

A new characterization of discrete random variables by means of fuzzy sets: graphical features

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A new way of capturing and representing the whole information about the distribution of discrete (real-valued) random variables is presented. This way has been shown to be very useful from a graphical descriptive/exploratory point of view. It has been also proved that any discrete distribution with finite second order moment can be characterized by means of a certain fuzzy set, which corresponds to the expected value of a fuzzy random variable obtained by transforming properly the discrete real-valued variable. From a graphical viewpoint, the interest of this characterization is due to the easy way in which relevant information about the distribution (as central tendency, variability, skewness, and so on) can be displayed and visualized. Moreover, the characterizing result entails the possibility of developing statistical inferences about discrete distributions on the basis of those which have been already developed about fuzzy expected values.