

An Objective Approach to Prior Mass Functions for Discrete Parameter Spaces

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Abstract

We present a novel approach to constructing objective prior distributions for discrete parameter spaces. These type of parameter spaces are particularly problematic, as it appears that common objective procedures to design prior distributions are problem specific. We propose an objective criterion, based on loss functions, instead of trying to define objective probabilities directly. We systematically apply this criterion to a series of discrete scenarios, previously considered in the literature, and compare the priors. The proposed approach applies to any discrete parameter space, making it appealing as it does not involve different concepts according to the model.