



Mathematics > Probability

# A Gibbs Sampler on the n-Simplex

[Aaron Smith](#)

(Submitted on 28 Jul 2011)

We determine the mixing time of a simple Gibbs sampler on the unit simplex, confirming a conjecture of D. Aldous. The upper bound is based on a two-step coupling, where the first step is a simple contraction argument and the second step is a non-Markovian coupling. We also present a MCMC-based perfect sampling algorithm that is based on our proof and which can be applied to Gibbs samplers that are harder to analyze.

Comments: 16 pages  
Subjects: **Probability (math.PR)**; Computation (stat.CO)  
MSC classes: 60  
Cite as: [arXiv:1107.5829](#) [math.PR]  
(or [arXiv:1107.5829v1](#) [math.PR] for this version)

## Submission history

From: Aaron Smith [[view email](#)]  
[v1] Thu, 28 Jul 2011 20:53:00 GMT (14kb,D)

[Which authors of this paper are endorsers?](#)

Link back to: [arXiv](#), [form interface](#), [contact](#).

## Download:

- [PDF](#)
- [Other formats](#)

## Current browse context:

math.PR  
[< prev](#) | [next >](#)  
[new](#) | [recent](#) | [1107](#)

## Change to browse by:

[math](#)  
[stat](#)  
[stat.CO](#)

## References & Citations

- [NASA ADS](#)

## Bookmark([what is this?](#))

