Supplemental Discussion

The role of distractor suppression. Distractor suppression may also play a role in explaining the data from the present studies; for example, patterns of eye movements might suggest that participants actively avoid distractors under certain conditions (e.g., Gaspelin, Leonard, & Luck, 2015; Moher et al., 2011). However, it is unlikely that participants can simply discard the distractor immediately on distractor absent trials, resulting in faster response times on distractor present trials. This explanation is untenable for two reasons. First, it would not be consistent with higher miss rates on target-present trials, as there should not be a cost associated with immediately discarding a non-target. Second, participants have no way of knowing at the beginning of a trial whether it is a target-present or target-absent trial, and thus it is highly unlikely that they treat the distractor differently on target-absent compared to target-present trials. Future research, including eye tracking studies, will be needed to directly test the various mechanisms proposed here.

Relationship to attention capture. It is noteworthy that attentional capture occurred on target-present trials in both experiments despite the positive search slopes indicating that this was an inefficient search. Some have argued that attention capture typically occurs only in efficient search (e.g., Theeuwes, 2004), and perhaps this is a driving factor in why researchers typically use targert presence searches to study attentional capture. However, Gibson and Kelsey (1998; but see Yeh & Liao, 2010) put forth the Displaywide Contingent Orienting Hypothesis, suggesting that onsets can capture attention because onsets in the context of most psychophysical tasks indicate the start of task-relevant stimulus presentation. The automaticity of capture is beyond

the scope of the present manuscript. Still, it would be useful to determine whether salient distractors can produce similar changes in quitting thresholds in efficient searches where capture is often more robust.

References

Gaspelin, N., Leonard, C. J., & Luck, S. J. (2015). Direct evidence for active suppression of salient-but-irrelevant sensory inputs. *Psychological science*, *26*(11), 1740-1750.

Gibson, B., & Kelsey, E. (1998). Stimulus-driven attentional capture is contingent on attentional set for displaywide visual features, *24*(3), 699–706.

Moher, J., Abrams, J., Egeth, H. E., Yantis, S., & Stuphorn, V. (2011). Trial-by-trial adjustments of top-down set modulate oculomotor capture. *Psychonomic Bulletin & Review*, *18*(5), 897.

Theeuwes, J. (2004). Top-down search strategies cannot override attentional capture. *Psychonomic Bulletin & Review, 11,* 65-70. *Psychonomic Bulletin and Review*, (11), 65–70.

Yeh, S.-L., & Liao, H.-I. (2010). On the generality of the displaywide contingent orienting hypothesis: Can a visual onset capture attention without top-down control settings for displaywide onset? *Acta Psychologica*, *135*(2), 159–167. http://doi.org/10.1016/j.actpsy.2010.05.013