

BOUNDS FOR THE ASYMPTOTIC DISTRIBUTION OF THE LIKELIHOOD RATIO

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One of the most celebrated theorem in theoretical statistics is Wilks' Theorem, which states that under appropriate conditions the log likelihood ratio statistic is approximately chi-square distributed. This result is very useful in hypothesis testing, specifically when we want to test whether the values of the parameter are restricted in a subset of the parameter space or not. In this talk I give an explicit bound on the distributional distance between the distribution of the likelihood ratio and its asymptotic chi-square distribution when the data are realisations of independent and identically distributed (i.i.d.) random elements. The good behaviour of the bound is justified through various examples.