

论文

ON CONSTRUCTING THE NATURAL EXPONENTIAL FAMILIES WITH POLYNOMIAL VARIANCE FUNCTIONS

Wu Chuanyi

Institute of Systems Science, Academia Sinica, Beijing, China

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摘要 In this paper, we discuss the regular exponential family(REF), a natural exponential family with minimum dimension and with the mean function $m=E_{\theta}X$ taken as a new parameter. We point out the importance of the REF with polynomial variance function(PVF-REF). When m is a single factor of PVF and the left end of its defined domain is zero, the corresponding REF is given as the single-side lattice distribution family; other PVF-REFs can be obtained by a limit process. As an illustration, the results for all seven cases of polynomial variance functions of third degree are given.

关键词 [Regular exponential family, polynomial v](#)

分类号

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Abstract In this paper, we discuss the regular exponential family(REF), a natural exponential family with minimum dimension and with the mean function $m=E_{\theta}X$ taken as a new parameter. We point out the importance of the REF with polynomial variance function(PVF-REF). When m is a single factor of PVF and the left end of its defined domain is zero, the corresponding REF is given as the single-side lattice distribution family; other PVF-REFs can be obtained by a limit process. As an illustration, the results for all seven cases of polynomial variance functions of third degree are given.

Key words [Regular exponential family](#) [polynomial variance function](#)

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