“Bayesian updating rules for entry and exit of forecast”

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Abstract

We develop coherent Bayesian rules for ensemble methods when forecasts, whether coming from people and/or models, enter and exit. While the literature of ensemble methods, including forecast combination, model averaging, and ensemble learning, is vast, virtually none address the issue of unbalanced ensembles. The issue is particularly pertinent for time series-- especially economic--, where the introduction and/or discontinuation of indices, models, forecasts, and forecasters are commonplace. This fact motivates our macroeconomic application, where forecasts are removed and added based on macroeconomic conditions, mirroring real situations in economic decision making. The developed rules build on the recently developed framework of Bayesian predictive synthesis, and relies solely on the implicit prior/posterior updating of the Bayes theorem, making it applicable to any Bayesian ensemble procedure. Though the proposed rules are general, we specifically discuss the cases for linear pooling (e.g. Bayesian model averaging) and dynamic Bayesian predictive synthesis.