

# B-Stat News

The Newsletter  
of the  
*Belgian Statistical Society*  
*Belgische Vereniging voor Statistiek*  
*Société Belge de Statistique*

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### **Website of the Society**

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**BIostatISTICS SECTION OF**  
**SBS/BVS**  
**Minutes of GENERAL ASSEMBLY**



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**Date:** Wednesday, June 14, 2006, 17:45 – 19:00

**Place:** UCB, Chemin du Foriest, 1420 Braine l'Alleud

**Present:** P. Lambert, B. Boulanger, C. Dubois, J. Bogaerts, C. Legrand, E. Quinaux

**Excused:**

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1. **2004-2006 report** from the president (P. Lambert)

- **Activities organised, co-organised or supported by the Biostatistics Section:**
  - DIA non-clinical statistical meeting organised by B. Boulanger (Eli Lilly) in Dublin (April 22-23, 2004).
  - *An introductory course in statistics for genomic data* by Paul Eilers (Leiden University Medical Center). It took place at Eli Lilly Development Centre (Louvain-la-Neuve, May 26-27, 2004).  
Number of participants: 17.
  - Joint meeting of the 3CC, the Biostatistics Section and the Quetelet Society at Janssen Pharmaceutica, Beerse, 22 June 2004. Four presentations were given by Ziv Shkedy (LUC), Francois Vandenhende (Eli Lilly), Steve Lagakos (Harvard Univ.) and Paul Lewi (Janssen Pharmaceutica).
  - A contributed session dedicated to biostatistics was organized by our Section during the 12<sup>th</sup> Annual meeting of the SBS-BVS (Vielsalm, 8-9 October 2004). Five presentations (see B-Stat News 32) were selected out of seven submissions.

- A 2-day short course entitled *An introduction to Bayesian inference in biomedical applications* by Dr. Nicky Best (Department of Epidemiology & Public Health, Imperial College, London, UK). It took place at Eli Lilly Development Centre (Louvain-la-Neuve, May 3-4, 2005).  
Number of participants: 27.
- A 1-day course entitled *Practical Bayesian modelling with BUGS / BRUGS/ CODA / WBDIFF in pharmaceutical R&D* by Dr. Benoît Beck (European Early Phase Statistic department, Eli Lilly, Belgium). It took place at the EORTC (Brussels, November 16, 2005).  
Number of participants: 20.
- A 1-day *Workshop on Bayesian inference in biomedical applications*. It took place at the EORTC (Brussels, November 17, 2005). The invited speakers were Gareth Roberts (Univ. Lancaster), Iva Gueorguieva (Eli Lilly, UK), Astrid Jullion (UCL), Allun Bedding (Eli Lilly, UK), Philippe Lambert (UCL), Stefan Van Dongen (Univ. Antwerpen) and Myriam Maumy (Univ. Strasbourg).  
Number of participants: 21.
- An afternoon dedicated to a presentation of the East Software (version 4) by Y. Jemai PhD (Cytel, USA) followed by a discussion. It took place at UCB (Braine l'Alleud).  
Number of participants: 18
- **Two members (C. Dubois and B. Boulanger) of our Section represented Belgium at the EFSPI (European Federation of Statisticians in the Pharmaceutical Industry):**
  - Participation to EFSPI meetings in Dublin in April 2004.
  - At the request of EFSPI, Cécile Dubois has collected and reported the comments from our members on the ICH E14 document.
  - Cécile Dubois is responsible for collecting and forwarding information on events taking place in Belgium that are of potential interest to the EFSPI community.
  - Bruno Boulanger participated to and was in the scientific committee of the *International workshop on statistical methodology in clinical and nonclinical R&D*, October 26-28, 2005, Nice, France.

2. **Presentation of the financial report** by the treasurer (B. Boulanger)
  
3. **Election** of the new members of the Board
  - Two members of the Board, B. Boulanger and P. Lambert representing respectively the academia and the pharmaceutical industry, have reached the end of their term and elections are organised.
  - There were two candidates to represent the pharmaceutical industry in the new Board:
    - Catherine Legrand (Merck Sharp & Dohme): 32 votes.
    - Emmanuel Quinaux (IDDI): 18 votes.
  - There was a single candidate to represent the academia in the new Board:
    - Annie Robert (UCL): 47 votes.
  - According to the by-laws of the section, Annie Robert who has the highest number of votes will be the next president in two years.

The new Board is:

- President : Cécile Dubois,
- Treasurer:
- Secretary:
- Member(s): Annie Robert, Catherine Legrand, Jan Bogaerts

The roles of treasurer and secretary will be decided at the next board meeting.

4. **Further Activities**
  - Annual meeting of the SBS/BVS, Houffalize 12-13 October, 2006. Organisation of the Biostatistics session with an invited speaker, Dave Collett (UK Transplant), and contributed presentations.
  - Other to be decided at next board meeting.

## 5. **Other business**

Number of members of the Biostatistics section: 168

**14<sup>TH</sup> ANNUAL MEETING OF THE  
BELGIAN STATISTICAL SOCIETY SBS-BVS**

**October (11), 12 and 13, 2006, Houffalize**

The program of the next meeting of the Belgian Statistical Society is now available on the conference web-site with abstracts.: <http://www.stat.ucl.ac.be/BSS2006/>

**Wednesday, October 11 (afternoon for young statisticians)**

A special afternoon for young statisticians is organised this year by the PhD students of the Institute of Statistics of UCL. It will give young statisticians an opportunity to meet and share their research interests.

13h30 Registration and welcome

14h30 Is there a life after a PhD in statistics?

*Karliën VANDEN BRANDEN*, consultant at a DG, European Commission, *Gunther MATTHYS*, quantitative analyst structured credit products at Fortis, *François VANDENHENDE*, senior researcher at Eli Lilly

16h30 Coffee & Refreshment

17h00 Poster session

Presentation of posters and discovery of each poster through a quiz.

20h00 Dinner and social activities

## Thursday, October 12

09h00 Welcome

09h50 Opening of the conference

10h00 Invited speaker: Jean Opsomer (Iowa State University)  
*Applications of Nonparametric Regression in Survey Estimation*

11h00 Parallel sessions: RSS3cc and Methodology

Session RSS3cc :

- Delphine Cassart (ULB), *A class of multivariate parametric and non parametric tests for symmetry*
- Barron Dean S. (California State University), *Kolmogoroff-Smirnoff enhancement*
- Dony Julia (VUB), *Uniform in bandwidth consistency of conditional U-statistics*
- Ding Huijuan (KUL), *Lack-of-fit tests using wavelet regression in semiparametric mixed models*
- Veredas David (ULB), *Indirect estimation of elliptical fat-tailed distributions*

Session Methodology:

- Rizopoulos Dimitris (KUL), *Sensitivity analysis for the shared parameter models using copulas*
- Tsonaka Roula (KUL), *Shared parameter models with a flexible random effects distribution*
- Creemers An (UH), *A new nonparametric approach to weighted estimating equations for missing data*
- Verdonck Tim (UA), *Principal component analysis for data containing outliers and missing elements*
- Goos Peter (UA), *Bayesian Analysis of Data from Split-Plot Designs*

12h45 Lunch

14h00 Invited speaker: Dave Collett (UK Transplant)  
*Some Statistical Problems in Organ Donation and Transplantation*

14h55 Parallel sessions: Biostatistical Section of BSS and Methodology

Session Biostatistical Section of BSS:

- Moerkerke Beatrijs (UG), *A powerful strategy for detecting differentially expressed genes*
- Valkenborg Dirk (UH), *Monoisotopic peak validation using a Poisson approximation in a COFRADIC setting*
- Jacobs Tom (UH), *In-vivo - In-vitro correlation data modelling and random effects: a case study*

Session Methodology:

- Bennala Nezar (ULB), *Sign and rank optimal test for error components model*
- Böhm Hilmar (UCL), *Shrinkage as a tool in multivariate spectral analysis*
- Dhaene Geert (KUL), *Jackknife Bias Reduction for Nonlinear Dynamic Panel Data Models with Fixed Effects*

15h55 Coffee break

16h20 Parallel sessions: Biostatistical Section of BSS and Methodology

Session Biostatistical Section of BSS:

- Jullion Astrid (UCL), *PK parameters estimation using adaptive Bayesian P-splines models*
- Francart Julie (EORTC Data Center), *Prognostic factors in malignant mesothelioma of progression-free survival: a better approach for phase II mesothelioma trials*

Session Methodology:

- Koch Inge (UA), *An alternative measure for positive dependency useful in insurance and finance*
- Cuvelier Etienne (FUNDP), *Probability distribution and density for functional random variable. A new tool for functional data analysis*

17h00 Invited speaker: Erich Neuwirth (University of Vienna)

*When methodology and data influence each other: The Pisa study*

19h00 Poster session and aperitif

20h00 Conference Dinner

**Friday, October 13**

08h00 Breakfast

09h00 Parallel sessions :

B-ENBIS : Invited speaker : Bart Baesens (KULeuven)  
*New trends and applications in Data Mining*

Quetelet Society : Invited speaker : Ziv Shkedy (Hasselt University)  
*Statistical and mathematical models in epidemiology*

09h55 Parallel sessions: B-ENBIS and Quetelet Society

Session B-ENBIS:

- Waterschoot Serge (Banksys), *Fraud Detection and Reaction at Banksys*
- Glady Nicolas (KUL), *Churn prediction using customer lifetime value: a business case in retail banking*
- Antonio Katrien (KUL), *Dependence modelling for multilevel data on fleet policies*

Session Quetelet Society:

- Julian Perelman (UCL), *Deriving a risk-adjustment formula for hospital financing integrating the impact of socio-economic status and severity on length of stay*
- De Jaeger Simon (EHSAL), *Do voluntary agreements with municipalities help to reduce residential garbage? A case study for Flanders*
- Vanbelle Sophie (ULg), *Comparing correlated kappa coefficients by the bootstrap method*

10h55 Coffee break

11h20 Parallel sessions: B-ENBIS and Quetelet Society

Session B-ENBIS:

- Piette Manuel (FORTIS), *The Logit Target Mean approach for binary classification*
- De Schepper Ann (UA), *Upper and lower bounds for the value at risk under partial information*

Session Quetelet Society:

- Brys Guy (Statistics Belgium), *The GGP project*"
- Haldermans Philippe (UH), *Using linear mixed models for normalization of cDNA microarrays*

12h05 Invited speaker: Jean-François Richard (University of Pittsburgh)  
*An integrated treatment of Monte Carlo numerical integration techniques*

12h55 Official closing of the conference

13h10 Lunch

14h15 Satellite workshop on Deployment of Statistics in an Office Environment - A hands-on workshop, by Christian Ritter (UCL and Monnet Center, Louvain-la-Neuve, Belgium) or hiking in the neighbourhood of the conference centre.

16h15 Coffee and cakes

## MEMBER NEWS

### Prizewinners of the EMS Article Competition 2005

**First prize:** Professor F. **Thomas Bruss**, Dpt. de Mathématiques, Université Libre de Bruxelles, Campus Plaine, CP 210, B-1050 Bruxelles, Belgium, for his article “*Die Kunst der richtigen Entscheidung*”, published in the magazine “Spektrum der Wissenschaft” (Scientific American, German Ed.), Juni 2005.

It has also been published in French in “Pour La Science” (Scientific American, French Ed.), Septembre 2005 and in Arabic in “Al Oloom” (Scientific American, Arabic Ed.), Novembre 2005.



*Citation: Thomas Bruss receives the first prize for an appealing and highly original article on how to base decision-making on reasoning. The article presents among others recent research of the author and is very attractively written for an audience of educated laymen. The article has already been translated into several languages.*

At the time of submission an English translation by the author was also made available to the Jury. This version will be published in The Newsletter of the European Mathematical Society.

**Irène Gijbels**, member of our Society, and Professor of Statistics at the Department of Mathematics of the Katholieke Universiteit Leuven, has been awarded a Fellowship of the IMS (Institute of Mathematical Statistics). This Fellowship is a way of honoring the outstanding research and professional contributions of its members, contributions which help keep IMS in a leading role in the field of statistics and probability.

The 2006 IMS Fellows were presented during the IMS Presidential Address at the 69th Annual Meeting of the Institute of Mathematical Statistics, held in Rio de Janeiro, Brazil, July 30--August 2, 2006.

Irène Gijbels receives the award "for fundamental contributions to the field of nonparametric statistics, especially nonparametric smoothing, change-points and nonparametric survival analysis; and for invaluable services to the profession..." (from IMS-bulletin, August/September 2006).

**Julia Dony** (VUB) has presented a poster "*Weighted uniform consistency of kernel density estimators with general bandwidth sequences*" at the International Congress of Mathematicians in Madrid (August 22-30, 2006) and has been awarded the first prize in the section probability and statistics. (She already presented some of the results during the last meeting of BVS-SBS at Corsendonk).

## RECENT PhD THESES

### Université catholique de Louvain La Neuve

Céline Bugli. *Statistical tools for the analysis of event-related potentials in electroencephalograms* (June 23, 2006) – Promotors: Prof. Philippe LAMBERT (UCL, Institut de statistique)

Since its first use in human in 1929, the electroencephalogram (EEG) has become one of the most important diagnostic tool in clinical neurophysiology. However, their use in clinical studies is limited because the huge quantity of collected information is complicated to treat.

Indeed, it is very difficult to have an overall picture of this multivariate problem. In addition to the impressive quantity of data to be treated, an intrinsic problem with electroencephalograms is that the signals are "contaminated" by body signals not directly related to cerebral activity. However, these signals do not interest us directly to evaluate treatment effect on the brain. Removing these signals known as "parasitic noise" from electroencephalograms is a difficult task.

We use clinical data kindly made available by the pharmaceutical company Eli Lilly (Lilly Clinical Operations S.A., Louvain-la-Neuve, Belgium).

Particular types of analyses were already carried out on these data, most based on frequency bands. They mainly confirmed the enormous potential of EEG in clinical studies without much insight in the understanding of treatment effect on the brain. The aim of this thesis is to propose and evaluate a panel of statistical techniques to clean and to analyze electroencephalograms.

The first presented tool enables to align curves such as selected parts of EEGs before any further statistical treatment. Indeed, when monitoring some continuous process on similar units (like patients in a clinical study), one often notices a typical pattern common to all curves but with variation both in amplitude and dynamics across curves. In particular, typical peaks could be shifted from unit to unit. This complicates the statistical analysis of sample of curves. For example, the cross-sectional average usually does not reflect a typical curve pattern: due to shifts, the signal structure is smeared or might even disappear.

Another of the presented tools is based on the preliminary linear decomposition of EEGs into statistically independent signals. This decomposition provides on the one hand an effective cleaning method and on the other hand a considerable reduction of the quantity of data to be analyzed. The technique of decomposition of our signals in statistically independent signals is a well-known technique in physics primarily used to unmix sound signals. This technique is named Independent Component Analysis or ICA.

The last studied tool is functional ANOVA. The analysis of longitudinal curve data is a methodological and computational challenge for statisticians. Such data are often generated in biomedical studies. Most of the time, the statistical analysis focuses on simple summary measures, thereby discarding potentially important information. We propose to model these curves using non parametric regression techniques based on splines.

Electronic access:

<http://edoc.bib.ucl.ac.be:81/ETD-db/collection/available/BelnUcetd-06182006-153528/>

### **Next issue**

We would like to publish in this *Newsletter* any statistical matter such as :

- information about universities, institutes (1 to 3 pages);
- lists of recent publications and technical reports;
- abstracts of recent PhD theses;
- news of members;
- forthcoming statistical events and announcements;
- short papers about teaching methods in statistics, statistics in the industry, official statistics, etc.

Suggestions are welcome: please, contact us.

Suitable information for the next issue, prepared as **(LA)TEX or WORD FILES**, should reach the editors of the Newsletter **BEFORE December 15, 2006**, preferable by e-mail to:

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### **Any change of job, address, phone number, ... ?**

Please notify the Secretary of the Society:

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