ON A MISUSE OF SUFFICIENT STATISTICS
IN THE EXPONENTIAL FAMILY

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Abstract. With respect to the sufficient statistics in the transformed exponential family based on a continuous probability distribution, we examine a misuse that the sufficient statistics ought to be distributed with a k-dimensional exponential family where k is the dimension of the sufficient statistics. Under the irreducibility of the sufficient statistics, we define two types of the transformed exponential family, i.e., regular and pseudo, so that the misuse is made explicit.