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# SHRINKAGE PREDICTION FOR THE NORMAL REGRESSION PROBLEM WITH KULLBACK-LEIBLER LOSS FUNCTION

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We introduce a Bayesian shrinkage prediction for the Normal regression problem. First, we consider the multivariate Normal model with an unknown mean and a known covariance. While the unknown mean is fixed, the covariance matrix will be changed after sampling of the training data. We propose a Bayesian predictive distribution dominating the one with the uniform prior. Next, applying this result to the prediction of response variables in the Normal regression model, a class of Bayesian predictive distributions dominating the one with the uniform prior is proposed. Kullback-Leibler divergence from the true distribution to a predictive distribution is adopted as a loss function.