Sequence Recurrence Ranks

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We introduce the "moment rank" and "unitary rank" of numerical sequences, close relatives of linear-recursive order. We show that both parameters can be characterized by a broad set of criteria involving moments of measures, types of recurrence relations, Hankel matrix factorizations, analytic properties of generating functions, and algebraic properties of polynomial ideals. Additionally, we present an application of the work to spectral graph/hypergraph theory.