January 2, 2023

Antonia Hamilton, PhD

Institute of Cognitive Neuroscience

University College London, UK

Dear Dr. Hamilton:

My colleagues and I are submitting our manuscript entitled “Predictive Alternating Runs and Random Task-Switching Sequences Produce Dissociative Switch Costs in the Consonant-Vowel/Odd-Even Task” for consideration as an original research article in *Quarterly Journal of Experimental Psychology*.

In this paper, we use the Consonant-Vowel/Odd-Even (CVOE) task to compare the effects of predictive and random task-switching sequences. Participants first completed a set of pure-task blocks before completing switch blocks in which the task changed predictably or randomly. We then assessed changes in mean error rates, response latencies (RTs), and local and global switch costs as functions of presentation sequence. We then further explore changes in RTs for trial types and switch costs through Vincentile and ex-Gaussian analyses. Overall, we show that local RT switch costs (i.e., switch vs. nonswitch trials) are inflated when switching is random, indicating that task-set reconfiguration processes are particularly taxed when an upcoming trial type is unknown. In contrast, global RT switch costs (i.e., nonswitch vs. pure trials) increased when switching was predictive, suggesting that task-set maintenance processes are additionally burdened when participants must also monitor their progress as they complete a predictive trial sequence. We argue that increases in global switch costs when switching is predictive reflects not only maintenance of two task sets, but an additional working memory burden as participants must monitor and update their progression through the task sequence. Our distributional analyses indicate that these cost differences are due to trials that are in the middle and slowest end of the RT distribution.

We believe these findings provide novel and substantive contributions to the literature, particularly regarding the interactive effects of predictive and random task-switching and our additional inclusion of distributional analyses to further assess RTs. This work is original and not under review elsewhere, and we disclose no conflicts of interest. We look forward to hearing about the suitability of our manuscript in *Quarterly Journal of Experimental Psychology*.

Sincerely,

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