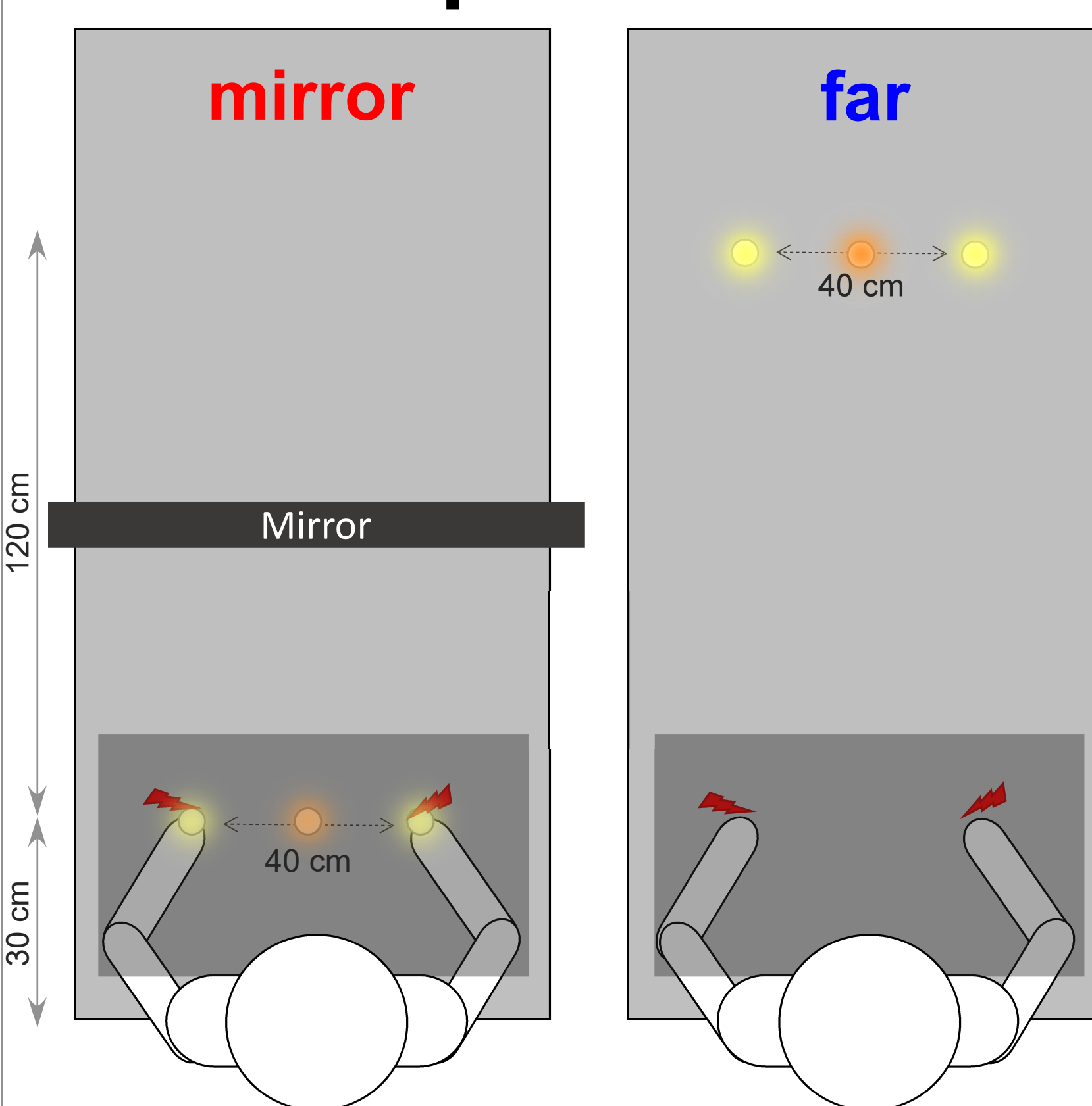


INTRODUCTION

The peripersonal space is a construction of a common, multisensory spatial representation of the body slightly extending its physical boundaries into external space, in which somatic and extra-somatic (e.g. visual) stimuli can interact. It has been previously demonstrated¹ that nociceptive stimuli applied to the hands can influence the perception of visual stimuli, provided that visual stimuli are delivered close to the hand on which the nociceptive stimuli are applied. This has been shown using a temporal judgement (TOJ) task during which participants judged which of the two lateralized visual stimuli was perceived as first, while left- and right-sided visual stimuli were preceded by a nociceptive stimulus applied on one of the hands. In the present studies, we investigated whether visuo-nociceptive interactions are determined by the mental representation of the peripersonal space. To this aim, we tested whether nociceptive stimuli can influence the perception of visual stimuli when those are indirectly seen as occurring near the stimulated hand as reflected in a mirror.

METHODS

Experiment 1



Experiment 1: 2 conditions

mirror: visual stimuli near participants' hands, only indirectly seen in a mirror

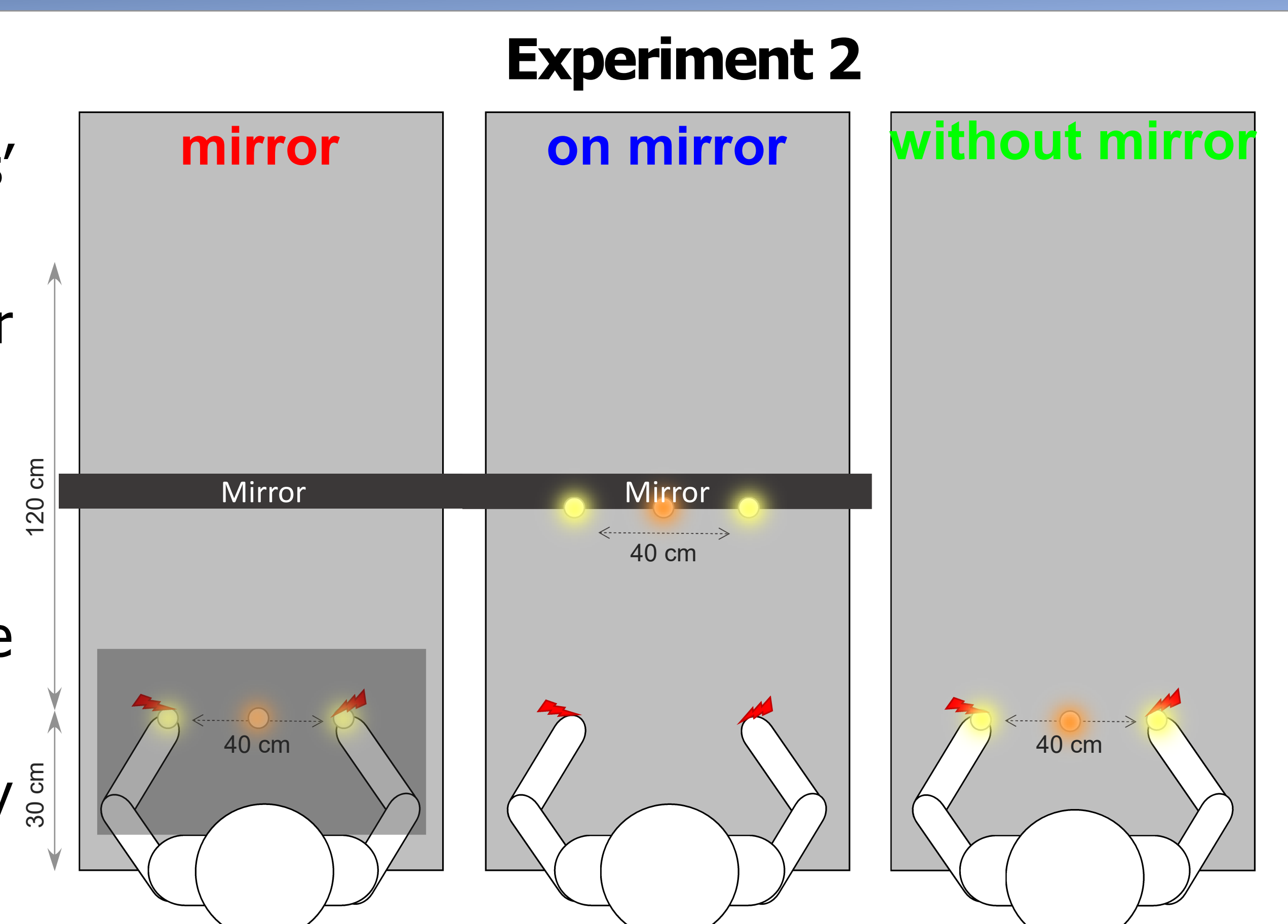
far: visual stimuli presented at a far distance from participants' hands

Experiment 2: 3 conditions

mirror: same as experiment 1

on mirror: visual stimuli taped on the mirror

without mirror: visual stimuli directly seen near the hands

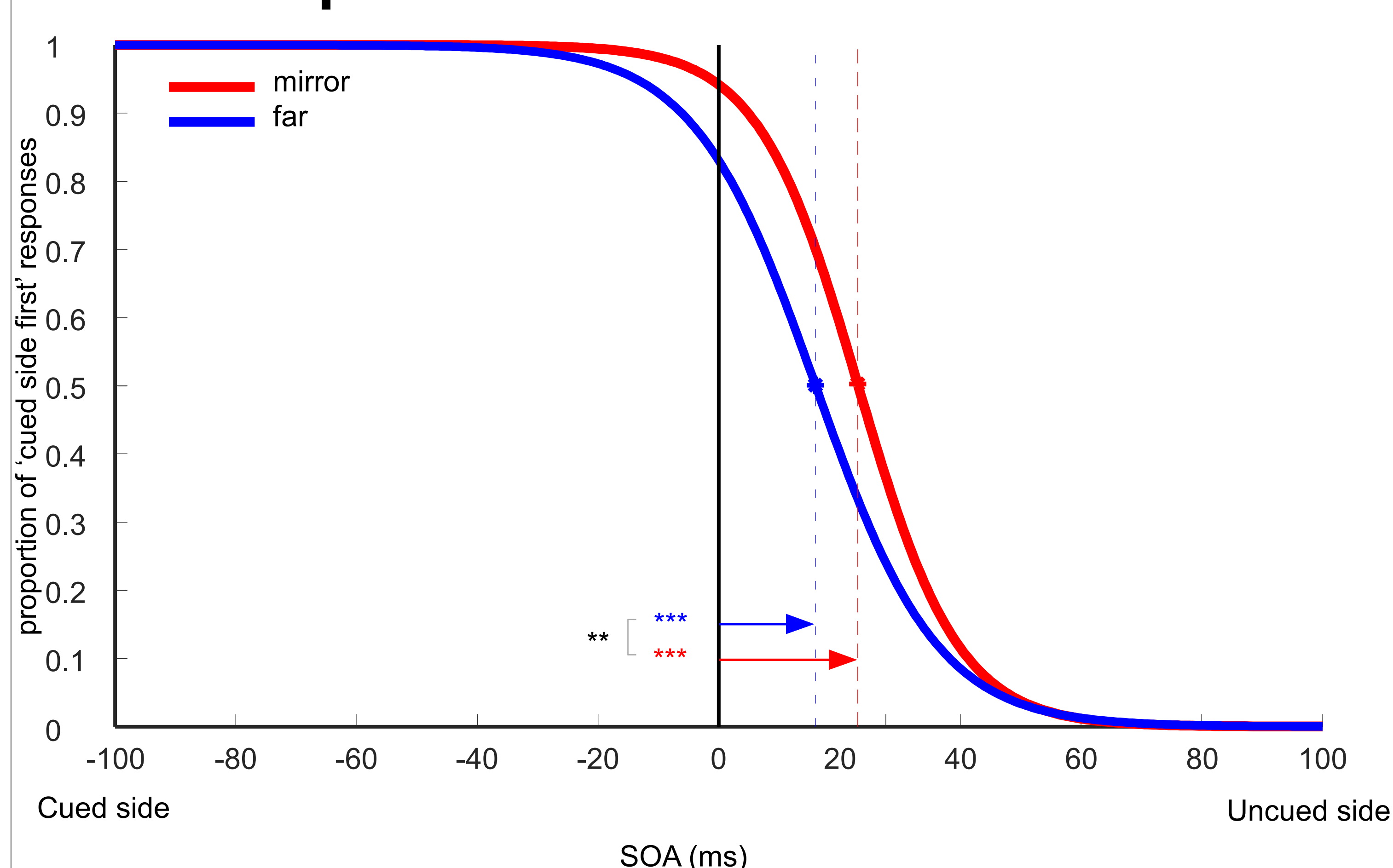


Experiment 2

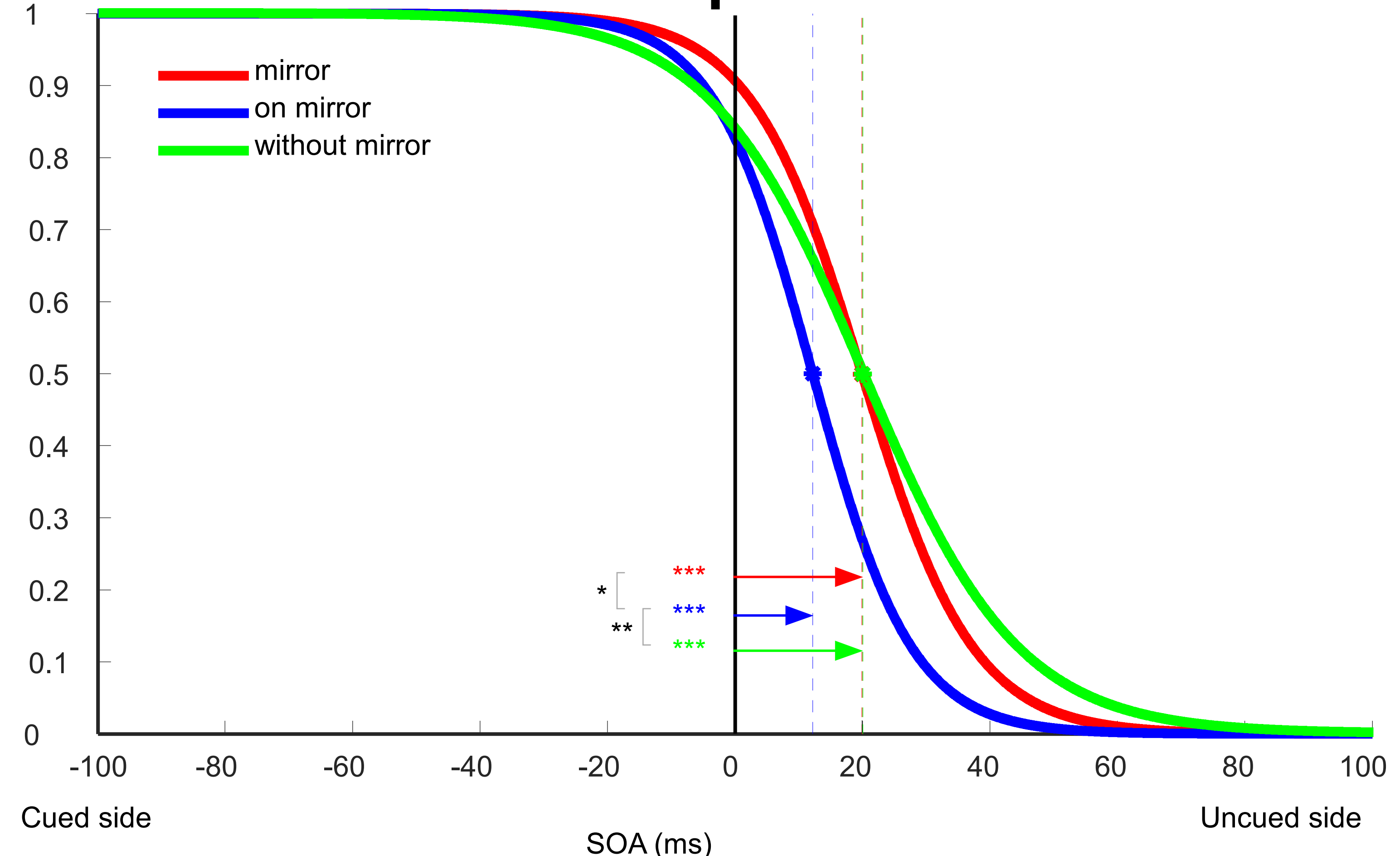
- **Stimuli**: visual stimuli delivered using LEDs in the left and right side of space, nociceptive stimuli on one of the hands' dorsa.
- **Procedure**: visual stimuli presented in either side of space with different stimulus-onset asynchronies (SOA) between them ranging from 5 to 200 ms, preceded by unilateral nociceptive stimuli. Participants judged which of the two visual stimuli they perceived first.
- **Measure**: point of subjective simultaneity (PSS), characterizing the spatial bias by estimating the amount of time at which the visual stimulus presented at the same side as the nociceptive stimulus ('cued side') has to follow the visual stimuli of the other side ('uncued') to be perceived as having occurred simultaneously.

RESULTS

Experiment 1



Experiment 2



CONCLUSION

The perception of visual stimuli presented at a far distance but seen reflected as near the hands was impacted by nociceptive stimuli applied to those hands similarly as that of visual stimuli directly seen near the hands. Visual-nociceptive interaction is thus determined by the mental representation of peripersonal space of the stimulated body limb, suggesting that location of visual stimuli, even when distantly projected, is recoded as proximal when reflected as near the body.