Experiment 3

Multiple Visual Object Juggling
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Purpose/Overview

In standard Multiple-Object Tracking (MOT) tasks observers spend a few seconds tracking a fixed subset of targets out of a set of identical, moving items (Pylyshyn & Storm, 1988).

But in the world, tracking might go on for an extended period of time and items might be added or subtracted from the tracked set. Can this be done with the identical items of the MOT task (or do you need an object lower than fixed set capacity)?

Observers can successfully track a dynamically changing set of targets.

Conclusions

Observers can track a dynamically changing set of objects.

Observing track equally well for 20 seconds or 10 minutes.

Feedback allows observers to recover lost targets.

References


Future Work

When do observers lose track of the tracked set? Are there distracting events that are particularly potent? Can sleepy trackers maintain tracking over a 10-minute epoch? We welcome your hypotheses and suggestions.

Acknowledgments

Funded through National Institute of Health grant MH65576 to Todd Horowitz. Special thanks to David Fencsik and Todd Horowitz.

Methods

In the fixed condition targets are identified at the beginning of every trial, and remain the same throughout the trial. In the dynamic condition, targets are added and removed throughout the course of the trial. In the add condition, targets are added while the objects move until there are 4 targets.

Experiment 1

Can you dynamically update?

3 conditions: dynamic, fixed and an add condition, where targets are added one at a time and then behave like a fixed set.

On completed 40 trials of each condition twice. Each trial lasted 20 seconds.

Accuracy data shows a gradual drop off in the no feedback fixed condition - once an object is lost there is no way to get it back.

The dynamic condition does not show the same drop off because of continual refreshing of the target set serves as a form of feedback.

Feedback was in the form of auditory beeps, where a low tone was correct and a high tone was an incorrect response.

Note that Os can hold on to more than 2 items of the target set serves as a form of feedback.

The fixed and dynamic conditions from Experiment 2 were run again with and without feedback.

There were 10 trials total. Feedback was in the form of auditory beeps, where a low tone was correct and a high tone was an incorrect response.

Figure 3 shows the accuracy for the 20-second trials.

Future Work

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