

## LIMITS OF TRUNCATION EXPERIMENTS

Frank Marohn

*Abstract:* Given  $n$  i.i.d. copies  $X_1, \dots, X_n$  of a random variable  $X$  with distribution  $P_\vartheta$ ,  $\vartheta \in \Theta \subset R^k$ , we are only interested in those observations that fall into some set  $D = D(n) \subset R^d$  having but a small probability of occurrence. The truncation set  $D$  is assumed to be known and non-random. Denoting the distribution of the truncated random variable  $X \mathbf{1}_D(X)$  by  $P_{n\vartheta}$  we consider the triangular array of experiments  $(R^d, \mathcal{B}^d, (P_{n\vartheta})_{\vartheta \in \Theta})$ ,  $n \in N$ , and investigate the asymptotic behavior of the  $n$ -fold products  $((R^d)^n, (\mathcal{B}^d)^n, (P_{n\vartheta})_{\vartheta \in \Theta}^n)$ . Under a suitable density expansion, Gaussian shifts as well as Poisson experiments occur in the limit, where the latter case typically occurs when the number of expected observations falling in  $D$  is bounded. Finally, we investigate invariance properties of the occurring Poisson limits.

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**Key words and phrases:** Statistical experiment, truncation model, Gaussian experiment, local asymptotic normality, Poisson experiment, Poisson process, translation invariance, scale invariance, independent increments.

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