DETECTING THE ABSENCE OF MOTION, Preeti Verghese, Denis G. Pe, Institute for Sensory Research, Syracuse University Syracuse, NY 13244, and H.B. Barlow, Physiological Lab., Cambridge University, U.K.

Consider a static display of \( n \) randomly placed dots. If one dot moves, it "pops out" and the observer detects it, as shown by the fact that he can identify which quadrant the dot is in. However, what if all but one of the dots move, does the stationary dot still "pop out"?

If there are up to 12 dots the stationary dot is detected reliably. If there are \( n \) dots \( (n > 12) \) then the stationary dot is detected with probability \( 12/n \), after correction for guessing. These results show that while detection of motion is a parallel process (independent of \( n \)), detection of absence of motion is a serial process.

Moving Dot

Stationary Dot

\[ P^* \]

\[ 12/n \]