



**Basel Biometric Section of the Austro-Swiss Region
of the International Biometric Society**

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BBS Seminar on Enhanced Statistical Methodology

Applications in measures of evidence for hypotheses and monotone regression

Basel, 12 Jan 2010, 16:00 – 17:30

***Auditorium of the Roche Learning Center,
Aeschenvorstadt 56, Basel***

PROGRAM

16:00 **Welcome** Michael Branson, President BBS

16:00 – 16:45 Leonhard Held, Prof. PhD (University of Zürich)

A Nomogram for P Values

Abstract

P values are the most commonly used tool to measure evidence against a hypothesis. Several attempts have been made to transform P values to minimum Bayes factors and minimum posterior probabilities of the hypothesis under consideration. However, the acceptance of this calibration in clinical fields is low due to inexperience in interpreting Bayes factors and the need to specify a prior probability to derive a lower bound on the posterior probability. I propose a graphical approach which easily translates any prior probability and P value to minimum posterior probabilities. The approach allows to visually inspect the dependence of the minimum posterior probability on the prior probability of the null hypothesis. Likewise, the tool can be used to read off, for fixed posterior probability, the maximum prior probability compatible with a given P value. The maximum P value compatible with a given prior and posterior probability is also available. The device will enhance the understanding of P values as measures of evidence among non-specialists.

16:45 – 17:30 Kaspar Rufibach, PhD (University of Zürich)

Estimation of two ordered monotone regression curves

Abstract

We consider the task of finding the Least Squares estimators of two isotonic regression curves g_1 and g_2 under the additional constraint that they are ordered, i.e. $g_1 \leq g_2$. The characterization of the new estimators is established and algorithms to find them are discussed. Unfortunately, as in the one-curve case, the estimators are step-functions, i.e. non-continuous. To circumvent this problem we propose a kernel-smoothed version of the estimators. The chosen family of kernels entails that the smoothed estimates remain monotone.

The problem was motivated by stress-strain curve data from a mechanical engineering. We illustrate the method on this dataset.

This is joint work with Fadoua Balabdaoui and Filippo Santambrogio.

17:30 End of Seminar