

Conscious perception of color and size ensemble statistics requires attention



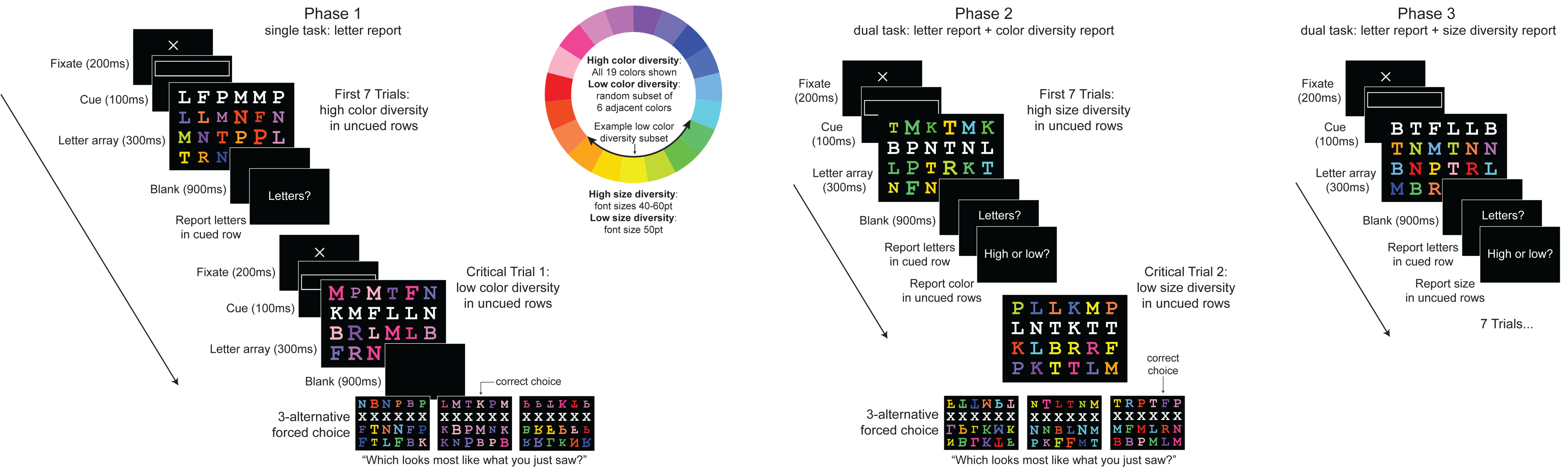
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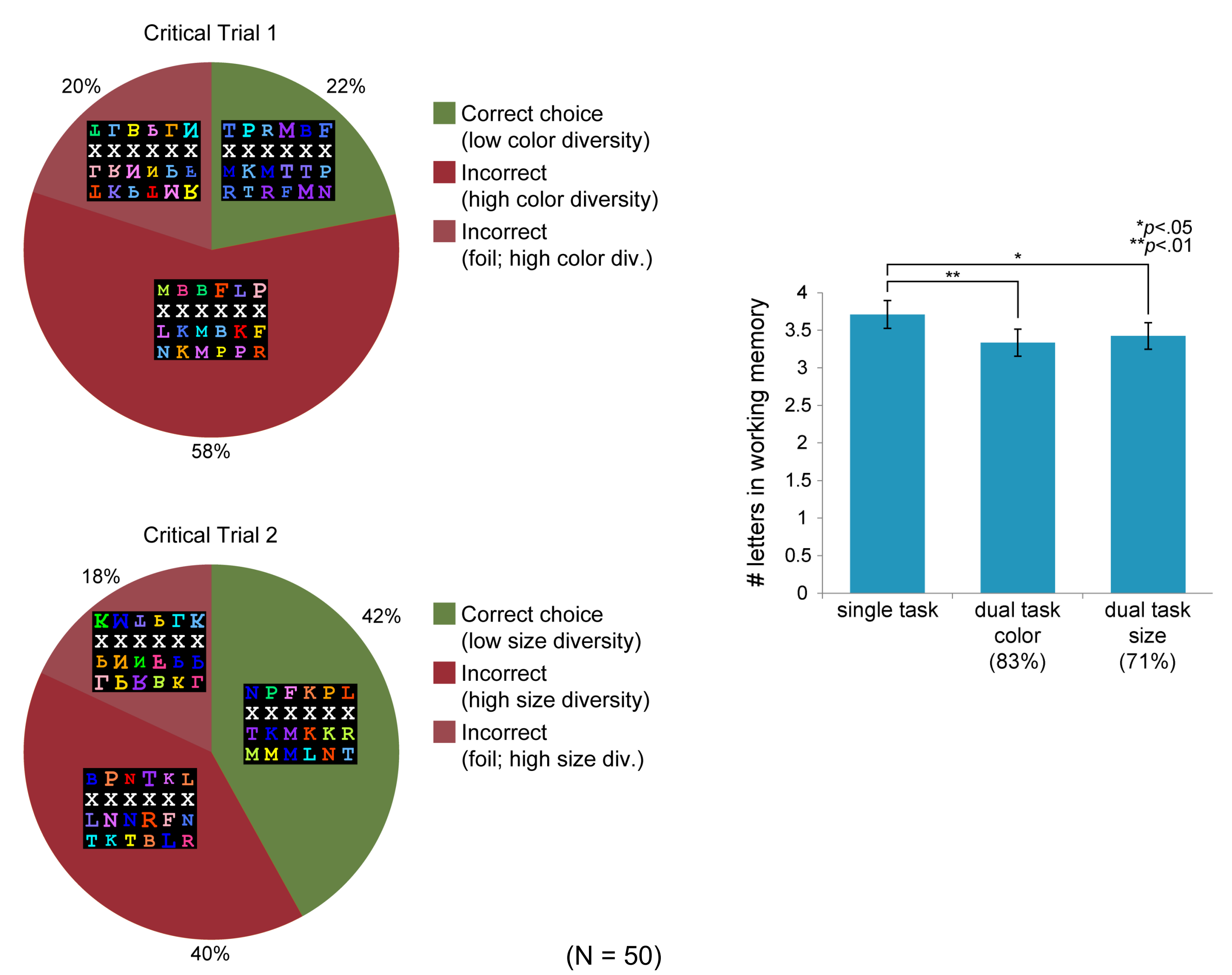
Background & Objectives

- Previous studies have found that gist perception requires attention (Cohen et al., 2011; Mack & Clarke, 2011).
- However, a recent study (Bronfman et al., 2014) found that a gist-like ensemble statistic, “color diversity”, was immune to dual-task interference.
- To test whether this gist-like statistic can be perceived without attention, we combined a variant of Mack & Rock’s (1998) inattentional blindness paradigm with Bronfman et al.’s (2014), and asked:
 - Can inattentional blindness occur for the color diversity gist-statistic (and other statistics)?
 - Are these gist-like percepts really immune to dual-task interference?

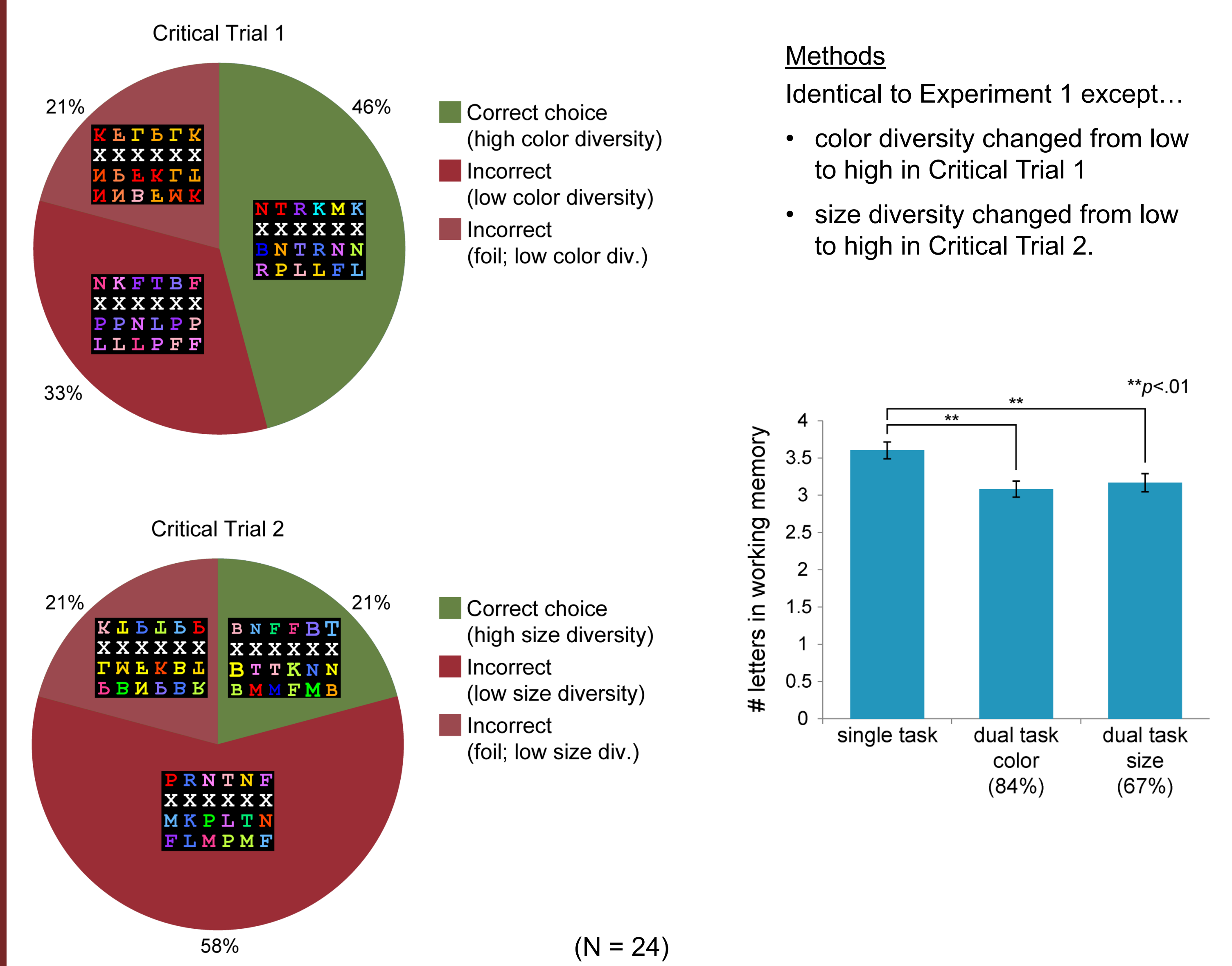
Methods – Experiment 1



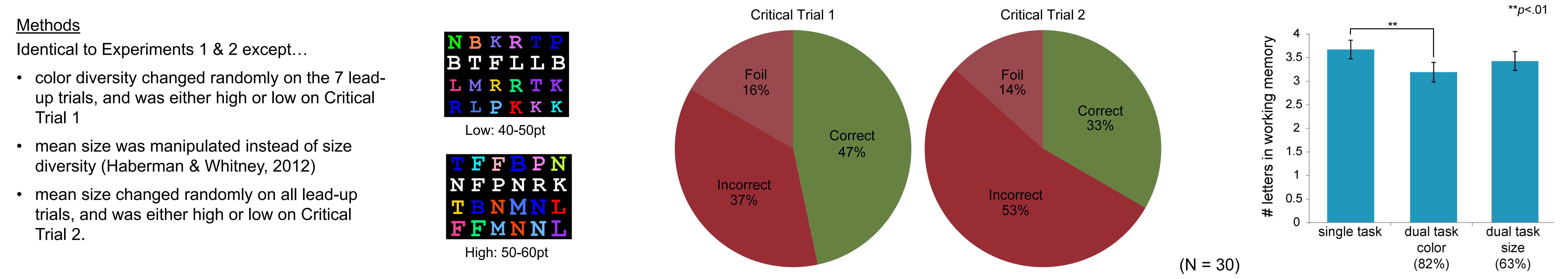
Results – Experiment 1



Methods & Results – Experiment 2



Methods & Results – Experiment 3



Conclusions

- Across the 3 experiments, >50% of subjects were inattentionally blind to the color and size gist-like statistics.
Thus, awareness of gist appears to require at least a minimal amount of attention.
 - Dual-task interference was observed with the color and size tasks.
Therefore, an attentional cost is associated with color (& size) phenomenality.
- Attention is necessary for conscious perception, even for basic ensemble percepts such as color and size**

References

Cohen, M., Alvarez, G., & Nakayama, K. (2011). Natural-scene perception requires attention. *Psychological Science*, 22, 1165-1172.

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Bronfman, Z., Brezis, N., Jacobson, H. & Usher, M. (2014). We see more than we can report: “Cost free” color phenomenality outside focal attention. *Psychological Science*, 25, 1394-1403.

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Haberman, J. & Whitney, D. (2012). Ensemble perception: Summarizing the scene and broadening the limits of visual processing. In J. M. Wolfe & L. C. Robertson (Eds.), *From Perception to Consciousness: Searching with Anne Treisman* (339-349). New York: Oxford University Press.