

Appendix 2: Supplemental Statistical Analysis

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This document shows the supplemental statistical analysis and results of our Bayesian models. The following are the figures not included in the main text. As a reminder, our models aim to predict the home range performance based on the following predictors: 1) clumped vs spread data, 2) # of locations, 3) # of unique weeks

Take a look at the data and get initial idea using box plots.

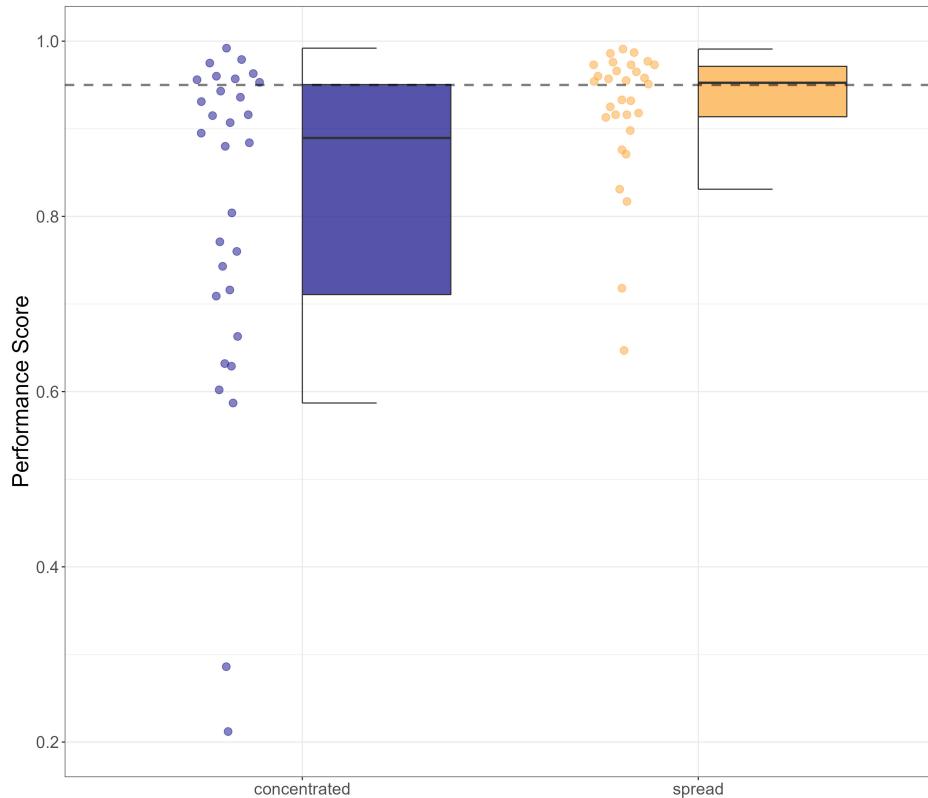


Figure 1: Descriptive Boxplot of Performance. Comparing Concentrated versus Spread Sampling Regimes

Statistic Models

We used binomial models with the number of locations that fall within the UD estimate indicating “successes”, and the total points indicate the number of trials.

Concentrated vs Spread Binary predictor

Set priors and model

Posterior validation check

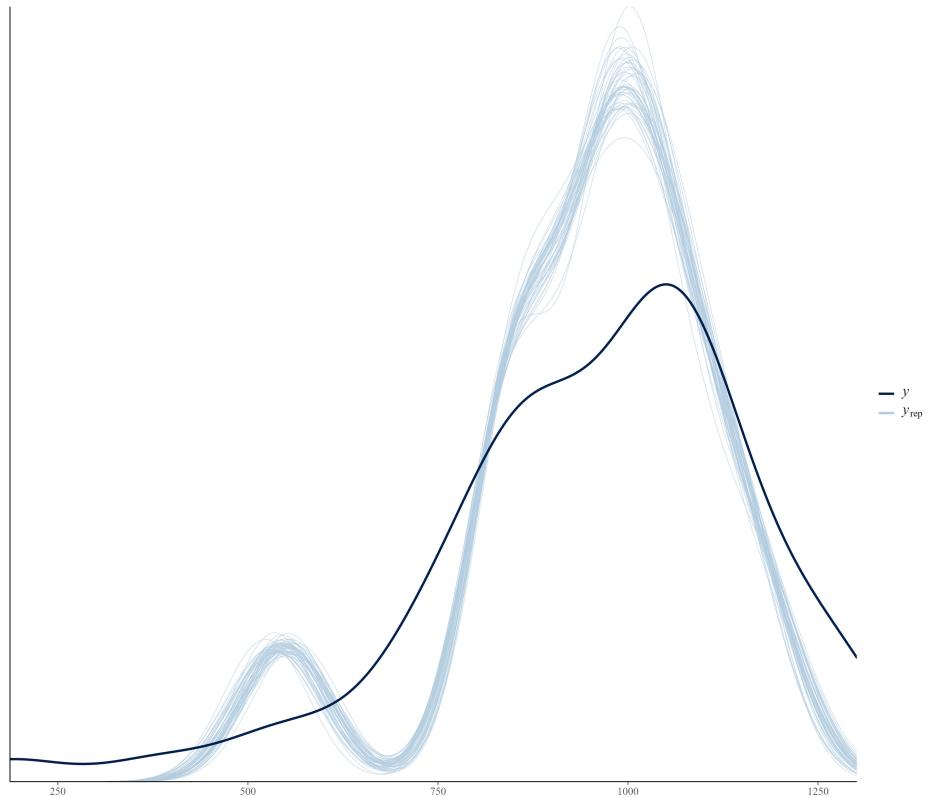


Figure 2: Posterior validation check for first model

Posterior distributions for model parameters

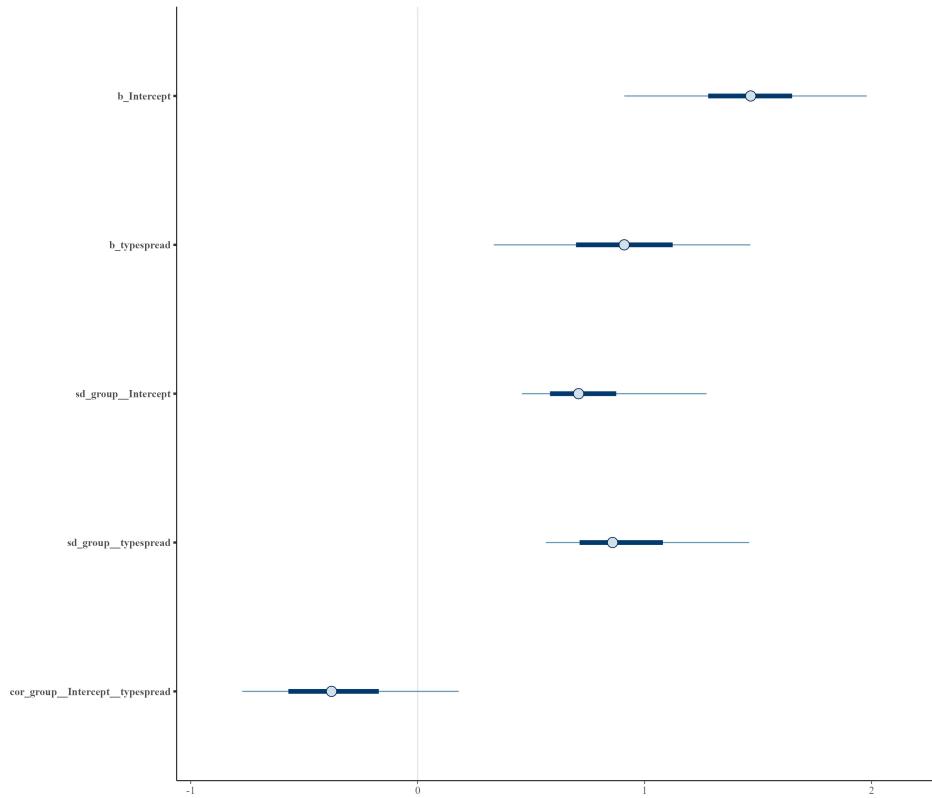


Figure 3: Posterior distributions for parameters in first model

Plot posterior predictions for group effect (varying slopes and intercepts)

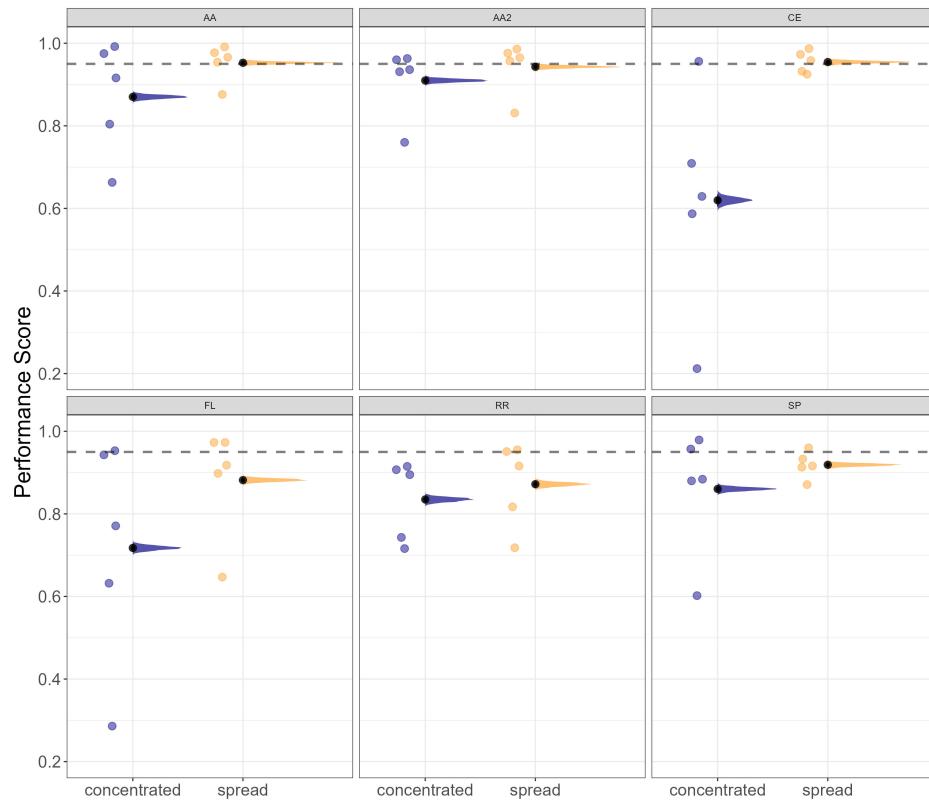


Figure 4: Group effects for first model

Number of locations as predictor

Posterior validation check

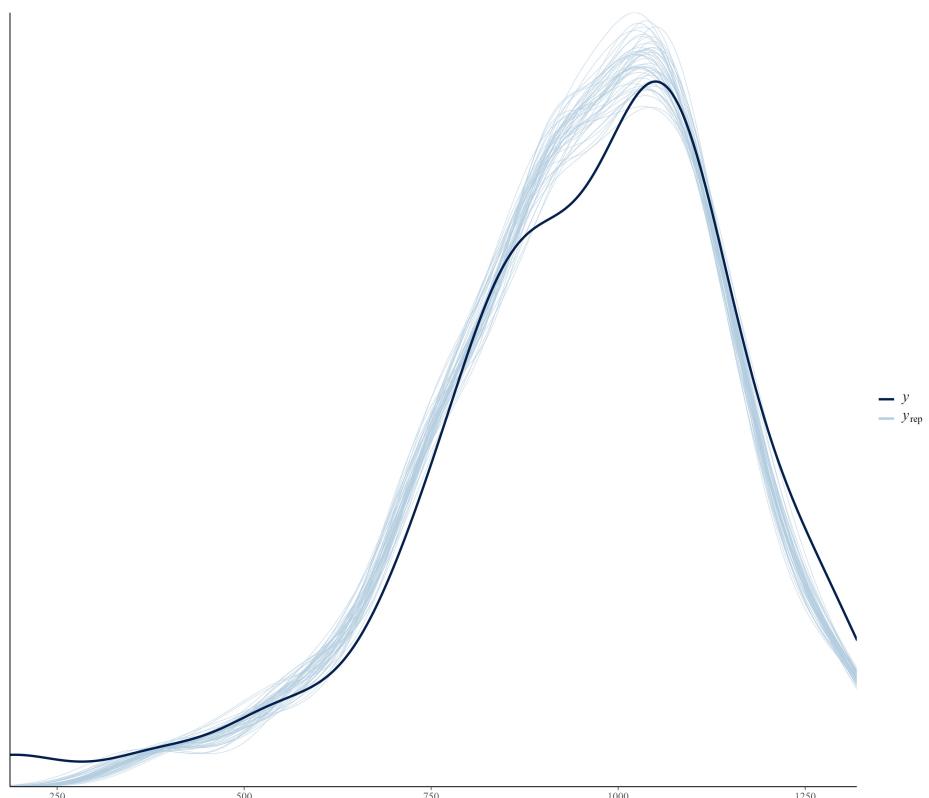


Figure 5: Posterior validation check for second model

Posterior distributions for model parameters

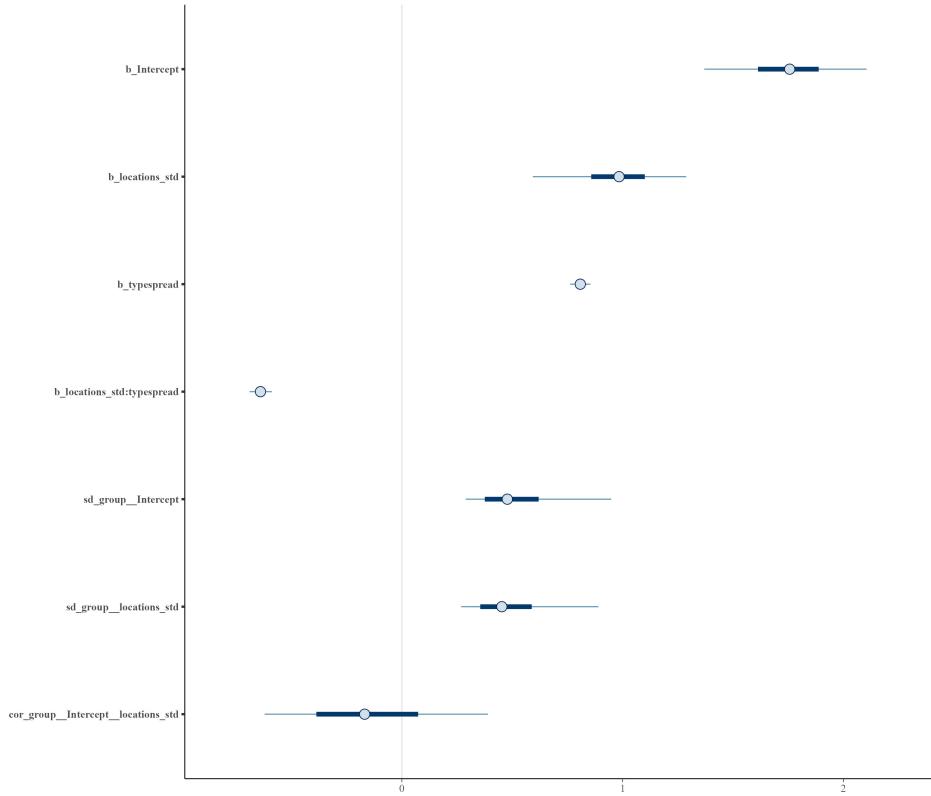


Figure 6: Posterior distributions for parameters in second model

Posterior predictions per group (varying slopes and intercepts)

Plot predictions

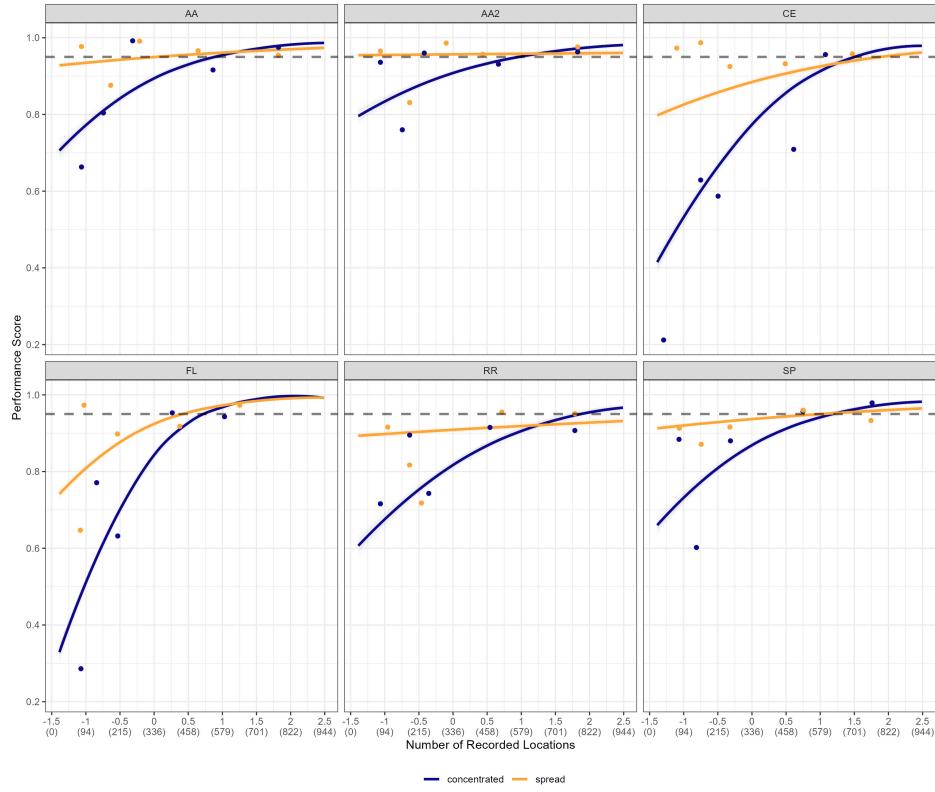


Figure 7: Group effects for second model

Number of unique weeks as predictor

Set priors and model

Posterior validation check

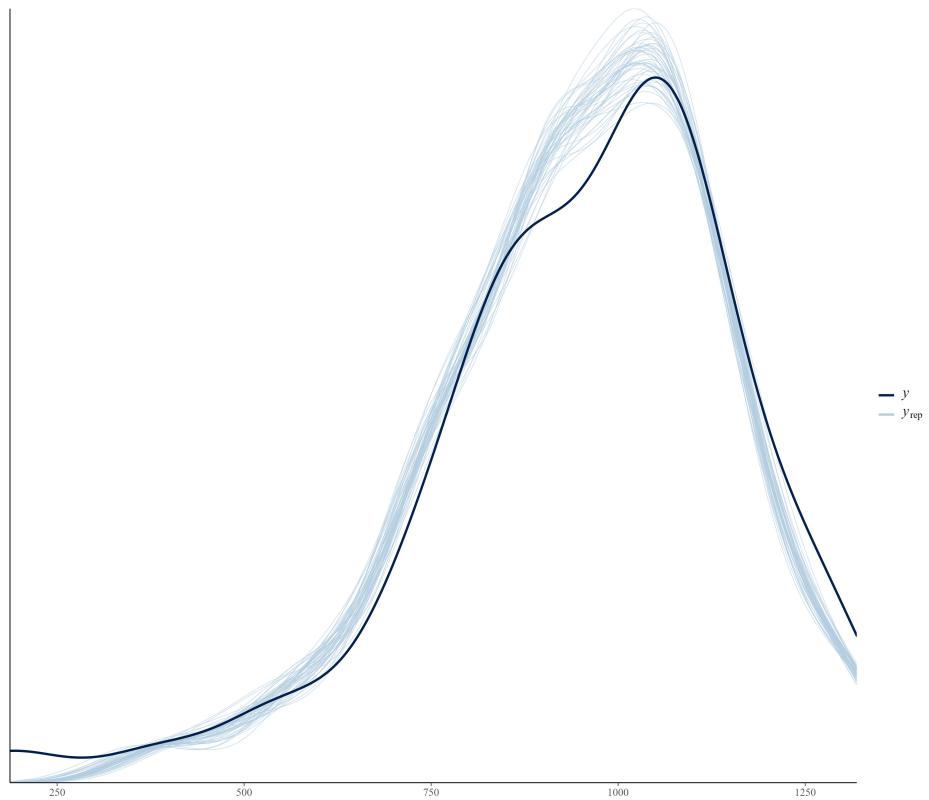


Figure 8: Posterior validation check for third model

Posterior distributions for model parameters

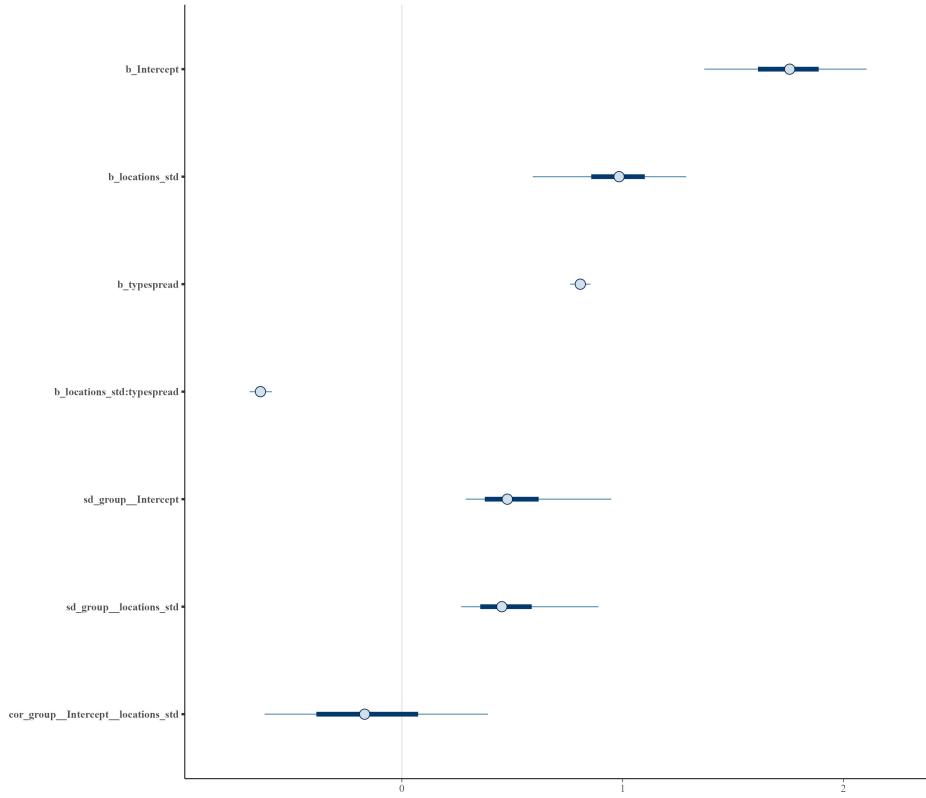


Figure 9: Posterior distributions for parameters in third model

Posterior predictions

Plot predictions

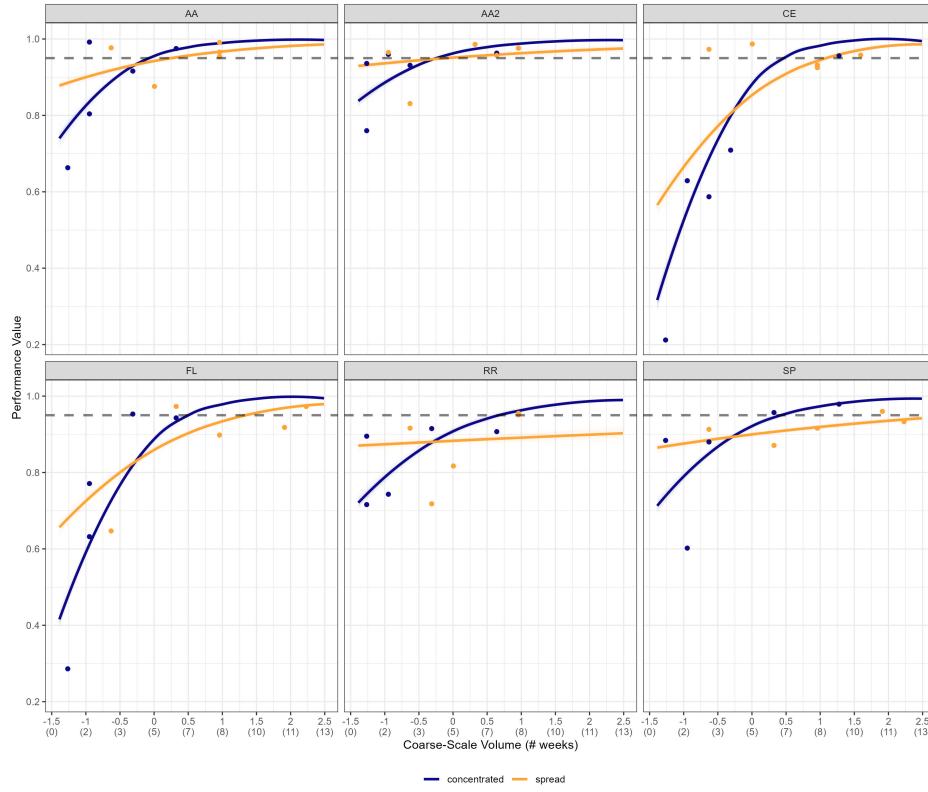


Figure 10: Group effects for third model