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Analysis of Long Series of Longitudinal Ordinal Data Using Marginalized Models

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SUMMARY. Marginalized models (Heagerty, 1999; 2002) are often used for short longitudinal series when population averaged effects are of interest. Lee and Daniels (2007, 2008) proposed marginalized models for the analysis of longitudinal ordinal data to permit likelihood-based estimation of marginal mean parameters. In this paper, we extend their work to accommodate the response dependence that we have seen with long series of response data (the functional form of response dependence has both serial and long-range components). Maximum likelihood estimation is proposed utilizing the Quasi-Newton algorithm with a Quasi Monte Carlo method for integration of the random effects. The methods are illustrated on quality of life data from a recent lung cancer clinical trial.

Keywords: likelihood-based estimation; Quasi-Newton; quality of life.

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