Working memory load strengthens reward prediction errors – Supplement.

Abbreviated title: Working memory load strengthens prediction errors

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Figure S1: correlations between individual parameters; red indicates significant links (see table 4).

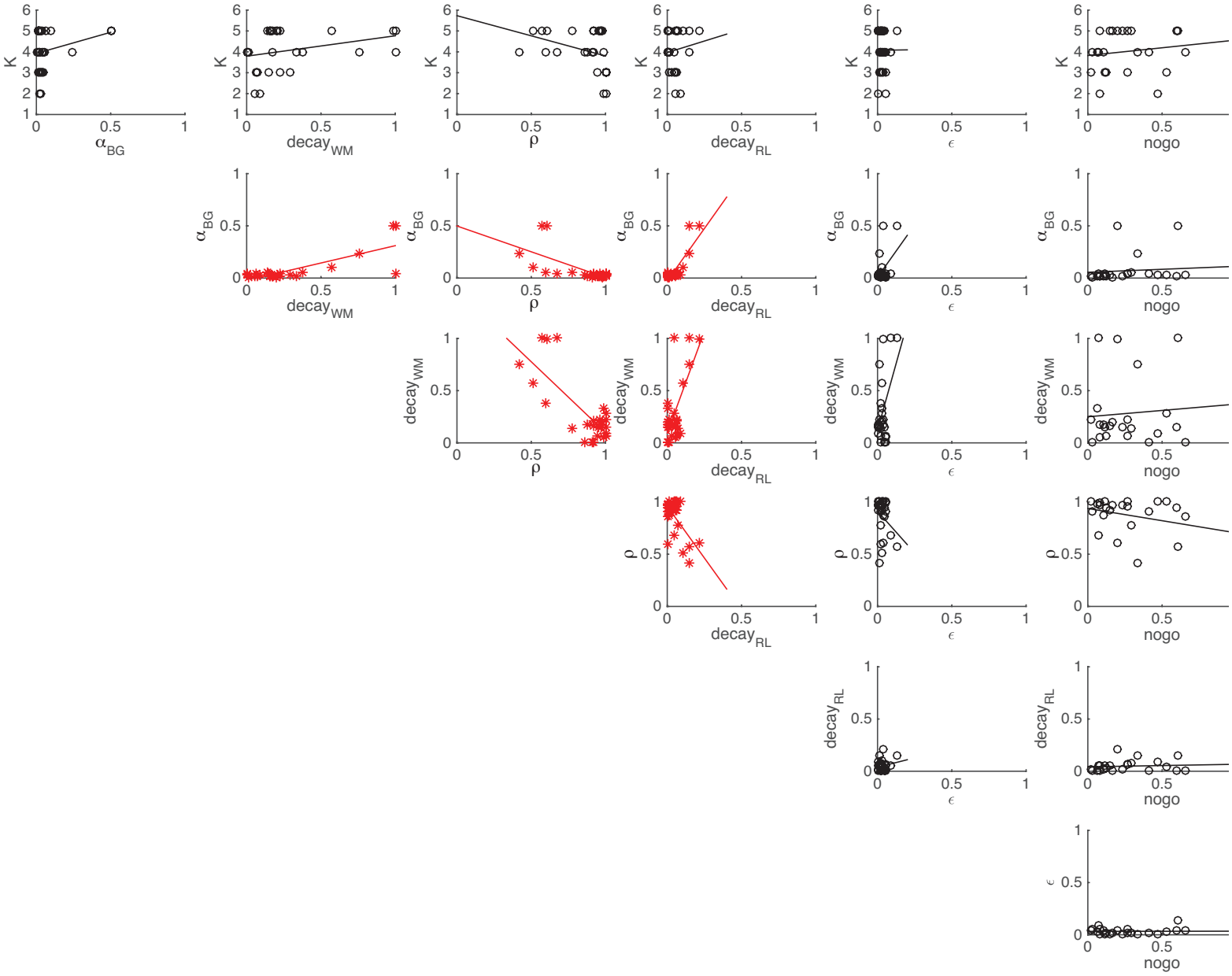

Figure S2: Examples of how model parameters relate to behavior (all plots follow notations of main paper figures). Here, all behavioral subjects were median split based on a fit model parameter. We see for example (panel A) that learning in the high capacity group is much better for set size 4 than in the low capacity group; this set size is where the difference in group is maximal. Similarly (panel B, C), we see that lower learning rate and higher decay parameters leads to slower learning in set size 6 (where most subjects rely more on RL, and where delay between iteration is maximal). Panels D-E show effects analyzed on logistic regression coefficients, with weaker set size effects for lower capacity subjects, as expected with more similar performance across high set sizes; weaker delay effects for lower decay parameter. Panel F plots learning curves in trials where one previous correct choice was made, corrected for individual subjects' mean overall performance. Panels G-J plot logistic regression predictions of the same data (G) in the same format, and its changes when correcting for different factors (H-J). Results in G show that the logistic regression captures well behavior in those trials where one previous correct choice was made, and panels HI show that correcting for load or delay does not make the set size effect disappear, indicating that both factors are important.

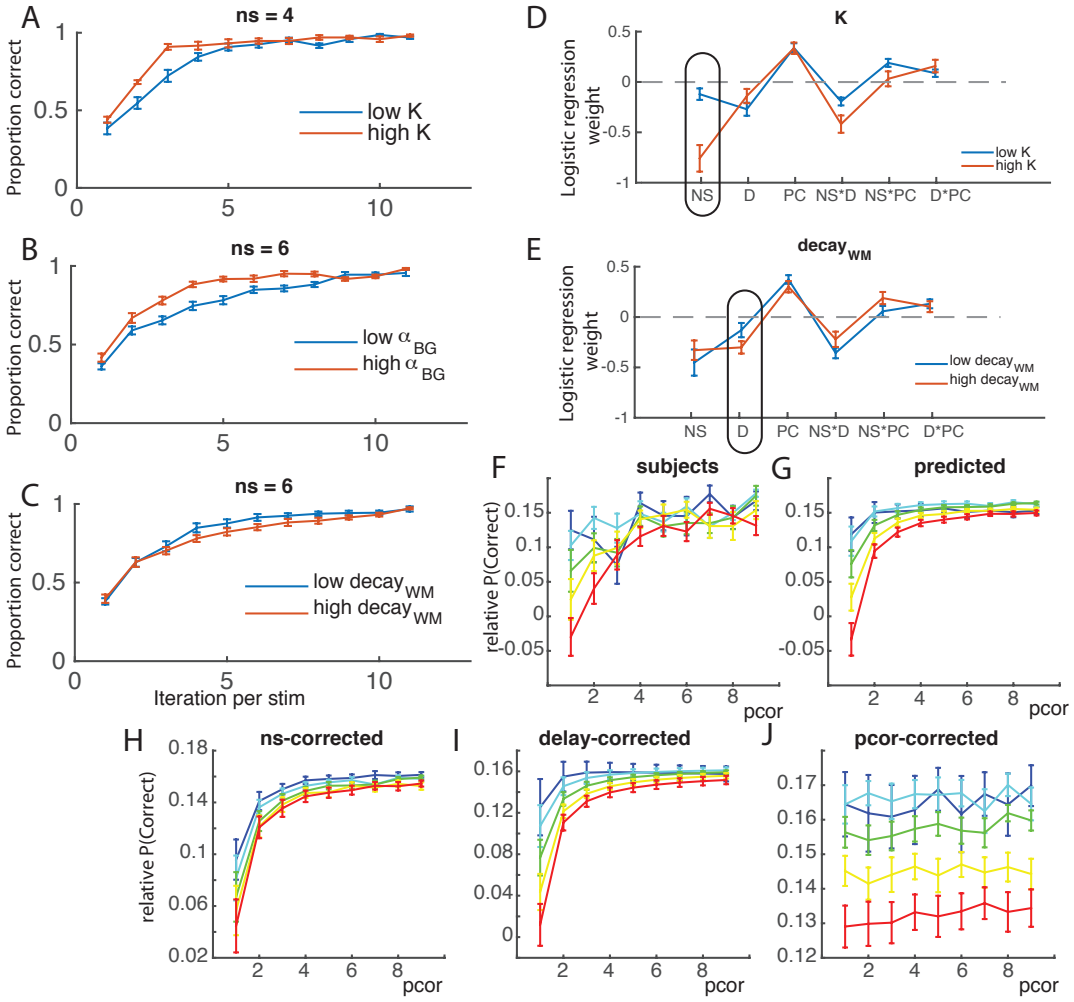

Figure S3: Participants' behavior when they are median-split by overall model inferred WM weight. This shows clearly that it captures a difference in the change in learning over set sizes.

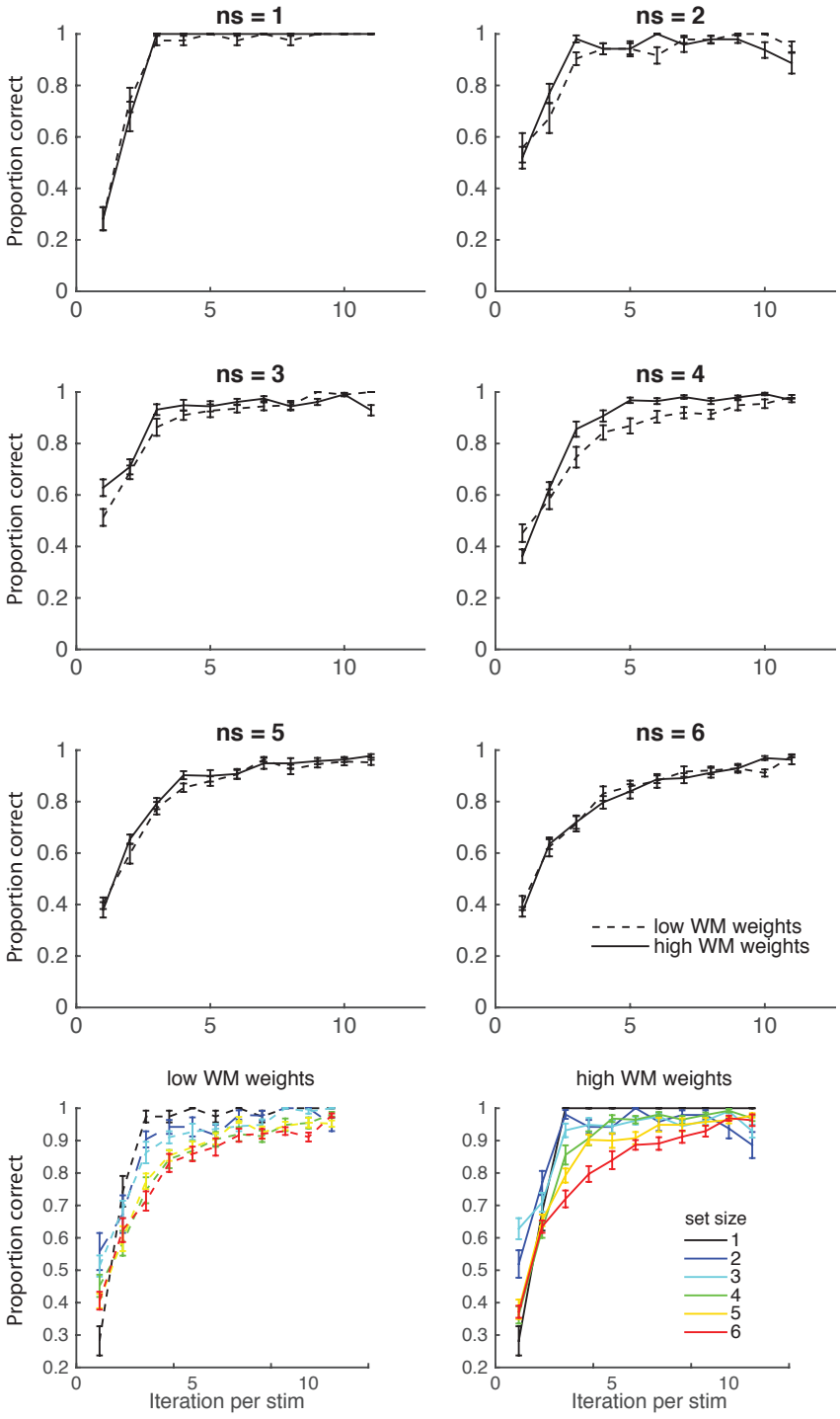

Figure S4: Model inferred overall WM weight is significantly correlated with the behavioral set-size effect, as measured by the logistic regression weight on set-size (Spearman rho = -.42, p=0.05),