

Dogs' and infants' perception of causality in launching events

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Background

- Research suggests that infants from 6 months on can categorize launching events into causal and non-causal events^{1,2}
- Some evidence that dogs have basic expectations of contact causality in launching events³

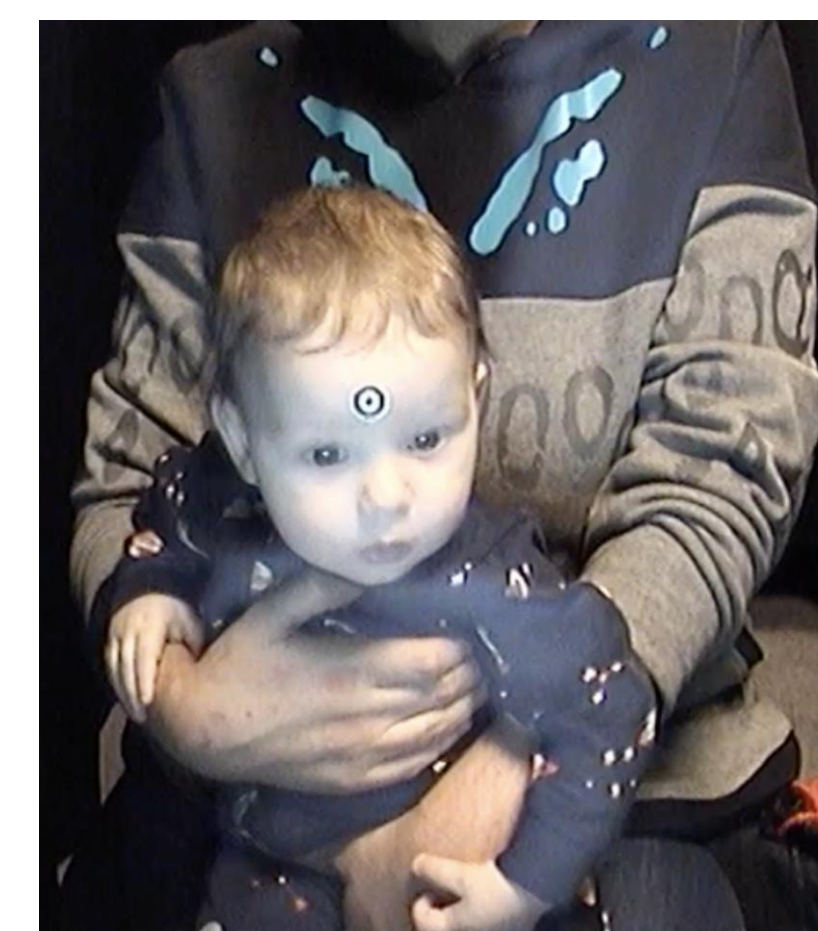
Methods

Research question

- Are dogs and 6–7-month-old infants sensitive to spatial and temporal contiguity in launching events?



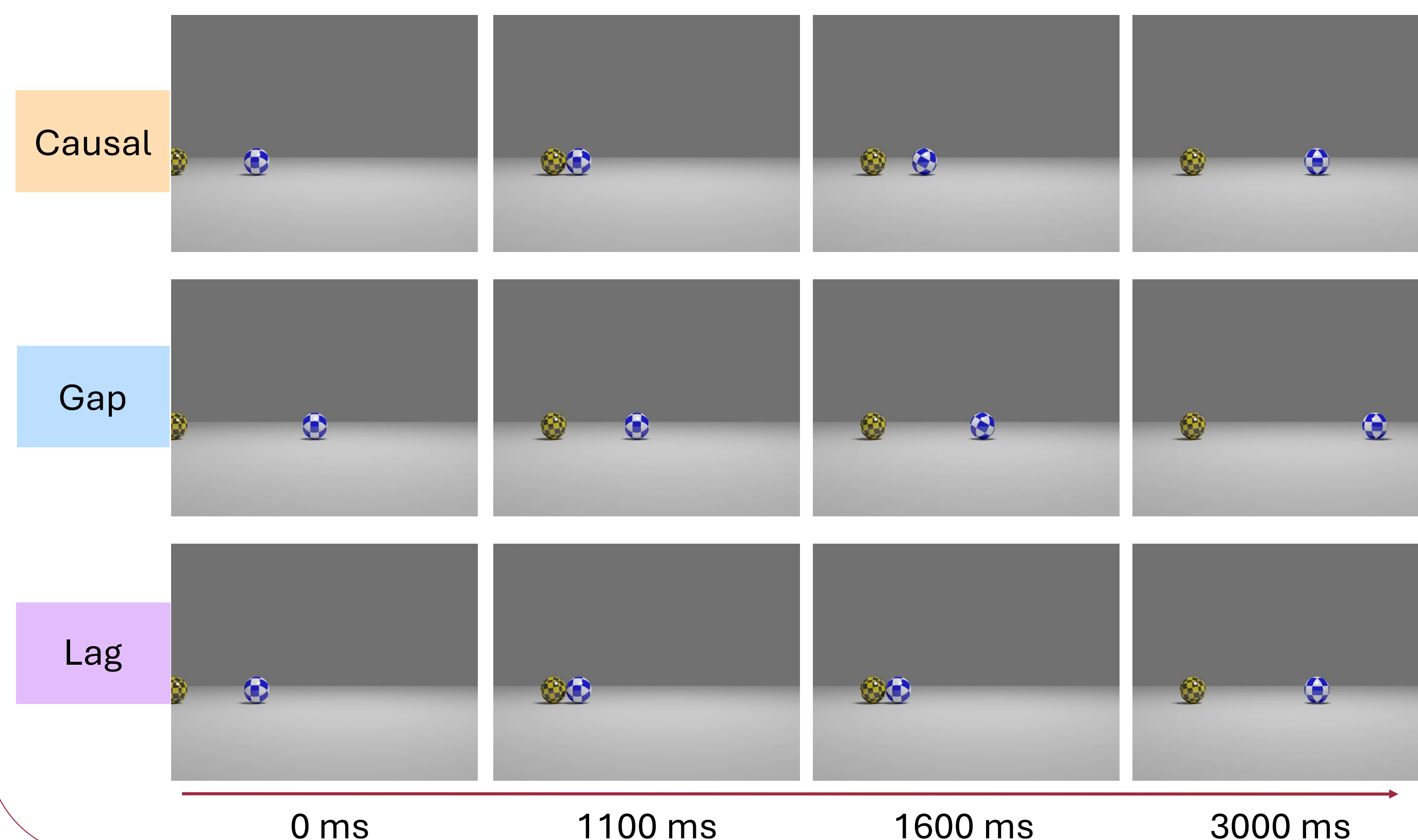
Chinrest set-up for eye-tracking with dogs at the Clever Dog Lab, Vetmeduni Vienna



Infant participant during an eye-tracking study at the KiKo lab, CEU

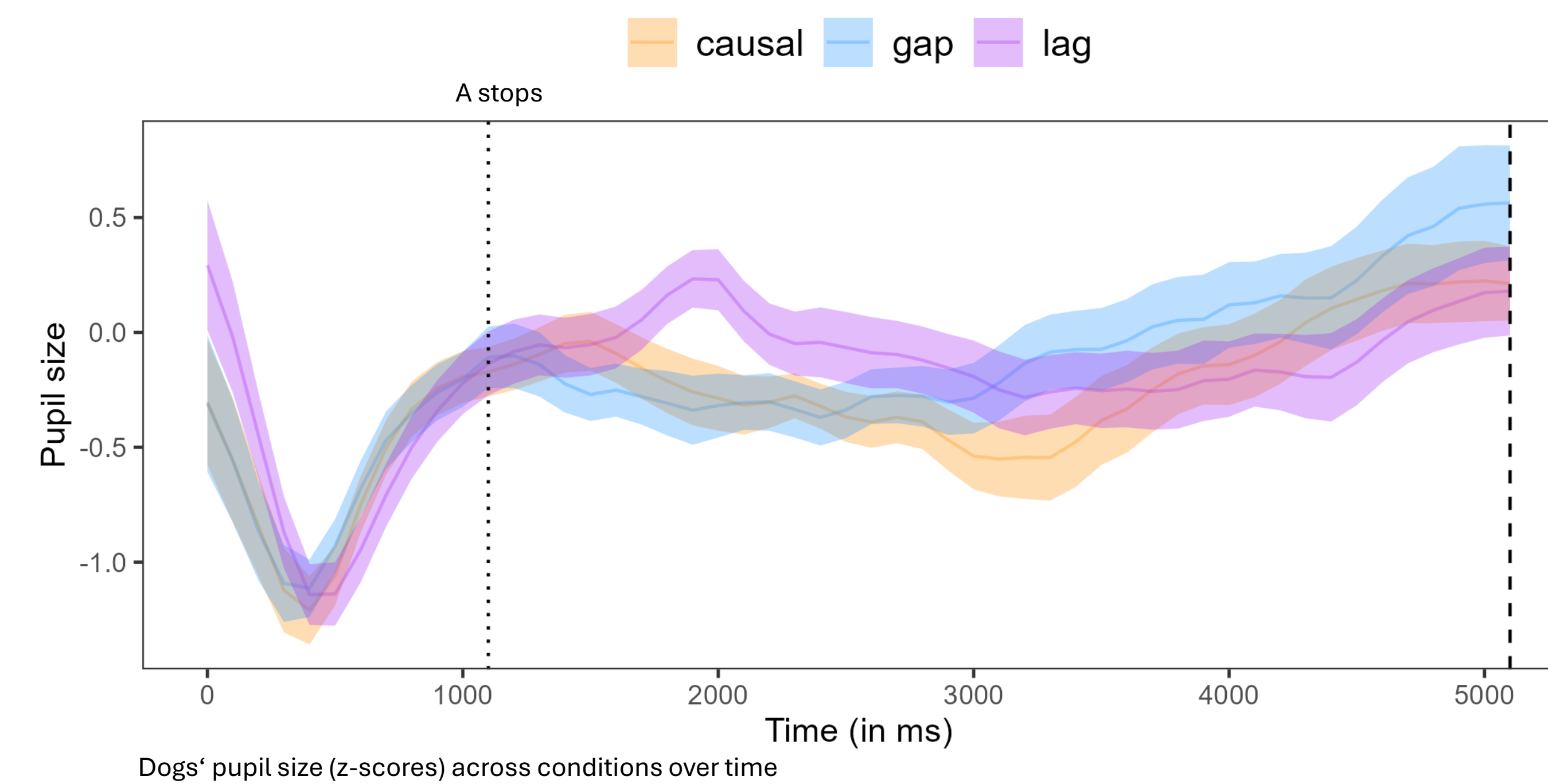
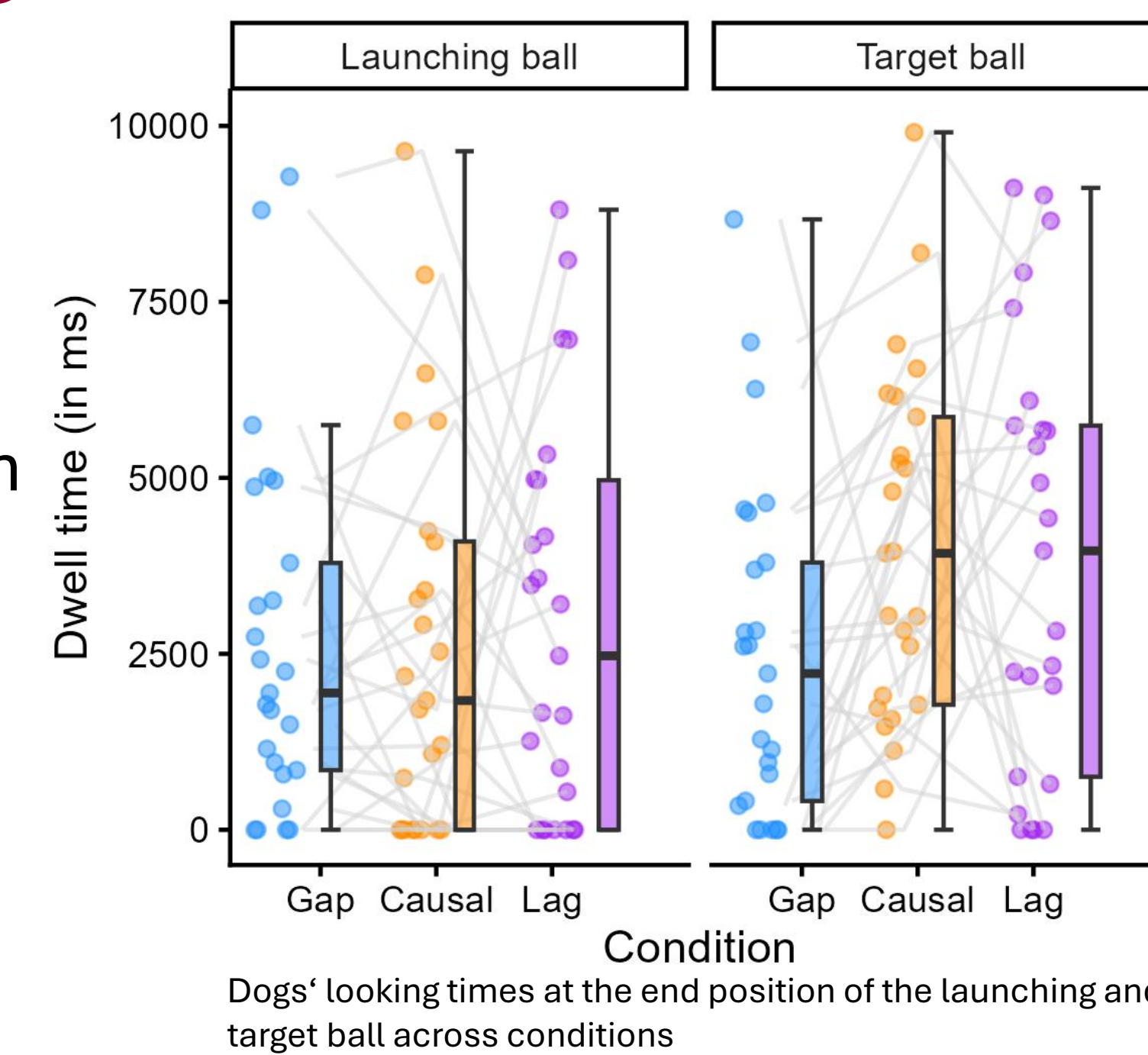
Measures

- Baseline-corrected and preprocessed **pupil size** during the interest period: stop of ball A + 4s (1100ms to 5100ms)
- Looking times** at areas of interest around the balls in their final positions

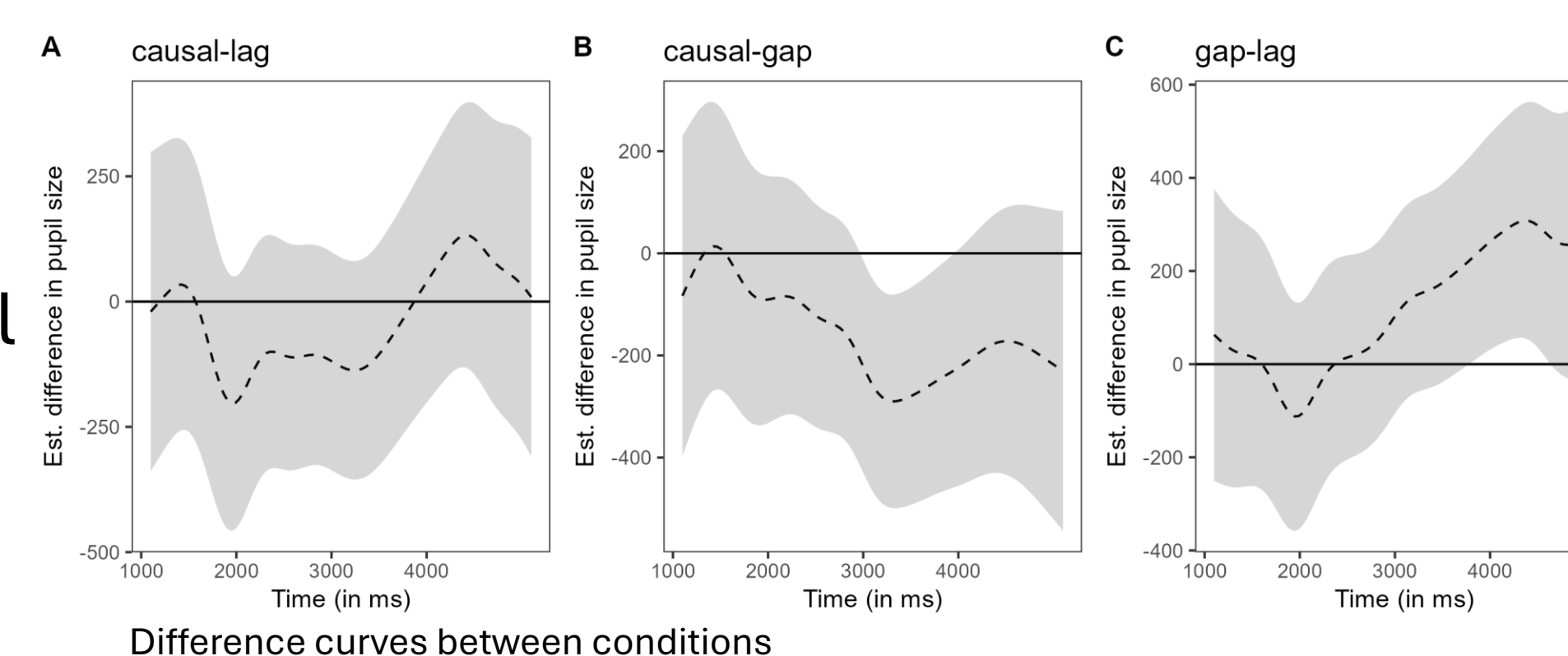


Dogs

- Pet dogs (N=27)
- Familiarization to single ball
- Overall effect of condition on pupil size (full-null, $p < 0.001$)
- Dogs looked less at the target ball in the gap condition

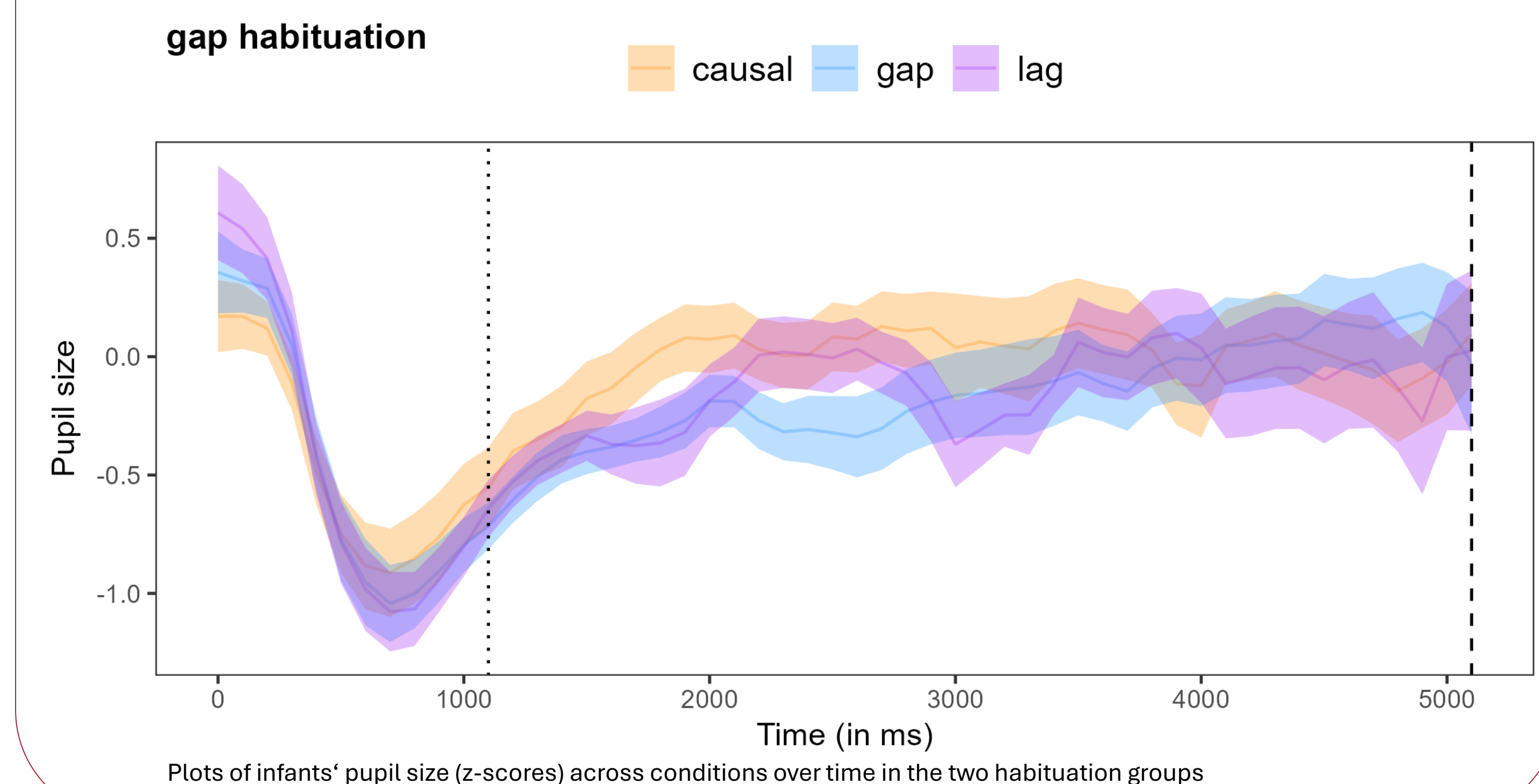
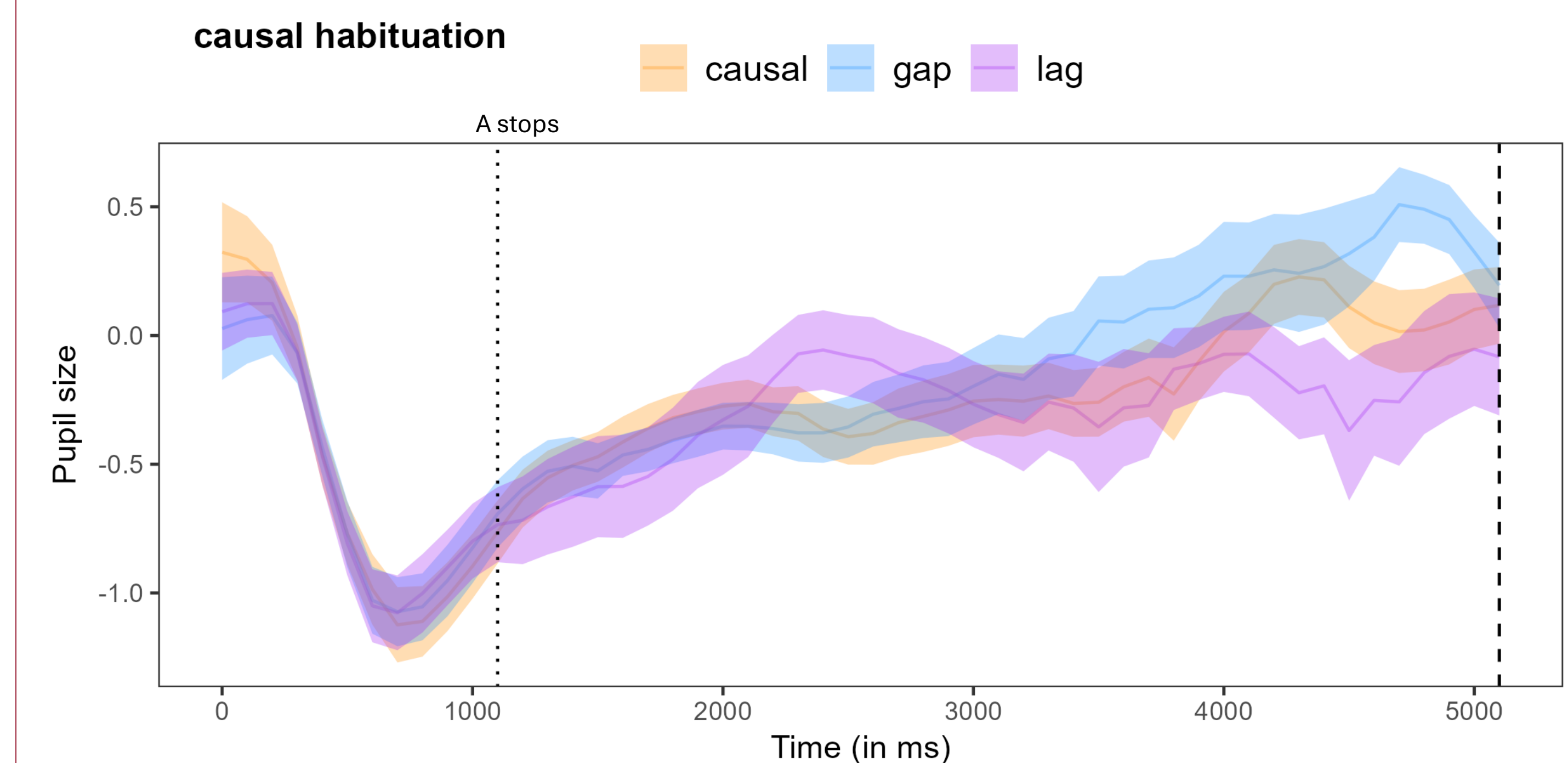


- Significantly larger pupils in gap than causal or lag condition (in parts of interest period)



Infants

- 6–7-month-old infants (N=48)
- Habituation to causal event or gap event
- No significant effect of condition on pupil size or looking times
- No interaction of habituation group and condition



Plots of infants' pupil size (z-scores) across conditions over time in the two habituation groups

Discussion

- Some evidence that dogs' pupils dilated more in response to the gap event, in line with previous findings³
- No replication of previous infant studies with launching events¹
- Some methodological difficulties with infants: opposing requirements for pupillometry and habituation in eyetracking

References

- Oakes L.M., Cohen L.B. (1990). Infant perception of a causal event. *Cognitive Development*, 5(2), 193–207.
- Leslie A.M. (1984). Spatiotemporal continuity and the perception of causality in infants. *Perception*, 13(3), 287–305.
- Völter C. & Huber L. (2021) Dogs' looking times and pupil dilation response reveal expectations about contact causality. *Biology Letters*, 17, 20210465. <http://doi.org/10.1098/rsbl.2021.0465>

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