Statistics Seminar Series

Session 2, 2006

UNSW THE UNIVERSITY OF NEW SOUTH WALES

Spiridon Penev

School of Mathematics and Statistics
The University of New South Wales

Maximal Reliability, Maximal Validity and Power in Covariance Structure Models

The talk is in two parts. In the first part, we examine the relationship between maximal reliability and asymptotic power of some tests of lack of latent linear relationship in Covariance Structure Models. The contribution to power by the maximal reliability coefficient associated with used latent variable indicators is examined and this relationship is further explicated in the case of congeneric measures. As a consequence, it is shown that the widely used practice of item parcelling may reduce power of tests of latent regression parameters. Recommendations on weights for parcelling to avoid power loss are provided. The positive effect of judicious choice of the weights is illustrated in a small simulation study. In the second part, we state some interesting and important relationships between the notions of maximal reliability and maximal validity of measurements in Covariance Structure Models. Only in the case of congeneric measures are maximal reliability and maximal validity attained with the same weights. Several inequalities are established for the case when the measures are not congeneric. Confidence interval construction for maximal validity is also discussed.

About the speaker: Spiridon Penev is a senior lecturer in the School of Mathematics and Statistics. His research interests include wavelet methods in nonparametric curve estimation, saddlepoint approximation methods, structural equation models, and inference in semiparametric models for dependent observations.

Time: 4pm, Friday, 8th September
Location: Room 4082, Red Centre

Please join us after the seminar for wine and cheese in the staffroom.

Seminar co-ordinator: Sally Galbraith
e-mail: Sally.Galbraith@unsw.edu.au