



# Reward Contrast Effects on Timing and Impulsive Choice Behavior



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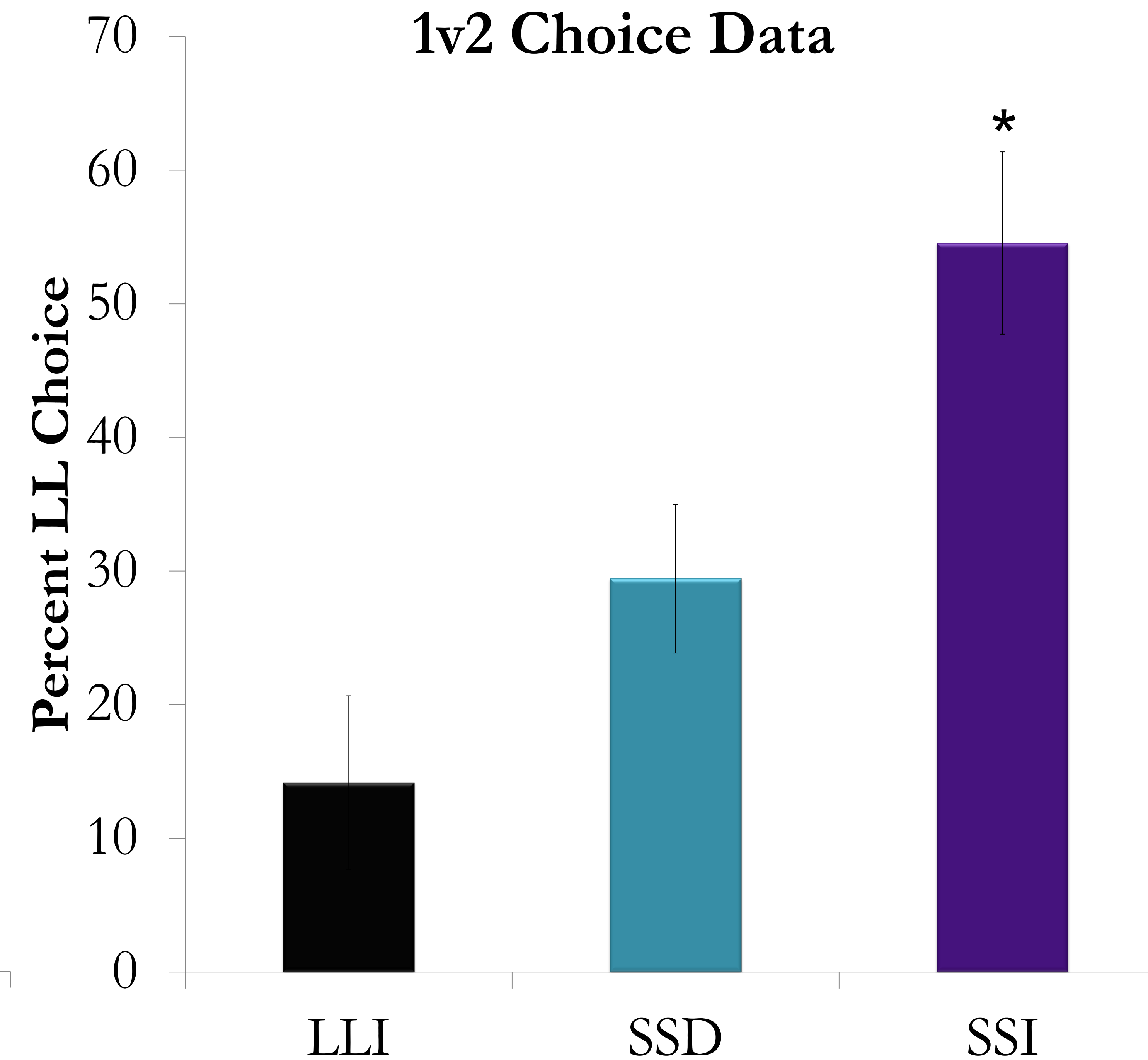
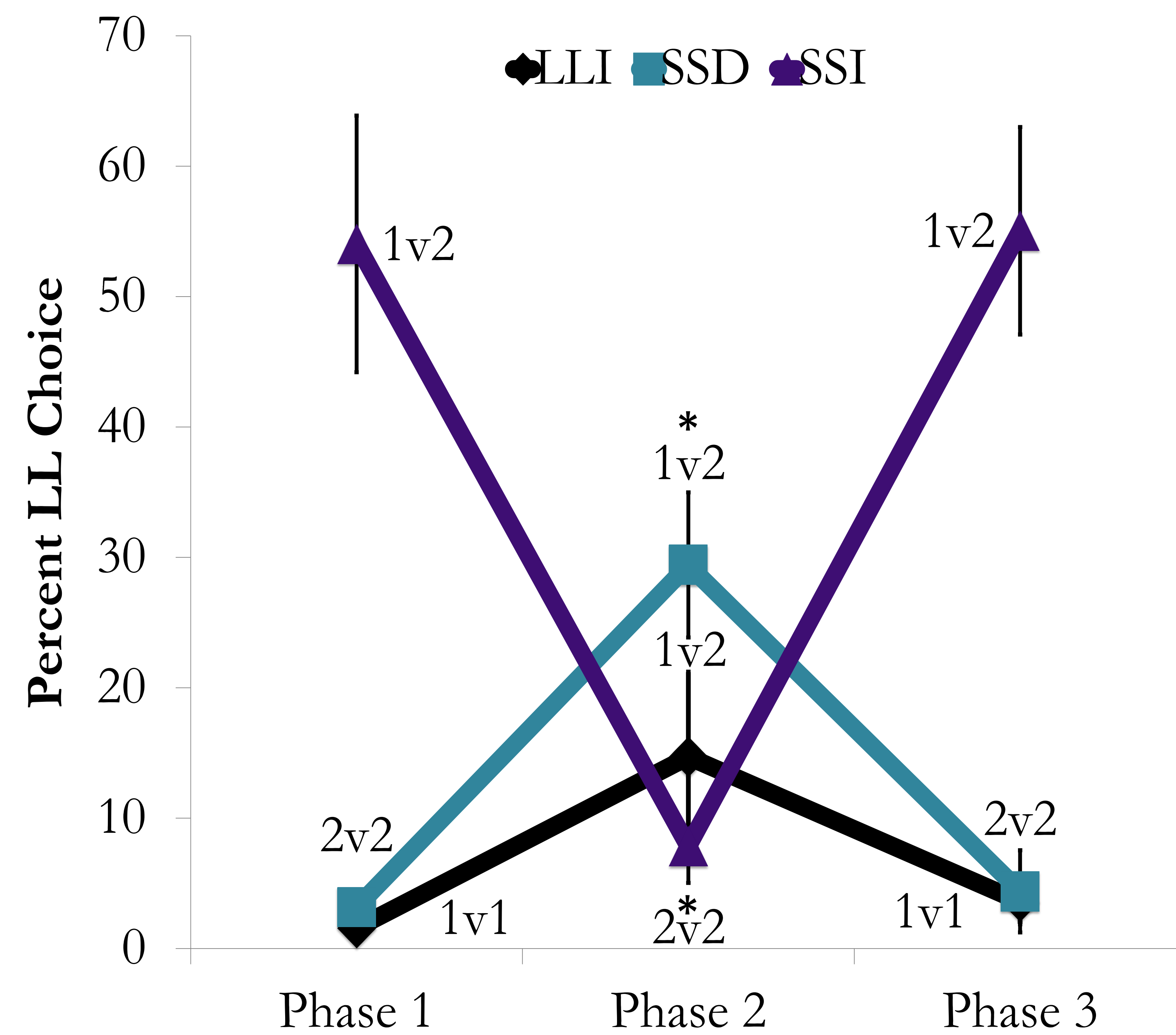
## Introduction

- Previous research has shown that reward magnitude changes affect timing behavior on both the temporal bisection task and peak procedure (Galtres & Kirkpatrick, 2009, 2010).
- Given that impulsive choice procedures often involve changes in reward magnitude coupled with delays to reward, it is possible that reward-timing interactions could affect choice behavior.
- The current experiment sought to assess the effects of reward magnitude increases and decreases in impulsive choice and timing behaviors.

## Method

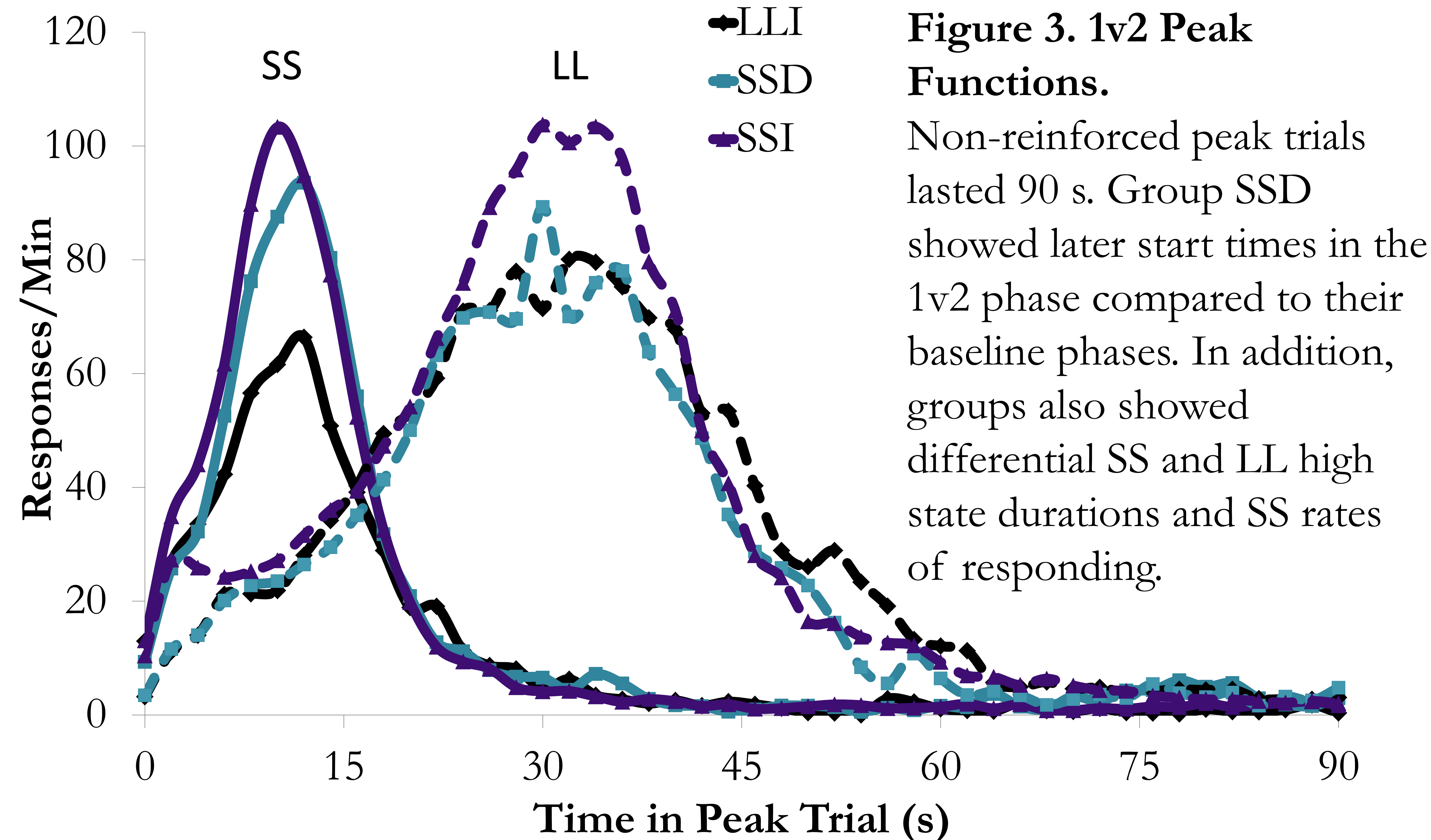
### Impulsive Choice SS vs. LL Magnitudes

Group	Phase 1	Phase 2	Phase 3
LL Increase (LLI)	1v1	1v2	1v1
SS Decrease (SSD)	2v2	1v2	2v2
SS Increase (SSI)	1v2	2v2	1v2



**Figures 1 and 2. Impulsive Choice Behavior.** The reward contrast manipulations produced significant effects on impulsive choice (left), but all groups did return to baseline choice levels in Phase 3. The group receiving the 1v2 magnitudes initially (SSI) showed elevated LL choices relative to Groups LLI and SSD (right), indicating that the reward contrast effects inhibited LL choices.

Reward contrast manipulations disclosed phase effects for all groups. Groups SSD and SSI groups displayed significant changes in choice behavior in Phase 2.



**Figure 3. 1v2 Peak Functions.** Non-reinforced peak trials lasted 90 s. Group SSD showed later start times in the 1v2 phase compared to their baseline phases. In addition, groups also showed differential SS and LL high state durations and SS rates of responding.

## Discussion

- The initial reward magnitude conditions, coupled with the nature of the reward contrast (LLI vs. SSD) produced effects on choice, timing and response rate measures (see also Galtres, Garcia, & Kirkpatrick, 2012).
- Provides implications for future research as initial testing parameters may permanently bias behavior.
- The results also indicate that reward-timing interactions may contribute to impulsive choice.

## References

Galtres, T., & Kirkpatrick, K. (2009). Reward value effects on timing in the peak procedure. *Learning and Motivation, 40*, 109-131.  
 Galtres, T., & Kirkpatrick, K. (2010). Reward magnitude effects on temporal discrimination. *Learning and Motivation, 41*, 108-124.  
 Galtres, T., Garcia, A., & Kirkpatrick, K. (2012). Individual differences in impulsive choice and timing in rats. *Journal of the Experimental Analysis of Behavior, 98*, 65-87.  
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