JOHNS HOPKINS BLOOMBERG SCHOOL of PUBLIC HEALTH

Department of Biostatistics

BIOSTATISTICS SEMINAR

A Theme of Linearity in Methods for Multivariate Binary Responses

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Abstract

Linearity is a defining attribute of the linear model. However, linearity as a concept has a far reach that spans a vast array of statistical theory and methods for non-linear models. Two instances that arise in non-linear models will be presented. In the first, linearity is made as an assumption in nonlinear marginal models for multivariate binary responses leading to a marginalized transitional model usable for model fitting as well as for simulation. In the second, an estimating function for pairwise odds ratios is obtained through a projection on the space of linear combinations of the individual responses. This approach leads to a new understanding of alternating logistic regression, and allows straight-forward extensions and regression diagnostics.

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