Inverse Z transform for probability mass functions

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Numerical inversion of one-sided Z transform of probability mass functions is considered. The numerical inversion requires the availability of a finite number of transform's derivatives, related to moments of the underlying probability mass function. Such derivatives are found both Z transform is analitycally known and only the functional equation of Z transform is known. The approximate analytical form is obtained by resorting to maximum entropy principle so that the resulting approximating mass function satisfies the required probabilistic properties. Some results concerning existence and convergence are reviewd. An entropy estimate is provided uniquely in terms of the given moments. Some numerical results are presented.

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