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Markov point processes in Bayesian nonparametric statistics

At the origin of this work, there is a Bayes property of a classical Markov chain. We consider a class of random probability measures which satisfy a Markov type property. This class includes the Dirichlet process, the empirical process and a point process with Polya type finite dimensional distributions. Our main result proves that this class is “closed” in the Bayesian sense *i.e.*, if the prior distribution of the sample is Markov (in the specified sense), then its posterior distribution will also be Markov. In particular, a neutral to the right prior distribution leads to a neutral to the right posterior distribution.