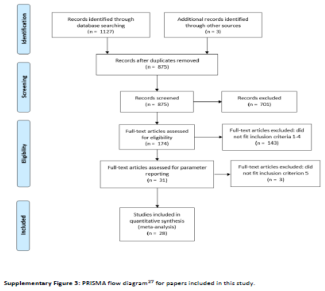
1. Systematic search



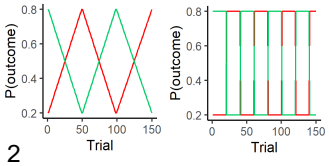
Supplementary Figure 3: PRISMA flow diagram[47] for papers included in this study.

2. Extract parameters of winning model from papers

individual-level parameters

3. Conventional meta-analysis

4. For each paper, feed parameters from all individuals into benchmarking tasks, using the winning model from that particular paper to generate choices



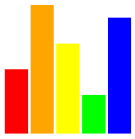
choices = 2 2 2 1 2 1 1 2
choices = 1 1 2 1 2 1 2 1
choices = 2 2 1 2 2 1 2 2
choices = 2 2 2 1 2 1 1 2
choices = 1 1 2 1 2 1 2 1
choices = 2 2 1 2 2 1 2 2
choices = 2 2 2 1 2 1 1 2
choices = 1 1 2 1 2 1 2 1
choices = 2 2 1 2 2 1 2 2

5. Fit a variety of models to the data using several estimation approaches

$$Q_{t+1(a_t)} = Q_{t(a_t)} + \alpha * \delta_{t(a_t)}$$
$$\delta_t = outcome_t - Q_{t(a_t)}$$

	VBA	MAP
1 prior	x	x
Group priors	x	x

6. Bayesian Model Averaging: Model weights calculated and parameters extracted



Participant number	Learning rate	Sensitivity
1	0.02	1.3
2	0.34	0.94
3	0.23	1.08
4	0.11	1.4

7. Compare parameter-wise effect size across estimation approaches