1983 STUDENT PAPER PRIZE

The 1983 award has been won by Rona Bailey and David Patterson (Canterbury University) for their paper "Spare Parts Inventory Proposals for Donaghys Industries Limited". Congratulations to you both.

Felicity Ferret's Gossip Column

There seems to be a massive influx of ORSNZ members to the Ministry of Energy in recent times: Andrew Smith and Terence Crombie from the Health Department and Nick Winter from Canterbury. So what's the attraction boys?!

Council member Gib Bogle has migrated to warmer places, namely the Auckland Industrial Development Division, DSIR. Gib was previously seconded to MAF in Wellington (from DSIR).

Brian Smith (ex CDC) has also headed for Auckland and is now working for IDAPS.

The UK OR conference is being held in early September. Kevin Hall and Vicky van den Broek-Mabin are both attending.

Paul Margetts (ex-Progreni) has already headed in that direction: he is now in London and doesn't plan on returning for two or so years.

VISITING LECTURER:
Professor Hassler Whitney of the Institute of Advanced Study, Princeton, New Jersey

Prof. Whitney has accepted an invitation from the NZ Mathematical Society to be this year's Visiting Lecturer. Professor Whitney is a distinguished mathematician and teacher who shared the 1982 Wolf Prize for his innovative ideas in algebraic and differential topology and differential geometry. He has been active in mathematics education at all levels for a long time, being President of the International Commission on Mathematical Instruction from 1979.

It is expected that Professor Whitney will be in NZ from about September 1 for a period of up to three weeks. He will tour NZ to speak to audiences in the university centres. Contact Dr Halford, Dept of Maths & Stats, Massey University for further details.

FORTHCOMING CONFERENCES

1984		
July	8-11	4th International Symposium on Forecasting (London)
July 20-Aug	10	EURO Summer Institute on Location Theory (Brussels, Belgium)
August	6-10	IFORS X (Washington DC)
	13-15	Simulation Society of Australia, 6th Biennial Conference (Adelaide)
	20-24	2nd Latin American OR Conference (Buenos Aires)
September	4-7	UK Annual OR Conference (Lancaster)
	10-14	6th International Congress of Cybernetics & Systems (Paris)
	23-28	AGIFORS Symposium (Strasbourg, France)
October	10-13	'Targetting Strategy Formulation & Implementation' - 4th Annual Strategic Mgmt Society Conference (Philadelphia, USA)
November	21-22	UK ORS: 'OR Software & the Micro'
1985		
March	12-14	IFAC Workshop on AI & Pattern Recognition in Economics & Mgmt (Zurich)
June	17-20	EURO VII: Annual European Congress (Bologna, Italy)
July	3-7	7th IFAC/IFORS Symposium: 'Identification & System Parameter Estimation' (York Uni, UK).
July	9-11	Control '85: 'Theory & Practice of Automatic Control' (Cambridge, UK)
July 31-Aug	2	3rd IFACE Symposium on Computer Aided Design in Control & Engineering Systems (Denmark)
August	5-9	IMACS 11th World Congress: 'Systems Simulation and Scientific Computation' (Oslo, Norway)
	20-22	IFAC Regional Conference on Control & Technology for Development (Beijing, China)
	27-30	Advances & Computer Applications in Production Management (Budapest, Hungary)
September	10-12	2nd IFAC Conference: 'Analysis, Design & Evaluation of Man-Machine' (Varese, Italy)

NEWSLETTER

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c/- Min. Ag. & Fish.,
Private Bag,
WGTN.

MAY 1984

Letter from the Editor

Apologies for being a month late: partly due to my having recently taken 6 weeks leave to work with a crack chopper crew (doing live deer recovery), and also partly due to a lack of copy. The usual complaint, huh? Never to mind: here it is. Good reading!

Sue Nicoll

A THOUGHT FOR THE DAY

AREN'T STATISTICS WONDERFUL? From an advertisement in an English paper: "Statistics show that you have a two-in-three chance of a burglary or assault in your home. If you live in a centre of population or in certain types of home then you have double that risk. And its is on the increase..."

O.R. STUDENTS!

ATTEND THE AUGUST CONFERENCE

A total of $500 has been allocated by ORSNZ Council to provide a few Student Travel Grants to selected students to help them attend the conference. Students who have submitted papers to the conference or who have played an active role in Branch Affairs will be given preference in allocation.

Pick up an application form from your local ORSNZ Branch, University, or Institute Department, or copy the form printed here. Selection of students will take place in early July, forms must be submitted by 30 June 1984.

IFORS '84
Washington

This conference will be an anniversary event in two respcts: it is the tenth of a series of Triennial Conferences and it will celebrate IFORS' 25th anniversary. The theme of the 1984 conference is "Co-operation - the Culture for O.R. Success". It was chosen to bring out two major requirements of the O.R. approach:

a) successful application requires co-operation such as that between user and researcher, OR and data processing professionals, high tech engineer and OR worker.
b) creative and useful research springs from the cross-fertilisation resulting from, for example, the interrelationship of academic and practitioner, multidisciplinary team work, learning about new frontiers in science and technology.

Hugh Barr and John Scott are both attending the conference and have been made the official ORSNZ representatives.

PACIFIC STATISTICS CONGRESS

The Australasian Region of the Biometrics Society, in conjunction with the NZ Statistical Association and other groups, is planning to hold a "Pacific Statistics Congress" at Auckland University in May, 1985. The congress is likely to last for up to a week and the organisers wish to involve any groups with an interest in statistics. Members are encouraged to contribute papers so that a session on 'OR and Statistics' can be organised.

N.Z.Council Box 904, Wellington

Wellington Branch Box 904, Wellington

Auckland Branch C/- Dept TAM Auckland University Auckland

Canterbury Branch C/- Economics Department University of Canterbury Christchurch.

WELCOME TO NEW MEMBERS

New members since last Newsletter

Cheryl McDonald	VUW student
Ruth Murphy	VUW student
Harvey Steffens	Health Dept
Peter Thakurdas	AMD, DSIR
John Tiffin	Progeni
Mr S Yetman	Canterbury student

Farmers Trading Co Ltd, Auckland have become a corporate member.

Lost Members

Would anyone knowing the current addresses of the following members please pass them on to the treasurer, Karen Garner (Ph 727855, PO Box 904, Wellington):
Mr M M Lau, Auckland
Mr D Cameron, Christchurch
Craig Longhurst ex Dalhoff & King NZ Ltd

STATISTICAL COMPUTING DISPLAY

In June 1984 the New Zealand Statistical Association intends holding a statistical computing display in conjunction with its annual conference. The display and the conference will both be held at Victoria University, Wellington, Tuesday, 26 June to Thursday, 28 June inclusive. The display will be open to the public between the hours of 10am and 4pm on each of these days. The emphasis will be on statistical software for mainframe, mini- and micro-computers. Several leading software firms will be displaying their wares. Any firm or individual interested in renting space at the display should contact Peter Thomson, Institute of Statistics and Operations Research, Victoria University

DIVISIONAL NEWS

Wellington

Two talks have been given to the Wellington branch since the last newsletter: Alan Singer spoke on 'Competing Explanations of Irrational Choice' and Brian Easton and Graeme Wells discussed 'Economy-wide Models in NZ'

A lunch-time meeting is to be held on Thursday, 31 May at 12.30pm. Professor Tony Vigraux (Dept. of Stats and Maths, Vic. University) is to talk on 'The Police Control Room - A Case Study'. Then on 28 June at 7.30pm David Whittaker (Dept Bus. Admin., VUW) speaks on 'Time-constrained travelling salesmen problem - for recreation and management'. For further information, contact Frances Sutton (tel. 726-600).

"Experience by itself teaches you nothing; you must have theory as well"
W Edwards Deming

Wellington Branch Meetings:

"COMPETING EXPLANATIONS OF IRRATIONAL CHOICE"

On 29 March, Alan Singer, a lecturer in the Department of Business Administration at Victoria University gave a talk to the Wellington Branch entitled "Competing Explanations of Irrational Choice". The motivation for the talk came from Alan's questions at Geoff Gregory's talk on Decision Theory last year. The problem is that while decision analysts have been busy developing their work based on utility theory, psychologists have been busy showing the inconsistencies of utility theory and have been developing other theories instead. Utility theory assumes that people will choose according to the utility they derive, or expect to derive, from a bundle of goods. Alan first showed how hard it is even for "rational" OR people to make correct decisions to simple puzzles eg there are 4 cards on the table:

Each card has a letter on one side and a number on the other. To prove or disprove the statement "every card with a vowel on one side has an even number on the other side", which card(s) do you need to turn over? (Answer later in this article!) A remarkably low 5/128 students got this right when the experiment was done overseas. We did not do a count at the meeting to save embarrassment. Alan contrasted this with a very similar experiment with 4 envelopes, sealed or not sealed, with a 4p or 5p stamp. Given a more familiar example, the students were apparently able to do much better, with a success rate of 22/24. See Wason [1].

Having demonstrated the difficulties of making correct decisions to "simple" problems, Alan then moved on to discuss gambles and gave us a series of pairs of gambles to chooose between. He demonstrated Allias Paradox which shows that utility theory cannot always explain choices between gambles.

The following example illustrated most effectively how preferences may be altered by different representations of the probabilities. Consider the following gambles (Problem I):
A: win $4000 w.p. .2, nothing otherwise,
B: win $3000 w.p. .25, nothing otherwise.

When asked to choose between these, 65% people prefer A to B, and 35% B to A.

Now consider the following 2-stage game: (II)

In the first stage, there is a probability of .75 to end the game without winning anything, and a probability of .25 to move into the second stage. If you reach the second stage you have a choice between (4000, .80) and (3000).

Your choice must be made before the game starts, ie before the outcome of the first stage is known.

Note that in this game, one has a choice between .25 x .80 = .20 chance to win 4000, and a .25 x 1.0 = .25 chance to win 3000. Thus, in terms of final outcomes and probabilities one faces a choice between (4000, .20) and (3000, .25) as in problem I above. However, the dominant preferences are different in the two problems. Of 141 subjects who answered problem II, 78% chose the latter prospect, contrary to the preference for A in problem I. (This is an example from Kahneman and Tversky [3].) Alan suggested that people say "if I get through to the second stage, I am not going to push my luck any further! So I will choose $3000 in the second stage", which sounds very reasonable.

Rather than conclude that such choices were irrational, Alan then discussed two alternative theories in places of expected utility. Subjective Weighted Utility [2] uses a weighting function of the probabilities in a gamble (log-odds transformation). Prospect Theory like SWU, entails a weighting of probabilities (by a different function) and, significantly, a 2-stage edit-evaluate process. The theory is perhaps closer in spirit to models in cognitive psychology than the economic tradition. These two theories both accommodate the paradox, but unfortunately for almost opposite reasons.

Decision analysis provides an elegant way to combine all the costs, returns and probabilities of numerous alternative courses of action and results. Determining those alternatives and their costs etc. at the outset can be a serious limitation. In contrast, prospect theory is oriented towards finding descriptive models of the choice process. It involves putting choices to people, getting actual choices and trying to find a structure that fits the data. It is descriptive rather than prescriptive ie describes the choice process rather than helping to make decisions. However, Prospect Theory could be used to help the analyst predict what choices will be made by a manager and, in particular, where "irrational" choices are likely.

Alan has brought these ideas together from a diversity of disciplines where work has proceeded independently (as brief references below suggest). With some good minds working in these areas, we look forward to further developments.

PS. The answers are A and 7!

References:

1. see eg. Wason in Johson-Laird and Wason (Eds), "Thinking" (1977)
2. Karmarkar (1978) in "Organisational Behaviour and Human Performance".
3. Kahneman and Tversky (1979) in "Econometrica"

Vicky van den Broek-Mabin

"ECONOMY - WIDE MODELS IN NEW ZEALAND"
Presented by Graeme Wells and Brian Easton on 3 May 1984

This was a very well attended meeting with over 30 people present, including some from outside the Society. Graeme reviewed the economic models currently being used in New Zealand and indicated whether each was used for making policy decisions, forecasting, or testing theories.

Apart from the institutions most likely to be interested in economy-wide modelling, such as the Reserve Bank (10 models), Treasury (1), NZIER (2), models have been built at MOW (1) and VUW (4), and those of OECD and BHP are also in use.

This large number of models in operation was explained as being due to the differing economic theory behind the models and their different operational aspects. Broadly, models differ in their treatment of time, the level of aggregation in different sectors and the means of aggregating sectors, and whether their focus is on the end equilibrium achieved, or the intermediate effects before equilibrium can be reached.

In answer to queries as to the accuracy of the models' predictions, Graeme and Brian commented that the models are rigorously tested in their development phase on past data and one point answers are not relied on, rather different scenarios are considered to give a range of results. The RBNZ and NZIER models have been found to be good tools for policy-making, and the VUW models, funded by Treasury and the Planning Council are constantly used. When the four major models of the RBNZ, NZIER, BERNZ (developed from an RB model) and Treasury agree in their predictions, there can be a reasonable level of confidence in the results. This plethora of economic models also ensures a large degree of control over any one 'maniacal' economist having his (or her?) own wicked way!

Karen Garner