Manipulation Check: reaction times for high vs. Low stakes

Though the reward at stake did not influence strategy selection between policy imitation and goal emulation, we also examined whether reaction times were affected by stakes to provide additional support for the effectiveness of the manipulation and participants' awareness of it.

We fitted a generalized linear mixed model with trial-level reaction times as the dependent variable and stakes as the sole predictor, along with random intercepts and slopes for participants. Given that RTs are positively skewed, we used a gamma distribution with a log link function.

The results revealed a significant main effect of stakes, such that reaction times were longer in the high-stakes condition compared to the low-stakes condition (β = 0.049, SE = 0.023, z = 2.14, p = .032). This suggests that participants were at least somewhat sensitive to the stakes manipulation, as reflected in their reaction times.

Sensitivity Analyses with Alternative Exclusion Criteria

Our pre-registered exclusion criteria resulted in the exclusion of 69 participants from an initial sample of 295 participants. To assess the robustness of our findings, we reanalyzed the data using softened exclusion criteria and with no exclusions.

Softened Exclusion Criteria

When applying a more lenient exclusion threshold—excluding only participants who failed the comprehension check three times or more (instead of two times or more, as pre-registered)—the final sample size was 257 participants. The pattern of results remained unchanged: during critical trials, behavior was more consistent with emulation (mean proportion = 0.62, median = 0.75) than with imitation. Participants were significantly more likely than chance to make an emulation-based choice (β = 0.670, SE = 0.113, z = 5.92, p < .001). Additionally, there was no significant effect of stakes: the odds of making an emulation-based choice in high-stakes versus low-stakes blocks were not significantly different (β = -0.077, SE = 0.108, z = -0.716, p = .474).

No Exclusions

When including all 295 participants in the analysis, the results remained consistent. Participants' behavior during critical trials was again more aligned with emulation (mean proportion = 0.60, median = 0.5) than with imitation. Emulation-based choice remained significantly above chance (β = 0.529, SE = 0.101, z = 5.22, p < .001). The effect of stakes was again not statistically significant (β = -0.029, SE = 0.098, z = -0.294, p = .769).

Across all exclusion criteria, the main conclusions remained unchanged: behavior during critical trials was more consistent with emulation than imitation, and stakes did not significantly influence the likelihood of emulation-based choices.

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project: grubfish-on-a-roll