Unconditional Tests of Goodness-of-fit for the Intensity of Time Truncated Non-Homogeneous Poisson Processes

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Abstract

Procedure for testing trends in the intensity functioof non-homogeneous Poisson processes are mostly based on conditioning on the number of failures observed in $(0, t]$ with fixed t. We study unconditional test based on the time truncated data which enables meaningful asymptotics as $t \to \infty$. We show that the asymptotic test is conservative and its power quickly comes to the power of the UMPU test for the Power-Law alternatives. Besides, for the goodness-of-fit of a specified intensity, the exact test has more power than the test based on the conditional approach. We illustrate the procedure using real data set.