**Introduction**

Visual attention and short-term memory (VSTM) are distinct yet overlapping cognitive processes.

Both Processes:
- Engage the dorsal attention network
- Allocate resources to specific locations in space
- Have capacity limits; with individual differences in VSTM

It is intuitive to hypothesize, given similarities, that both systems operate under similar constraints. It has been established that visual attention is constrained by object representations (Egły, Driver, & Rafał, 1994).

**QUESTION:**
Do object-based representations constrain VSTM? And if so, are there capacity differences?

**Methods**

**Object-Based VSTM: No cue**
- Display for 1000 ms
- Sample Array
- 200 ms
- Retention for 1000 ms
- Object-Based VSTM: No cue

**Object-Based VSTM: Cue**
- Display for 1000 ms
- Sample Array
- 200 ms
- Cue
- Display for 1000 ms
- Object-Based VSTM: Cue

**Object-Based VSTM: Precision**
- Display for 1000 ms
- Sample Array
- 200 ms
- Cue
- Display for 1000 ms
- Object-Based VSTM: Precision

**Results**

**Object-Based VSTM: No cue**

Hypothesis: If VSTM is constrained by objects (similarly to attention), then objects will modulate VSTM

**Object-Based VSTM: Cue**

Hypothesis: If object salience is increased, then objects will modulate VSTM in low capacity individuals

**Object-Based VSTM: Precision**

Hypothesis: If objects constrain VSTM, then objects will modulate quality of the items held in memory (precision/guessing)

**Summary and Conclusions**

Similarly to attention, task-irrelevant objects influence VSTM. During a change detection task, without directing attention, high capacity individuals spontaneously rely on object-based representations (more accurate performance). High capacity individuals automatically use objects to facilitate VSTM, suggesting an adaptive role for the use of objects in perception and memory.

Low capacity individuals can be ‘helped’ by a cue that increases object salience.

During a continuous report task all individuals use object representations to guide VSTM. Ability to precisely remember an item is hindered if multiple items are on the same object.

The contribution of object representations is not limited to attention, as evidenced by object-based modulation of VSTM.