Search or Article-id

All papers | Go!

Mathematics > Probability

Ancestral branching, cut-and-paste algorithms and associated tree and partition-valued processes

Harry Crane

(Submitted on 12 Jul 2011 (v1), last revised 1 Nov 2011 (this version, v2))

We introduce an algorithm for generating a random sequence of fragmentation trees, which we call the ancestral branching algorithm. This algorithm builds on the recursive partitioning structure of a tree and gives rise to an associated family of Markovian transition kernels whose finite-dimensional transition probabilities can be written in closed-form as the product over partition-valued Markov kernels. The associated tree-valued Markov process is infinitely exchangeable provided its associated partition-valued kernel is infinitely exchangeable. We also identify a transition procedure on partitions, called the cut-and-paste algorithm, which corresponds to a previously studied partition-valued Markov process on partitions with a bounded number of blocks. Specifically, we discuss the corresponding family of tree-valued Markov kernels generated by the combination of both the ancestral branching and cut-and-paste transition probabilities and show results for the equilibrium measure of this process, as well as its associated mass fragmentation-valued and weighted tree-valued processes.

Subjects: **Probability (math.PR)**; Statistics Theory (math.ST)

Cite as: **arXiv:1107.2433** [math.PR]

(or **arXiv:1107.2433v2** [math.PR] for this version)

Submission history

From: Harry Crane [view email]

[v1] Tue, 12 Jul 2011 23:06:02 GMT (22kb)

[v2] Tue, 1 Nov 2011 19:52:44 GMT (33kb)

Which authors of this paper are endorsers?

Download:

- PDF
- PostScript
- Other formats

Current browse context:

math.PR

< prev | **next >**

new | recent | 1107

Change to browse by:

math
   math.ST
stat

References & Citations

- NASA ADS

Bookmark (what is this?)