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The construction of confidence intervals for frequency analysis using resampling techniques

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Abstract. Resampling techniques such as the Bootstrap and the Jack-knife are generic methods for the estimation of uncertainties in statistics. When applied in frequency analysis, resampling techniques can provide estimates of the uncertainties in both distribution parameters and quantile estimates in circumstances in which confidence limits cannot be obtained theoretically. Test experiments using two different parameter estimation methods on two types of distributions with different initial sample sizes and numbers of resamples has confirmed the utility of such methods. However, care is necessary in evaluating the skewness of the resampled quantiles, especially with small initial sample sizes.

Keywords: Bootstrap, Jack-knife, frequency analysis, maximum likelihood method, maximum product of spacings method

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