

STANFORD UNIVERSITY
DEPARTMENT OF STATISTICS
DEPARTMENTAL SEMINAR

4:15 p.m., Tuesday, February 18, 2003
Sequoia Hall Room 200
(Cookies at 3:45 in 1st Floor Lounge)

Iain Johnstone
Stanford University

Approximations for the largest canonical correlation

Given n observations on two groups of variables, say X and Y , the classical technique of canonical correlations seeks linear combinations of the X and Y variable sets that are most highly correlated. The associated (generalized) eigenvalue problem is basic to a variety of multivariate methods, both ancient and modern.

The null distribution of the largest canonical correlation, though well known, is difficult to work with in practice. An asymptotic regime in which the number of X and Y variables are comparable to n leads to a simple approximation using the Tracy-Widom distribution. Being second-order accurate under the classical assumptions, the approximation turns out to be informative, and perhaps preferable to those in current software, even on textbook size examples.

This work is joint with Peter Forrester of the University of Melbourne.