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Title:

Testing for Interactions in General Semiparametric Analysis of Repeated Measures Data, With Application to Testing for Main Effects of Genes with Possible Environmental Applications.

Abstract:

This talk considers the general problem where the data for an individual are repeated measures in the most general sense, with a parametric component and a nonparametric component. In gene–environment interaction studies, it is often of interest to test for the main effects of genes (the parametric components) when there might be interactions with the environment (the nonparametric component). Rather than build complex models for the interactions, we use a Tukey–type 1–degree of freedom formulation that has the promise to improve power for testing whether there are any genetic effects. We derive a general profile–type score statistic and show how to implement it, which involves circumventing the need to solve an integral equation. Extensions to semiparametric additive models with repeated measures are described.