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12. Probability and Statistics

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Limit laws for arrays

The limiting behaviour of normalized sums $S(V_n) = \sum_{j \in V_n} X_j$ is studied for a random field $\{X_j, j \in \mathbf{Z}^d\}$ and a sequence of increasing finite subsets $V_n \subset \mathbf{Z}^d$, $n \in \mathbf{N}$. Even for an array of i. i. d. multi-indexed r. v. 's new effects arise which are not inherent to a sequence of i. i. d. r. v. 's. Limit theorems for dependent random fields are provided as further development of our recent results partly obtained in joint papers with A. Mikusheva, M. Vronski and E. Shabanovich. We concentrate on generalizations of the SLLN (the counterpart of the Weber approach for sequences), on some statistical variants of the CLT, FCLT and FLIL (with rates).

Reference: A. V. Bulinski, The functional law of iterated logarithm for associated random fields, *Fundam. Appl. Math.* **1** (1995), 623–639.