

In this thesis we shall study point processes on linear networks. We introduce the definition of first-order intensity function, which represents the intensity of occurrence of points of the point process in individual points of the linear network. We require the first-order intensity function estimate utilising a smoothing kernel to preserve mass on the linear network. We define the $K^D(u|x)$ function, which represents the smoothing kernel. Our next objective is to state theorems which show us, when the integral of the function $K^D(u|x)$ evaluates to 1. The first will be stated for linear networks without cycles of length smaller than the width of the kernel and the second for linear networks which may contain cycles. We believe that the relevant literature on the subject contains an erroneous statement of the latter version of the theorem. We present detailed proofs for both versions of the theorem. At the end of the thesis we present two analyses based on real data (traffic accidents on D1 highway and Chicago Crime Data).