Then by the Lipschitz-continuity of g in a neighborhood of β, there is a $\delta > 0$ such that on A_n^δ,

$$\|G(\zeta_s) - G(\hat{\beta})\| \le c\|\hat{\beta}_s - \hat{\beta}\|,$$

where c is a positive constant. Let $I_{A_n^\delta}$ be the indicator function of A_n^δ. Then

$$\begin{aligned} E|\hat{B}_{\mathrm{WR}} I_{A_n^\delta}| &\le \frac{r-k+1}{n-r}\Sigma_r W_s\Big[E\Big(\|G(\zeta_s) - G(\hat{\beta})\|^2 I_{A_n^\delta}\Big)E\|\hat{\beta}_s - \hat{\beta}\|^2\Big]^{1/2} \\ &\le c\frac{r-k+1}{n-r}\Sigma_r W_s E\|\hat{\beta}_s - \hat{\beta}\|^2 \\ &= c\,\mathrm{Tr}\big[Ev_{J,r}(\hat{\beta})\big] \\ &= O(n^{-1}), \end{aligned}$$

where the last equality follows from Theorem 1 of Shao and Wu (1985). Hence

$$\hat{B}_{\mathrm{WR}} I_{A_n^\delta} = O_p(n^{-1}).$$

From the lemma, $\mathrm{Prob}(A_n^\delta) \to 1$ as $n \to \infty$. Thus

$$\hat{B}_{\mathrm{WR}} = O_p(n^{-1}). \qquad \square$$

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We would like to congratulate the author on a very interesting paper, and discuss some issues arising from jackknifing nonlinear models (Section 8). Much of what is presented here is based on Simonoff and Tsai (1986); V is the $n \times p$ matrix of first partial derivatives of $f(\cdot)$ with respect to θ, while W is the $n \times p \times p$ array of second partial derivatives.

1. Alternative weighting schemes. The weighted jackknife originally suggested by Hinkley (1977) was applied to nonlinear models by Fox et al. (1980),