

Retrospective revaluation occurs when posttraining associative inflation or deflation of a cue results in changes in the response potential of an absent stimulus. For example, in backward blocking situations, Phase 1 AX+ followed by Phase 2 A+ trials result in weaker responding to X at test than a comparable control cue. Relatedly, cue competition involves reduced learning when cues are trained together than when they are trained separately. For example, in forward blocking, A+ before AX+ trials reduce learning about X. In both cue competition and retrospective revaluation, animals may learn about and respond based on direct associations with the outcome (e.g., X-outcome associations) or within-compound e.g., X-A) associations. Attempts to reveal the role of within-compound associations in cue competition and retrospective revaluation have produced divergent conclusions. Towards resolving these discrepancies in the literature, we conducted computer simulations of models that varied in their treatment of within-compound associations in cue competition and retrospective revaluation. Our simulations revealed that a model that uses within-compound associations in both retrospective revaluation and in conventional cue competition is able to explain the central results as well as models that assume a selective role for within-compound associations in retrospective revaluation.