S4 text

We incorporate the history of trials in the computational framework by varying the target probability $p(target = j)$ with the frequency that the target j was cued for action on the past trials. We update the value of the probability on each trial using a simple reinforcement learning algorithm. This algorithm estimates the target probability $p_{k+1}(target = j)$ at trial $k+1$ given the recent trial history, Eq. (1).

$$p_{k+1}(target = j) = p_k(target = j) + \alpha(C - p_k(target = j)) \tag{1}$$

where k is the current trial. We set $C = 1$, if the target j was cued for action on the current trial, otherwise $C = 0$. Also, α is the learning rate that was set to 0.4 on the simulations.