

# Predictive probability matching priors for a certain non-regular model

Shintaro Hashimoto

Hiroshima University

## Abstract

Probability matching priors for Bayesian prediction in non-regular case are considered. For one-parameter family of distributions, the resulting priors match the posterior predictive quantile with the frequentist one up to the order of  $o(n^{-2})$ , and they are solutions of a certain differential equation (denoted by matching equation). Although predictive probability matching priors depend on a nominal rate  $\alpha$  in general, we provide a prior which satisfy the matching equation for every nominal rate  $\alpha$  in non-regular location and scale models. A multi-parameter extension including location-scale model is also discussed.