

Debrief:

Inhibition with Cue and Target Responses – Effect of Preparation

Many thanks for participating in our experiment!

Here, you can read about the rationale for the study and how we plan to analyse the data.

(Please note, there are two different hypotheses being tested in this experiment. Other participants will receive a Debrief that is different from this one if they were tested by a different experimenter.)

When people have to switch between three tasks within a single block of trials, it is harder to switch back to a task that has been recently performed than to new task. This is thought to be caused by the task that has been previously completed being inhibited (via a mechanism known as “backward inhibition”) and therefore to perform the task again the inhibition needs to be overcome. To overcome inhibition a cost to performance is incurred (i.e., slower responses and more errors). We will look at what causes the inhibition to be applied – preparation or performance.

You responded to the cue, using your left hand, by selecting what task you were doing (e.g., colour, shape or line) and then you judged a colour shape with lines, using your right hand, depending on the task you were performing. There were two *trial N - 1* trial completion conditions (N.B. *trial N - 1* refers to the trial prior to the trial where performance is measured and is also the trial where inhibition is thought to be applied):

- (1) **Completed:** Preparation and Performance - you were presented with and responded to both the cue and the target.
- (2) **Cue-only:** Preparation Only – you were presented with and responded to only the cue.

Your data will be processed to extract a measure of “backward inhibition” – i.e., the extent to which performance (reaction time and error rate) is worse on trials where you are switching back to a recently completed task versus to a new task; hence the ‘inhibition cost’ is the **dependent variable**. We will then compare inhibition costs between the two conditions (trial completion) described above, to assess whether the inhibition cost is affected by trial completion. This is a **within-participants design**. The **independent variable** is the trial completion (two levels, see list above). A **paired t-test** will assess whether trial completion has any effect at all on inhibition cost. The experimental hypothesis is that there will be a significant difference between trial completion conditions.

Your data will be held anonymously so that it is impossible to trace this information back to you individually. These data will be held securely on the University network, on DVDs in a locked office, or on an encrypted data storage drive, and may be retained indefinitely. To ensure access to the data for the wider research community, the anonymous dataset may be archived online, for instance on the Open Science Framework (<https://osf.io/>), or sent to other researchers for inspection. Your completed consent form will be stored electronically on a password-protected server, and separately from any data collected, for a minimum of 3 years after the conclusion of the study. Your name will be stored electronically on a password-protected server, and separately from any data collected, until Sept 2022 at the latest and only Laura Prosser and Rachel Swainson will have access to it.

Contact details:

Experimenter: NAME HERE*	EMAIL HERE*
Research Fellow: NAME HERE*	EMAIL HERE*
Supervisor: NAME HERE*	EMAIL HERE*

Further Reading:

Koch, I., Gade, M., Schuch, M., & Philipp, A. M. (2010). The role of inhibition in task switching: A review. *Psychonomic Bulletin & Review*, 17(1), 1-14.

Schuch, S., & Koch, I. (2003). The role of response selection for inhibition of task sets in task shifting. *Journal of Experimental Psychology: Human Perception and Performance*, 29(1), 92.

N.B. Please contact Dr Prosser using the above email address if you would like to receive an electronic copy of your completed consent form.