Electronic Communications in Probability > Vol. 9 (2004) > Paper 7 open journal systems

Large Deviations for Mixtures

J. D. Biggins, *The University of Sheffield, UK*

Abstract

The results discussed here are most easily described in words using Bayesian terminology. For each n, there are probability distributions for the data conditional on a parameter, and there is also a prior distribution for the parameter. Integrating out, using the prior, gives the (unconditional) distribution for the data, for each n. The question considered here is when large deviation principles for the conditional distributions and for the prior distributions imply a large deviation principle for the unconditional distributions. Chaganty (1997) also considered this question, but under stronger assumptions. The treatment here follows that of Dinwoodie and Zabell (1992) who, motivated by exchangeability, considered the case where the prior does not vary with n

Full text: PDF | PostScript

Pages: 60-71

Published on: June 9, 2004

Bibliography

1. Biggins, J.D., Penman, D. B. Large deviations for randomly coloured random graphs. (2003) Submitted to *Combinatorics, Probability and Computing.* Preprint.
2. Cannings, C., Penman, D. B. Models of random graphs and their applications *Handbook of Statistics 21. Stochastic Processes: Modeling and Simulation.* Eds: D.N. Shanbhag, and C.R. Rao. Elsevier (2003) 51--91. MR1973541 (2004c:05181)
3. Chaganty, N. R. Large deviations for joint distributions and statistical applications. *Sankhyā. Series A* 59 (1997) 147--166. MR1665683 (2000b:60067)
4. Dembo, A., Zeitouni, O. *Large deviations techniques and applications,* (1st Edition), Jones and Bartlett, Boston (1993). MR1202429 (95a:60034)
5. Dinwoodie, I. H., Zabell, S. L. Large deviations for exchangeable random vectors. *Ann. Prob.* 20 (1992) 1147--1166. MR1175254 (93g:60059)
6. Dinwoodie, I. H., Zabell, S. L. Large deviations for sequences of mixtures. In *Statistics and Probability: A Raghu Raj Bahadur Festschrift,* eds: J.K. Ghosh, S.K. Mitra, K.R. Parthasarathy and B.L.S. Prakasa Rao. Wiley Eastern, New Delhi, (1993) 171--190. Math. Review number not available.
7. Lynch, J., Sethuraman, J. Large deviations for processes with independent increments. *Ann. Prob.* 15 (1987) 610--627. MR0885133 (88m:60076)
8. Puhalskii, A. *Large Deviations and Idempotent Probability*. Chapman & Hall/CRC, Boca Raton, 2001. MR1851048 (2002i:60056)