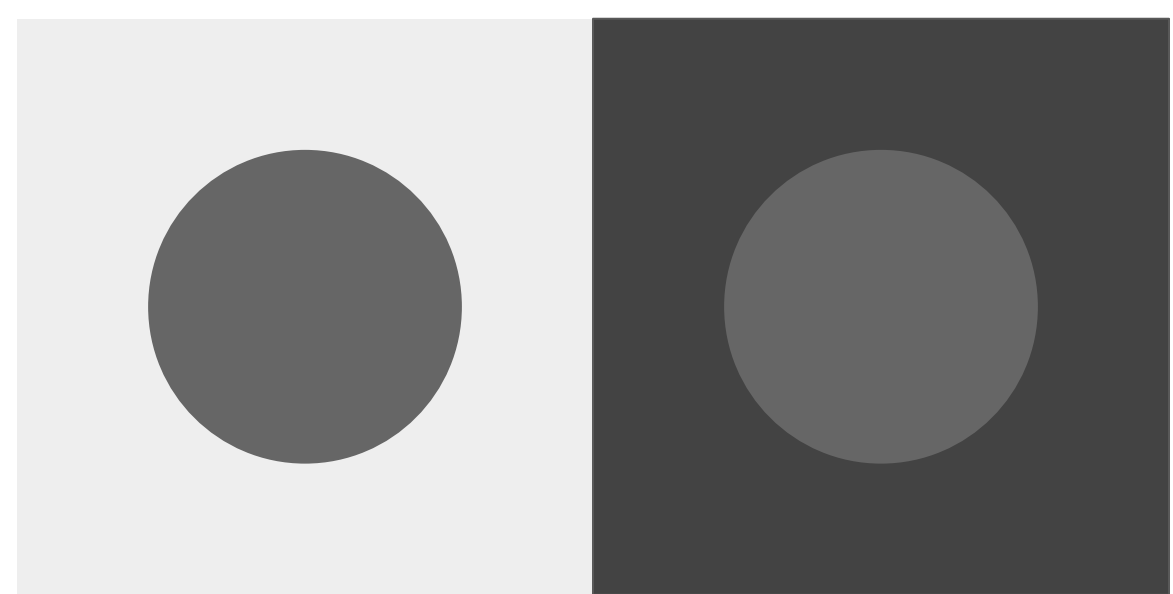


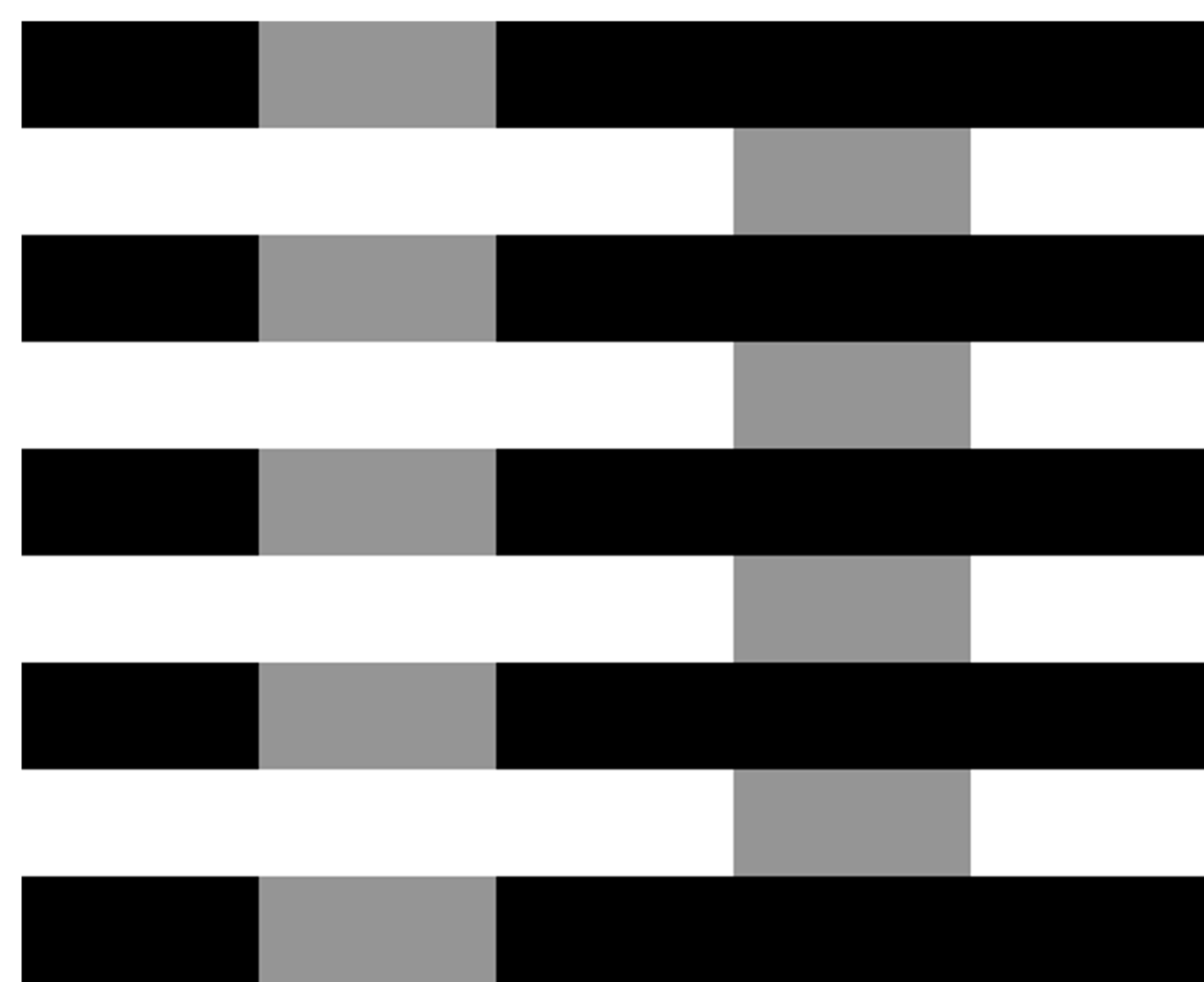
Introduction

Recent evidence suggests that rapid motor responses are based on local contrast and not on perceived brightness (1). Authors used stimuli similar to the classical **Simultaneous Contrast Illusion**.



Note that in this illusion perceived brightness and local contrast have the same direction.

We studied priming in the context of **White's Illusion** (2), in which perceived brightness and local contrast have the opposite direction.



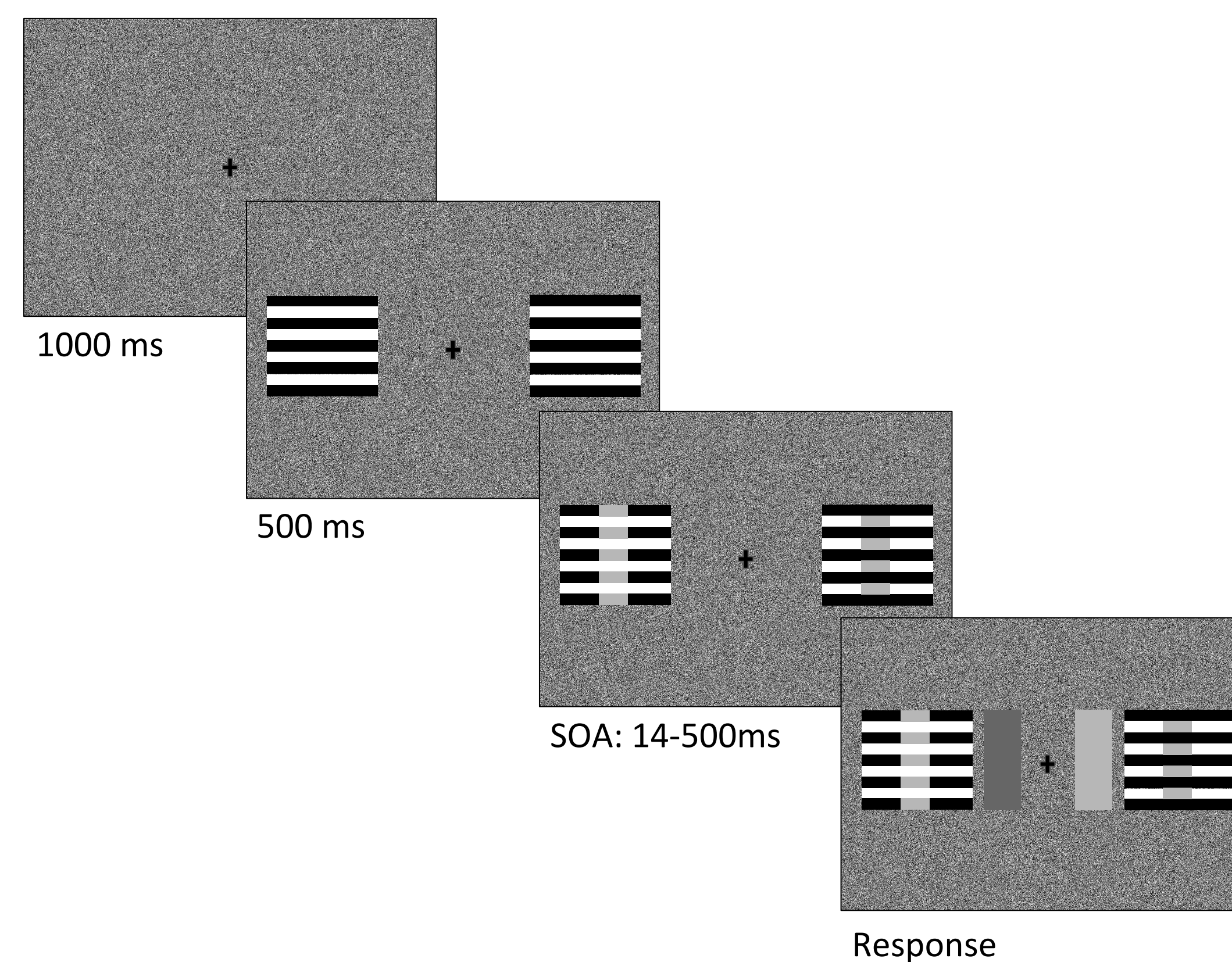
Experiment 1

White's Illusion was used to manipulate the perceived brightness of primes, while participants responded to targets presented at the center of the display.

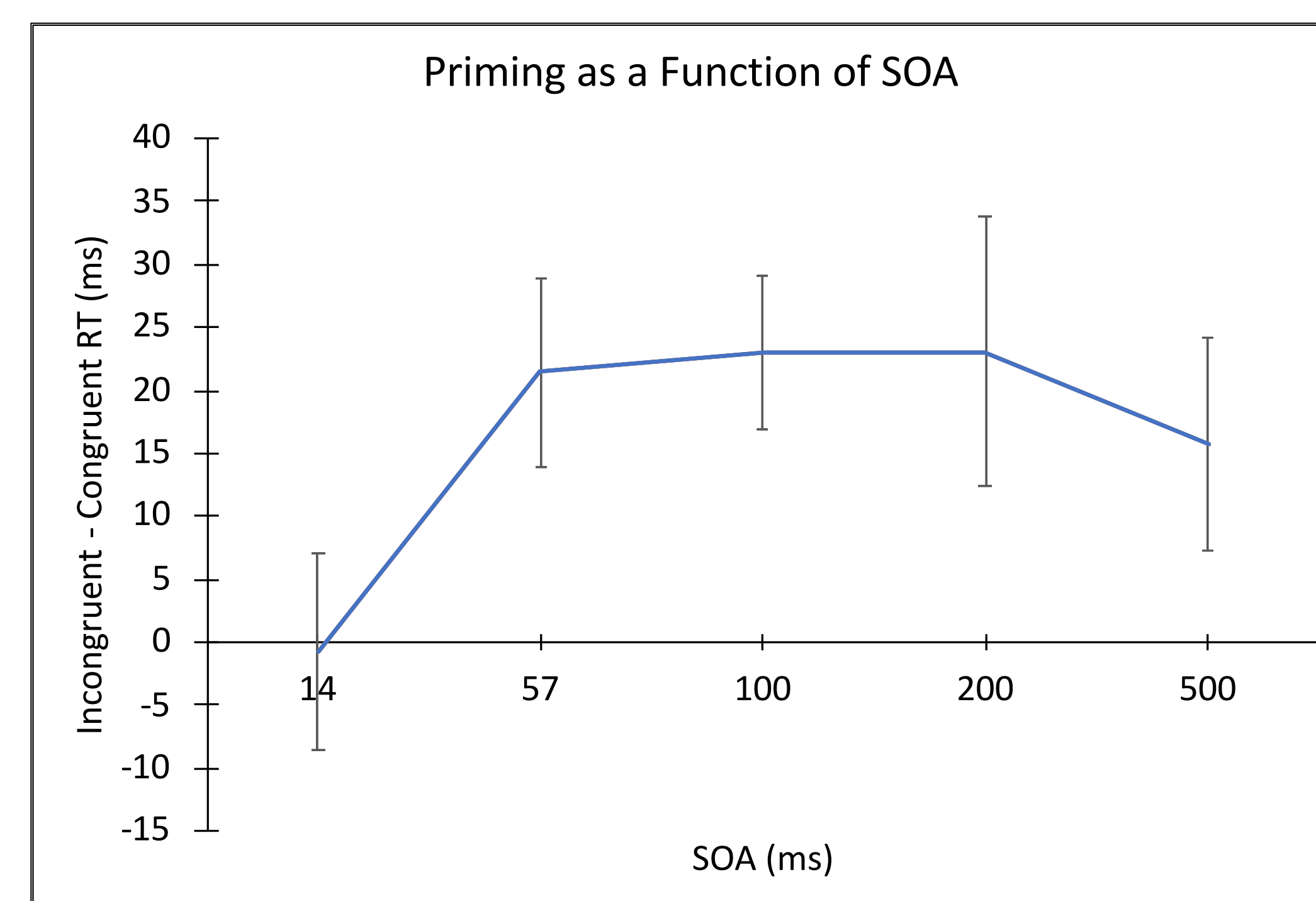
Method

In a separate experiment we used a double staircase procedure to estimate the brightness of primes. These values were then used as the target values.

Participants made speeded responses to targets that appeared after primes at different stimulus onset asynchronies (SOAs).



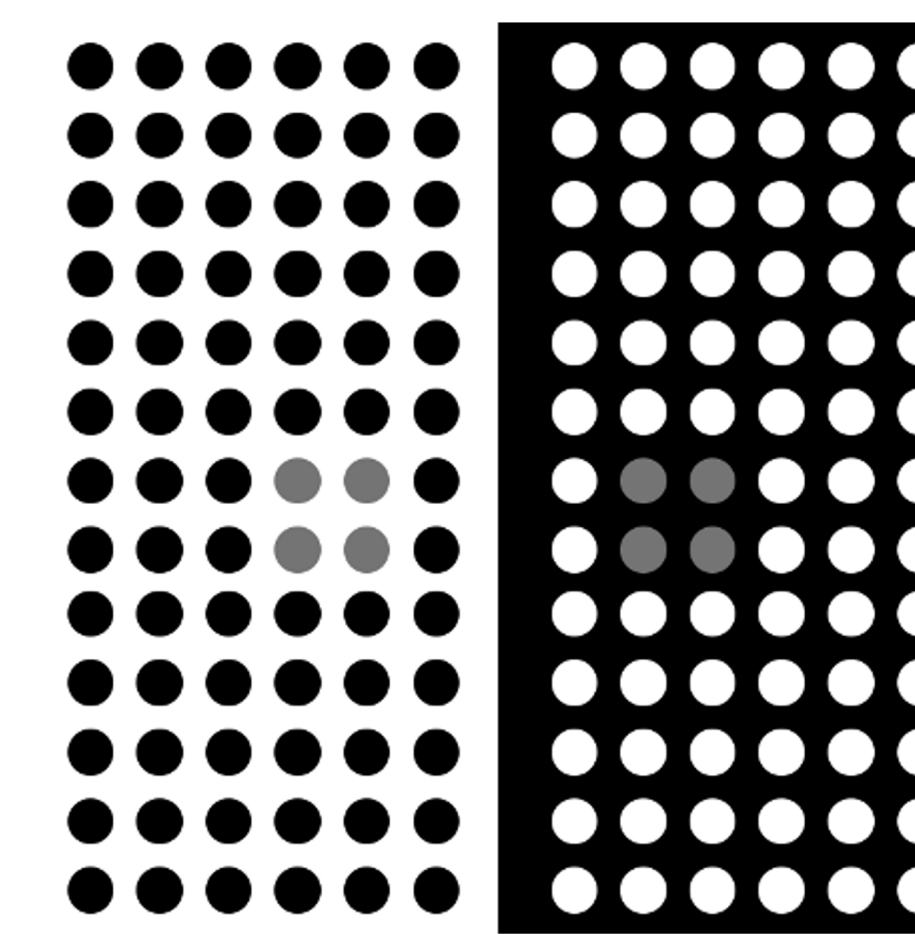
Results



ANOVA revealed a main effect of congruency ($p = .001$) and SOA ($p < .001$). Because congruency assignment was based on perceived brightness these results demonstrate that priming is based on perception, not local contrast.

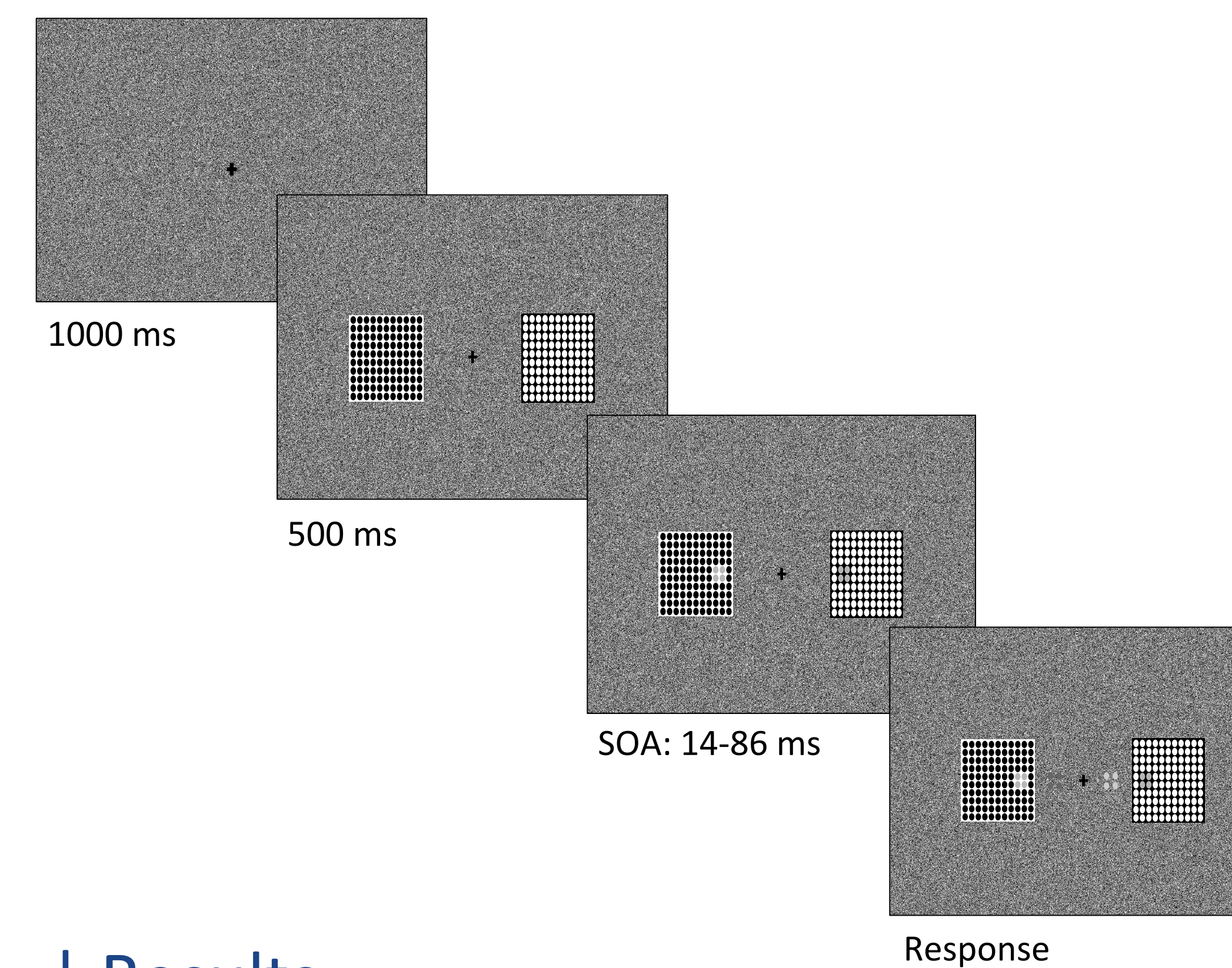
Experiment 2

In White's illusion, total local contrast is determined by a weighted contribution of positive and negative contrast. We tested response priming with a **Modified White's Illusion** (2) in which local contrast is uniform.



Method

Participants made speeded responses to targets that appeared after primes at different SOAs.



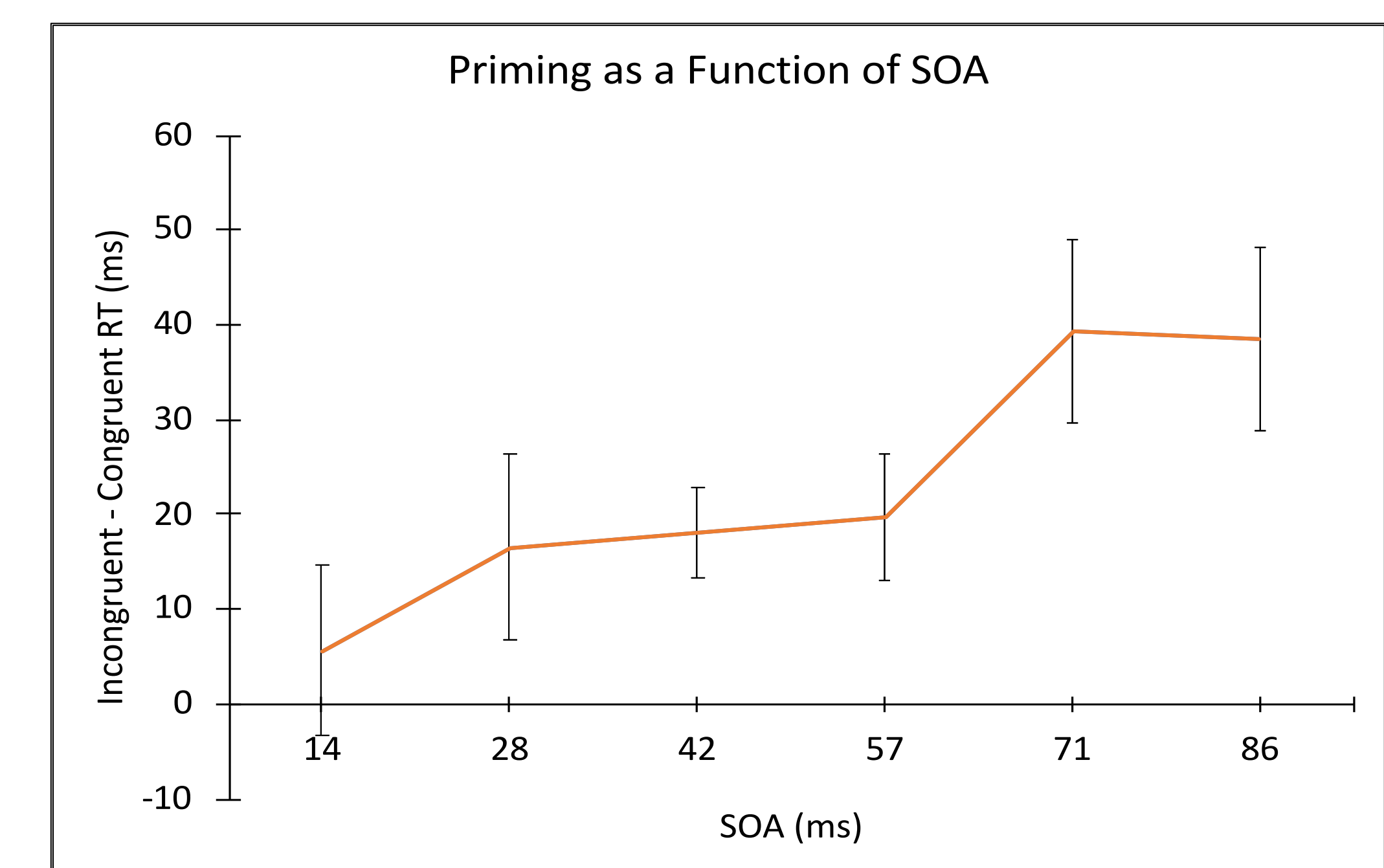
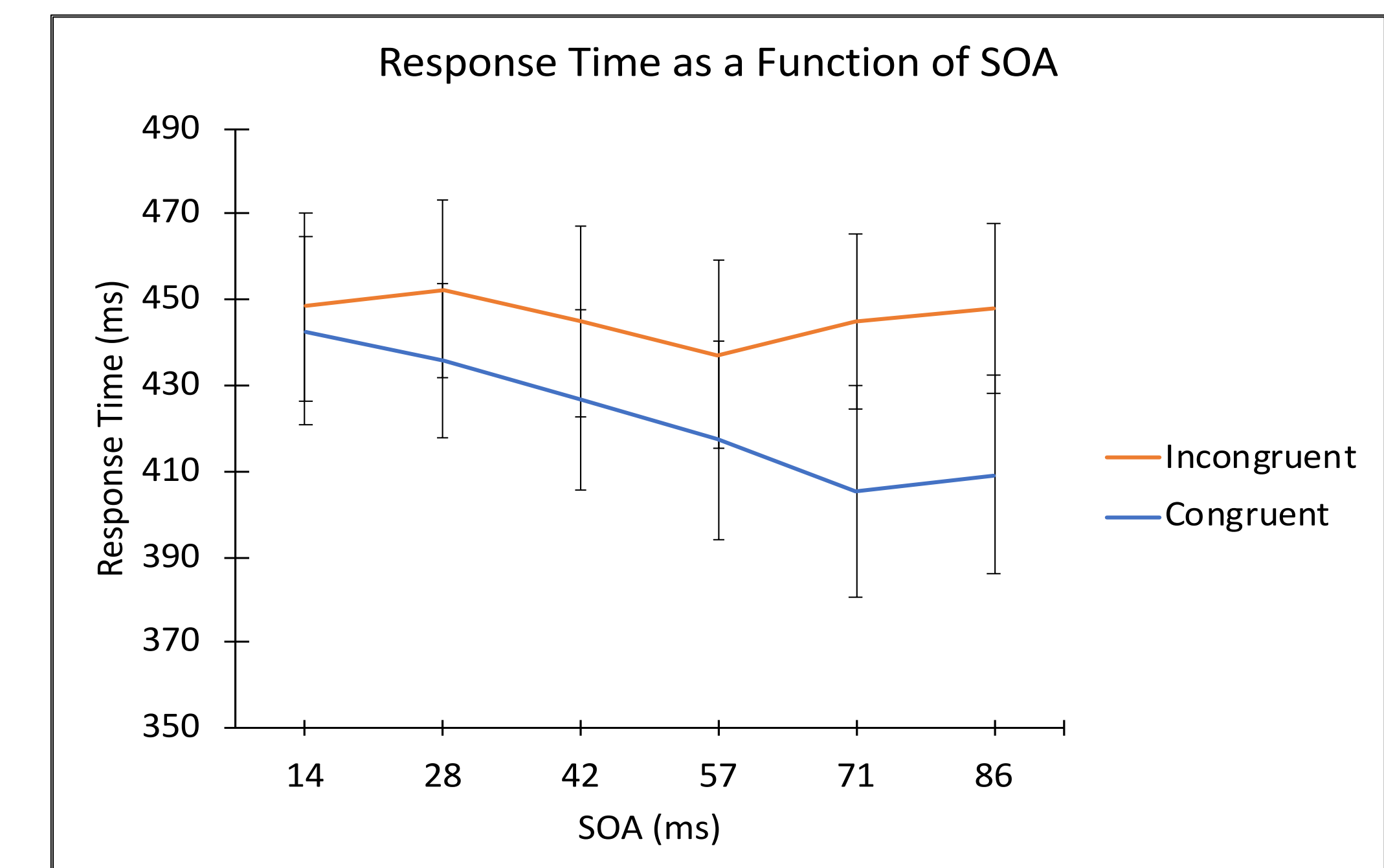
Results

ANOVA revealed a main effect of congruency ($p = .002$), SOA ($p < .001$) as well as significant congruency x SOA interaction ($p = .025$). Priming effects increased with longer SOAs.

References

- Schmidt, T., Miksch, S., Bulganin, L., Jäger, F., Lossin, F., Jochum, J., & Kohl, P. (2010). Response priming driven by local contrast, not subjective brightness. *Attention, Perception, & Psychophysics*, 72(6), 1556–1568.
- White, Michael. (2010). The Early History of White's Illusion. *Colour: Design and Creativity*. 7. 1-7.

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Conclusions

Experiments 1 and 2 demonstrate that rapid response priming is driven by subjective brightness and not by the local contrast.

Discrepancies with previous study might be due to the methodology of estimation of perceived brightness.