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Moments & Cumulants of some Compound Poisson Type Random Measures

Abstract

It is known that Compound Poisson Type (CPT) laws display an intrinsically exponential structure. We plan to show how, by virtue of the latter structure, cumulants, rather than moments, are a suitable tool for the study of such laws. Indeed, combinatorial properties underlying to moments and cumulants provide easy proofs and a better overall understanding for some properties of (extended) Fock spaces associated to CPT processes. If time permits, we will show how, in the prototypical case of the Gamma measures, the combinatorial complexity arising in this way may be traced back to the Dirichlet distribution on the standard finite-dimensional simplex.