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**THEORY AND METHODS STATISTICAL INFERENCE USING PROGRESSIVELY HYBRID CENSORED DATA UNDER EXPONENTIATED EXPONENTIAL**

**DISTRIBUTION WITH BINOMIAL RANDOM**

**REMOVALS**

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***Key words:*** Bayes procedure; maximum likelihood estimation; progressive Type II censoring; random removal; the exponentiated exponential family; Type I and Type II censored.

***Summary:*** In reliability analysis, it is quite common that the failure of any individual or any item may be attributable to more than one cause. Moreover, the observed data are often censored. A hybrid censoring scheme which is a mixture of conventional Type I and Type II censoring schemes is quite useful in life-testing or reliability experiments. Recently Type II progressive censoring schemes have become quite popular for analysing highly reliable data. However, in that case the duration of the experiment can be quite lengthy. Hence, in this paper we introduce a Type II progressively hybrid censoring scheme with random removals, where the number of units removed at each failure time follows a binomial distribution and the experiment terminates at a prespecified time. We derive the likelihood inference and Bayes procedures of the unknown parameters under the assumptions that the lifetime distributions of the different causes are independent and exponentiated exponentially distributed.