Supplemental Material

Figures S1 (study 1) and S2 (study 2) show the predictions for the two different conditions over every trial but merged into 6 blocks of 30 trials each, with the evaluated models in separate panels and the fits from the respective studies. BIC values for each model can be found in Table 6. As indicated by lower mean and median BIC values, decision field theory with learning provided the best fit to participants’ data, followed by the softmax with learning model, followed by decision field theory without learning, and, lastly, softmax without learning. Every model was superior to the baseline model.



*Figure S1*. Study 1 observed data and model predictions for four competing models. The competing models are: softmax model (i.e., a modified version of the Luce choice rule) in the upper left quadrant, decision field theory without learning (upper right), softmax with reinforcement learning (lower left), and decision field theory with learning (lower right). The observed data are shown in the open circles (error bars standard error of the mean) and the model predictions are shown by the lines and red indicates positive correlation condition. Though the models were fit at the individual trial level, the observed data and predictions are plotted in blocks of 30 trials for clarity. The two non-learning models were provided with all of the information – both the payoffs and their associated probabilities – whereas the two learning variants were provided only with the information that participants received. RL = reinforcement learning; Pred = predictions from the model; Obs = observed behavioral data from the participants; Pos Corr = positive correlation condition; Neg Corr = negative correlation condition



*Figure S2*. Study 2 observed data and model predictions for four competing models. The competing models are: softmax model (i.e., a modified version of the Luce choice rule) in the upper left quadrant, decision field theory without learning (upper right), softmax with reinforcement learning (lower left), and decision field theory with learning (lower right). The observed data are shown in the open circles (error bars standard error of the mean) and the model predictions are shown by the lines and red indicates positive correlation condition. Though the models were fit at the individual trial level, the observed data and predictions are plotted in blocks of 30 trials for clarity. The two non-learning models were provided with all of the information – both the payoffs and their associated probabilities – whereas the two learning variants were provided only with the information that participants received. RL = reinforcement learning; Pred = predictions from the model; Obs = observed behavioral data from the participants; Pos Corr = positive correlation condition; Neg Corr = negative correlation condition