Nonlinear Statistical Models for Tables of Counts: The Latent Class Approach

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102 Bradley Hall, 4:00 pm
(Tea 3:30 pm Math Lounge)

Abstract

Cross-classified tables of counts are ubiquitous in the social and health sciences. The starting point for the statistical modeling of cross-classified tables usually begins with some notion of statistical independence, but it is frequently the case that observed data deviate in meanigful ways from (linearized) models of independence. There are several families of intrinsically nonlinear models that are used to analyse such data, and in this talk I focus on latent class models. The utility of latent class models will be illustrated with an application to assessing diagnostic accuracy of medical tests in the absence of a so-called Gold Standard. Statisical inference will focus on likelihood-based methodology, with particular emphasis on interesting theoretical and computational issues that arise in applying the models.

This talk should be accessible to undergraduates.