

STANFORD UNIVERSITY
DEPARTMENT OF STATISTICS
DEPARTMENT SEMINAR

4:15 p.m., Tuesday, July 16, 2002
Sequoia Hall Room 200
(Cookies at 3:45 in 1st Floor Lounge)

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Nonparametric Combination of Dependent Permutation Tests as a General Tool for Tackling Multivariate and Multiaspect Tests

The method of the Nonparametric Combination (of a finite number) of Dependent Permutation Tests (NPC) (Pesarin 1988, 2001) as a general tool for multivariate testing problems (when a set of quite mild conditions holds), is introduced and discussed.

In some q -dimensional problems, one single appropriate overall test statistic $T : R^q \rightarrow R$ is available. Similarly, there are data transformations $\varphi : R^q \rightarrow R$ of the q -dimensional data into univariate derived data $Y = \varphi(X_1, \dots, X_q)$.

There exist also many multivariate problems for which a single overall test is not available (or not easy to find, or too difficult to justify). The NPC method may be particularly useful in these cases. This method is very flexible as well. For example, recently Marozzi proposed a new way to solve the $K \geq 2$ location problem by using this general theory in a multiaspect manner. This new solution appears to be better than the traditional ones for some nonstandard distributions like the Cauchy, the half-Cauchy and other heavy tailed distributions.