Multitasking visual tracking

In search, candidate target items are processed at a rate equivalent to 25-50 msec/item (Wolfe, 1998). Limitations on attentional resources constrain performance in many tasks.

**INTERPRETING THE DATA**

Observers performed two tasks separately and together. Accuracy on each task alone was compared with dual task performance using the attentional operating characteristic (AOC, Sperling & Dosher, 1986, Sperling & Melchner, 1978).

- **Visual Search**
  - Independent attentional resources
  - Both tasks are performed together as well as each task separately

- **Tone Task**
  - Complete independence point: Both tasks are performed together as well as each task separately
  - Mutual exclusivity line: One task is performed as well as it is in isolation while the other is performed at chance

**ABILITY TO TRACK AND SEARCH**

- Can these two tasks be performed simultaneously?
  - YES! ...but there is some cost to performing both tasks at the same time.

- How is it possible to track and search within the same trial?
  - ATTENTION SWITCHING
    - MVT and visual search share the same resources, and attention switches back and forth between the two tasks

- Can subjects search through a blank interval during tracking and then recover the tracked objects?
  - YES! Subjects can stop tracking long enough to search and then go back to tracking.

**LOOKING TO THE FUTURE**

- What about two tasks that do not share visual attentional resources?
  - Ability to track and search on the same trial is no worse than performance on two seemingly unrelated tasks.

- What determines whether seemingly unrelated tasks are performed simultaneously or not?
  - Ability to perform multiple tasks simultaneously is dependent on how the tasks are related.

**CONCLUSIONS AND SUGGESTIONS**

- The two tasks are performed simultaneously when:
  - Resources are shared between the tasks
  - Resources are not shared between the tasks

**REFERENCES**