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## **Social presence influence on saccadic control**

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### Introduction

Eyetracking research is normally conducted in individual settings, with participants performing in socially isolated conditions. However, social psychology studies showed that the mere presence of individuals can be facilitate or inhibit performance on different tasks (Bond & Titus, 1986). Although the causes behind social influences are still under debate, one of the main social facilitation inhibition theories poses that attentional processes are involved in the mediation of social effects. In the present study, we tested such hypothesis through two saccadic tasks that require different degrees of attentional control. We hypothesized that social presence should increase the saccadic latency of attentionally controlled eye movements as long as social presence conflicts with the attentional resources required for the saccadic tasks.

### Methods

We used multiple eyetrackers and recorded participants in a solitary (N=20) or group (N=20) conditions. In the group condition participants performed the experiment individually, but they were recorded in groups ranging from two to eight participants. The solitary condition was recorded in the same experimental setting as the group condition. In Experiment 1, participants performed an anti and prosaccade task; in experiment 2, participants performed a visual discrimination task.

### Results

The antisaccade latency in the group condition (mean  $\pm$  SEM:  $276 \pm 8$  ms) was higher than in the solitary condition ( $246 \pm 6$  ms;  $t(38) = 2.84$ ,  $p < 0.01$ ,  $d = 0.88$ ). In contrast, prosaccade latencies did not differ between the group ( $189 \pm 4$  ms) and solitary condition ( $193 \pm 4$  ms;  $t(38) = 0.86$ ,  $p = 0.39$ ,  $d = 0.16$ ). Besides, antisaccade latencies increased with group size ( $t(38) = 2.8$ ,  $p < 0.01$ ), while prosaccade latencies did not. In the visual discrimination task, neither saccades ( $t(38) = -0.04$ ,  $p = 0.96$ ) nor manual reaction times ( $t(38) = 1.67$ ,  $p = 0.11$ ) were affected by social presence.

### Discussion

The results showed that social presence only affected attentionally controlled antisaccades, while more reflexive prosaccades were not affected. Thus, our results support an attentional view of social presence influence, even when individuals are not directly interacting with each other. Our results rises theoretical and methodological questions about eye-tracking research conducted in social environments.