

Possibilistic Bayesian Models

M. Arefi*

Department of Statistics, Faculty of Mathematical and Statistical Sciences,
University of Birjand, Birjand, Iran Arefi@birjand.ac.ir

R. Viertl

Institute of Statistics and Probability Theory, Vienna University of Technology,
Vienna, Austria r.viertl@tuwien.ac.at

S.M. Taheri

Department of Mathematical Sciences, Isfahan University of Technology,
Isfahan, Iran Taheri@cc.iut.ac.ir

The problem of modeling and analyzing fuzzy data is investigated in a possibilistic context, based on a Bayesian approach. Specially, we focus on the problem of point estimation when the available data of the underlying statistical model are fuzzy rather than crisp. To do this, first we extend the concept of likelihood function to fuzzy data. Then, to obtain the point estimation, we develop a method without considering a loss function and one considering a loss function based on a possibilistic posterior distribution. A few numerical examples are presented to explain the applicability of the proposed approach.

Key Words: Bayes approach, Likelihood function, Point estimation, Possibilistic posterior distribution, Possibility measure