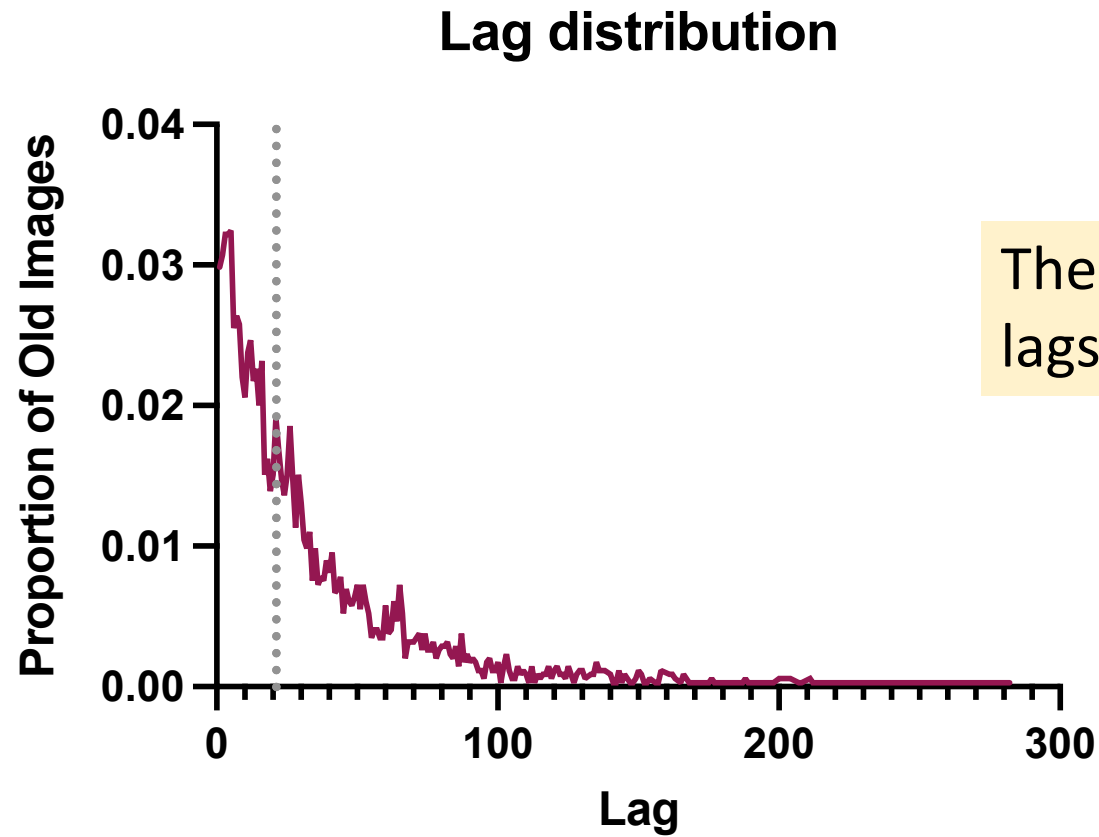


Spatial Temporal Massive Memory Results

March 18th

Old-New Lag distribution



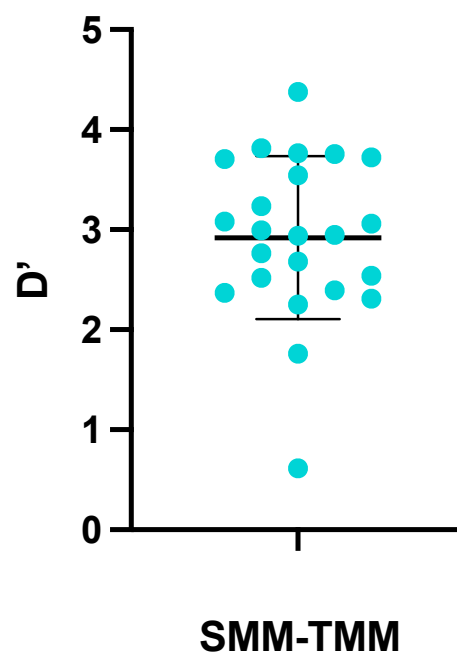
There were more smaller lags than longer lags

Median Lag \approx 21.5, range [1, 282]

Old/new response

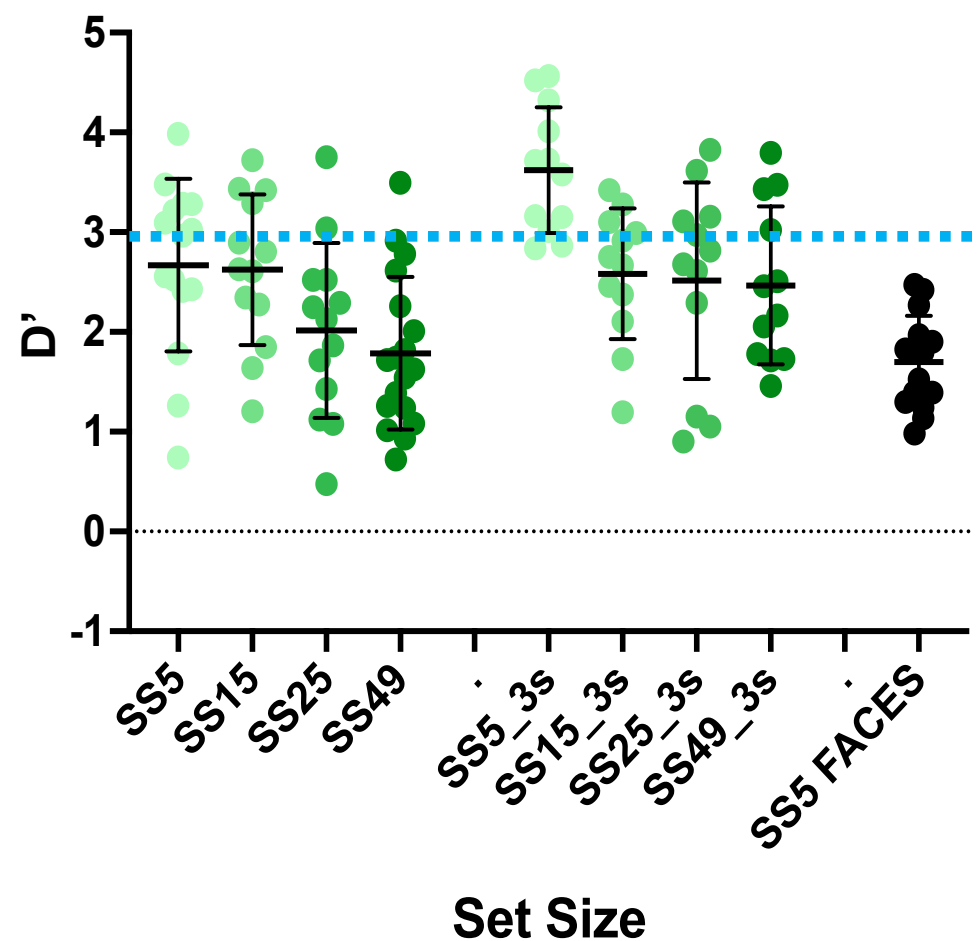
From the previous SMM exps

Old/New Memory (d') - 23 Os

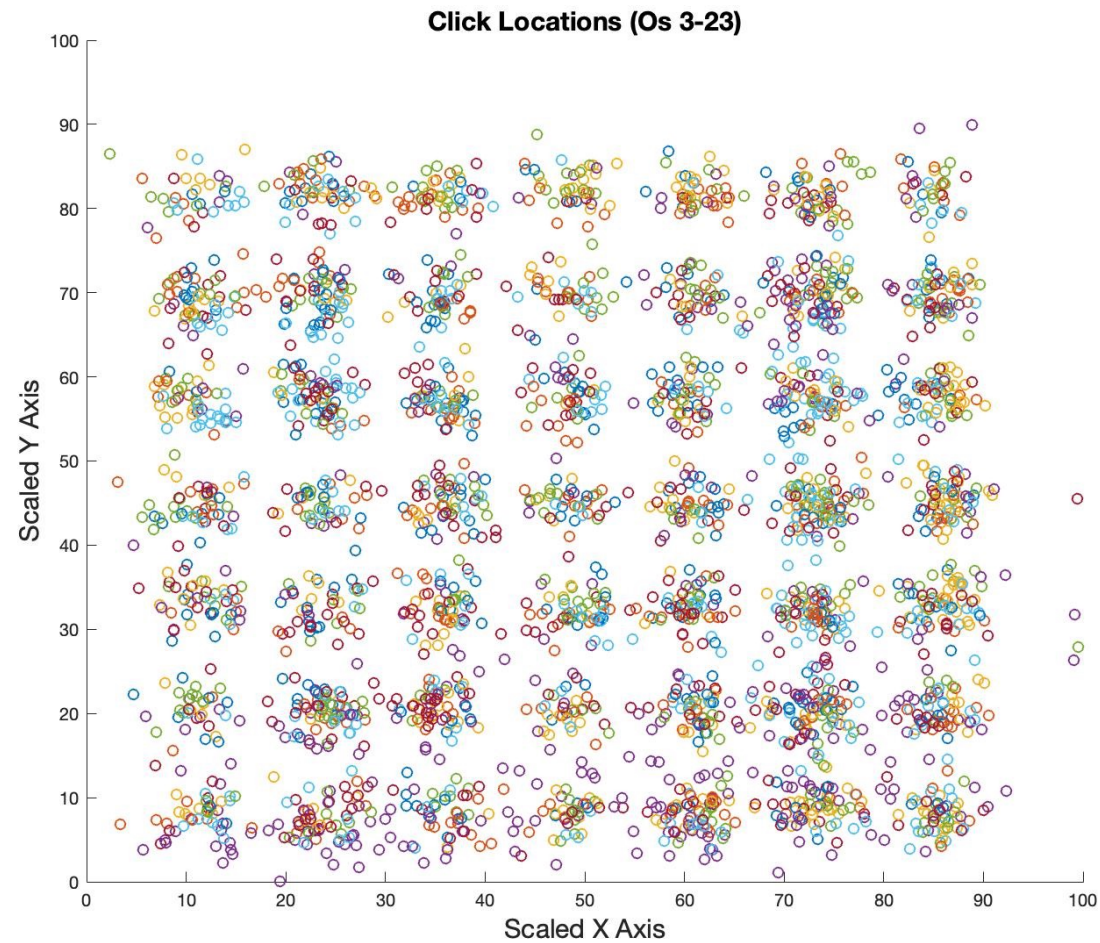


Old/New response
slightly better in
SMM-TMM

OLD/NEW Memory Test (d')



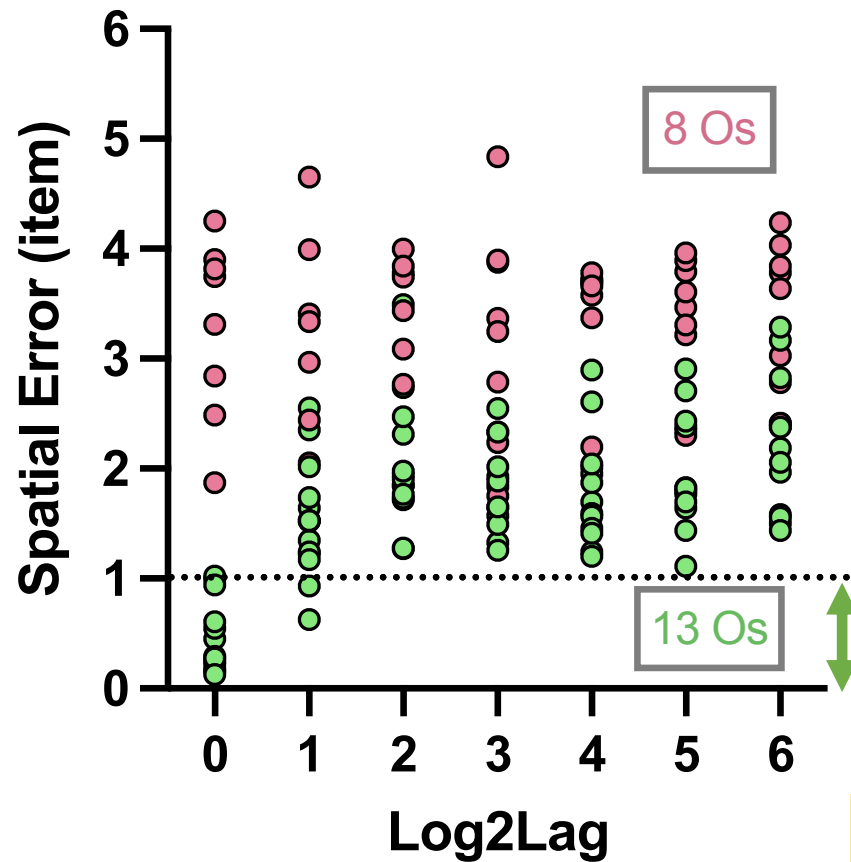
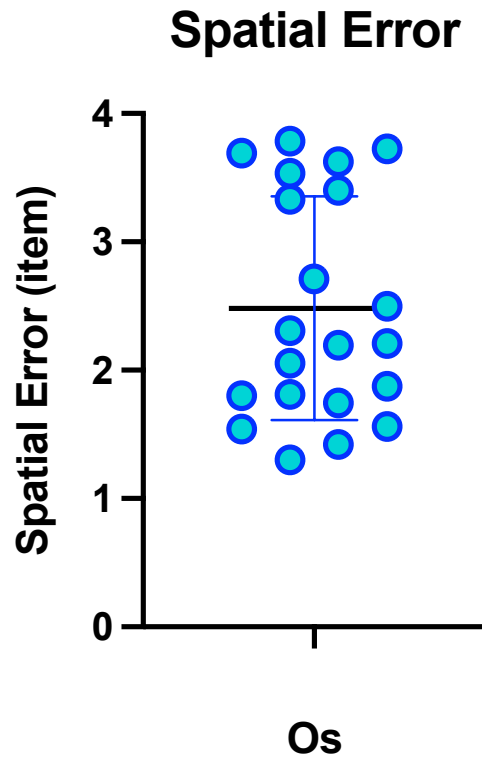
Click response



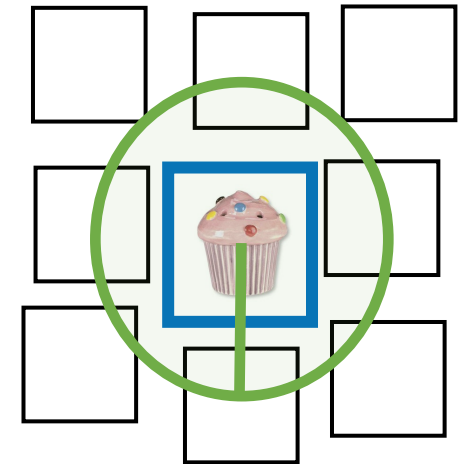
Avg distance = 12.5

Spatial Error by Log2Lag

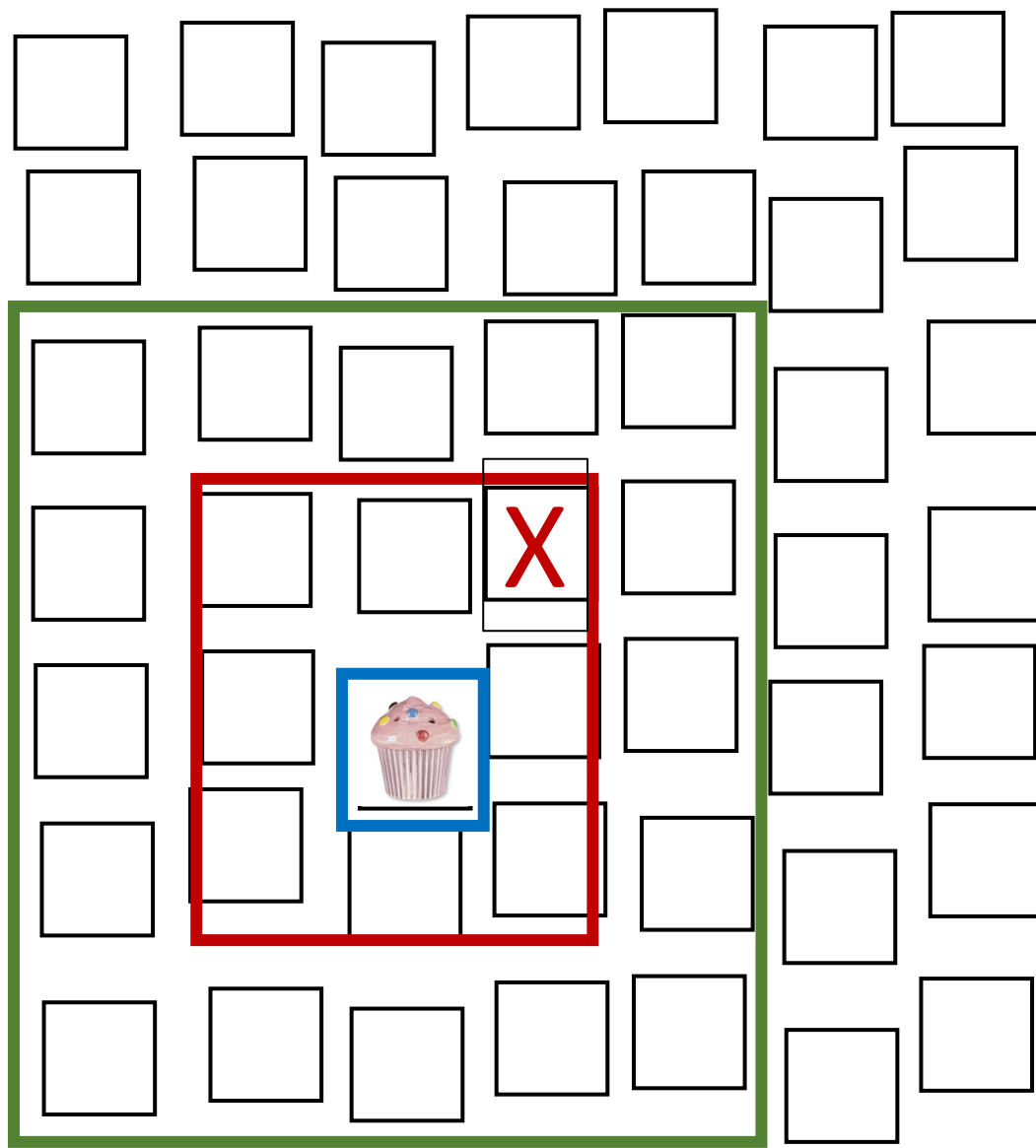
Spatial Error x Log2Lag (Scaled)



13 Os clicked into the green region when old item is tested immediately after the new item



Spatial Error increases with Lag



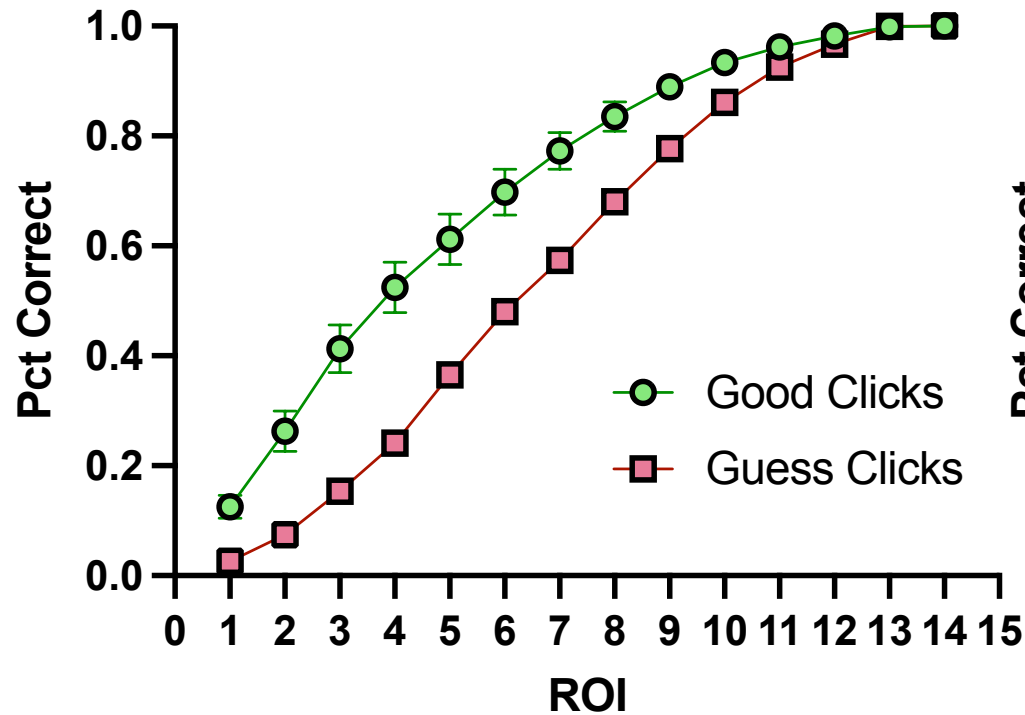
Define ROI

This click is outside ROI 1 and ROI 2

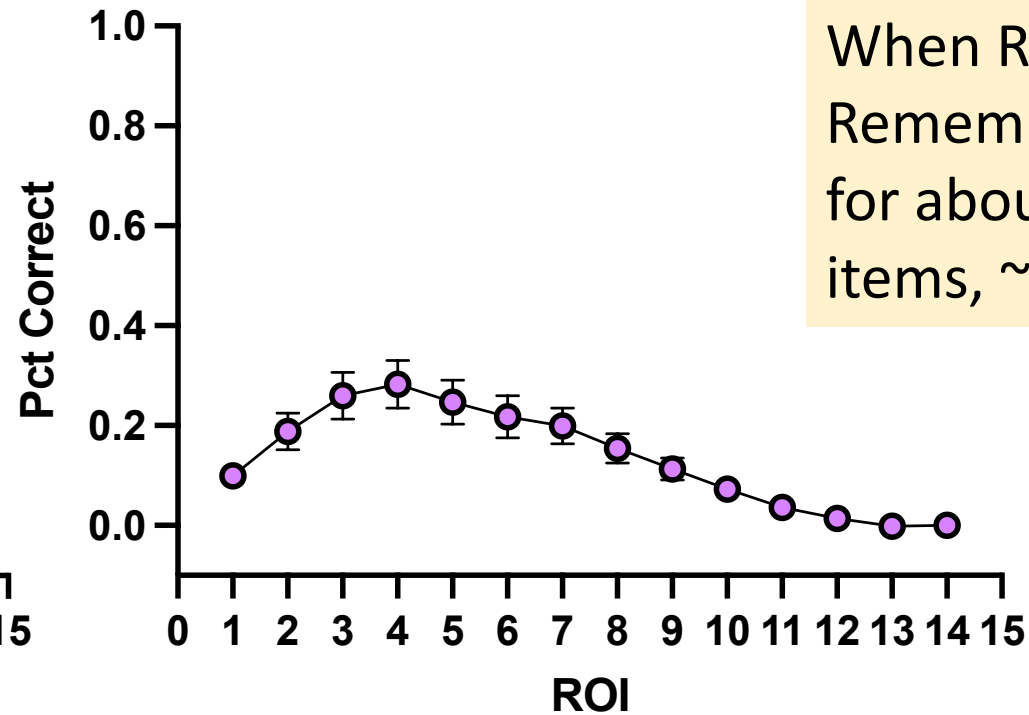
Inside ROI3 and > 3

Percent correct across ROI sizes

ROI - Good and Guess

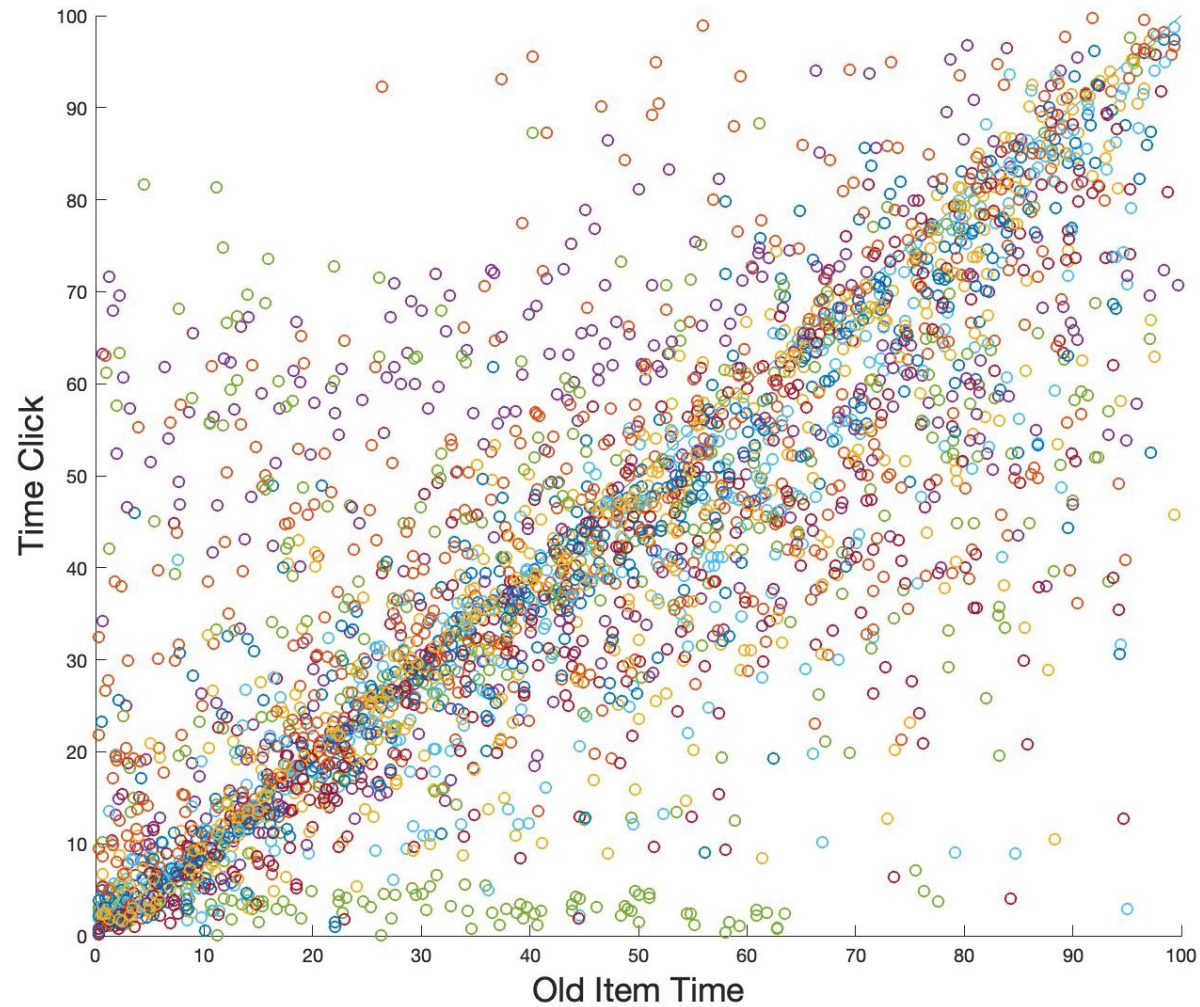


Capacity



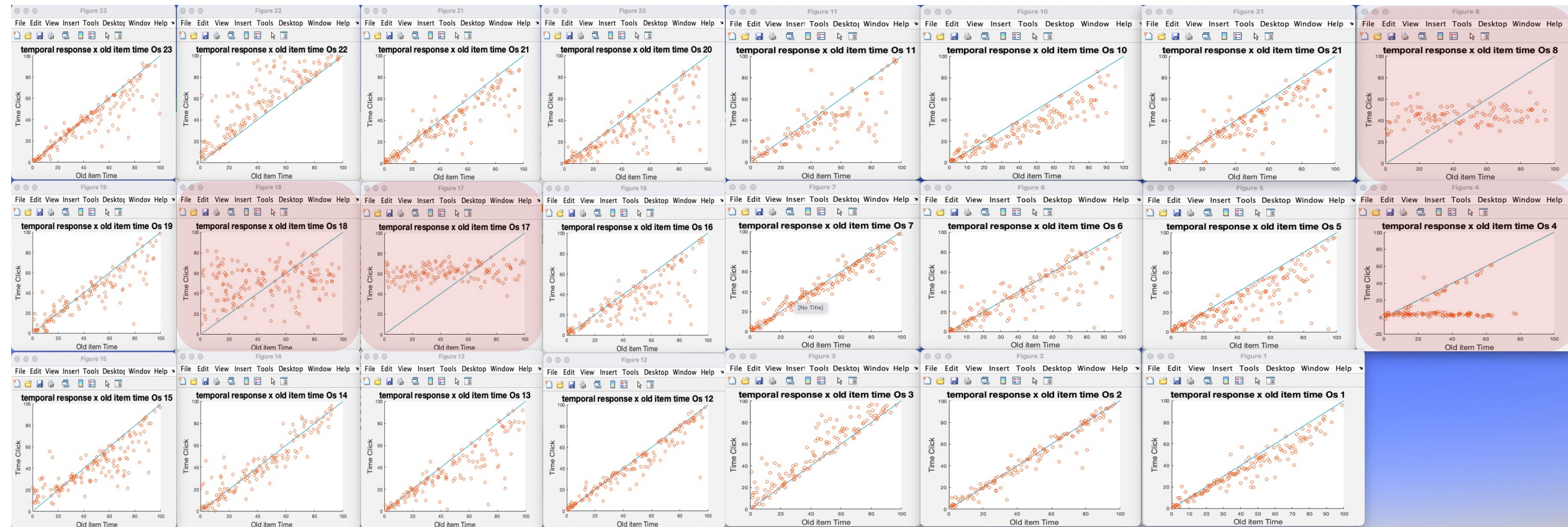
When ROI = 3,
Remember location
for about 30% of old
items, ~45 item

Temporal response



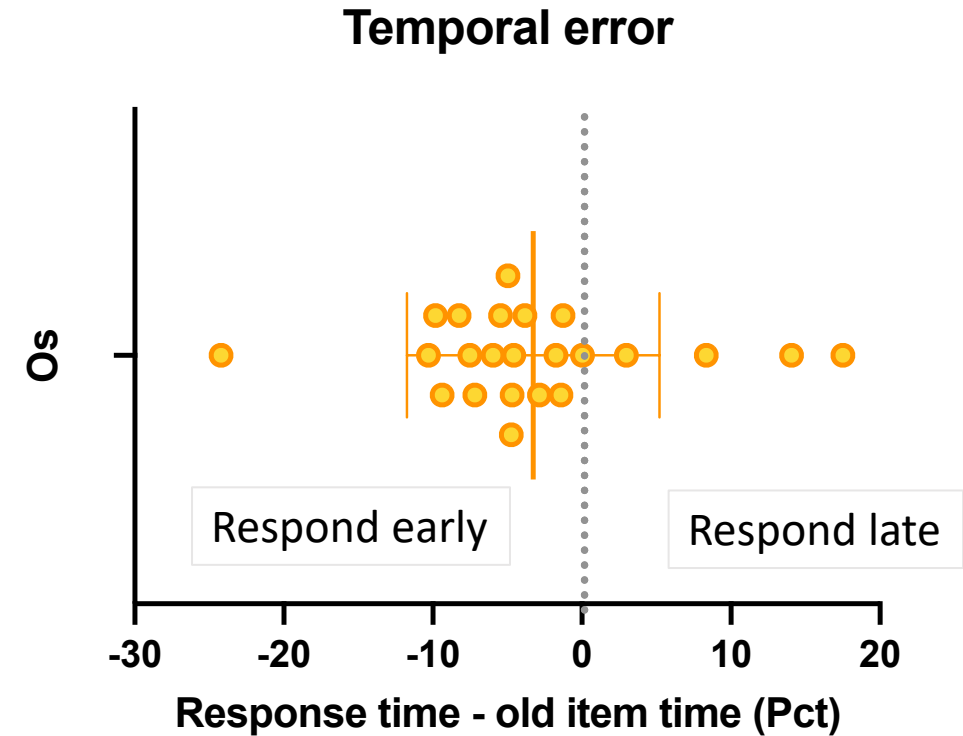
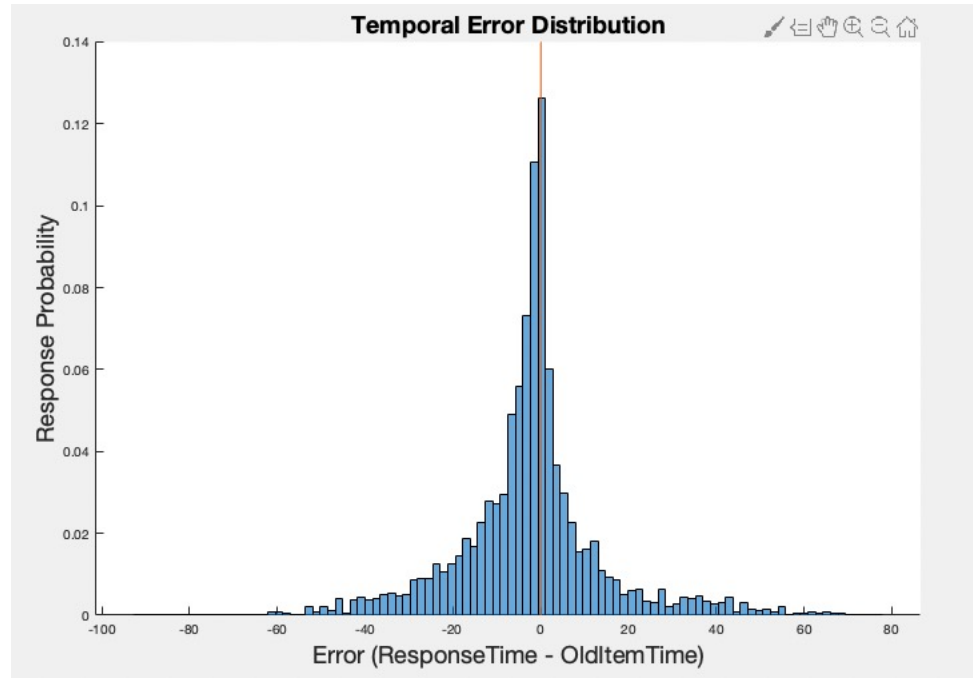
Perfect response will lie on the diagonal

Temporal response (individual Os)



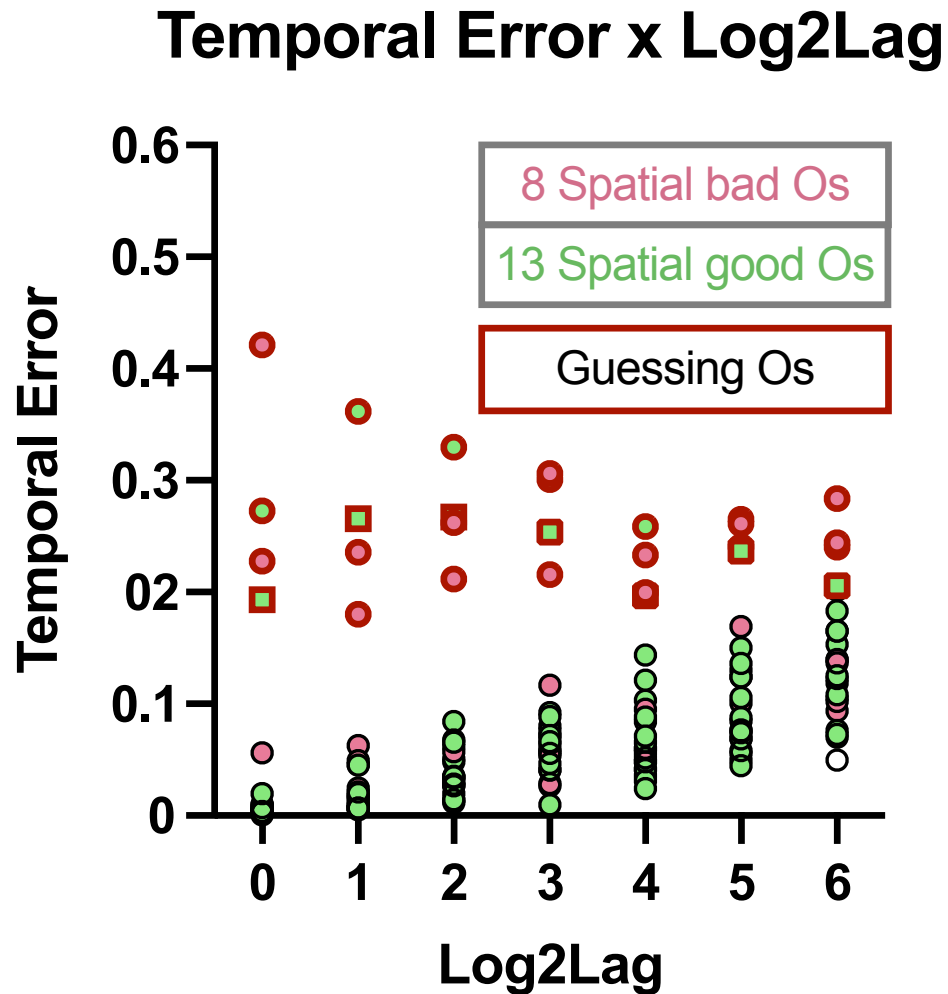
At least four Os appeared to be guessing

Distribution of temporal error



Most Os respond too early

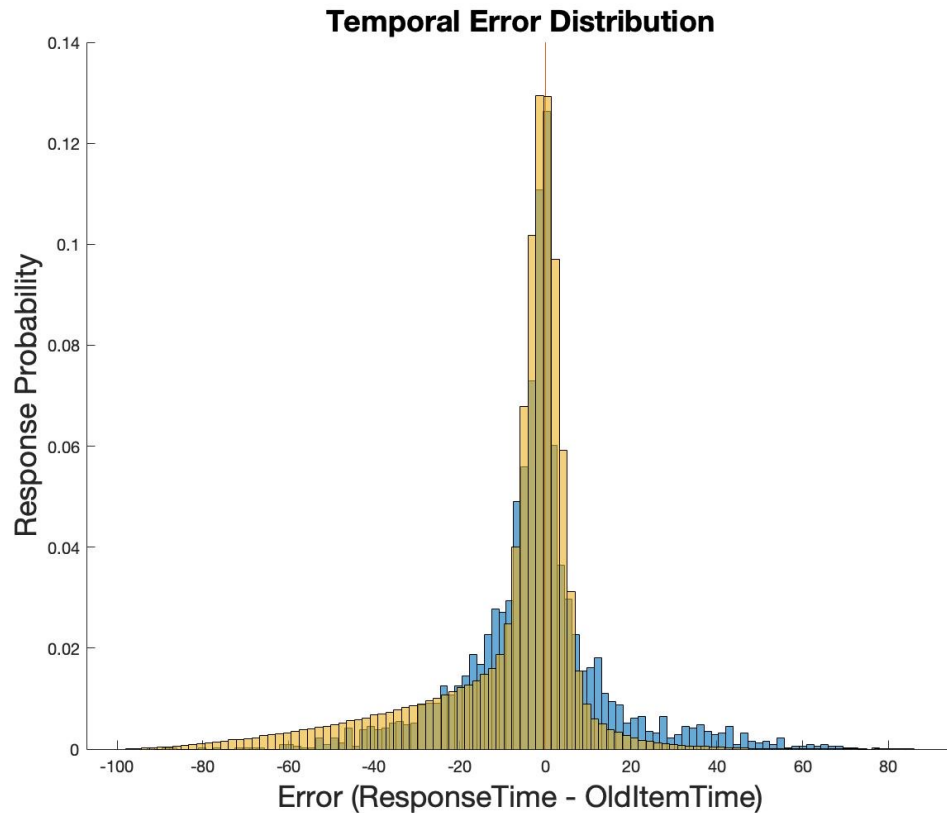
Temporal error by lag



Except for the four guessing Os, there is a systematic increase in error with Lag

Os who performed poorly in spatial task did fine in the temporal task.

Guess 1



If guess clicks are distributed uniformly along the *valid range* on the time scale, the error distribution (in yellow) would have a large tail on the left.

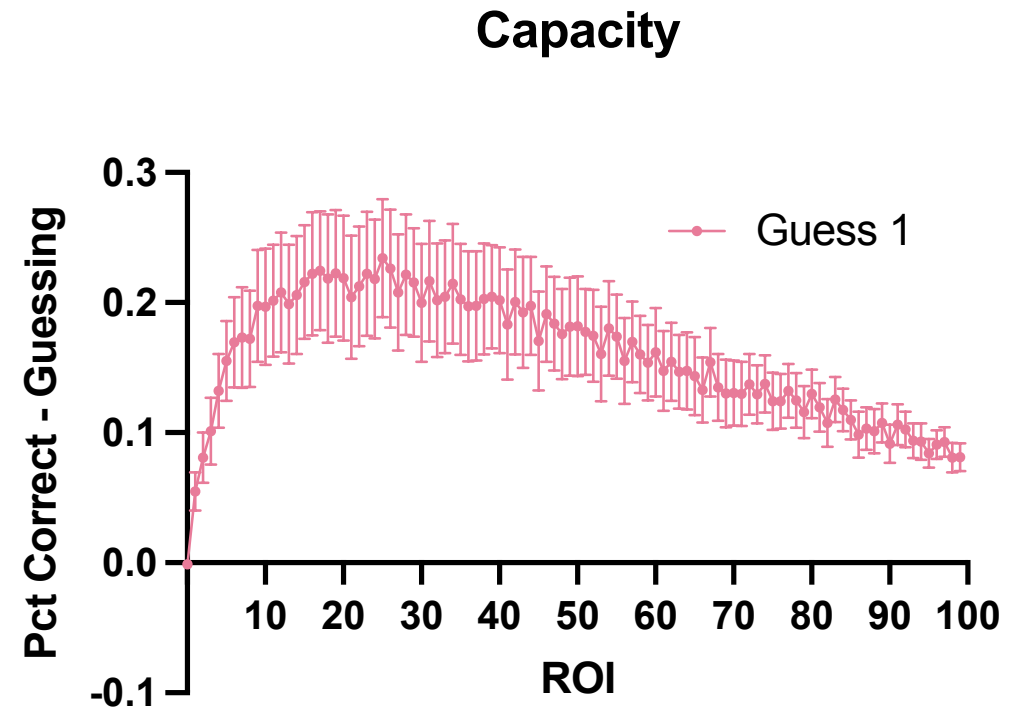
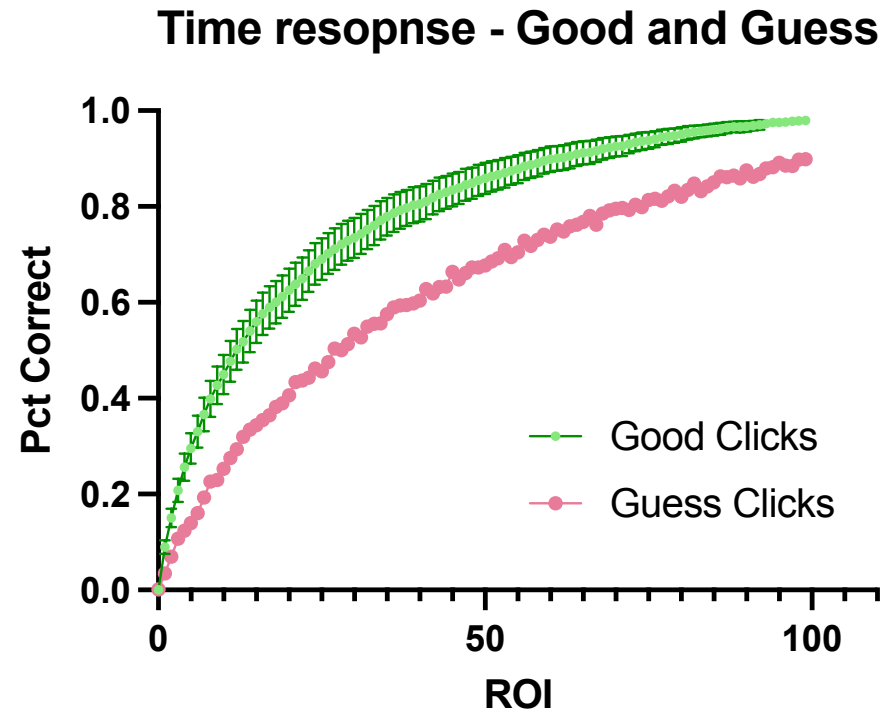
We don't see the tail in the actual data

(valid range = [0, current time point])

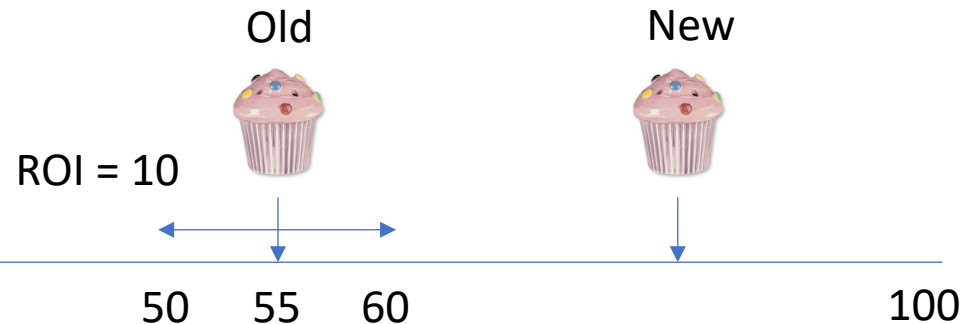
Yellow – simulated distribution (if guessing 50% of time)

Blue – Data error distribution

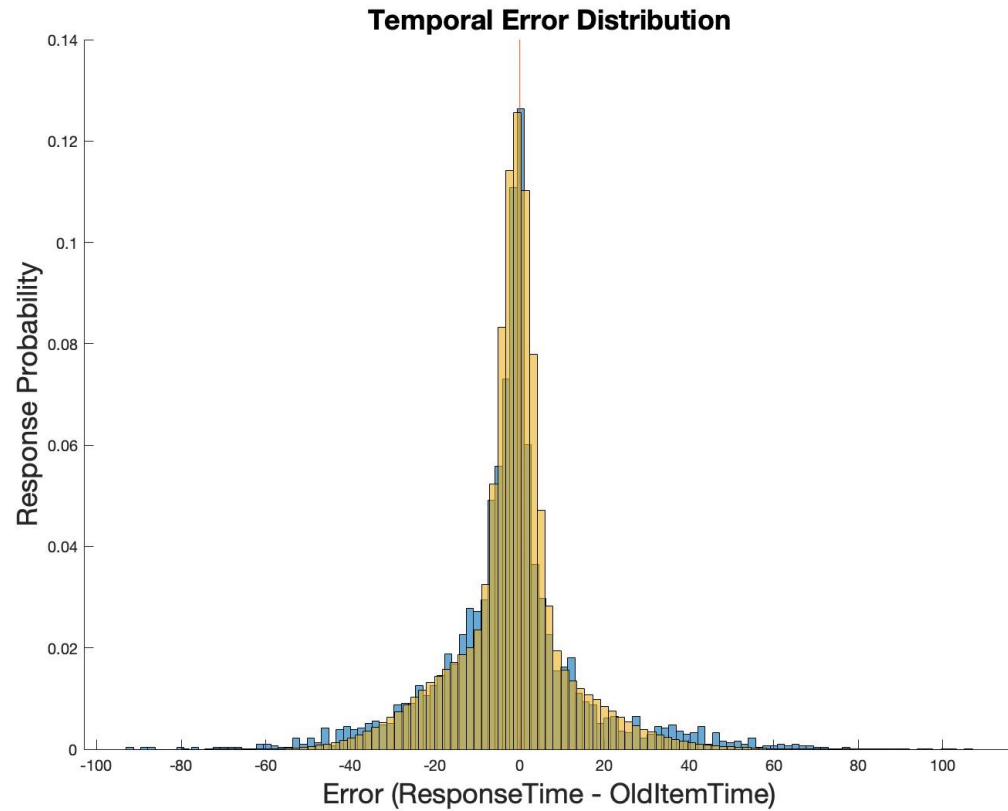
Percent correct across ROI range



Uniform guess plotted in Pink



Guess 2

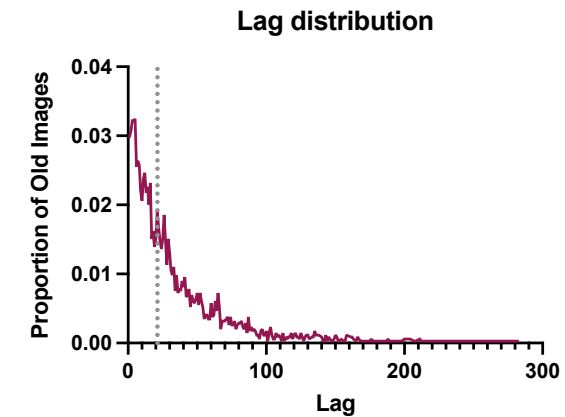


Yellow – simulated distribution (if guessing 50% of time)

Blue – Data error distribution

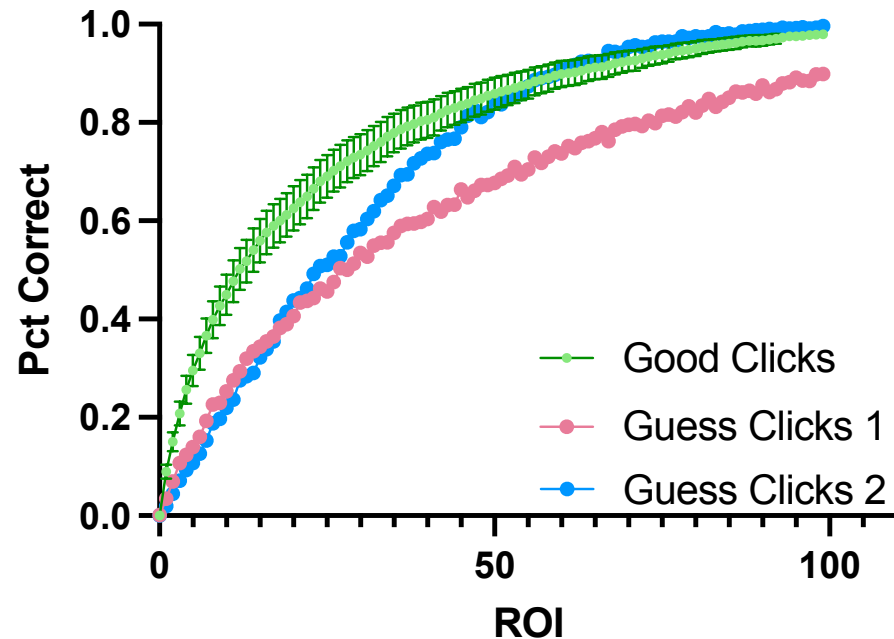
Guess click could bias towards the current time position, since more pairs have smaller lags.

Left figure: if each guess is sampled from a normal distribution with a mean = $0.75 * \text{current time position}$



Percent correct across ROI range

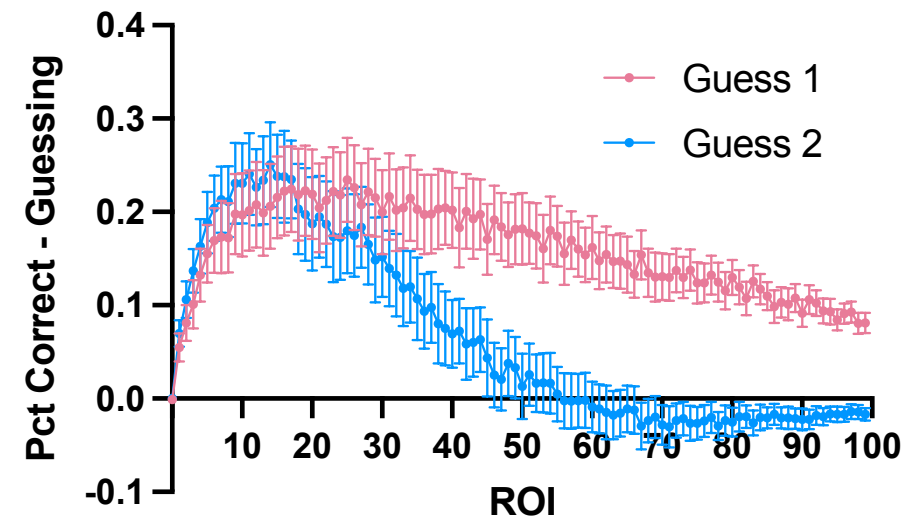
Time response - Good and Guess



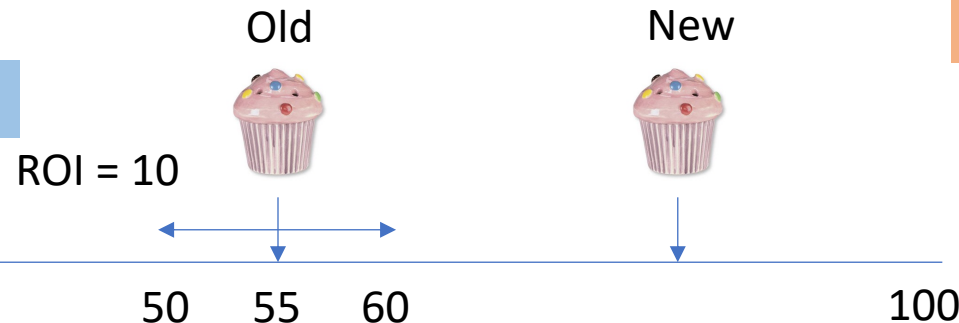
Uniform guess plotted in Pink

Normally distributed guess plotted in Blue

Capacity

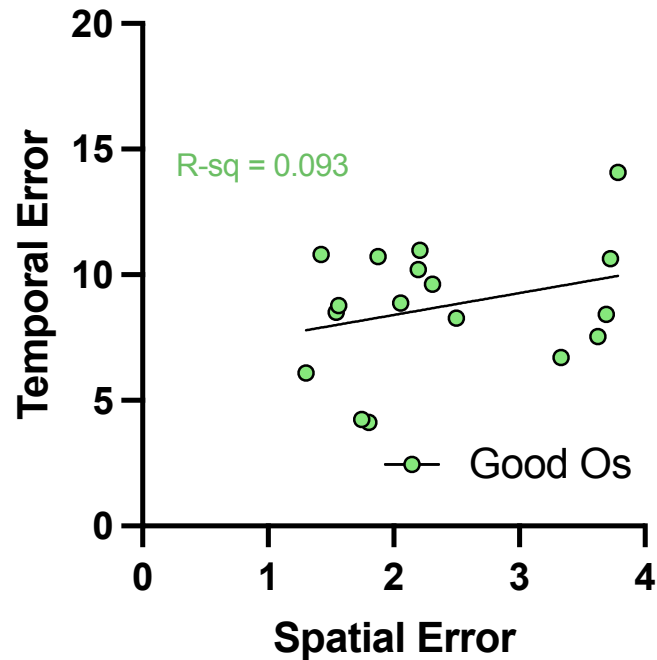


Not sure how to think about this capacity?

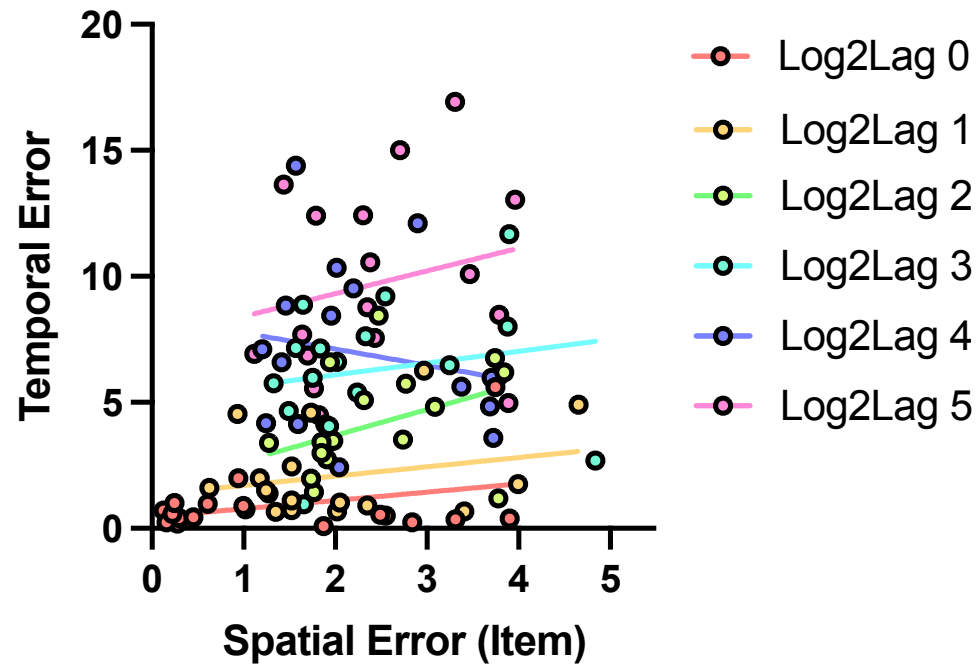


Spatial error x temporal error

Temporal vs Spatial Err (17 Os)



Spatial x Temporal



No obvious correlation between Spatial and Temporal errors