MSCS Mess

Department of Mathematics, Statistics and Computer Science
St. Olaf College
Northfield, MN 55057

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This Week's Colloquium

Title:	Dependent Race Models and Conjoint Choice Analysis
Speakers:	Steve MacEachern, Ohio State
Time:	1:30 pm Tuesday, May 1 (Treats at 1:15)
Place:	SC 182

Abstract: Conjoint choice experiments are a basic tool underlying much of market research. One goal of such an experiment is to assess the viability of a new product offering--a combination of levels of various attributes. A viable offering will have high utility for a broad segment of consumers. In a choice experiment, subjects are presented with a set of products and asked which product they prefer. This process is repeated many times, with varying product sets. From these data, one hopes to extract a distribution of choice probabilities (across subjects) for competing products.

The primary modeling issues for a conjoint analysis are (i) how to model choice probabilities at the individual level and (ii) how to synthesize the information across a heterogeneous pool of subjects. In this talk, we focus on improving the models for individual choice probabilities. The models we present generalize the so-called ``horse-race" models from psychology. The new models carefully treat the dependence structure amongst the alternatives, drawing a distinction between dependence arising from conditional independence and dependence arising from a shared realization of dependence. This dependence structure is induced by the description of a product as a collection of levels of attributes. They yield a natural means of modeling dominance of one product over another.

Experimental data was collected to assess the performance of the new models relative to current methods. The new models outperform current methods on a variety of out-of-sample measures of fit. Most importantly, the new models perform quite well on tasks of extrapolation.

This is joint work with Shiling Ruan, Thomas Otter and Angela Dean.

About the Presenter: Steve MacEachern grew up in Minneapolis and headed down to Carleton for college. He has many fond memories of Northfield. After college, he went to the University of Minnesota for graduate school in Statistics. Upon graduation, he took a position at Ohio State University, where he's been ever since. He has widely varied interests in statistics, ranging from theoretical problems to applied problems. Currently, he's part of an interdisciplinary team working on a variety of problems at the interface of Statistics, Psychology and Marketing.

Ole Researchers Give Talks

Eight mathematics majors and statistics concentrators gave talks on their research at a Mathematical Association of America conference held at St. Kate's on April 14.

The students were Joshua Campbell, Alanna Hoyer-Leitzel, Tony Huff, Erin Manlove, Thomas McConville, Matt Moynihan, Mike Soma, and Kate Tummers. Out of the 10 student talks, 6 were by Oles!

Congratulations and thanks to the students who gave St. Olaf such a great presence at the conference.

Mark Your Calendars!

The annual math picnic is coming up on Sunday May 13th, from 1 to 3 pm at Sechler Park (the one right behind Malt-o-Meal). This year the picnic will be a BBQ, so if you want to come please SEND YOUR CAF NUMBER to Kelly Nail (nail@stolaf.edu) (also let her know if you are vegetarian). In addition, a sign-up with be placed in the math hallway. At the picnic, the infamous softball game against the professors will take place… so bring your glove and any bats or balls you have!

CS Students Take Third At Regional Contest

Six CS students and one faculty member traveled last week to the University of North Dakota to attend the annual Midwest Instruction and Computing Symposium (MICS 07). The attendees were seniors Elizabeth Jensen, Ben Landsteiner, and Reid Price, junior Will Voorhees, sophomore Todd Frederick, and first-year Logan Venohr, accompanied by Prof. Dick Brown. Besides presenting research results (two papers, two posters), hearing the other presenters, and talking with folks from other colleges and universities, the students entered teams in the robotics and programming contests. This was St. Olaf's first entry in the robotics contest, and "Team 0x726162" (Elizabeth, Ben, and Logan) learned a lot competing against much more experienced schools. In the programming contest, the seniors of Team "Ol' Rab's Bouncing Biscuits" won a prize for third place, and the non-seniors of Team "Hornet Swatters" (all first-timers) finished 16th among the 42 teams. Congratulations to all!

Jokes for Geeks...

Q: Did you hear about the statistician who invented a device to measure the weight of trees?
A: It's referred to as the log scale.

Q: Did you hear about the statistician who was thrown in jail?
A: He now has zero degrees of freedom.

Q: Why don't statisticians like to model new clothes?
A: Lack of fit.

The Lipton Company is big on statistics--especially t-tests.

Problem of the Week (POW)

No Cheese For You. A mouse runs through a maze. Each intersection in the maze has exactly 3 passages coming into it: the one the mouse came in along, a left turn, and a right turn. The mouse alternates turning left and right as it proceeds through the maze. Show that it must eventually get back to where it started.

Submit all solutions before the appearance of

the next problem to Josh Laison in person, by e-mail (laison@stolaf.edu), or by telegraph. The first correct solution gets a prize; all correct solutions get fame and glory. Preference for the prize goes to problem-solvers who haven't won one yet.

Solution to Passenger Jumble: Congratulations to Paul Tviete, Reid Price, and Thomas McConville, who solved the problem this week. Paul won a pair of wax lips.

There are at least two distinct solutions to this problem. The following particularly elegant solution is due to Thomas McConville: At some point between the first and last person, someone will either choose the first person's seat, in which case the last person is guaranteed to get his seat, or the last person's seat, in which case the last person is guaranteed NOT to get his seat. Since these are equally likely situations, the probability that the last person's seat gets taken at some point is 1/2.

If you would like to submit an article or math event to be published in the Math Mess, e-mail meyerm@stolaf.edu or dolank@stolaf.edu.

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