Gaze consistency across video viewings in the macaque monkeys

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INTRODUCTION

- Previous research in great apes and macaque monkeys demonstrated that non-human primates were capable of retrieving encoded information to anticipate the upcoming events and performed anticipatory gazes;

- To study how top-down control mechanism influence macaque monkeys' gazing behaviors, we analyzed the gaze consistency across repeated viewing of videos with different contents;

- We hypothesize that monkeys have a better understanding of primate actions than non-primate actions and pure sceneries.

MATERIAL & Method

- Monkeys performed naturalistic free viewing of three types of videos (Primate, Non-primate, Scenery);

- Monkeys repeated the viewing of each video for 30 times on Day 1. On Day 2 they performed the viewing of same videos for another 30 repetitions;

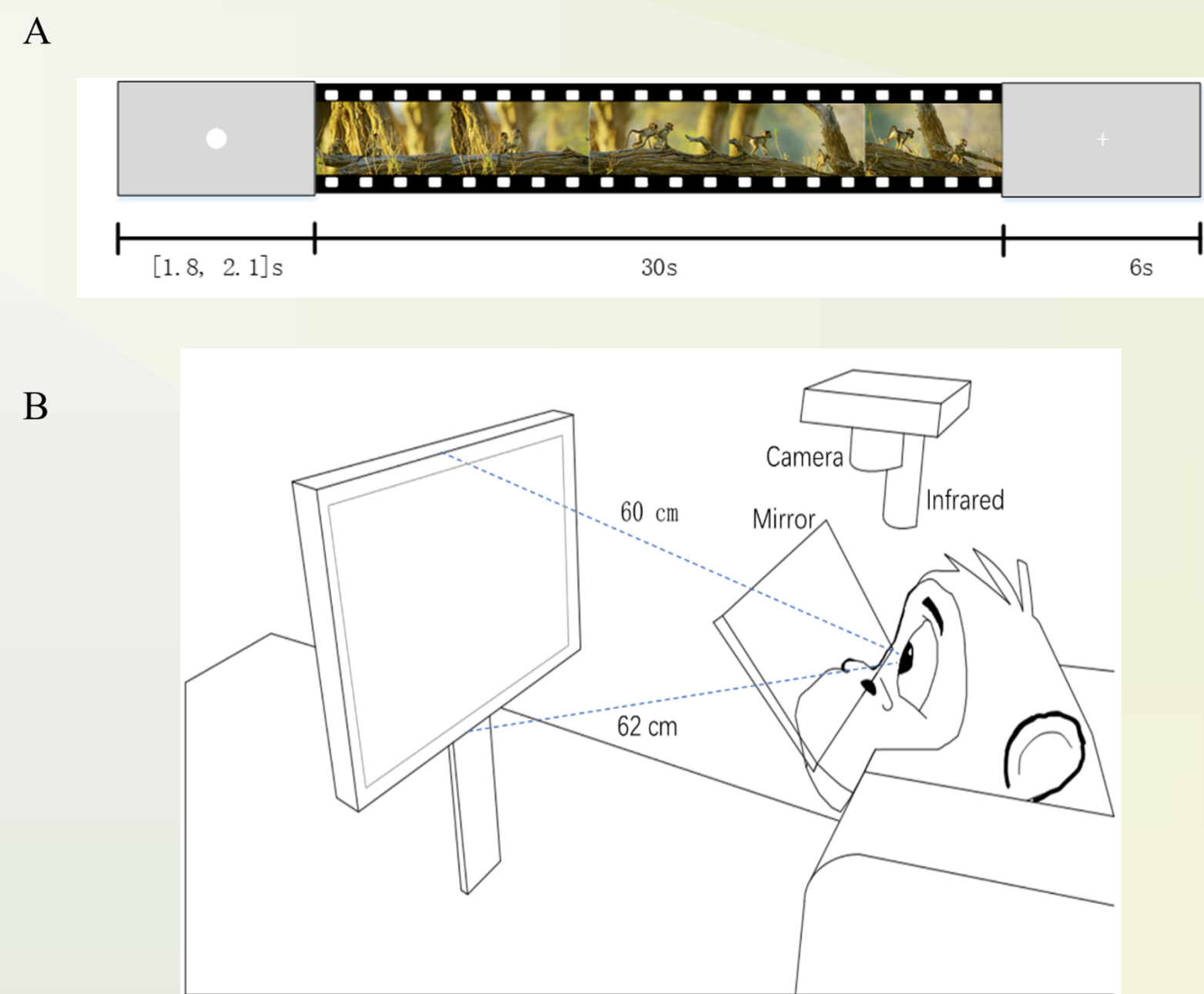- Head-fixed eye movements were recorded by an EyeLink eye tracker.

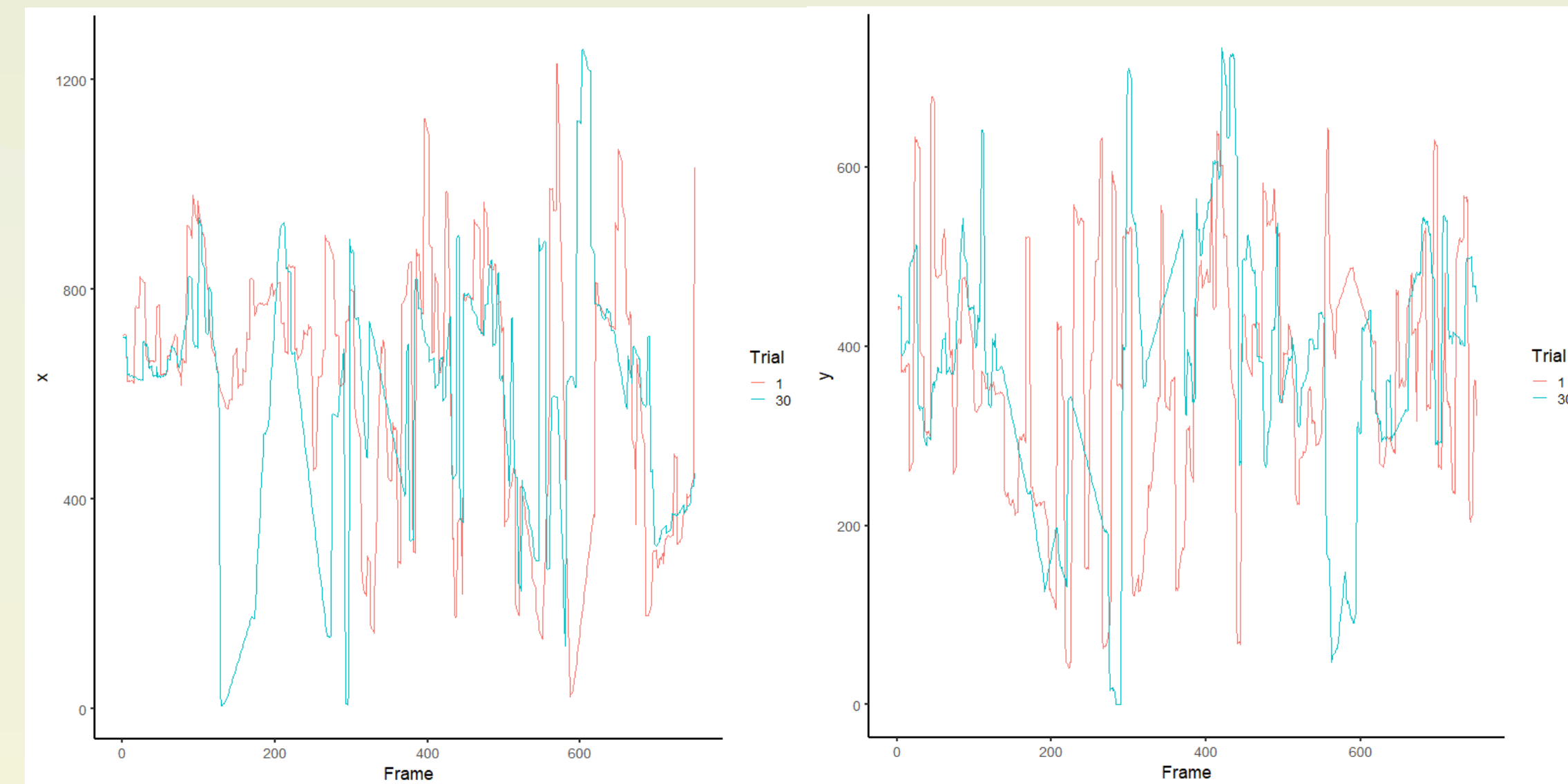Figure 1. Experimental procedures (A) and setup (B)

RESULTS

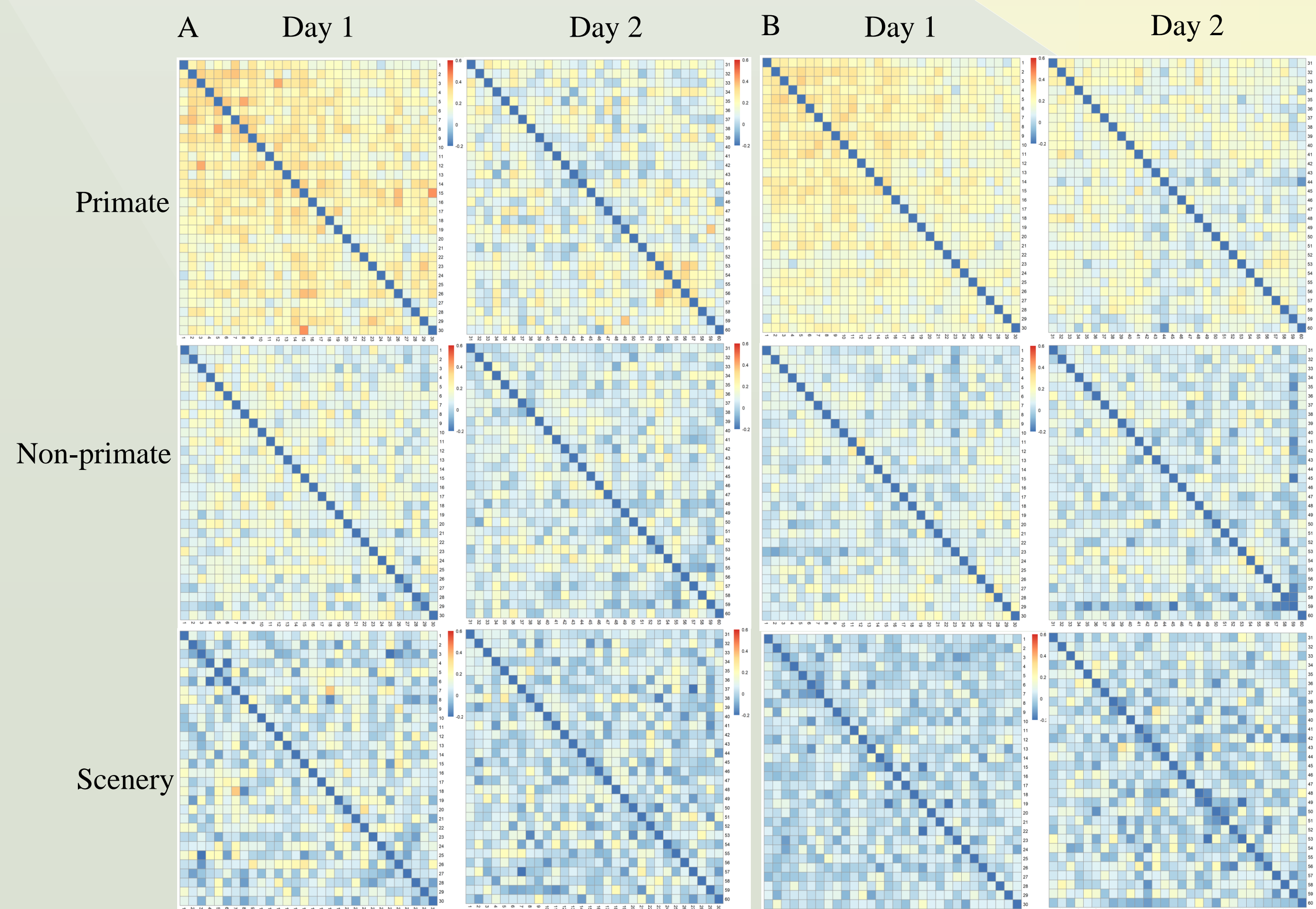Figure 2. Example of scanpath correlation analysis across repetitions

Figure 3. Heatmaps of correlations across repetitions (A: horizontal; B: vertical)

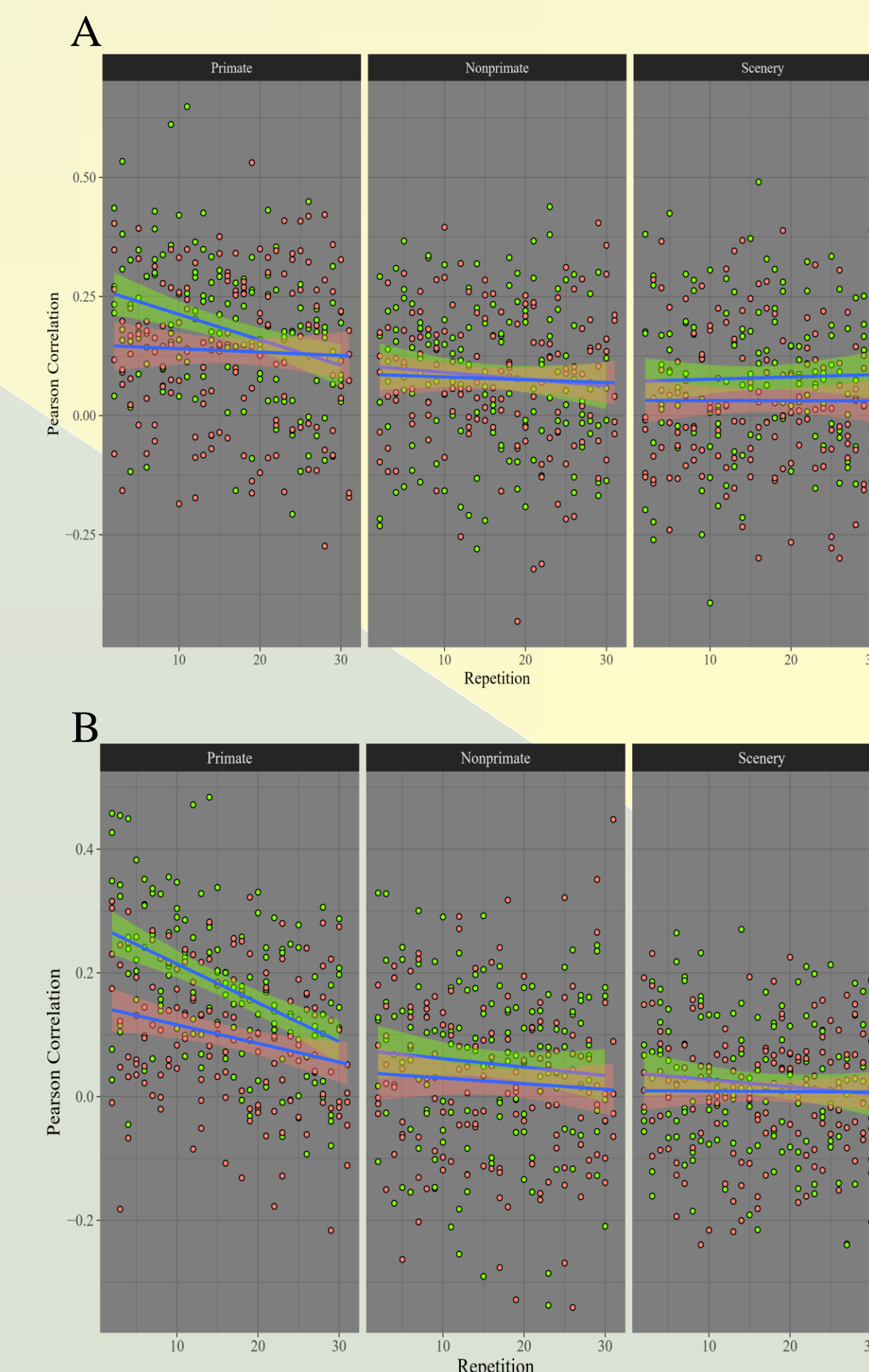
Figure 4. Linear regression of Pearson correlations with 1st viewing (A: horizontal; B: vertical)

CONCLUSION

The analysis of monkeys' viewing 'Primate' videos demonstrates that the correlation with the first viewing decreases as the number of repetition increases, which may suggest that monkey ignore the content that it has understood and shift scanpath to explore other parts of the scenes. Such trend was not displayed in the repeated viewings of 'Non-primate' and 'Scenery' videos, which may reflect monkeys' failure to understand the content.

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