Distractor-response binding: Offsets 1 (#15464)

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1) Have any data been collected for this study already?
No, no data have been collected for this study yet.

2) What's the main question being asked or hypothesis being tested in this study?
Does the strength of distractor-response binding depend on whether distractors disappear immediately after a response is made (i.e., when distractors are response-contingent offset-effects) as compared to delayed distractor offsets?

3) Describe the key dependent variable(s) specifying how they will be measured.
Response times and error percentages in a letter classification task.

4) How many and which conditions will participants be assigned to?
Participants work on a simple letter classification task with two letters (D, F) mapped on a left response key and two letters (J, K) mapped on a right response key. Target letters are accompanied by a distractor shape (orange circle vs. blue square). Response times and error percentages will be analysed as a function of distractor sequence (switch vs. repetition) and response sequence (switch vs. repetition). This corresponds to 4 conditions in an orthogonal 2x2 repeated-measures design.

5) Specify exactly which analyses you will conduct to examine the main question/hypothesis.
Main analyses will be 2x2 repeated measures ANOVAs following the design sketched above (for response times and error rates). Distractor-response binding emerges as the interaction term in these ANOVAs. Binding scores will be computed by comparing the difference (distractor change – distractor repetition) between response repetition and response change trials.

6) Describe exactly how outliers will be defined and handled, and your precise rule(s) for excluding observations.
Response times will be excluded as outliers if they deviate more than 2.5 standard deviations from their cell mean, computed separately for each participant and design cell.

7) How many observations will be collected or what will determine sample size? No need to justify decision, but be precise about exactly how the number will be determined.
We aim for a sample size of at least 34 participants in the final analyses. To arrive at this target number, we will test 40 participants and exclude all participants with error rates > 20% from the analysis.

8) Anything else you would like to pre-register? (e.g., secondary analyses, variables collected for exploratory purposes, unusual analyses planned?)
Exploratory analyses will assess distractor-response binding for target repetition and target change separately.

We will further examine response durations and compare response durations for immediate distractor offsets to response durations for delayed distractor offsets to test whether participants synchronise their behaviour with the stimulation.