Performance of a Reinforcement Learning Model Fitting Toolkit on Simulated Data from the Two-Step Task

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Simulated Subjects

Simulated subjects included the following parameters:

- Model-based/model-free weight ω
- Learning rate α
- Inverse temperature β
- Eligibility trace λ
- Reward sensitivity ρ

Generative Models

Data were generated from models with the following parameters:

1. $\{\alpha, \beta, \omega\}$
2. $\{\alpha, \beta, \rho, \omega\}$
3. $\{\alpha, \beta, \lambda, \omega\}$
4. $\{\alpha, \beta, \lambda, \rho, \omega\}$
5. $\{\alpha, \beta, \omega = 0\}$
6. $\{\alpha, \beta, \rho, \omega = 0\}$
7. $\{\alpha, \beta, \lambda, \omega = 0\}$
8. $\{\alpha, \beta, \lambda, \rho, \omega = 0\}$
9. $\{\alpha, \beta, \omega = 1\}$
10. $\{\alpha, \beta, \rho, \omega = 1\}$
11. $\{\alpha, \beta, \lambda, \omega = 1\}$
12. $\{\alpha, \beta, \lambda, \rho, \omega = 1\}$

Models to fit

Models used to generate the data were mirrored for the fitting process, with the addition of a model that has a single parameter(inverse temperature), and simply makes scaled random choices at each step.