

Purpose/Overview

Multiple object tracking (MOT) experiments have demonstrated that observers can track multiple independently moving objects (Cavanagh & Alvarez, 2005; Pylyshyn, 2001).

We introduce a new method to demonstrate that observers are tracking target trajectories, not merely locations.

General Methods

Observers tracked a subset of identical objects. On *probe* trials, observers indicated whether or not one object was a target. On arrow trials, observers indicated whether an arrow lay to the left or right of the object's trajectory.



Which way did it go? Measuring trajectory information in multiple object tracking

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Experiment 3

Does resolution vary with tracking load?

YES!

Track 1,2,3 or 4 out of 8 objects 80% arrow trials, 20% probe trials Arrows appeared only on targets



Probe accuracy decreases with increasing load



Directional resolution decreases with increasing load

Conclusions

Observers have good information about target trajectories

Observers have lousy information about non-target trajectories

These findings tell us that observers track target *trajectories*, not just target locations

Directional resolution decreases with tracking load

This suggests that a limited resource is spread over target objects. The finding is potentially problematic for pointer or slot type accounts (e.g. FINSTs)

Future Questions

Does resolution decrease with item with speed (like capacity: Alarez & Franconeri, 2004)?

Does the number of non-targets affect resolution?

What other trajectory properties are tracked?

Acknowledgements

Funded through National Institute of Health grant MH65576 to Todd Horowitz.

Special thanks to Jeremy Wolfe and the rest of the Visual Attention Lab.



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References

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