

# MEDDELELSER

## DANSK SELSKAB FOR TEORETISK STATISTIK

14. årg. nr. 2

Februar 1989

Reserveret postvæsenet

Større og mindre nyheder bedes sendt til:

Meddelelser v/ Niels Herman Hansen,  
IMSOR, Bygning 321, DTH, 2800 Lyngby

**Deadline på næste nummer: 15. februar**

Jørgen Hoffmann-Jørgensen (Matematisk Institut, Aarhus Universitet): Asymptotic likelihood theory without conditions:

Resumé. Let  $\{\hat{\theta}_n\}$  be a sequence of maximum likelihood estimators. In the usual asymptotic likelihood theory it is shown, that under a long list of conditions we have, that  $\hat{\theta}_n$  converge a.s. to the true parameter value  $\theta_0$ . There are numerous examples, where the conditions are not met, but yet we have consistency of  $\{\hat{\theta}_n\}$ . Similarly there are numerous counterexamples showing that we do not always have consistency. In the talk I shall show that it is possible to describe all possible asymptotic behaviors of  $\{\hat{\theta}_n\}$  without imposing any conditions whatsoever. This is done by introducing a certain information function  $\bar{I}(\theta)$ , called the upper information function. The function  $\bar{I}(\theta)$  has the property, that all limit points of  $\{\hat{\theta}_n\}$  belong to set of maximas of  $\bar{I}(\theta)$ , and all maximas of  $\bar{I}(\theta)$  are the a.s. limit of some sequence of maximum estimator. Thus we have consistency if and only if  $\bar{I}(\theta)$  admits a unique maximum. I shall also briefly describe how to obtain asymptotic normality of  $\{\hat{\theta}_n\}$ , when the log-likelihood function is not necessarily differentiable.

Trykt på imsor

Ansvarshavende: Niels Herman Hansen

**Generalforsamling selskabet**

Tirsdag den 28. februar 1989

kl. 19.15 præcis i auditorium X

på H.C. Ørsted Instituttet

Dagsordenen, som indeholder bestyrelsens forslag til nyvalg, fremgår af januar-nummeret. Formandens beretning findes nedenfor. Det reviderede regnskab udleveres som sædvanlig ved generalforsamlingen. Det vil blive gengivet i et kommende nummer.

Efter generalforsamlingen er der foredrag:

### REGRESSION ANALYSIS OF CORRELATED RESPONSE DATA

Ross L. Prentice (Seattle)

Abstract var ikke fremkommet ved redaktionens afslutning.

Efter foredraget er der som sædvanlig et beskedent traktement på Institut for Matematisk Statistik.

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### Bestyrelsens beretning 1988

På generalforsamlingen 23. februar nuvalgte Philip Hougaard til bestyrelsen, Mens Niels Herman Hansen og Aage Nielsen genvalgte og Bendix Carstensen blev genvalgt som revisor. Generalforsamlingen takkede med akklamation det afgangende bestyrelsesmedlem Helge Gydesen for hans indsats gennem de sidste

fire år. Bestyrelsen konstituerede sig siden med Martin Jacobsen som formand, Anders Milhøj som kasserer, Niels Herman Hansen som redaktør af "Meddelelser" og Philip Hougaard som sekretær.

Der har i årets løb været holdt 6 møder med Poul Thyregod, Jon A. Wellner, Yoshiko Ogata, Bjarne Kjær Nielsen, Peter Dalgaard og Søren Johansen som foredragsholdere samt ét debatmøde om randomiserede kliniske forsøg med Anders Mørup Jensen og Knud West Andersen som indledere. Ved efterårets todages-møde i Aalborg var der foredrag af Jesper Møller, Steve Thompson, Steffen Lauritzen, Peter Linde og Jan Kutylowski.

På grund af den 12. Nordiske Konference i Matematisk Statistik i Åbo i juni var der intet todagesmøde om foråret. Ved mødet i Åbo holdt Steffen Lauritzen hovedforedrag, Anders Holst Andersen og Niels Keiding var diskussionsindledere og Preben Blæsild, Katarina Juselius, Nils Kousgaard og Tue Tjur arrangerede gruppesessioner.

Til at arrangere den 13. Nordiske Konference i Danmark i 1990 har bestyrelsen nedsat en organisationskomite med Martin Jacobsen, Anders Milhøj og Jes Søgaard som medlemmer og en programkomite med Per Kragh Andersen, Eva Bjørn Jensen og Anders Milhøj som medlemmer.

Medlemsbladet "Meddelelser fra Dansk Selskab for Teoretisk Statistik" er udkommet med 9 numre i 1988.

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Afdeling for teoretisk statistik, Matematisk Institut, Aarhus Universitet

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Statistiske Kollokvier

Tirsdag den 14. februar 1989 kl. 14-16 i H.2.28

Jørgen Hoffmann-Jørgensen (Matematisk Institut, Aarhus Universitet): Asymptotic Likelihood theory without conditions.

Abstract: se venligst bagsiden.

## Calender of meetings from the International Statistical Institute

*19 - 22 March	Fifth Annual Research Conference of the Bureau of the Census (ARC V), Arlington, Virginia USA. Information: Ms. Maxine Anderson-Brown, ARC Conference Coordinator, Office of the Director Bureau of the Census, Washington, DC 20233, USA.
*4 - April	International Conference on Statistical Methods for the Environmental Sciences, Cairo, Egypt. Information: A.H. El-Shaarawi, Co-Chairman, National Water Research Institute, P.O. Box 5050 Burlington, Canada L7R 4A6.
*10 - 12 April	13th Annual Meeting of the Society of Classification at the University of Augsburg, West-Germany Information: O. Opitz, Universität Augsburg, Memmingerstrasse 14, D-8900 Augsburg, FRG.
*30 May 2 June	13th Urban Data Management Symposium, Lisbon, Portugal. Information: Antonio Morais Arnaud, Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa, 2825 Monte de Caparica, Portugal
8 - 16 June	1989 Annual Meeting of the Statistical Society of Canada, Ottawa, Ontario. Information: SSC 1989, International and Professional Relations Division Statistics Canada 10-A R.H. Coats Building Tunney's Pasture, Ottawa Ontario K1A 0T6, Canada
26 June 1 July	National University of Singapore, Singapore Probability Conference, Singapore, Republic of Singapore. Information: J.H. Lou, The Organizing Secretary, Singapore Probability Conference, Department of Mathematics, National University of Singapore, Lower Kent Ridge Road, Singapore 0511, Republic of Singapore.
27 - 30 June	Fifth International Vilnius Conference on Probability Theory and Mathematical Statistics, Vilnius, USSR. Information: V. Statulevicius, Director of the Institute of Mathematics and Cybernetics, 4 Akademijos Str., 232600 Vilnius, USSR.
*3 - 7 July	Second Conference of the International Federation of Classification Societies (IFCS Charlottesville, Virginia USA. Information: IFCS-89, Department of Mathematics University of Virginia, Charlottesville, VA 22903, USA.
	14th Conference on System Modelling and Optimization of the International Federation for Information Processing. Information: K. Tammer, Leipzig University of Technology, Department of Mathematics and Informatics, PF66, Leipzig, 7030, GDR.

- 3 - 7 July János Bolyai Mathematical Society, Third Hungarian Colloquium on Limit Theorems in Probability and Statistics, Sopron, Hungary. *Information:* J. Bolyai Mathematical Society, Limit Theorems, Anker köz 1-3, H-1060 Budapest, Hungary.
- \*17 - 21 July Joint Meeting GLIM 89 and 4th International Workshop on Statistical Modelling, Trento, Italy. *Information:* A. Decarli, Istituto di Statistica e Ricerca Operativa, Università degli studi di Trento, Via G. Rosmini, 42, I-38100 Trento, or B. Francis, Centre for Applied Statistics, University of Lancaster, Fylde College, GB - Lancaster, LA1 4YP.
- 6 - 20 August American Statistical Association, Biometric Society (ENAR & WNAR), 150th Annual Meeting, Washington D.C., USA. *Information:* American Statistical Association, 1429 Duke Street, Alexandria, VA 22314-3402, USA.
- 14 - 18 August ALIO/EURO Workshop, Practical Combinatorial Optimization, the first Joint IFORS Regional Grouping Event, organized by Associacao Latino-Ibero-Americana de Pesquisa Operacional and Association of European Operational Research Societies within IFORS. *Information:* R.D. Galvao, Programa de Engenharia de Produção COPPE/UF RJ, Caixa Postal 68.507, 21.945 Rio de Janeiro, Brazil or Søren K. Jacobsen, IMSOR, Bldg. 321, Technical University of Denmark, 2800 Lyngby, Denmark.
- 20 August - 6 September XIXème Ecole D'ete de Calcul des Probabilites, Saint Flour, France. *Information:* P.L. Hennequin, B.P. n° 45, F63170 Aubiere, France.
- \*21 - 24 August International Conference on Recent Development in Statistical Data Analysis and Inference in honor of C.R. Rao, Neuchâtel, Switzerland. *Information:* Professor Yadolah Dodge, Conference Organizer, Université de Neuchâtel, Groupe d'Informatique et de Statistique, Pierre-à-Mazel 7, CH-2000 Neuchâtel, Switzerland.
- 21 - 25 August Bernoulli Society, Satellite Meeting on Statistics, Earth and Space Sciences, Leuven, Belgium. *Information:* J.L. Teugels, Catholic University of Louvain, Department of Mathematics, Celestijnenlaan 200 B, 3030 Heverlee, Belgium.
- 21 - 25 August Bernoulli Society, Sixth European Young Statisticians Meeting, Prague, Czechoslovakia. *Information:* M. Hála, Faculty of Civil Engineering, Czech Technical University, Thákurova 6, 1600 00 Praha 6, Czechoslovakia.
- 28 August - 1 September IFIP '89 11th World Computer Congress, San Francisco, CA, USA. *Information:* IFIP Secretariat, 3 rue du Marché, CH-1204, Geneva, Switzerland.
- 29 - 31 August IFAC/IFORS/IMACS Symposium, Large Scale Systems: Theory and Applications, Berlin, Democratic Republic of Germany. *Information:* Wissenschaftliche Gesellschaft für MeB -und automatisierungstechnik in der Kammer Technik, LSS-Symposium Berlin 89, Clara-Zetkin-Strasse 115/117, Berlin - DDR, 1086, German Democratic Republic.
- 29 August - 6 September International Statistical Institute, 47th Biennial Session (includes meetings of Bernoulli Society, International Association for Official Statistics, International Association of Statistical Computing, International Association of Survey Statisticians and International Association for Regional and Urban Statistics), Paris, France. *Information:* ISI Permanent Office, 428 Prinses Beatrixlaan, PO Box 950, 2270 AZ Voorburg, Netherlands.
- 7 - 8 September Bernoulli Society, Satellite Meeting of the ISI 47th Session, Statistical Methods in Biopharmacy, Paris, France. *Information:* J. Cauquil, Centre de Recherche Pierre Fabre, 17 av. Jean Moulin, F-81106 Castres, France.
- \*7 - 9 September Meeting on Statistics for Repeated Measurements at the University of Padua, Padova, Italy. *Information:* Adelchi Azzalini, Department of Statistical Sciences, University of Padua, Via S. Francesco 33, 35121 Padova, Italy.
- \*11 - 14 September Meeting "Errors, Uncertainties and Bias in Astronomy" to be held at Strasbourg, France. *Information:* Professor C. Jaschek, C.D.S. - Observatoire Astronomique, 11, rue de l'Université, F - 67000 Strasbourg.
- 18 - 25 September IUSSP International Population Conference, New Delhi, India. *Information:* IUSSP, rue des Augustins, 34-4000 Liege, Belgium.

#### 1990

- \*3 - 5 April 5th Statistical & Scientific DataBase Management (SSDBM) meeting, Charlotte, North Carolina, USA. *Information:* Dr. Zbigniew Michalewicz, Department of Computer Science, Victoria University of Wellington, P.O. Box 600, Wellington, New Zealand.
- \*13 - 15 June 7th Annual Quality and Productivity Research Conference at the University of Wisconsin, Madison, USA. *Information:* T.J. Snodgrass, Department of Engineering Professional Development, 801 Extension Building, University of Wisconsin, Madison WI 53706, USA.
- 25 - 29 June 12th IFORS Conference on Operational Research, Athens, Greece. *Information:* Mr. Graham Rand, Department of O.R., School of Management and Organisational Sciences, Gillow House, University of Lancaster, Bailrigg, Lancaster LA1 4YX, U.K.
- 6 - 9 August American Statistical Association, Joint Statistical Meetings, Anaheim, California, USA. *Information:* ASA, 1429 Duke Street, Alexandria, VA 22314-3402, USA.
- 13 - 18 August Bernoulli Society, 2nd World Congress of the Bernoulli Society and 53rd Annual Meeting of the Institute of Mathematical Statistics, Uppsala, Sweden. *Information:* P. Jagers, Matematiska Institutionen, Chalmers Tekniska Hogskola, Goteborg S-412 96, Sweden.
- \*19 -24 August Third International Conference on Teaching Statistics (ICOTS III), Dunedin, New Zealand. *Information:* The Secretary, ICOTS III, Department of Mathematics and Statistics, University of Otago, POB 56, Dunedin, New Zealand or Professor D. Vere-Jones, Institute of Statistics and Operations Research, Victoria University of Wellington, Private Bag, Wellington, New Zealand.

*9 - 15 September	COMPSTAT 1990 Dubrovnik, Yugoslavia. Information Mrs Vesna Mildner University Computing Center 41000 Zagreb Engelseva bb, Yugoslavia.	Information
19 - 22 August	American Statistical Association, Joint Statistical Meetings Atlanta ASA, 1429 Duke Street, Alexandria VA 22314-3402, USA.	
*4 - 7 September	IMISIBAC-4, 4th International Meeting of Statistics in the Basque Country Bilbao Spain Information J.P. Villeplana, P.O. Box 32, 48940 Lejona/Leioa, Spain.	
9 - 17 September	International Statistical Institute, 48th Biennial Session (includes meetings of Bernoulli Society, International Association for Official Statistics, International Association of Statistical Computing and International Association of Survey Statisticians), Cairo, Egypt. Information: ISI Permanent Office, 428 Prinses Beatrixlaan, PO Box 950, 2270 AZ Voorburg, Netherlands.	

Indicates new entries

International Statistical Institute  
428 Prinses Beatrixlaan  
Voorburg, Netherlands



WORLD HEALTH ORGANIZATION

INTERNATIONAL AGENCY FOR RESEARCH ON CANCER

## ADVANCED STATISTICAL METHODS IN EPIDEMIOLOGY — A COURSE —

19-26 July 1989, IARC Lyon, France

**The course is primarily intended for biostatisticians actively working in epidemiology, and epidemiologists with a strong statistical background.**

The syllabus will include, among other topics:

- Regression methods for cohort and case-control studies, based on the proportional hazards model, and on more general models of risk
- Design considerations for cohort and case-control studies, taking account of bias, confounding and measurement error
- The evaluation of screening and early detection programmes
- Methods in genetic epidemiology
- Description of computer software for the analytical methods described

The course coordinator is **Dr John Kaldor**, Unit of Biostatistics Research and Informatics, IARC, Lyon.

The other members of the teaching faculty are:

**Dr Tim Bishop**, Department of Medical Informatics, University of Utah, Salt Lake City, USA

**Professor Norman Breslow**, Department of Biostatistics, University of Washington, Seattle, USA

**Dr David Clayton**, Department of Community Health, University of Leicester, UK

**Dr Nicholas Day**, Director, Medical Research Council Biostatistics Unit, Cambridge, UK

**Dr Timo Hakulinen**, Finnish Cancer Registry, Institute for Statistical and Epidemiological Cancer Research, Helsinki

The working language of the course will be English and participants will be expected to have a reasonable knowledge of spoken English.

No charge will be made for the course, but participants will be expected to find their own support for travel and accommodation.

FURTHER INFORMATION AND APPLICATION FORMS MAY BE OBTAINED FROM:

The Unit of Education and Training, International Agency for Research on Cancer,  
150 cours Albert Thomas 69372 Lyon Cédex 08, France

CLOSING DATE FOR RECEIPT OF APPLICATIONS — 15 April 1989