HIERARCHICAL PLANNING DURING NAVIGATION

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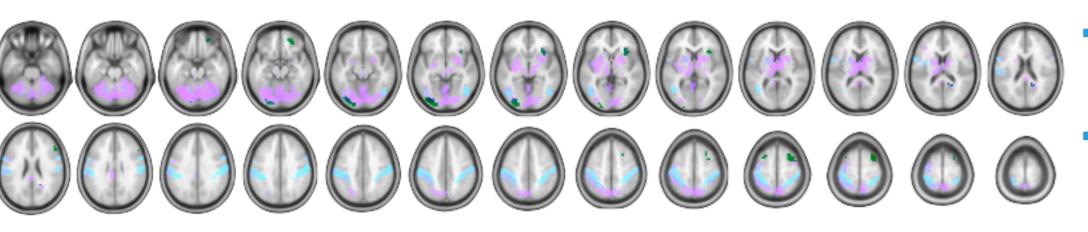


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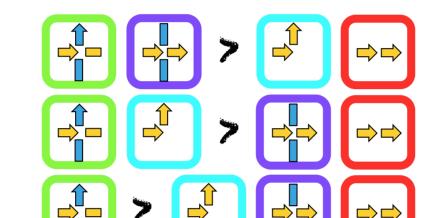
Introduction

Hierarchical representations alleviate the complexity of planning over multiple states. Using fMRI, we looked for the neural correlates of subgoal states (e.g. line changes) within a navigation task. 20 healthy participants planned their way within a virtual underground network they had previously been familiarised with.

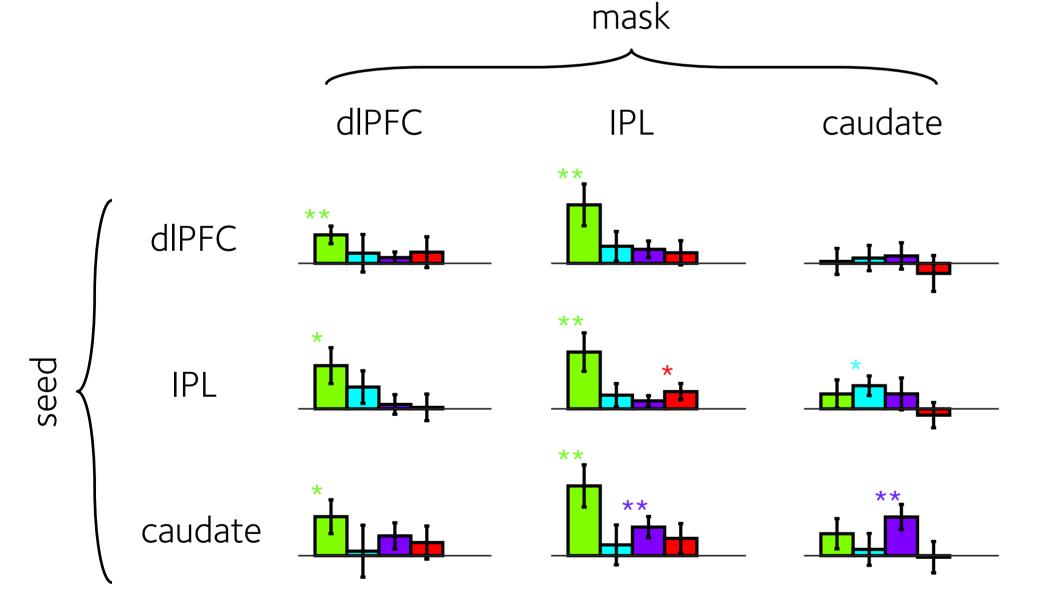
Main effects







PPI analysis

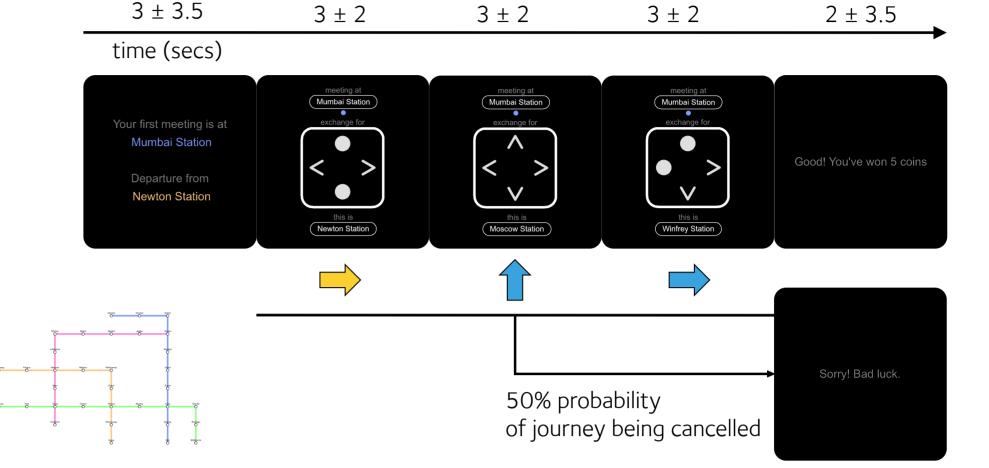


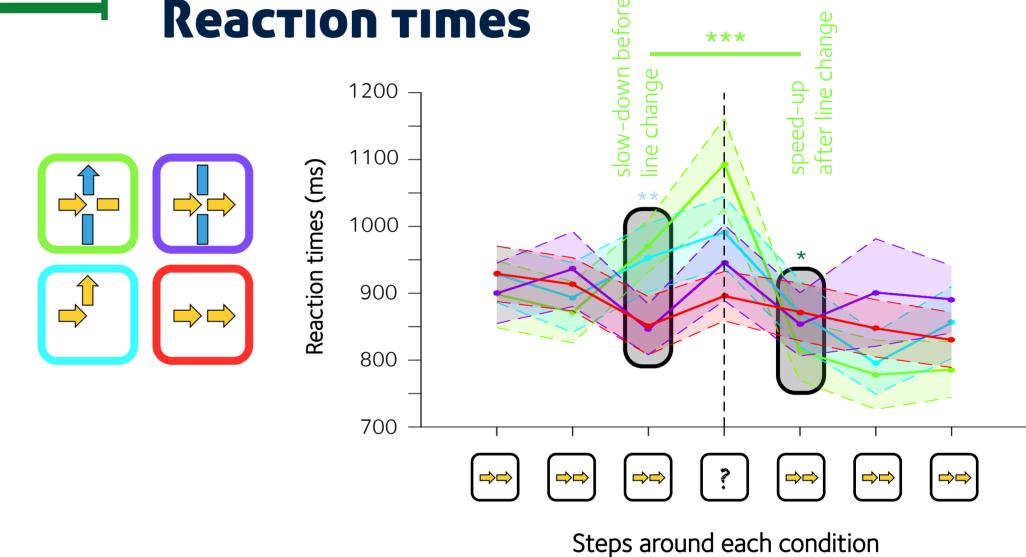
Conclusions

We have found unique signatures of a hierarchical representations in the brain while performing a navigation task. Specifically:

- IPL signals a switch of response.
- dIPFC signals exchange stations, but predicts the line change in advance
- caudate combines information from these two regions in order to change lines
- these regions are functionally connected during a line change (PPI analysis).

Task design





ROI analysis

