

# Objective Bayesian Model Discrimination in Follow-up Designs

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## Abstract

An initial screening experiment may lead to ambiguous conclusions as to which factors are active in explaining the variation of an outcome variable: thus adding extra-runs is often necessary. We propose a novel strategy for follow-up designs, based on a fully Bayes objective approach. Specifically, we determine the optimal factor combinations for a set of additional runs, that mostly discriminate among potential explanatory models. To achieve this aim, we adopt a criterion based on a weighted average of Kullback-Leibler divergences between predictive distributions for all possible pairs of models. When applied to real data, our method produces results which compare favorably to previous analyses based on conventional weakly informative priors. (Joint work with Laura Deldossi.)