

# Unraveling the Neural Mechanisms of Decision-Making in

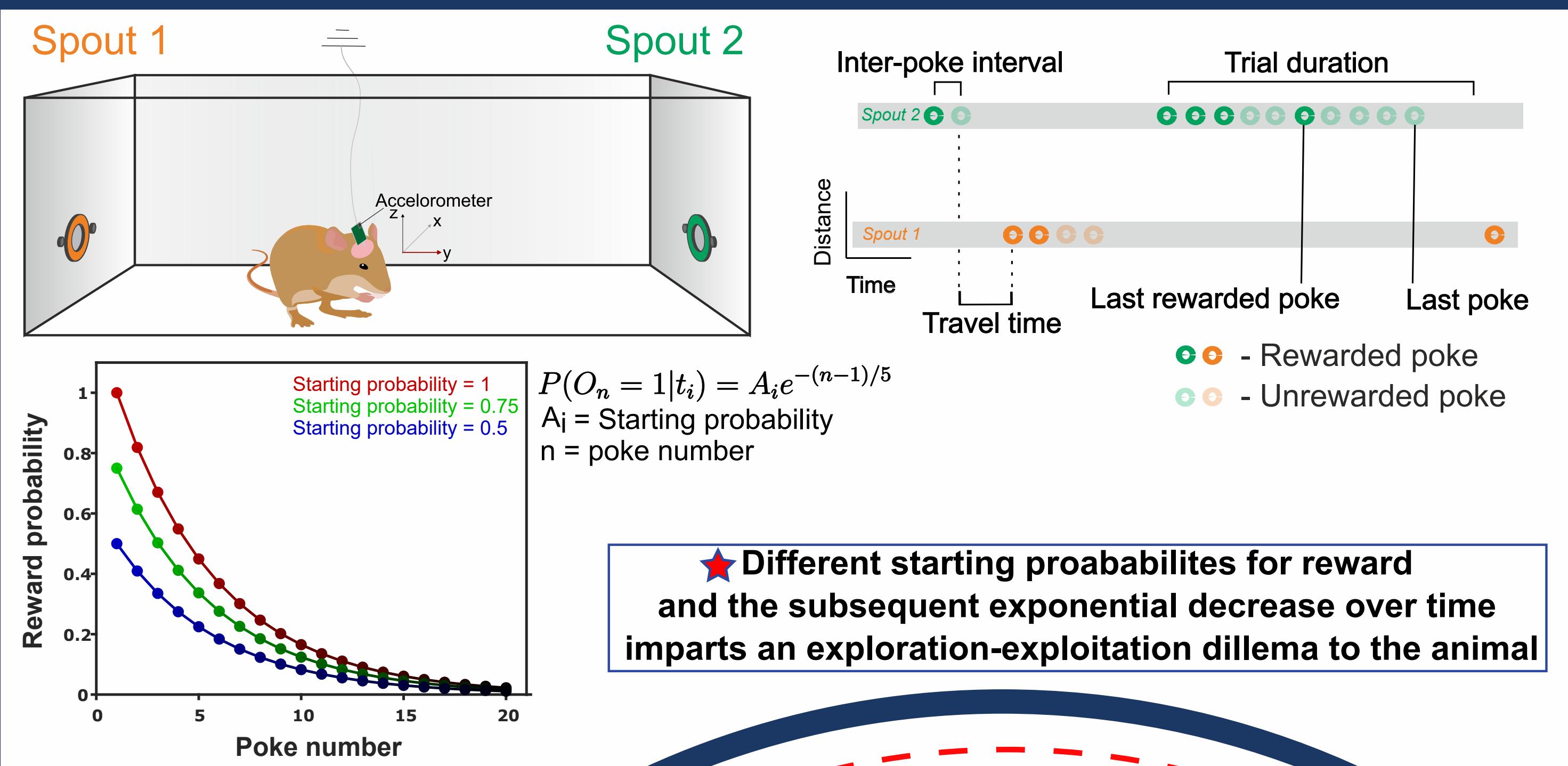
## Uncertain Environments:

### Insights from a Probabilistic Foraging Task in Mongolian Gerbils

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#### The situation - probabilistic foraging task

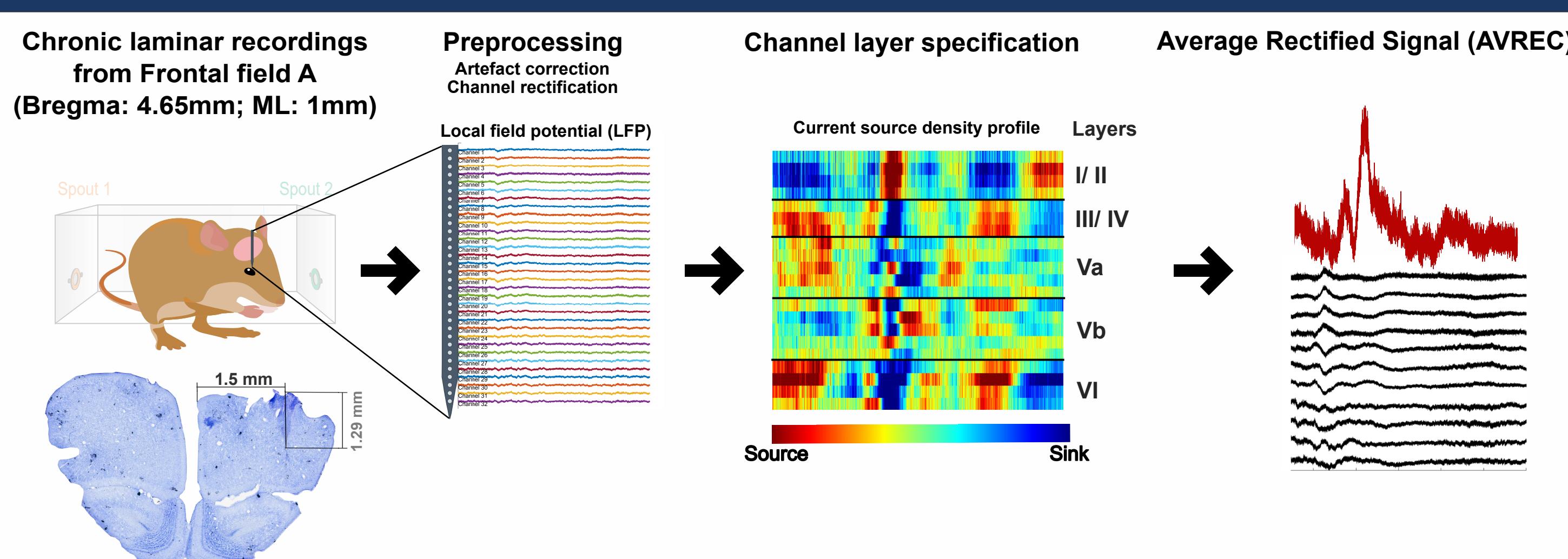


Should I stay or shift?

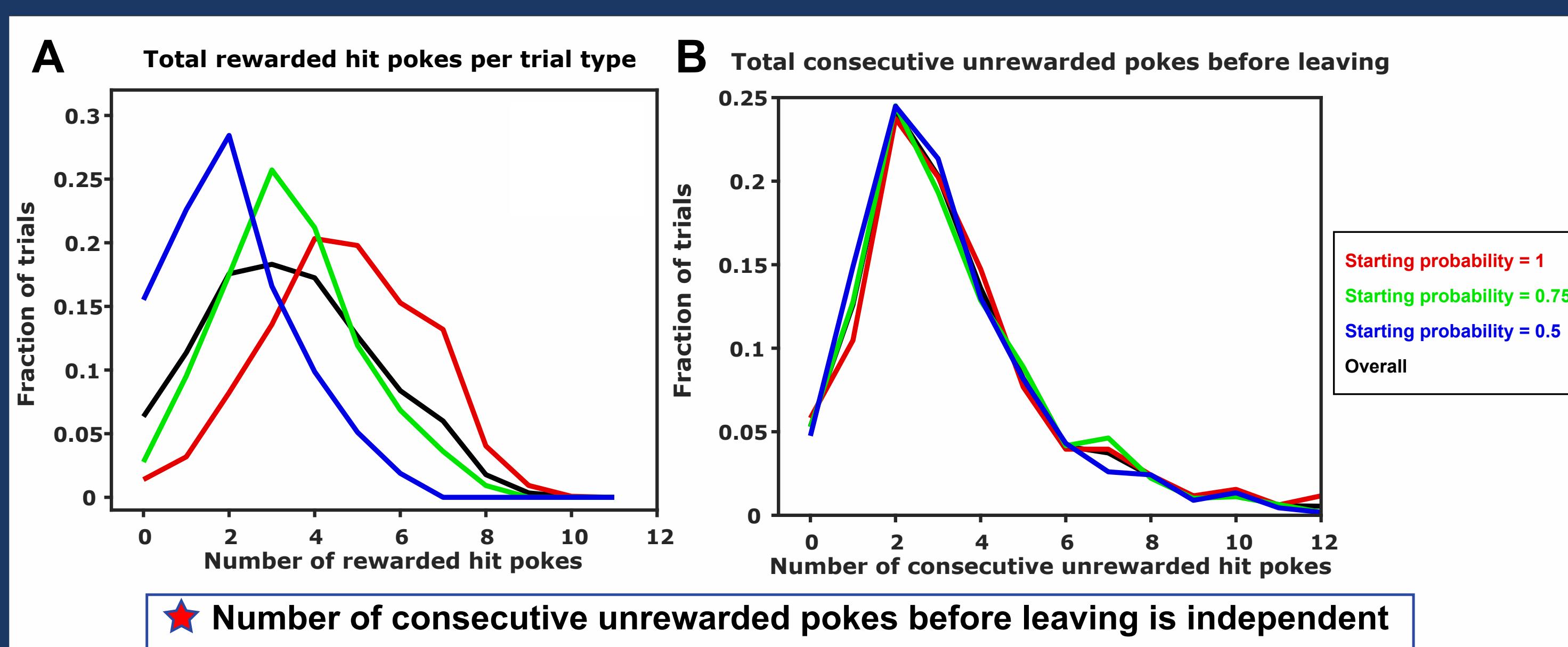


Frontal cortex orchestrates the adaptive decision making

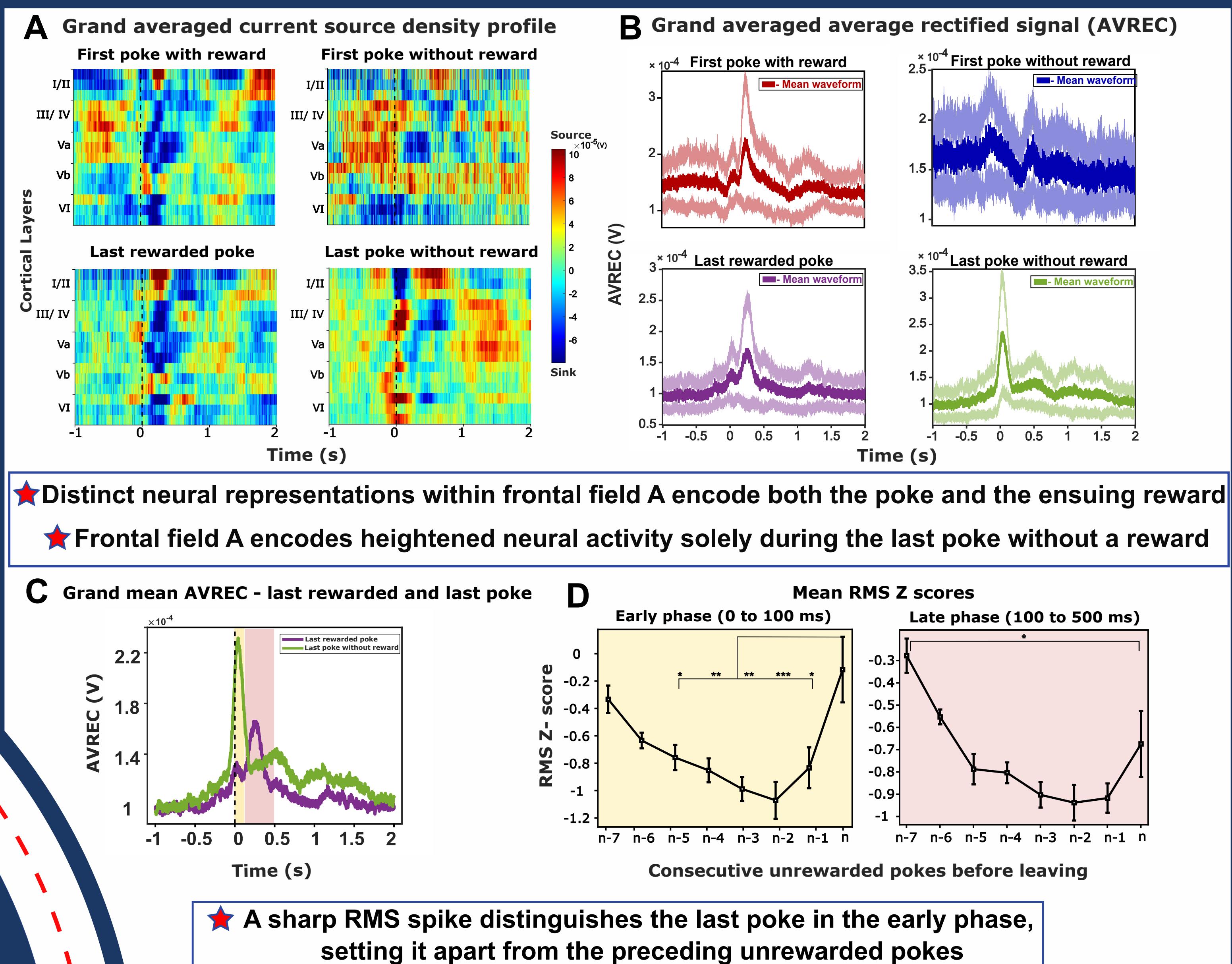
How did we study this?



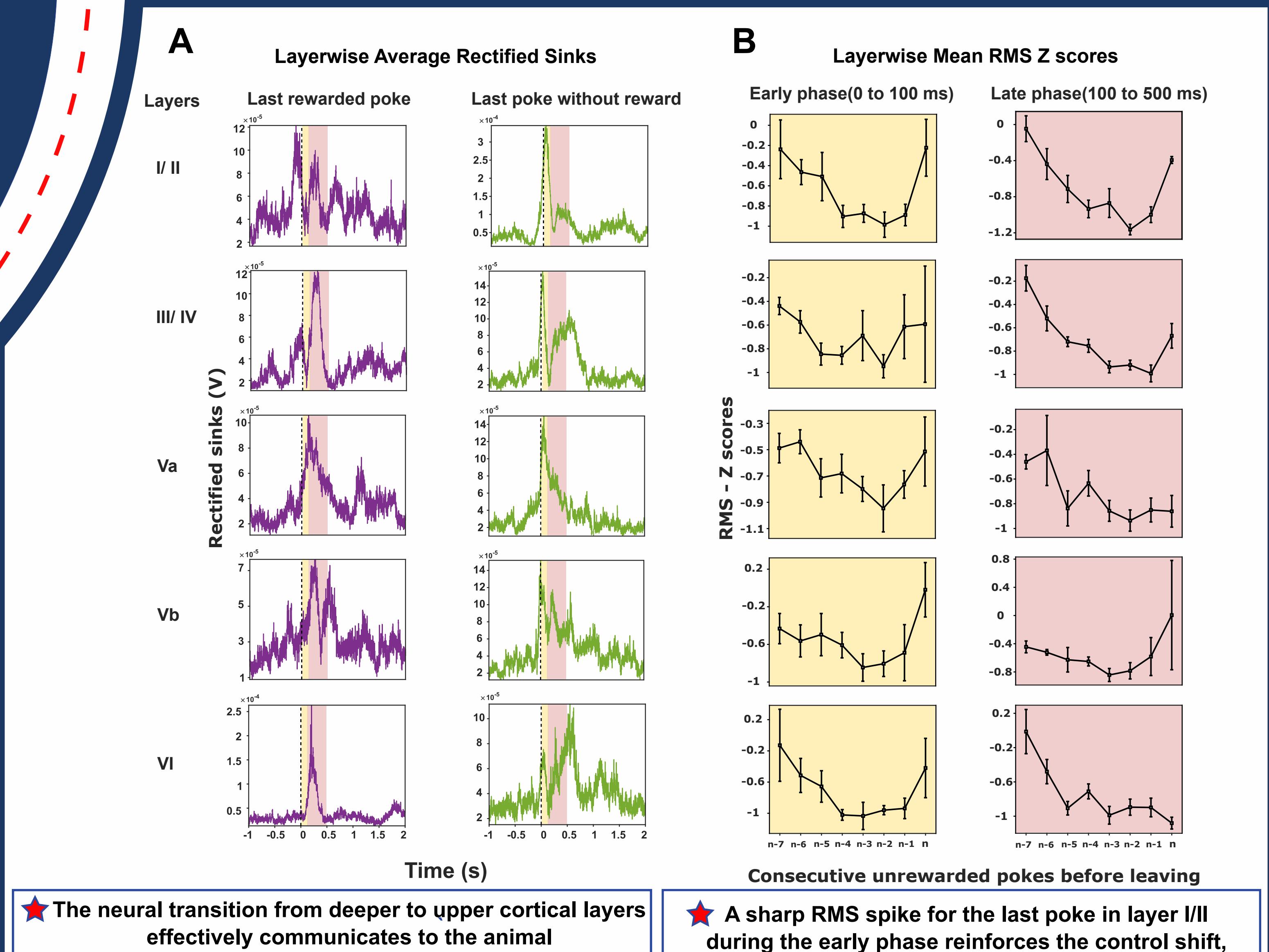
Animals make inference based decisions



#### What makes the last poke the last one?



#### Frontal layer dynamics during decision making



#### Concluding insights & next steps

##### Conclusion

- The transition of control from deeper to upper layers, complemented by the heightened activation of layer 1/2 during the final poke empowers the animal to make adaptive decisions between exploration and exploitation during uncertain environments.
- GLM(M) Model Validation:** Validate Generalized Linear Models (GLM(M)) to assess the accuracy of overall cortical and layerwise RMS z-scores as pivotal decision features predicting the animal's shift from current spout.
- Reinforcement Learning Modeling:** Develop a reinforcement learning model to replicate the animal's inference-bound decision-making behavior, providing insights into the neural circuitry's role in adaptive choices.

##### Acknowledgements

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