Summary statistics support spatiotemporal stability.

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How does the visual system parse continuous sensory input into updated representations while maintaining stable perception?

Background:
- The visual system represents overall statistical properties of ensembles along single dimensions.

![Diagram showing visual system representation](image)

- Theories of visual stability focus on anchoring perception to salient targets across saccades.

- The visual system can also capitalize on statistical regularities...

Experiments 1 & 2: Spatial Integration

**E1:** "Which dot is larger?"
- Retinotopic
- Spatiotopic
- Neither
- Baseline
- Monocular

**E2:**
- Mean judgment > Member ID
  - Adapting condition: BasL, BasR
  - Test condition: Retino, Spatio, Neither, Baseline

If ensemble statistics function to maintain stability, then mean size representations should transfer between multiple coordinates.

Experiments 3 & 4: Temporal Integration

3 half sequence durations of individual dots:
- 350 ms (50 ms per dot)
- 1400 ms (200 ms per dot)
- 3500 ms (500 ms per dot)

Small
- Trial start

Big
- 1st ½ different sizes (in random order)
- 2nd ½ same sizes (in random order)

1st ½ not integrated:
- No illusion

1st ½ integrated Illusion

Mean size is encoded in multiple spatiotemporal windows to facilitate visual stability.

SUMMARY:
- Mean size is encoded in multiple spatial frames of reference.
- Representations accrue at different temporal scales.
- Representations persist across saccades at multiple levels of the visual hierarchy.
- These persistent statistics across saccades anchor perception.
- Future work: Further investigation of temporal windows with statically presented displays viewed for various durations.

Mean size is encoded in multiple spatiotemporal windows across saccades.