



# Mice in the Manhattan Maze: Rapid Learning, Flexible Routing and Generalization, With and Without Cortex

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Scan the QR code for the poster!

## OBJECTIVES

We observed mice navigating in the "Manhattan maze" – a novel and reconfigurable 3D maze and asked:

**Rapid learning:** How fast...

- ... do mice solve multiple mazes?
- ... are short routes developed?

**Long-term memory:** do mice remember maps over night?

**Generalization:** do mice learn...

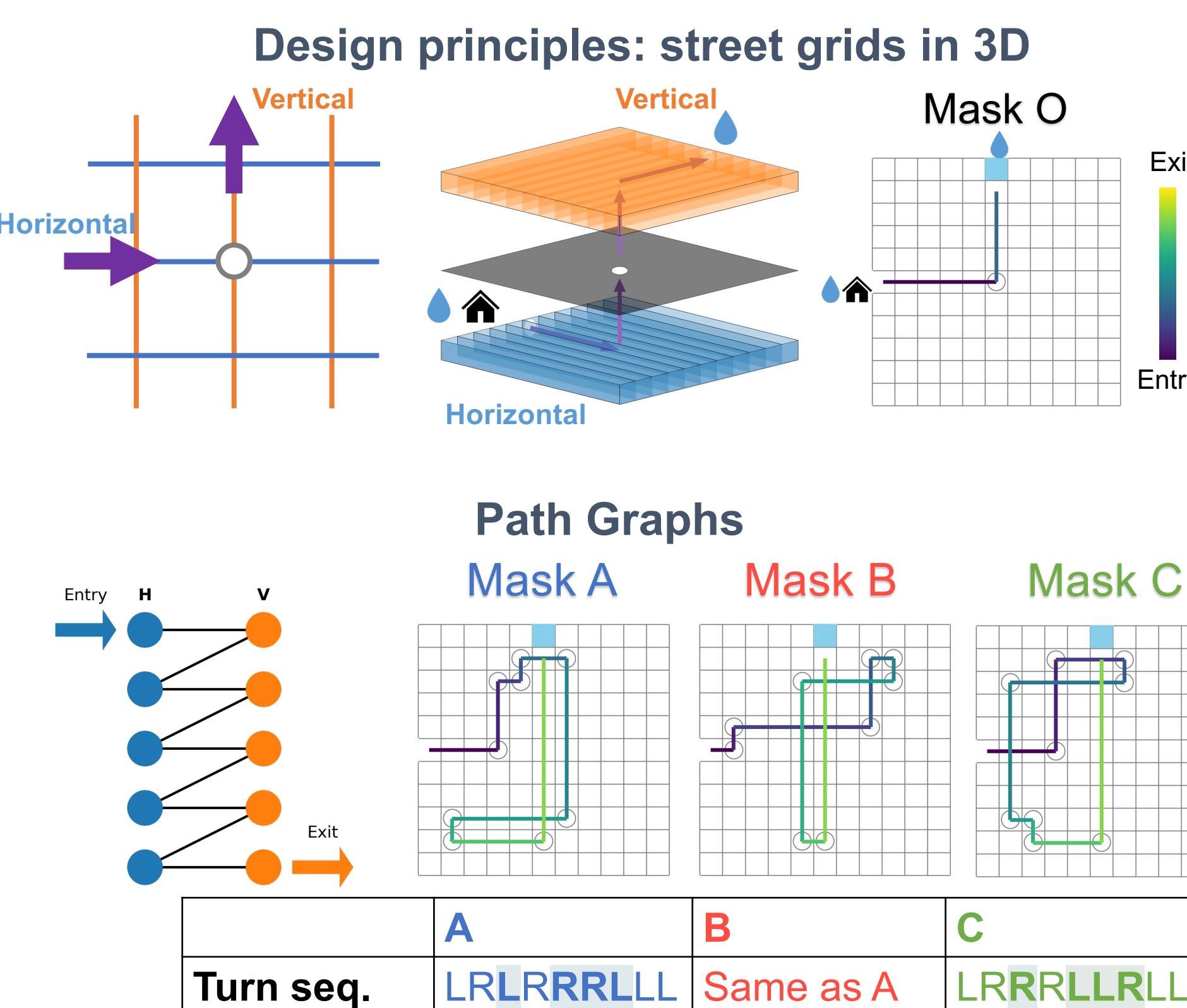
- ... different types of graphs?
- ... new maps faster than old ones?

**Neural substrate:** Is neocortex and hippocampus...

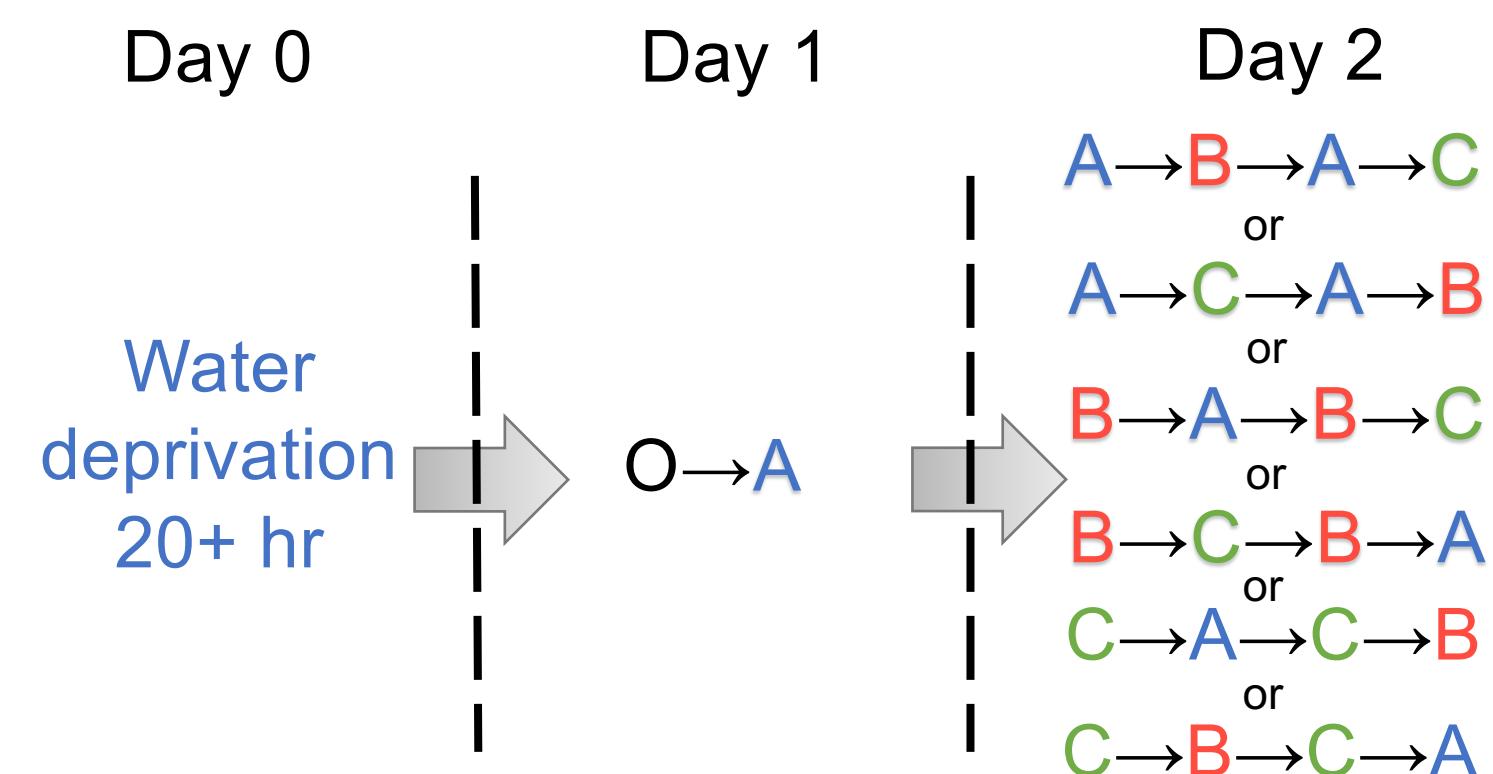
- ... strictly required for learning, generalization, or long-term memory?

## THE MANHATTAN MAZE

### Tablet for [video](#)

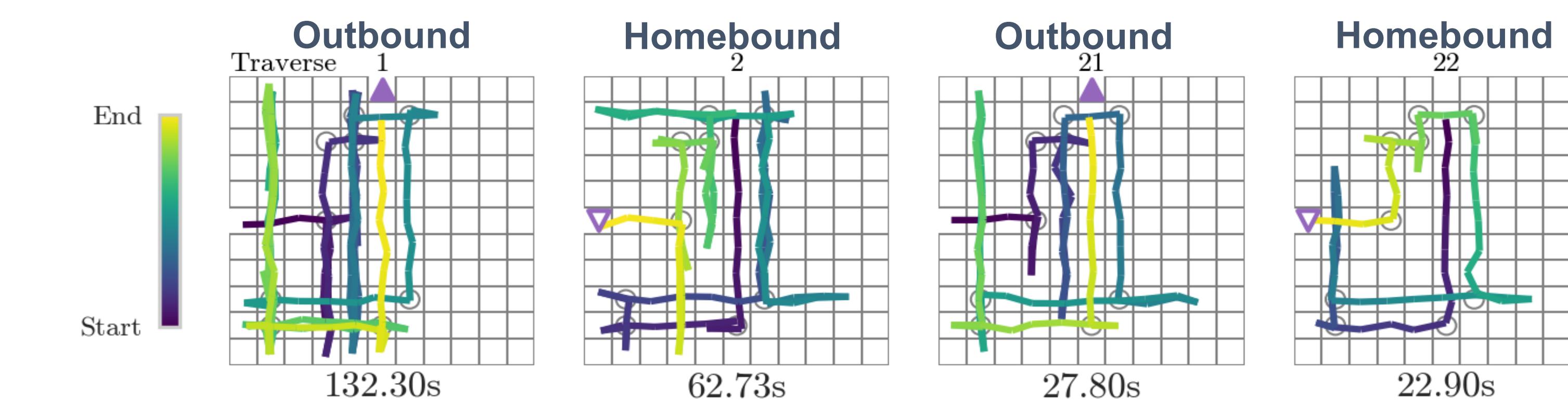


### Experiment Timeline

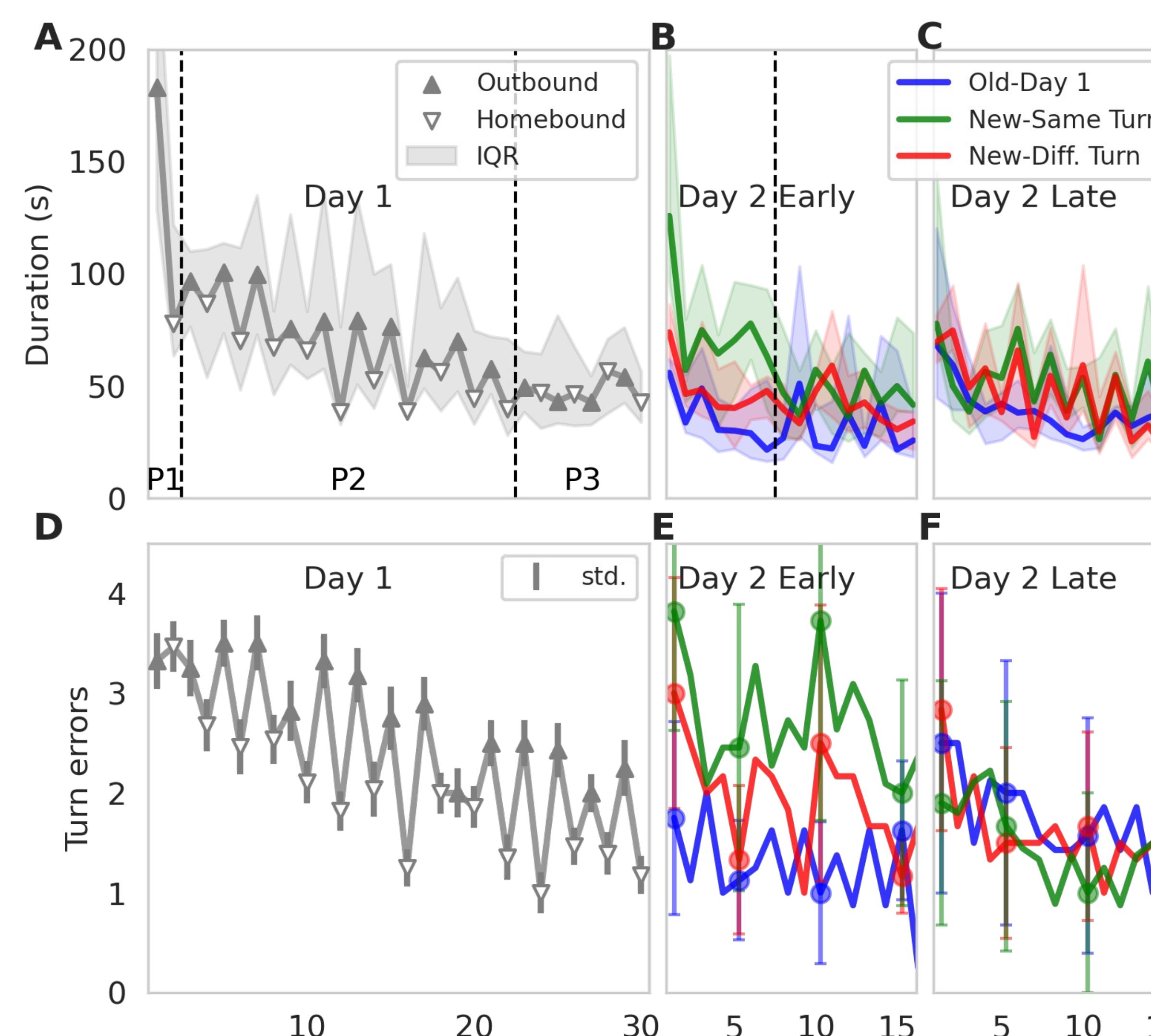


## WITH CORTEX

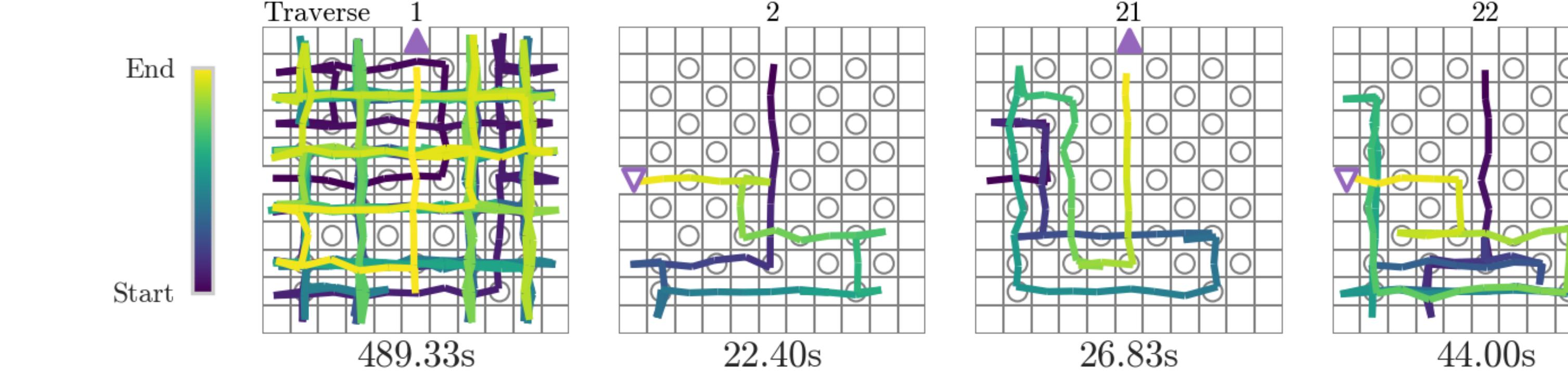
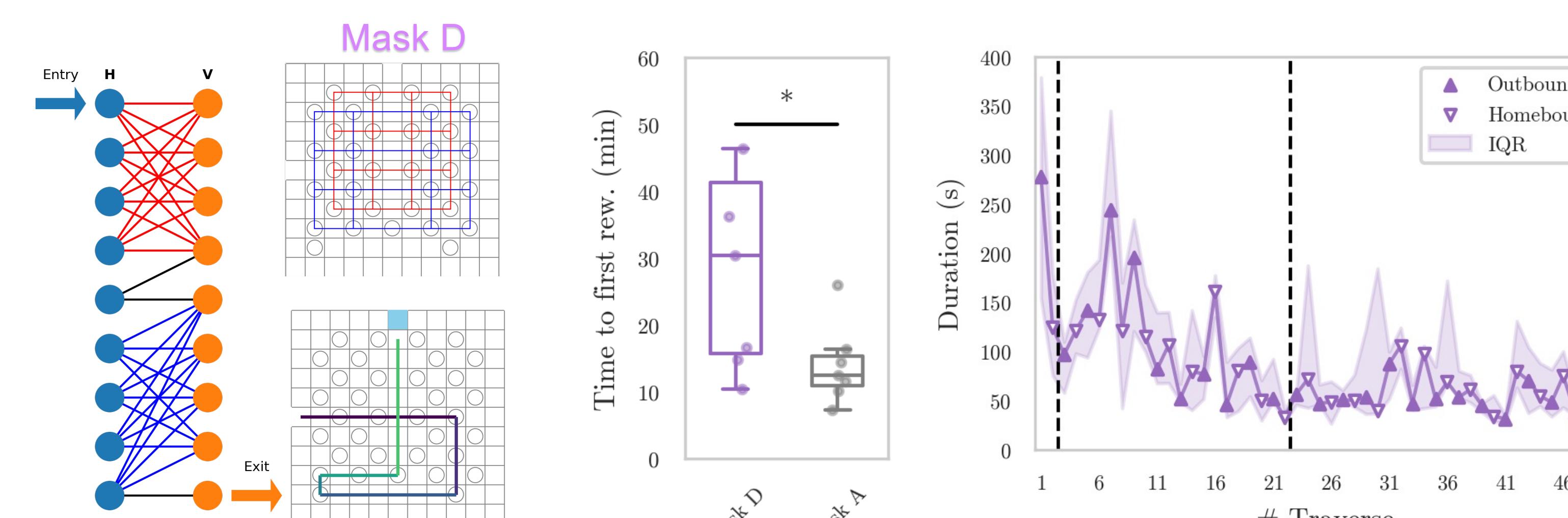
### 1. RAPID LEARNING



### 2. TWO-DAY RESULTS

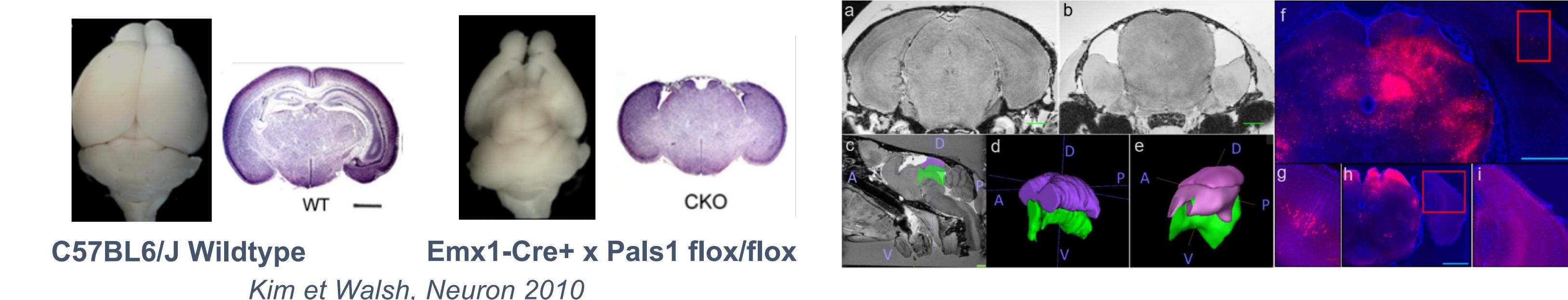


### 3. LEARNING A COMPLEX MASK

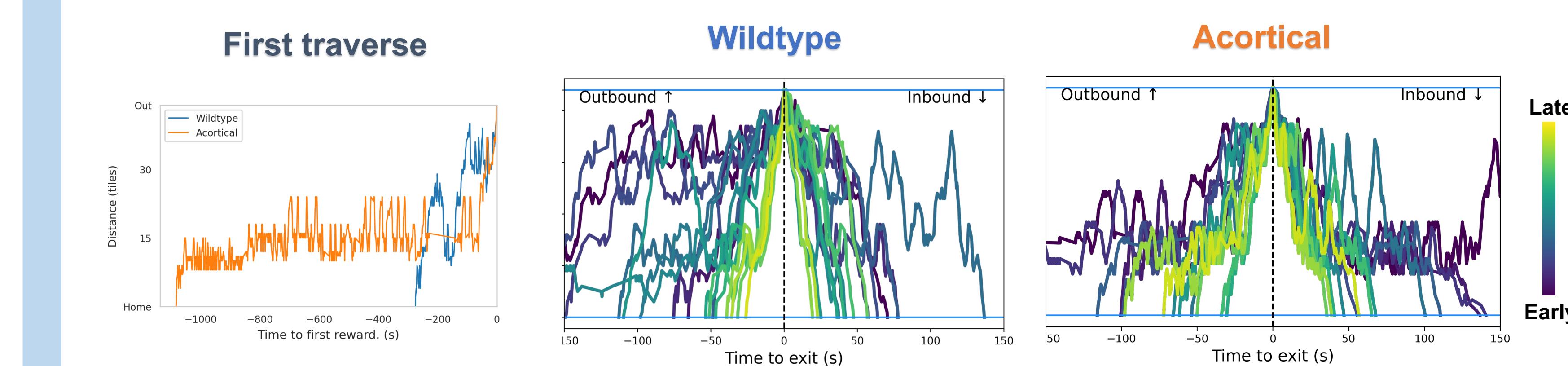


## WITHOUT CORTEX

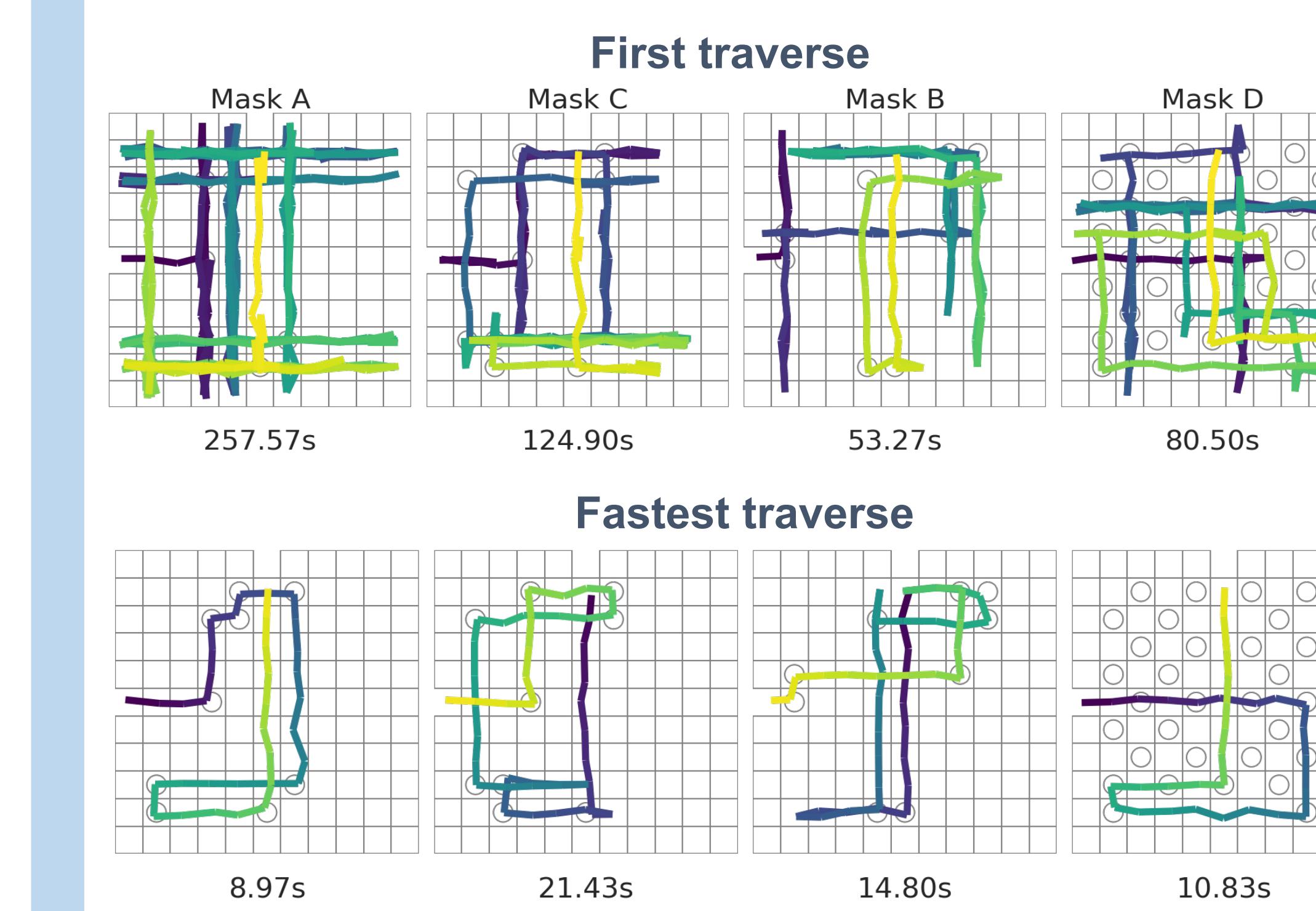
### 1. THE ACORTICAL MICE



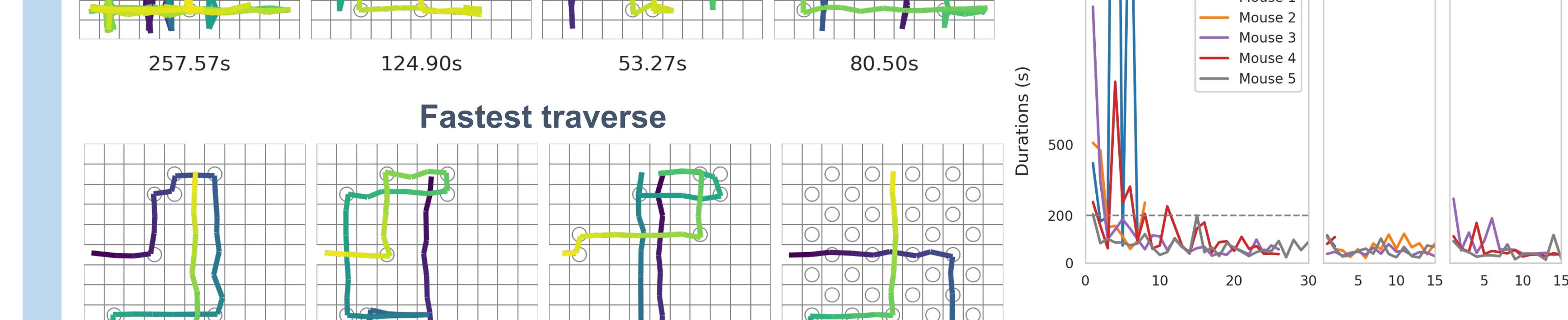
### 2. RAPID LEARNING



### 3. GENERALIZATION



### Multiple acortical mice



### 4. LONG-TERM MEMORY

