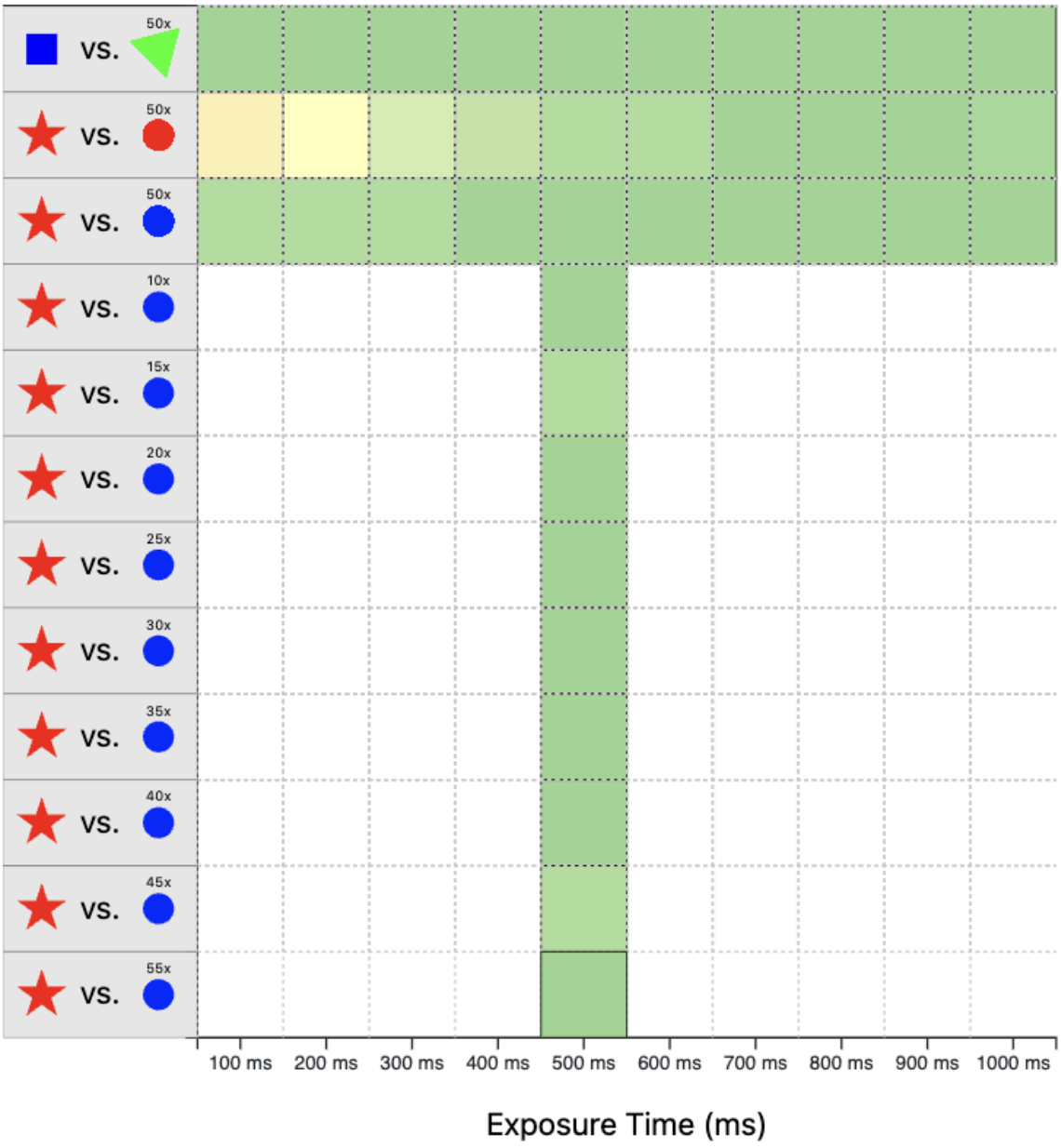
Experiment Setup Evaluation:

The four-quadrant layout is simple and effective for the goals of this experiment since it limits the area users need to scan, allowing for a focused visual search within a confined space. However, one limitation is that the grid does not control for the varying degrees of visual complexity across the trials. For example, certain configurations (i.e. very drastically different colors and shapes for the target and distractor) might make the target easier or harder to detect based on its proximity to the quadrant boundaries or distractor density. Furthermore, the random element positioning could cause overlapping elements or the target lying on either axis line, leading to obscure results and adding noise to the results. To improve accuracy, we can consider a more uniform spatial distribution or minimum spacing rules so that it's easier for the viewers to see.

Results Series Evaluation:



Experiment 1 - All 10 Exposure Levels Tested with at least 10 Trials per Level

Exposure (ms)	100	200	300	400	500	600	700	800	900	1000
Accuracy (%)	90	90	90	100	100	100	100	100	100	100

Experiment 2 - All 10 Number of Elements Tested with at least 10 Trials per Level

Num of Elements	10	15	20	25	30	35	40	45	50	55
Accuracy (%)	100	90	100	100	100	100	100	100	90	100

The goal of this experiment is to determine what is more impactful on preattentive processing – exposure level or number of elements. Experiment 1 varied the exposure times from 100 ms to 1000 ms, while keeping the number of elements constant. The results showed high accuracy, starting at 90% for shorter exposure times (100-300 ms) and reaching a consistent 100% accuracy from 400 ms onward. This suggests that after a certain threshold (around 400 ms), additional exposure time has minimal effect on accuracy, as participants can identify the target with high reliability.

In contrast, Experiment 2 varied the number of elements from 10 to 55 while maintaining a fixed exposure time. The results here reveal that accuracy remains consistently high, even with an increasing number of distractors, with only minor drops at 15 and 50 elements (90% accuracy) before returning to 100%. This indicates that within the range tested, the number of elements has a limited impact on accuracy, suggesting that preattentive processing is robust against increasing distractor quantities when the exposure time is sufficient. The 90% accuracy could also have been noise due to the target being randomly generated on the axis, making it difficult for the participant to determine.

Overall, these findings imply that exposure time is more critical for achieving accurate results, as accuracy stabilizes after a certain duration, whereas increasing the number of elements does not significantly hinder target detection. These insights support the notion that preattentive processing is efficient in highly distracting environments, provided that the target is visible for an adequate duration.