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SPEAKER TITLES/ABSTRACT

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“Including Factors in Bayesian Variable Selection Problems”

Factors are categorical variables. The sums of the values of these variables are called levels. In this talk, we consider the variable selection problem where the set of potential predictors contains both factors and numerical variables. Formally, this problem is a particular case of the standard variable selection problem, where factors are coded using dummy variables. As such, the Bayesian solution would be straightforward and, possibly because of this, the problem. Despite its importance, this issue has not received much attention in the literature. Nevertheless, we show that this perception is illusory and that in fact several inputs, like the assignment of prior probabilities over the model space or the parameterization adopted for factors may have a large (and difficult to anticipate) impact on the results. We provide a solution to these issues that extends the proposals in the standard variable selection problem and does not depend on how the factors are coded using dummy variables. Our approach is illustrated with a real example concerning a childhood obesity study in Spain.

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