

Shape of sample plots for homogeneous spatial point processes

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Abstract: In this paper we study the effect of the plot shape on spatially explicit sample designs. We show that the variance of the intensity estimator, based on the counting measure of points in a given region A , is always larger under some compact convex sets satisfying several assumptions for any homogeneous spatial point process possessing a monotonic decreasing pair-correlation function. We illustrate this result for the Thomas process and several plot shapes.

Keywords: Homogeneous point process; Pair correlation function; Sampling error; Spatially explicit sample design; Sample plot shape; Thomas process.