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The neural architecture of interpersonal cultural conflicts

Siyuan Zhou^{1,2}, Xinran Xu², Xiangyu He², Ruhuiya Aili², Chunming Lu^{2,*}

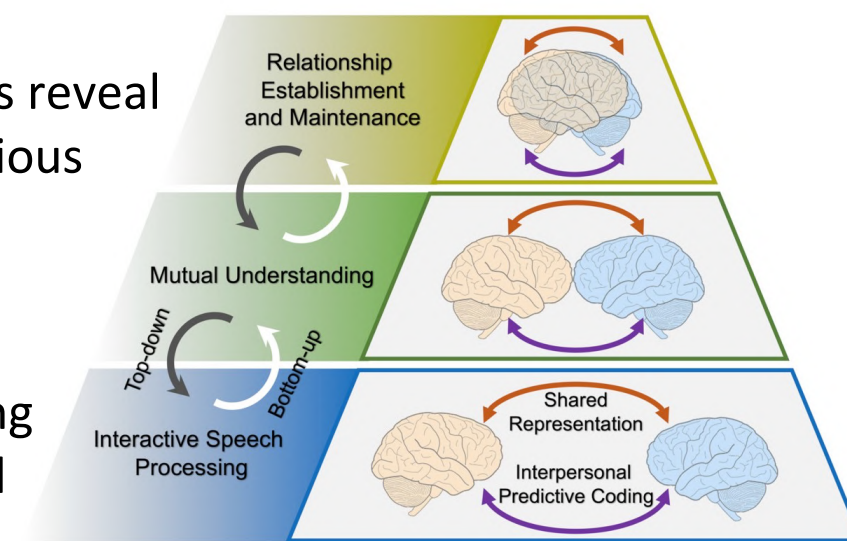
¹Institute of Brain and Psychological Sciences, Sichuan Normal University, Sichuan 610066, PR China;

²State Key Laboratory of Cognitive Neuroscience and Learning and IDG/McGovern Institute for Brain Research, Beijing Normal University Beijing 100875, PR China



Introduction

- Effective interpersonal communication relies on the cognitive processing of interlocutors to construct **hierarchical shared representations** across various cognitive levels.
- Individuals with distinct cultural backgrounds reveal differences in cognitive processes across various domains.
- These cultural differences might impede the construction of shared representations during intercultural encounters, resulting in cultural conflicts.

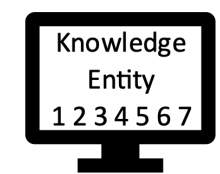


Question: What is the cognitive hierarchical structure in interpersonal cultural conflicts?

Methods

- Across-culture communication group:** 31 American-Chinese dyads
- Within-culture communication group:** 35 Chinese-Chinese dyads
- All participants had little intercultural experience
- fNIRS hyperscanning
- cultural topic discussion

Trait Real-time State



Trait scale & Cognitive task

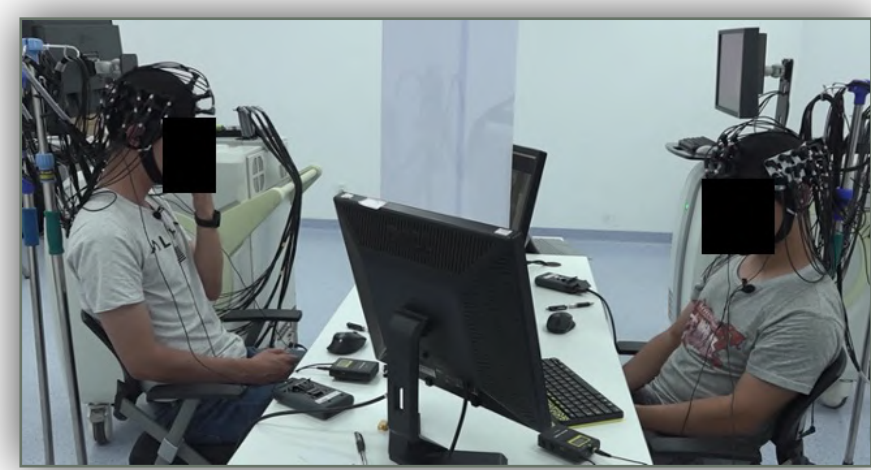
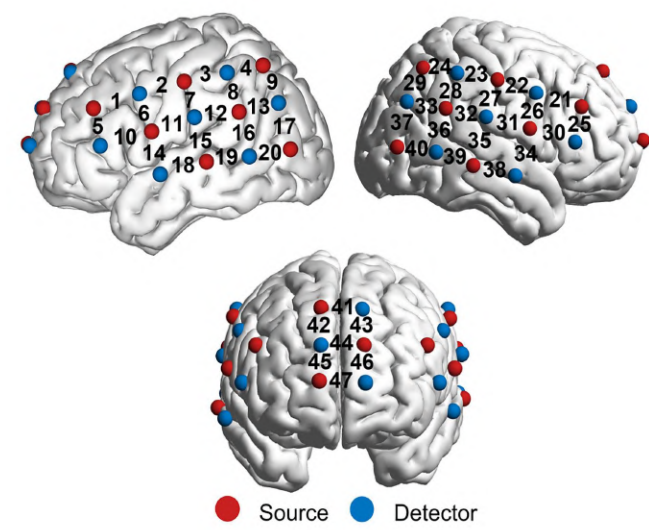
Across-culture communication (Mandarin & English)



Within-culture communication (Mandarin)

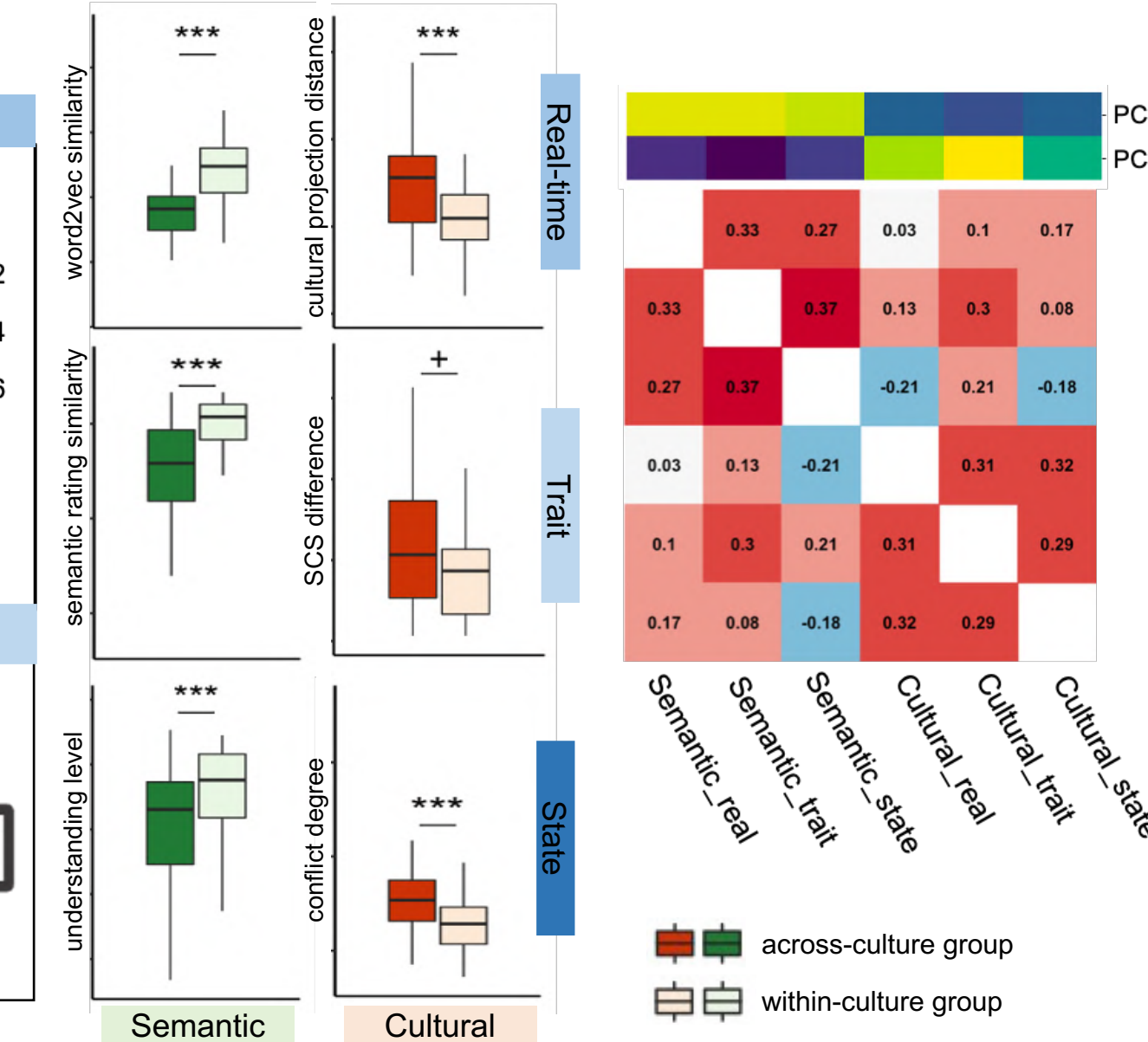
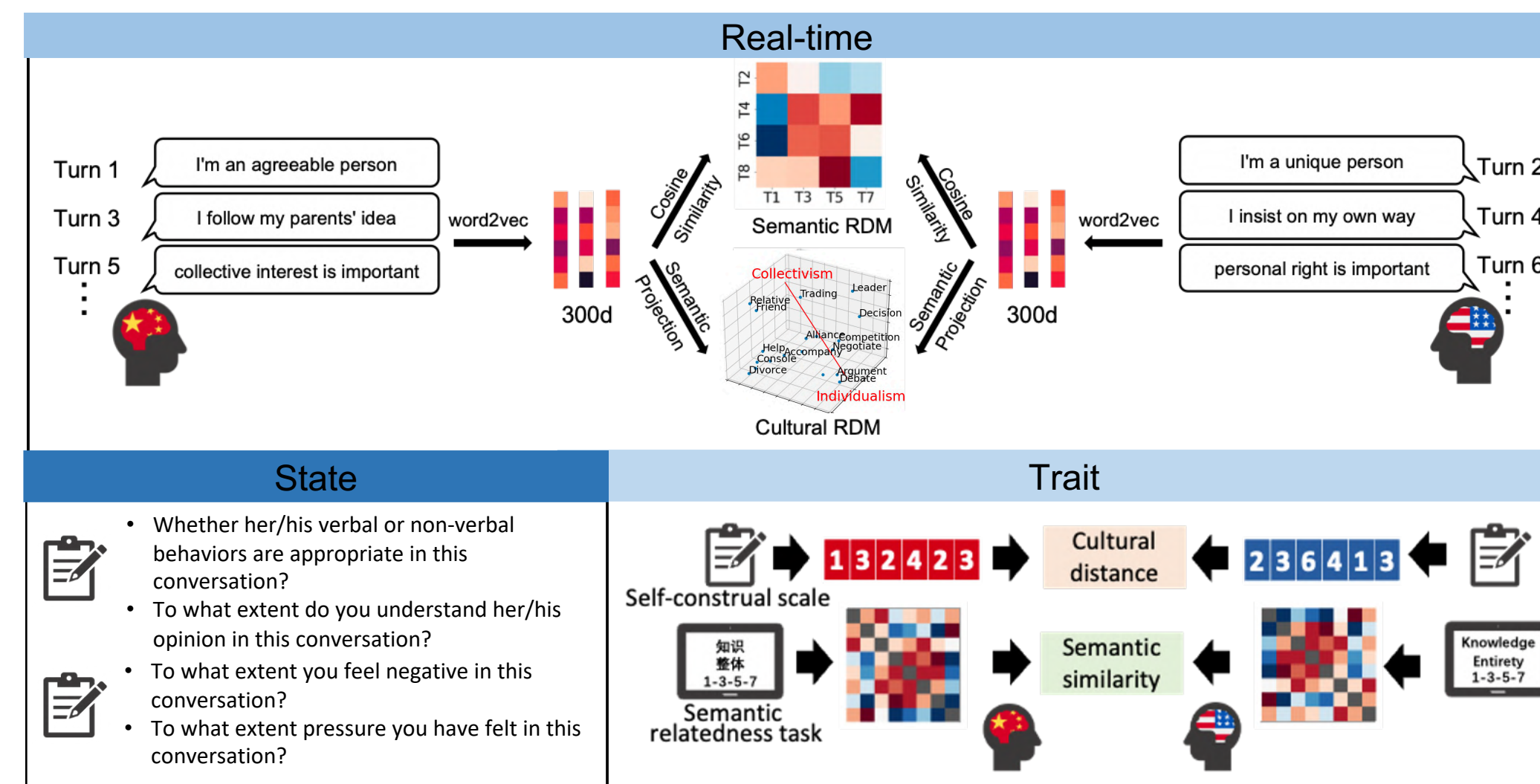


Quality of Communication Questionnaire

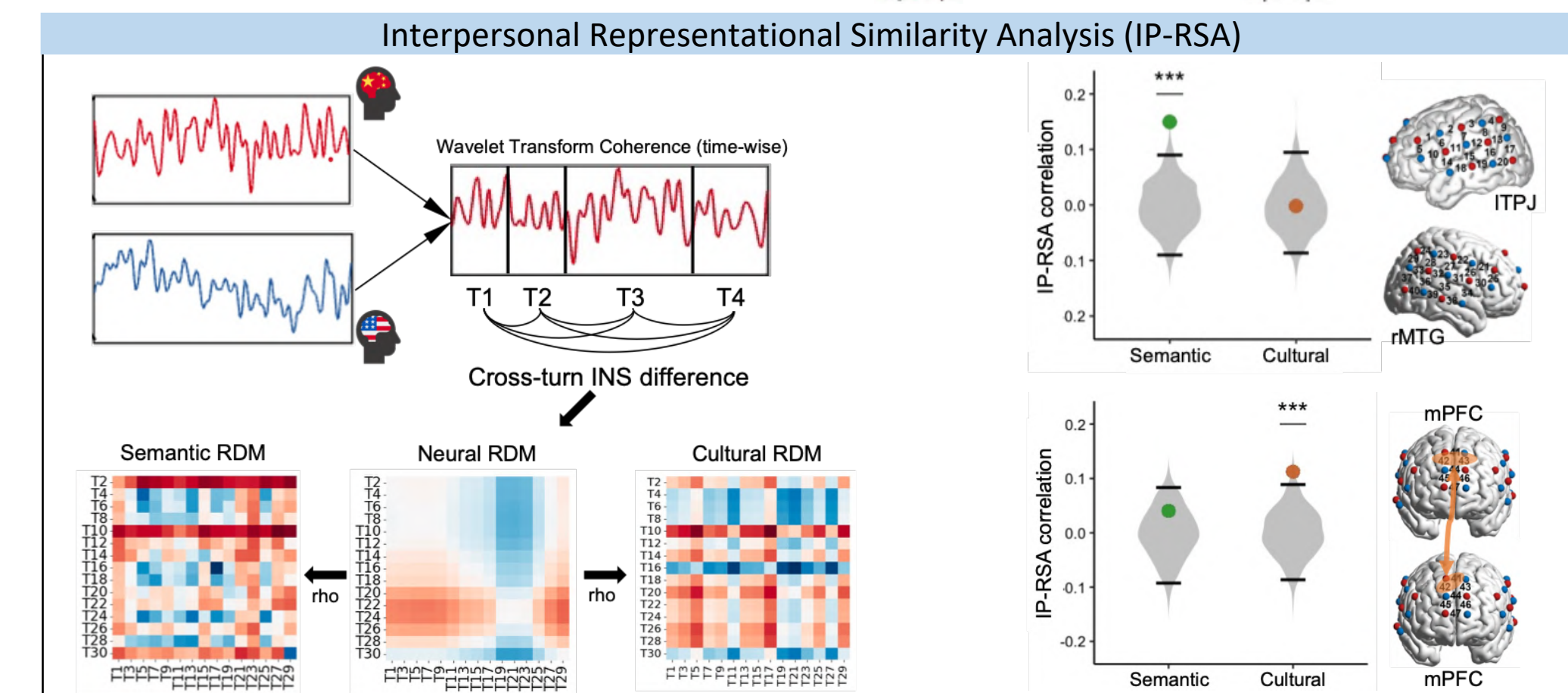
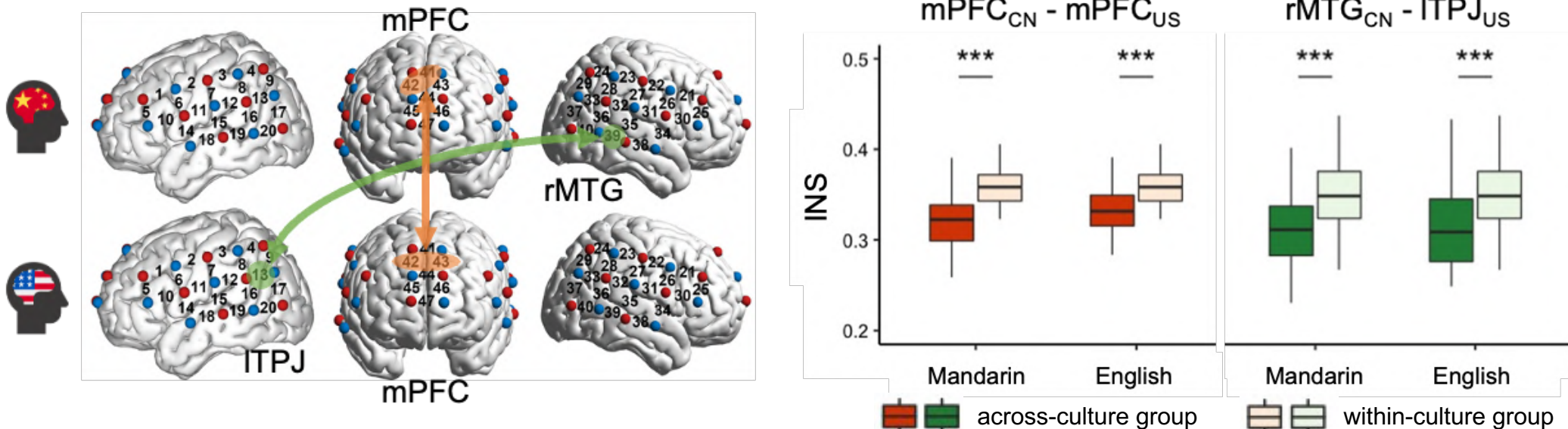


Results

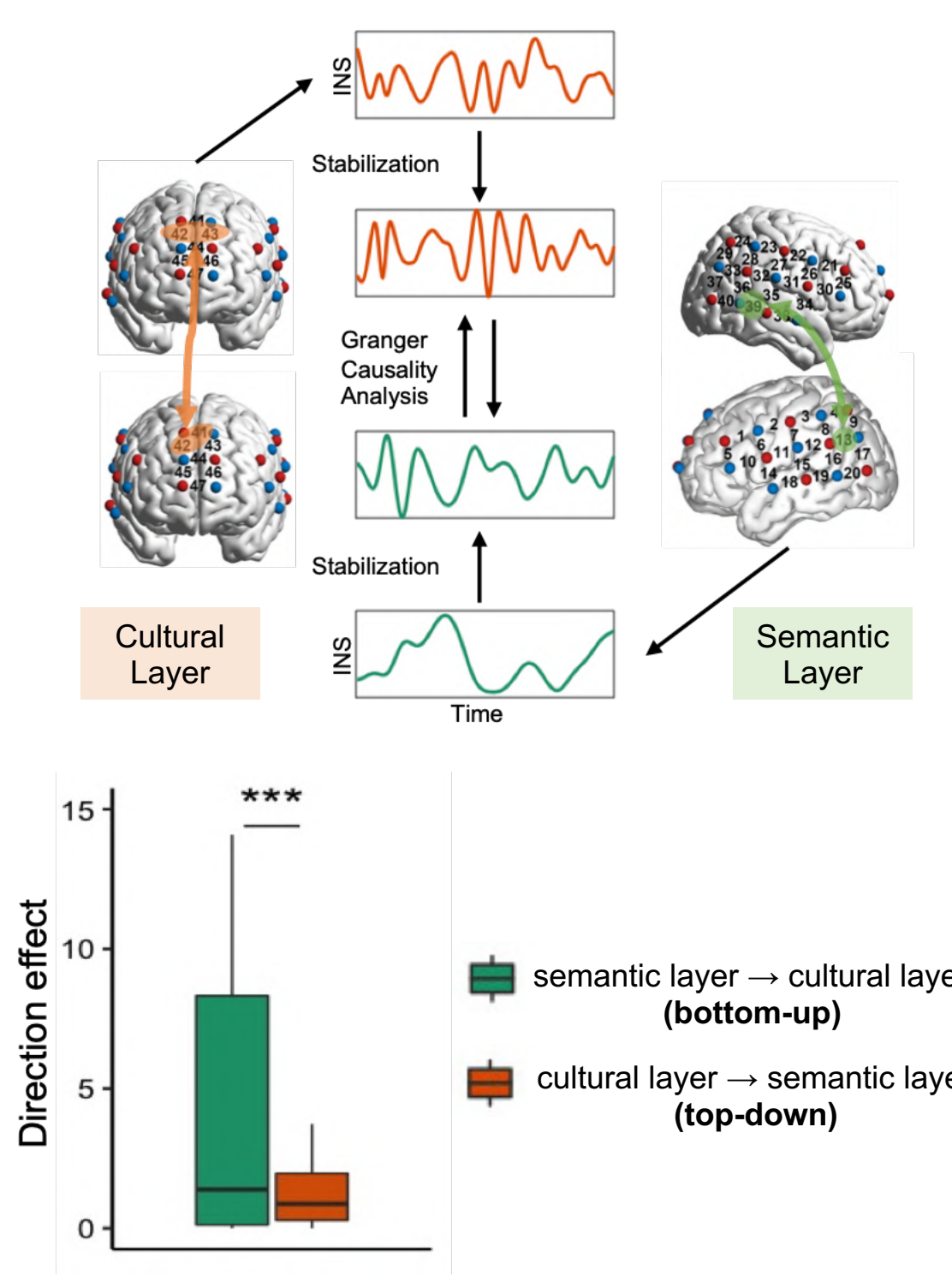
The hierarchical structure of interpersonal cultural conflict



The interpersonal neural synchronization(INS) basis of hierarchy



Information pathway of hierarchy



Conclusions

- A hierarchical structure was found during the interpersonal cultural conflicts, which occur on at least two layers: conflicts of cultural value representation and semantic representation.
- Decreased INS between mPFC_{US}-mPFC_{CN} represents conflicts at the cultural value layer, while decreased INS between rMTG_{US}-ITPJ_{CN} represents conflicts at the semantic layer."
- Conflicts at the semantic layer accumulate to the cultural value layer from a bottom-up pathway

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Conflict of interest

The authors declare no competing financial interests.

Contact

Email: zhouxiyuan_work@163.com
luchunming@bnu.edu.cn

Website: <http://sc.bnu.edu.cn/>
<https://manipulative.github.io/academicpages.github.io/>