

# 自然パラメータを用いた情報量及び交差検証規準の漸近バイアスの導出

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An asymptotic expansion of the cross-validation criterion (CVC) using the Kullback-Leibler distance is derived when the leave- $k$ -out method is used and when parameters are estimated by the weighted score method. By this expansion, the asymptotic bias of the Takeuchi information criterion (TIC) is derived as well as that of the CVC. Under canonical parametrization in the exponential family of distributions when maximum likelihood estimation is used, the magnitudes of the asymptotic biases of the Akaike information criterion (AIC) and CVC are shown to be smaller than that of the TIC. Examples in typical statistical distributions are shown.

For the full results corresponding to this abstract, see Ogasawara (2018).

## Reference

Ogasawara, H. (2018). Asymptotic biases of information and cross-validation criteria under canonical parametrization. To appear in *Communications in Statistics – Theory and Methods*.