeable. The concept of exchangeability has been most thoroughly explored by de Finetti. However, J. Haag and W.E. Johnson anticipated de Finetti in some respects (around 1924). The term itself was introduced by Fréchet in 1939. See Barlow's (1991) introduction to an English translation of Finetti (1937).

Game Theory. Although only a slight variation of the older *theory of games*, it is this form given by Paxson (1950) that has caught on. *Theory of games* (Neumann and Morgenstern 1944) goes back in German to Neumann (1928) who used the term *Theorie der Gesellschaftsspiele* (parlor games). Even earlier, Borel (1921) studied *la théorie du jeu*, which L.J. Savage in 1953 translates as *theory of play* and which he regards as the beginning of the theory of games.

Law of the iterated logarithm. Kolmogoroff (1929) states that the term was first used in Khinchine's 1927 Russian text *Principles of Probability Theory*. Uspensky (1937, p. 204) writes of "the law of the repeated logarithm."

Monte Carlo method. According to a report in the journal *Mathematical Tables and Other Aids to Computation* (1949, p. 546) both method and name were apparently first suggested by John von Neumann and S.M. Ulam. H. Riedwyl has informed me of the Metropolis and Ulam reference listed here.

Nearest neighbor. I could trace no earlier use in the regular statistical literature than Halperin (1960, p. 1064), where the listed reference to Chandrasekar (1943) is given. In statistics the idea goes back to a 1937 paper by Papadakis. This was elaborated by Bartlett in 1938, who later helped to popularize the term. See the entry, "nearest-neighbor methods" in the *Encyclopedia of Statistical Sciences* (Kotz et al. 1982-1989).

Petersburg paradox. Jorland (1987) traces the evolution of the paradox, pointing out that d'Alembert "christened" it in 1768. (*Opuscules mathématiques*, Vol. IV, p. 78). There one finds "le problème de Petersbourg." Keynes (1921), cited in our list, seems unlikely to have been the first to introduce "paradox." Fry (1928) gives an excellent brief discussion of the *St. Petersburg paradox*.

Sign test. As is well known, the sign test may be regarded as the first test of significance, going back to Arbuthnott (1712). A. Hald has pointed out to me that the test is discussed by Helmert (1905), who actually uses the term, in German. The English term seems to have developed independently (Stewart, 1941).

Signed-rank test. This ingenious test is due to Wilcoxon (1945). The clever and helpful term was coined by Tukey (1949) in an unpublished, but repeatedly cited technical report (e.g., Lehmann, 1953, p. 43).

Weighted least squares. Inclusion of this term was suggested by A. Hald. Although the application of least squares to observations with unequal variances goes back at least to Gauss, I was unable to find the term any earlier than in K. Pearson (1920).

3. The List of Citations

α -design	Patterson, H.D. and Williams, E.R. (1976, p. 83)
Additivity (in ANOVA)	Eisenhart, C. (1947, p. 10)
Admissibility	Wald, A. (1939, p. 301)
Alias	Finney, D.J. (1945, p. 292)
Analysis of variance	Fisher, R.A. (1918b, p. 219)
--- of covariance	Bailey, A.L. (1931, title)
Ancillary statistics	Fisher, R.A. (1925b, p. 724)
Angular transformation	Fisher, R.A. and Yates, F. (1938, p. vii)
Association	Yule, G. U. (1900, title)
--- scheme	Bose, R. C. and Shimamoto, T. (1952, p. 151)
Asymptotic distribution	Martin, E.S. (1934, p. 33)
--- efficiency	Bartlett, M.S. (1946, p. 39)
--- normality	Mood, A.M. (1940, p. 368)
--- relative efficiency (of tests)	Noether, G.E. (1949, p. 467) ¹
--- variance-covariance matrix	Wilks, S.S. (1943, p. 142)
Asymptotically most powerful test	Wald, A. (1941, title)
Autocorrelation	Wold, H. (1938, p. 6)
Autoregression	Wold, H. (1938, p. 2)
Average sample number function	Wald, A. (1947c, p. 25)
Balanced incomplete blocks	Fisher, R.A. and Yates, F. (1938, p. vii)
--- --- ---, partially	Bose, R.C. and Nair, K.R. (1939, title)
Bar chart	Brinton, W.C. (1914, p. 229)
Bayes estimate	Wald, A. (1950, p. 143)
--- factor	Good, I.J. (1956, p. 1133)
--- procedure	James, S.F. (1949, p. 309)
--- risk	Moses, L.E. (1950, p. 619)
--- solution	Wald, A. (1947a, p. 282)
Bayes's theorem	Lubbock, I.W. and Drinkwater-Bethune, J.E. (c. 1830, p. 48) ²
Bayesian	Fisher, R.A. (1950, p. 1.2b) ³
Bell-shaped curve	Galton, F. (1876, p. 14)
Bernoulli trials	Uspensky, J.V. (1937, p. 409)
Best critical region (BCR)	Neyman, J. and Pearson, E.S. (1933a, p. 297)
--- linear unbiased estimate	David, F.N. and Neyman, J. (1938, p. 106)
--- unbiased quadratic estimate	Hsu, P.L. (1938, title)
$\beta_1 (= \mu_3^2 / \mu_2^3), \beta_2 (= \mu_4 / \mu_2^2)$	Pearson, K. (1895, p. 351)
Beta distribution	Rider, P. (1936, p. 266)
(distribuzione β)	Gini, C. (1911, p. 16) ³

Biased (errors)	Bowley, A.L. (1897, p. 859)
Bimodal	Pearson, K. (1902b, p. 302)
Binomial distribution	Pearson, K. (1895, p. 351) ⁴
Bioassay	Wood, H. C. (1912, title)
Biometry	Whewell, W. (1831)
Biostatistics	<i>Webster's Dictionary</i> (1890)
Bivariate (normal)	Pearson, K. (1919, p. 295)
Bonferroni inequalities	Feller, W. (1950, p. 75)
Bootstrap	Efron, B. (1979a, title)
Box plot	Tukey, J.W. (1970, ch. 5)
Branching processes	Kolmogorov, A.N. and Dmitriev, N.A. (1947, title) Breakdown point Hampel, F.R. (1971, p. 1887)
Brownian motion	Ramsay, W. (1892) ⁵
Canonical correlation	Hotelling, H. (1936, p. 321)
Cauchy distribution (loi de Cauchy)	Hotelling, H. and Pabst, M.R. (1936, p. 29) Lévy, P. (1925, p. 179)
Censoring ---, Type I, Type II	Hald, A. (1949, p. 119) ⁶ Gupta, A.K. (1952, p. 260)
Central limit theorem (zentraler Grenzwertsatz)	Wintner, A. (1936, p. 425) Pólya, G. (1920, title)
Change-over design	Cochran, W.G. <i>et al.</i> (1941, title)
Characteristic function χ^2	Daniell, P.J. (1921, p. 149) Pearson, K. (1900, p. 157)
Chi-square	Reid, R. W. and Mulligan, J. H. (1924, p. 301)
Chi-squared	Masure, M.P. (1932, p. 29)
Circular triad	Kendall, M.G. and Babington Smith, B. (1940, p. 327)
Cluster analysis --- sampling	Tryon, R.C. (1939, title) Hansen, M.H. and Hurwitz, W.N. (1942, p. 90)
Coefficient of correlation --- --- concordance --- --- variation	Pearson, K. (1896, p. 253) ⁷ Kendall, M.G. and Babington Smith, B. (1939, p. 276) Pearson, K. (1896, p. 253)
Column effect	Wilks, S.S. (1943, p. 187)
Competing risks	Neyman, J. (1950, p. 69)
Complete class (of admissible decision functions)	Wald, A. (1947b, title)
Completeness (of a family of measures) ---, bounded	Lehmann, E.L. and Scheffé, H. (1950, title) Lehmann, E.L. and Scheffé, H. (1950, p. 306)
Components of variance	Daniels, H.E. (1939, title)

Composite hypothesis	Neyman, J. and Pearson, E.S. (1933a, p. 264)
Computer-intensive	Efron, B. (1979b, p.469)
Conditional density	Wald, A. (1943, p. 52) ²⁷
--- distribution	Dixon, W. J. (1940, p. 200) ²⁷
--- expectation	Doob, J. L. (1938, p. 95) ²⁷
--- probability	Piaggio, H. T. H. (1931, p. 405)
--- probability density	Doob, J. L. (1938, p. 140) ²⁷
Confidence coefficient	Neyman, J. (1934, p. 562)
--- interval	Neyman, J. (1934, p. 562)
Confounding	Fisher, R.A. (1926, p. 513)
---, partial	Yates, F. (1933, p. 137)
Conjugate prior distributions	Raiffa, H. and Schlaifer, R. (1961, p. 47)
Consistency	Fisher, R.A. (1922a, p. 309)
--- (of a test)	Wald, A. and Wolfowitz, J. (1940, p. 153)
Consumer's risk	Dodge, H.F. and Romig, H.G. (1929, p. 614)
Contagious distribution	Neyman, J. (1939, title)
Contingency table	Pearson, K. (1904, p. 474) ⁸
Control chart	Shewhart, W. (1931, p. 290)
Convolution	Wintner, A. (1934, title)
Correlated	Galton, F. (1875, p. 74)
Correlation	Galton, F. (1888, title)
---, canonical	Hotelling, H. (1936, p. 321)
---, multiple	Yule, G.U. (1896, p. 615)
---, partial	Galton, F. (1888, p. 144)
---, spurious	Pearson, K. (1897, title)
Correlation coefficient	Pearson, K. (1896, p. 253) ⁹
--- ---, multiple	Pearson, K. (1914, p. 182)
--- ---, partial	Pearson, K. <i>et al.</i> (1897, p. 462)
Correlogram	Wold, H. (1938, p. 135)
Correspondence analysis	Hill, M.O. (1974, title)
(analyse des correspondences)	Benzécri, J.-P. (1973, title)
Covariance	Fisher, R.A. (1930, p. 195) ³
---, analysis of	Bailey, A.L. (1931, title)
Cox's regression model	Kalbfleisch, J.D. and Prentice, R.L. (1973, title)
Cramér-Rao inequality	Neyman, J. and Scott, E.L. (1948, p 21)
Critical function	Lehmann, E.L. and Stein, C. (1948, p. 512)
Critical region	Neyman, J. and Pearson, E.S. (1933a, p. 289)
--- ---, best	Neyman, J. and Pearson, E.S. (1933a, p. 289)
--- ---, unbiased	Neyman, J. and Pearson, E.S. (1936, p. 8)
Cumulant	Fisher, R.A. and Wishart, J. (1931, p. 198) ⁵
Cumulative distribution function (cdf)	Wilks, S. S. (1938, p. 167)
--- sum (control chart)	Page, E.S. (1954, p. 103)

Cyclic (design)	Plackett, R.L. and Burman, J.P. (1946, p. 323)
Data analysis	Macfarlane, J.W. (1938, p. 193)
Decile	Galton, F. (1882, p. 245)
Decision function, statistical	Wald, A. (1945a, title)
--- theory	Lehmann, E. L. (1950, p. 5)
Degrees of freedom	Fisher, R.A. (1922b, p. 88)
--- --- of a composite hypothesis	Neyman, J. and Pearson, E.S. (1933a, p. 289)
Deviance	Nelder, J.A. and Wedderburn, R.W.M. (1972, p.374)
Deviate (normal)	Galton, F. (1907, p. 400)
Diallel cross	Jinks, J. L. and Hayman, B. I. (1953, title)
--- ---, partial	Kempthorne, O. and Curnow, R.N. (1961, title)
Dirichlet distribution	Wilks, S.S. (1962, p. 177)
Discriminant function	Fisher, R.A. (1936, p. 179)
Dispersion	Galton, F. (1876, p. 13)
---, index of	Fisher, R.A. <i>et al.</i> (1922, p. 336)
---, measures of	Bowley, A.L. (1907, p. 136)
Distribution-free (tolerance limits)	Wilks, S.S. (1943, p. 94)
Distribution function	Doob, J.L. (1935, p. 160)
(Verteilungsfunktion)	Mises, R. v. (1919, p. 67)
---, cumulative (cdf)	Wilks, S.S. (1938, p. 167)
Domain of attraction (domaine d'attraction)	Lévy, P. (1925, p. 252)
Double exponential (Laplace)	Fisher, R.A. (1920, p. 770)
--- sampling	Dodge, H.F. and Romig, H.G. (1929, p. 619)
Dual scaling	Nishisato, S. (1980, title)
Dynamic programming	Bellman, R. (1953, title)
Econometrics	Frisch, R. (1933, p. 1)
Efficiency	Fisher, R.A. (1922a, p. 309)
EM algorithm	Dempster, A.P. <i>et al.</i> (1977, title)
Empirical Bayes	Robbins, H. (1956, title)
--- distribution function	Scheffé, H. (1943, p. 322)
--- (legge empirica)	Kolmogoroff, A. (1933, p. 83)
Equivariant	Wijsman, R.A. (1967, p. 391)
Errors of first and second kind	Neyman, J. and Pearson, E.S. (1933a, p. 296)
Estimability	Bose, R.C. (1944, p. 5)
Estimating equation	Yule, G.U. (1902, p. 197) ³
Estimator	Pitman, E.J.G. (1939, p. 398)
Evolutionary operation	Box, G.E.P. (1957, title)
Exchangeable	Loève, M. (1955, p. 365) ⁵
(échangeable)	Fréchet, M. (1939)

Exploratory data analysis	Tukey, J.W. (1970, title)
Exponential (negative exponential)	Pearson, K. (1895, p. 345)
--- (type)	Koopman, B.O. (1936, p. 400)
--- family	Girshick, M.A. and Savage, L.J. (1951, p. 53)
Extreme-value distribution	Freudenthal, A.M. and Gumbel, E.J. (1953, p. 311)
--- --- theory	Epstein, B. (1948, p. 407)
<i>F</i>	Snedecor, G.W. (1934, p. 15)
Factor analysis	Thurstone, L.L. (1931, p. 406)
Factorial design	Fisher, R.A. (1935a, p. 93)
--- moment	Steffensen, J.F. (1923, title)
Fiducial	Fisher, R.A. (1930a, p. 533)
Fisher-consistent	Rao, C.R. (1957, p. 26)
Fisher information (essentially)	Bartlett, M.S. (1947, p. 141)
Fixed effects	Eisenhart, C. (1947, p. 20)
--- model	Thompson, W.A., Jr. (1955, p. 721)
Fourfold table	Pearson, K. (1901b, p. 341)
Fractional replication	Finney, D.J. (1945, title)
Frailty	Vaupel, J.W. <i>et al.</i> (1979, title)
Galton-Watson process	Harris, T.E. (1963, p. 2)
Gambler's ruin	Coolidge, J.L. (1909, title)
Game theory	Paxson, E.W. (1950, p. 71) ⁵
Gamma distribution	Hoel, P.G. (1937, p. 152)
Gauss-Markov theorem	Lehmann, E.L. (1951, p. 587)
Geometric distribution	Feller, W. (1950, p. 174)
Gibbs Sampler	Geman, S. and Geman, D. (1984, p. 722)
Goodness of fit	Pearson, K. (1895, p. 352)
Greco-Latin square	Fisher, R.A. and Yates, F. (1934, p. 493)
Group divisible	Bose, R.C. (1951, title)
Hat matrix	Hoaglin, D. C. and Welsch, R.E. (1978, title) ¹⁰
Hazard rate	Davis, D. J. (1952, p. 117)
--- ---, decreasing (DHR)	Barlow, R.E. <i>et al.</i> (1963, p. 378)
--- ---, increasing (IHR)	Barlow, R.E. <i>et al.</i> (1963, p. 377)
Helmert transformation	Geary, R. C. (1936, p. 181)
Heteroscedastic	Pearson, K. (1905a, p. 496)
Heteroskedastic	Weida, F. M. (1927, p. 303)
Hierarchical	Fisher, R.A. (1936a, p. 111)
-- Bayes	Good, I.J. (1980, p. 489)
Histogram	Pearson, K. (1895, p. 399)
Homoscedastic	Pearson, K. (1905a, p. 496)
Homoskedastic	Weida, F.M. (1927, p. 303)

Hotelling's T^2

Hypothesis

- , alternative
- , composite, simple
- , linear
- , null
- , test of (essentially)

Identifiability

Importance sampling

Incidence matrix

Incomplete blocks, balanced

- --, partially balanced

Index number

Influence function (curve)

Information (amount of)

- inequality
- matrix

Interaction

Interquartile range

Interval estimation

Invariant

Inverse binomial sampling

- Gaussian

J-shaped

Jackknife

Kernel estimates

Kolmogorov-Smirnov statistics

Kriging

- (krigeage)

Kullback-Leibler information

Kurtosis

λ

L -estimator

L -statistic

Lag

Large deviations

- (grosse Abweichungen)

Latin square

- (quarré latin)

Lattice (design)

Law of large numbers

- (la loi des grands nombres)

Simaika, J.B. (1941, p. 70)

Neyman, J. and Pearson, E.S. (1928, p. 186)

Neyman, J. and Pearson, E.S. (1928, p. 264)

See Linear hypothesis

Fisher, R.A. (1935a, p. 18)

Neyman, J. and Pearson, E.S. (1928, p.175)

Anderson, R.L. (1945, p. 394)

Kahn, H. and Harris, T. (1950, p. 143)

Connor, W.S., Jr. (1952, p. 60)

Fisher, R.A. and Yates, F. (1938, p. 10)

Bose, R.C. and Nair, K.R. (1939, title)

Anonymous (1868, p. 81)

Huber, P.J. (1972, p. 1052)¹¹

Fisher, R.A. (1925b, p. 709)

Peisakoff, M.P. (1951, p. 137)

Fisher, R.A. (1941b, p. 184)

Fisher, R.A. (1925, p. 200)

Galton, F. (1882, p. 245)

Mood, A.M. (1950, p. xi)

Sylvester, J.J. (1851, p. 396)

Tweedie, M.C.K. (1945, p. 453)

Tweedie, M.C.K. (1947, p. 47)

Edgeworth, F. Y. (1906, p. 535)

Miller, R.G. (1964, title)¹²

Wegman, E.J. (1969, p. 2226)

Miller, L.H. (1956, p. 113)

Matheron, G. (1963b, p. 1259)

Matheron, G. (1963a, title)

Chernoff, H. (1956, p. 18)

Pearson, K. (1905b, p. 181)

Neyman, J. and Pearson, E.S. (1928, p. 187)

Jaeckel, L.A. (1971, p. 1021)

Boos, D.D. (1979, title)

Hooker, R.H. (1901, p. 487)

Feller, W. (1950, p. x)

Smirnoff, N. (1933, title)

Cayley, A. (1890, title)

Euler, L. (1782, p. 90)

Yates, F. (1937, p. 85)

Poisson, S. D. (1836, title)

Law of small numbers
 (Gesetz der kleinen Zahlen)
 Law of the iterated logarithm
 (Gesetz des iterierten Logarithmus)
 Least favorable distribution
 --- squares
 --- ---, weighted
 Level of significance
 Leverage
 Likelihood
 ---, marginal
 ---, maximum
 ---, partial
 ---, profile
 ---, quasi-
 Likelihood ratio
 --- ---, monotone
 Linear hypothesis
 --- ---, general
 Linear model
 --- ---, generalized

 --- programming
 Link function
 Locally best unbiased estimate
 Location
 --- parameter
 Log odds, lod
 Logarithmic series distribution
 Logistic
 --- regression
 Logit
 Log-linear model

 Lognormal distribution
 Long-range dependence
 Loss
 --- function

 M-estimator
 Markoff chains
 (chaînes de Markoff)
 Martingale
 Mathematical statistics
 (mathematische Statistik)

Bortkiewicz, L. (1889)
 Hartman, P. and Wintner, A. (1941, title)
 Kolmogoroff, A. (1929, title)
 Wald, A. (1945a, p. 270)
 See Method of least squares
 Pearson, K. (1920, p. 26)
 Fisher, R.A. (1925a, p. 157)
 Hill, R.W. and Holland, P.W. (1977, p. 929)
 Fisher, R.A. (1921, p. 24)
 Ando, A. and Kaufman, G.M. (1965, p. 348)
 Fisher, R.A. (1922a, p. 323)
 Cox, D.R. (1975, title)
 Fraser, D.A.S. (1972, p. 787)
 Wedderburn, R.W.M. (1974, title)
 Neyman, J. and Pearson, E.S. (1931, p. 480)
 Rubin, H. (1951, title)
 Kolodziejczyk, S. (1935, p. 161)
 Tang, P.C. (1938, p. 148)
 Crump, S.L. (1951, p. 1)
 Nelder, J.A. and Wedderburn, R.W.M.
 (1972, title)
 Dantzig, G.B. (1949, p. 203)
 Nelder, J.A. (1974, p. 327)
 Barankin, E.W. (1949, title)
 Fisher, R.A. (1922a, p. 310)
 Pitman, E.J.G. (1939, title)
 Barnard, G.A. (1949, p. 116)³
 Kendall, D.G. (1948, title)¹³
 Verhulst, P.-F. (1845, p. 8)
 Cox, D.R. (1958, p. 224)
 Berkson, J. (1944, p. 358)
 Bishop, Y.M.M. and Fienberg, S.E.
 (1969, p. 119)
 Gaddum, J.H. (1945, title)
 Kesten, H. (1970, p. 1036)
 Wald, A. (1939, p. 302)
 Yates, F. (1948, p. 374)

 Huber, P.J. (1964, p. 74)
 David, F.N. (1938, p. 194)
 Doebelin, W. (1937, p. 57)
 Ville, J. (1939, p. 85)
 John, V. (1883, p. 677)
 Knies, C.G.A. (1850, p. 163)¹⁴

Maximum entropy	Jaynes, E.T. (1957, p. 620)
--- likelihood	Fisher, R.A. (1922a, p. 323)
Mean square (of errors)	Crofton, H.W. (1870, p. 183)
Median	Galton, F. (1882, p. 245)
(valeur médiane)	Cournot, A.A. (1843, p. 83) ¹⁵
--- absolute deviation	Andrews, D.F. <i>et al.</i> (1972, p. 13)
--- -unbiased	Brown, G.W. (1947, p. 583)
Meta-analysis	Glass, G.V. (1976, title)
Method of least squares	Rumker, C. (1821, p. 312)
(méthode des moindres carrés)	Legendre, A.M. (1805, p. viii)
--- --- maximum likelihood	Fisher, R.A. (1922a, p. 323)
--- --- moments	Pearson, K. (1894, p. 75)
--- --- paired comparisons	Thurstone, L.L. (1927, title)
Minimal sufficient statistic	Lehmann, E.L. and Scheffé, H. (1950, p. 307)
Minimax (solution, strategy)	Wald, A. (1947b, p. 282)
Minimum chi-squared	Fisher, R.A. (1928b, p. 251)
--- variance unbiased (essentially)	Aitken, A.C. and Silverstone, H. (1942, p. 188)
Mixed model	Mood, A.M. (1950, p. 348)
Mode	Pearson, K. (1895, p. 345)
Model I, II (in ANOVA)	Eisenhart, C. (1947, pp. 9, 15)
Model, components of variance	Mood, A.M. (1950, p. 342)
---, fixed effects	Thompson, W.A., Jr. (1955, p. 721)
---, linear	Crump, S. L. (1951, p. 1)
---, mixed	Mood, A.M. (1950, p. 221)
---, random effects	Scheffé, H. (1956, p. 252)
Moment	Pearson, K. (1893, p. 615)
---, factorial	Steffenson, J.F. (1923, title)
--- generating function	Wishart, J. (1932, p. 454)
Monte Carlo method	Metropolis, N. and Ulam, S. (1949, title) ⁵
Moving average	Bowley, A.L. (1907, p. 113)
Multidimensional scaling	Torgerson, W.S. (1952, title)
Multinomial distribution	Fisher, R.A. (1925b, p. 719)
Multiple correlation	Yule, G.U. (1896, p. 615)
--- --- coefficient	Pearson, K. (1914, p. 182)
--- comparisons	Duncan, D.B. (1951, p. 178)
Multivariate	Pearson, K. (1920, p. 37)
--- analysis	Wilks, S.S. (1935, p. 309)
--- normal (essentially)	Wishart, J. (1928, title)
Nearest neighbor	Chandrasekar, S. (1943, p. 2) ⁵
Negative binomial distribution	Greenwood, M. and Yule, G.U. (1920, p. 274)
Nested	Ganguli, M. (1941, title) ¹⁶
New better than used (NBU)	Esary, J.D. <i>et al.</i> (1970, 849)

Neyman-Pearson lemma
 Nonadditivity
 Noncentral
 Noninformative
 Nonparametric
 --- regression
 Nonresponse
 Nonsampling error
 Normal (distribution)
 Normal equations
 (Normalgleichungen)
 Normal score
 Nuisance parameter
 Null hypothesis

Odds ratio
 Operating characteristic function
 Order statistics (essentially)
 --- ---, concomitants of
 --- ---, induced
 Orthogonal array
 Orthogonality (in design)

P value
 Paired comparisons, method of
 Parameter
 Pareto distribution
 Partial correlation
 --- --- coefficient
 --- regression
 Partially balanced incomplete blocks
 Path coefficient
 Peakedness
 Pearson curve (essentially)
 Penalized likelihood
 Percentage point (essentially)
 Percentile
 Periodogram
 Permutation test
 Petersburg paradox
 Pie chart
 Pivotal quantity
 Point estimation
 Poisson distribution (essentially)
 Poisson index of dispersion
 Poisson process

Hsu, P.L. (1945, p. 284)
 Cochran, W.G. (1947, p. 35)
 Fisher, R.A. (1928a, p. 670)
 Raiffa, H. and Schlaifer, R. (1961, p. xxi)
 Wolfowitz, J. (1942, p. 264)
 Bhapkar, V.P. (1959, 1272)
 Deming, W.E. (1944, p. 360)
 Hansen, M.H. *et al.* (1953, p. xv)
 Peirce, C.S. (1873, p. 206)¹⁷
 Kummell, C.H. (1876, p. 167)
 Gauss, C.F. (1822, c. 82)
 Fisher, R.A. and Yates, F. (1938, p. 50)
 Hotelling, H. (1940, title)
 Fisher, R.A. (1925a, p. 18)

Cox, D.R. (1958, p. 222)¹⁸
 Wald, A. (1945b, p. 162)
 Wilks, S.S. (1942, p. 401)
 David, H.A. (1973, title)
 Bhattacharya, P.K. (1974, title)
 Bose, R.C. (1950, title)
 Yates, F. (1933, title)

Deming, W.E. (1943, p. 30)
 Thurstone, L.L. (1927, title)
 Czuber, E. (1891, p. 50)
 Pigou, A.C. (1920, p. 693)
 Galton, F. (1888, p. 144)
 Pearson, K. and Lee, A. (1897, p. 462)
 Yule, G.U. (1897, p. 833)¹⁹
 Bose, R.C. and Nair, K.R. (1939, title)
 Wright, S. (1921, p. 557)
 Birnbaum, Z.W. (1948, title)
 Edgeworth, F.Y. (1895, p. 515)
 Montricher, G.F. de, *et al.* (1975, p. 1329)
 Fisher, R.A. (1925a, p. 198)
 Galton, F. (1885a, p. 276)
 Schuster, A. (1898, p. 24)
 Box, G.E.P. and Andersen, S.L. (1955, p. 3)
 Keynes, J.M. (1921, p. 316)⁵
 Haskell, A.C. (1922, p. xiv)
 Fisher, R.A. (1941a, p. 147)
 Eudey, M. (1942, p. 557)
 Soper, H.E. (1914, title)
 Fisher, R.A. (1924, p. 813)
 Feller, W. (1940, p. 514)

Posterior probability
 --- density
 --- distribution
 Power (of a test)
 --- function
 Principal components
 Prior probability
 --- density
 --- distribution
 Probability density
 (Wahrscheinlichkeitsdichte)
 Probability density function
 --- function
 --- generating function
 --- integral transformation
 --- mass function
 --- paper
 Probit
 --- analysis
 Producer's risk
 Product-limit estimate
 Projection pursuit

 Q-Q plot

 Quantile
 --- function
 Quartile
 --- lower
 --- upper

 ρ
 Random effect
 --- model
 --- number
 --- sample
 --- sampling
 --- variable
 --- walk
 Random effects model
 Randomization
 --- tests
 --- theory
 Randomized blocks
 --- response

 Wrinch, D. and Jeffreys, H. (1921, p. 387)²⁰
 Jeffreys, H. (1937a, p. 328)²⁷
 Jeffreys, H. (1937a, p. 334)²⁷
 Neyman, J. and Pearson, E.S.
 (1933b, p. 498)
 Neyman, J. and Pearson, E.S. (1936, p. 20)
 Hotelling, H. (1933, title)
 Wrinch, D. and Jeffreys, H. (1921, p.381)²⁰
 Jeffreys, H. (1937a, p. 328)²⁷
 Jeffreys, H. (1937b, p. 481)²⁷
 Hill, L. S. (1928, p. 492)
 Markoff, A.A. (1912, p. 155)
 Hill, L.S. (1928, p. 492)
 Aitken, A.C. (1939, p. 16)
 Bartlett, M.S. (1940, p. 8)²¹
 Fisher, R. A. (1932, § 21.1)
 Parzen, E. (1960, p. 167)
 Hazen, A. (1914, p. 1549)
 Bliss, C.I. (1934, title)
 Finney, D.J. (1944, title)
 Dodge, H.F. and Romig, H.G. (1941, p. 7)
 Kaplan, E.L. and Meier, P. (1958, p. 457)
 Friedman, J.H. and Tukey, J.W. (1974, title)

 Wilk, M.B. and Gnanadesikan, R.
 (1968, p. 1)
 Kendall, M.G. (1940, title)
 Hájek, J. (1961, p. 506)
 McAlister, D. (1879, p. 374)
 McAlister, D. (1879, p. 374)
 Galton, F. (1882, p. 245)

 Edgeworth, F.Y. (1892, p. 190)
 Crump, S. L. (1946, p. 7)
 David, H. A. (1951, p. 395)²²
 Pearson, K. (1927, p. iii)
 Pearson, K. (1900, p. 164)
 Pearson, K. (1900, title)
 Student (1914, p. 180)
 Pearson, K. (1905c, title)
 Scheffé, H. (1956, p. 252)
 Fisher, R.A. (1925a, p. 20)
 Anscombe, F. J. (1948, p. 183)
 Welch, B. L. (1937, p. 21)
 Fisher, R.A. (1926, p. 509)
 Warner, S.L. (1965, title)

Range
 ---, quasi
 Rank correlation
 Ranked-set sampling
 Rankit
 Rao-Blackwellization
 Ratio estimate

 Receiver operating characteristic (ROC)
 Recovery of interblock information
 Regression
 ---, linear
 ---, multiple
 ---, nonlinear
 ---, partial
 Resampling
 Resistance
 Resolvable design
 Response surface
 Ridge regression
 Risk, risk function
 Robustness
 Rotatable design
 Roughness penalty
 Row effect

 σ
 Sampling distribution
 Sampling, random
 ---, systematic
 ---, simple random
 Scale
 --- parameter
 Scaling
 Scatter diagram
 Scatterplot

 Score (ideal)
 ---, efficient
 ---, normal
 Semiparametric
 Sequential analysis
 --- probability ratio test
 --- test
 Serial correlation
 Sheppard's corrections

 Lloyd, H. (1848, p. 182)
 Mosteller, F. (1946, p. 391)
 Pearson, K. (1907, p. 11)
 Halls, L.K. and Dell, T.R. (1966, title)
 Ipsen, J. and Jerne, N.K. (1944, p. 349)
 Berkson, J. (1955, p. 142)
 Hansen, M.H. and Hurwitz, W.N.
 (1943, p. 336)
 Pollack, I. and Decker, L.R. (1958, title)
 Yates, F. (1939, title)
 Galton, F. (1885b, p. 507)
 Yule, G. U. (1897, p. 836)
 Pearson, K. *et al.* (1903, p. 220)
 Pearson, K. (1905a, p. 477)⁸
 Pearson, K. (1898, p. 392)
 Efron, B. (1979, p. 1)
 Andrews, D.F. (1974, p. 523)
 Bose, R.C. (1942, p. 105)
 Box, G.E.P. and Wilson, K.B. (1951, p. 2)
 Hoerl, A.E. (1965, p. 609)
 Wald, A. (1939, p. 304)
 Box, G.E.P. (1953, p. 318)
 Box, G.E.P. and Hunter, J.S. (1957, p. 195)
 Good, I.J. (1971, title)
 Wilks, S.S. (1943, p. 187)

 Pearson, K. (1894a, p. 80)
 Fisher, R.A. (1922c, p.598)
 Pearson, K. (1900, title)
 Stephan, F.F. *et al.* (1940, p. 615)
 Blackett, O.W. (1935, p. 408)²³
 Fisher, R.A. (1922a, p. 337)
 Pitman, E.J.G. (1938, p. 391)
 Fisher, R.A. (1922a, p. 310)
 Ezekiel, M. (1930, p. 35)²⁶
 Kurtz, A.K. and Edgerton, H.A.
 (1939, p. 151)
 Fisher, R.A. (1935b, p. 193)
 Rao, C.R. (1948, p. 51)
 Fisher, R.A. and Yates, F. (1938, p. 50)
 Kalbfleisch, J.D. (1978, p. 214)
 Wald, A. (1945b, p. 120)²⁴
 Wald, A. (1945b, p. 125)
 Wald, A. (1945b, title)
 Yule, G.U. (1926, p. 14)
 Pearson, K. (1901a, p. 451)

Shrinkage	Thompson, J.R. (1968, title)
Sign test	Stewart, W.M. (1941, title)
(Vorzeichenprüfung)	Helmert, F.R. (1905, p. 594)
Signed rank test	Tukey, J.W. (1949, title)
Significance	Edgeworth, F.Y. (1885, p. 182)
---, level of	Fisher, R.A. (1925a, p. 43)
---, test of	Fisher, R.A. (1925a, p. 157)
Similar region	Neyman, J. and Pearson, E.S. (1933a, p. 312)
Simple hypothesis	Neyman, J. and Pearson, E.S. (1928, p. 264)
Size (of critical region)	Neyman, J. and Pearson, E.S. (1933a, p. 313)
Skewness	Pearson, K. (1894b, p. 259)
Slippage test	Mosteller, F. (1948, title)
Split plot	Yates, F. (1935, p. 195)
Stable law (loi stable)	Lévy, P. (1923, title)
Standard deviation (σ)	Pearson, K. (1894a, p. 80)
--- error	Yule, G.U. (1897, p. 821)
Stationary processes	Wold, H. (1938, p. vii)
(stationäre stochastische Prozesse)	Khintchine, A. (1934, title)
Statistic	Fisher, R.A. (1921, p. 5) ²
Statistical decision function	Wald, A. (1945a, title)
--- science	Anonymous (1838, p. 1) ³
Statistics	See <i>Oxford English Dictionary</i> (1989)
---, mathematical	See <i>Mathematical statistics</i>
Stem-and-leaf display	Tukey, J.W. (1972, p. 295)
Stochastic processes	Doob, J.L. (1934, title)
(stochastische Prozesse)	Khintchine, A. (1934, title)
Stochastically larger	Mann, H.B. and Whitney, D.R. (1947, title)
Student's t (essentially)	Fisher, R.A. (1924, p. 809)
Studentization	Fisher, R.A. (1934b, p. 619) ²⁵
---, internal, external	David, H.A. and Paulson, A. S. (1965, p. 429)
Studentized range	Pearson, E.S. and Hartley, H.O. (1943, title)
Subjective probability	See Daston, L. (1994) ¹⁴
Sufficiency	Fisher, R.A. (1922a, p. 310)
Sufficient statistic	Fisher, R.A. (1922a, p. 329)
Superefficiency	LeCam, L. (1952, title)
Survival function	Lotka, A.J. (1939, p. 2)
t	Fisher, R.A. (1924, p. 809)
Test criterion	Neyman, J. and Pearson, E.S. (1928, title)
--- of hypothesis	Sheppard, W. F. (1988, p. 102)
--- of significance	Fisher, R.A. (1925a, p. 43)
Time series	Persons, W.M. (1910, p. 309)
Tolerance limits (statistical)	Shewhart, W.A. (1931, p. 251)

Treatment effect	Wilks, S.S. (1943, p. 187)
Trend	Hooker, R.H. (1901, p. 486)
Trimmed mean	Tukey, J.W. (1962, p. 12)
Trimming	Tukey, J.W. (1962, p. 1)
Truncation	Pearson, K. (1906, p. 171)
Two by two table	Snow, E. C. (1912, p. 420)
2 x 2 table	Barnard, G.A. (1945, title)
Type I and Type II errors	Neyman, J. and Pearson, E.S. (1933b, p. 496)
U-shaped	Edgeworth, F.Y. (1899, p. 544)
U-statistic	Hoeffding, W. (1948, p. 293)
Unbiased (errors)	Bowley, A.L. (1897, p. 859)
--- critical region	Neyman, J. and Pearson, E.S. (1936, p. 8)
Uniform distribution	Wilson, E. B. (1909, p. 134)
Uniformly minimum variance	Lehmann, E.L. and Stein, C. (1950, p. 377)
--- most powerful test	Fisher, R. A. (1934, p. 296)
Unimodal	Pearl, R. and Dunbar, F. J. (1903, p. 337)
Variance	Fisher, R.A. (1918a, p. 399)
---, analysis of	Fisher, R.A. (1918b, p. 219)
---, components of	Daniels, H.E. (1939, title)
--- function	Snedecor, G. W. and King, A. J. (1942, p. 96)
---, generalized	Wilks, S. S. (1932, p. 476)
Variate	Pearson, K. (1905b, p. 180)
--- difference method	Cave, B.M. and Pearson, K. (1914, p. 353)
Variogram	Jowett, G. H. (1955, p. 209)
Weibull distribution	Epstein, B. (1948, p. 409)
Weighted least squares	Pearson, K. (1920, p. 26) ⁵
Winsorized	Dixon, W.J. (1960, p. 385)
Yates's correction for continuity	Fisher, R.A. (1934c, p. 96)
Youden square	Fisher, R.A. (1938, p. 442)
Zero-sum game	Neumann, J. von and Morgenstern, O. (1944, p. ii)

Notes

¹ Term (and concept) introduced by E.J.G. Pitman in 1948 in lectures at Columbia University; also in Pitman's mimeographed lecture notes on Non-Parametric Statistical Inference at the University of North Carolina.

² Reference supplied by A. Hald.

³ Reference supplied by A.W.F. Edwards.

⁴ Even in a probabilistic context the use of “binomial,” alone or in other combinations, such as “binomial law,” goes back much further.

⁵ See also Section 2.

⁶ Hald states that the term was suggested to him by J.E. Kerrich.

⁷ Edgeworth (1892, p. 191) uses the term for a different estimate of ρ .

⁸ Page number in K. Pearson (1956).

⁹ See Stigler (1986) for an excellent discussion of the history of correlation.

¹⁰ The authors attribute the term to J. W. Tukey.

¹¹ The authors attribute the term to F. R. Hampel.

¹² Term due to Tukey (unpublished).

¹³ Williams (1944) uses just “logarithmic series.”

¹⁴ Reference supplied by O. Sheynin.

¹⁵ Essentially given in Sheynin (1997).

¹⁶ Author attributes term to P.C. Mahalanobis.

¹⁷ See also David and Edwards (2001, p. 210).

¹⁸ Reference supplied by A. M. Hughes (Oxford English Dictionary)

¹⁹ Here “partial regression” is a second choice to “net regression,” but in Yule (1907) only “partial” survives.

²⁰ A. Hald informs me that “probability a posteriori” and “p. a priori” occur in Lubbock and Drinkwater-Bethune (c. 1830, p. 10 and p. 25).

²¹ Uspensky (1937) treats “generating functions of probability.” The concept is, of course, very much older and goes back at least to de Moivre.

²² Term used in lectures by N. L. Johnson.

²³ The reviewer Blackett writes “simple ‘random sampling’,” a phrase not used by the author Brown.

²⁴ Term first given in Wald (1943).

²⁵ Term due to Gosset (1932).

²⁶ Reference supplied by N. Cox.

²⁷ Reference supplied by S. Stigler

References

The following journal abbreviations are used:

<i>AE</i>	<i>Annals of Eugenics</i>
<i>AHES</i>	<i>Archive for the History of the Exact Sciences</i>
<i>AMS</i>	<i>Annals of Mathematical Statistics</i>
<i>AS</i>	<i>Annals of Statistics</i>
<i>ApS</i>	<i>Applied Statistics</i>
<i>CRAS</i>	<i>Comptes rendus de l'académie des sciences de Paris</i>
<i>JASA</i>	<i>Journal of the American Statistical Association</i>
<i>JRSS A,B</i>	<i>Journal of the Royal Statistical Society, Series A, B</i>
<i>PBS2</i>	<i>Proceedings of the Second Berkeley Symposium on Mathematical Statistics and Probability</i>
<i>PCPS</i>	<i>Proceedings of the Cambridge Philosophical Society</i>
<i>PLMS</i>	<i>Proceedings of the London Mathematical Society</i>
<i>PRS A</i>	<i>Proceedings of the Royal Society, Series A.</i>
<i>PRSE A</i>	<i>Proceedings of the Royal Society of Edinburgh, Series A</i>
<i>PRSL A</i>	<i>Proceedings of the Royal Society of London, Series A</i>
<i>PTRSL A</i>	<i>Philosophical Transactions of the Royal Society of London, Series A</i>
<i>SA</i>	<i>Skandinavisk Aktuarietidskrift</i>
<i>SRM</i>	<i>Statistical Research Memoirs</i>
<i>TAS</i>	<i>The American Statistician</i>
<i>TRSE</i>	<i>Transactions of the Royal Society of Edinburgh</i>

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