

Moderate Deviations for the Grenander Estimator near the Boundaries of the Support

Fuqing Gao *Wuhan University, China*

Hui JIANG *Nanjing University of Aeronautics and Astronautics, China*, E-mail: huijiang@nuaa.edu.cn

KEY WORDS: Empirical process, Grenander estimator, large deviations, moderate deviations, strong approximation

MATHEMATICAL SUBJECT CLASSIFICATION: 60H10, 62G20, 62F12

Abstract: We investigate the asymptotic behavior of the nonparametric maximum likelihood estimator \hat{f}_n for a decreasing density f near the boundaries of the support of f . Using strong approximate and small ball estimates, a moderate deviation with explicit rate function for \hat{f}_n is established.

References

- [1] F.Q. Gao, J. Xiong, X.Q. Zhao (2014). Moderate deviations for nonparametric maximum likelihood estimators of interval censoring, preprint.
- [2] P. Groeneboom, G. Hooghiemstra, H.P. Lopuhaä (1999). Asymptotic normality of the L_1 error of the Grenander estimator, *The Annals of Statistics*, **27**, 1316–1347.
- [3] V.N. Kulikov, H.P. Lopuhaä (2005). Asymptotic normality of the L_K -error of the Grenander estimator, *The Annals of Statistics*, **33**, 2228–2255.
- [4] V.N. Kulikov, H.P. Lopuhaä (2006). The behavior of the NMLE of a decreasing density near the boundaries of the support, *The Annals of Statistics*, **34**, 742–768.