APRIL 2001

Thirty-Seventh Gregynog Statistical Conference Programme

All talks will take place in Seminar Room 1 (Floor 2, far end)

Friday	16.00	*Tea*
20 April	17.00	Dr Martin Crowder (Imperial College, London) *Competing Risk I.*
	19.00	*Dinner*
	20.00	Professor Neville Davies (Nottingham Trent University) *Starter: The Learning and Teaching Support Network (LTSN)* *Main Course: How LTSN can help Statistics Learning and Teaching.* *Dessert: Bench Marking titbits.*
Saturday	08.00	*Breakfast*
21 April	09.30	Dr Hilde Wilkinson-Herbots (University College, London) *Probability in Genetics*
	11.00	*Coffee*
	11.30	Dr Martin Crowder *Competing Risk II.*
	13.00	*Lunch*
		Afternoon free
	16.00	*Tea*
	17.00	Dr Jane Hutton (University of Warwick) *Models for survival data: choice between accelerated life and proportional hazards models*
	19.00	*Dinner*
Sunday	08.00	*Breakfast*
22 April	09.30	Dr Alan Welsh (University of Southampton) *Examining distance sampling*
	11.00	*Coffee*
	11.30	Dr Martin Crowder *Competing Risk III.*
	13.00	*Lunch*
	14.00	Professor Stephen Senn (University College, London *Two cheers for P-values*
	15.30	*Tea and finish.*

Abstracts

Models for survival data: choice between accelerated life and proportional hazards models

Dr Jane Hutton, University of Warwick

In medical, engineering and economic applications, the choice between the proportional hazards or the accelerated life families of models is rarely discussed. The proportional hazards family is widely used in medicine. Accelerated life models have conventionally been used in reliability and economic applications.
We use data from clinical trials of anti-epileptic drugs and a cohort of people with cerebral palsy to illustrate the impact of misspecifying proportional hazards and accelerated life models. Theoretical results are then presented. For the uncensored case, misspecified accelerated life models give asymptotically unbiased estimates of covariate effect, but the shape and scale parameters depend on the misspecification. The covariate, shape and scale parameters differ in the censored case. Asymptotic and first order results are compared. Simulation is used to investigate whether the asymptotic results hold for small samples.
Accelerated life models are more robust to misspecification than proportional hazards. Parametric proportional hazards models do not have a sound justification for general use: estimates from misspecified models can be very biased, there is a loss of power, and misleading results for the shape of the hazard function can arise. Misspecified survival functions are more biased at the extremes than the centre.
Estimates of covariate effects for misspecified fully parametric models are compared with those from a Cox proportional hazards model, and survivor function estimates compared with Cox and Kaplan-Meier estimators. The comparative robustness, in terms of estimation of covariate effect, and size and power of tests of effect, of the Weibull model and the Cox proportional hazards model merit further investigation.

J.L Hutton and P.J Solomon. Parameter orthogonality in mixed regression models for survival data. J. R. Statist. Soc. B, 59:125--136, 1997.
P.F Monaghan and J.L Hutton. Asymptotic results on the choice of accelerated life and proportional hazards models for survival data. {Technical report}, STA99,1, 1999. Department of Statistics, University of Newcastle.
P.F Monaghan, J.L Hutton, and P.R Williamson. Simulation studies to investigate the importance of choice between accelerated life and proportional hazards models in the analysis of survival data. {Technical report}, STA99,7, 2000. Department of Statistics, University of Newcastle.

Examining Distance Sampling

Dr Alan Welsh, University of Southampton

Distance Sampling is a methodology for treating undercount or incomplete detection in enumeration surveys which are intended to estimate population counts or population abundance. The undercount problem is widespread in ecology but also occurs in other surveys: The census undercount is a well-known example of the problem. After framing the problem in a general context, we describe distance sampling data and present a graphical understanding of the distance sampling estimator. We discuss the uniformity assumption on which distance sampling depends and describe the properties of the distance sampling estimator when uniformity does not hold. We then explore the relationship between this and other evaluations of distance sampling. We mention briefly some statistical ideas for treating the general incomplete detection problem and conclude with some reflections on general insights arising from the research.
The talk will blend biometric and survey ideas. The intention throughout is to develop and explore the key ideas conceptually so the presentation should be accessible to a wide audience.

Speakers

Dr Martin Crowder	Imperial College, London
Professor Neville Davies (Sat pm)	University of Nottingham Trent
Dr Jane Hutton	University of Warwick
Professor Stephen Senn	University College, London
Dr Alan Welsh	University of Southampton
Dr Hilde Wilkinson-Herbots (Sat PM)	University College, London

Staff

Aberystwyth
Dr John Basterfield
Dr John Lane
Mr Alan Jones
Prof Dennis Lindley

Bangor Mr Chris Whitaker

Birmingham
Prof Malcolm Faddy (and Mrs Faddy)
Dr Rachel Hilliam
Gan Ohama

Bristol

Keele
Prof Peter Jones
Dr JianXin Pan
Dr Sayed El Sharpieny
Dr John Preater (Sat PM)
Dr Jabulani Sithole (Sunday - not accommodation)

Staffordshire Dr Emily-Jane Raeburn

Swansea
Prof Alan Hawkes
Dr Mark Kelbert
Dr Alan Watkins

University of Wales College of Medicine
Dr Frank Dunstan (and Mrs Dunstan)

Warwick
Prof John Copas
Dr Jane Hutton
Ms Beatrice Giglio
Dr Karla Hemming
~~Mr Robert Deardon~~ (Date w/d)

Students

Kamilla Zychaluk

Natalia Schofield

Yasin Al Tawarah

Paul Redmond

Andrea John
Richard Johnson
Nicholas Pugh

replaced.
~~Burcak Basbug~~
Fotios Siannis
Daniel Jackson
Carlos Cuevas
Olga Kerasidou
Judith Cabrera

Marcos Perez
Simon Bond
Grace Kwong
Zorana Najdanovic
~~Liliana Figuera-Quiroz~~