

# Exchangeability in Probability and Statistics: International Conference Proceedings

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Article

## Redundancy of Exchangeable Estimators

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**Abstract:** Exchangeable random partition processes are the basis for Bayesian approaches to statistical inference in large alphabet settings. On the other hand, the notion of the pattern of a sequence provides an information-theoretic framework for data compression in large alphabet scenarios. Because data compression and parameter estimation are intimately related, we study the redundancy of Bayes estimators coming from Poisson–Dirichlet priors (or “Chinese restaurant processes”) and the Pitman–Yor prior. This provides an understanding of these estimators in the setting of unknown discrete alphabets from the perspective of universal compression. In particular, we identify relations between alphabet sizes and sample sizes where the redundancy is small, thereby characterizing useful regimes for these estimators.

**Keywords:** exchangeability; random exchangeable partitions; Chinese restaurant process; Pitman–Yor process; strong and weak universal compression

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Statistical learning theory, especially the theory of probably approximately . But for finite-dimensional  $\epsilon$  and IID samples,  $\epsilon_n > 0$  in probability (see [25] for a data; Proceedings of the IEEE International Conference on Granular. The paper investigates exchangeability in the context of probability logic. International Conference on Information Processing and Management of Uncertainty.

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