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Title: Moments method approach to characterizations of Dirichlet tables through neutralities

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The concept of neutrality of random probabilities with respect to a partition covers several properties of independence for unit simplex valued random vectors. In particular the Dirichlet random vector is neutral with respect to any partition of its indices. The main result of this paper simplifies and extends the characterization of the Dirichlet random table due to GEIGER and HECKERMAN (1997). This characterization was based on independence conditions which can be viewed as neutrality with respect to row and column partitions of a two-way random table. Its proof was based on solving a functional equations for densities with the heavy use of advanced regularization techniques due to JÁRAI (1986). Our approach is based on identification of moments through solution of a functional equation for functions of discrete arguments. Moreover the characterization is extended to multi-way tables.

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