

Nonparametric testing for time series: a bibliography

Jean-Marie DUFOUR, Yves LEPAGE and Hanna ZEIDAN

Université de Montréal

Key words and phrases: Permutation tests, sign tests, rank tests, tests against ordered alternatives, binary and multiple runs, quotas, records, Markov chain models.
AMS 1980 subject classifications: Primary 62G10; secondary 62M10, 00A15.

ABSTRACT

This bibliography brings together and classifies a wide variety of nonparametric methods which are potentially useful for the analysis of time series data, in particular for testing randomness. Inference on Markov chain models is also extensively surveyed.

1. INTRODUCTION

The purpose of this bibliography is to bring together a number of results which are potentially useful for analyzing time series in a nonparametric way (without the normality or a similarly specific assumption) and for dealing with categorical time series. The unifying characteristic of the methods assembled here is that they are based on instruments such as: runs, signs, ranks, permutations, frequency counts, records, quotas. They are mainly tests of the null hypothesis of independence (or randomness) of random variables in a discrete time series and of randomness of occurrences of certain events in continuous time. The main alternatives considered are: monotonic or cyclic trends, serial dependence (or correlation), clustering of events in time (or, more generally, along a line), Markov chain models, and dependence between time series. For the case of Markov chain models, both estimation and testing are considered; although this topic is somewhat less "non-parametric" than the others, it is included because it is closely related to the analysis of runs and represents one of the simplest ways of analyzing categorical time series.

To be more specific, topics covered fairly extensively include:

- (a) permutation, sign and rank tests against trend in location (monotonic, cyclic, etc.) or serial dependence;
- (b) tests against ordered alternatives (a form of trend monotonic in location);
- (c) tests based on records;
- (d) the literature on binary and multiple runs (distribution theory and inference based on runs); some references to quotas;
- (e) inference on Markov chain models (estimation and testing);
- (f) nonparametric tests of independence between two (or several) time series;
- (g) tests for clustering of events in time (discrete or continuous) or, more generally, for clustering of points along a line; this includes also tests against clustering in free recall (in psychology, the occurrence of sequences of related items in the free recall of a randomly ordered stimulus list);
- (h) various tests of randomness of points along a line;

- (i) tests for birth order effect (in genetics, whether birth-rank has an effect on a given defect or character);
- (j) nonparametric tests against trend in dispersion.

The bibliography contains 606 references and covers the period 1926–1979, although the post-1940 period was more extensively surveyed. On the problem of testing randomness (against trend or serial dependence), it updates the bibliographies of Savage (1953p, 1962p) and is much more complete than those of Naus (1979n) and Singer (1979s). There is very limited overlap between our bibliography and the latter two, which did not stress time series applications. For a more extensive bibliography of the literature on clusters, clumps and coincidences, the reader is referred to Naus (1979n). On statistical inference concerning Markov chain models, we update the survey of Billingsley (1961d).

Of course, in order to avoid making the bibliography too extensive, several related topics had to be excluded. For example, we did not cover the vast literature on standard serial correlation methods as well as spectral analysis (for the analysis of cyclic trends); though the distributions of the statistics involved by these methods generally depend in finite samples on the normality assumption, these may be relatively robust in large samples (at least with respect to certain classes of distributions); for extensive references on these topics, the reader is referred to Wold (1965p), Hannan (1970), Anderson (1971) and Brillinger (1975, 1980). In particular, on ways of robustifying spectral analysis, see Kleiner, Martin and Thompson (1979). Similarly, another related topic not covered by our bibliography is the robustness of nonparametric estimators for dependent data, as studied, for example, by Gastwirth and Rubin (1975). [The references to all authors cited in this paragraph, except Wold, are given on page 38.]

The references are presented in chronological order, which should help one to understand the historical development of the topics involved. A classification by topics, particularly by types of alternatives considered and by types of instruments used (signs, ranks, permutations, etc.) is also provided. To keep the bibliography to a manageable size, it was limited mainly to work published in periodicals and collections (proceedings, etc.); a number of Ph.D. dissertations and specialized monographs were also included; textbooks, technical reports and abstracts were in general excluded.

Our hope is that the bringing together of this widely scattered material from several streams of research will facilitate the use of nonparametric methods in the analysis of time series and encourage research on such methods.

The subject codes and index are given in Section 2, the bibliography in chronological order is in Section 3, while an alphabetical listing of the authors appears in Section 4.

2. SUBJECT CODES AND INDEX

The references are to the last two numbers of the year of publication.

- A: General [41a, b], [44b], [571], [60a], [69b], [70a], [74a].
- AX: Auxiliary mathematical or statistical results [36b], [39a], [40d], [42f], [43i], [45h], [47d, f, h], [49b, c], [50g, i], [51d, g, o], [52c], [53h], [55g, l], [56d], [57b], [59i].
- B: Bibliographies, surveys [43a], [46e], [50h], [53p], [55d], [62e, p], [65a, e, l, p], [69d], [72b], [76h], [77n], [78g, m], [79n, s].

- BO: Tests against birth order effect (genetics) [48c], [52g], [58c, e], [59b], [64a], [68d].
- CL: Tests against clustering (see also BO, CLFR, RO) [63o], [64e, g, h], [65b, c, g], [66e, g, h], [67f], [68g, p, q], [70m, n], [71g, m], [72m], [73a, l, z, aa], [74g, m, p], [75f, k, u], [76p, q], [77f, u], [79n, t].
- CLFR: Tests against clustering in free recall (psychology) [53b], [56j], [62q], [64c], [66b], [68b], [69c, m], [70c], [71e, l], [73k], [74e], [75a, q], [76k].
- CP: Computer programs [70e], [71h, k], [73bb], [72l], [74m], [76f], [77o].
- M: Miscellaneous tests of randomness and applications [29a], [34a], [38a, b, c, f], [39b, c], [46b], [47b, e], [48b], [49f], [50d], [51c, e], [52d].
- MC: Inference on Markov chains [47a], [48a], [49d], [50c], [51a, b, g], [52a, f, i, l, m], [53d, e, f, g, i, n], [54b, g, m, n, o], [55b, i, j, m, n, o, r], [56h, i, l], [57a, d, e, f, g, h, k, o, q], [58d, e, f, g, h, i, j, k, l, m], [59c, d, f, g, h, j, k, l, m, o], [60b, c, e, f, g], [61b, c, d, j, l], [62a, g, i, j], [63d, e, n, p], [64f], [65h, m, n], [66a, c, f], [67c], [68e, i, j, l, o], [69e, h, j, k, l], [70b, d, f, h, i, j, k], [71a, b, c, h, j], [72a, c, e, f, g, j, k, m, n, q, t], [73b, c, e, f, g, h, j, n, t, bb], [74c, d, g, i, n, q], [75b, c, m, o, w, z, aa], [76c, d, m, s, t, w, x], [77d, h, l, m, q, r, v], [78a, b, c, d, f, g, h, i, j, k, l, p, r, s, w, x], [79b, c, d, e, f, g, h, l, m, p, r, u].
- MRU: Multiple runs (see also MC) [45d], [54f], [57c, h], [59a], [69f], [71d], [76u], [77b].
- MS: Multiple series (mainly tests of independence between time series) [41e], [42b, d], [43d], [52o], [61k], [63f], [65o], [68a], [76i, w].
- OA: Tests against ordered alternatives (trend in location) [47f], [51o], [53q], [54i, j], [55a], [59e, p], [60d], [61a], [62d], [63a, c, j], [64b], [65k], [66d], [67b, d, e, i], [68c, m, n], [70p], [71i], [72b, o, p], [73d, x], [74l], [75h, n, r, y], [76a, b, j, n, o], [77c, j, k, s, t], [78q, u, y, z, bb, cc], [79j, k, q].
- P: Permutation tests [39a], [41d, f], [42a, e], [43f, g, h, i], [45a, b], [50k], [51k], [53h], [54e, q], [67f], [70m, n], [72l], [73m], [75g, p], [76f].
- PW: Power comparisons included [36b], [47a], [48a], [49d], [50k], [52j, o, p], [54q], [55f, h], [56k, o], [57p], [59b], [62k], [64b], [66h, i], [68h], [69i], [70o, q], [72i, n, o], [75d], [76j, r], [77g, p], [78e], [79a].
- Q: Quotas [59n], [62h, l], [65d], [66c], [68f], [70g], [72u], [73s], [74k], [75i], [76l].
- RA: Tests of randomness based on ranks (see also BO, OA) [36b], [38d], [39a], [42a], [43h], [45g], [47f, h], [49a, e], [50a, b, h, i, j, m], [51f, o], [52p], [54q], [55e, f, g], [56d, g, k, o], [57l, m], [58a], [62k], [69a], [70l, o], [72d, i, v], [74b], [75d, e, j], [76j, r], [77a, e, g], [78e, aa], [79a, k].
- RE: Records [27a], [36c], [43c], [49b], [52b], [54d], [55f, h], [56k], [57b, p], [59q], [60h], [62e, n, o], [64d], [65a], [67g], [69g, n], [70r], [72r, s], [73h, i, o, p, q, r, u, y], [74d, o], [75t, x], [76e, g, v], [78m, v].
- RO: Tests of the randomness of points along a line (see also CL) [33a], [38e], [39d], [45h], [46e], [47d, g], [48d], [49c], [50e, f, l], [51h, i, j, n], [52h, k], [53a, c, m, o], [54c], [55c, d], [56a, b, c, e, f], [57n], [61g], [62b, f], [63h, i, k], [65l], [68q], [70q], [73z], [75i], [77i, p], [78t].
- RU: Runs (see also CL, CLFR, MRU, MC, Q) [26a, b], [29b], [36a], [37a, b, c, d, e], [38b], [39e, f], [40a, b, c, d], [41c, e], [42b, c, d, f], [43b, d, j], [44a, c, d], [45c, e, f], [46a, c, d, f], [47a, c], [48a, d], [49d], [50f, g, h, n], [51l, m, n], [52e, h, j, m, n], [53j, k, r], [54k, l, p, q, s], [55k, l, p, q], [56m, o], [57b, h, i, j], [58a, b, m, n, o, p], [59a, h, i, n], [60h], [61e, f, h, i, m], [62c, e, h, l, m], [63b, g, l, m], [65a, f, i, j], [66f], [67a, h], [68k], [69d, i, l], [70e], [71f], [72h], [73g, v, w], [74f, h, j, n, r], [75l, s, v], [77f, n, o, u], [78h, n, o], [79i, o].
- S: Tests of randomness based on signs (see also RU) [27b], [29b], [41e], [42b, d], [43d, e], [45e, f], [50n], [51d, e], [52h, o], [53l], [54h, q, r], [55d, e, l], [56n], [61h, k], [63g], [66i], [68h], [69d].
- SD: Tests against serial dependence (or serial correlation) [36b], [41f], [43h], [50k], [51c], [53f], [54a, e], [63g], [69a], [70l], [72d, l], [73m], [75p], [77g].

- TB: Table provided [34a], [39c], [43e], [47c, h], [51i], [54f], [55p], [59h], [61h], [68n], [71i], [76p], [78z].
- TR: Tests against trend in location (see also OA, SD) [26a], [27b], [29b], [36a], [41e], [42b, d, f], [43d], [45f, g], [47f], [50a, b, h, j, k], [51d, f, o], [52o, p], [54d, h, r], [55d, e, f, h], [56a, n, o], [57m, p], [62k], [65e], [68a], [69a, d, i], [70o], [71k], [72h, i, l, w], [74b], [75d, e, g, j], [76f, r], [77a, e], [78e, aa, dd], [79a, k].
- TRD: Tests against trend in dispersion [55e], [66i], [68h], [79j].

3. BIBLIOGRAPHY

The abbreviations used are generally taken from *Mathematical Reviews*. [For a list of the abbreviations, see the Appendix.]

1926

- [a] Bilham, E.G. Correlation coefficients. *Quart. J. Roy. Meteorol. Soc.*, 52, 172. (RU, TR)
- [b] Fisher, R.A. On the random sequence. *Quart. J. Roy. Meteorol. Soc.*, 52, 250. (RU)

1927

- [a] Fréchet, M. Sur la loi de probabilité de l'écart maximum. *Ann. Polon. Math.*, 6, 93–116. (RE)
- [b] Karsten, K. The Harvard business indexes—A new interpretation. *Rev. Econom. Statist.*, 74–92. (S, TR)

1929

- [a] Gold, E. Note on the frequency of occurrences of events in series of two types. *Quart. J. Roy. Meteorol. Soc.*, 55, 307–309. (M)
- [b] Kuznets, S. Random events and cyclical oscillations. *J. Amer. Statist. Assoc.*, 24, 258–275. (RU, S, TR)

1933

- [a] Pearson, K. On a method of determining whether a sample of size n supposed to have been drawn from a parent population having a known probability integral has probably been drawn at random. *Biometrika*, 25, 379–410. (RO)

1934

- [a] David, F.N. On the P_{λ_n} test of randomness: remarks, further illustration, and table of P_{λ_n} for given values of $-\log_{10}\lambda_n$. *Biometrika*, 26, 1–11. (M, TB)

1936

- [a] Cochran, W.G. The statistical analysis of field counts of diseased plants. *J. Roy. Statist. Soc. Ser. B*, 3, 49–67. (RU, TR)
- [b] Hotelling, H., and Pabst, M.R. Rank correlation and tests of significance involving no assumption of normality. *Ann. Math. Statist.*, 7, 29–43. (AX, PW, RA, SD)
- [c] Von Mises, R. La distribution de la plus grande de n valeurs. *Rev. Math. Un. Interbalk*, 1, 1–20. (RE)

1937

- [a] Cowles, A., and Jones, H.E. Some a posteriori probabilities in stock market action. *Econometrica*, 5, 280–294. (RU)
- [b] Jones, H.E. The theory of runs as applied to time series. *Rep. Third Annual Conf. Econ. Statist. (Cowles Commission)*, 33–36. (RU)
- [c] Kermack, W.O., and McKendrick, A.G. Tests for randomness in a series of numerical observations. *Proc. Roy. Soc. Edinburgh*, 57, 228–240. (RU)
- [d] Kermack, W.O., and McKendrick, A.G. Some distributions associated with a randomly arranged set of numbers. *Proc. Roy. Soc. Edinburgh*, 57, 332–376. (RU)
- [e] Stevens, W.L. Significance of grouping and a test for univular twins in mice. *Ann. Eugenics*, 8, 57–69. (RU)

1938

- [a] Cochran, W.G. An extension of Gold's method of examining the apparent persistence of one type of weather. *Quart. J. Roy. Meteorol. Soc.*, 64, 631-634. (M)
- [b] Kendall, M.G., and Smith, B. Babington. Randomness and random sampling numbers. *J. Roy. Statist. Soc. New Series*, 101, 147-166. (M, RU)
- [c] Nair, K.R. On Tippett's random sampling numbers. *Sankhyā*, 4, 65-72. (M)
- [d] Olds, E.G. Distribution of sums of squares of rank differences for small numbers of individuals. *Ann. Math. Statist.*, 9, 133-148. (RA)
- [e] Pearson, E.S. The probability integral transformation for testing goodness of fit and combining independent tests of significance. *Biometrika*, 30, 134-148. (RO)
- [f] Yule, G.U. A test of Tippett's random sampling numbers. *J. Roy. Statist. Soc. New Series*, 101, 167-172. (M)

1939

- [a] Dantzig, G.B. On a class of distributions that approach the normal distribution function. *Ann. Math. Statist.*, 10, 247-253. (AX, P, RA)
- [b] Kendall, M.G., and Smith, B. Babington. Second paper on random sampling numbers. *J. Roy. Statist. Soc. Ser. B*, 6, 51-61. (M)
- [c] Kendall, M.G., and Smith, B. Babington. *Tables of Random Sampling Numbers*. Tracts for Computers, no. 24, Cambridge University Press, Cambridge. (M, TB)
- [d] Lévy, P. Sur la division d'un segment par des points choisis au hasard. *C.R. Acad. Sci. Paris*, 208, 147-149. (RO)
- [e] Stevens, W.L. Distribution of groups in a sequence of alternatives. *Ann. Eugenics*, 9, 10-17. (RU)
- [f] Von Schelling, H. Kennzeichen für eine rein zufällige Folge der Werte in einer zeitlich geordneten Beobachtungsreihe. *Astronom. Nachr.*, 269, 115-159. (RU)

1940

- [a] Mood, A.M. The distribution theory of runs. *Ann. Math. Statist.*, 11, 367-392. (RU)
- [b] Mood, A.M. The distribution theory of runs. Ph.D. Dissertation, Princeton Univ., Princeton. (RU)
- [c] Olmstead, P.S. Note on theoretical and observed distributions of repetitive occurrences. *Ann. Math. Statist.*, 11, 363-366. (RU)
- [d] Wald, A., and Wolfowitz, J. On a test whether two samples are from the same population. *Ann. Math. Statist.*, 11, 147-162. (AX, RU)

1941

- [a] Davis, H.T. *The Statistics of Time Series*. Northwestern University Studies in Mathematics and the Physical Sciences, Mathematical Monographs, 1, 44-85. (A)
- [b] Kendall, M.G. A theory of randomness. *Biometrika*, 32, 1-15. (A)
- [c] Mosteller, F. Note on an application of runs to quality control charts. *Ann. Math. Statist.*, 12, 228-232. (RU)
- [d] Schrutka, L.V. Eine neue Einteilung der Permutationen. *Math. Ann.*, 118, 246-250. (P)
- [e] Wallis, W.A., and Moore, G.H. A significance test for time series. *J. Amer. Statist. Assoc.*, 36, 401-409. (RU, S, TR, MS)
- [f] Young, L.C. On randomness in ordered sequences. *Ann. Math. Statist.*, 12, 293-300. (P, SD)

1942

- [a] Dodd, E.L. Certain tests for randomness applied to data grouped into small sets. *Econometrica*, 10, 249-257. (P, RA)
- [b] Finney, D.J. A significance test for time series, by W. Allen Wallis and Geoffrey H.M. Moore. Review by D.J. Finney. *Ann. Eugenics*, 11, 308. (RU, S, TR, MS)
- [c] Nair, A.N.K. On the probability of obtaining k sets of consecutive successes in n trials. *Math. Student*, 10, 83-84. (RU)

- [d] Olmstead, P.S. Review of: A significance test for time series, by W. Allen Wallis and Geoffrey H. Moore. *J. Amer. Statist. Assoc.*, 37, 152–153. (RU, S, TR, MS)
- [e] Rosander, A.C. The use of inversions as a test of random order. *J. Amer. Statist. Assoc.*, 37, 352–358. (P)
- [f] Wolfowitz, J. Additive partition functions and a class of statistical hypotheses. *Ann. Math. Statist.*, 13, 247–279. (AX, RU, TR)

1943

- [a] Eisenhart, C., and Wilson, P.W. Statistical methods and control in bacteriology. *Bacteriol. Rev.*, 7, 57–137. (B)
- [b] Gage, R. Contents of Tippet's random sampling numbers. *J. Amer. Statist. Assoc.*, 38, 223–227. (RU)
- [c] Gnedenko, B. Sur la distribution limite du terme maximum d'une série aléatoire. *Ann. of Math.*, 44, 423–453. (RE)
- [d] Moore, G.H., and Wallis, W.A. Time series significance tests based on signs of differences. *J. Amer. Statist. Assoc.*, 38, 153–164. (RU, S, TR, MS)
- [e] Swed, F.S., and Eisenhart, C. Tables for testing randomness of grouping in a sequence of alternatives. *Ann. Math. Statist.*, 14, 66–87. (S, TB)
- [f] Ville, J. Sur un critère d'indépendance. *C.R. Acad. Sci. Paris*, 216, 552–553. (P)
- [g] Ville, J. Sur l'application, à un critère d'indépendance, du dénombrement des inversions présentées par une permutation. *C.R. Acad. Sci. Paris*, 217, 41–42. (P)
- [h] Wald, A., and Wolfowitz, J. An exact test for randomness in the non-parametric case based on serial correlation. *Ann. Math. Statist.*, 14, 378–388. (P, RA, SD)
- [i] Waldapfel, L. Über das Profil der Permutationen. *Mat. Fiz. Lapok*, 50, 257–261. (AX, P)
- [j] Wolfowitz, J. On the theory of runs with some applications to quality control. *Ann. Math. Statist.*, 14, 280–288. (RU)

1944

- [a] Levene, H., and Wolfowitz, J. The covariance matrix of runs up and down. *Ann. Math. Statist.*, 15, 58–69. (RU)
- [b] Mahalanobis, P.C. On large scale sample surveys. *Philos. Trans. Roy. Soc. London Ser. B*, 231, 329–451. (A)
- [c] Wolfowitz, J. Note on runs of consecutive elements. *Ann. Math. Statist.*, 15, 97–98. (RU)
- [d] Wolfowitz, J. Asymptotic distribution of runs up and down. *Ann. Math. Statist.*, 15, 163–172. (RU)

1945

- [a] Gleissberg, W. Eine Aufgabe der Kombinatorik und Wahrscheinlichkeitsrechnung. *Istanbul Univ. Fen Fak. Mecm. Ser. A*, 10, 25–35. (P)
- [b] Gleissberg, W. Ein Kriterium für die Realität zyklischer Variationen. *Istanbul Univ. Fen Fak. Mecm. Ser. A*, 10, 36–42. (P)
- [c] Kaplansky, I. The asymptotic distribution of runs of consecutive elements. *Ann. Math. Statist.*, 16, 200–203. (RU)
- [d] Kaplansky, I., and Riordan, J. Multiple matching and runs by the symbolic method. *Ann. Math. Statist.*, 16, 272–277. (MRU)
- [e] Kendall, M.G. On the analysis of oscillatory time series: Appendix. *J. Roy. Statist. Soc. New Series*, 108, 125–129. (RU, S)
- [f] Mann, H.B. On a test for randomness based on signs of differences. *Ann. Math. Statist.*, 16, 193–199. (RU, S, TR)
- [g] Mann, H.B. Nonparametric test against trend. *Econometrica*, 13, 245–259. (RA, TR)
- [h] Silberstein, L. The probable number of aggregates in random distributions of points. *Philos. Mag.*, 36, 319–336. (AX, RO)

1946

- [a] Baticle, F. Le problème des stocks. *C.R. Acad. Sci. Paris*, 222, 355–357. (RU)
- [b] Bose, R.C. The patch number problem. *Sci. and Cult.*, 12, 199–200. (M)
- [c] Child, I.L. A note on Grant's new statistical criteria for learning and problem solution. *Psychol. Bull.*, 43, 558–561. (RU)
- [d] Grant, D.A. New statistical criteria for learning and problem solution in experiments involving repeated trials. *Psychol. Bull.*, 43, 272–282. (RU)
- [e] Greenwood, M. The statistical study of infectious diseases. *J. Roy. Statist. Soc. New Series*, 109, 85–110 (with discussion). (B, RO)
- [f] Olmstead, P.S. Distribution of sample arrangements for runs up and down. *Ann. Math. Statist.*, 17, 24–33. (RU)

1947

- [a] David, F.N. A power function for tests of randomness in a sequence of alternatives. *Biometrika*, 34, 335–339. (MC, PW, RU)
- [b] Finney, D.J. The significance of associations in a square point lattice. *J. Roy. Statist. Soc. Ser. B*, 9, 99–103. (M)
- [c] Grant, D.A. Additional tables of the probability of "runs" of correct responses in learning and problem-solving. *Psychol. Bull.*, 44, 276–279. (RU, TB)
- [d] Kimball, B.F. Some basic theorems for developing tests of fit for the case of the non-parametric probability distribution function, I. *Ann. Math. Statist.*, 18, 540–548. (AX, RO)
- [e] Krishna Iyer, P.V. Random association of points on a lattice. *Nature*, 160, 714. (M)
- [f] Mann, H.B., and Whitney, D.R. On a test of whether one of two random variables is stochastically larger than the other. *Ann. Math. Statist.*, 18, 50–60. (AX, OA, RA, TR)
- [g] Moran, P.A.P. The random division of an interval. *J. Roy. Statist. Soc. Ser. B*, 9, 92–98. (RO)
- [h] Sillitto, G.P. The distribution of Kendall's τ coefficient of rank correlation in rankings containing ties. *Biometrika*, 34, 36–40. (AX, RA, TB)

1948

- [a] Bateman, G. On the power function of the longest run as a test for randomness in a sequence of alternatives. *Biometrika*, 35, 97–112. (MC, PW, RU)
- [b] Brown, B. *Some Tests of Randomness of a Million of Digits*. Rand Corporation, California, RAOP-44. (M)
- [c] Haldane, J.B.S., and Smith, C.A.B. A simple exact test for birth order effect. *Ann. Eugenics*, 14, 117–124. (BO)
- [d] Krishna Iyer, P.V. The theory of probability distributions of points on a line. *J. Indian Soc. Agric. Statist.*, 1, 173–195. (RO, RU)

1949

- [a] Haldane, J.B.S. Some statistical problems arising in genetics. *J. Roy. Statist. Soc. Ser. B*, 11, 1–14 (with discussion). (RA)
- [b] Juncosa, M.L. The asymptotic behavior of the minimum in a sequence of random variables. *Duke Math. J.*, 16, 609–618. (AX, RE)
- [c] Krishna Iyer, P.V., and Sukhatme, B.V. Probability distribution of points on a line. *Sci. and Cult.*, 15, 200. (AX, RO)
- [d] Moore, P.G. A test for randomness in a sequence of two alternatives involving a 2×2 table. *Biometrika*, 36, 305–316. (MC, PW, RU)
- [e] Olds, E.G. The 5% significance levels for sums of squares of rank differences and a correction. *Ann. Math. Statist.*, 20, 117–118. (RA)
- [f] Sukhatme, B.V. Random association of points on a lattice. *J. Indian Soc. Agric. Statist.*, 2, 60–85. (M)

1950

- [a] Daniels, H.E. Rank correlation and population models. *J. Roy. Statist. Soc. Ser. B*, 12, 171–181. (RA, TR)
- [b] Elfving, G., and Whitlock, J.H. A simple trend test with application to erythrocyte size data. *Biometrics*, 6, 282–288. (RA, TR)
- [c] Grenander, U. Stochastic processes and statistical inference. *Ark. Mat.*, 1, 195–277. (MC)
- [d] Gruenberger, F. Tests of random digits. *Math. Tables Aids Comput.*, 4, 244–245. (M)
- [e] Kimball, B.F. On the asymptotic distribution of the sum of powers of unit frequency differences. *Ann. Math. Statist.*, 21, 263–271. (RO)
- [f] Krishna Iyer, P.V. Further contributions to the theory of probability distributions of points on a line—I. *J. Indian Soc. Agric. Statist.*, 2, 141–160. (RO, RU)
- [g] Krishna Iyer, P.V. Difference equations of moment-generating functions for some probability distributions. *Nature*, 165, 370. (AX, RU)
- [h] Mann, H.B. Nonparametric tests against trend. *Statistical Inference in Dynamic Economic Models* (T.C. Koopmans, ed.). Wiley, New York, Ch. 12. (B, RA, RU, TR)
- [i] Moran, P.A.P. Recent developments in ranking theory. *J. Roy. Statist. Soc. Ser. B*, 12, 153–162. (AX, RA)
- [j] Moran, P.A.P. A curvilinear ranking test. *J. Roy. Statist. Soc. Ser. B*, 12, 292–295. (RA, TR)
- [k] Noether, G.E. Asymptotic properties of the Wald-Wolfowitz test of randomness. *Ann. Math. Statist.*, 21, 231–246. (P, PW, SD, TR)
- [l] Sherman, B. A random variable related to the spacing of sample values. *Ann. Math. Statist.*, 21, 339–361. (RO)
- [m] Whitfield, J.W. Uses of the ranking method in psychology. *J. Roy. Statist. Soc. Ser. B*, 12, 163–170. (RA)
- [n] Wright, C.A. Distribution of turning points of time series. *Econometrica*, 18, 302–304. (RU, S)

1951

- [a] Bankunth, N.S. Use of complex Markov's chain in testing randomness. *J. Indian Soc. Agric. Statist.*, 4, 145–148. (MC)
- [b] Bartlett, M.S. The frequency goodness of fit test for probability chains. *Proc. Cambridge Philos. Soc.*, 47, 86–95. (MC)
- [c] Bennett, C.A. Application of tests for randomness. *Indust. Engrg. Chem.*, 43, 2063–2067. (M)
- [d] Brown, G.W. and Mood, A.M. On median tests for linear hypotheses. *Proc. Second Berkeley Symp. Math. Statist. Probab.*, University of California Press, Berkeley, 159–166. (AX, S, TR)
- [e] Chown, L.N., and Moran, P.A.P. Rapid methods for estimating correlation coefficients. *Biometrika*, 38, 464–467. (M, S, SD)
- [f] Daniels, H.E. Note on Durbin and Stuart's formula for $E(r_s)$. *J. Roy. Statist. Soc. Ser. B*, 13, 310. (RA, TR)
- [g] Freund, J. The transfer distribution. *Math. Mag.*, 25, 63–66. (AX, MC)
- [h] Krishna Iyer, P.V. Further contributions to the theory of probability distributions of points on a line—II. *J. Indian Soc. Agric. Statist.*, 3, 80–93. (RO)
- [i] Mauldon, J.G. Random division of an interval. *Proc. Cambridge Philos. Soc.*, 47, 331–336. (RO)
- [j] Moran, P.A.P. The random division of an interval—II. *J. Roy. Statist. Soc. Ser. B*, 13, 147–150. (RO)
- [k] Noether, G.E. Asymptotic properties of a Wald-Wolfowitz test of randomness. Ph.D. Dissertation, Columbia Univ., New York. (P)
- [l] Olekiewicz, M. Tables of expected values and variances of numbers of runs in random sequences with probabilities exceeding expected values. *Ann. Univ. Mariae Curie-Skłodowska Sect. A*, 5, 147–159. (RU, TB)

- [m] Rao, A.S.K. Runs in a sequence of observations. *Bull. Inst. Internat. Statist.*, 33, 283–285. (RU)
- [n] Sukhatme, B.V. On certain probability distributions arising from points on a line. *J. Roy. Statist. Soc. Ser. B*, 13, 219–232. (RO, RU)
- [o] Whitney, D.R. A bivariate extension of the U statistic. *Ann. Math. Statist.*, 22, 274–282. (AX, OA, RA, TR)

1952

- [a] Bartlett, M.S. A sampling test of the χ^2 theory for probability chains. *Biometrika*, 39, 118–121. (MC)
- [b] Chandler, K.N. The distribution and frequency of record values. *J. Roy. Statist. Soc. Ser. B*, 14, 220–228. (RE)
- [c] Cochran, W.G. The χ^2 test of goodness of fit. *Ann. Math. Statist.*, 23, 315–345. (AX)
- [d] Goodman, L.A. Serial number analysis. *J. Amer. Statist. Assoc.*, 47, 622–634. (M)
- [e] Grant, A.M. Some properties of runs in smoothed random series. *Biometrika*, 39, 198–204. (RU)
- [f] Kazami, A. Asymptotic properties of the estimates of an unknown parameter in a stationary Markoff process. *Ann. Inst. Statist. Math.*, 4, 1–6. (MC)
- [g] Keeping, E.S. The problem of birth ranks. *Biometrics*, 8, 112–119. (BO)
- [h] Krishna Iyer, P.V. Further contributions to the theory of probability distributions of points on a line—III. *J. Indian Soc. Agric. Statist.*, 4, 50–71. (RO, RU, S)
- [i] Krishna Iyer, P.V. Factorial moments and cumulants of distributions arising in Markoff chains. *J. Indian Soc. Agric. Statist.*, 4, 113–123. (MC)
- [j] Levene, H. On the power function of tests of randomness based on runs up and down. *Ann. Math. Statist.*, 23, 34–56. (PW, RU)
- [k] Maguire, B.A.; Pearson, E.S., and Wynn, A.H.A. The time intervals between industrial accidents. *Biometrika*, 39, 168–180. (RO)
- [l] Miller, G.A. Finite Markov processes in psychology. *Psychometrika*, 17, 149–167. (MC)
- [m] Singh, B.N. Use of complex Markoff's chain in testing randomness. *J. Indian Soc. Agric. Statist.*, 4, 145–148. (MC, RU)
- [n] Ramachandran, G. A note on the moments of a function of run lengths. *J. Madras Univ. Sect. B*, 22, 92–101. (RU)
- [o] Stuart, A. The power of two difference-sign tests. *J. Amer. Statist. Assoc.*, 47, 416–424. (MS, PW, S, TR)
- [p] Terpstra, T.J. The asymptotic normality and consistency of Kendall's test against trend, when ties are present in one ranking. *Nederl. Akad. Wetensch. Proc. Ser. A*, 55, 327–333. (PW, RA, TR)

1953

- [a] Barnard, G.A. Time intervals between accidents—A note on Maguire, Pearson and Wynn's paper. *Biometrika*, 40, 212–213. (RO)
- [b] Bousfield, W.A. The occurrence of clustering in the recall of randomly arranged associates. *J. General Psychol.*, 49, 229–240. (CLFR)
- [c] Darling, D.A. On a class of problems related to the random division of an interval. *Ann. Math. Statist.*, 24, 239–253. (RO)
- [d] Dvoretzky, A.; Kiefer, J., and Wolfowitz, J. Sequential decision problems for processes with continuous time parameter. Testing hypotheses. *Ann. Math. Statist.*, 24, 254–264. (MC)
- [e] Dvoretzky, A.; Kiefer, J., and Wolfowitz, J. Sequential decision problems for processes with continuous time parameter. Problems of estimation. *Ann. Math. Statist.*, 24, 403–415. (MC)
- [f] Good, I.J. The serial test for sampling numbers and other tests for randomness. *Proc. Cambridge Philos. Soc.*, 49, 276–284. (MC, SD)
- [g] Goodman, L.A. A further note on "Finite Markov processes in psychology". *Psychometrika*, 18, 245–248. (MC)

- [h] Greenwood, R.E. The number of cycles associated with the elements of a permutation group. *Amer. Math. Monthly*, 60, 407-409. (AX, P)
- [i] Kao, R.C.W. Note on Miller's "Finite Markov processes in psychology". *Psychometrika*, 18, 241-243. (MC)
- [j] Kiveliiovitch, M., and Vialar, J. Etude statistique des séries chronologiques. *J. Sci. Météorol.*, 5, 75-87, 89-101, 129-143, 241-246. (RU)
- [k] Krishna Iyer, P.V., and Rao, A.S.P. Theory of the probability distributions of runs in a sequence of observations. *J. Indian Soc. Agric. Statist.*, 5, 29-77. (RU)
- [l] Levene, H. Contributions to the theory of nonparametric tests of randomness. Ph.D. Dissertation, Columbia Univ., New York. (S)
- [m] Maguire, B.A.; Pearson, E.S., and Wynn, A.H.A. Further notes on the analysis of accident data. *Biometrika*, 40, 213-216. (RO)
- [n] Moore, P.G. A sequential test for randomness. *Biometrika*, 40, 111-115. (MC)
- [o] Moran, P.A.P. The random division of an interval—Part III. *J. Roy. Statist. Soc. Ser. B*, 15, 77-80. (RO)
- [p] Savage, I.R. Bibliography of nonparametric statistics and related topics. *J. Amer. Statist. Assoc.*, 48, 844-906. (B)
- [q] Terpstra, T.J. The exact probability distribution of the τ statistic for testing against trend and its normal approximation. *Nederl. Akad. Wetensch. Proc. Ser. A*, 56, 433-437. (OA)
- [r] Weiler, H. The use of runs to control the mean in quality control. *J. Amer. Statist. Assoc.*, 48, 816-825. (RU)

1954

- [a] Anderson, O. Ein exakter nicht-parametrischer Test der sogen. Null-hypothese im Falle von Autokorrelation und Korrelation. *Bull. Inst. Internat. Statist.*, 24, 130-143. (SD)
- [b] Anderson, T.W. Probability models for analyzing time changes in attitudes. *Mathematical Thinking in the Social Sciences* (P. Lazarsfeld, ed.). The Free Press, Glencoe, Illinois, 17-66. (MC)
- [c] Bartholomew, D.J. Note on the use of Sherman's statistic as a test for randomness. *Biometrika*, 41, 556-558. (RO)
- [d] Foster, F.G., and Stuart, A. Distribution-free tests in time series based on the breaking of records. *J. Roy. Statist. Soc. Ser. B*, 16, 1-22 (with discussion). (RE, TR)
- [e] Ghosh, M.N. Asymptotic distribution of serial statistics and applications to problems of nonparametric tests of hypotheses. *Ann. Math. Statist.*, 25, 218-251. (P, SD)
- [f] Hiraga, Y.; Morimura, H., and Watanabe, H. Tables for three-sample test. *Ann. Inst. Statist. Math.*, 5, 97-102. (MRU, TB)
- [g] Hoel, P.G. A test for Markoff chains. *Biometrika*, 41, 430-433. (MC)
- [h] Johnston, J. A revised test for systematic oscillation. *J. Roy. Statist. Soc. Ser. B*, 16, 292-295. (S, TR)
- [i] Jonckheere, A.R. A distribution-free k -sample test against ordered alternatives. *Biometrika*, 41, 133-145. (OA)
- [j] Jonckheere, A.R. A test of significance for the relation between m rankings and k ranked categories. *British J. Statist. Psychol.*, 7, 93-100. (OA)
- [k] Kiveliiovitch, M., and Vialar, J. Quelques nouveaux tests pour l'étude des séries chronologiques I. *J. Sci. Météorol.*, 6, 73-83. (RU)
- [l] Kiveliiovitch, M., and Vialar, J. Quelques nouveaux tests pour l'étude des séries chronologiques II. *J. Sci. Météorol.*, 6, 151-166. (RU)
- [m] Li, C.C., and Sacks, L. The derivation of joint distribution and correlation between relatives by the use of stochastic matrices. *Biometrics*, 10, 347-360. (MC)
- [n] Luvsanceren, S. Maximum likelihood estimates and confidence regions for unknown parameters of a stationary Gaussian process of Markov type. *Dokl. Akad. Nauk SSSR*, 98, 723-726 (Russian). (MC)

- [o] Patankar, V.N. The goodness of fit of frequency distributions obtained from stochastic processes. *Biometrika*, 41, 450–462. (MC)
- [p] Ramabhadran, V.K. A statistical study of the persistency of rain days during the monsoon season at Poona, India. *J. Meteorol. Geogr.*, 5, 48–55. (RU)
- [q] Stuart, A. Asymptotic relative efficiencies of distribution-free tests of randomness against normal alternatives. *J. Amer. Statist. Assoc.*, 49, 147–157. (P, PW, RA, RU, S)
- [r] Sundrum, R.M. On some sign tests of randomness under hypotheses of linear trend. Institute of Statistics, University of North Carolina, Mimeograph Series, No. 96. (S, TR)
- [s] Weiler, H. A new type of control chart limits for means, ranges, and sequential runs. *J. Amer. Statist. Assoc.*, 49, 298–314. (RU)

1955

- [a] Armitage, P. Tests for linear trends in proportions and frequencies. *Biometrics*, 11, 375–386. (OA)
- [b] Bartlett, M.S. The statistical analysis of stochastic processes. *Colloq. Anal. Statist. Bruxelles* (1954), Masson, Paris, 113–132. (MC)
- [c] Barton, D.E., and David, F.N. Sums of ordered intervals and distances. *Mathematika*, 2, 150–159. (RO)
- [d] Cox, D.R. Some statistical methods connected with series of events. *J. Roy. Statist. Soc. Ser. B*, 17, 129–164 (with discussion). (B, RO, S, TR)
- [e] Cox, D.R., and Stuart, A. Some quick sign tests for trend in location and dispersion. *Biometrika*, 42, 80–95. (S, RA, TR, TRD)
- [f] De Munter, P. Étude sur l'efficacité de certains tests non-paramétriques. Thesis awarded Prix scientifique interfacultaire Louis Empain, 1957. (PW, RA, RE, TR)
- [g] Dwass, M. On the asymptotic normality of some statistics used in non-parametric tests. *Ann. Math. Statist.*, 26, 334–339. (AX, RA)
- [h] Foster, F.G., and Teichroew, D. A sampling experiment on the powers of the records tests for trend in a time series. *J. Roy. Statist. Soc. Ser. B*, 17, 115–121. (PW, RE, TR)
- [i] Gani, J. Some theorems and sufficiency conditions for the maximum likelihood estimator of an unknown parameter in a simple Markov chain. *Biometrika*, 42, 342–359. Corrigendum, *Biometrika*, 43, 497–498. (MC)
- [j] Good, I.J. The likelihood ratio test for Markoff chains. *Biometrika*, 42, 531–553. Corrigendum, *Biometrika*, 44, 301. (MC)
- [k] Kiveliovitch, M., and Vialar J. Quelques nouveaux tests pour l'étude des séries chronologiques III. *J. Sci. Météorol.*, 7, 259–271. (RU)
- [l] Krishna Iyer, P.V., and Singh, D. On certain probability distributions arising from a sequence of observations and their applications. *J. Indian Soc. Agric. Statist.*, 7, 127–168. (AX, S)
- [m] Lange, O. Statistical estimation of parameters in Markov processes. *Colloq. Math.*, 3, 147–160. (MC)
- [n] Patankar, V.N. A note on recurrent events. *Proc. Cambridge Philos. Soc.*, 51, 96–102. (MC)
- [o] Smirnov, N.V. On the statistical estimation of transition probabilities in Markov chains. *Vestnik Leningrad. Univ.*, 10, 47–48 (Russian). (MC)
- [p] Takashima, M. Tables for testing randomness by means of lengths of runs. *Bull. Math. Statist.*, 6, 17–23. (RU, TB)
- [q] Weiller, R. Réflexions sur les tests du hasard de M.M. Kiveliovitch et Vialar. *J. Sci. Météorol.*, 7, 295–299. (RU)
- [r] Whittle, P. Some distribution and moment formulae for the Markov chain. *J. Roy. Statist. Soc. Ser. B*, 17, 235–242. (MC)

1956

- [a] Bartholomew, D.J. Tests for randomness in a series of events when the alternative is a trend. *J. Roy. Statist. Soc. Ser. B*, 18, 234–239. (RO, TR)

- [b] Bartholomew, D.J. A sequential test of randomness for events occurring in time or space. *Biometrika*, 43, 64–78. (RO)
- [c] Bartholomew, D.J. A sequential test for randomness of intervals. *J. Roy. Statist. Soc. Ser. B*, 18, 95–103. (RO)
- [d] Barton, D.E., and David, F.N. Spearman's rho and the matching problem. *British J. Statist. Psychol.*, 9, 69–73. (AX, RA)
- [e] Barton, D.E., and David, F.N. Some notes on ordered random intervals. *J. Roy. Statist. Soc. Ser. B*, 18, 79–94. (RO)
- [f] Barton, D.E., and David, F.N. Tests for randomness of points on a line. *Biometrika*, 43, 104–112. (RO)
- [g] Bennett, B.M. On a rank-order test for the equality of probability of an event. *Skand. Aktuarietidskr.*, 39, 11–18. (RA)
- [h] Bharucha-Reid, A.T. Note on estimation of the number of states in a discrete Markov chain. *Experientia*, 12, 176. (MC)
- [i] Billingsley, P. Asymptotic distributions of two goodness of fit criteria. *Ann. Math. Statist.*, 27, 1123–1129. (MC)
- [j] Bousfield, W.A., and Cohen, B.H. Clustering in recall as a function of the number of word-categories in stimulus-word lists. *J. General Psychol.*, 54, 95–106. (CLFR)
- [k] De Munter, P. Fonction de puissance de certains tests du caractère aléatoire d'un échantillon. *Acad. Roy. Belg. Bull. Cl. Sci. Ser. 5*, 42, 291–312. (PW, RA, RE)
- [l] Gihman, I.I. On asymptotic properties of certain statistics similar to χ^2 . *Teor. Veroyatnost. I. Primen.*, 1, 344–348 (Russian). (MC)
- [m] Kitagawa, T., and Seguchi, T. The combined use of runs in statistical quality controls. I. *Bull. Math. Statist.*, 7, 25–45. (RU)
- [n] Noether, G.E. Two sequential tests against trend. *J. Amer. Statist. Assoc.*, 51, 440–450. (S, TR)
- [o] Stuart, A. The efficiencies of tests of randomness against normal regression. *J. Amer. Statist. Assoc.*, 51, 285–287. (PW, RA, RU, TR)

1957

- [a] Anderson, T.W., and Goodman, L.A. Statistical inference about Markov chains. *Ann. Math. Statist.*, 28, 89–110. (MC)
- [b] Austin, T.; Fagen, R.; Lehrer, T., and Penney, W. The distribution of the number of locally maximal elements in a random sample. *Ann. Math. Statist.*, 28, 786–790. (AX, RE, RU)
- [c] Barton, D.E., and David, F.N. Multiple runs. *Biometrika*, 44, 168–178. (MRU)
- [d] Basharin, G.P. The use of the chi-square criterion as a test for the independence of events. *Dokl. Akad. Nauk SSSR*, 117, 167–170 (Russian). (MC)
- [e] Blackwell, D., and Koopmans, L. On the identifiability problem for functions of finite Markov chains. *Ann. Math. Statist.*, 28, 1011–1015. (MC)
- [f] Dawson, R., and Good, I.J. Exact Markov probabilities from oriented linear graphs. *Ann. Math. Statist.*, 28, 946–956. (MC)
- [g] Diveev, R. Kh. An essentially complete class of decision functions for homogeneous processes with two states. *Akad. Nauk Uzbek. SSR Trudy Inst. Mat. Meh.*, 20, 15–34. (MC)
- [h] Good, I.J. On the serial test for random sequences. *Ann. Math. Statist.*, 28, 262–264. (MC, MRU, RU)
- [i] Kitagawa, T., and Seguchi, T. The combined use of runs in statistical quality control, II. *Bull. Math. Statist.*, 7, 53–72. (RU)
- [j] Kiveliovitich, M., and Vialar, J. Les séries chronologiques et la théorie du hasard. Notes Techniques No. 65, *Publ. Sci. Tech. Minist. Air*, Paris. (RU)
- [k] Mihoc, G. Fonctions d'estimation efficaces pour les suites de variables dépendantes. *Bull. Math. Soc. Sci. Math. Phys. R.P. Roumaine*, 1 (49), 449–456. (MC)

- [l] Savage, I.R. On the independence of tests of randomness and other hypotheses. *J. Amer. Statist. Assoc.*, 52, 53–57. (A, RA)
- [m] Savage, I.R. Contributions to the theory of rank order statistics—the “trend” case. *Ann. Math. Statist.*, 28, 968–977. (RA, TR)
- [n] Sherman, B. Percentiles of the ω_n statistic. *Ann. Math. Statist.*, 28, 259–261. (RO)
- [o] Stepanov, V.E. Certain statistical criteria for Markov chains. *Teor. Veroyatnost. i Primenen.*, 2, 143–144 (Russian). (MC)
- [p] Stuart, A. The efficiency of the records test for trend in normal regression. *J. Roy. Statist. Soc. Ser. B*, 19, 149–153. (PW, RE, TR)
- [q] Zitek, F. On estimating transition probabilities. *Apl. Mat.*, 2, 251–257. (MC)

1958

- [a] Barton, D.E.; David, F.N., and Mallows, C.L. Non-randomness in a sequence of alternatives. I. Wilcoxon’s and allied test statistics. *Biometrika*, 45, 166–180. (RU, RA)
- [b] Barton, D.E., and David, F.N. Non-randomness in a sequence of two alternatives. II. Runs test. *Biometrika*, 45, 253–256. (RU)
- [c] Barton, D.E., and David, F.N. A test for birth order effect. *Ann. Eugenics*, 22, 250–257. (BO)
- [d] Broadbent, S.R. The inspection of a Markov process. *J. Roy. Statist. Soc. Ser. B*, 20, 111–119. (MC)
- [e] Cox, D.R. The regression analysis of binary sequences. *J. Roy. Statist. Soc. Ser. B*, 20, 215–242 (with discussion). (BO, MC)
- [f] Firescu, D. Fonctions d’estimation pour les probabilités fondamentales d’une chaîne de Markoff multiple, homogène, d’ordre fini. *Bull. Math. Soc. Sci. Math. Phys. R.P. Roumaine*, 2 (50), 401–410. (MC)
- [g] Firescu, D. Sur les fonctions d’estimation des probabilités de passage d’une chaîne de Markoff. *An. Univ. C.I. Parhon București Ser. Ști. Natur.*, 7 (18), 9–18. (MC)
- [h] Firescu, D. Fonctions d’estimation efficaces pour les probabilités de passage d’une chaîne de Markoff. *An. Univ. C.I. Parhon București Ser. Ști. Natur.*, 20, 37–47. (MC)
- [i] Fortet, R. Some aspects of analysis and probability. Recent advances in probability theory. *Surveys in Applied Mathematics IV*, Wiley, New York, 169–240. (MC)
- [j] Fortet, R. Résumés exhaustifs pour un processus de Markov. *C.R. Acad. Sci. Paris*, 247, 28–29. (MC)
- [k] Goodman, L.A. Exact probabilities and asymptotic relationships for some statistics from m -th order Markov chains. *Ann. Math. Statist.*, 29, 476–490. (MC)
- [l] Goodman, L.A. Asymptotic distributions of “psi-squared” goodness of fit criteria for m -th order Markov chains. *Ann. Math. Statist.*, 29, 1123–1133. (MC)
- [m] Goodman, L.A. Simplified runs tests and likelihood ratio tests for Markoff chains. *Biometrika*, 45, 181–197. (MC, RU)
- [n] Kiveliiovitch, M. Séries chronologiques. Quelques nouveaux tests quantitatifs. *J. Sci. Météorol.*, 10, 115–120. (RU)
- [o] Moore, P.G. Some properties of runs in quality control procedures. *Biometrika*, 45, 89–95. (RU)
- [p] Olmstead, P.S. Runs determined in a sample by an arbitrary cut. *Bell System Tech. J.*, 37, 55–82. (RU)

1959

- [a] Barton, D.E., and David, F.N. Combinatorial extreme distributions. *Mathematika*, 6, 63–76. (MRU, RU)
- [b] Bennett, B.M. Note on the power function of the X_n test in genetics. *Skand. Aktuarietidskr.*, 42, 1–5. (BO, PW)
- [c] Bui, T.L. Estimations pour des chaînes de Markov. Thèse de Doctorat, Université de Paris, Paris. (MC)

- [d] Cane, V.R. Behaviour sequences as semi-Markov chains. *J. Roy. Statist. Soc. Ser. B*, 21, 36–49. (MC)
- [e] Chacko, V.J. Testing homogeneity against ordered alternatives. Ph.D. Dissertation, University of California, Berkeley. (OA)
- [f] Darwin, J.H. Note on the comparison of several realizations of a Markoff chain. *Biometrika*, 46, 412–419. (MC)
- [g] Firescu, D. Fonctions d'estimation pour les probabilités de passage inverses d'une chaîne de Markov. *An. Univ. C.I. Parhon București Ser. Ști. Natur.*, 21, 15–22. (MC)
- [h] Gabriel, K.R. The distribution of the number of successes in a sequence of dependent trials. *Biometrika*, 46, 454–460. (MC, RU, TB)
- [i] Glasgow, M.O. Note on the factorial moments of the distribution of locally maximal elements in a random sample. *Ann. Math. Statist.*, 30, 586–590. (AX, RU)
- [j] Goodman, L.A. On some statistical tests for M th order Markov chains. *Ann. Math. Statist.*, 30, 154–164. (MC)
- [k] Goodman, L.A. A note on Stepanov's tests for Markov chains. *Teor. Veroyatnost. i Primenen.*, 4, 93–96. (MC)
- [l] Krishna Iyer, P.V., and N.S. Shakuntala. Cumulants of some distributions arising from a two-state Markoff chain. *Proc. Cambridge Philos. Soc.*, 55, 273–276. (MC)
- [m] Madansky, A. Least squares estimation in finite Markov processes. *Psychometrika*, 24, 137–144. (MC)
- [n] Marcus, M.B. Recurrent events in a Bernoulli sequence. *IRE Trans. Information Theory*, IT-5, 179–183. (Q, RU)
- [o] Mihoc, G., and Firescu, D. Fonctions d'estimation pour les paramètres d'une répartition de Markoff à densités de probabilité. *An. Univ. C.I. Parhon București Ser. Ști. Natur.*, 22, 9–16. (MC)
- [p] Miles, R.E. The complete amalgamation into blocks, by weighted means, of a finite set of real numbers. *Biometrika*, 46, 317–327. (OA)
- [q] Newell, G.F. A theory of platoon formation in tunnel traffic. *Operations Res.*, 7, 589–598. (RE)

1960

- [a] Bell, C.B. On the structure of distribution-free statistics. *Ann. Math. Statist.*, 31, 703–709. (A)
- [b] Bhat, B.R. Maximum likelihood estimation for positively regular Markov chains. *Sankhyā*, 22, 339–344. (MC)
- [c] Bhat, B.R., and Gani, J. A note on sufficiency in regular Markov chains. *Biometrika*, 47, 452–457. (MC)
- [d] Chassan, J.B. On a test for order. *Biometrics*, 16, 119–121. (OA)
- [e] Fortet, R.M. Problèmes de statistique concernant des chaînes de Markov. *Trans. Second Prague Conference on Information Theory, Statistical Decision Functions, Random Processes*, Publishing House of the Academy of Sciences, Prague, 159–175. (MC)
- [f] Gold, R.Z. Inference about Markov chains with nonstationary transition probabilities. Ph.D. Dissertation, Columbia Univ., New York. (MC)
- [g] Koopmans, L.H. Asymptotic rate of discrimination for Markov processes. *Ann. Math. Statist.*, 31, 982–994. (MC)
- [h] Newman, D.J. The distribution function for extreme luck. *Amer. Math. Monthly*, 67, 992–994. (RE, RU)

1961

- [a] Bartholomew, D.J. Ordered tests in the analysis of variance. *Biometrika*, 48, 325–332. (OA)
- [b] Bhat, B.R. On the asymptotic distribution of the “psi-squared” goodness of fit criteria for Markov chains and Markov sequences. *Ann. Math. Statist.*, 32, 49–58. (MC)

- [c] Billingsley, P. *Statistical Inference for Markov Processes*. Statistical Research Monographs, Vol. II, University of Chicago Press, Chicago. (MC)
- [d] Billingsley, P. Statistical methods in Markov chains. *Ann. Math. Statist.*, 32, 12–40. (MC)
- [e] Bofinger, E., and Bofinger, V.J. A runs test for sequences of random digits. *Austral. J. Statist.*, 3, 37–41. (RU)
- [f] Burr, E.J., and Cane, G. Longest run of consecutive observations having a specified attribute. *Biometrika*, 48, 461–465. (RU)
- [g] Durbin, J. Some methods of constructing exact tests. *Biometrika*, 48, 41–55. (RO)
- [h] Edgington, E.S. Probability table for number of runs of signs of first differences in ordered series. *J. Amer. Statist. Assoc.*, 56, 156–159. (RU, S, TB)
- [i] Goldsmith, P.L., and Whitfield, H. Average run lengths in cumulative chart quality control schemes. *Technometrics*, 3, 11–20. (RU)
- [j] Good, I.J. The frequency count for a Markov chain and the transition to continuous time. *Ann. Math. Statist.*, 32, 41–48. (MC)
- [k] Goodman, L.A., and Grunfeld, Y. Some nonparametric tests for comovements between time series. *J. Amer. Statist. Assoc.*, 56, 11–26. (MS, S)
- [l] Goodman, L.A. Statistical methods for the mover-stayer model. *J. Amer. Statist. Assoc.*, 56, 841–868. (MC)
- [m] Kerrich, J.E. Random remarks. *Amer. Statist.*, 15, 16–20. (RU)

1962

- [a] Albert, A. Estimating the infinitesimal generator of a continuous time, finite state Markov process. *Ann. Math. Statist.*, 33, 727–753. (MC)
- [b] Aoyama, H. Note on ordered random intervals and its application. *Ann. Inst. Statist. Math.*, 13, 243–250. (RO)
- [c] Barton, D.E.; David, F.N., and Fix, E. Persistence in a chain of multiple events when there is simple dependence. *Biometrika*, 49, 351–357. (RU)
- [d] Chassan, J.B. An extension of a test for order. *Biometrics*, 18, 245–247. (OA)
- [e] David, F.N., and Barton, D.E. *Combinatorial Chance*. Hafner Publishing Company, New York. (B, RE, RU)
- [f] Flatto, L., and Konheim, A.G. The random division of an interval and the random covering of a circle. *SIAM Rev.*, 4, 211–222. (RO)
- [g] Gabriel, K.R., and Neumann, J. A Markov chain model for daily rainfall occurrence at Tel-Aviv. *Quart. J. Roy. Meteorol. Soc.*, 88, 90–95. (MC)
- [h] Goldman, A.J., and Bender, B.K. The first run preceded by a quota. *J. Res. Nat. Bur. Standards Sect. B*, 66, 77–89. (Q, RU)
- [i] Goodman, L.A. Statistical methods for analyzing processes of change. *Amer. J. Sociol.*, 68, 57–78. (MC)
- [j] Kullback, S.; Kupperman, M., and Ku, H.H. Tests for contingency tables and Markov chains. *Technometrics*, 4, 573–608. (MC)
- [k] Mansfield, E. Power functions for Cox's test of randomness against trend. *Technometrics*, 4, 430–432. (PW, RA, TR)
- [l] Pielou, E.C. Runs of one species with respect to another in transects through plant populations. *Biometrics*, 18, 579–593. (Q, RU)
- [m] Prairie, R.R.; Zimmer, W.J., and Brookhouse, J.K. Some acceptance sampling plans based on the theory of runs. *Technometrics*, 4, 177–185. (RU)
- [n] Rényi, A. Théorie des éléments saillants d'une suite d'observations. *Ann. Fac. Sci. Univ. Clermont*, 8, 7–13. (RE)
- [o] Rényi, A. On the extreme elements of observations. *Magyar Tud. Akad. Mat. Fiz. Oszt. Közl.*, 12, 105–121 (Hungarian). (RE)
- [p] Savage, I.R. *Bibliography of Nonparametric Statistics*. Harvard University Press, Cambridge. (B)

- [q] Tulving, E. Subjective organization in free recall of "unrelated" words. *Psychol. Rev.*, 69, 344-354. (CLFR)

1963

- [a] Bartholomew, D.J. On Chassan's test for order. *Biometrics*, 19, 188-191. (OA)
- [b] Bohman, H. Test of randomness. *Skand. Aktuarietidskr.*, 46, 53-55. (RU)
- [c] Chacko, V.J. Testing homogeneity against ordered alternatives. *Ann. Math. Statist.*, 34, 945-956. (OA)
- [d] Edwards, A.W.F. Estimation of the parameters in short Markov sequences. *J. Roy. Statist. Soc. Ser. B*, 25, 206-208. (MC)
- [e] Gold, R.Z. Tests auxiliary to χ^2 tests in a Markov chain. *Ann. Math. Statist.*, 34, 56-74. (MC)
- [f] Goodman, L.A. Tests based on the movements in and the comovements between m -dependent time series. *Measurement in Economics, Studies in Mathematical Economics and Econometrics in Memory of Yehuda Grunfeld* (C. Christ, ed.). Stanford University Press, Stanford, 253-269. (MS)
- [g] Granger, C.W.J. A quick test for serial correlation suitable for use with non-stationary time series. *J. Amer. Statist. Assoc.*, 58, 728-736. (RU, S, SD)
- [h] Naus, J. Clustering of random points in line and plane. Ph.D. Dissertation, Harvard Univ., Cambridge. (RO)
- [i] Newell, G.F. Distribution for the smallest distance between any pair of k th nearest-neighbor random points on a line. *Proc. Symp. Time Series Anal.* (Brown Univ.), Wiley, New York, 89-103. (RO)
- [j] Page, E.B. Ordered hypotheses for multiple treatments: A significance test for linear ranks. *J. Amer. Statist. Assoc.*, 58, 216-230. (OA)
- [k] Pearson, E.S. Comparison of tests for randomness of points on a line. *Biometrika*, 50, 315-325. (RO)
- [l] Pielou, E.C. The distribution of diseased trees with respect to healthy ones in a patchily infected forest. *Biometrics*, 19, 450-459. (RU)
- [m] Pielou, E.C. Runs of healthy and diseased trees in transects through an infected forest. *Biometrics*, 19, 603-614. (RU)
- [n] Pillai, R.K. Some aspects of statistical inference for m -th order Markov processes. Ph.D. Dissertation, University of Michigan, Ann Arbor. (MC)
- [o] Pinkel, D.; Dowd, J.E., and Bross, I.D.J. Some epidemiological features of malignant solid tumors of children in the Buffalo, N.Y., area. *Cancer*, 16, 28-33. (CL)
- [p] Telsner, L.G. Least-squares estimates of transition probabilities. *Measurement in Economics, Studies in Mathematical Economics and Econometrics in Memory of Yehuda Grunfeld* (C. Christ, ed.). Stanford University Press, Stanford, 270-292. (MC)

1964

- [a] Bennett, B.M. A non-parametric test for randomness in a sequence of multinomial trials. *Biometrics*, 20, 182-190. (BO)
- [b] Boersma, F.J.; Dejonge, J.J., and Stellwagen, W.R. A power comparison of the F and L tests—I. *Psychol. Rev.*, 71, 505-513. (OA, PW)
- [c] Bousfield, W.A.; Puff, C.R., and Cowan, T.M. The development of constancies in sequential organization during repeated free recall. *J. Verbal Learn. Verbal. Behav.*, 3, 489-495. (CLFR)
- [d] Dwass, M. Extremal processes. *Ann. Math. Statist.*, 35, 1718-1725. (RE)
- [e] Ederer, F.; Myers, M.H., and Mantel, N. A statistical problem in space and time: do leukemia cases come in clusters? *Biometrics*, 20, 626-638. (CL)
- [f] Goodman, L.A. The analysis of persistence in a chain of multiple events. *Biometrika*, 51, 405-411. (MC)
- [g] Knox, G. The detection of space-time interactions. *Appl. Statist.*, 13, 25-29. (CL)
- [h] Knox, G. Epidemiology of childhood leukaemia in Northumberland and Durham. *British J. Prevent. Soc. Med.*, 18, 17-24. (CL)

1965

- [a] Barton, D.E., and Mallows, C.L. Some aspects of the random sequence. *Ann. Math. Statist.*, 36, 236–260. (B, RE, RU)
- [b] Barton, D.E.; David, F.N., and Merrington, M. A criterion for testing contagion in time and space. *Ann. Human Genet.*, 29, 97–102. (CL)
- [c] Barton, D.E.; David, F.N.; Fix, E.; Merrington, M., and Mustacchi, P. Tests for space-time interaction and a power function. *Proc. Fifth Berkeley Symp. Math. Statist. Probab.*, Vol. 4, University of California Press, Berkeley, 217–228. (CL)
- [d] Bogartz, R.S. The criterion method: some analyses and remarks. *Psychol. Bull.*, 64, 1–14. (Q)
- [e] Ferguson, G.A. *Nonparametric Trend Analysis*. McGill University Press, Montréal. (B, TR)
- [f] Fuchs, C.E., and David, H.T. Poisson limits of multivariate run distributions. *Ann. Math. Statist.*, 36, 215–225. (RU)
- [g] Naus, J.I. The distribution of the size of the maximum cluster of points on a line. *J. Amer. Statist. Assoc.*, 60, 532–538. (CL)
- [h] Phatarfod, R.M. Sequential analysis of dependent observations. I. *Biometrika*, 52, 157–165. (MC)
- [i] Pielou, E.C. The concept of segregation pattern in ecology: some discrete distributions applicable to run lengths of plant in narrow transects. *Classical and Contagious Discrete Distributions* (G.P. Patil, ed.). Pergamon Press, Oxford, 410–418. (RU)
- [j] Pielou, E.C. The concept of randomness in the patterns of mosaics. *Biometrics*, 21, 908–920. (RU)
- [k] Puri, M.L. Some distribution-free k -sample rank tests of homogeneity against ordered alternatives. *Comm. Pure Appl. Math.*, 18, 51–63. (OA)
- [l] Pyke, R. Spacings. *J. Roy. Statist. Soc. Ser. B*, 27, 395–449 (with discussion). (B, RO)
- [m] Roussas, G.G. Asymptotic inference in Markov processes. *Ann. Math. Statist.*, 36, 978–992. (MC)
- [n] Roussas, G.G. Extension to Markov processes of a result by A. Wald about the consistency of the maximum likelihood estimate. *Z. Wahrsch. Verw. Gebiete*, 4, 69–73. (MC)
- [o] Sen, P.K. Some non-parametric tests for m -dependent time series. *J. Amer. Statist. Assoc.*, 60, 134–147. (MS)
- [p] Wold, H.O.A. (ed.). *Bibliography on Time Series and Stochastic Processes*. Oliver and Boyd, Edinburgh. (B)

1966

- [a] Baum, L.E., and Petrie, T. Statistical inference for probabilistic functions of finite state Markov chains. *Ann. Math. Statist.*, 37, 1554–1563. (MC)
- [b] Bousfield, A.K., and Bousfield, W.A. Measurement of clustering and of sequential constancies in repeated free recall. *Psychol. Rep.*, 19, 935–942. (CLFR)
- [c] Brookner, E. Recurrent events in a Markov chain. *Inform. and Control*, 9, 215–229. (MC, Q)
- [d] Chacko, V.J. Modified chi-square test for ordered alternatives. *Sankhyā Ser. B*, 28, 185–190. (OA)
- [e] David, F.N., and Barton, D.E. Two space-time interaction tests for epidemics. *British J. Prevent. Soc. Med.*, 20, 44–48. (CL)
- [f] Mizuki, M. The number of generalized runs in a Markov chain sequence of a fixed length. Ph.D. Dissertation, Harvard Univ., Cambridge. (MC, RU)
- [g] Naus, J.I. Some probabilities, expectations, and variances for the size of largest clusters and smallest intervals. *J. Amer. Statist. Assoc.*, 61, 1191–1199. (CL)
- [h] Naus, J.I. A power comparison of two tests of non-random clustering. *Technometrics*, 8, 493–517. (CL, PW)
- [i] Ury, H.K. Large-sample sign tests for trend in dispersion. *Biometrika*, 53, 289–291. (PW, S, TRD)

1967

- [a] Barton, D.E. Completed runs of length k above and below median. *Technometrics*, 9, 682-694. (RU)
- [b] Doksum, K. Robust procedures for some linear models with one observation per cell. *Ann. Math. Statist.*, 38, 878-883. (OA)
- [c] Good, I.J., and Gover, T.N. The generalized serial test and the binary expansion of $\sqrt{2}$. *J. Roy. Statist. Soc. Ser. A*, 130, 102-107. (MC)
- [d] Hollander, M. Rank tests for randomized blocks when the alternatives have an a priori ordering. *Ann. Math. Statist.*, 38, 867-877. (OA)
- [e] Jonckheere, A.R., and Bower, G.H. Non-parametric trend tests for learning data. *British J. Math. Statist. Psychol.*, 20, 163-186. (OA)
- [f] Mantel, N. The detection of disease clustering and a generalized regression approach. *Cancer Res.*, 27, 209-220. (CL, P)
- [g] Neuts, M.F. Waiting times between record observations. *J. Appl. Probab.*, 4, 206-208. (RE)
- [h] Pielou, E.C. A test for random mingling of the phases of a mosaic. *Biometrics*, 23, 657-670. (RU)
- [i] Shorack, G.R. Testing against ordered alternatives in model I analysis of variance: normal theory and nonparametric. *Ann. Math. Statist.*, 38, 1740-1752. (OA)

1968

- [a] Bhattacharyya, G.K. Robust estimates of linear trend in multivariate time series. *Ann. Inst. Statist. Math.*, 20, 299-310. (MS, TR)
- [b] Fagan, J.F., III. Measuring verbal recall. II: The ITR score expressed as a ratio. *Psychonomic Sci.*, 11, 205. (CLFR)
- [c] Haller, H.S., Jr. Optimal c -sample rank-order procedures for selection and tests against slippage and ordered alternatives. Ph.D. Dissertation, Case Institute of Technology, Cleveland, Ohio. (OA)
- [d] James, W.H. Stillbirth and birth order. *Ann. Human Genet.*, 32, 151-162. (BO)
- [e] Lee, T.C.; Judge, G.G., and Zellner, A. Maximum likelihood and Bayesian estimation of transition probabilities. *J. Amer. Statist. Assoc.*, 63, 1162-1179. (MC)
- [f] Naus, J.I. An extension of the birthday problem. *Amer. Statist.*, 22, 27-29. (Q)
- [g] Pike, M.C., and Smith, P.G. Disease clustering: a generalization of Knox's approach to the detection of space-time interactions. *Biometrics*, 24, 541-556. (CL)
- [h] Rao, T.S. A note on the asymptotic relative efficiencies of Cox and Stuart's tests for testing trend in dispersion of a p -dependent time series. *Biometrika*, 55, 381-385. (PW, S, TRD)
- [i] Roussas, G.G. Asymptotic normality of the maximum likelihood estimate in Markov processes. *Metrika*, 14, 62-70. (MC)
- [j] Roussas, G.G. Some applications of the asymptotic distribution of likelihood functions to the asymptotic efficiency of estimates. *Z. Wahrsch. Verw. Gebiete*, 10, 252-260. (MC)
- [k] Runnels, L.K.; Thompson, R., and Runnels, P. Near-perfect runs as a learning criterion. *J. Math. Psychol.*, 5, 362-368. (RU)
- [l] Rustagi, J.S., and Srivastava, R.C. Parameter estimation in a Markov dependent firing distribution. *Operations Res.*, 16, 1222-1227. (MC)
- [m] Sen, P.K. Robustness of some nonparametric procedures in linear models. *Ann. Math. Statist.*, 39, 1913-1922. (OA)
- [n] Shorack, R.A. Recursive generation of the distribution of several nonparametric test statistics under censoring. *J. Amer. Statist. Assoc.*, 63, 353-366. (OA, TB)
- [o] Tsao, C.K. Admissibility and distribution of some probabilistic functions of discrete finite state Markov chains. *Ann. Math. Statist.*, 39, 1646-1653. (MC)
- [p] Whorton, E.B. The development and investigation of some extensions to the Ederer-Myers-Mantel procedure and testing for clustering. Ph.D. Dissertation, University of Oklahoma, Oklahoma. (CL)

- [q] Wolf, E.H. Test for randomness on the line and a related k -sample test for homogeneity. Ph.D. Dissertation, Rutgers Univ., New Jersey. (CL, RO)

1969

- [a] Aiyar, R.J. On some tests for trend and autocorrelation. Ph.D. Dissertation, University of California, Berkeley. (RA, SD, TR)
- [b] Bell, C.B., and Donoghue, J.F. Distribution-free tests of randomness. *Sankhyā Ser. A*, 31, 157-176. (A)
- [c] Bower, G.H.; Lesgold, A.M., and Tieman, D. Grouping operations in free recall. *J. Verbal Learn. Verbal Behav.*, 8, 481-493. (CLFR)
- [d] Bradley, J.V. A survey of sign tests based on the binomial distribution. *J. Qual. Technol.*, 1, 89-101. (B, RU, S, TR)
- [e] Dubman, M., and Sherman, B. Estimation of parameters in a transient Markov chain arising in a reliability growth model. *Ann. Math. Statist.*, 40, 1542-1556. (MC)
- [f] Dunn, J.E. A compounded multiple runs distribution. *J. Amer. Statist. Assoc.*, 64, 1415-1423. (MRO)
- [g] Holmes, P.T., and Strawderman, W.E. A note on the waiting times between record observations. *J. Appl. Probab.*, 6, 711-714. (RE)
- [h] Johnson, R.A., and Roussas, G.G. Asymptotically most powerful tests in Markov processes. *Ann. Math. Statist.*, 40, 1207-1215. (MC)
- [i] Langman, M.K. Some new trend tests. Ph.D. Dissertation, Case Western Reserve Univ., Cleveland. (PW, RU, TR)
- [j] Lissitz, R.W. Testing assumptions of Markov chains: Empirical and theoretical distributions under the alternative hypotheses. Ph.D. Dissertation, Syracuse Univ., New York. (MC)
- [k] Roussas, G.G. Nonparametric estimation of the transition distribution function of a Markov process. *Ann. Math. Statist.*, 40, 1386-1400. (MC)
- [l] Shaughnessy, P.W. The distribution theory of runs in finite Markov chains. Ph.D. Dissertation, Catholic University of America, Washington, D.C., (MC, RU)
- [m] Shuell, T.J. Clustering and organization in free recall. *Psychol. Bull.*, 72, 353-374. (CLFR)
- [n] Tata, M.N. On outstanding values in a sequence of random variables. *Z. Wahrsch. Verw. Gebiete*, 12, 9-20. (RE)

1970

- [a] Bell, C.B.; Woodroffe, M., and Avadhani, T.V. Some nonparametric tests for stochastic processes. *Nonparametric Techniques in Statistical Inference* (M.L. Puri, ed.), Cambridge University Press, Cambridge, 215-258. (A)
- [b] Boza, L.B. Asymptotically optimal tests for finite Markov chains. Ph.D. Dissertation, University of California, Berkeley. (MC)
- [c] Dalrymple-Alford, E.C. Measurement of clustering in free recall. *Psychol. Bull.*, 74, 32-34. (CLFR)
- [d] Dickey, J.M., and Lientz, B.P. The weighted likelihood ratio, sharp hypotheses about chances, the order of a Markov chain. *Ann. Math. Statist.*, 41, 214-226. (MC)
- [e] Downham, D.Y. The runs up and down test. *Appl. Statist.*, 19, 190-192. (CP, RU)
- [f] Goyal, T.L. The statistical analysis of semi-Markov processes with applications to queuing problems. D.Sc. Engrg. Dissertation, George Washington Univ., Washington, D.C. (MC)
- [g] Greenberg, I. The first occurrence of n successes in N trials. *Technometrics*, 12, 627-634. (Q)
- [h] Guthrie, D., and Youssef, M.N. Empirical evaluation of some chi-square tests for the order of a Markov chain. *J. Amer. Statist. Assoc.*, 65, 631-634. (MC)
- [i] Helgert, H.J. On sums of random variables defined on a two-state Markov chain. *J. Appl. Probab.*, 7, 761-765. (MC)
- [j] Henry, N.W. Problems in the statistical analysis of Markov chains. Ph.D. Dissertation, Columbia Univ., New York. (MC)

- [k] Johnson, R.A., and Roussas, G.G. Asymptotically optimal tests in Markov processes. *Ann. Math. Statist.*, 41, 918–938. (MC)
- [l] Knoke, J.D. Testing for randomness against autocorrelated alternatives. Ph.D. Dissertation, University of California, Los Angeles. (RA, SD)
- [m] Mantel, N., and Bailer, J.C., III. A class of permutational and multinomial tests arising in epidemiological research. *Biometrics*, 26, 687–700. (CL, P)
- [n] Mantel, N., and Valand, R.S. A technique of nonparametric multivariate analysis. *Biometrics*, 26, 547–558. (CL, P)
- [o] Oprian, C.A. On the exact power functions of some rank tests for trend alternative. Ph.D. Dissertation, Ohio State Univ., Columbus. (PW, RA, TR)
- [p] Pirie, W.R. Distribution-free tests for ordered alternatives in the randomized block model. Ph.D. Dissertation, Florida State Univ., Tallahassee. (OA)
- [q] Sethuraman, J., and Rao, J.S. Pitman efficiencies of tests based on spacings. *Nonparametric Techniques in Statistical Inference* (M.L. Puri, ed.), Cambridge University Press, Cambridge, 405–415. (PW, RO)
- [r] Strawderman, W.E., and Holmes, P.T. On the law of the iterated logarithm for inter-record times. *J. Appl. Probab.*, 7, 432–439. (RE)

1971

- [a] Borwanker, J.; Kallianpur, G., and Prakasa Rao, B.L.S. The Bernstein-von Mises theorem for Markov processes. *Ann. Math. Statist.*, 42, 1241–1253. (MC)
- [b] Boza, L.B. Asymptotically optimal tests for finite Markov chains. *Ann. Math. Statist.*, 42, 1992–2007. (MC)
- [c] Brock, D.B. Statistical inference for Markov renewal processes. Ph.D. Dissertation, Southern Methodist Univ., Dallas. (MC)
- [d] Byrd, R.N. A multivariate runs statistic. Ph.D. Dissertation, Montana State Univ., Bozeman. (MRU)
- [e] Frankel, F., and Cole, M. Measures of category clustering in free recall. *Psychol. Bull.*, 76, 39–44. (CLFR)
- [f] Iverson, G.R.; Longcor, W.H.; Mosteller, F.; Gilbert, J.P., and Youtz, C. Bias and runs in dice throwing and recording: a few million throws. *Psychometrika*, 36, 1–19. (RU)
- [g] Klauber, M.R. Two-sample randomization tests for space-time clustering. *Biometrics*, 27, 129–142. (CL)
- [h] Lissitz, R.W., and Halperin, S. A computer program for estimating the power of tests of assumptions of Markov chains. *Educ. Psychol. Meas.*, 31, 287–291. (CP, MC)
- [i] Odeh, R.E. On Jonckheere's k -sample test against ordered alternatives. *Technometrics*, 13, 912–918. (OA, TB)
- [j] Preston, P.F. An empirical Bayes problem with a Markovian parameter. *Biometrika*, 58, 535–543. (MC)
- [k] Roberge, J.J. A computer program for nonparametric post hoc comparisons for trend. *Educ. Psychol. Meas.*, 31, 275–278. (CP, TR)
- [l] Roenker, D.L.; Thompson, C.P., and Browin, S.C. Comparison of measures for the estimation of clustering in free recall. *Psychol. Bull.*, 76, 45–48. (CLFR)
- [m] Wallenstein, S.R. Coincidence probabilities used in nearest neighbor problems on the line and circle. Ph.D. Dissertation, Rutgers Univ., New Brunswick, N. J. (CL)

1972

- [a] Bahadur, R.R., and Ragavachari, M. Some asymptotic properties of likelihood ratios on general sample spaces. *Proc. Sixth Berkeley Symp. Math. Statist. Probab.*, Vol. 1, University of California Press, Berkeley, 129–152. (MC)
- [b] Barlow, R.E.; Bartholomew, D.J.; Bremner, J.M., and Brunk, H.D. *Statistical Inference under Order Restrictions*. Wiley, New York. (B, OA)
- [c] Basawa, I.V. Estimation of the autocorrelation coefficient, in simple Markov chains. *Biometrika*, 59, 85–89 (MC)

- [d] Beran, R.J. Rank spectral processes and tests for serial dependence. *Ann. Math. Statist.*, 43, 1749–1766. (RA, SD)
- [e] Cox, D.R. The statistical analysis of dependencies in point processes. *Stochastic Point Processes: Statistical Analysis, Theory and Applications* (P.A.W. Lewis, ed.), Wiley, New York, 55–66. (MC)
- [f] Duncan, G.T., and Lin, L.G. Inference for Markov chains having stochastic entry and exit. *J. Amer. Statist. Assoc.*, 67, 761–767. (MC)
- [g] Gänssler, P. Note on minimum contrast estimates for Markov processes. *Metrika*, 19, 115–130. (MC)
- [h] Green, J.J. Two runs tests of randomness against trend. Ph.D. Dissertation, Cornell Univ., Ithaca. (RU, TR)
- [i] Guillier, C.L. Asymptotic relative efficiencies of rank tests for trend alternatives. Ph.D. Dissertation, University of California, Berkeley. (PW, RA, TR)
- [j] Handa, B.R. Choice of initial states in estimating transition probabilities of a finite ergodic Markov chain. *Biometrika*, 59, 407–414. (MC)
- [k] Holgate, P. The use of distance methods for the analysis of spatial distribution of points. *Stochastic Point Processes: Statistical Analysis, Theory and Applications* (P.A.W. Lewis, ed.), Wiley, New York, 122–135. (MC)
- [l] Johnson, M.M. A test for periodic effects in time series data. *Internat. J. Systems Sci.*, 3, 85–92. (CP, P, SD, TR)
- [m] Klotz, J.H. Markov chain clustering of births by sex. *Proc. Sixth Berkeley Symp. Math. Statist. Probab.*, Vol. 4, University of California Press, Berkeley, 173–185. (CL, MC)
- [n] Lissitz, R.W. Comparison of the small sample power of the chi-square and likelihood ratio tests of the assumptions for stochastic models. *J. Amer. Statist. Assoc.*, 67, 574–577. (MC, PW)
- [o] Odeh, R.E. On the power of Jonckheere's k -sample test against ordered alternatives. *Biometrika*, 59, 467–471. (OA, PW)
- [p] Pirie, W.R., and Hollander, M. A distribution-free normal scores test for ordered alternatives in randomized block design. *J. Amer. Statist. Assoc.*, 67, 855–857. (OA)
- [q] Sarma, Y.R.K. Large sample theory of sequential estimation in stationary Markov processes. *Publ. Inst. Statist, Univ. Paris*, 21, 57–70 (appeared in 1976). (MC)
- [r] Shorrock, R.W. A limit theorem for inter-record times. *J. Appl. Probab.*, 9, 219–223. Corrigendum: *J. Appl. Probab.*, 9, 877. (RE)
- [s] Shorrock, R.W. On record values and record times. *J. Appl. Probab.*, 9, 316–326. (RE)
- [t] Travnicek, D.A. Bayesian analysis of Markov chains and inference in stochastic models. Ph.D. Dissertation, Ohio State Univ., Columbus. (MC)
- [u] Troxell, J.R. An investigation of suspension systems for small scale inspections. Ph.D. Dissertation, Rutgers Univ., New Brunswick, New Jersey. (Q)
- [v] Zar, J.H. Significance testing of the Spearman rank correlation coefficient. *J. Amer. Statist. Assoc.*, 67, 578–580. (RA)
- [w] Zaremba, S.K. Tests for the presence of trends in linear processes. *Dissertationes Math.*, 94, 1–58. (TR)

1973

- [a] Abe, O. Note on the methodology of Knox's test of "time and space interaction." *Biometrics*, 29, 67–77. (CL)
- [b] Apokorin, D.S. Asymptotic properties of Markov chain parameter estimates. *Problems Control Inform. Theory*, 2, 219–234. (MC)
- [c] Chuang, Shui-Nan. Some topics on stochastic processes with finite degrees of randomness. Ph.D. Dissertation, State University of New York, Buffalo. (MC)
- [d] D'Abbrera, H. Some rank tests for ordered alternatives. Ph.D. Dissertation, University of California, Berkeley. (OA)
- [e] Devore, J.L. Reconstructing a noisy Markov chain. *J. Amer. Statist. Assoc.*, 68, 394–398. (MC)

- [f] Devore, J.L. Reconstructing a noisy Markov chain using near-neighbor rules. *J. Amer. Statist. Assoc.*, 68, 599–602. (MC)
- [g] Good, I.J. The joint probability generating function for run-lengths in regenerative binary Markov chains, with applications. *Ann. Statist.*, 1, 933–939. (MC, RU)
- [h] Guthrie, G.L. On record and inter-record times for a sequence of random variables defined on a Markov chain. Ph.D. Dissertation, Clemson Univ., Clemson, South Carolina. (MC, RE)
- [i] Haghghi-Talab, D., and Wright, C. On the distribution of records in a finite sequence of observations, with an application to a road traffic problem. *J. Appl. Probab.*, 10, 556–571. (RE)
- [j] Hatem, A. Analysis of higher order Markov and semi-Markov chains. Ph.D. Dissertation, Oklahoma State Univ., Stillwater. (MC)
- [k] Kelly, M.E. Application of the theory of combinatorial chance to the estimation of significance of clustering in free recall. *British J. Math. Statist. Psychol.*, 26, 270–280. (CLFR)
- [l] Larsen, R.J.; Holmes, C.L., and Heath, C.W. A statistical test for measuring unimodal clustering: a description of the test and of its application to cases of acute leukemia in metropolitan Atlanta, Georgia. *Biometrics*, 29, 301–309. (CL)
- [m] Pawlowski, Z. A nonparametric test for autocorrelation. *Przegląd Statyst.*, 20, 3–10 (Polish). (P, SD)
- [n] Prakasa Rao, B.L.S. On the rate of convergence of estimators for Markov processes. *Z. Wahrsch. Verw. Gebiete*, 26, 141–152. (MC)
- [o] Resnick, S.I. Limit laws for record values. *Stochastic Process. Appl.*, 1, 67–82. (RE)
- [p] Resnick, S.I. Record values and maxima. *Ann. Probab.*, 1, 650–662. (RE)
- [q] Resnick, S.I. Extremal processes and record value times. *J. Appl. Probab.*, 10, 864–868. (RE)
- [r] Resnick, S.I., and Rubinovitch, M. The structure of extremal processes. *Adv. in Appl. Probab.*, 5, 287–307. (RE)
- [s] Saperstein, B. On the occurrence of n successes within N Bernoulli trials. *Technometrics*, 15, 809–818. (Q)
- [t] Schmid, J.R. Solution algorithms for Markov decision processes and sequential analysis. Ph.D. Dissertation, Iowa State Univ., Ames. (MC)
- [u] Shorrock, R.W. Record values and inter-record times. *J. Appl. Probab.*, 10, 543–555. (RE)
- [v] Srivastava, S. Joint distributions based on runs and on the number of intersections. *Studia Sci. Math. Hungar.*, 8, 211–224. (RU)
- [w] Taylor, J.L. Perseverative errors as a function of the uncertainty error rate in the prediction of homogeneous runs of binary events. Ph.D. Dissertation, University of Miami, Coral Gables. (RU)
- [x] Tryon, P.V., and Hettmansperger, T.P. A class of non-parametric tests for homogeneity against ordered alternatives. *Ann. Statist.*, 1, 1061–1070. (OA)
- [y] Vervaat, W. Limit theorems for records from discrete distributions. *Stochastic Process. Appl.*, 1, 317–334. (RE)
- [z] Wallenstein, S.R., and Naus, J.I. Probabilities for a k th nearest neighbor problem on the line. *Ann. Probab.*, 1, 188–190. (CL, RO)
- [aa] Walter, S.D. Testing for clusters of disease within households. *Bull. Inst. Internat. Statist.*, 45, 577–579. (CL)
- [bb] Whitlock, J.S., Jr. Modeling computer systems with time-varying Markov chains. Ph.D. Dissertation, University of North Carolina, Chapel Hill. (CP, MC)
- 1974
- [a] Ahmad, R. Distribution-free statistical hypotheses testing for stochastic processes. *Math. Operationsforsch. Statist.*, 5, 643–656. (A)
- [b] Alam, K. Some nonparametric tests of randomness. *J. Amer. Statist. Assoc.*, 69, 738–739. (RA, TR)

- [c] Bai, D.S., and Rustagi, J.S. Inference in a waiting-time distribution derived from dependent Bernoulli trials. *Comm. Statist.*, 3, 361–371. (MC)
- [d] Biondini, R.W. Record-breakings in Markov sequences. Ph.D. Dissertation, Colorado State Univ., Fort Collins. (MC, RE)
- [e] Frender, R., and Doubilet, P. More on measures of category clustering in free recall—although probably not the last word. *Psychol. Bull.*, 81, 64–66. (CLFR)
- [f] Imhof, J.P. Runs of a discrete time regenerative phenomenon. *J. Appl. Probab.*, 11, 588–593. (RU)
- [g] Johnson, C.A., and Klotz, J.H. The atom probe and Markov chain statistics of clustering. *Technometrics*, 16, 483–493. (CL, MC)
- [h] Knight, W. A run-like statistic for ecological transects. *Biometrics*, 30, 553–555. (RU)
- [i] Liebetrau, A.M. Estimation of the second-order properties of weakly stationary point processes and related tests of randomness. Ph.D. Dissertation, University of Michigan, Ann Arbor. (MC)
- [j] Mikhailov, V.G. Limit distributions of random variables associated with multiple long duplications in a sequence of independent trials. *Theory. Probab. Appl.*, 19, 180–184. (RU)
- [k] Naus, J. Probabilities for a generalized birthday problem. *J. Amer. Statist. Assoc.*, 69, 810–815. (Q)
- [l] Pirie, W.R. Comparing rank tests for ordered alternatives in randomized blocks. *Ann. Statist.*, 2, 374–382. Corrigendum: *Ann. Statist.*, 3, 796. (OA)
- [m] Pike, M.C., and Bull, D. Knox test for space-time clustering in epidemiology. *Appl. Statist.*, 23, 92–95. (CL, CP)
- [n] Rajarshi, M.B. Success runs in a two-state Markov chain. *J. Appl. Probab.*, 11, 190–192. (MC, RU)
- [o] Shorrock, R.W. On discrete time extremal processes. *Adv. in Appl. Probab.*, 6, 580–592. (RE)
- [p] Wallenstein, S.R., and Naus, J.I. Probabilities for the size of largest clusters and smallest intervals. *J. Amer. Statist. Assoc.*, 69, 690–697. (CL)
- [q] Wolfson, D.B. Limit theorems for sums of a sequence of random variables defined on a Markov chain. Ph.D. Dissertation, Purdue Univ., West Lafayette, Indiana. (MC)
- [r] Zubkov, A.M., and Mikhailov, V.G. Limit distributions of random variables associated with long duplications in a sequence of independent trials. *Theory. Probab. Appl.*, 19, 172–179. (RU)

1975

- [a] Arnold, B.C. Significant category clustering in free recall. *Psychometrika*, 40, 579–581. (CLFR)
- [b] Bai, D.S. Efficient estimation of transition probabilities in a Markov chain. *Ann. Statist.*, 3, 1305–1317. (MC)
- [c] Bartholomew, D.J. Errors of prediction for Markov chain models. *J. Roy. Statist. Soc. Ser. B*, 37, 444–456. (MC)
- [d] Beran, R. Local asymptotic power of quadratic rank tests for trend. *Ann. Statist.*, 3, 401–412. (PW, RA, TR)
- [e] Cooper, M. A non-parametric test for increasing trend. *Educ. Psychol. Meas.*, 35, 303–306. (RA, TR)
- [f] Cressie, N.A. Testing for uniformity against a clustering alternative. Ph.D. Dissertation, Princeton Univ., Princeton. (CL)
- [g] Edgington, E.S. Randomization tests for predicted trends. *Canad. Psychol. Rev.*, 16, 49–53. (P, TR)
- [h] Hettmansperger, T.P. Non-parametric inference for ordered alternatives in a randomized block design. *Psychometrika*, 40, 53–62. (OA)
- [i] Huntington, R.J., and Naus, J.I. A simpler expression for k th nearest neighbor coincidence probabilities. *Ann. Probab.*, 3, 894–896. (Q, RO)

- [j] Hušková, M. Multivariate rank statistics for testing randomness concerning some marginal distributions. *J. Multivariate Anal.*, 5, 487–496. (RA, TR)
- [k] Klauber, M.R. Space-time clustering tests for more than two samples. *Biometrics*, 31, 719–726. (CL)
- [l] Komlós, J., and Tusnády, G. On sequences of ‘pure heads’. *Ann. Probab.*, 3, 608–617. (RU)
- [m] Ladd, D.W. An algorithm for the binomial distribution with dependent trials. *J. Amer. Statist. Assoc.*, 70, 333–340. (MC)
- [n] Nelson, P.L., and Toothaker, L.E. An empirical study of Jonckheere’s non-parametric test of ordered alternatives. *British J. Math. Statist. Psychol.*, 28, 167–176. (OA)
- [o] Otto, P. Zur asymptotischen Effektivität von Parameterschätzungen für semimarkovsche Prozesse. *Wiss. Z. Tech. Univ. Dresden*, 24, 383–388. (MC)
- [p] Pawlowski, Z. A non-parametric test for testing hypotheses concerning several coefficients of autocorrelation. *Przegląd Statyst.*, 22, 349–360 (Polish). (P, SD)
- [q] Pellegrino, J.W. A reply to Frender and Doubilet on the measurement of clustering. *Psychol. Bull.*, 82, 66–67. (CLFR)
- [r] Pirie, W.R., and Hollander, M. Note on a Tukey test for ordered alternatives. *Ann. Inst. Statist. Math.*, 27, 521–523. (OA)
- [s] Raouf, A., and Sathé, P.T. A runs test for sample non-randomness. *J. Qual. Technol.*, 7, 196–199. (RU)
- [t] Resnick, S.I. Weak convergence to extremal processes. *Ann. Probab.*, 3, 951–960. (RE)
- [u] Roberts, C.J.; Laurence, K.M., and Lloyd, S. An investigation of space and space-time clustering in a large sample of infants with neural tube defects born in Cardiff. *British J. Prevent. Soc. Med.*, 29, 202–204. (CL)
- [v] Ross, S.M. A note on optimal stopping for success runs. *Ann. Statist.*, 3, 793–795. (RU)
- [w] Sharp, S.A. Corrections to likelihood ratio tests of hypotheses concerning the parameters of Markov chains. *Biometrika*, 62, 595–598. (MC)
- [x] Siddiqui, M.M., and Biondini, R.W. The joint distribution of record values and inter-record times. *Ann. Probab.*, 3, 1012–1013. (RE)
- [y] Skillings, J.H. Distribution-free tests for ordered alternatives in block designs. Ph.D. Dissertation, Ohio State Univ., Columbus. (OA)
- [z] Snijders, T. A test for randomness in behaviour. *Statistica Neerlandica*, 29, 39–48. (MC)
- [aa] Stewart, G.R. Statistical tests for the comparison of Markov renewal processes. Ph.D. Dissertation, Texas A. & M. Univ., College Station. (MC)

1976

- [a] Adichie, J.N. Testing parallelism of regression lines against ordered alternatives. *Comm. Statist. A—Theory Methods*, 5, 985–997. (OA)
- [b] Brunden, M.N., and Mohberg, N.R. The Bernard-van Elteren statistic and nonparametric computation. *Comm. Statist. B—Simulation Comput.*, 5, 155–162. (OA)
- [c] Devore, J.L. A note on the estimation of parameters in a Bernoulli model with dependence. *Ann. Statist.*, 4, 990–992. (MC)
- [d] Diem, J.H. Estimation in a non-stationary Markov chain. Ph.D. Dissertation, Tulane Univ., New Orleans. (MC)
- [e] Dziubdziela, W., and Kopocinski, B. Limiting properties of the k th record values. *Zastos. Math.*, 15, 187–190. (RE)
- [f] Edgington, E.S., and Strain, A.R. A computer program for randomization tests for predicted trends. *Behav. Res. Methods Instrumentation*, 8, 470. (CP, P, TR)
- [g] Freudenberg, W., and Szynal, D. Limit laws for a random number of record values. *Bull. Acad. Polon. Sci. Sér. Sci. Math. Astronom. Phys.*, 24, 193–199. (RE)
- [h] Govindarajulu, Z. A brief survey of nonparametric statistics. *Comm. Statist. A—Theory Methods*, 5, 429–453. (B)
- [i] Grobbelaar, J.W., and Crouse, C.F. The extreme tau test for single lag econometric models. *South African Statist. J.*, 10, 187–194. (MS)

- [j] Gupta, G.D. Some nonparametric tests of randomness and of ordered alternatives. Ph.D. Dissertation, University of Kentucky, Lexington. (OA, PW, RA)
- [k] Hubert, L.J., and Levin, J.R. A general statistical framework for assessing categorical clustering in free recall. *Psychol. Bull.*, 83, 1072–1080. (CLFR)
- [l] Huntington, R.J. Mean recurrence times for k successes within m trials. *J. Appl. Probab.*, 13, 604–607. (Q)
- [m] Kedem, B. Sufficient statistics associated with a two-state second-order Markov chain. *Biometrika*, 63, 127–132. (MC)
- [n] Lee, Y.J., and Wolfe, D.A. A distribution-free test for stochastic ordering. *J. Amer. Statist. Assoc.*, 71, 722–727. (OA)
- [o] Lin, F.O. and Haseman, J.K. A modified Jonckheere test against ordered alternatives when ties are present at a single extreme value. *Biom. Z.*, 18, 623–631. (OA)
- [p] Mantel, N.; Kryscio, R.J., and Myers, M.H. Tables and formulas for extended use of the Ederer-Myers-Mantel disease-clustering procedure. *Amer. J. Epidem.*, 104, 576–584. (CL, TB)
- [q] O'Brien, P.C. A test for randomness. *Biometrics*, 32, 391–401. (CL)
- [r] Oprian, C.A. On the exact power of rank tests for a Lehmann-type trend alternative. *Metron*, 34, 191–199. (PW, RA, TR)
- [s] Page, K.; Schlittgen, R., and Stahl, H. Exact tests for Markov chains. *COMPSTAT 1976. Proc. Second Symp. Comput. Statist.* (J. Gordesch and P. Naeve, eds.), Physica-Verlag, Wien, 46–54. (MC)
- [t] Price, B. A note on estimation in Bernoulli trials with dependence. *Comm. Statist. A—Theory Methods*, 5, 661–671. (MC)
- [u] Reinach, S.G. Multiple testing procedures for the K -sample runs test. *South African Statist. J.*, 10, 117–133. (MRU)
- [v] Rényi, A. On the extreme elements of observations. *Selected Papers of Alfred Rényi* (P. Turan, ed.), Vol. 3, Akadémiai Kiado, Budapest, 50–66. (RE)
- [w] Sandland, R.L. Application of methods of testing the independence between two Markov chains. *Biometrics*, 32, 629–636. (MC, MS)
- [x] Shaikh, A. Statistical inference for Markov chains with lumped states. *Biometrika*, 63, 211–213. Corrigendum: *Biometrika*, 65, 455. (MC)

1977

- [a] Burr, P.C., and Young, D.H. Critical values for the exponential scores trend statistic. *Biometrika*, 64, 640–642. (RA, TR)
- [b] Domanski, C. Unconditional distribution of the number of runs for three-type elements. *Przegląd Statyst.*, 24, 249–258. (MRU)
- [c] Govindarajulu, Z., and Haller, H.S. c -sample tests of homogeneity against ordered alternatives. *Proc. Symp. to Honour Jerzy Neyman* (R. Bartoszynski and E. Fidelis, eds.), Pantswowe Wydawnictwo Naukowe, Warszawa, 91–102. (OA)
- [d] Guilbaud, O. Estimating the probability eigenvector and related characteristic of an ergodic transition matrix. *Scand. J. Statist.*, 4, 97–104. (MC)
- [e] Hsu, L. An examination of Cooper's test for monotonic trend. *Educ. Psychol. Meas.*, 37, 843–845. (RA, TR)
- [f] Hubert, L.J., and Levin, J.R. Inference models for categorical clustering. *Psychol. Bull.*, 84, 878–887. (CL, RU)
- [g] Knoke, J.D. Testing for randomness against autocorrelation: alternative tests. *Biometrika*, 64, 523–529. (PW, RA, SD)
- [h] Kotowska, J. Problems of estimation of Markov chain parameters on macrodata. *Przegląd Statyst.*, 24, 129–142 (Polish). (MC)
- [i] Koziol, J.A. On goodness of fit tests based on the empirical distribution function for uniform spacings. *J. Roy. Statist. Soc. Ser. B*, 39, 333–336. (RO)
- [j] Koziol, J.A., and Reid, N. On the asymptotic equivalence of two ranking methods for k -sample linear rank statistics. *Ann. Statist.*, 5, 1099–1106. (OA)

- [k] Lee, Y.J. Maximin tests of randomness against ordered alternatives: the multinomial distribution case. *J. Amer. Statist. Assoc.*, 72, 673–675. (OA)
- [l] Macrae, E.C. Estimation of time-varying Markov processes with aggregate data. *Econometrica*, 45, 183–198. (MC)
- [m] Mirzamedov, M.A., and Tursunov, G.T. An estimate of the derivatives of the initial and the transition distribution functions of a Markov process from a sample of random size. *Izv. Akad. Nauk UZSSR Ser. Fiz-Mat. Nauk.* 6, 11–19 (Russian). (MC)
- [n] Moore, P.G. Nonparametric statistics: III. Runs. *International Encyclopedia of Statistics* (W.H. Kruskal and J.M. Tanur, eds.), The Free Press, New York, 655–661. (B, RU)
- [o] Mullet, G.M. Process analysis using the runs test. *J. Qual. Technol.*, 9, 1–5. (CP, RU)
- [p] Quesenberry, C.P., and Miller, F.L. Power studies of some tests for uniformity. *J. Statist. Comput. Simulation*, 5, 169–191. (PW, RO)
- [q] Roussas, G.G. Asymptotic properties of the maximum probability estimates in Markov processes. *Ann. Inst. Statist. Math.*, 29, 203–219. (MC)
- [r] Seleacu, V. A problem of statistical inference on absorbing Markov chains. *Studii Cerc. Mat.*, 29, 419–422. (MC)
- [s] Skillings, J.H., and Wolfe, D.A. Testing for ordered alternatives by combining independent distribution-free block statistics. *Comm. Statist. A—Theory Methods*, 6, 1453–1463. (OA)
- [t] Spjøtvoll, E. Ordering ordered parameters. *Biometrika*, 64, 327–334. (OA)
- [u] Strauss, D. Runs of occupied cells. *Biometrika*, 64, 170–171. (CL, RU)
- [v] Thomas, M.U., and Barr, D.R. An approximate test of Markov chain lumpability. *J. Amer. Statist. Assoc.*, 72, 175–179. (MC)

1978

- [a] Aalen, O. Nonparametric estimation of partial transition probabilities in multiple decrement models. *Ann. Statist.*, 6, 534–545. (MC)
- [b] Aalen, O., and Johansen, S. An empirical transition matrix for nonhomogeneous Markov chains based on censored observations. *Scand. J. Statist.*, 5, 141–150. (MC)
- [c] Aalen, O. Nonparametric inference for a family of counting processes. *Ann. Statist.*, 6, 701–726. (MC)
- [d] Bedall, F.K. Test statistics for simple Markov chains. A Monte-Carlo study. *Biometrical J.*, 20, 41–49. (MC)
- [e] Burr, P.C., and Young, D.H. The power of the exponential scores test for an ordinary renewal process against trend alternatives. *Comm. Statist. A—Theory Methods*, 7, 461–473. (PW, RA, TR)
- [f] Christiansen, H.D. Estimation of transition matrices for Markov processes in equilibrium. *Scand. Actuar. J.*, 1978, 129–140. (MC)
- [g] Denny, J.L., and Wright, A.L. On tests for Markov dependence. *Z. Wahrsch. Verw. Gebiete*, 43, 331–338. (B, MC)
- [h] Denny, J.L., and Yakowitz, S. J. Admissible run-contingency type tests for independence and Markov dependence. *J. Amer. Statist. Assoc.*, 73, 177–181. (MC, RU)
- [i] Fleming, T.R. Nonparametric estimation for nonhomogeneous Markov processes in the problem of competing risks. *Ann. Statist.*, 6, 1057–1070. (MC)
- [j] Fleming, T.R., and Harrington, D.P. Estimation for discrete time nonhomogeneous Markov chains. *Stochastic Process. Appl.*, 7, 131–139. (MC)
- [k] Fleming, T.R. Asymptotic distribution results in competing risks estimation. *Ann. Statist.*, 6, 1071–1079. (MC)
- [l] Gillert, H. Maximum-likelihood-Schätzungen für Parameter in homogenen Markovschen Ketten. *Math. Operationsforsch. Statist. Ser. Statist.*, 9, 217–226. (MC)
- [m] Glick, N. Breaking records and breaking boards. *Amer. Math. Monthly*, 85, 2–26. (B, RE)
- [n] Guenther, W.C. Some remarks on the runs test and the use of the hypergeometric distribution. *Ann. Statist.*, 32, 71–73. (RU)

- [o] Jacobs, P.A., and Lewis, P.A.W. Discrete time series generated by mixtures. I: Correlational and runs properties. *J. Roy. Statist. Soc. Ser. B*, 40, 94–105. (RU)
- [p] Johansen, S. The product limit estimator as maximum likelihood estimator. *Scand. J. Statist.*, 5, 195–199. (MC)
- [q] Koziol, J.A.; Reid, N., and Levitt, M.H. A simple nonparametric test for trend: an example based on a biological model for cancer of the Pancreas. *Biometrical J.*, 20, 503–509. (OA)
- [r] Küchler, I. Der sequentielle Quotiententest bei irreduziblen homogenen Markovschen Ketten mit endlichem Zustandsraum. *Math. Operationsforsch. Statist. Ser. Statist.*, 9, 227–239. (MC)
- [s] Lindqvist, B. A note on Bernoulli trials with dependence. *Scand. J. Statist.*, 5, 205–208. (MC)
- [t] Locke, C., and Spurrier, J.D. On tests of uniformity. *Comm. Statist. A—Theory Methods*, 7, 241–258. (RO)
- [u] Marcus, R. A note on analyzing ordered alternatives. *Psychometrika*, 43, 133–139. (OA)
- [v] Nagaraja, H.N. On the expected values of record values. *Austral. J. Statist.*, 20, 176–182. (RE)
- [w] Prakasa Rao, B.L.S. The rate of convergence of Bernstein-von Mises approximation for Markov processes. *Serdica*, 4, 36–42. (MC)
- [x] Ranney, B. On necessary and sufficient conditions for consistency of MLE's in Markov chain models. *Scand. J. Statist.*, 5, 99–105. (MC)
- [y] Robertson, T. Testing for and against an order restriction on multinomial parameters. *J. Amer. Statist. Assoc.*, 73, 197–202. (OA)
- [z] Roth, G.L., and Daniel, W.W. Critical values for Chacko's homogeneity test against ordered alternatives. *Educ. Psychol. Meas.*, 38, 889–892. (OA, TB)
- [aa] Schmeidler, J. On Cooper's nonparametric test. *Educ. Psychol. Meas.*, 38, 913–915. (RA, TR)
- [bb] Skillings, J.H. Adaptively combining independent Jonckheere statistics in a randomized block design with unequal scales. *Comm. Statist. A—Theory Methods*, 7, 1027–1039. (OA)
- [cc] Skillings, J.H., and Wolfe, D.A. Distribution-free tests for ordered alternatives in a randomized block design. *J. Amer. Statist. Assoc.*, 73, 427–431. (OA)
- [dd] Zaremba, S.K. Polynomial trends in time series. *Math. Operationsforsch. Statist. Ser. Statist.*, 9, 625–642. (TR)

1979

- [a] Aiyar, R.J.; Guillier, C.L., and Albers, W. Asymptotic relative efficiencies of rank tests for trend alternatives. *J. Amer. Statist. Assoc.*, 74, 226–237. (PW, RA, TR)
- [b] Akritas, M.G., and Roussas, G.G. Asymptotic expansion of log-likelihood function based on stopping times defined on a Markov process. *Ann. Inst. Statist. Math.*, 31, 21–38. (MC)
- [c] Bai, D.S., and Kim, S. Estimation of transition probabilities in a two-state Markov chain. *Comm. Statist. A—Theory Methods*, 8, 591–599. (MC)
- [d] Crow, E.L. Approximate confidence intervals for a proportion from Markov dependent trials. *Comm. Statist. B—Simulation Comput.*, 8, 1–24. (MC)
- [e] Crow, E.L., and Miles, M.J. Validation of estimators of a proportion from Markov dependent trials. *Comm. Statist. B—Simulation Comput.*, 8, 25–52. (MC)
- [f] Edwards, E. Large sample tests for stationarity and reversibility in finite Markov chains. Technical Report, Institute of Mathematical Statistics, University of Copenhagen. (MC)
- [g] Foutz, R.V., and Srivastava, R.C. Statistical inference for Markov processes when the model is incorrect. *Adv. in Appl. Probab.*, 11, 737–749. (MC)

- [h] Gillert, H., and Vogel, J. Über Güteeigenschaften von Tests bei homogenen Markovschen Prozessen. *Math. Operationsforsch. Statist. Ser. Statist.*, 10, 141–152. (MC)
- [i] Good, I.J. A comment on runs of signs. *J. Statist. Comput. Simulation*, 8, 311–312. (RU)
- [j] Govindarajulu, Z., and Gupta, G.D. Tests for homogeneity of scale against ordered alternatives. *Trans. 8th Prague Conference on Information Theory, Statistical Decision Functions, Random Processes*, D. Reidel, Holland, 235–245. (OA, TRD)
- [k] Krauth, J. Generalized sequential ranks and tests of randomness. *Math. Operationsforsch. Statist. Ser. Statist.*, 10, 291–298. (OA, RA, TR)
- [l] Kùchler, I., and Semjonov, A. Die Waldsche Fundamentalidentitat und ein Sequentieller Quotiententest fùr eine zufallige Irrfahrt ùber einer homogenen irreduziblen Markovschen Kette mit endlichem Zustandsraum. *Math. Operationsforsch. Statist. Ser. Statist.*, 10, 319–331. (MC)
- [m] Moore, M. Alternatives aux estimateurs a vraisemblance maximale dans un modele de Bernoulli avec dependance. *Ann. Sci. Math. Quebec*, 3, 119–133. (MC)
- [n] Naus, J.I. An indexed bibliography of clusters, clumps and coincidences. *Internat. Statist. Rev.*, 47, 47–78. (B, CL)
- [o] Nelson, L.S. Olmstead’s runs test. *J. Qual. Technol.*, 11, 100–101. (RU)
- [p] Newman, C.M., and Stuck, B.W. Chernoff bounds for discriminating between two Markov processes. *Stochastics*, 2, 139–153. (MC)
- [q] Parsons, Van L. A note on the exact distribution of a nonparametric test statistic for ordered alternatives. *Ann. Statist.*, 7, 454–458. (OA)
- [r] Prakasa Rao, B.L.S. The equivalence between (modified) Bayes estimator and maximum likelihood estimator for Markov processes. *Ann. Inst. Statist. Math.*, 31, 499–513. (MC)
- [s] Singer, B. Distribution-free methods for non-parametric problems: a classified and selected bibliography. *British J. Math. Statist. Psychol.*, 32, 1–60. (B)
- [t] Wang, Min-Chiang. On determination of the number of clusters by a nonparametric test. *ASA 1979 Proc. Business and Economic Statist. Sect.*, Amer. Statist. Assoc., Washington, D.C., 552–559. (CL)
- [u] Yakowitz, S. Nonparametric estimation of Markov transition functions. *Ann. Statist.*, 7, 671–679. (MC)

4. ALPHABETICAL LIST OF AUTHORS

- | | |
|---|---|
| Aalen, O. (78a, c) | Avadhani, T.V., see Bell, C.B. (70a) |
| Aalen, O., and Johansen, S. (78b) | |
| Abe, O. (73a) | Babington Smith, B., see Smith, B. Babington |
| Adichie, J.N. (76a) | ton |
| Ahmad, R. (74a) | Bahadur, R.R., and Ragavachari, M. (72a) |
| Aiyar, R.J. (69a) | Bai, D.S. (75b) |
| Aiyar, R.J.; Guillier, C.L., and Albers, W. (79a) | Bai, D.S., and Kim, S. (79c) |
| Akritas, M.G., and Roussas, G.G. (79b) | Bai, D.S., and Rustagi, J.S. (74c) |
| Alam, K. (74b) | Bailar, J.C., III, see Mantel, N. (70m) |
| Albers, W., see Aiyar, R.J. (79a) | Bankunth, N.S. (51a) |
| Albert, A. (62a) | Barlow, R.E.; Bartholomew, D.J.; Bremner, J.M., and Brunk, H.D. (72b) |
| Anderson, O. (54a) | Barnard, G.A. (53a) |
| Anderson, T.W. (54b) | Barr, D.R., see Thomas, M.U. (77v) |
| Anderson, T.W., and Goodman, L.A. (57a) | Bartholomew, D.J. (54c; 56a, b, c; 61a; 63a; 75c) |
| Aoyama, H. (62b) | Bartholomew, D.J., see Barlow, R.E. 72b) |
| Apokorin, D.S. (73b) | Bartlett, M.S. (51b; 52a; 55b) |
| Armitage, P. (55a) | Barton, D.E. (67a) |
| Arnold, B.C. (75a) | Barton, D.E., and David, F.N. (55c; 56d, e, f; 57c; 58b, c; 59a) |
| Austin, T.; Fagen, R.; Lehrer, T., and Penney, W. (57b) | |

- Barton, D.E., and Mallows, C.L. (65a)
 Barton, D.E.; David, F.N., and Fix, E. (62c)
 Barton, D.E.; David, F.N., and Mallows, C.L. (58a)
 Barton, D.E.; David, F.N., and Merrington, M. (65b)
 Barton, D.E.; David, F.N.; Fix, E.; Merrington, M., and Mustacchi, P. (65c)
 Barton, D.E., see David, F.N. (62e; 66e)
 Basawa, I.V. (72c)
 Basharin, G.P. (57d)
 Bateman, G. (48a)
 Baticle, E. (46a)
 Baum, L.E., and Petrie, T. (66a)
 Bedall, F.K. (78d)
 Bell, C.B. (60a)
 Bell, C.B., and Donoghue, J.F. (69b)
 Bell, C.B.; Woodroffe, M., and Avadhani, T.V. (70a)
 Bender, B.K., see Goldman, A.J. (62h)
 Bennett, B.M. (56g; 59b; 64a)
 Bennett, C.A. (51c)
 Beran, R.J. (72d; 75d)
 Bharucha-Reid, A.T. (56h)
 Bhat, B.R. (60b; 61b)
 Bhat, B.R., and Gani, J. (60c)
 Bhattacharyya, G.K. (68a)
 Bilham, E.G. (26a)
 Billingsley, P. (56i; 61c, d)
 Biondini, R.W. (74d)
 Biondini, R.W., see Siddiqui, M.M. (75x)
 Blackwell, D., and Koopmans, L. (57e)
 Boersma, F.J.; Dejonge, J.J., and Stellwagen, W.R. (64b)
 Bofinger, E., and Bofinger, V.J. (61e)
 Bofinger, V.J., see Bofinger, E. (61e)
 Bogartz, R.S. (65d)
 Bohman, H. (63b)
 Borwanker, J.; Kallianpur, G., and Prakasa Rao, B.L.S. (71a)
 Bose, R.C. (46b)
 Bousfield, A.K., and Bousfield, W.A. (66b)
 Bousfield, W.A. (53b)
 Bousfield, W.A., and Cohen, B.H. (56j)
 Bousfield, W.A.; Puff, C.R., and Cowan, T.M. (64c)
 Bousfield, W.A., see Bousfield, A.K. (66b)
 Bower, G.H.; Lesgold, A.M., and Tieman, D. (69c)
 Bower, G.H., see Jonckheere, A.R. (67e)
 Boza, L.B. (70b; 71b)
 Bradley, J.V. (69d)
 Bremner, J.M., see Barlow, R.E. (72b)
 Broadbent, S.R. (58d)
 Brock, D.B. (71c)
 Brookhouse, J.K., see Prairie, R.R. (62m)
 Brookner, E. (66c)
 Brorin, S., see Roenker, D.L. (71l)
 Bross, I.D.J., see Pinkel, D. (63o)
 Brown, B. (48b)
 Brown, G.W., and Mood, A.M. (51d)
 Brunden, M.N., and Mohberg, N.R. (76b)
 Brunk, H.D., see Barlow, R.E. (72b)
 Bui, T.L. (59c)
 Bull, D., see Pike, M.C. (74m)
 Burr, E.J., and Cane, G. (61f)
 Burr, P.C., and Young, D.H. (77a; 78e)
 Byrd, R.N. (71d)
 Cane, G., see Burr, E.J. (61f)
 Cane, V.R. (59d)
 Chacko, V.J. (59e; 63c; 66d)
 Chandler, K.N. (52b)
 Chassan, J.B. (60d; 62d)
 Child, I.L. (46c)
 Chown, L.N., and Moran, P.A.P. (51e)
 Christiansen, H.D. (78f)
 Chuang, Shui-Nan (73c)
 Cochran, W.G. (36a; 38a; 52c)
 Cohen, B.H., see Bousfield, W.A. (56j)
 Cole, M., see Frankel, F. (71e)
 Cooper, M. (75e)
 Cowan, T.M., see Bousfield, W.A. (64c)
 Cowles, A., and Jones H.E. (37a)
 Cox, D.R. (55d; 58e; 72e)
 Cox, D.R., and Stuart, A. (55e)
 Cressie, N.A. (75f)
 Crouse, C.F., see Grobbelaar, J.W. (76i)
 Crow, E.L. (79d)
 Crow, E.L., and Miles, M.J. (79e)
 D'Abrera, H. (73d)
 Dalrymple-Alford, E.C. (70c)
 Daniel, W.W., see Roth, G.L. (78z)
 Daniels, H.E. (50a; 51f)
 Dantzig, G.B. (39a)
 Darling, D.A. (53c)
 Darwin, J.H. (59f)
 David, F.N. (34a; 47a)
 David, F.N., and Barton, D.E. (62e; 66e)
 David, F.N., see Barton, D.E. (55c; 56d, e, f; 57c; 58a, b, c; 59a; 65c)
 David, F.N., see Fuchs, C.E. (65f)
 Davis, H.T. (41a)
 Dawson, R., and Good, I.J. (57f)
 Dejonge, J.J., see Boersma, F.J. (64b)
 De Munter, P. (55f; 56k)
 Denny, J.L., and Wright, A.L. (78g)

- Denny, J.L., and Yakowitz, S.J. (78h)
 Devore, J.L. (73e, f; 76c)
 Dickey, J.M., and Licntz, B.P. (70d)
 Diem, J.H. (76d)
 Diveev, R.Kh. (57g)
 Dodd, E.L. (42a)
 Doksum, K. (67b)
 Domanski, C. (77b)
 Donoghue, J.F., see Bell, C.B. (69b)
 Doubilet, P., see Frender, R. (74e)
 Dowd, J.E., see Pinker, D. (63o)
 Downham, D.Y. (70e)
 Dubman, M., and Sherman, B. (69e)
 Duncan, G.T., and Lin, L.G. (72f)
 Dunn, J.E. (69f)
 Durbin, J. (61g)
 Dvoretzky, A.; Kiefer, J., and Wolfowitz, J. (53d, e)
 Dwass, M. (55g; 64d)
 Dziubdziala, W., and Kopocinski, B. (76e)
 Ederer, F.; Myers, M.H., and Mantel, N. (64e)
 Edgington, E.S. (61h; 75g)
 Edgington, E.S., and Strain, A.R. (76f)
 Edwards, A.W.F. (63d)
 Edwards, E. (79f)
 Eisenhart, C., and Wilson, P.W. (43a)
 Eisenhart, C., see Swed, F.S. (43e)
 Elfving, G., and Whitlock, J.H. (50b)
 Fagan, J.F., III. (68b)
 Fagen, R., see Austin, T. (57b)
 Ferguson, G.A. (65e)
 Finney, D.J. (42b; 47b)
 Firescu, D. (58f, g, h; 59g)
 Firescu, D., see Mihoc, G. (59o)
 Fisher, R.A. (26b)
 Fix, E., see Barton, D.E. (62c; 65c)
 Flatto, L., and Konheim, A.G. (62f)
 Fleming, T.R. (78i, k)
 Fleming, T.R., and Harrington, D.P. (78j)
 Fortet, R.M. (58i, j; 60e)
 Foster, F.G., and Stuart, A. (54d)
 Foster, F.G., and Teichroew, D. (55h)
 Foutz, R.V., and Srivastava, R.C. (79g)
 Frankel, F., and Cole, M. (71e)
 Fréchet, M. (27a)
 Frender, R., and Doubilet, P. (74e)
 Freudenberg, W., and Szydal, D. (76g)
 Freund, J. (51g)
 Fuchs, C.E., and David, H.T. (65f)
 Gabriel, K.R. (59h)
 Gabriel, K.R., and Neumann, J. (62g)
 Gage, R. (43b)
 Gani, J. (55i)
 Gänsler, P. (72g)
 Ghosh, M.N. (54e)
 Gihman, I.I. (56l)
 Gilbert, J.P., see Iverson, G.R. (71f)
 Gillert, H. (78l)
 Gillert, H., and Vogel, J. (79h)
 Glasgow, M.O. (59i)
 Gleissberg, W. (45a, b)
 Glick, N. (78m)
 Gnedenko, B. (43c)
 Gold, E. (29a)
 Gold, R.Z. (60f; 63e)
 Goldman, A.J., and Bender, B.K. (62h)
 Goldsmith, P.L., and Whitfield, H. (61i)
 Good, I.J. (53f; 55j; 57h; 61j; 73g; 79i)
 Good, I.J., and Gover, T.N. (67c)
 Good, I.J., see Dawson, R. (57f)
 Goodman, L.A. (52d; 53g; 58k, l, m; 59j, k; 61l; 62i; 63f; 64f)
 Goodman, L.A., and Grunfeld, Y. (61k)
 Goodman, L.A., see Anderson, T.W. (57a)
 Gover, T.N., see Good, I.J. (67c)
 Govindarajulu, Z. (76h)
 Govindarajulu, Z., and Gupta, G.D. (79j)
 Govindarajulu, Z., and Haller, H.S. (77c)
 Goyal, T.L. (70f)
 Granger, C.W.J. (63g)
 Grant, A.M. (52e)
 Grant, D.A. (46d; 47c)
 Green, J.J. (72h)
 Greenberg, I. (70g)
 Greenwood, M. (46e)
 Greenwood, R.E. (53h)
 Grenander, U. (50c)
 Grobelaar, J.W., and Crouse, C.F. (76i)
 Gruenberger, F. (50d)
 Grunfeld, Y., see Goodman, L.A. (61k)
 Guenther, W.C. (78n)
 Guilbaud, O. (77d)
 Guillier, C.L. (72i)
 Guillier, C.L., see Aiyar, R.J. (79a)
 Gupta, G.D. (76j)
 Gupta, G.D., see Govindarajulu, Z. (79j)
 Guthrie, D., and Youssef, M.N. (70h)
 Guthrie, G.L. (73h)
 Haghghi-Talab, D., and Wright, C. (73i)
 Haldane, J.B.S. (49a)
 Haldane, J.B.S., and Smith, C.A.B. (48c)
 Haller, H.S., Jr. (68c)
 Haller, H.S., Jr., see Govindarajulu, Z. (77c)

- Halperin, S., see Lissitz, R.W. (71h)
 Handa, B.R. (72j)
 Harrington, D.P., see Fleming, T.R. (78j)
 Haseman, J.K., see Lin, F.O. (76o)
 Hatem, A. (73j)
 Heath, C.W., see Larsen, R.J. (73l)
 Helgert, H.J. (70i)
 Henry, N.W. (70j)
 Hettmansperger, T.P. (75h)
 Hettmansperger, T.P., see Tryon, P.V. (73x)
 Hiraga, Y.; Morimura, H., and Watanabe, H. (54f)
 Hoel, P.G. (54g)
 Holgate, P. (72k)
 Hollander, M. (67d)
 Hollander, M., see Pirie, W.R. (72p; 75r)
 Holmes, C.L., see Larsen, R.J. (73l)
 Holmes, P.T., and Strawderman, W.E. (69g)
 Holmes, P.T., see Strawderman, W.E. (70r)
 Hotelling, H., and Pabst, M.R. (36b)
 Hsu, L. (77e)
 Hubert, L.J., and Levin, J.R. (76k; 77f)
 Huntington, R.J. (76l)
 Huntington, R.J., and Naus, J.I. (75i)
 Hušková, M. (75j)
 Imhof, J.P. (74f)
 Iverson, G.R.; Longcor, W.H.; Mosteller, F.; Gilbert, J.P., and Youtz, C. (71f)
 Jacobs, P.A., and Lewis, P.A.W. (78o)
 James, W.H. (68d)
 Johansen, S. (78p)
 Johansen, S., see Aalen, O. (78b)
 Johnson, C.A., and Klotz, J.H. (74g)
 Johnson, M.M. (72l)
 Johnson, R.A., and Roussas, G.G. (69h; 70k)
 Johnston, J. (54h)
 Jonckheere, A.R. (54i, j)
 Jonckheere, A.R., and Bower, G.H. (67e)
 Jones, H.E. (37b)
 Jones, H.E., see Cowles, A. (37a)
 Judge, G.G., see Lee, T.C. (68e)
 Juncosa, M.L. (49b)
 Kallianpur, G., see Borwanker, J. (71a)
 Kao, R.C.W. (53i)
 Kaplansky, I. (45c)
 Kaplansky, I., and Riordan, J. (45d)
 Karsten, K. (27b)
 Kazami, A. (52f)
 Kedem, B. (76m)
 Keeping, E.S. (52g)
 Kelly, M.E. (73k)
 Kendall, M.G. (41b; 45e)
 Kendall, M.G., and Smith, B. Babington (38b; 39b, c)
 Kermack, W.O., and McKendrick, A.G. (37c, d)
 Kerrich, J.E. (61m)
 Kiefer, J., see Dvoretzky, A. (53d, e)
 Kim, S., see Bai, D.S. (79c)
 Kimball, B.F. (47d; 50e)
 Kitagawa, T., and Seguchi, T. (56 m; 57i)
 Kiveliiovitch, M. (58n)
 Kiveliiovitch, M., and Vialar, J. (53j; 54k, l; 55k; 57j)
 Klauber, M.R. (71g; 75k)
 Klotz, J.H. (72m)
 Klotz, J.H., see Johnson, C.A. (74g)
 Knight, W. (74h)
 Knoke, J.D. (70l; 77g)
 Knox, G. (64 g, h)
 Komlós, J., and Tusnády, G. (75l)
 Konheim, A.G., see Flatto, L. (62f)
 Koopmans, L.H. (60g)
 Koopmans, L., see Blackwell, D. (57e)
 Kopocinski, B., see Dziubdziela, W. (76e)
 Kotowska, J. (77h)
 Koziol, J.A. (77i)
 Koziol, J.A., and Reid, N. (77j)
 Koziol, J.A.; Reid, N., and Levitt, M.H. (78q)
 Krauth, J. (79k)
 Krishna Iyer, P.V. (47e; 48d; 50f, g; 51h; 52h, i)
 Krishna Iyer, P.V., and Rao, A.S.P. (53k)
 Krishna Iyer, P.V., and Shakuntala, N.S. (59l)
 Krishna Iyer, P.V., and Singh, D. (55l)
 Krishna Iyer, P.V., and Sukhatme, B.V. (49c)
 Kryscio, R.J., see Mantel, N. (76p)
 Ku, H.H., see Kullback, S. (62j)
 Küchler, I. (78r)
 Küchler, I., and Semjonov, A. (79l)
 Kullback, S.; Kupperman, M., and Ku, H.H. (62j)
 Kupperman, M., see Kullback, S. (62j)
 Kuznets, S. (29b)
 Ladd, D.W. (75m)
 Lange, O. (55m)
 Langman, M.K. (69i)
 Larsen, R.J.; Holmes, C.L., and Heath, C.W. (73l)

- Laurence, K.M., see Roberts, C.J. (75u)
 Lee, T.C.; Judge, G.G., and Zellner, A. (68e)
 Lee, Y.J. (77k)
 Lee, Y.J., and Wolfe, D.A. (76n)
 Lehrer, T., see Austin, T. (57b)
 Lesgold, A.M., see Bower, G.H. (69c)
 Levene, H. (52j; 53l)
 Levene, H., and Wolfowitz, J. (44a)
 Levin, J.R., see Hubert, L.J. (76k; 77f)
 Levitt, M.H., see Koziol, J.A. (78q)
 Lévy, P. (39d)
 Lewis, P.A.W., see Jacobs, P.A. (78o)
 Li, C.C., and Sacks, L. (54m)
 Liebetrau, A.M. (74i)
 Lientz, B.P., see Dickey, J.M. (70d)
 Lin, F.O., and Haseman, J.K. (76o)
 Lin, L.G., see Duncan, G.T. (72f)
 Lindqvist, B. (78s)
 Lissitz, R.W. (69j; 72n)
 Lissitz, R.W., and Halperin, S. (71h)
 Lloyd, S., see Roberts, C.J. (75u)
 Locke, C., and Spurrier, J.D. (78t)
 Longcor, W.H., see Iverson, G.R. (71f)
 Luvsanceren, S. (54n)
 Macrae, E.C. (77l)
 Madansky, A. (59m)
 Maguire, B.A.; Pearson, E.S., and Wynn, A.H.A. (52k; 53m)
 Mahalanobis, P.C. (44b)
 Mallows, C.L., see Barton, D.E. (58a; 65a)
 Mann, H.B. (45f, g; 50h)
 Mann, H.B., and Whitney, D.R. (47f)
 Mansfield, E. (62k)
 Mantel, N. (67f)
 Mantel, N., and Bailer, J.C., III (70m)
 Mantel, N., and Valand, R.S. (70n)
 Mantel, N.; Kryscio, R.J., and Myers, M.H. (76p)
 Mantel, N., see Ederer, F. (64e)
 Marcus, M.B. (59n)
 Marcus, R. (78u)
 Mauldon, J.G. (51i)
 McKendrick, A.G., see Kermack, W.O. (37c, d)
 Merrington, M., see Barton, D.E. (65b, c)
 Mihoc, G. (57k)
 Mihoc, G., and Firescu, D. (59o)
 Mikhailov, V.G. (74j)
 Mikhailov, V.G., see Zubkov, A.M. (74r)
 Miles, M.J., see Crow, E.L. (79e)
 Miles, R.E. (59p)
 Miller, F.L., see Quesenberry, C.P. (77p)
 Miller, G.A. (52l)
 Mirzahmedov, M.A., and Tursunov, G.T. (77m)
 Mizuki, M. (66f)
 Mohberg, N.R., see Brunden, M.N. (76b)
 Mood, A.M. (40a, b)
 Mood, A.M., see Brown, G.W. (51d)
 Moore, G.H., and Wallis, W.A. (43d)
 Moore, G.H., see Wallis, W.A. (41e)
 Moore, M. (79m)
 Moore, P.G. (49d; 53n; 58o; 77n)
 Moran, P.A.P. (47g; 50i, j; 51j; 53o)
 Moran, P.A.P., see Chown, L.N. (51e)
 Morimura, H., see Hiraga, Y. (54f)
 Mosteller, F. (41c)
 Mosteller, F., see Iverson, G.R. (71f)
 Mullet, G.M. (77o)
 Mustacchi, P., see Barton, D.E. (65c)
 Myers, M.H., see Ederer, F. (64e)
 Myers, M.H., see Mantel, N. (76p)
 Nagaraja, H.N. (78v)
 Nair, A.N.K. (42c)
 Nair, K.R. (38c)
 Naus, J.I. (63h; 65g; 66g, h; 68f; 74k; 79n)
 Naus, J.I., see Huntington, R.J. (75i)
 Naus, J.I., see Wallenstein, S.R. (73z; 74p)
 Nelson, L.S. (79o)
 Nelson, P.L., and Toothaker, L.E. (75n)
 Neumann, J., see Gabriel, K.R. (62g)
 Neuts, M.F. (67g)
 Newell, G.F. (59q; 63i)
 Newman, C.M., and Stuck, B.W. (79p)
 Newman, D.J. (60h)
 Noether, G.E. (50k; 51k; 56n)
 O'Brien, P.C. (76q)
 Odeh, R.E. (71i; 72o)
 Olds, E.G. (38d; 49e)
 Olekiewicz, M. (51l)
 Olmstead, P.S. (40c; 42d; 46f; 58p)
 Oprian, C.A. (70o; 76r)
 Otto, P. (75o)
 Pabst, M.R., see Hotelling, H. (36b)
 Page, E.B. (63j)
 Page, K.; Schlittgen, R., and Stahl, H. (76s)
 Parsons, Van L. (79q)
 Patankar, V.N. (54o; 55n)
 Pawlowski, Z. (73m; 75p)
 Pearson, E.S. (38e; 63k)
 Pearson, E.S., see Maguire, B.A. (52k; 53m)
 Pearson, K. (33a)
 Pellegrino, J.W. (75q)
 Penney, W., see Austin, T. (57b)
 Petril, T., see Baum, L.E. (66a)

- Phatarfod, R.M. (65h)
 Pielou, E.C. (62l; 63l, m; 65i, j; 67h)
 Pike, M.C., and Bull, D. (74m)
 Pike, M.C., and Smith, P.G. (68g)
 Pillai, R.K. (63n)
 Pinkel, D.; Dowd, J.E., and Bross, I.D.J. (63o)
 Pirie, W.R. (70p; 74l)
 Pirie, W.R., and Hollander, M. (72p; 75r)
 Prairie, R.R.; Zimmer, W.J., and Brookhouse, J.K. (62m)
 Prakasa Rao, B.L.S. (73n; 78w; 79r)
 Prakasa Rao, B.L.S., see Borwanker, J. (71a)
 Preston, P.F. (71j)
 Price, B. (76t)
 Puff, C.F., see Boosfield, W.A. (64c)
 Puri, M.L. (65k)
 Pyke, R. (65l)
 Quesenberry, C.P., and Miller, F.L. (77p)
 Ragavachari, M., see Bahadur, P.R. (72a)
 Rajarshi, M.B. (74n)
 Ramabhadran, V.K. (54p)
 Ramachandran, G. (52n)
 Ranney, B. (78x)
 Rao, A.S.K. (51m)
 Rao, A.S.P., see Krishna Iyer, P.V. (53k)
 Rao, J.S., see Sethuraman, J. (70q)
 Rao, T.S. (68h)
 Raouf, A., and Sathe, P.T. (75s)
 Reid, N., see Koziol, J.A. (77j; 78q)
 Reinach, S.G. (76u)
 Rényi, A. (62o, n; 76v)
 Resnick, S.I. (73o, p, q; 75t)
 Resnick, S.I., and Rubinovitch, M. (73r)
 Riordan, J., see Kaplansky, I. (45d)
 Roberge, J.J. (71k)
 Roberts, C.J.; Laurence, K.M., and Lloyd, S. (75u)
 Robertson, T. (78y)
 Roenker, D.L.; Thompson, C.P., and Broirin, S. (71l)
 Rosander, A.C. (42e)
 Ross, S.M. (75v)
 Roth, G.L., and Daniel, W.W. (78z)
 Roussas, G.G. (65m, n; 68i, j; 69k; 77q)
 Roussas, G.G., see Johnson, P.A. (69h; 70k)
 Rubinovitch, M., see Resnick, S.I. (73n)
 Runnels, L.K.; Thompson, R., and Runnels, P. (68k)
 Runnels, P., see Runnels, L.K. (68k)
 Rustagi, J.S., and Srivastava, R.C. (68l)
 Rustagi, J.S., see Bai, D.S. (74c)
 Sacks, L., see Li, C.C. (54m)
 Sandland, R.L. (76v)
 Saperstein, B. (73s)
 Sarma, Y.R.K. (72q)
 Sathe, P.T., see Raouf, A. (75s)
 Savage, I.R. (53p; 57l, m; 62p)
 Schlittgen, R., see Page, K. (76s)
 Schmeidler, J. (78aa)
 Schmid, J.R. (73t)
 Schrutka, L.V. (41d)
 Seguchi, T., see Kitagawa, T. (56m; 57i)
 Seleacu, V. (77r)
 Sen, P.K. (65o; 68m)
 Sethuraman, J., and Rao, J.S. (70q)
 Shaikh, A. (76w)
 Shakuntala, N.S., see Krishna Iyer, P.V. (59l)
 Sharp, S.A. (75w)
 Shaughnessy, P.W. (69l)
 Sherman, B. (50l; 57n)
 Sherman, B., see Dubman, M. (69e)
 Shorack, G.R. (67i)
 Shorack, R.A. (68n)
 Shorrocks, R.W. (72r, s; 73u; 74o)
 Shuell, T.J. (69m)
 Siddiqui, M.M., and Biondini, R.W. (75x)
 Silberstein, L. (45h)
 Sillitto, G.P. (47h)
 Singer, B. (79s)
 Singh, B.N. (52m)
 Singh, D., see Krishna Iyer, P.V. (55l)
 Skillings, J.H. (75y; 78bb)
 Skillings, J.H., and Wolfe, D.A. (77s; 78cc)
 Smirnov, N.V. (55o)
 Smith, B.Babington, see Kendall, M.G. (38b; 39b, c)
 Smith, C.A.B., see Haldane, J.B.S. (48c)
 Smith, P.G., see Pike, M.C. (68g)
 Snijders, T. (75z)
 Spjøtvoll, E. (77t)
 Spurrier, J.D., see Locke, C. (78t)
 Srivastava, R.C., see Foutz, R.V. (79g)
 Srivastava, R.C., see Rustagi, J.S. (68l)
 Srivastava, S. (73v)
 Stahl, H., see Page, K. (76s)
 Steelwagen, W.R., see Boersma, F.J. (64b)
 Stepanov, V.E. (57o)
 Stevens, W.L. (37e; 39e)
 Stewart, G.R. (75aa)
 Strain, A.R., see Edgington, E.S. (76f)
 Strauss, D. (77u)
 Strawderman, W.E., and Holmes, P.T. (70r)
 Strawderman, W.E., see Holmes, P.T. (69g)

- Stuart, A. (52o; 54q; 56o; 57p)
 Stuart, A., see Cox, D.R. (55e)
 Stuart, A., see Foster, F.G. (54d)
 Stuck, B.W., see Newman, C.M. (79p)
 Sukhatme, B.V. (49f; 51n)
 Sukhatme, B.V., see Kirshna Iyer, P.V. (49c)
 Sundrum, R.M. (54r)
 Swed, F.S., and Eisenhart, C. (43e)
 Szyndal, D., see Freudenberg, W. (76g)
 Takashima, M. (55p)
 Tata, M.N. (69n)
 Taylor, J.L. (73w)
 Teichroew, D., see Foster, F.G. (55h)
 Telsler, L.G. (63p)
 Terpstra, T.J. (52p; 53q)
 Thomas, M.U., and Barr, D.R. (77v)
 Thompson, C.P., see Roenker, D.L. (71l)
 Thompson, R., see Runnels, L.K. (68k)
 Tienan, D., see Bower, G.H. (69c)
 Toothaker, L.E., see Nelson, P.L. (75n)
 Travnicek, D.A. (72t)
 Troxell, J.R. (72u)
 Tryon, P.V., and Hettmansperger, T.P. (73x)
 Tsao, C.K. (68o)
 Tulving, E. (62q)
 Tursunov, G.T., see Mirzahmedov, M.A. (77m)
 Tusnády, G., see Komlós, J. (75l)
 Ury, H.K. (66i)
 Valand, R.S., see Mantel, N. (70n)
 Vervaat, W. (73y)
 Vialar, J., see Kiveliovitch, M. (53j; 54k, l; 55k; 57j)
 Ville, J. (43f, g)
 Vogel, J., see Gillert, H. (79h)
 Von Mises, R. (36c)
 Von Schelling, H. (39f)
 Wald, A., and Wolfowitz, J. (40d; 43h)
 Waldapfel, L. (43i)
 Wallenstein, S.R. (71m)
 Wallenstein, S.R., and Naus, J.I. (73z; 74p)
 Wallis, W.A., and Moore, G.H. (41e)
 Wallis, W.A., see Moore, G.H. (43d)
 Walter, S.D. (73aa)
 Wang, Min-Chiang (79t)
 Watanabe, H., see Hiraga, Y. (54f)
 Weiler, H. (53r; 54s)
 Weiller, R. (55q)
 Whitfield, H., see Goldsmith, P.L. (61i)
 Whitfield, J.W. (50m)
 Whitlock, J.H., see Elfving, G. (50b)
 Whitlock, J.S., Jr. (73bb)
 Whitney, D.R. (51o)
 Whitney, D.R., see Mann, H.B. (47f)
 Whittle, P. (55r)
 Whorton, E.B. (68p)
 Wilson, P.W., see Eisenhart, C. (43a)
 Wold, H.O.A. (65p)
 Wolf, E.H. (68q)
 Wolfe, D.A., see Lee, Y.J. (76n)
 Wolfowitz, J. (42f; 43j; 44c, d)
 Wolfowitz, J., see Dvoretzky, A. (53d, e)
 Wolfowitz, J., see Levene, H. (44a)
 Wolfson, D.B. (74q)
 Woodrooffe, M., see Bell, C.B. (70a)
 Wright, A.L., see Denny, J.L. (78g)
 Wright, C., see Haghighi-Talab, D. (73i)
 Wright, C.A. (50n)
 Wynn, A.H.A., see Maguire, B.A. (52k; 53m)
 Yakowitz, S.J. (79u)
 Yakowitz, S.J., see Denny, J.L. (78h)
 Young, D.H., see Burr, P.C. (77a; 78e)
 Young, L.C. (41f)
 Youssef, M.N., see Guthrie, D. (70h)
 Youtz, C., see Iverson, G.R. (71f)
 Yule, G.U. (38f)
 Zar, J.H. (72v)
 Zaremba, S.K. (72w; 78dd)
 Zellner, A., see Lee, T.C. (68e)
 Zimmer, W.J., see Prairie, R.R. (62m)
 Zitek, F. (57q)
 Zubkov, A.M., and Mikhailov, V.G. (74r)

APPENDIX

JOURNAL ABBREVIATIONS USED

Acad. Roy. Belg. Bull. Cl. Sci. Ser. 5: Académie Royale de Belgique, Bulletin de la Classe des Sciences, 5e Série.

Adv. in Appl. Probab.: Advances in Applied Probability.

Akad. Nauk Uzbek. SSR Trudy Inst. Mat. Meh.: Akademija Nauk Uzbekskoi SSR. Trudy Instituta Matematiki i Mehaniki imeni V.I. Romanovskogo.

- Amer. J. Epidem.*: American Journal of Epidemiology.
Amer. J. Sociol.: American Journal of Sociology.
Amer. Math. Monthly: American Mathematical Monthly.
Amer. Statist.: The American Statistician.
An. Univ. C.I. Parhon București Ser. Ști. Natur.: Analele Universității "C.I. Parhon" București. Seria Științelor Naturii.
Ann. Eugenics: Annals of Eugenics.
Ann. Fac. Sci. Univ. Clermont: Annales de la Faculté des Sciences de l'Université de Clermont.
Ann. Human Genet.: Annals of Human Genetics.
Ann. Inst. Statist. Math.: Annals of the Institute of Statistical Mathematics (Tokyo).
Ann. Math. Statist.: The Annals of Mathematical Statistics.
Ann. of Math.: Annals of Mathematics.
Ann. Polon. Math.: Annales de la Société Polonaise de Mathématiques.
Ann. Probab.: Annals of Probability.
Ann. Sci. Math. Québec: Annales des Sciences Mathématiques du Québec.
Ann. Statist.: The Annals of Statistics.
Ann. Univ. Mariae Curie-Skłodowska Sect. A: Annales Universitatis Mariae Curie-Skłodowska Section A.
Apl. Mat.: Československá Akademič Věd. Aplikace Matematiky (Prague).
Appl. Statist.: Applied Statistics.
Ark. Mat.: Arkiv för Matematik.
Astronom. Nachr.: Astronomische Nachrichten.
Austral. J. Statist.: The Australian Journal of Statistics.
Bacteriol. Rev.: Bacteriological Review.
Behav. Res. Methods Instrumentation: Behavior Research Methods and Instrumentation.
Bell System Tech. J.: Bell System Technical Journal.
Biom. Z.: Biometrische Zeitschrift.
Biometrical J.: Biometrical Journal.
Biometrics: Biometrics.
Biometrika: Biometrika.
British J. Math. Statist. Psychol.: The British Journal of Mathematical and Statistical Psychology.
British J. Prevent. Soc. Med.: British Journal of Preventive and Social Medicine.
British J. Statist. Psychol.: British Journal of Statistical Psychology.
Bull. Acad. Polon. Sci. Sér. Sci. Math. Astronom. Phys.: Bulletin de l'Académie Polonaise des Sciences, Série des Sciences Mathématiques, Astronomiques et Physiques.
Bull. Inst. Internat. Statist.: Bulletin de l'Institut International de Statistique.
Bull. Math. Soc. Sci. Math. Phys. R.P. Roumaine: Bulletin Mathématique de la Société des Sciences Mathématiques et Physiques de la République Populaire Roumaine.
Bull. Math. Statist.: Bulletin of Mathematical Statistics.
Canad. Psychol. Rev.: Canadian Psychological Review.
Cancer: Cancer.
Cancer Res.: Cancer Research.
Colloq. Anal. Statist. Bruxelles: Colloque sur l'Analyse Statistique, Bruxelles.
Colloq. Math.: Colloquium Mathematicum.
Comm. Pure Appl. Math.: Communications on Pure and Applied Mathematics.
Comm. Statist.: Communications in Statistics.
Comm. Statist. A—Theory Methods: Communications in Statistics, Part A—Theory and Methods.
Comm. Statist. B—Simulation Comput.: Communications in Statistics, Part B—Simulation and Computation.
C.R. Acad. Sci. Paris: Comptes Rendus Hebdomadaires de l'Académie des Sciences de Paris.
Dissertationes Math.: Dissertationes Mathematicae (Warsaw).

- Dokl. Akad. Nauk SSSR.*: Doklady Akademija Nauk SSSR.
Duke Math. J.: Duke Mathematical Journal.
Econometrica: Econometrica.
Educ. Psychol. Meas.: Educational and Psychological Measurement.
Experientia: Experientia.
Indust. Engrg. Chem.: Industrial and Engineering Chemistry.
Inform. and Control: Information and Control.
Internat. J. Systems Sci.: International Journal of Systems Science.
Internat. Statist. Rev.: International Statistical Review.
IRE Trans. Information Theory: IRE Transactions on Information Theory.
İstanbul Üniv. Fen Fak. Mecm. Ser. A.: Revue de la Faculté des Sciences de l'Université d'Istanbul, Série A. Mathématiques Pures et Appliquées.
Izv. Akad. Nauk UzSSR. Ser. Fiz. Mat. Nauk: Izvestija Akademii Nauk UzSSR. Serija Fiziko-Matematičeskikh Nauk.
J. Amer. Statist. Assoc.: Journal of the American Statistical Association.
J. Appl. Probab.: Journal of Applied Probability.
J. General Psychol.: Journal of General Psychology.
J. Indian Soc. Agric. Statist.: Journal of the Indian Society of Agricultural Statistics.
J. Madras Univ. Sect. B: Journal of Madras University B. Contributions in Mathematics, Physical and Biological Sciences.
J. Math. Psychol.: Journal of Mathematical Psychology.
J. Meteorol. Geogr.: Journal of Meteorologic Geography.
J. Multivariate Anal.: Journal of Multivariate Analysis.
J. Qual. Technol.: Journal of Quality Technology.
J. Res. Nat. Bur. Standards Sect. B: Journal of Research of the National Bureau of Standards, Section B.
J. Roy. Statist. Soc. Ser. A (Ser. B): Journal of the Royal Statistical Society Series A (Series B).
J. Sci. Météorol.: Journal Scientifique de la Météorologie.
J. Statist. Comput. Simulation: Journal of Statistical Computation and Simulation.
J. Verbal Learn. Verbal Behav.: Journal of Verbal Learning and Verbal Behavior.
Magyar Tud. Akad. Mat. Fiz. Oszt. Közl.: A Magyar Tudományos Akadémia Matematikai és Fizikai Tudományok Osztályának Közleményei.
Mat. Fiz. Lapok: Matematikai és Fizikai Lapok.
Math. Ann.: Mathematische Annalen.
Math. Mag.: Mathematics Magazine.
Math. Operationsforsch. Statist. Ser. Statist.: Mathematische Operationsforschung und Statistik, Series Statistics.
Math. Student: Mathematics Student.
Math. Tables Aids Comput.: Mathematical Tables and Other Aids to Computation.
Mathematika: Mathematika.
Metrika: Metrika.
Metron: Metron.
Nature: Nature.
Nederl. Akad. Wetensch. Proc. Ser. A: Proceedings of the Koninklijke Nederlandse Akademie van Wetenschappen, Series A.
Operations Res.: Operations Research.
Philos. Bull.: Philosophical Bulletin.
Philos. Mag.: Philosophical Magazine.
Philos. Trans. Roy. Soc. London Ser. B: Philosophical Transactions of the Royal Society of London, Series B.
Problems Control Inform. Theory: Problems of Control and Information Theory.
Proc. Cambridge Philos. Soc.: Proceedings of the Cambridge Philosophical Society.

- Proc. Fifth Berkeley Symp. Math. Statist. Probab.:* Proceedings of the Fifth Berkeley Symposium on Mathematical Statistics and Probability.
- Proc. Roy. Soc. Edinburgh:* Proceedings of the Royal Society of Edinburgh.
- Proc. Second Berkeley Symp. Math. Statist. Probab.:* Proceedings of the Second Berkeley Symposium on Mathematical Statistics and Probability.
- Proc. Second Symp. Comput. Statist. (Berlin West):* Proceedings in Computational Statistics, Second Symposium held in Berlin (West).
- Proc. Sixth Berkeley Symp. Math. Statist. Probab.:* Proceedings of the Sixth Berkeley Symposium on Mathematical Statistics and Probability.
- Proc. Symp. to Honor Jerzy Neyman:* Proceedings of the Symposium to Honor Jerzy Neyman.
- Przegląd Statyst.:* Przegląd Statystyczny.
- Psychol. Bull.:* Psychological Bulletin.
- Psychol. Rep.:* Psychological Report.
- Psychol. Rev.:* Psychological Review.
- Psychonomic Sci.:* Psychonomic Science.
- Psychometrika:* Psychometrika.
- Publ. Inst. Statist. Univ. Paris:* Publications de l'Institut de Statistique de l'Université de Paris.
- Publ. Sci. Tech. Minist. Air:* Publications Scientifiques et Techniques du Ministère de l'Air.
- Quart. J. Roy. Meteorol. Soc.:* Quarterly Journal of the Royal Meteorological Society.
- Rep. Third Annual Conf. Econ. Statist.:* Report of the Third Annual Research Conference on Economics and Statistics.
- Rev. Econom. Statist.:* Review of Economic Statistics.
- Rev. Math. Un. Interbalk.:* Revue Mathématique de l'Union Interbalkanique.
- Sankhyācfl1:* Sankhyā. The Indian Journal of Statistics.
- Scand. Actuar. J.:* Scandinavian Actuarial Journal.
- Scand. J. Statist.:* Scandinavian Journal of Statistics.
- Sci. and Cult.:* Science and Culture.
- Serdica:* Serdica Bulgaricae Mathematicae Publicationes.
- SIAM Rev.:* SIAM Review.
- Skand. Aktuarietidskr.:* Skandinavisk Aktuarietidskrift.
- South African Statist. J.:* South African Statistical Journal.
- Statistica Neerlandica:* Statistica Neerlandica.
- Stochastic Process. Appl.:* Stochastic Processes and their Applications.
- Stochastics:* Stochastics.
- Studia Sci. Math. Hungar.:* Studia Scientiarum Mathematicarum Hungarica.
- Studii Cerc. Mat.:* Studii și Cercetări Matematice.
- Technometrics:* Technometrics.
- Teor. Verоятnost. i Primenen.:* Teoriya Veroyatnosti i ee Primeneniya.
- Theory Probab. Appl.:* Theory of Probability and its Applications.
- Vestnik Leningrad. Univ.:* Vestnik Leningradskogo Universiteta.
- Wiss. Z. Tech. Univ. Dresden:* Wissenschaftliche Zeitschrift der technischen Universität Dresden.
- Z. Wahrsch. Verw. Gebiete:* Zeitschrift für Wahrscheinlichkeitstheorie und verwandte Gebiete.
- Zastos. Mat.:* Zastosowania Matematyki. Polskiej Akademii Nauk Instytut Matematyczny.

ACKNOWLEDGEMENTS

This research was supported by the Gouvernement du Québec, Programme de formation de chercheurs et d'action concertée, subvention no. EQ-1587, by the Social Sciences and Humanities Research Council of Canada, Grant No. 410-80-0501, and by the Natural Sciences and Engineering Research Council of Canada, Grant No. A8544. We also wish to thank an anonymous referee and the Editor for several helpful comments, and Sophie Mahseredjian, Jean-Pierre Croteau and Mario Deschamps for their help.

RÉSUMÉ

Cette bibliographie réunit et classe un grand nombre de méthodes non paramétriques qui peuvent servir à analyser les séries chronologiques, et à en tester, entre autres, le caractère aléatoire. On fait également le bilan des travaux parus à ce jour concernant l'inférence sur les chaînes de Markov.

REFERENCES

- Anderson, T.W. (1971). *The Statistical Analysis of Time Series*. Wiley, New York.
- Brillinger, D.R. (1975). *Time Series, Data Analysis and Theory*. Holt, Rinehart and Winston, New York.
- Brillinger, D.R. (1980). Analysis of variance and problems under time series models. *Handbook of Statistics* (P.R. Krishnaiah, ed.), Vol. 1, North-Holland, Amsterdam, 237-278.
- Gastwirth, J.L., and Rubin, H. (1975). The behavior of robust estimators on dependent data. *Ann. Statist.*, 3, 1070-1100.
- Hannan, E.J. (1970). *Multiple Time Series*. Wiley, New York.
- Kleiner, B.; Martin, R.D., and hompson, D.J. (1979). Robust estimation of power spectra. *J. Roy. Statist. Soc. Ser. B*, 41, 313-351.

Received 19 January 1981

Revised 25 June 1981

Accepted 9 September 1981

Département de sciences économiques

et le

Département de mathématiques et de statistique

Université de Montréal

C.P. 6128, Succursale A

Montréal, Québec H3C 3J7