



Range-Renewal Processes: SLLN, Power Law and Beyonds

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Given n samples of a regular discrete distribution π , we prove in this article first a serial of SLLNs results (of Dvoretzky and Erdős' type) which implies a typical power law when π is heavy-tailed. Constructing a (random) graph from the ordered n samples, we can establish other laws for the distribution of degree of the graph. The phenomena of small world is also discussed.

Subjects: **Probability (math.PR)**; Statistics Theory (math.ST)

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