

Title:

**Uniqueness of Invariant Measures for Split-Merge Transformations
and the Poisson-Dirichlet Law**

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Technical Report number (Dept. of Statistics, Stanford, Univ.):

2002-13

Date:

July 2002

abstract: We consider a Markov chain on the space of (countable) partitions of the interval $[0, 1]$, obtained first by size biased sampling twice (allowing repetitions) and then merging the parts (if the sampled parts are distinct) or splitting the part uniformly (if the same part was sampled twice). We prove a conjecture of Vershik stating that the Poisson-Dirichlet law is the unique invariant measure for this Markov chain. Our proof uses a combination of probabilistic, combinatoric, and representation-theoretic arguments.