

## FORM 2B – PEER REVIEW FORM RESEARCH MASTER'S THESIS RESEARCH PROPOSAL

Title of research project:      Assessing the performance of Occam's window for  
Bayesian Model Averaging \_\_\_\_\_

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### *(1) Summary of project*

The project seeks to implement and assess Occam's window algorithms as a computationally tractable model comparison approach, with graphical models used in psychological research in mind. Initially, it will seek out proof-of-concept investigations in simpler regression models and later assess suitable approaches to more complex (graphical) models. Performance assessment will happen via fitting simulations of how well the algorithm recovers true parameters.

### *(2) Good things about the proposal (one paragraph)*

The review manages to nicely lay out the theoretical foundations and problems with statistical model comparisons and carves out the place Occam's window-based algorithms can have when comparing the trade-off between model space exploration and computational tractability. Moreover, it clearly presents different practical implementations for algorithms.

### *(3) Major comments*

While the motivation behind and idea of the project is laid out very well, the proposed work of the project is very scarcely touched upon. The flexibility of the project and interdependence of outcomes makes detailed pre-planning understandably hard, the method-related sections could be sketched out in more detail. How will underlying true parameters of the model look like, which parameter ranges make sense, which sample sizes / covariance structures generally make sense in this context? Will data be generated from counterfactual models to see how the algorithm behaves with assumption-violating models? For the data analysis, how will you convert posterior probabilities to in-/correct inferences for specificity / sensitivity assessment? How will you measure closeness of parameters to the underlying true value?

### *(4) Minor comments*

Typos:

- Title misses "of"
- p.3 "in the model"
- a couple of missing commas (would make the reading flow easier)

Love the buffer time to enjoy free time!

### *(5) Recommendations*

For the final draft, I would advise to sketch out some of the answers to the points sketched out above about the more specific project planning. While they do not have to be very detailed, some considerations could certainly be laid out to make the proposed implementation and performance assessment more guided.