

The Relationship between Macroscale Cortical Motifs and Distinct Patterns of Ongoing Thought.

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Highlights

- Examined relationship between macroscale connectivity gradients and patterns of ongoing thought at rest.
- Hypoconnectivity between sensorimotor and visual networks linked to problem-solving.
- Greater similarity between sensorimotor and visual networks linked to thoughts about the past.
- Degree of segregation of unimodal systems may determine important features of ongoing experience.

Background

Macroscale patterns of functional organization play important role in determining cognition.

- These patterns can be captured by dimension reduction techniques.
- Identify gradients explaining the greatest variance in whole-brain connectivity.

Question

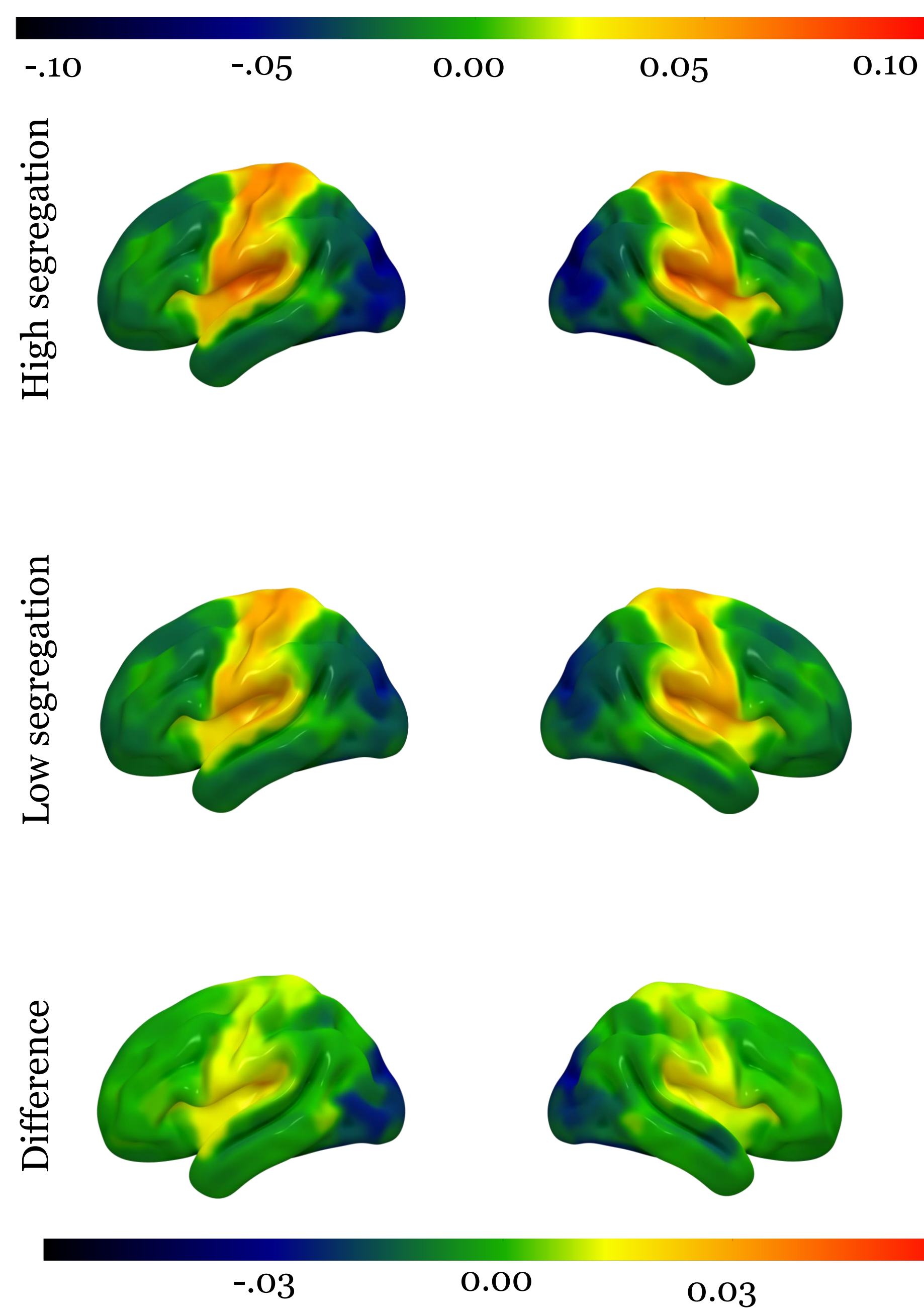
Is there a relationship between macroscale connectivity gradients and patterns of ongoing thought at rest?

Materials & Analysis

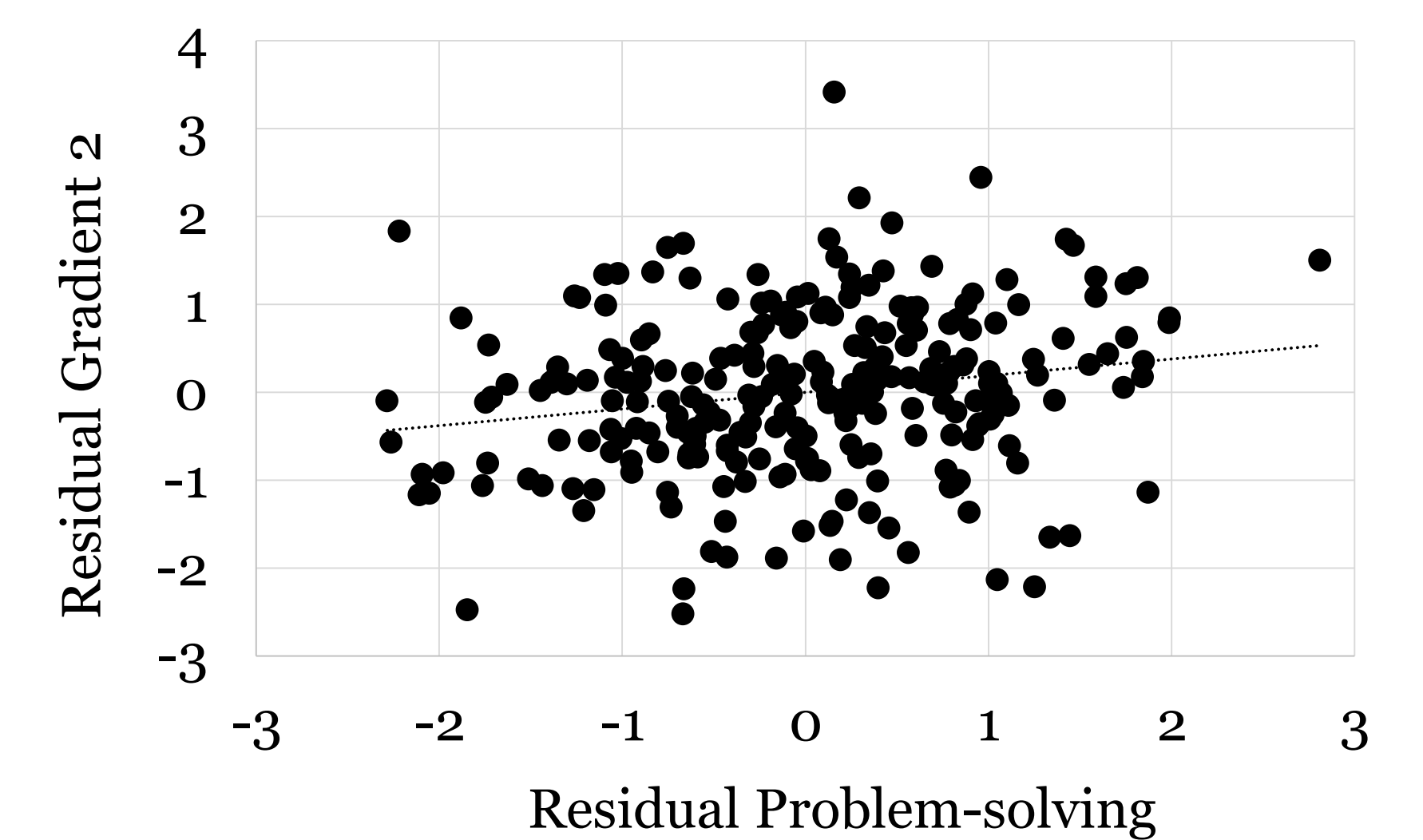
254 participants with:

- Resting state functional connectivity
- 25-item experience-sampling questionnaire assessing content and form of thoughts

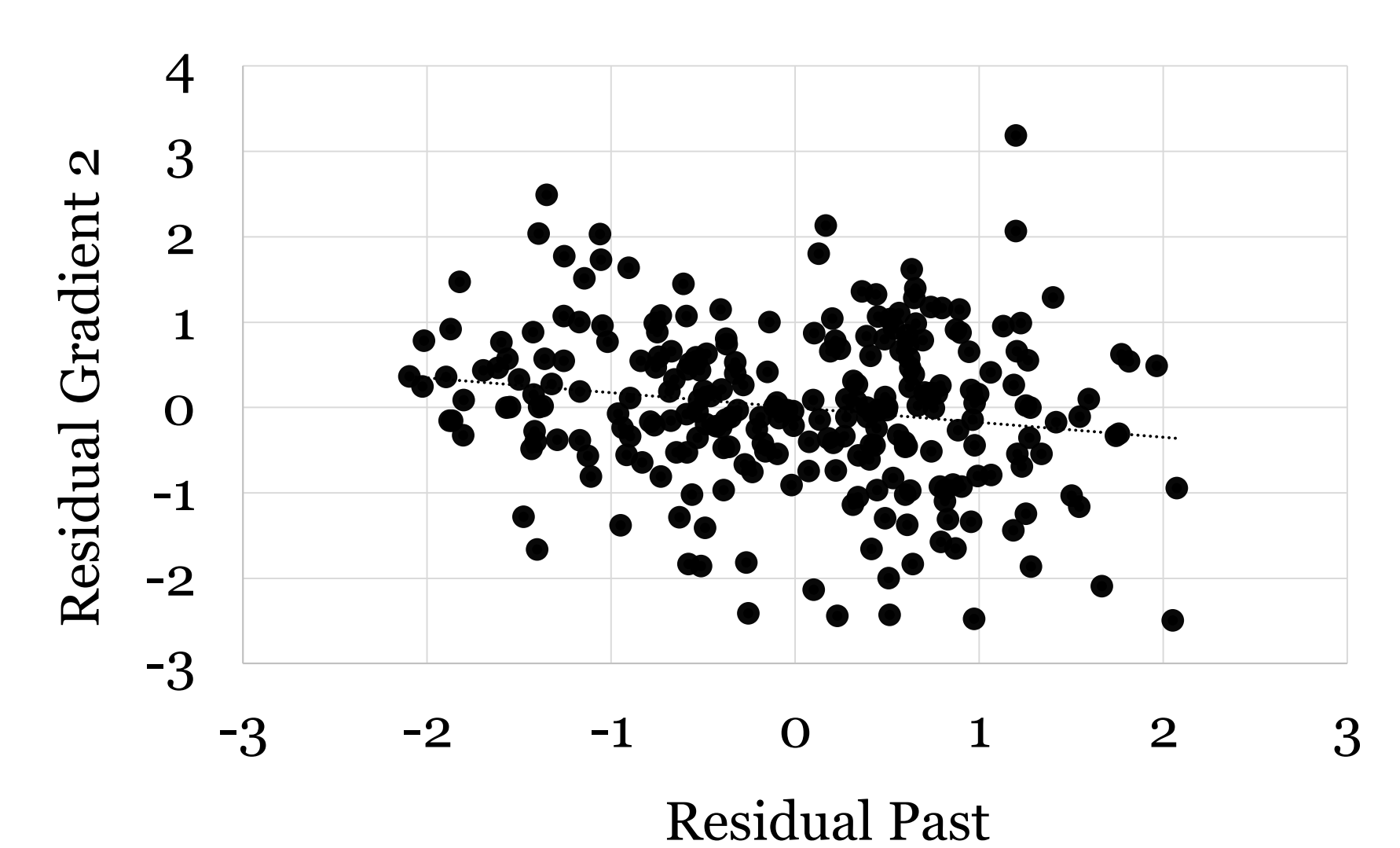
Results



Positive association between problem-solving and gradient 2



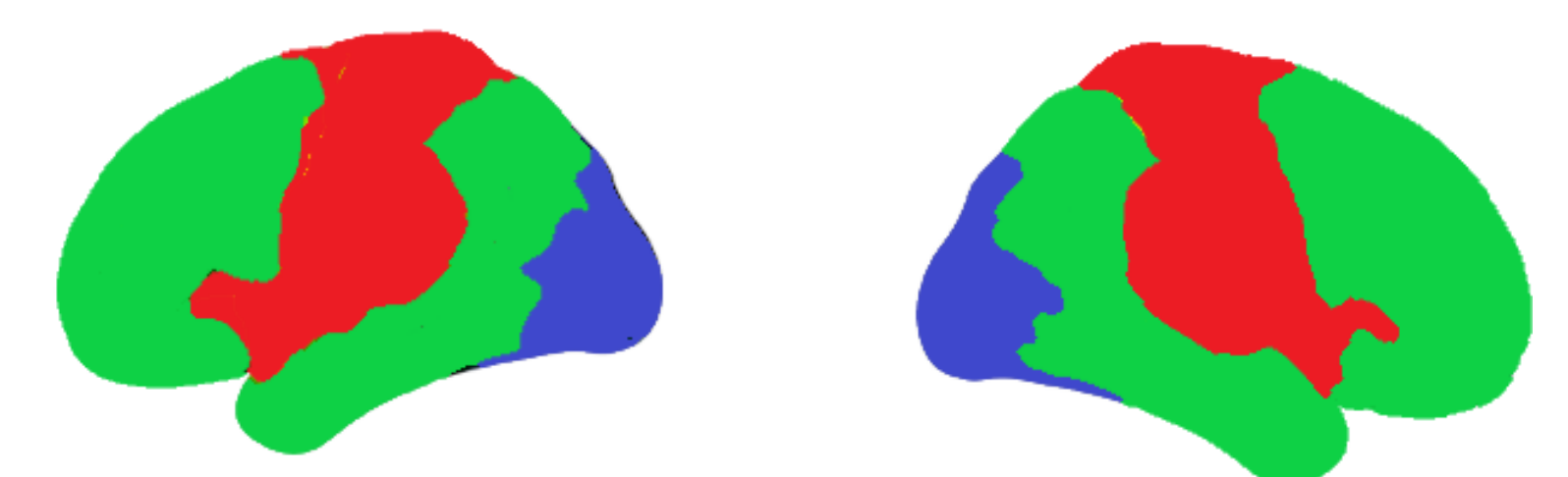
Negative association between past and gradient 2



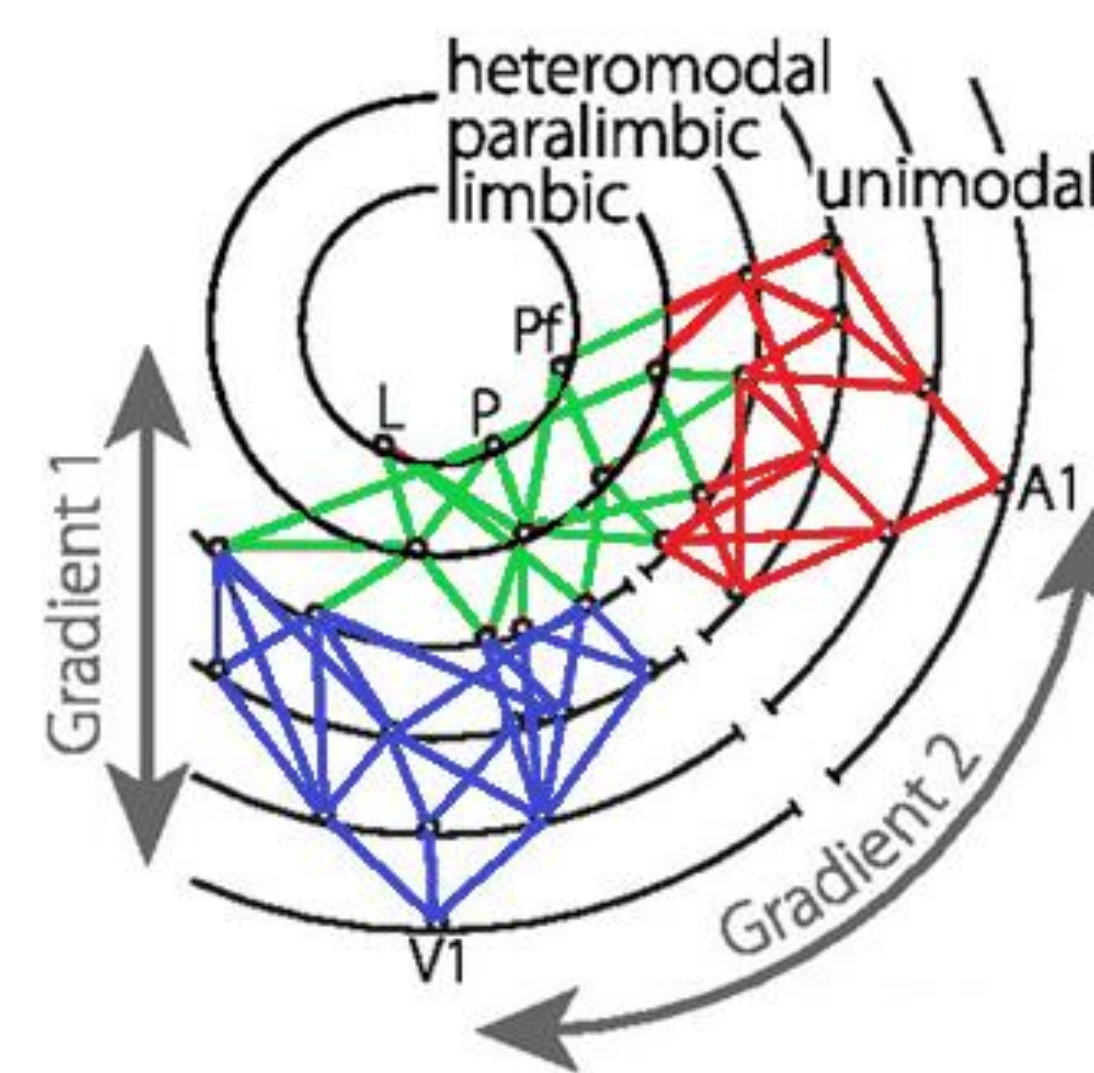
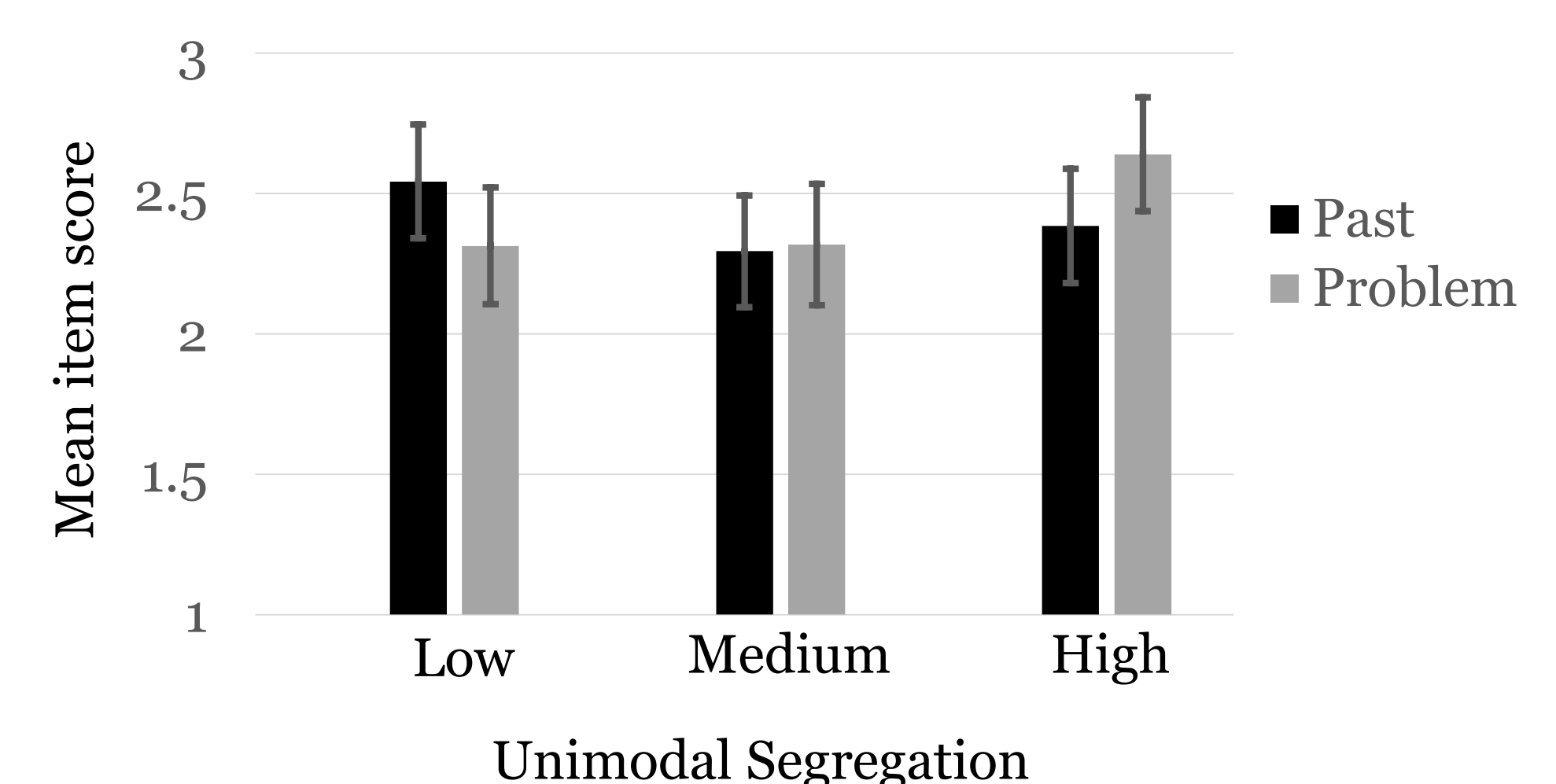
Discussion

Unimodal cortex may contribute to higher-order imaginative thought.

- Past thoughts may rely on co-recruitment of motor and visual systems.
- Problem-solving may rely more on encapsulated unimodal activity.



Mean of Problem-solving and Past by Unimodal Segregation



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