JACKKNIFING IN GENERALIZED LINEAR MODELS

JUN SHAO

Department of Mathematics, University of Ottawa,
585 King Edward, Ottawa, Ontario, Canada K1N 6N5

(Received September 28, 1990; revised August 28, 1991)

Abstract. In a generalized linear model, the jackknife estimator of the asymptotic covariance matrix of the maximum likelihood estimator is shown to be consistent. The corresponding jackknife studentized statistic is asymptotically normal. In addition, these results remain true even if there exist unequal dispersion parameters in the model. On the other hand, the variance estimator and the studentized statistic based on the standard method (substitution and linearization) do not enjoy this robustness property against the presence of unequal dispersion parameters.

Key words and phrases: Asymptotic covariance matrix, consistency, jackknife, robustness.