

The Cues That Bind:

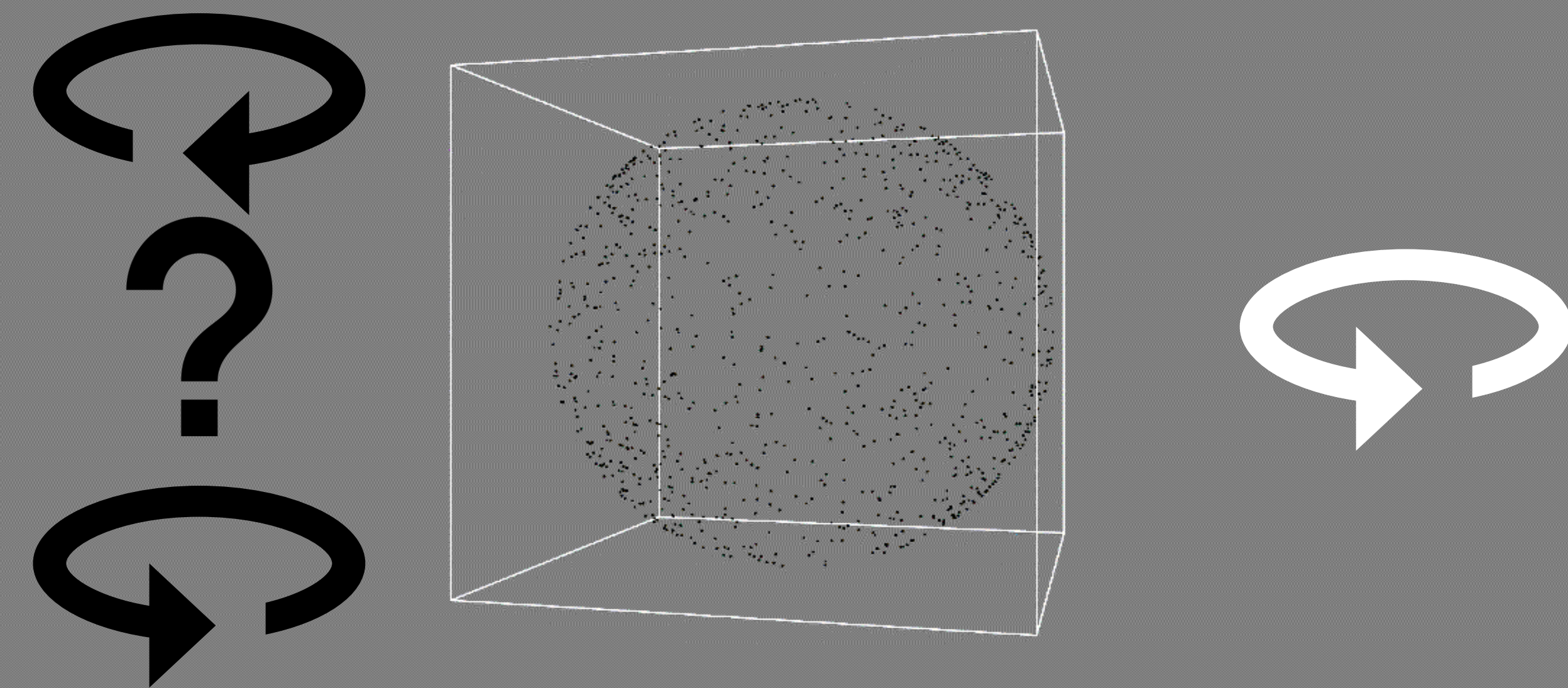
Examining Multiple-Object Motion Perception Through an Optical Illusion



JOSHUA E. ZOSKY¹, MARIAN E. BERRYHILL², SARAH M. HAIGH²,
LOGAN L. MILLER¹, MICHAEL D. DODD¹

1: UNIVERSITY OF NEBRASKA-LINCOLN

2: UNIVERSITY OF NEVADA, RENO



MAIN FINDING:

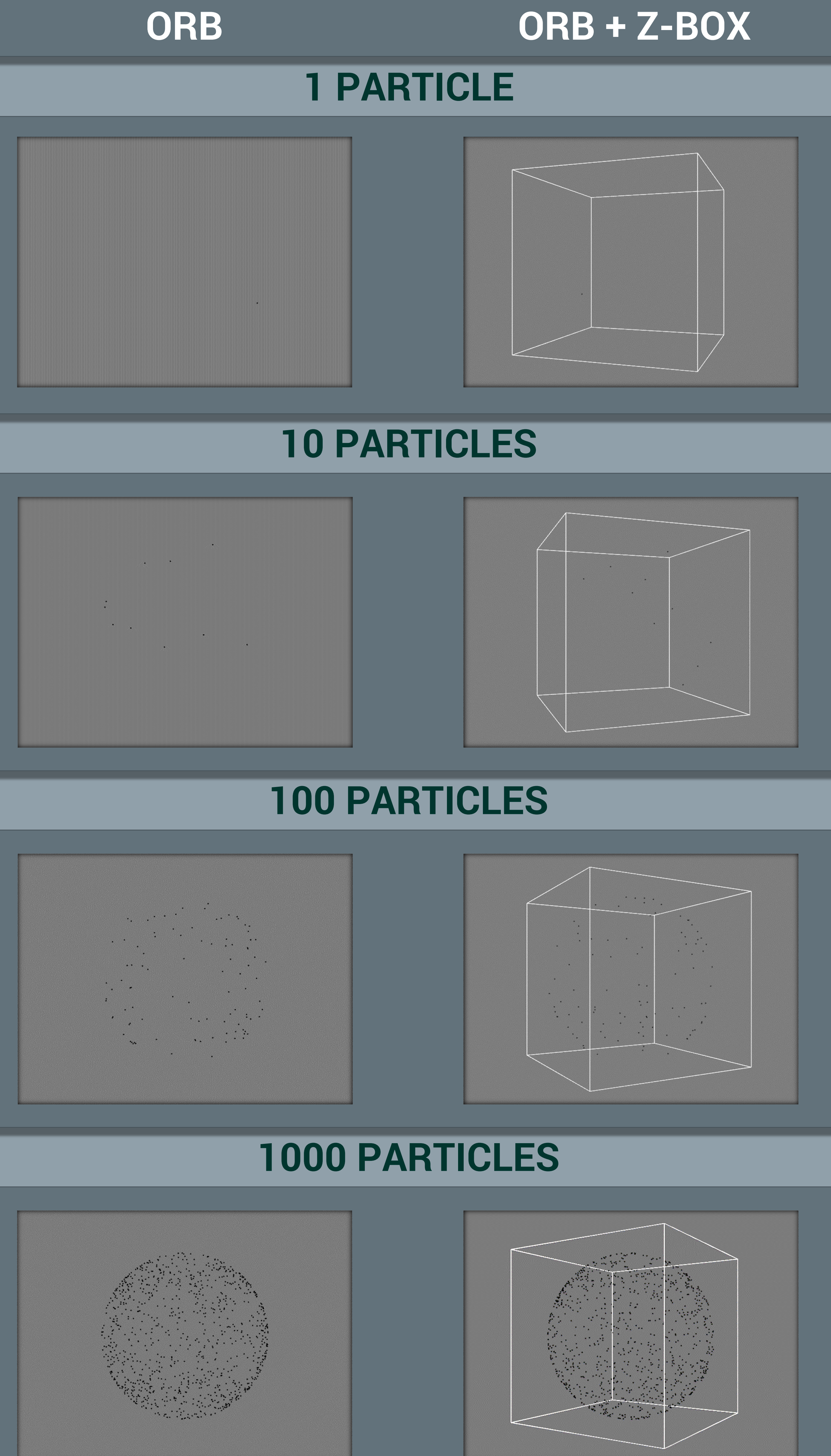
Perception of ambiguous motion is influenced by object complexity. While ambiguous motion binds to objects of greater structural integrity, increases in detail weaken the illusion.

Participants were asked to judge the direction of motion for a 3D particle sphere spinning left or right

- Orb alone & orb with 3D cube (Z-Box)
- Cube direction could have congruent motion with the orb or incongruent motion (50%-50% trials)

Hypothesis:
While the illusion of congruent motion is present for all viewers, it was expected that 1000 particles would provide enough complexity (depth cues, figure stability) to allow viewers to break the illusion of congruent motion in multiple objects.

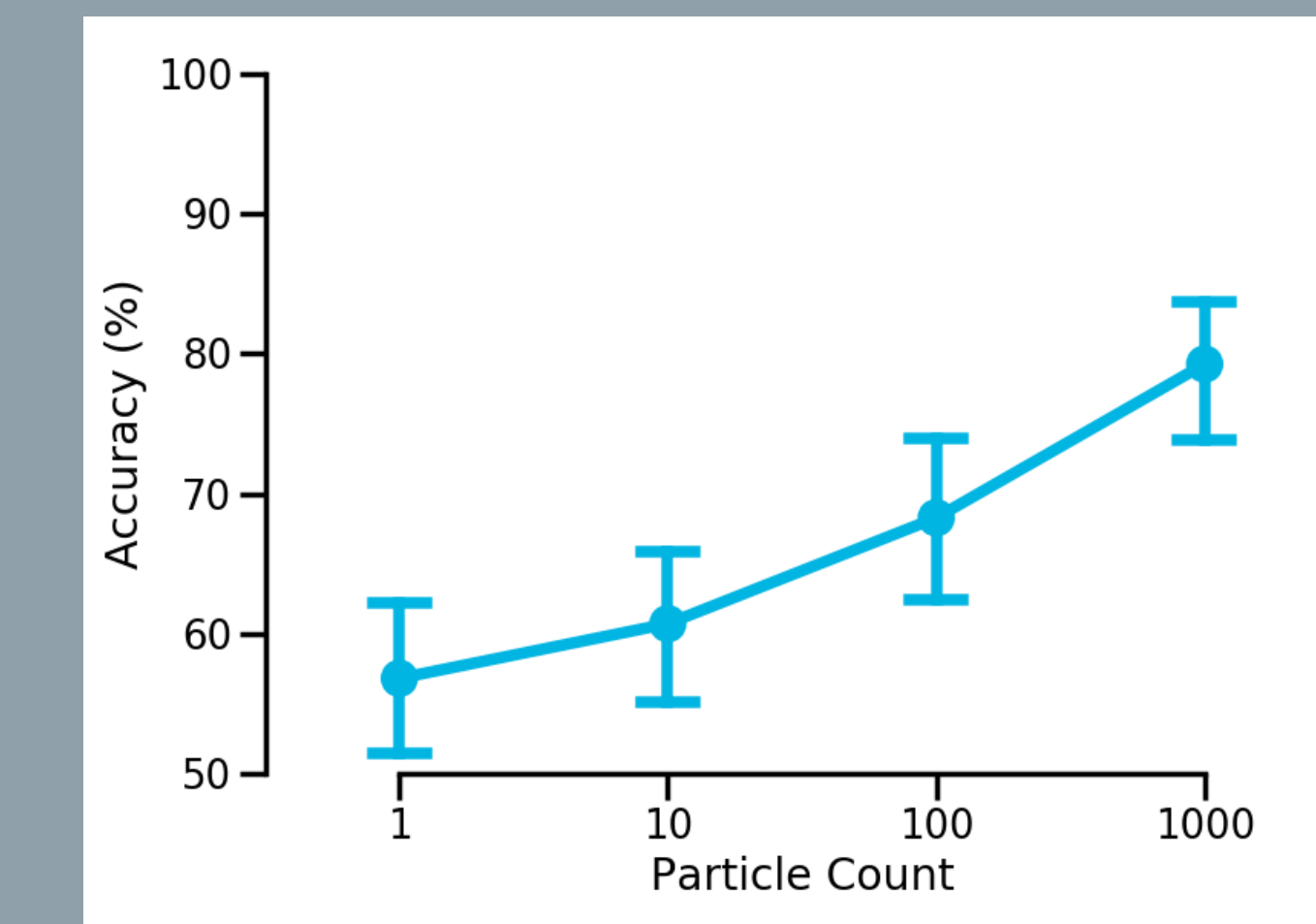
Email: joshua.e.zosky@gmail.com
Presentation Website: <https://imnotamember.github.io/Z-Box-Presentation/>
Supported by: NSF/EPSCoR grant #1632849 to MEB, SMH, MDD and colleagues
Dedicated to: Maura Sage McZosky 



Scan the QR code with your phone for a pdf copy of this poster, copies of demo videos, and more.

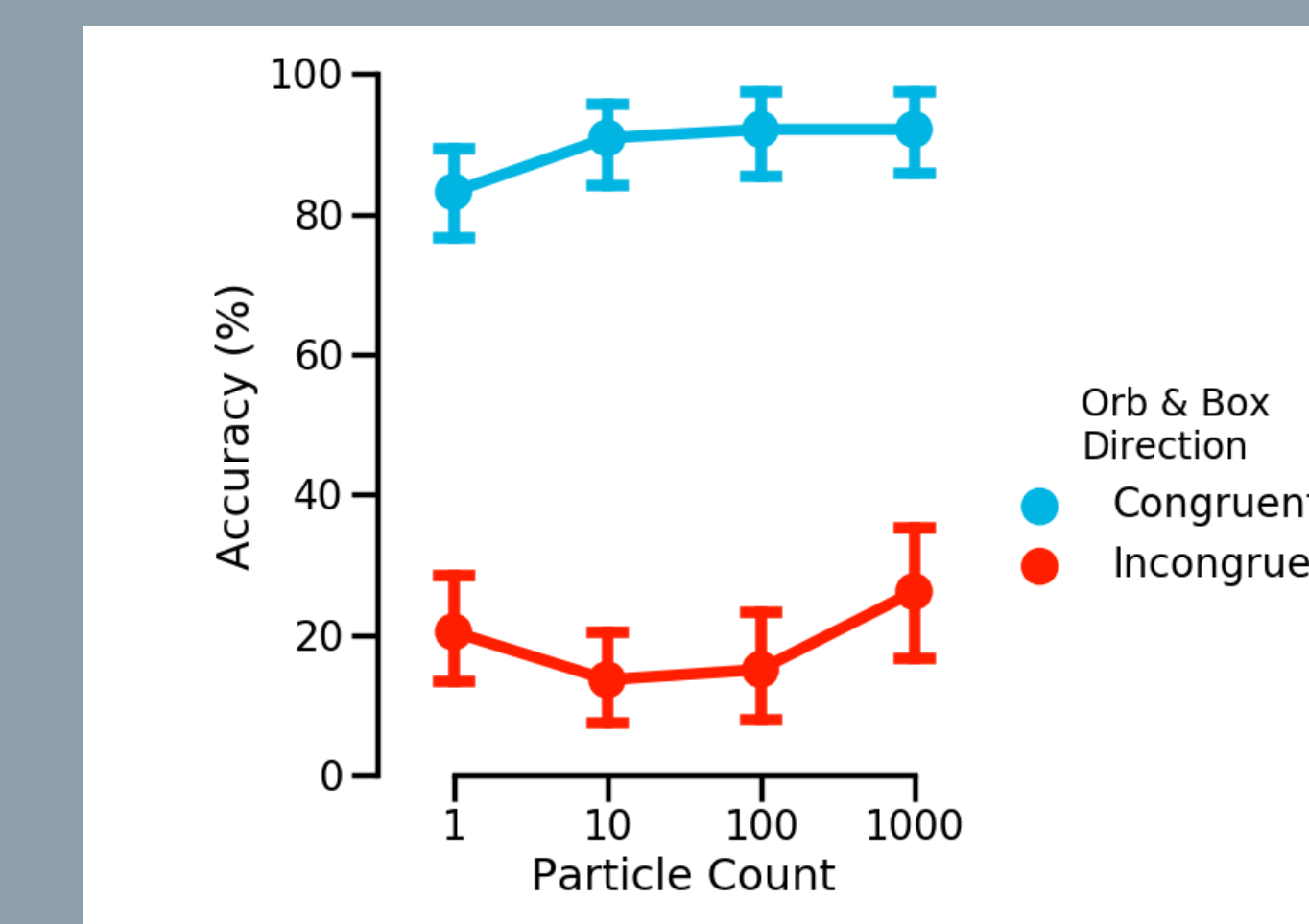


Responses to orb alone

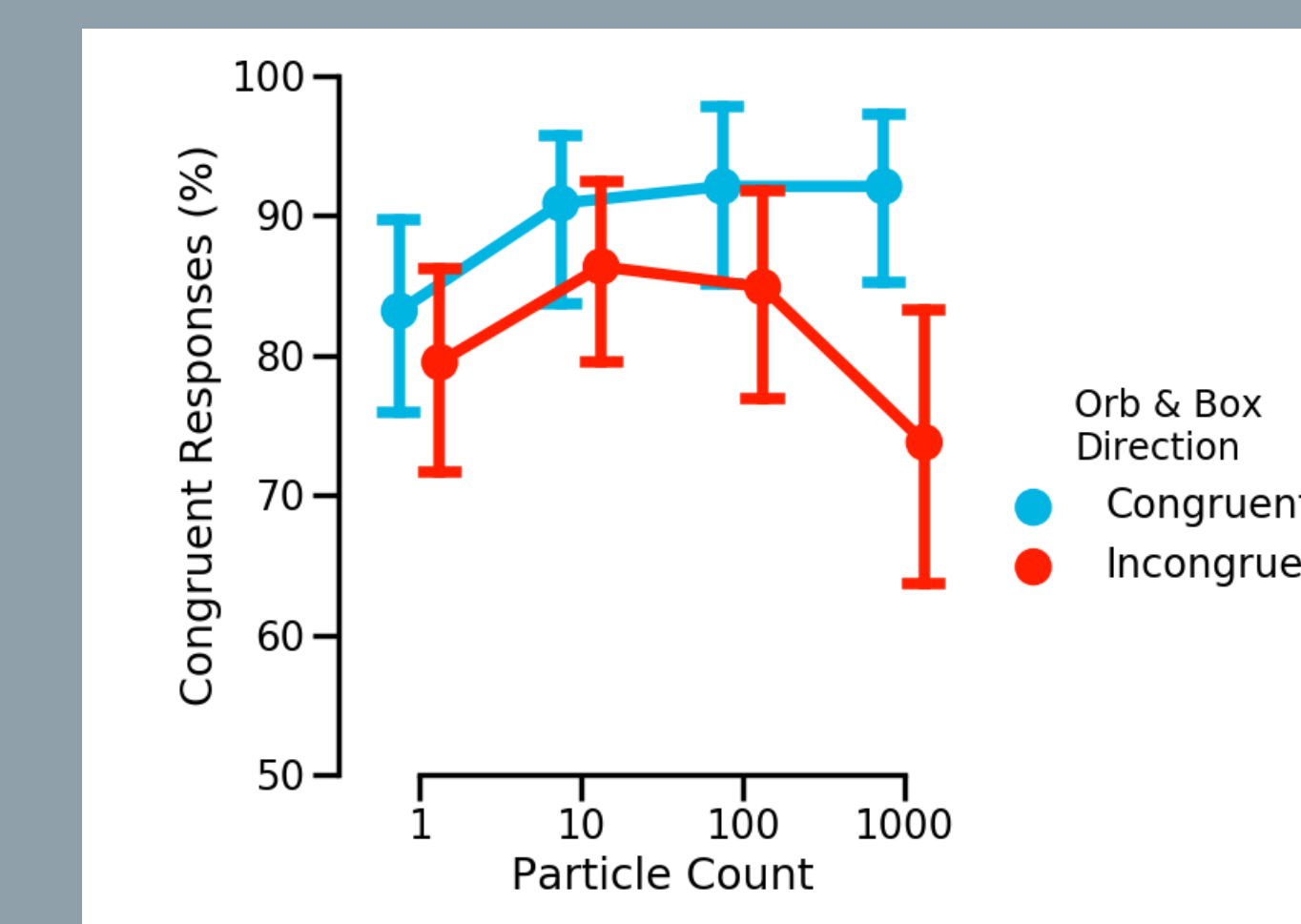


Participant Accuracy:
Accuracy increases steadily from chance levels for single particle trials to 80% for 1000 particle trials.

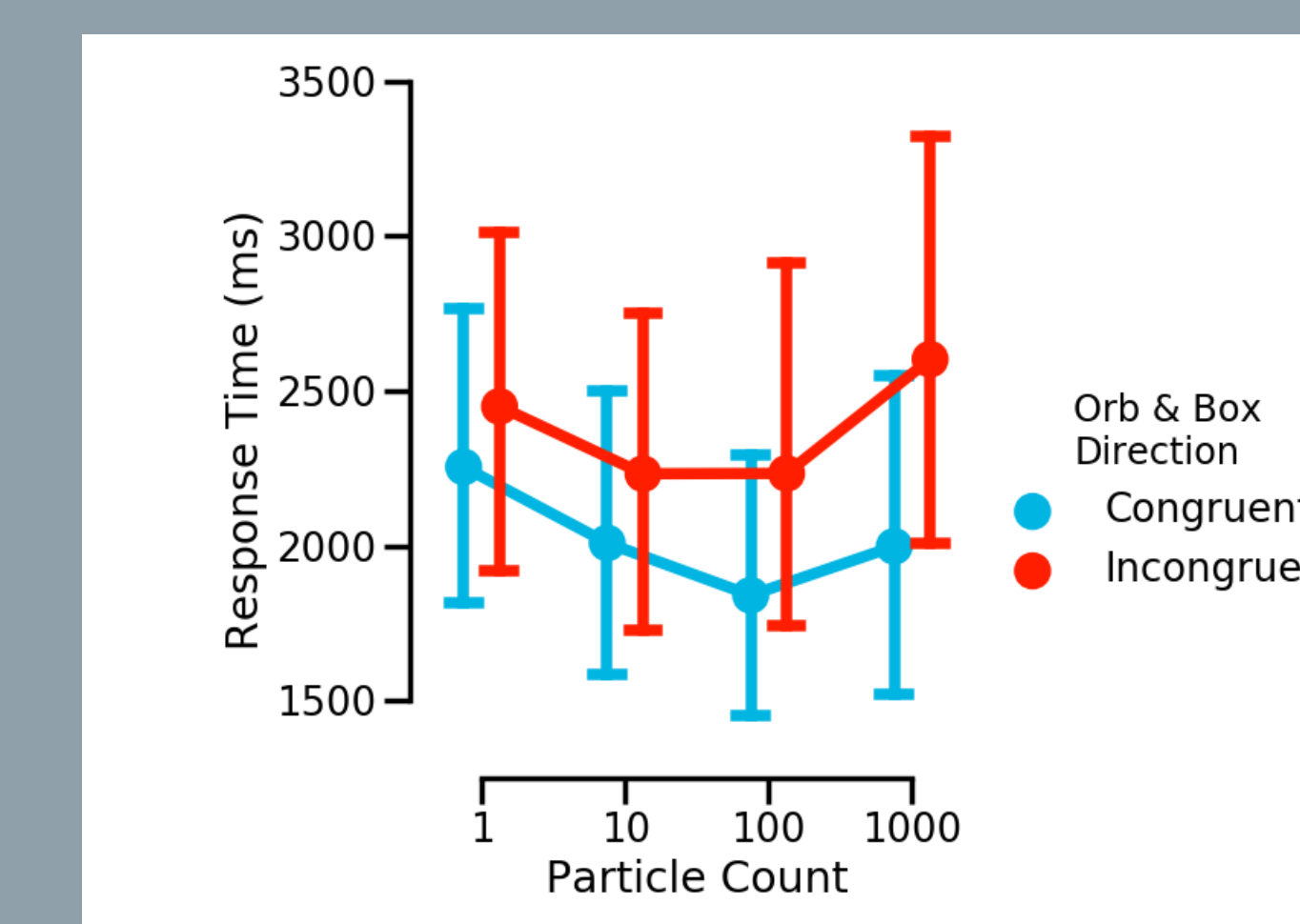
Responses to orb with 3D cube



Participant Accuracy:
Higher than orb alone with congruent motion, low when incongruent. At 1000 particles, accuracy begins to increase.



Congruency Responses:
Participants responded frequently that the objects direction is congruent. At 1000 particles, congruency responses decrease for incongruent object motion.



Response Time:
Lower for congruent object motion trials, highest for 1 and 1000 particles of incongruent motion.

Error bars = 95% Confidence Intervals