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POISSON PROCESSES REVISITED

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Abstract: The thesis of this paper is that a good basis for defining Poisson processes on a general state space is to assume that the mean measure satisfies a simple bisection property, that every set of finite measure can be divided into two disjoint subsets of equal measure. This assumption is weaker than those usually made, and leads to simple and concrete proofs of the basic results. As an illustration, a very general version of Renyi's characterisation theorem is proved. The paper also gives a straightforward account of the Poisson-Dirichlet distribution.

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