

Prejudice Modeling Competition Rules and Guidelines

Timeline

Following our advertising announcement, we will wait one month for potential teams to sign up.

After that month sign-up timeline, the competition will begin, and your team lead will receive an email with access to the training data. Teams will have two months from that point to submit their solution (we will send several reminders of the approaching deadline).

Information on the Training Set/Variables

We have collected prejudiced attitudes from an online North American sample regarding 15 different groups, sampled non-randomly across a universe of groups. We are operationalizing prejudice in two ways, consistent with Hehman & Neel, 2024, Psych Review.

The first we call **Bias**, which is a difference score of ratings of the ingroup and outgroup.

The second is **Outgroup Attitudes**, which is the ratings of the outgroup alone.

Teams may develop one model for each operationalization, one model for both operationalizations, or one model for only one operationalization. These are the dependent variables.

Also included in the dataset are a number of scale items that inform a variety of latent variables, which are those included in Hehman & Neel, 2024, and one additional construct. We are providing data at the item-level, rather than the latent-construct level, such that teams can choose to create the latent constructs, or not, in any way they choose in their models.

When the training set is released, a full key will be released, with information on each item, the citation from which the scale comes, and how to create the latent factor from the items, should the teams choose that route.

Optionally, teams may also use any of the data involved in Hehman & Neel, 2024, in any way, should they wish. Some of the social groups in this paper are identical to the current competition, some are not. It is located here with more information: <https://osf.io/vz6gc/>

We are happy to talk with teams regarding any questions or concerns. Travis Lim, leading the project, will be serving as contact: travis.j.lim@mail.mcgill.ca

Viable submission requirements

Teams can take any modeling approach provided some requirements. The goal is to create a model that others can use and understand, and that makes precise numeric predictions of an individual's prejudice. Therefore:

-All parameters in the model must be numerically specified. The exception to this rule is the intercept B_0 .

This requirement may rule out some approaches. For example, there are modeling approaches that are "black box" in that they make predictions, but the exact parameters or variables involved in making the prediction are unknown (e.g. convolutional neural network). Such models would not be viable.

There are two models our team will submit as baseline comparisons. The first is

The Cynical Belief in the Inexorable Crush of the Wheel:

Bias = B_0 ; Outgroup Attitudes = B_0

These models are the simplest possible, just the intercept, or mean bias of each group. The second is

Prejudice Model 1.0:

Bias = $B_0 + .120(\text{Threat}_{\text{generalized}}) + .173(\text{Threat}_{\text{symbolic}}) - .209(\text{Contact}_{\text{quality}}) - .119(\text{Contact}_{\text{number}}) + .523(\text{Identification}_{\text{Self-Investment}})$

Outgroup Attitudes = $B_0 + .243(\text{Threat}_{\text{symbolic}}) - .462(\text{Contact}_{\text{quality}}) - .119(\text{Contact}_{\text{number}}) - .128(\text{Big 5}_{\text{Agreeableness}})$

These are the initial OLS linear regression models developed in Hehman & Neel, 2024, *Psychological Review*. We anticipate teams' solutions to loosely take a similar format.

New models might include curvilinear relationships, interactions, different parameter weights, different variables, or entirely different modeling approaches beyond OLS regression, among other options, for example.

-The second requirement is we must be able to take your code and run it on the test data and have it immediately work "out of the box."

Teams may create latent variables or do various things with the items provided in the dataset, and this must be included in the code if it is necessary for us to test the final model. We will be in touch with individual teams if we have difficulty.

Languages

Our team is most familiar with R, but we will accept solutions in Julia and Python as well. If your team would like to use another language, and it is free for our team to download and use, please get in contact with us to confirm.

Model Evaluation

We have collected data on 15 social groups. We will test your model on each group, and your final result will be the weighted average performance across groups.

We will compare different models both on adjusted R^2 and Root Mean Squared Error (RMSE).

For those less familiar with RMSE, you can determine this value for your model by a) squaring the residuals, b) finding the average of these squared residuals, and c) taking the square root of the result.

To maximize their chances of winning, teams should calculate and submit models that perform best on these metrics in the training data.

Submitting your solution

Teams are limited to one model submission per operationalization of prejudice ($n=2$). All necessary code for the final submission will be submitted at a repository. We will send this file location at the beginning of the two month competition period.

Reward

All members of all teams will be included in the authorship of any publication resulting from this work. In addition, the team(s) submitting the best performing model, as determined by our metrics and parameters above, will receive the cash prize (should multiple teams win, the prize will be divided evenly among the teams).