UNIVERSITY OF TORONTO

Graded Modulation of Stimulus-Response Bindings by Intervening Events

Ryan S. Williams, Jay Pratt, & Susanne Ferber

61st Annual Meeting

VIRTUAL PSYCHONOMICS

(Williams, #3002)

Background/Rationale

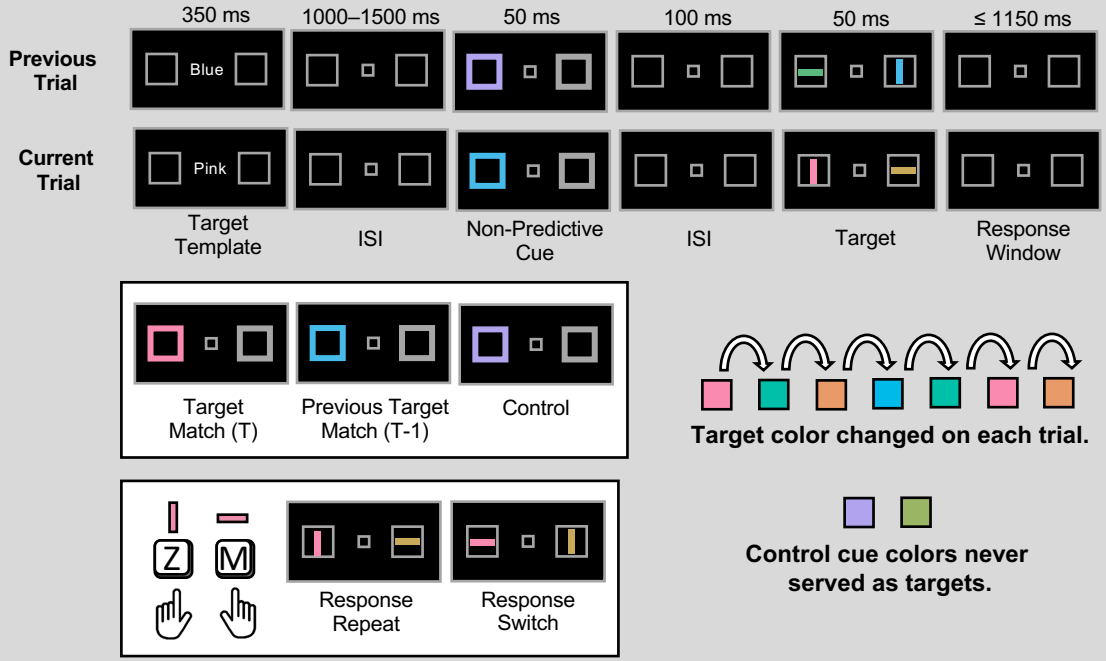
- Attentional control settings can be rapidly updated from one attentional set to the next.
- While previously relevant control sets do not produce overt capture, they may nonetheless have a lingering impact on behavior.
- From the theory of event coding, it is well established that target responses become conjunctively bound to target location/features.
- Subsequent activation of the location/feature retrieves the previous response, leading to a benefit when the new response matches the previous, but a cost when it does not.

Research Questions:

1. Do feature-response bindings persist following updating of the attentional set?
2. If so, do intervening stimuli prime the previous response when they match the previously relevant feature?

Design

384 trials; 60 participants (18-35 years)

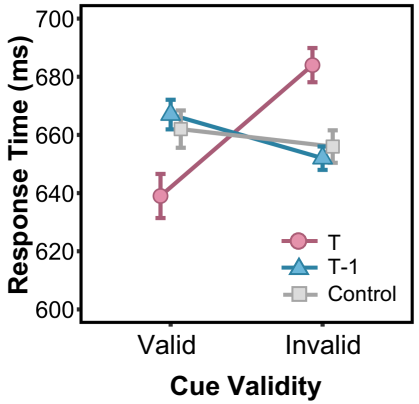


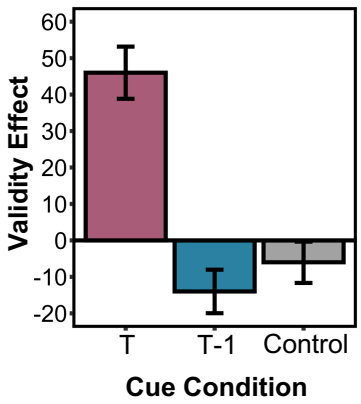
Williams, #3002

Validity Effect

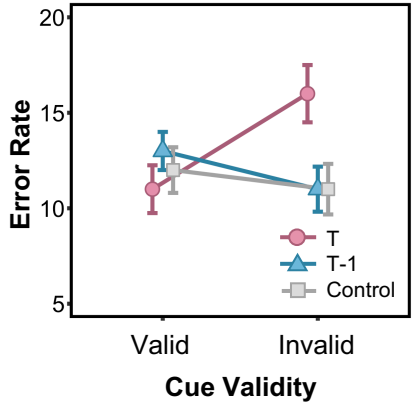
Greater RT/error rate for invalid cues versus valid cues indicates attentional capture by the cue.

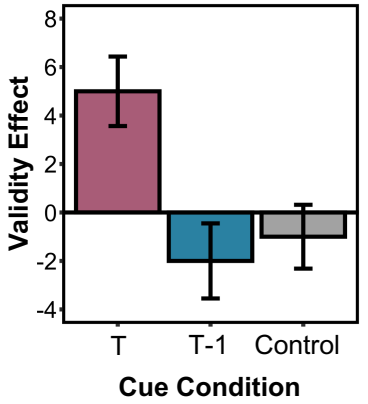
Response Time (ms)





Error Rate



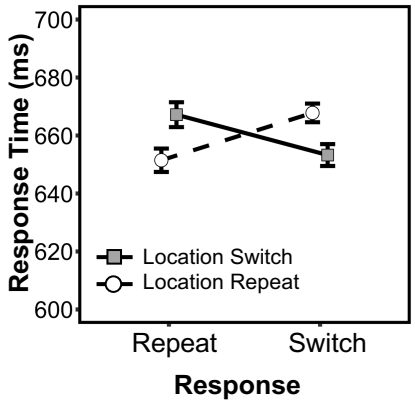


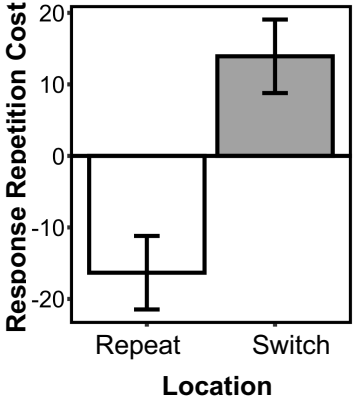
Attentional capture was selective to the target-matching color.

Location-Response Associations

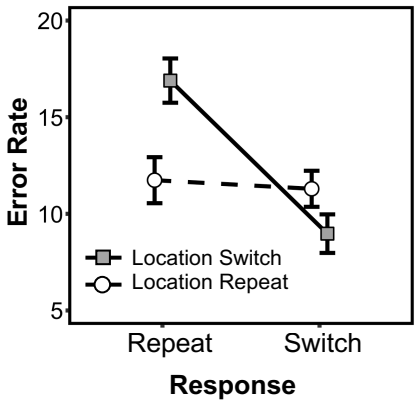
A response repetition cost when the target location switches versus repeats indicates binding of responses and locations.

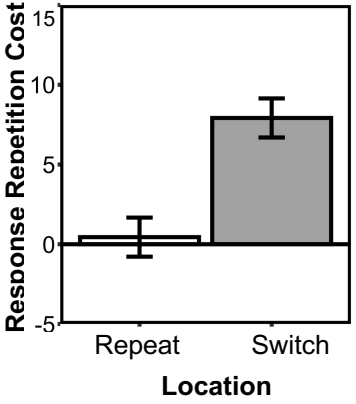
Response Time (ms)





Error Rate



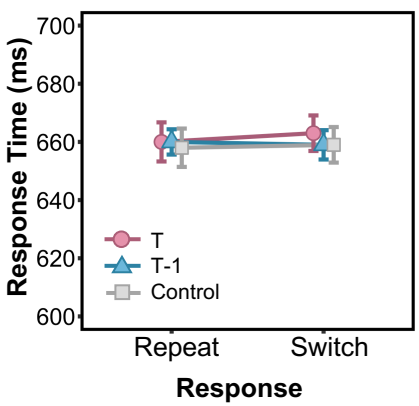


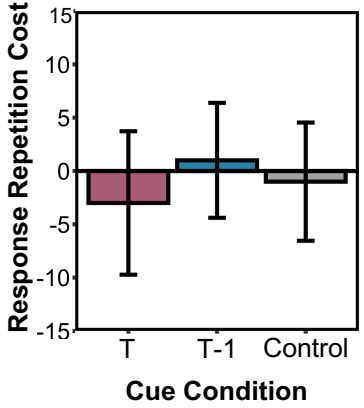
Location-response bindings were preserved across trials.

Feature-Response Associations

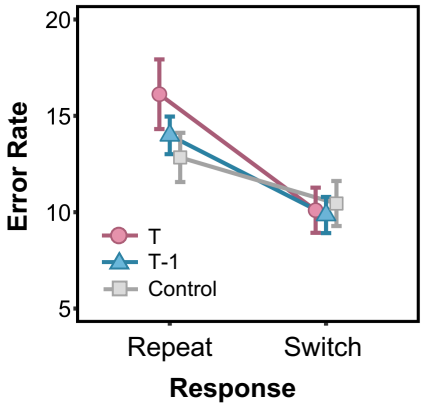
A response repetition cost indicates binding of responses and features (the target color switched on every trial).

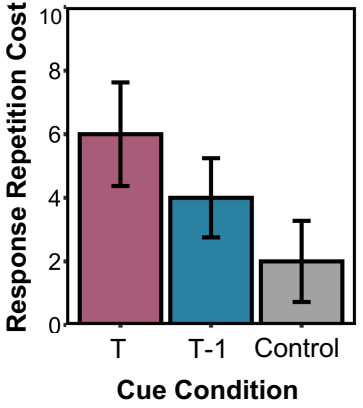
Response Time (ms)





Error Rate





Feature-response bindings observed on error rate. Previous-target-matching cues did not prime the previous response, but maintained such bindings to a greater extent than control cues.