Exploring why the models do not fit Boussard 2020 data so well

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2024-01-23

The Boussard *et al* data set

In here I present the statistical model used to estimate reinforcement learning parameters from data from a reversal learning task. In the experimental set up, individuals from two experimental treatments are trained to pick one of two stimuli. Where one of those two options provides reward in the form of food pellets. The experiments is composed of 11 reversal blocks, each of these blocks is composed of 30 trial. In other words, every 30 trials the stimulus that provides reward is switched. Thus, individuals must reverse their estimate of reward in order to make adaptive decisions and choose the rewarding stimulus. In figure 1, I show the proportion of correct choices for both treatment groups along the trials, and reversal blocks.
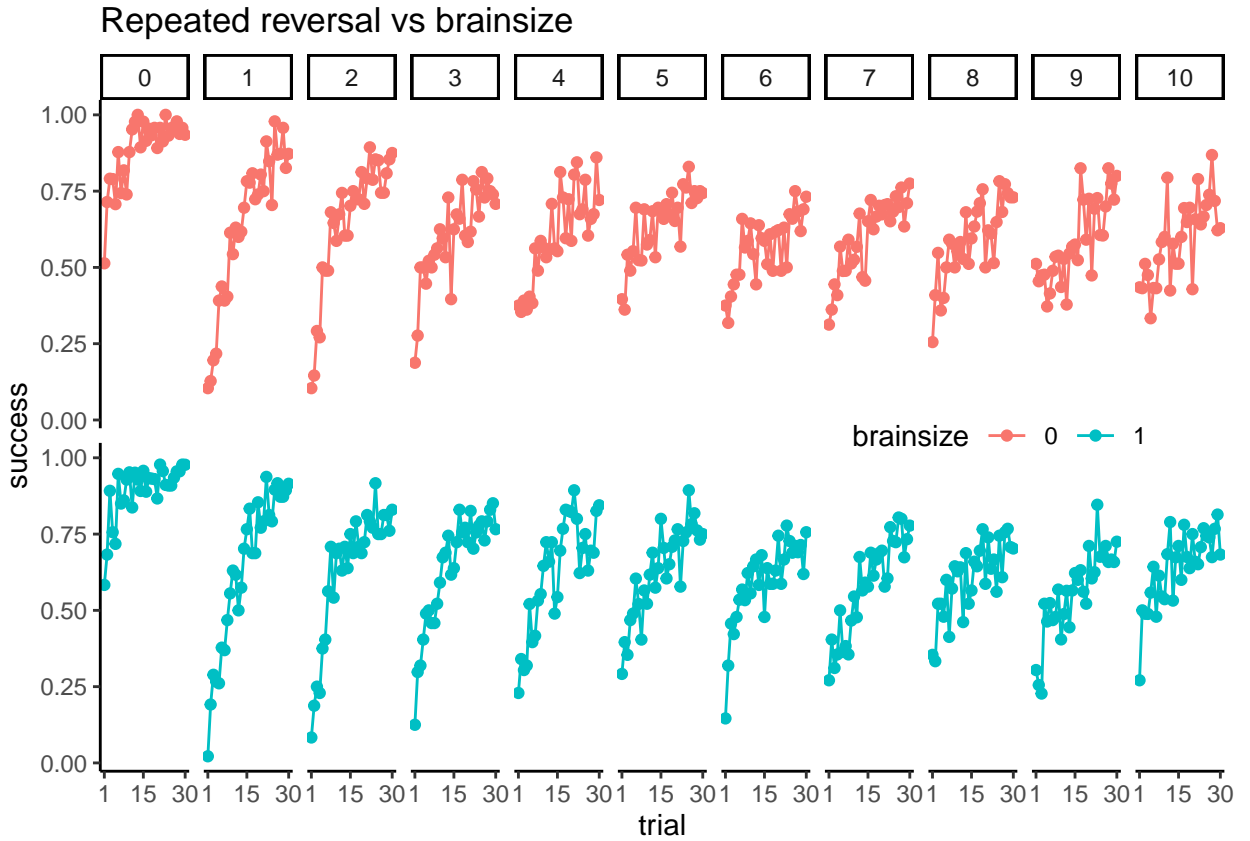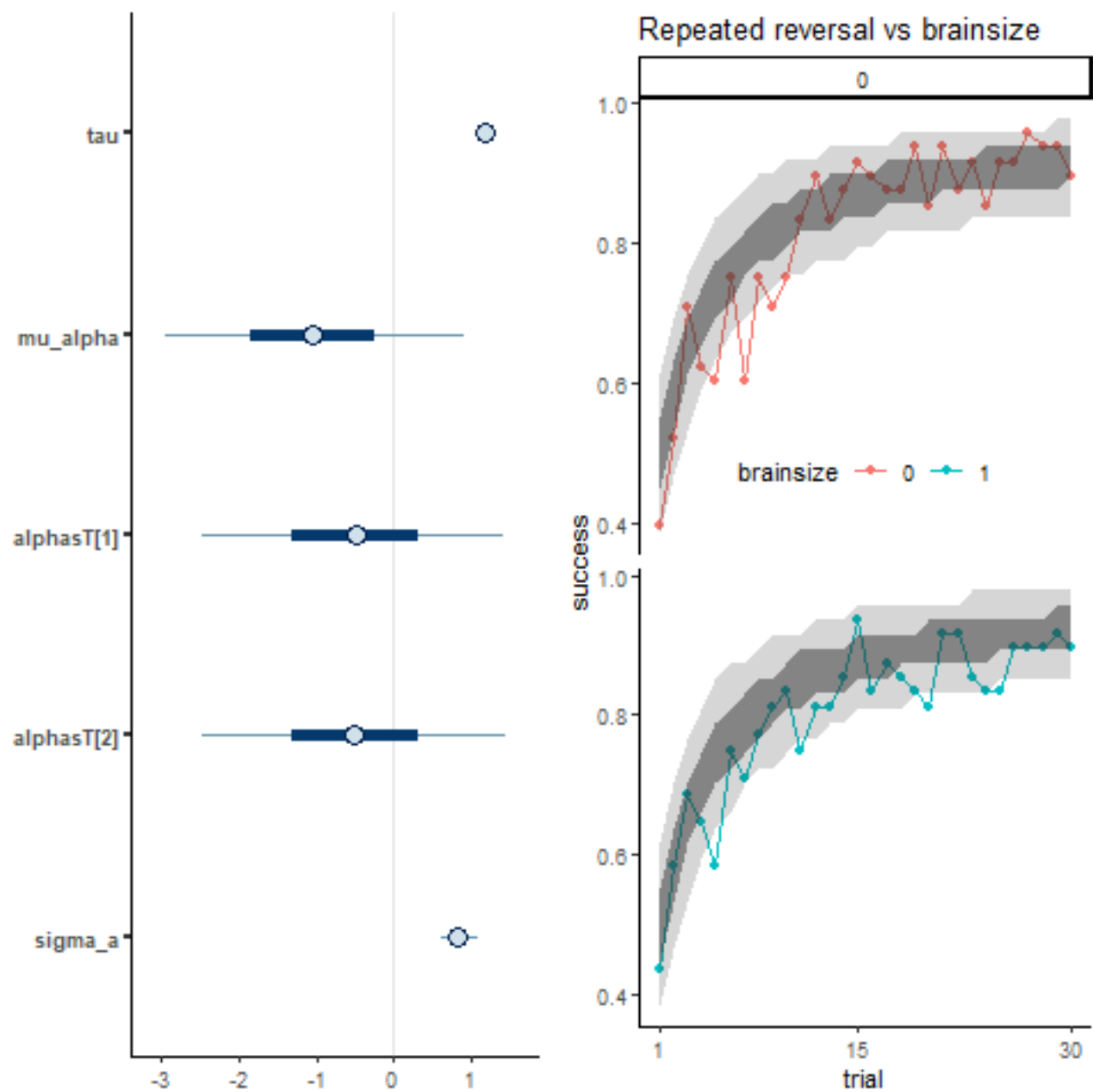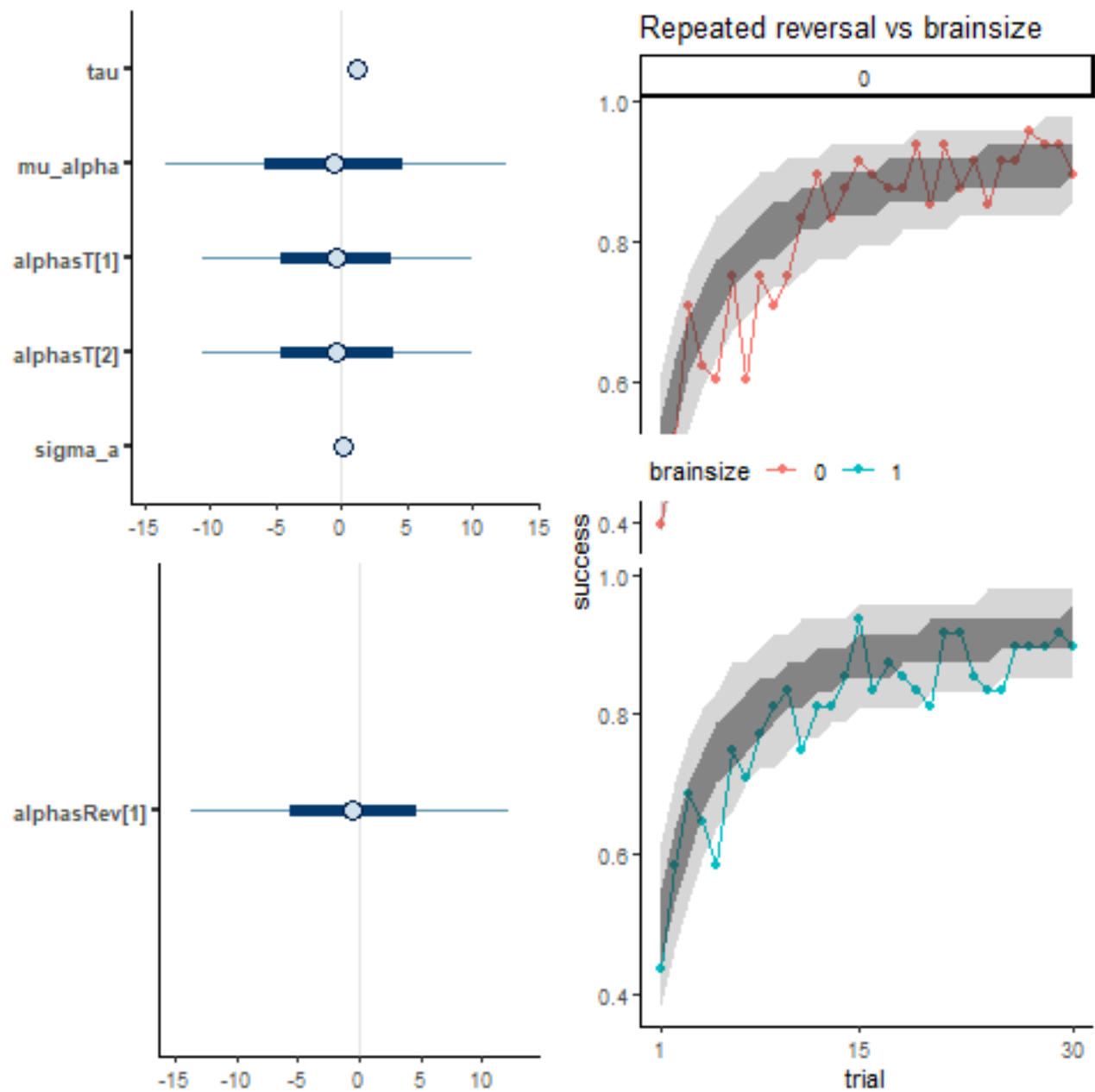

Figure 1: The Boussard *et al* data-set. Points show the proportion of successes achieved by individuals of both treatment groups along trials and reversal blocks.
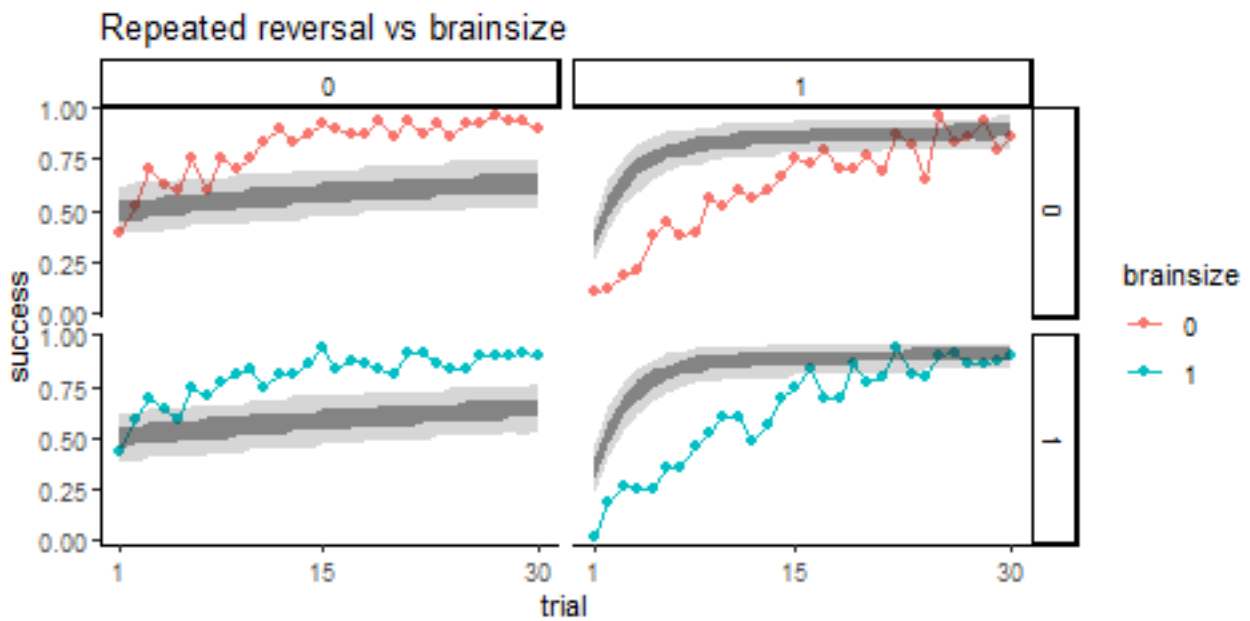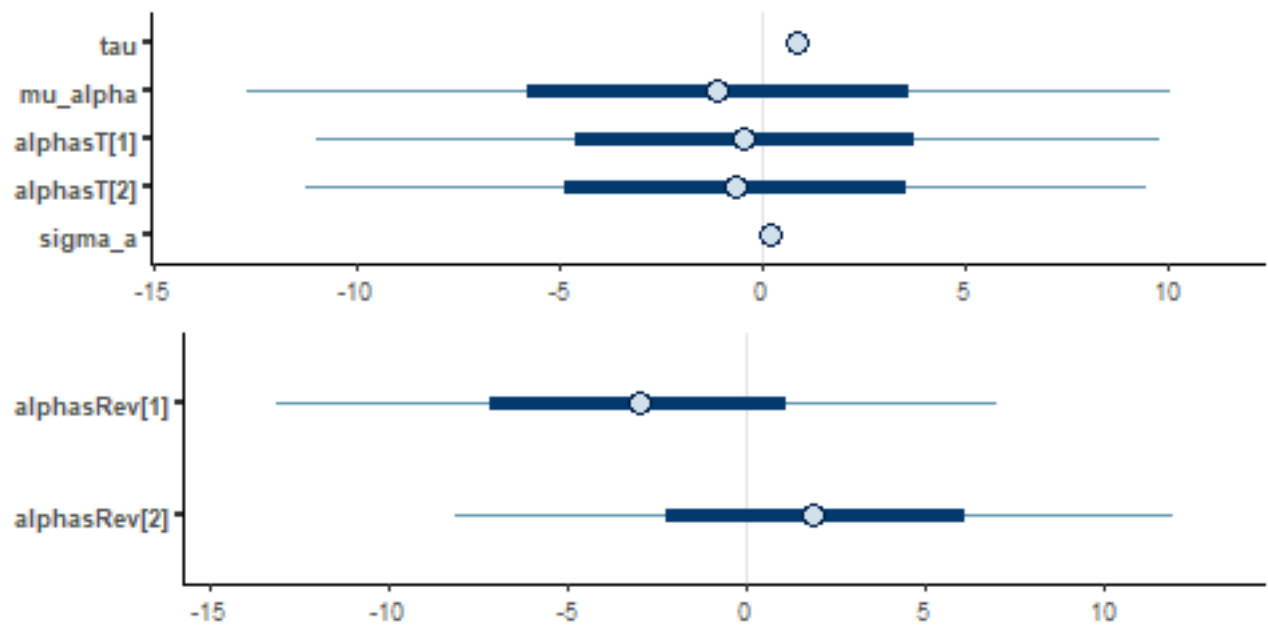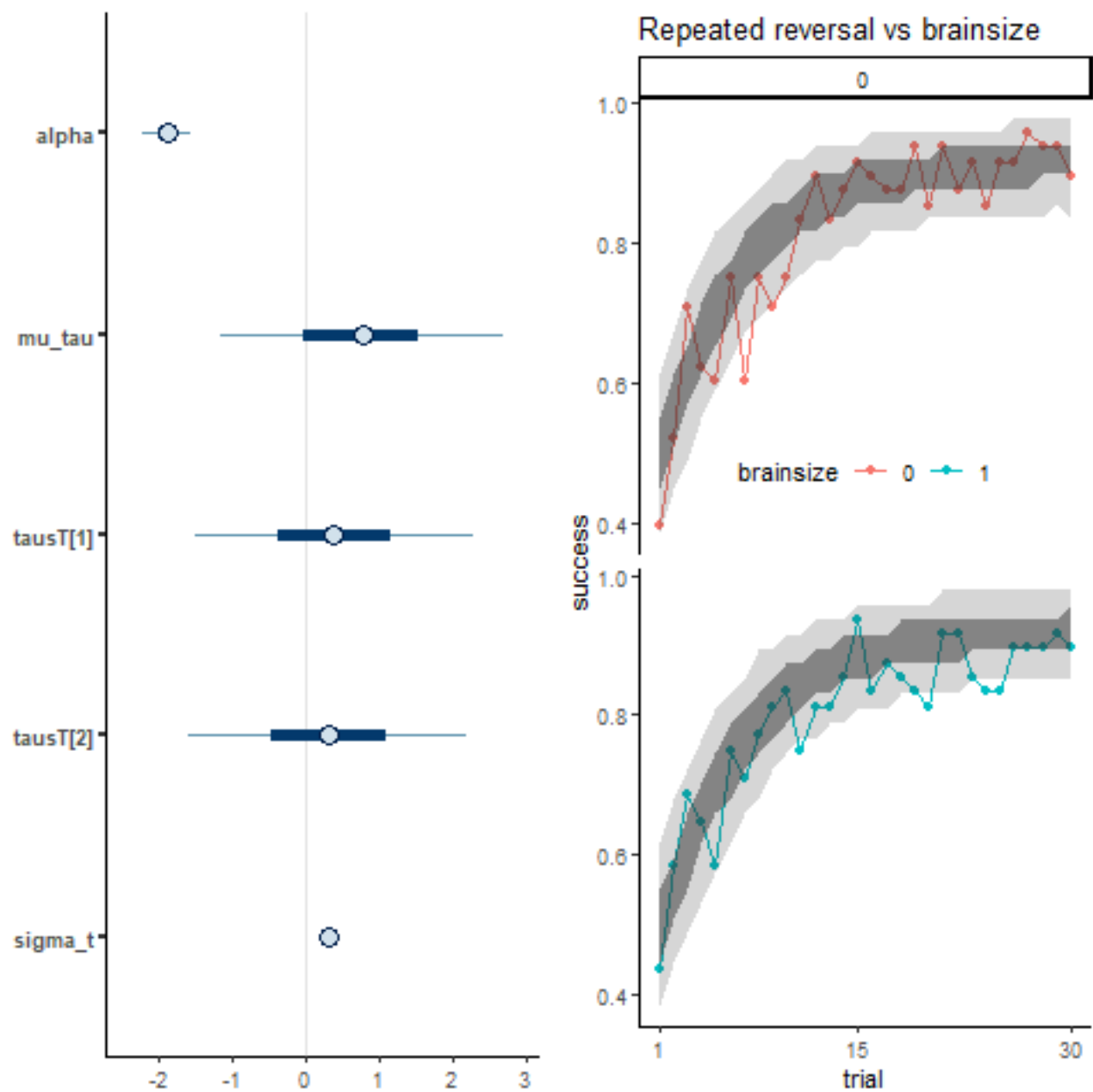
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Fitting the model with the initial block

The initial block with a model that allows flexible learning rates

The initial block with a model that allows flexible learning rates for two blocks

Repeated reversal vs brainsize

Fitting a model with the temperature parameter as a fixed effect

Fitting a model with different τ for each reversal block (just 2 blocks)
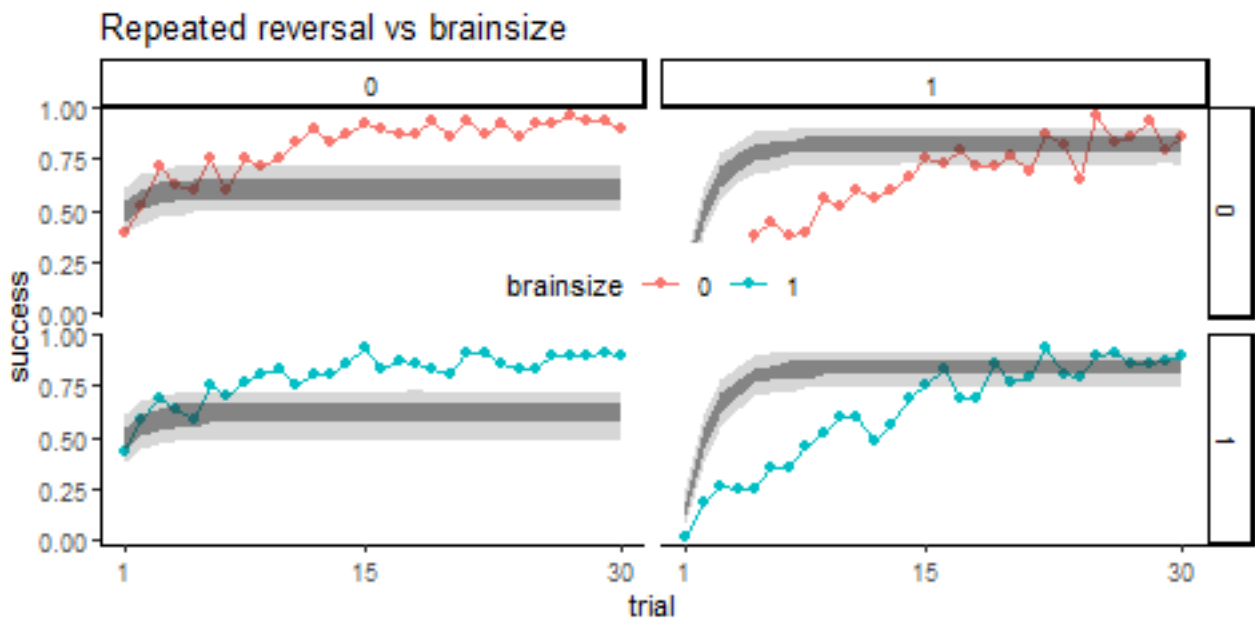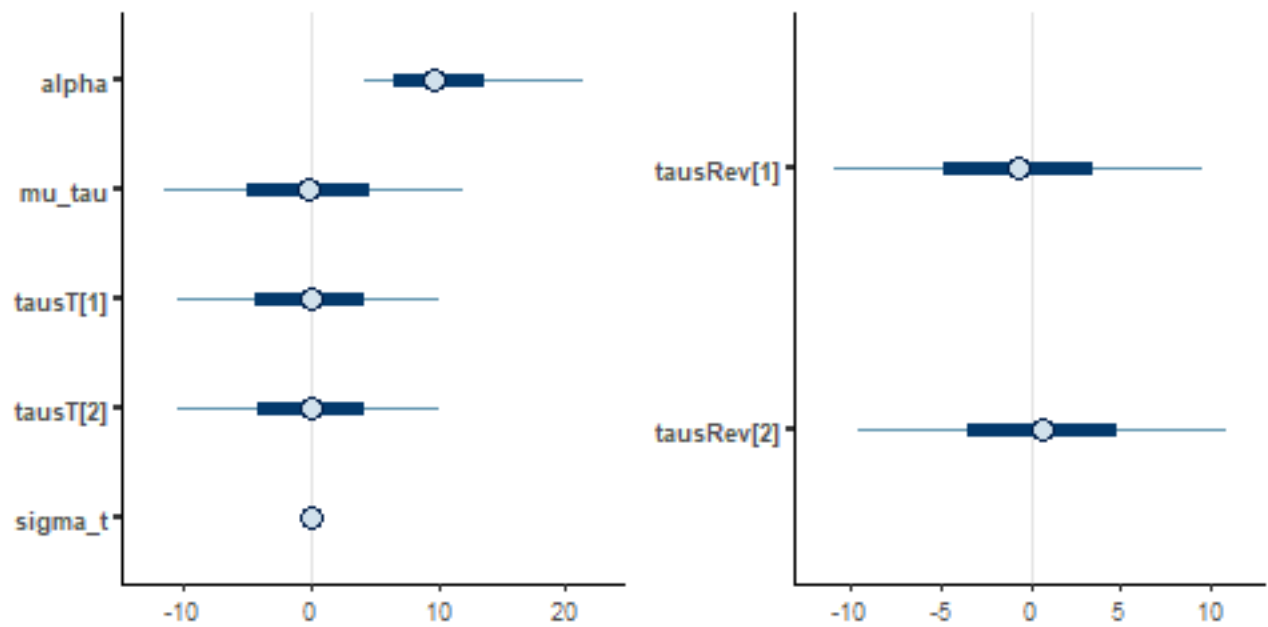
Fitting a model with a different τ and α for each reversal block

Repeated reversal vs brainsize