

On Cumulative Process Model and its Statistical Analysis.

Petr Volf

Abstract: The notion of the counting process is recalled and the idea of the ‘cumulative’ process is presented. While the counting process describes the sequence of events, by the cumulative process we understand a stochastic process which cumulates random increments at random moments. It is described by an intensity of the random (counting) process of these moments and by a distribution of increments. We derive the martingale – compensator decomposition of the process and then we study the estimator of the cumulative rate of the process. We prove the uniform consistency of the estimator and the asymptotic normality of the process of residuals. On this basis, the goodness-of-fit test and the test of homogeneity are proposed. We also give an example of application to analysis of financial transactions.

Keywords:

AMS Subject Classification: 62M;