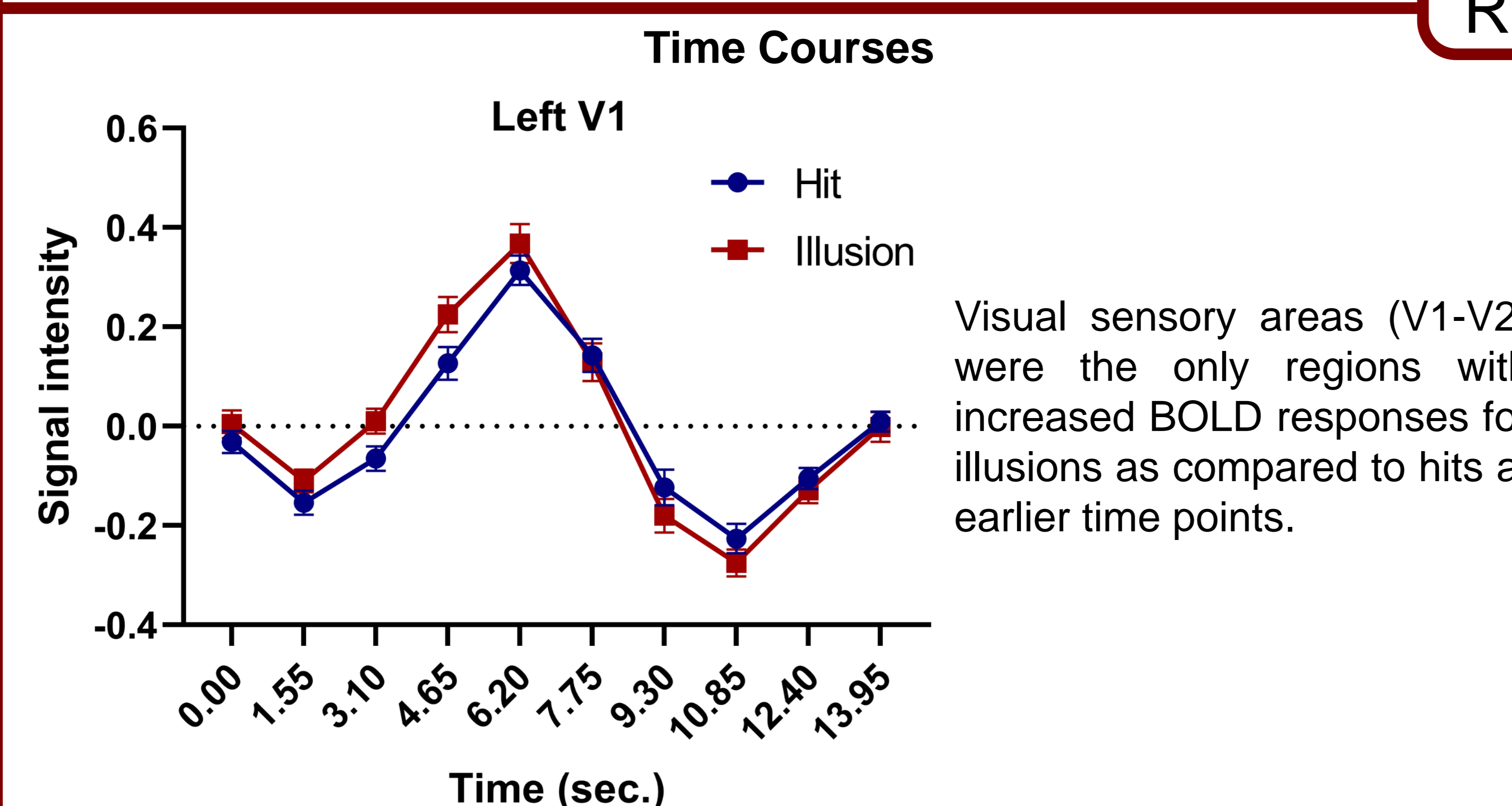
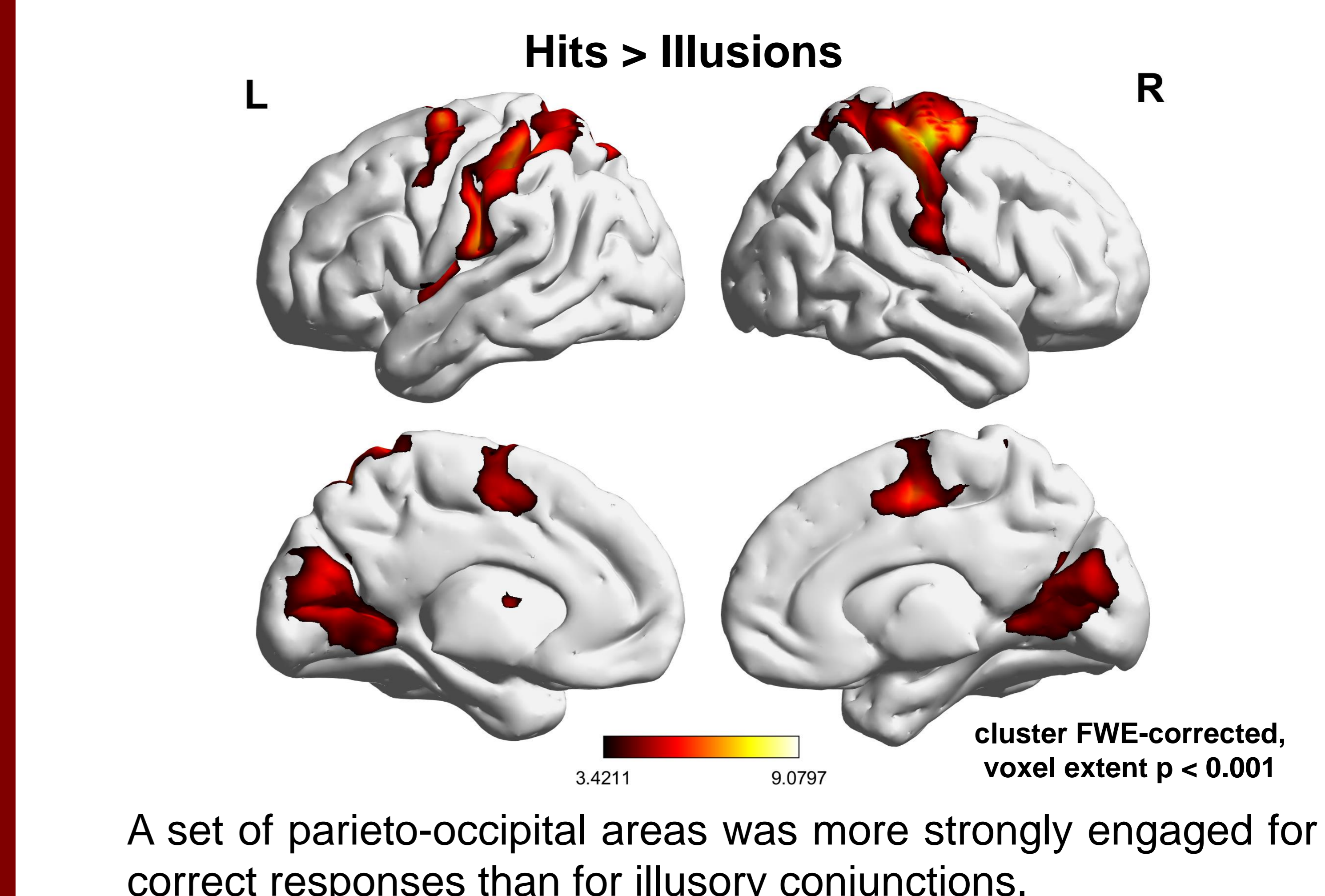
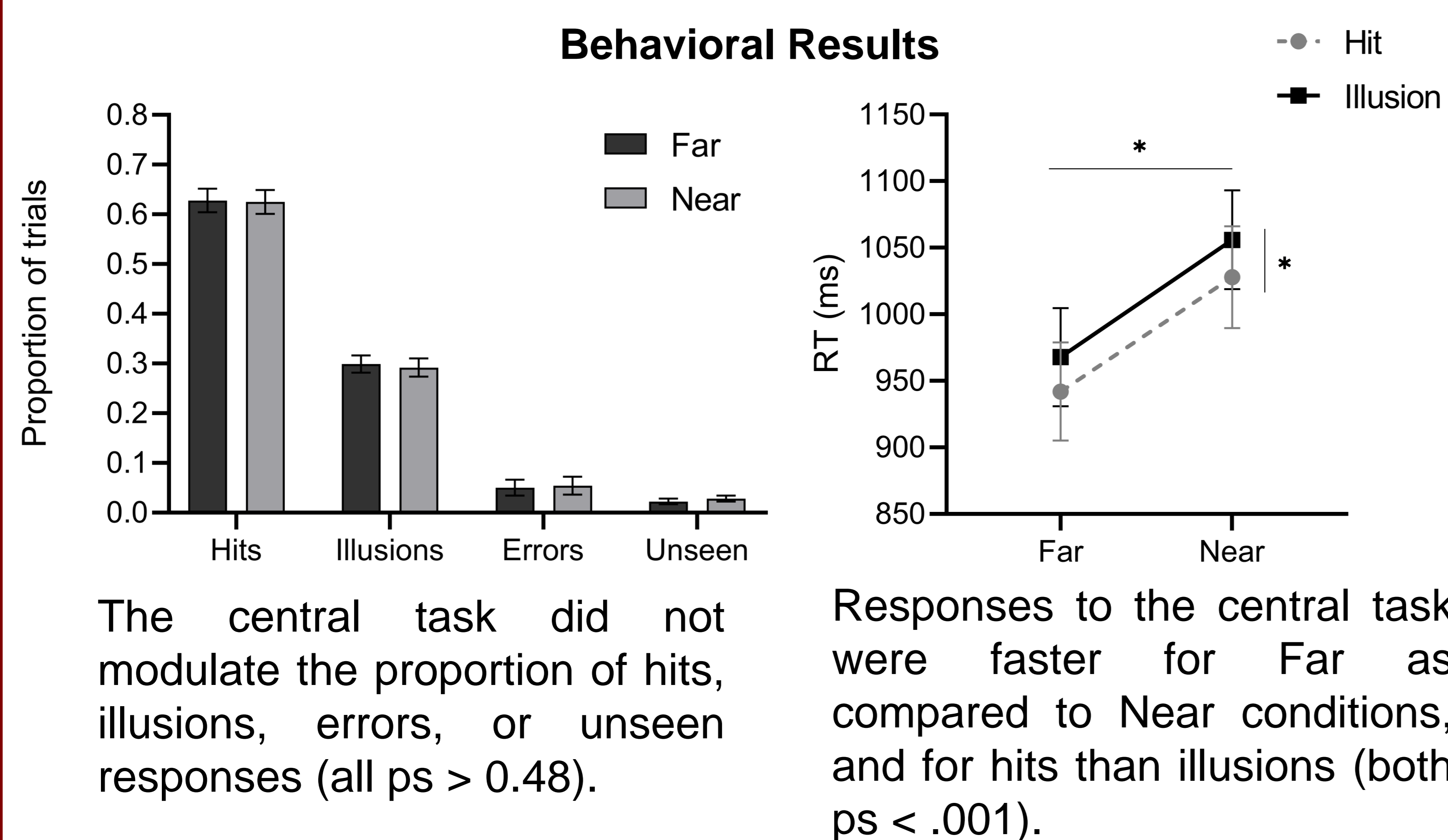
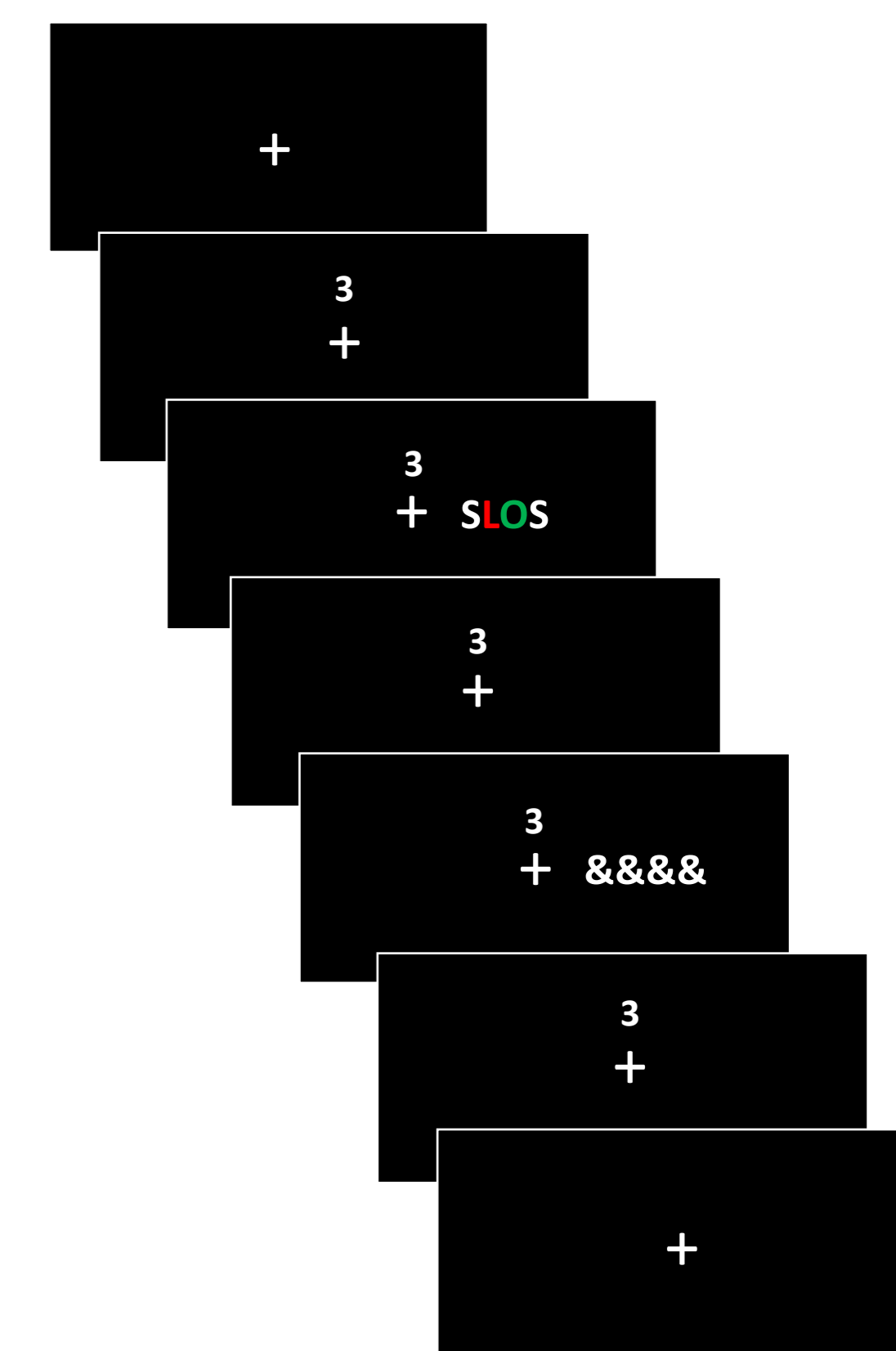


Introduction

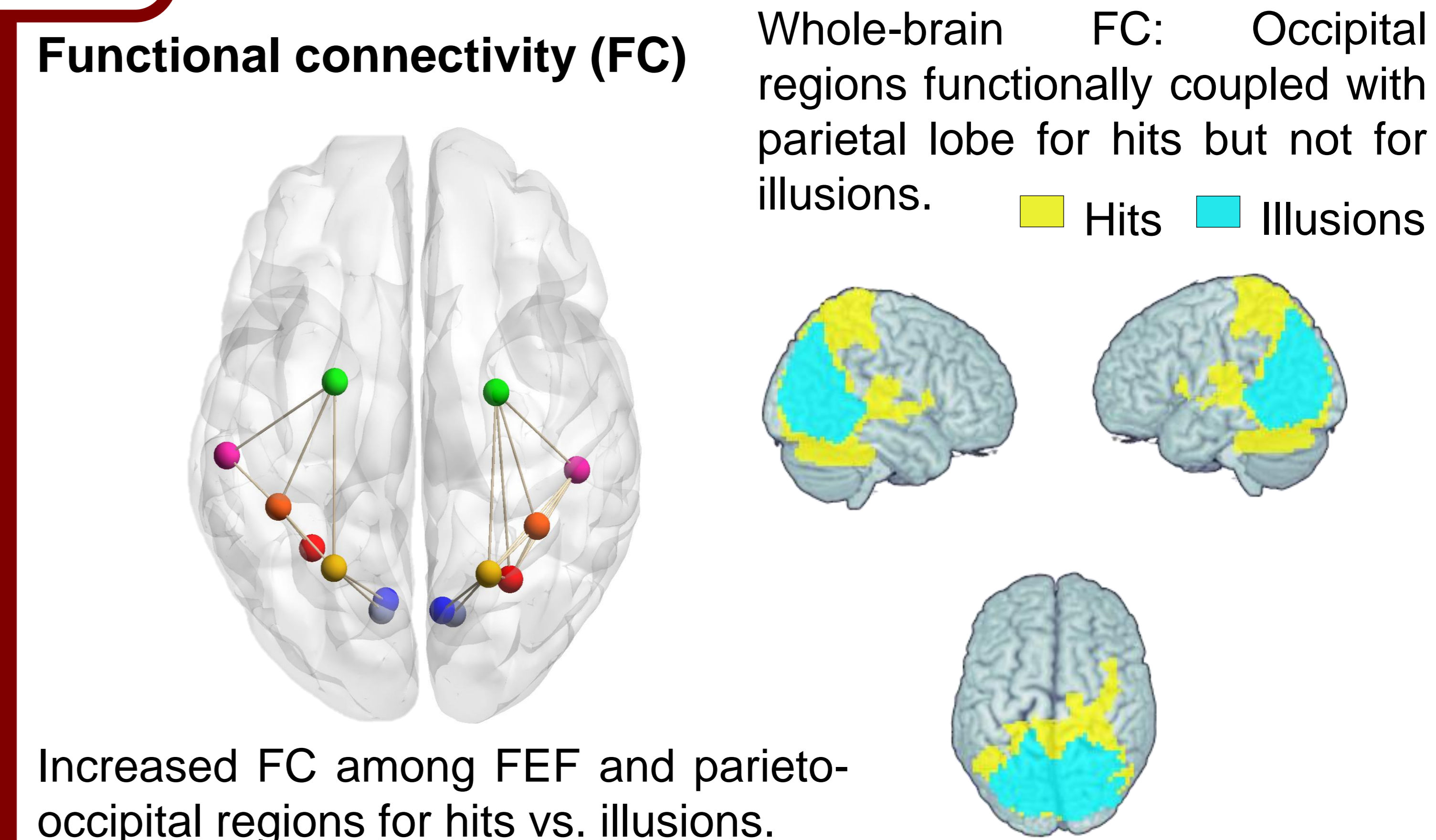
- The feature integration theory (FIT) proposes a two-stage process in perception: identifying the different features of an object and integrating them¹.
- When integration fails, erroneous combinations of features can occur, leading to “**illusory conjunctions**”.
- These illusions have been proposed as a mean to study **phenomenal consciousness**: the impression of perceiving much more information than what can be reported².
- Here, we employed a **dual-task paradigm** demonstrated to produce illusory conjunctions³, and used **functional MRI** to explore the brain activity associated with correct and illusory perception.

Methods

- Dual-task:** Central number task (larger or smaller than 5): Near (3,4,6,7) and Far (1,2,8,9) conditions. Peripheral task (report color of letter L): hit (correct response), illusion (report color of the letter O), error (report a non-presented color), unseen.
- Individual titration (size and eccentricity) to produce ~30% illusions.



Results



Discussion

- Central task demands do not directly modulate the production of illusory conjunctions, although preparatory processes might affect performance in both tasks.
- The only region in the brain showing stronger engagement for illusions relative to hits was the visual cortex, suggesting that visual sensory areas might fail to interact with parietal and more anterior regions to integrate information needed for correct perception.
- This suggests that there is a primitive integration in visual areas that needs to be confirmed by parietal regions, as proposed by the Feature Confirmation Theory⁴.

References

- Treisman, A. Phil. Trans. R. Soc. Lond. B, 353, 1295–1306, (1998).
- Block, N. Behavioral and Brain Sciences 18, 227-287, (1995).
- Cobos, M. & Chica, A., (Under review).
- Humphreys, G. W. Quarterly Journal of Experimental Psychology, 69(10), 1910–1940, (2016).

- Department of Experimental Psychology, and Brain, Mind, and Behavior Research Center (CIMCYC), University of Granada, Spain
- BCBL, Basque Center on Cognition, Brain, and Language, Donostia, Spain