

Debrief: Inhibition with Cue and Target Responses – Effect of Inhibition

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 where backward inhibition affects response speed – during 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 doing. We measured response speed at two stages within a trial:

- (1) **Preparation:** Cue Response - when you responded to the cue.
- (2) **Performance:** Target Response - when you responded to the target.

Your data will be processed to extract a measure of “backward inhibition” – i.e., the extent to which response speed is slower 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 stages described above, to assess whether inhibition primarily affects speed of preparation or speed of performance. This is a **within-participants design**. The **independent variable** is the trial stage (two levels, see list above). A **paired t-test** will assess whether inhibition affects response speed at one stage of a trial more than the other. The experimental hypothesis is that there will be no difference between the stages.

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.

Regev, S., & Meiran, N. (2017). Cue response dissociates inhibitory processes: task identity information is related to backward inhibition but not to competitor rule suppression. *Psychological Research*, 81(1), 168-181.

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.