AN ALTERNATIVE APPROACH TO THE PARAMETRIC EMPIRICAL BAYES SELECTION OF WAVELET THRESHOLDS

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The prior distribution is the key to the Bayesian inference. Theoretical priors, conjugate priors and estimated priors are different types of prior distributions. Estimating hyper-parameters, i.e., prior distribution parameters, using data is called Parametric Empirical Bayes (PEB), which is used by frequentists more often than by Bayesians [3].

Our purpose in this paper is to provide an alternative approach to the PEB approach to wavelet threshold selection [2,4,5]. We propose an approach to wavelet threshold selection when we have a few prior candidates for the wavelet coefficients. In the other words, instead of PEB estimation of the threshold, we perform a prior selection and then estimate the threshold. A few advantages of the proposed method are given through the examples. We compare the proposed method with the well known methods to the wavelet thresholding [1].

Key Words: Wavelet Thresholding, Parametric Empirical Bayes, Most Powerful Test.

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