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Ranking algorithms on trees

We will present a family of ranking algorithms whose behavior can be described by analyzing the solution to a certain stochastic fixed point equation. One important example is given by Google's PageRank algorithm, which solves a nonhomogeneous linear recursion built on a weighted branching tree. In particular, we show how our techniques allow us to consider algorithms with mixed signed weights, which can be of potential interest in the ranking of opinion or reputation networks.