1014-62-1585

Max-Louis G. Buot* (mbuot@stat.cmu.edu), Department of Statistics, Carnegie Mellon University, 132J Baker Hall, Pittsburgh, PA 15213, and Donald Richards (richards@stat.psu.edu), Department of Statistics, Penn State University, 326 Thomas Building, University Park, PA 16802. The Maximum Likelihood Degree of the Cauchy Location Likelihood.

Maximum likelihood theory ensures that exactly one root of the Cauchy location likelihood equation is near 0, with all other roots bounded away from 0, in probability, as the sample size increases. However, the theory does not yield information concerning the total number of roots. In this talk, we determine the maximum likelihood degree for a random sample of n observations drawn from a univariate Cauchy distribution. Our approach is easily extended to handle data which is t-distributed, assuming the degrees of freedom parameter is known. We also provide some results for the case in which the sample data consists of multivariate observations. (Received September 28, 2005)