# Fitting parametric link functions in a regression model with imprecise random variables

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SUMMARY

In our previous works a new regression model for imprecise random variables has been introduced. The imprecision of a random element has been formalized by means of the fuzzy random variable (FRV). In details, a particular case of FRVs characterized by a center, a left and a right spread, the LR family (LR FRV), has been considered. The idea is to jointly consider three regression models in which the response variables are the center, and two transformations of the left and the right spreads in order to overcome the non-negativity conditions of the spreads. Response transformations could be fixed, as we have done so far, but all inferential procedures, such as estimation, hypothesis tests on the regression parameters, linearity test etc., could be a ffected by this choice. For this reason in this work we consider a family of parametric link functions, the Box-Cox transformation model, and by means of a computational procedure we will look for the transformation parameters that maximize the goodness of fit of the model.