



Mathematics > Probability

# A consistent Markov partition process generated from the paintbox process

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We study a family of Markov processes on  $\mathcal{P}^{(k)}$ , the space of partitions of the natural numbers with at most  $k$  blocks. The process can be constructed from a Poisson point process on  $\mathbb{R}^+ \times \prod_{i=1}^k \mathcal{P}^{(k)}$  with intensity  $dt \otimes \nu^{(k)}$ , where  $\nu^{(k)}$  is the distribution of the paintbox based on the probability measure  $\nu$  on  $\text{masspartition}$ , the set of ranked-mass partitions of 1, and  $\nu^{(k)}$  is the product measure on  $\prod_{i=1}^k \mathcal{P}^{(k)}$ . We show that these processes possess a unique stationary measure, and we discuss a particular set of reversible processes for which transition probabilities can be written down explicitly.

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