

## What is Aphantasia?

- Aphantasia is the absence of visual imagery. Individuals with aphantasia report having a “blind mind’s eye”.
- Event representations constructed during autobiographical memory and future prospection are thought to rely heavily on visual imagery.
- Our research investigated the effect of individual differences in imagery on the ability to remember past events and imagine future events.

## S1: Self-Reports

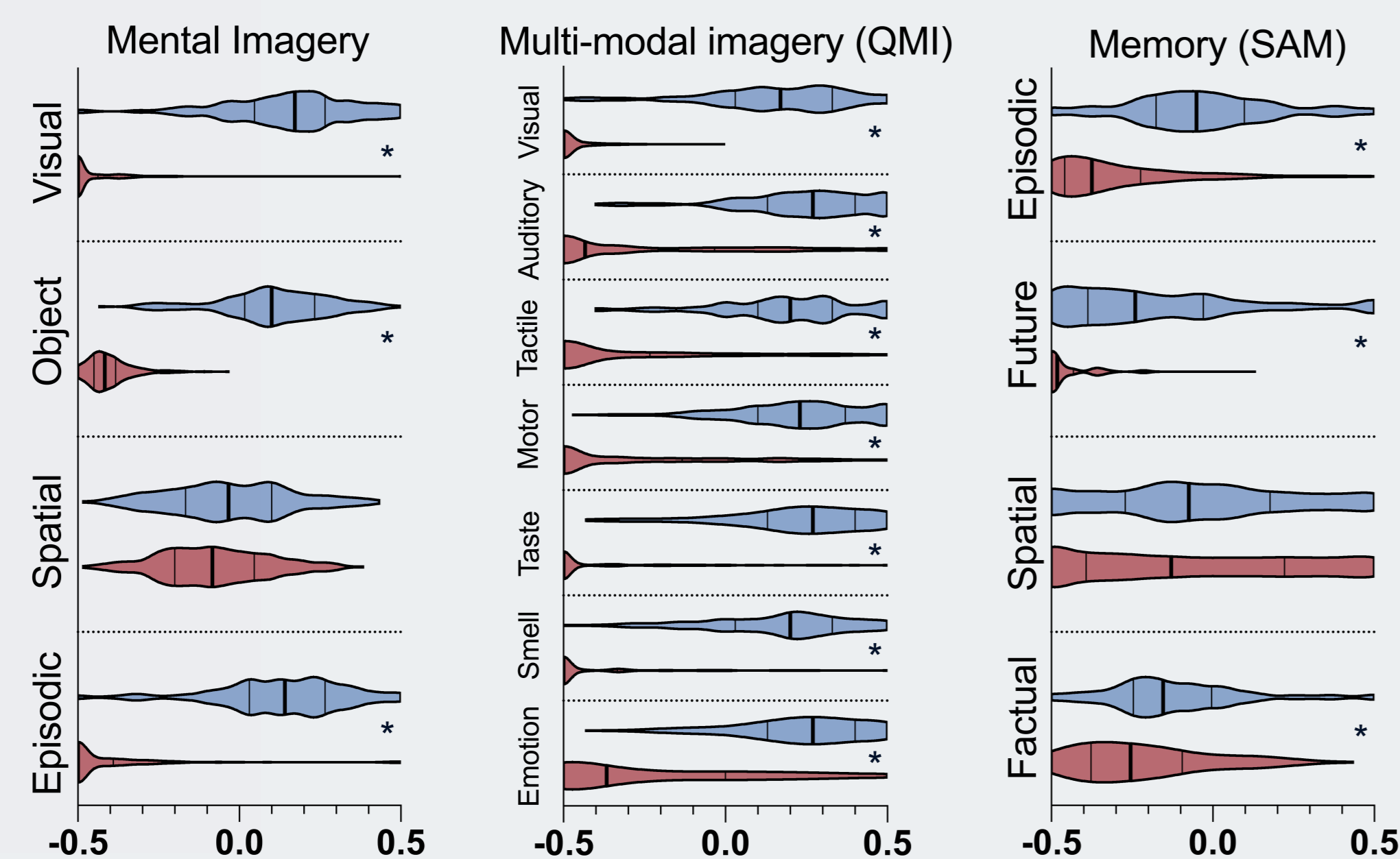
- In **Study 1**, we administered a series of online scales measuring self-reported imagery (VVIQ, OSIQ, EMIQ, QMI) and memory ability (SAM) to **267** participants with self-described aphantasia, and **203** participants with normal imagery.

## S2: Episodic Construction

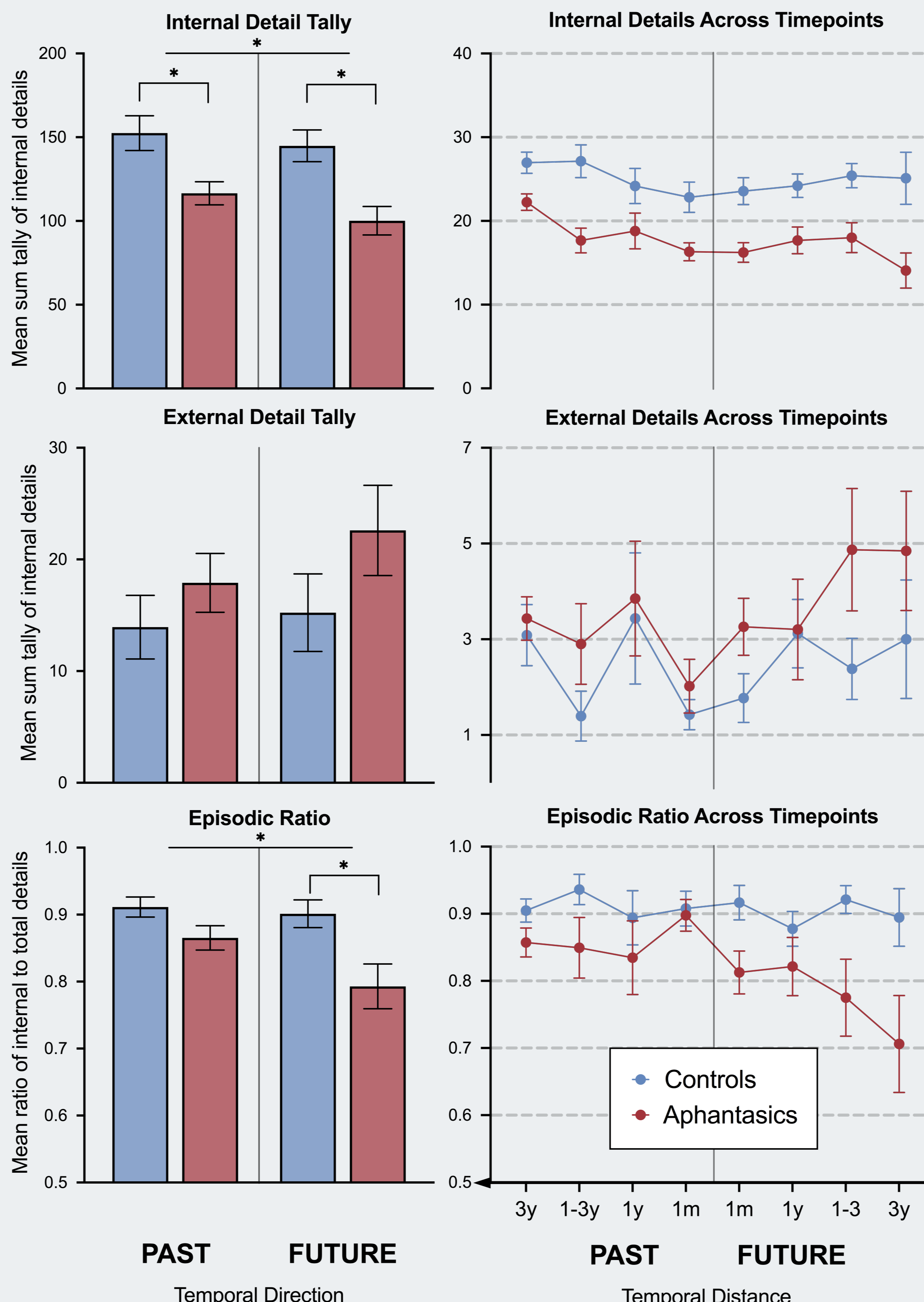
- In **Study 2**, we assessed the effect of visual imagery absence on episodic construction performance.
- 30** aphantasic participants and **30** control participants completed an adapted **Autobiographical Interview (AI)**.
- Participants remembered **6** past events and imagined **6** future events, providing **written** event descriptions.
- Participants also gave phenomenological ratings and estimates of temporal distance for each episodic event.



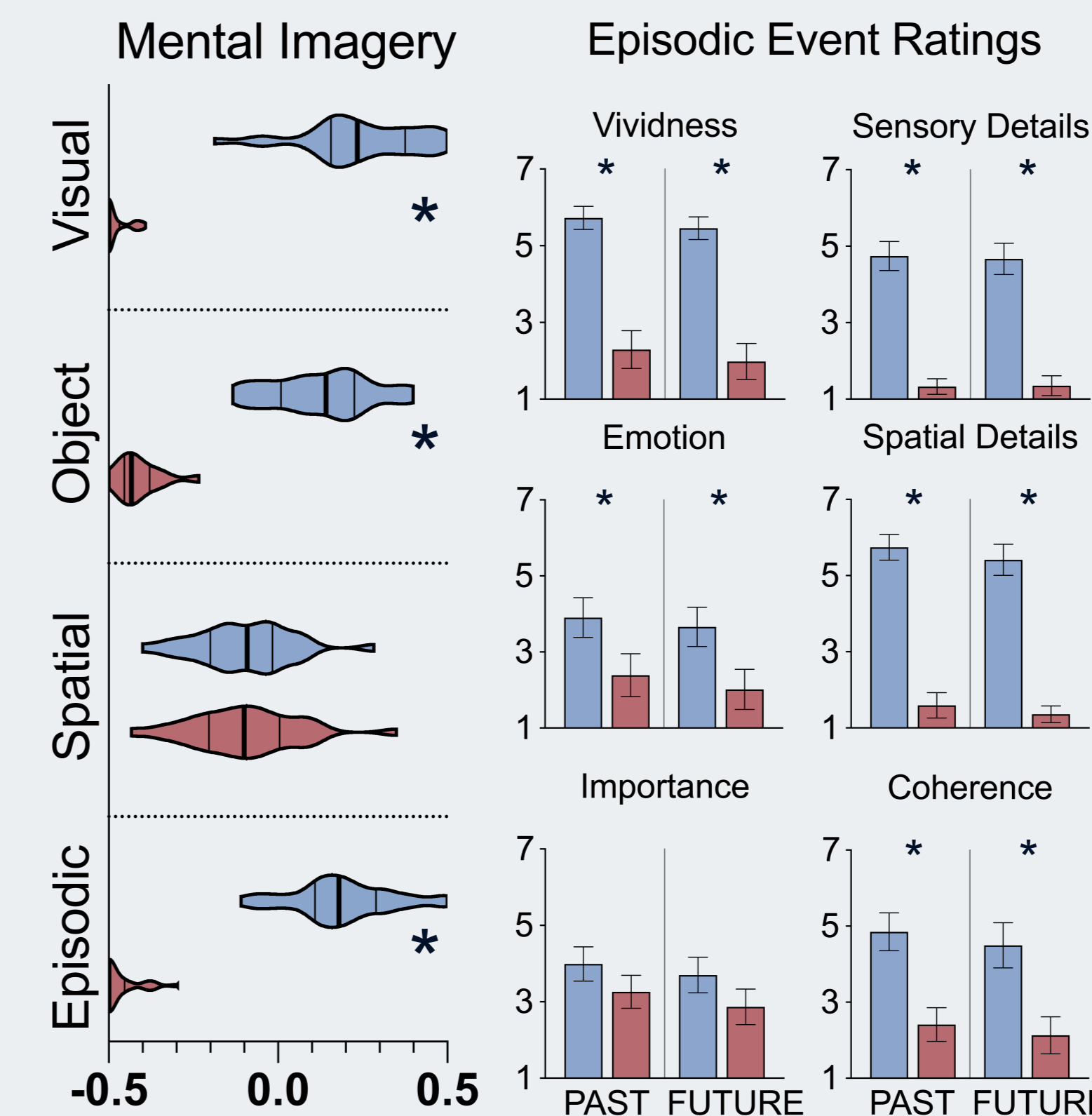
## S1: A Cognitive Fingerprint



## S2: Autobiographical Interview



## S2: Phenomenology



## S2: Linguistic Analysis

- We conducted exploratory linguistic analyses on participants’ event descriptions using **LIWC**.
  - Aphantasic participants used significantly less perceptual and visual language when remembering and imagining episodic events.
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- Mean linguistic feature score**
- | Feature    | Controls | Aphantasia |
|------------|----------|------------|
| Perceptual | ~5.0     | ~3.5       |
| See        | ~2.5     | ~1.5       |
| Hear       | ~1.5     | ~1.5       |
| Spatial    | ~10.0    | ~10.0      |
| Feel       | ~1.5     | ~1.5       |

## Conclusions

- We found that individuals with aphantasia report reduced imagery in visual and multi-sensory imagery domains, as well as a **reduced ability to remember the past and imagine the future**.
- These self-reported imagery and memory deficits are mirrored by **reports of subjectively weaker event representations** during live memory recall and future prospection.
- On an objective test of autobiographical memory performance, aphantasic participants produced **fewer episodic details when remembering past life events and imagining future events**.
- Interestingly, this deficit in the episodic “richness” of internally simulated events was mirrored by **linguistic markers of decreased perceptual and visual language use**.
- Individual differences in visual imagery alter the way in which we remember the past and imagine the future. Visual imagery might act as a normative representational format for the construction and simulation of episodic events.