Reversal data RL model fitting

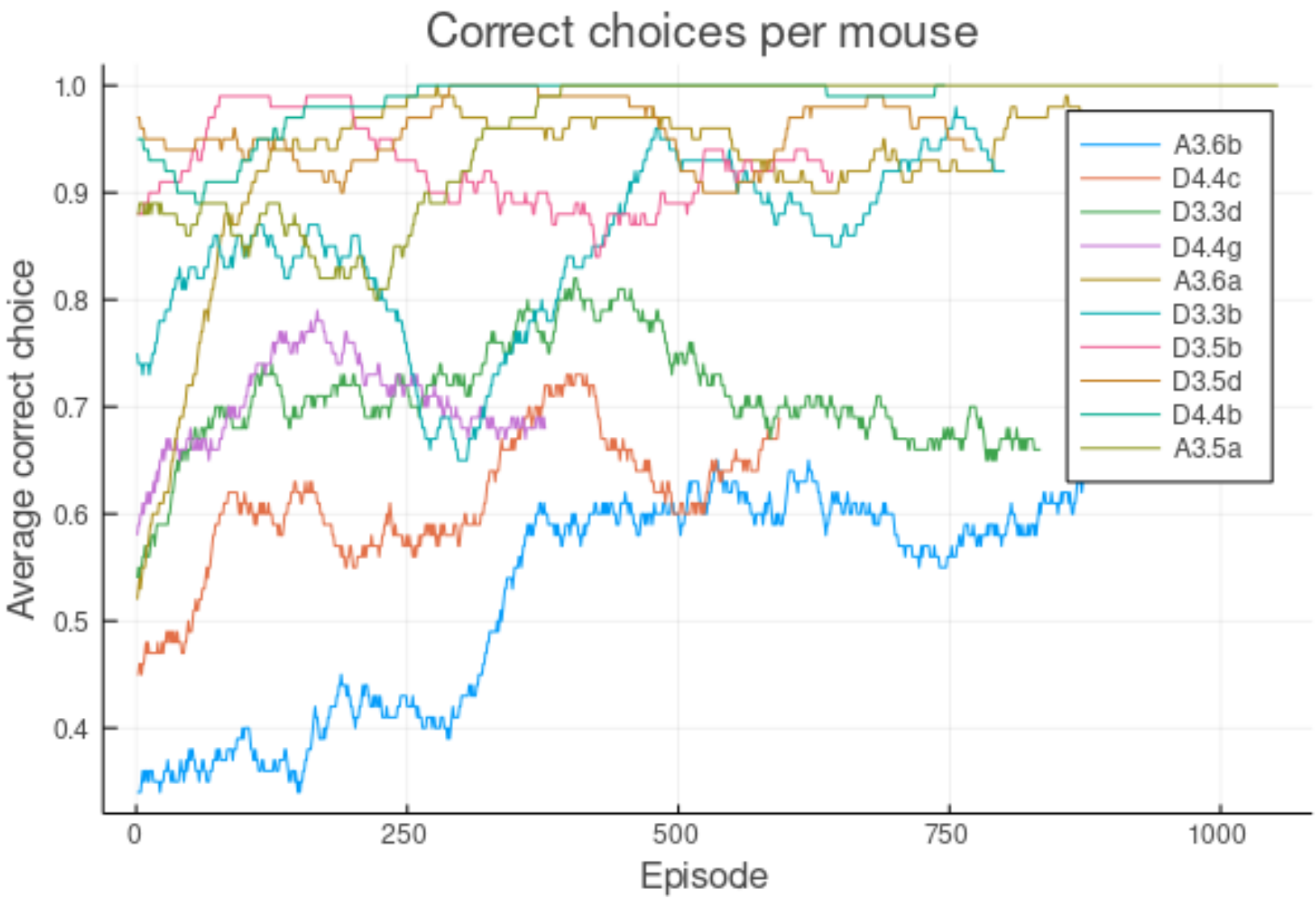
Beren Millidge

September 24, 2022

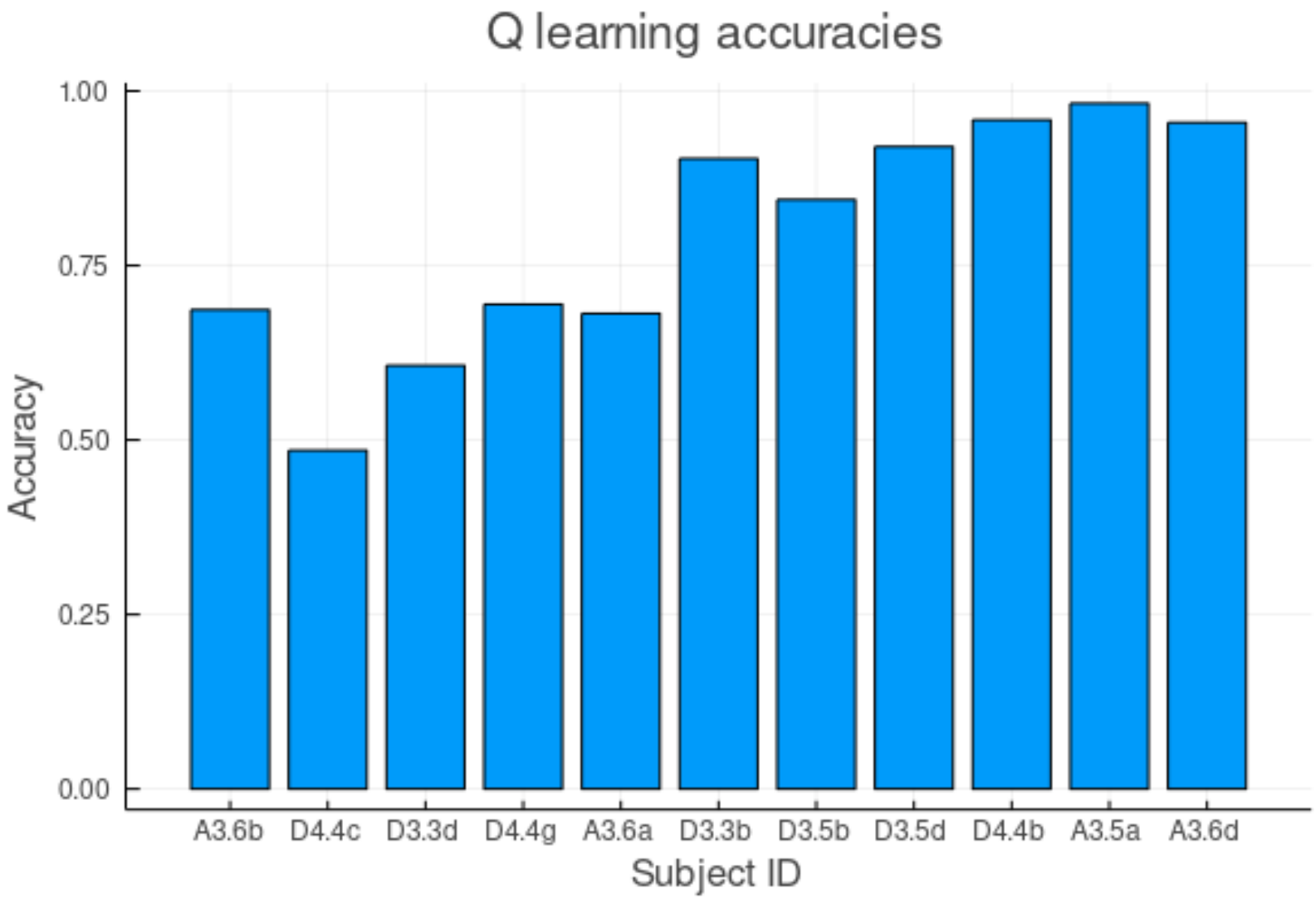
Outline

- Fitted post reversal data to the RL models
- A lot of variability between mice in how well they handle the reversal
- Some mice get back to perfect behaviour incredibly quickly
- RL models still fit pretty well overall, especially for mice who handle reversal well
- Interestingly, it looks again like mice treat force and free trials differently over reversal
- I fitted the Go-NoGo model to reversal data and it performed poorly

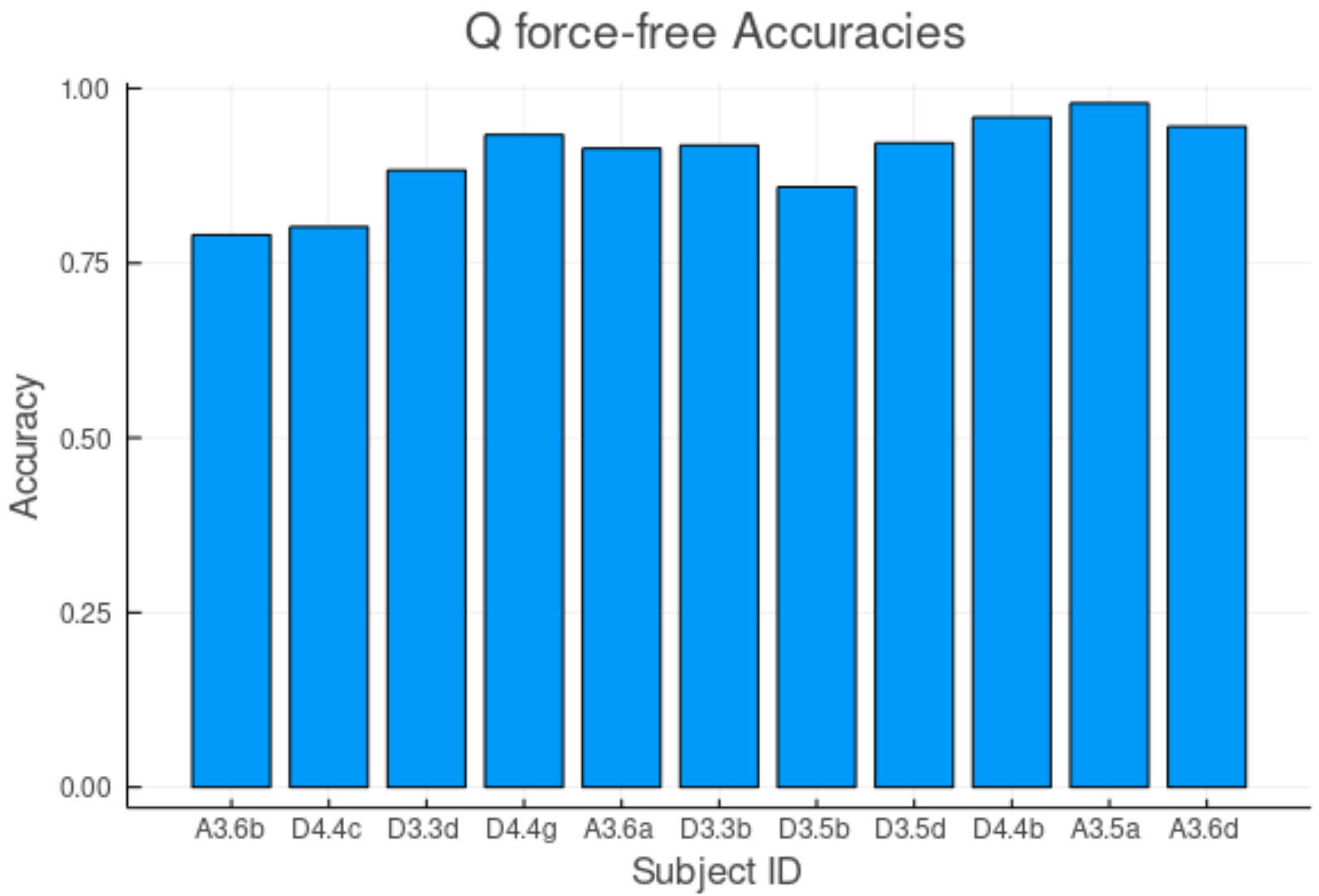
Correct choices after reversal



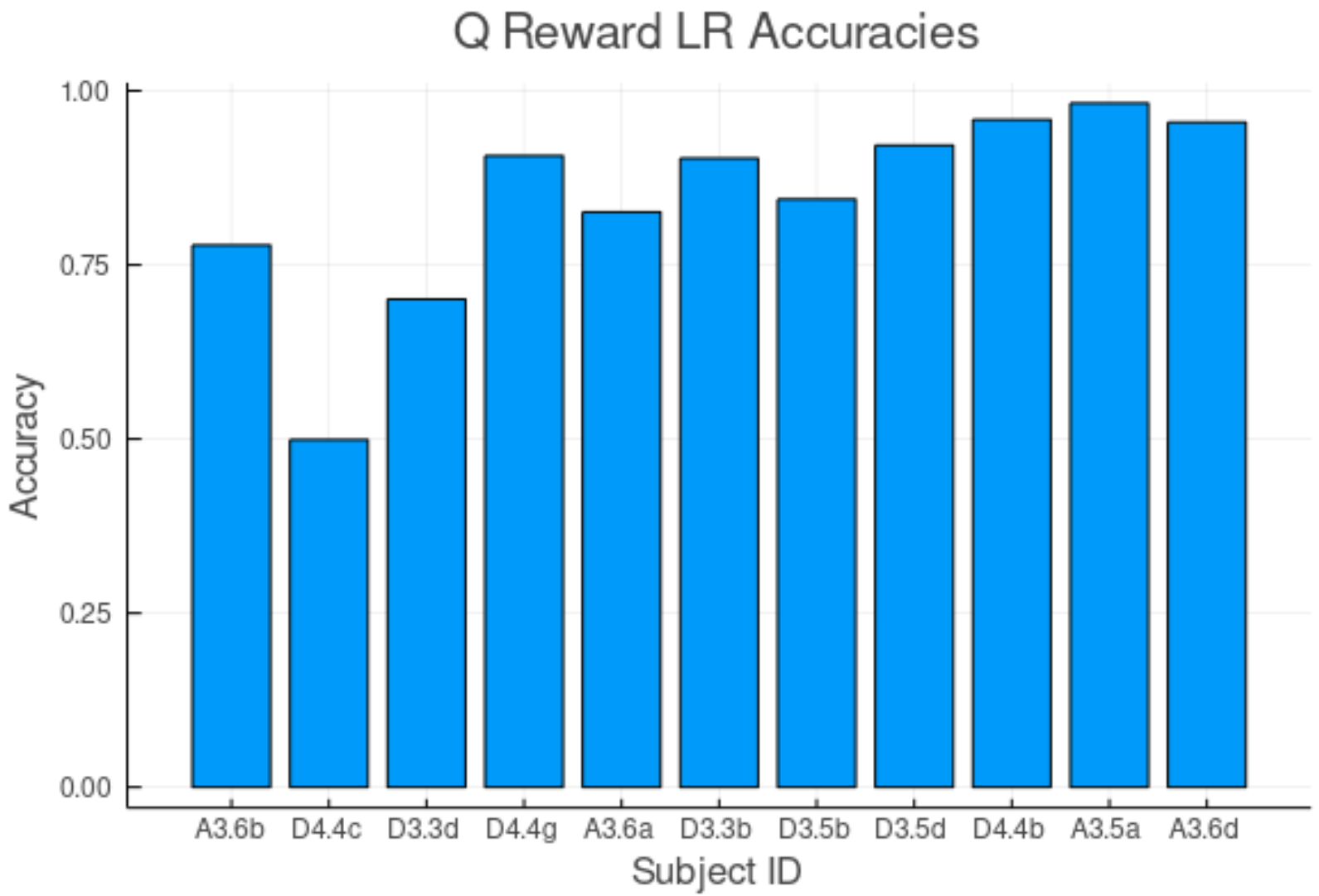
Q learning still predicts mostly accurately



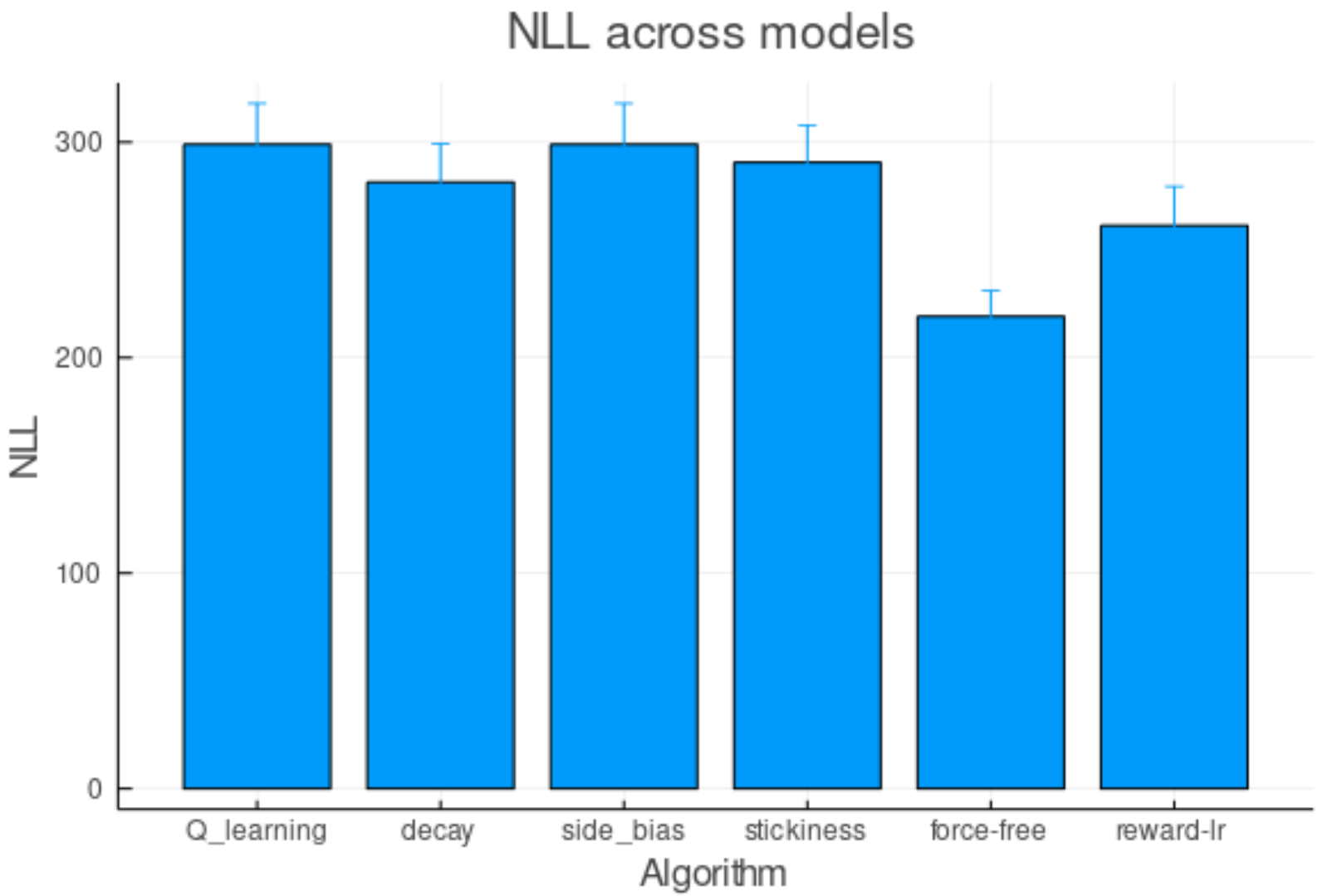
Force Free does better



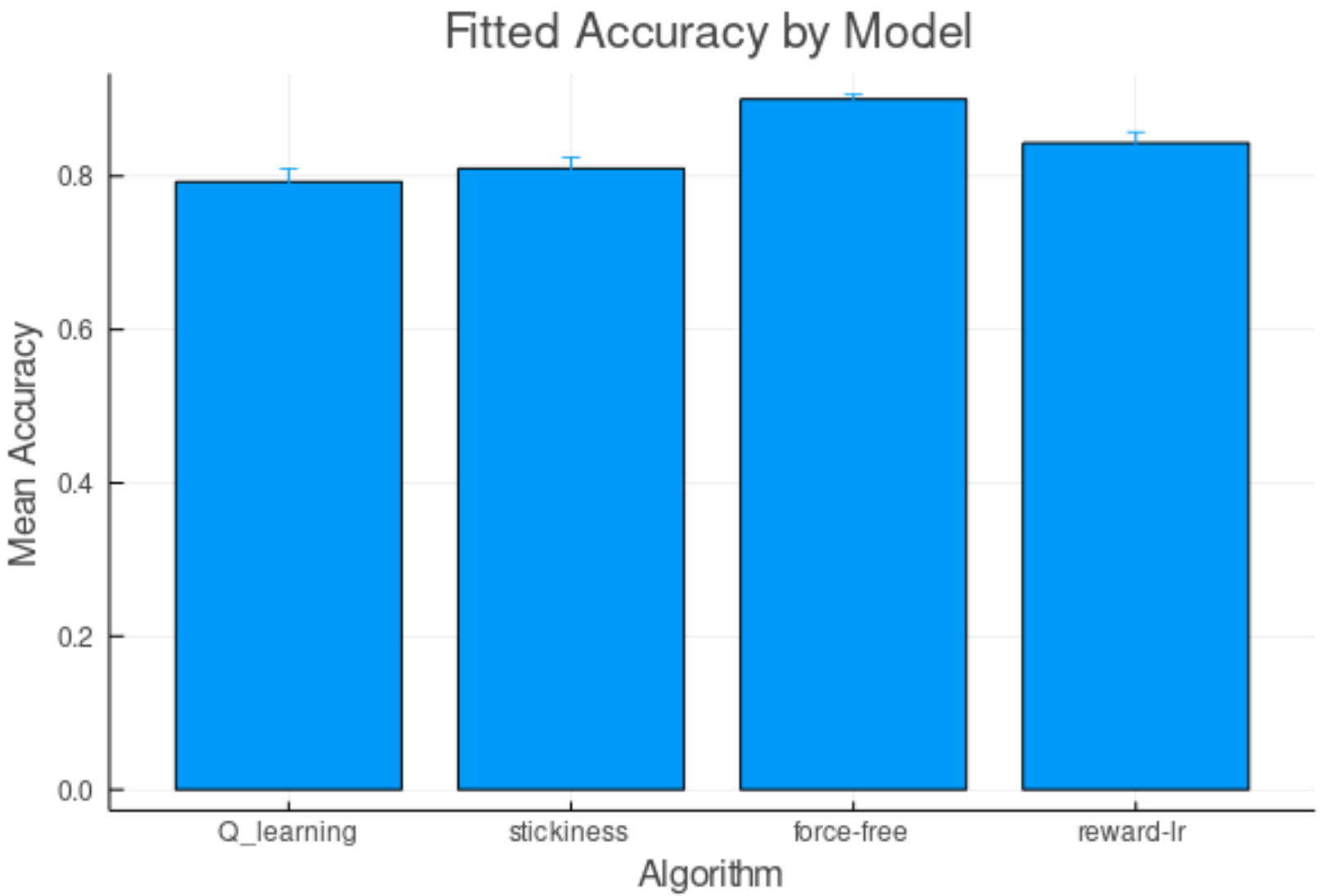
and Reward Lr



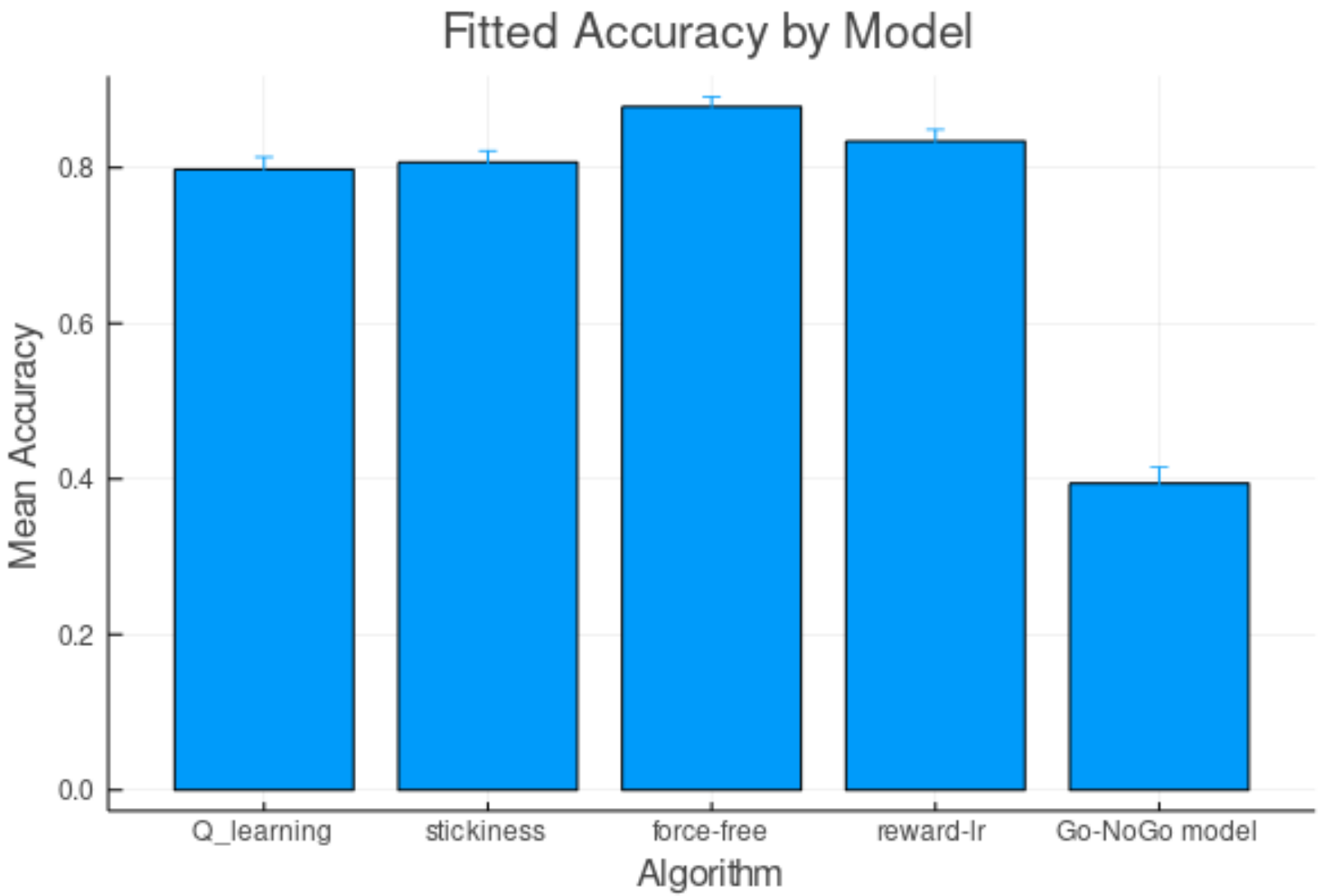
Model Fits


NLL across models
NLL
300
200
100
0
Q_learning
decay
side_bias
stickiness
force-free
reward-lr
Algorithm

Model fits: accuracies



Go-NoGo fits poorly



Next steps

- Figure out why Go-NoGo model fits so poorly
- Understand in more detail difference between force-free and reward lr in pre/post reversal
- R egress the Q values against photometry signals