Using Poisson Model for Inference about Characteristics of Continuous Data? Taboo or Innovation

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Abstract

Using a statistical distribution to describe data and to make inference about population traits are different tasks. In independent and identically distributed situations, we show that one can convert Poisson and negative binomial likelihood functions, with minor modifications, to become asymptotically “identical” to the likelihood/profile likelihood functions for the mean parameter of nonnegative continuous distributions under mild conditions. We present theoretical justifications and use data analyses to demonstrate the idea.