Department of Decision Sciences

Canonical correlations for dependent Dirichlet measures and their sampling distributions

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Abstract

We consider a class (T, say) of transition kernels, with the following properties: (i) each kernel in T is associated with a stochastic process with Dirichlet or Ferguson-Dirichlet stationary distribution; (ii) each kernel in T has orthogonal polynomial eigenfunctions, where orthogonality is meant to be with respect to the stationary distribution. Because the eigenfunctions are "uniquely" defined, every element of T is characterized solely by the sequence of its eigenvalues, also known as canonical correlation coefficients (ccc). We study the problem of characterizing all ccc sequences for the family T of transition kernels. An interpretation of such ccc is given in terms of genealogical processes, and dependent Polya urn schemes. This will also give us a way to characterize dual processes of the corresponding sampling distributions. One important example will be studied in as much detail as allowed by time.

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