Is it better to burn out or fade away?
The effect of sudden offsets on target recovery.

PROBLEM
Do sudden changes in visual information, i.e. transients, affect memory for object position during attentive tracking?

INTRODUCTION
In the target recovery (TR) task, participants track several moving objects and must find them again after a blank. The objects might pause or move during the blank. Performance is higher when they pause (Keane & Pylyshyn, 2006). Why does this occur? This effect may be related to the visual transient that occurs with the objects’ offset before the blank (Aks, et al., VSS 2009; Haladjian et al., VSS 2009). Transients, like sudden onsets and offsets, capture attention (Theeuwes, 1991). This may affect how target position is memorized for target recovery.

HYPOTHESIS
The visual transient related to the objects’ sudden offset could trigger or facilitate the encoding of position into memory.

Target Recovery Task
1. Rings cue 4 out of 8 dots as tracking targets.
2. The dots moved in a random walk.
3. Blank began 1, 2, 3, 4, or 5 seconds after the motion started.
4. The dots paused or moved during the blank, so they reappeared in the same or different locations post-blank.
5. Participants selected dots with the mouse. Accuracy = # targets selected / # targets.

HYPOTHESIS 1: If transients facilitate memory for object position, performance should be higher when objects pause compared to moving objects.

HYPOTHESIS 2: If the PAUSE leaves memory for position, performance should be lower compared to NO PAUSE, even if the blank is shorter than those conditions.

HYPOTHESIS 3: Does the burn trigger memory for position?

MEMORY TASK: Colors appeared on all dots for 160 ms. Participants memorized the colors of the targets. After selecting dots in the TR task, participants reported whether or not a centrally presented dot appeared in a target color.

HYPOTHESIS: If explicit memory for object color was not shown to affect memory for object position in target recovery.

SUMMARY
We examined whether visual transients could affect memory for object position in target recovery.

Some evidence showed that increasing object size just prior to offset, which increased the transient, facilitated target recovery when objects paused during the blank (Exp 1 and 2).

Burns before disappearance did not affect performance (Exp 3), perhaps because memory for object position may be related to the most recent transient event.

Explicit memory for object color was not shown to affect memory for object position (Exp 4).

CONCLUSION
These results provide some evidence that transient related to objects’ offset in TR task facilitates memory for object position.

It’s better to BURN OUT!

REFERENCES

