Frequentist validation of the Bayesian problems: A brief note on posterior contraction rate

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Abstract

In the frequentist sense, an estimator of the true parameter is said to be consistent if it gets arbitrarily close to the true parameter with high probability as the sample size increases. In this presentation, we will explore the frequentist features of the posterior distribution when the sample size is high enough, provided that the observations are drawn i.i.d at random from some true data-generating distribution. Furthermore, since the posterior distribution is a random measure (a function of random data), its contraction is desirable. In particular, we will focus on the rate (also known as the posterior contraction rate) at which this random distribution converges to the true distribution. We investigate the rapidity at which such neighbourhoods can shrink to zero while continuing to accumulate nearly all of the posterior bulk.