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Yule process sample path asymptotics

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Abstract

This paper presents two results on sample paths for the Yule process: one fluid limit theorem and one sample path large deviation result. The main interest is to understand the way large deviation occurs in the case of non-homogeneous processes. There are indeed two new phenomena. First there is no ``typical'' speed of large deviation. Second, the large deviation event is concentrated on a finite interval of time.

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Bibliography

- Krishna B. Athreya and Peter E. Ney Branching processes Die Grundlehren der mathematischen Wissenschaften, Band 196, Springer-Verlag, New York (1972) Math. Review 0373040
- 2. J.D. Biggins and N.H. Bingham. Large deviations in the supercritical branching process. *Adv. in Appl. Probab.*, 25(4):757-772, 1993. Math. Review 1241927
- 3. J.D. Biggins and D.R. Grey. A note on the growth of random trees. *Statist. Probab. Lett.*, 32(4):339--342, 1997. Math. Review 1602191
- 4. Arnaud de La Fortelle. Yule process sample path asymptotics. *Technical Report* (2005) 5577 INRIA.
- 5. Amir Dembo and Ofer Zeitouni. Large deviations techniques and applications. *Springer-Verlag, New York, second edition* (1998) Math. Review 1619036
- Guy Fayolle, Maxim Krikun, and Jean-Marc Lasgouttes. Birth and death processes on certain random trees: classification and stationary laws. *Probab. Theory Related Fields*, 128(3), 386--418, (2004). Math. Review 2036491
- Jean Jabbour-Hattab. Martingales and large deviations for binary search trees. *Random Structures Algorithms*, 19(2) 112--127, (2001). Math. Review 1848787
- Quansheng Liu, Emmanuel Rio, and Alain Rouault. Limit theorems for multiplicative processes. J. Theoret. Probab., 16(4):971--1014 (2004), 2003. Math. Review 2033195
- 9. Hosam M. Mahmoud. *Evolution of random search trees.* Wiley-Interscience Series in Discrete Mathematics and Optimization. John Wiley and Sons Inc., New York, 1992. A Wiley-Interscience Publication. Math. Review 1140708
- 10. Boris Pittel. On growing random binary trees. J. Math. Anal. Appl., 103(2):461--480 (1984). Math. Review 0762569
- 11. A. Rouault and B. Chauvin. Connecting Yule process, bisection and binary search tree via martingales. *J. of the Iranian Stat. Society*, *3*, (2004), 2 Math. Review number not available.
- 12. Alain Rouault. Large deviations and branching processes. *Proceedings of the* 9th International Summer School on Probability Theory and Mathematical Statistics (Sozopol, 1997), volume~13, pages 15--38, (2000). Math. Review 1800359

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