

and ignores the information about the prior distribution of θ which is contained in x_1, \dots, x_{n-1} .

36. Smallest Average Confidence Sets for the Simultaneous Estimation of k Normal Means. (By Title). RAGHU RAJ BAHADUR, University of North Carolina.

Let $v = (x_{11}, \dots, x_{1n_1}; \dots; x_{k1}, \dots, x_{kn_k})$ denote the combined sample point in samples of sizes n_1, n_2, \dots, n_k from normal populations $\pi_1, \pi_2, \dots, \pi_k$, respectively, π_i having mean μ_i and variance σ_i^2 . Writing $\mu = (\mu_1, \mu_2, \dots, \mu_k)$, denote the k dimensional Euclidean space of all points μ by R . Given any parameter point (μ, σ) , where $\sigma = (\sigma_1, \sigma_2, \dots, \sigma_k)$, and any set-valued function $f(v)$ defined for all sample points v and having subsets of R as its values (which satisfies certain measurability hypotheses), let $\alpha(f | \mu, \sigma) =$ probability of the statement " $\mu \in f(v)$ " being false, and $\beta(f | \mu, \sigma) =$ expected Lebesgue measure of $f(v)$. We consider the problem of constructing $f(v)$ so as to make both α and β "as small as possible." One of the results obtained is as follows: Given $p, 0 < p < 1$, let $f_{\lambda, \zeta(p)}^0(v) = \{\mu: \sum_1^k n_i [(\bar{x}_i - \mu_i)/l_i]^2 < \zeta(p) \cdot \sum_1^k n_i [s_i/l_i]^2\}$, where $\bar{x}_i = n_i^{-1} \sum_1^{n_i} x_{ij}$, $s_i^2 = n_i^{-1} \sum_1^{n_i} (x_{ij} - \bar{x}_i)^2$, $\lambda = (l_1, l_2, \dots, l_k)$, the l_i 's being given positive constants, and $\zeta(p)$ being determined by $P(\chi_k^2 > \zeta(p) \cdot \chi_{N-k}^2) = p$, where χ_k^2, χ_{N-k}^2 are independent chi-square variables with $k, N - k$ degrees of freedom ($k < N = \sum_1^k n_i$). Then (a) obviously $\alpha(f_{\lambda, \zeta(p)}^0 | \mu, c\lambda) = p$ for all μ and all $c, 0 < c < \infty$, and (b) if $f(v)$ is any other function such that $\alpha(f | \mu, c\lambda) \leq p$ for all μ and all c , either (i) $f(v)$ and $f_{\lambda, \zeta(p)}^0(v)$ differ by a set of measure zero for almost every v , or (ii) $\sup_{\mu \in R} \{\beta(f | \mu, c\lambda)\} > \sup_{\mu \in R} \{\beta(f_{\lambda, \zeta(p)}^0 | \mu, c\lambda)\}$ for every c .

NEWS AND NOTICES

Readers are invited to submit to the Secretary of the Institute news items of general interest

Personal Items

Mr. Harry H. Goode, formerly head of the Special Projects Branch, Special Device Center, Office of Naval Research 1, New York, is now Supervisor of the Aero-Physics Group, Aeronautical Research Center, University of Michigan, Ann Arbor, Michigan.

Mr. William G. Howard, who was previously employed by the Johns Hopkins University, Institute for Cooperative Research, is presently employed as Mathematical Statistician in the Air Studies Division of the Library of Congress.

Miss Margaret Kampschaefer has accepted a position as Statistician in the U. S. Bureau of Labor Statistics, Minnesota Payroll Project, Minnesota Division of Employment and Security. She was formerly employed as Junior Mathematician at the Argonne National Laboratory, Naval Reactor Division, Chicago, Illinois.

Dr. Albert Noack has recently been appointed Professor of Actuarial Mathematics at the University of Koeln, Germany.

Second Berkeley Symposium on Mathematical Statistics and Probability

The Second Berkeley Symposium will be held at the Statistical Laboratory, University of California, Berkeley, from July 31 to August 12, 1950, with the

cooperation of the American Statistical Association (Biometrics Section), the Biometric Society (Western North American Region), the Econometric Society, the Institute of Mathematical Statistics, the Institute of Transportation and Traffic Engineering (UC), and the Office of Naval Research.

The Symposium will include sessions on mathematical statistics, probability, biometrics, econometrics, traffic engineering, astronomy, and physics. The complete program may be obtained from the Statistical Laboratory. The papers will be published by the University of California Press as the *Proceedings of The Second Symposium*.

Cumulative Index of Volumes 1-20

Attention is called to the fact that there is now available a cumulative index for Volumes 1 through 20 (1930-1949) of the *Annals of Mathematical Statistics*. Copies may be secured from the office of the Secretary-Treasurer for \$1.00 per copy.

New Members

The following persons have been elected to membership in the Institute

(December 1, 1949 to February 28, 1950)

- Bain, John C.**, B.A. (Univ. of Toronto), President's Statistician, Abitibi Power & Paper Company, Ltd., 408 University Avenue, Toronto 2, Ontario, Canada.
- Blakemore, George J., Jr.**, A.B. (George Wash. Univ.), Student at George Washington University, 1748 Hobart St., N.W., Washington 10, D. C.
- Bross, Irwin, D. J.**, Ph.D. (North Carolina State College), Research Associate, Department of Biostatistics, School of Public Health, The Johns Hopkins University, 615 North Wolfe Street, Baltimore 5, Maryland.
- Cansado Maceda, Enrique**, Ph.D. (University of Madrid), Assistant Professor of Mathematical Statistics, Faculty of Sciences, University of Madrid and Official of the National Institute of Statistics, Paseo de Rosales, 50 Madrid, Spain.
- Clatworthy, Willard H.**, M.A. (Univ. of Kentucky), Student at the University of North Carolina, Box 168, Chapel Hill, North Carolina.
- Dinsmore, Robert J.**, A.B. (Univ. of Calif.), Student at the University of California, Berkeley, California, 2428 Milvia St., Berkeley 4, California.
- Enell, John W.**, Eng. Sc.D. (New York Univ.), Assistant Professor of Administrative Engineering, New York University, 71 Ayers Court, West Englewood, New Jersey.
- Flores, Anna M.**, M.Sc. (Univ. of Mexico), Mathematician, Torres Adalid # 511, Mexico City.
- Garner, Norman R.**, B.A. (Univ. of Rochester), Graduate Student at University of North Carolina, 15 Goldston Ave., Carrboro, North Carolina.
- Hannan, James F.**, M.A. (Harvard), Research Assistant, Department of Mathematical Statistics, University of North Carolina, P.O. Box 168, Chapel Hill, North Carolina.

- Klein, Joseph**, B.S. (Rutgers), Graduate Student at Rutgers University, *P.O. Box 501, Red Bank, New Jersey.*
- Lewis, Evan J.**, Ph.D. (Cornell Univ.), Physicist, Corning Glass Works, Corning, New York.
- Palekar, Madhukar N.**, B.S. (Bombay), Graduate Student in Department of Mathematical Statistics and Departmental Assistant, 108 Furnald Hall, Columbia University, New York 27, New York.
- Page, Woodrow W.**, M.A. (Oklahoma Univ.), Graduate Student, University of North Carolina, *241 Jackson Circle, Chapel Hill, North Carolina.*
- Pretorius, S. J.**, Ph.D. (Univ. of London), Professor of Statistics, University of Stellenbosch, Soeteweide, Stellenbosch, Union of South Africa.
- Price, Don C.**, M.A. (Kent State Univ.), Student, Department of Mathematical Statistics, University of North Carolina, *1621 Shorb Ave., N.W., Canton 3, Ohio.*
- Scalora, Frank S.**, A.B. (Harvard), Assistant in Mathematics, 106 Mathematics Building, University of Illinois, Urbana, Illinois.
- Somerville, Paul N.**, B.Sc. (Alberta, Canada), Graduate Student in Department of Mathematical Statistics, University of North Carolina, *316-B Dormitory, Chapel Hill, North Carolina.*
- Sirken, Monroe G.**, M.A. (Univ. of Calif. at L. A.), Research Associate, Laboratory of Statistical Research, Department of Mathematics, University of Washington, Seattle, Washington.
- Stearn, Joseph L.**, M.S. (College of N. Y.), Mathematician, U. S. Coast & Geodetic Survey, Department of Commerce, Washington, D. C.
- Whelan, Walter J.**, M.A. (Boston Univ.), Student, Department of Mathematical Statistics, Columbia University, New York, *119 Wilmington Ave., Dorchester 24, Massachusetts.*
- Wile, Janet L.**, A.B. (Univ. of Rochester), Statistician, Department of Defense, Army and Transportation Corps, #156, 1813 Queens Lane, Arlington, Virginia.
- Wilhelmsen, Lars**, Aktuarkandidat (Oslo Univ.), Actuary, Storebrand, Boks 425, Oslo, Norway.

REPORT OF THE CHAPEL HILL MEETING OF THE INSTITUTE

The forty-second meeting of the Institute of Mathematical Statistics was held jointly with the Biometric Society (Eastern North American Region) at the Chapel Hill campus of the University of North Carolina on Friday, March 17, and Saturday, March 18, 1950. One hundred twenty-one persons registered, including the following members of the Institute:

R. L. Anderson, T. W. Anderson, Geoffrey Beall, C. A. Bennett, Mrs. C. A. Bennett, Nils Blomqvist, R. C. Bose, R. A. Bradley, Irwin Bross, Glen Burrows, L. D. Calvin, Uttam Chand, W. G. Cochran, A. C. Cohen, Jr., W. S. Connor, Jr., P. P. Crump, E. E. Cureton, R. C. Davis, W. L. Deemer, T. G. Donnelly, Churchill Eisenhart, J. W. Fertig, S. G. Ghurye, Leon Gilford, B. G. Greenberg, F. E. Grubbs, Max Halperin, J. F. Hannan, Boyd Harshbarger, C. R. Henderson, Wassily Hoeffding, Harold Hotelling, A. S. Householder,