

DeRobertis Separation, Its Application to Bayesian Analysis and Generalization

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Abstract

The DeRobertis separation is a function of two probability density functions and it measures a difference between them. The DeRobertis separation has a characteristic property: the DeRobertis separation between Bayesian posterior distributions does not depend on the likelihood and keeps a same value between the priors. Given a pair of probability density functions, the DeRobertis separation is known to be an upper bound on the total variation distance though the tightness of the bound has not been studied. In the talk, a tighter upper bound is derived and the bound is proven to be the optimal. Another upper bound is proven by using the local DeRobertis separation, which is essentially tighter than the known upper bounds. Furthermore, more varieties of similar optimal bounds are shown.