

NEWSLETTER

OCTOBER 2004

Statistics and statisticians have a large impact upon society but it takes events such as the recent Australian Statistical Conference to make this visible. Data Analysis Australia had an important participation in this conference, in both the organisation and some of the more practical presentations.

*Dr John Henstridge
Managing Director*

ASC 2004

Statistics is not usually a very visible profession, so the sight of 780 statisticians in Cairns was impressive. They were the attendees at two parallel meetings – the 2004 Australian Statistical Conference and the International Biometric Conference. This produced five days of intense seminars, workshops and innumerable discussions as professionals bounced ideas, new techniques, and problems off each other.

These conferences highlighted one of the most important features of statistics – diversity. Those who attended the conferences had job titles such as biometricians, statistical geneticists, analysts, medical statisticians and research officers as well as those who go by the title of statistician. Attendees worked for universities, pharmaceutical companies, hospitals, research institutes and consulting groups. Some were specialised in a particular area of statistics while others applied their statistics in a more diverse set of areas.

The majority of those present at the conferences gave presentations and they reflected this diversity. Some examples are, *Responding to Bioterrorism: Models for Anthrax*, *Mixed Maggots: The Analysis of a Fly Competition Experiment*, *Statistical Methodology for Facial Identification*, *Malnutrition in Nigerian Children (0 – 5 years): Distribution and Classification*, and *An Investigation of Gambling in Cherbourg*.

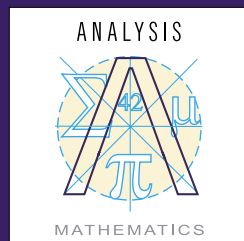
The talks presented by the Data Analysis Australia contingent were no exception to this of diversity. Meredith Regan presented the issues of modelling water consumption and assessing the effect of water restrictions on overall consumption. Anna Munday discussed the modelling of internal migration patterns in the context of population forecasts. And John Henstridge spoke about the sampling design that Data Analysis Australia has used when conducting the Perth and Regions Travel Survey (PARTS).



Data Analysis Australia also had a strong presence at the Young Statisticians session, being organised by Anna Munday and chaired by Jodie Thompson, with John Henstridge as one of the invited speakers. One of the issues discussed at this session was the need to attract more students to study statistics. It was generally felt that there was a need to convey to high school students the diversity of career opportunities that statistics offers in order to boost future numbers studying statistics.

One of the highlights was the statistical consulting session where the invited speaker was Stephen Fienberg from Carnegie Mellon University in Pittsburgh. Stephen presented a talk with the intriguing title *In search of the magic lasso: The truth about the polygraph*. (The title of the talk came from the fact that the inventor of the lie detector went on to create the Wonder Woman comic!). Stephen related his experiences of chairing a high level committee of the National Research Council that was asked by the United States Congress to report on the utility of the lie detector for screening employees of secure government laboratories.

The main finding was that the polygraph had such an error rate that any attempt to use it to catch spies would be swamped with false positives (loyal employees who would be incorrectly classified as suspects) and many of the technical statistical issues were covered. But the most interesting and relevant part of the presentation was the method used to convey technical information to a non-technical audience. In the end, the report used a simple numerical example – a pair of small tables – that even a politician could get right. Another example of the diversity of statistics!!



STAFF PROFILE



Jodie Thompson is one of Data Analysis Australia's longest serving employees, joining the firm in 1996 after completing a Bachelor of Science in Mathematics and Computing at Curtin University. As part of the assessment for one of her university courses, Jodie found herself analysing a dataset of the occurrence of twin births in WA, by zygosity and sex, over time in which she was one of the observations!!

Jodie is the Manager of Perth Consulting, responsible for allocating resources across all the projects and generally managing the operational activities of the Perth branch. During her time at Data Analysis Australia, she has developed expertise across a number of areas including geographical information systems (complete with a Graduate Diploma in this area), survey design and analysis, and simulation modelling. She is currently serving her third year as Secretary on the WA Branch of the Statistical Society of Australia and is also accredited by the Australian Market and Social Research Society as a Qualified Practising Market Researcher.

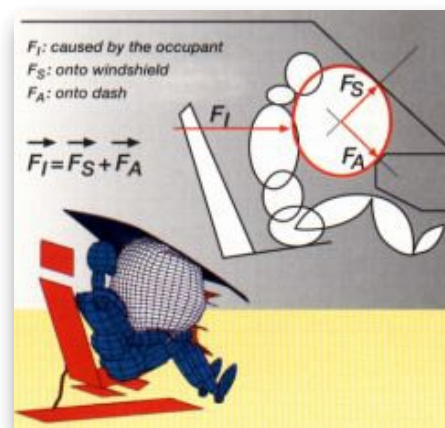
Despite working as a caddy for a year in Japan, Jodie is an avid golfer and one of her personal achievements is scoring a hole-in-one at the 5th hole of the Hamersley Golf Course last year. She strongly believes that left-handers represent more than 10% of the population and should be given a fair go.

ANALYTICAL IDEAS

Modelling is a long-standing method used to understand processes and phenomena such as the solar system, car designs, military strategies and bulk cargo shipping movements. The models can take many forms, ranging from miniature replicas to pen and paper to computerised reproductions.

This issue's Analytical Ideas paper explores simulation models, a form of modelling phenomena or processes using mathematical models on high-speed computers. While available software means that simulation models are physically easy to construct, statistical and mathematical expertise is often required to set the assumptions and structures correctly for the model to replicate the real system.

Data Analysis Australia has employed simulation modelling to understand operational systems for call centres, power stations and bulk cargo jetty facilities and to compare alternate scenarios as part of process improvement. This paper can be found at <http://www.daa.com.au/analyticalideas/2004/simulationmodelling.html>



COMPANY NEWS

In August **Donna Hill**, **Anna Munday** and **Jodie Thompson** attended the Australian Market and Social Research Society's Western Australian conference. Donna and Anna gave a presentation about the methodologies that Data Analysis Australia has used in the conduct of the Perth and Regions Travel Survey (PARTS).

John Henstridge was recently working on a project in Sri Lanka, designing a survey to assess the economic and social benefits of rural electrification. The work is in conjunction with Hydro Tasmania and is funded by the Asian Development Bank. John will be returning to Sri Lanka to complete the project in October.

Our recent recruit, **Natalie Smith**, graduated with a Bachelor of Computing and Mathematics from the University of Western Australia in September.

CLASSIC QUOTE

"An occupational hazard to which we statisticians are exposed occurs in the context of a social occasion, perhaps a dinner party. I am, let us say, seated next to a charming lady whom I have just met, and, as an initial conversational ice-breaking, she turns to me with a winning smile and says: "Now tell me what is it you do?" We must tell the truth, of course, so I reply that I am a statistician. That usually ruins a fine conversation for in 8.6 cases out of 10 the lady's smile disappears, she turns to my rival on her other side, and I attack the fried chicken in lonely, misunderstood dignity."

William Kruskal
American Scientist Magazine, 1967

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