Model averaging for robust extrapolation in evidence synthesis

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Extrapolation from a source to a target, e.g., from adults to children, is a promising approach to utilizing external information when data are sparse. In the context of meta-analysis, one is commonly faced with a small number of studies, while potentially relevant additional information may also be available. Here we describe a simple extrapolation strategy using heavy-tailed mixture priors for effect estimation in meta-analysis, which effectively results in a model-averaging technique. The described method is robust in the sense that a potential prior-data conflict, i.e., a discrepancy between source and target data, is explicitly anticipated. The aim of this presentation is to develop a solution for this particular application, to showcase the ease of implementation, and to demonstrate the robustness of the general approach using simulations [1].

References

[1] C. Röver, S. Wandel, and T. Friede. Model averaging for robust extrapolation in evidence synthesis. *Statistics in Medicine*, (in press), October 2018. doi: 10.1002/sim.7991. URL `http://www.arxiv.org/abs/1805.10890`.

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