**Instructions for simulating Koizumi, Maniscalco, & Lau 2015 expt 1A (KML2015\_1A)**

Fitting S to d’ (S1 Supporting Information, section S1.2.2)

1. Determine the values of SPE that, in conjunction with SNE = α SPE, yield target levels of d’ for α = {0.1, 0.2, …, 0.9}
   1. Set simulation parameter values in KML2015\_1A/d\_search/TI\_KML2015\_1A\_d\_search\_loop.m as desired
   2. Run KML2015\_1A/d\_search/TI\_KML2015\_1A\_d\_search\_loop\_loop.m
   3. Results stored in KML2015\_1A/d\_search /results/

Fitting Ur to confidence probability distributions and τ to meta-d’ (S1 Supporting Information, section S1.2.3)

1. For the Cx model, given Ur thresholds that yield target probabilities for confidence rating and S values that yield mean d’ in the low PE condition, determine the value of τ that yields target levels of meta-d’ (mean meta-d’ in the low PE condition) for all values of αlowPE = {0.1, 0.3, 0.5}
   1. Set simulation parameter values in KML2015\_1A/md\_Cx\_search/TI\_KML2015\_1A\_md\_Cx\_search\_loop.m as desired
   2. In the same file, on lines 26-33, manually set the values of sim.S based on the output of KML2015\_1A/d\_search
   3. Run KML2015\_1A/md\_Cx\_search/TI\_ KML2015\_1A\_md\_Cx\_search\_loop\_loop.m
   4. Results stored in KML2015\_1A/md\_Cx\_search/results/
2. For the Cδ model, given Ur thresholds that yield target probabilities for confidence rating and S values that yield mean d’ in the low PE condition, determine the value of τ that yields target levels of meta-d’ (mean meta-d’ in the low PE condition) for all values of αlowPE = {0.1, 0.3, 0.5}
   1. Set simulation parameter values in KML2015\_1A/md\_Cd\_search/TI\_KML2015\_1A\_md\_Cd\_search\_loop.m as desired
   2. In the same file, on lines 26-33, manually set the values of sim.S based on the output of KML2015\_1A/d\_search
   3. Run KML2015\_1A/md\_Cd\_search/TI\_ KML2015\_1A\_md\_Cd\_search\_loop\_loop.m
   4. Results stored in KML2015\_1A/md\_Cd\_search/results/

Using parameter fits to perform the simulations of Figure 3 (S1 Supporting Information, section S1.2.4)

1. For each level of αlowPE = {0.1, 0.3, 0.5} and αhighPE = {αlowPE + .1, αlowPE + .2, …, .9}, run the Cx simulations constrained to fit (i) d’ at all PE (low/high) x difficulty (easy/hard) conditions as well as the mean d’ of the low PE condition, (ii) overall conf probability distribution across all conditions, (iii) mean meta-d’ in the low PE condition, using parameters derived from previous steps
   1. Set simulation parameter values in KML2015\_1A/final\_fit\_Cx/TI\_KML2015\_1A\_final\_fit\_Cx\_loop.m as desired
   2. In the same file, on lines 19-27, manually set the values of param.tau based on the output of KML2015\_1A/md\_Cx\_search
   3. Run KML2015\_1A/final\_fit\_Cx/TI\_KML2015\_1A\_final\_fit\_Cx\_loop\_loop.m
   4. Results stored in KML2015\_1A/final\_fit\_Cx/results/
2. For each level of αlowPE = {0.1, 0.3, 0.5} and αhighPE = {αlowPE + .1, αlowPE + .2, …, .9}, run the Cδ simulations constrained to fit (i) d’ at all PE (low/high) x difficulty (easy/hard) conditions as well as the mean d’ of the low PE condition, (ii) overall conf probability distribution across all conditions, (iii) mean meta-d’ in the low PE condition, using parameters derived from previous steps
   1. Set simulation parameter values in KML2015\_1A/final\_fit\_Cd/TI\_KML2015\_1A\_final\_fit\_Cd\_loop.m as desired
   2. In the same file, on lines 19-27, manually set the values of param.tau based on the output of KML2015\_1A/md\_Cd\_search
   3. Run KML2015\_1A/final\_fit\_Cd/TI\_KML2015\_1A\_final\_fit\_Cd\_loop\_loop.m
   4. Results stored in KML2015\_1A/final\_fit\_Cd/results/
3. For each level of αlowPE = {0.1, 0.3, 0.5}, find the values of αhighPE for the Cx and Cδ models that yield the target level of (high PE – low PE) conf difference when d’ is set to the mean d’ of the low PE condition
   1. Run KML2015\_1A/final\_fit\_summary\_plot/TI\_KML2015\_1A\_final\_fit\_matched\_dprime\_interpolate\_alpha.m
4. For each level of αlowPE = {0.1, 0.3, 0.5} and αhighPE = {αlowPE + .1, αlowPE + .2, …, .9}, plot the Cx and Cδ model results for d’-matched (high PE – low PE) values for conf, meta-d’, and RT (evaluated at the mean d’ of the low PE condition in the data). Additionally plot the values of conf, meta-d’, and RT occurring at the level of αhighPE yielding optimal fit to the conf data, as determined in the previous step.
   1. In KML2015\_1A/final\_fit\_summary\_plot/TI\_KML2015\_1A\_final\_fit\_matched\_dprime\_summary\_plot.m, manually set the variables on lines 17-29 in accordance with the output of KML2015\_1A/final\_fit\_summary\_plot/TI\_KML2015\_1A\_final\_fit\_matched\_dprime\_interpolate\_alpha.m
   2. Run KML2015\_1A/final\_fit\_summary\_plot/TI\_KML2015\_1A\_final\_fit\_matched\_dprime\_summary\_plot.m

Using parameter fits to perform the simulations of Figure 4 (S1 Supporting Information, section S1.2.5)

1. For αlowPE = 0.1, use the fitted value for αhighPE derived in step 3 of the previous section to run the Cx simulation
   1. In KML2015\_1A/final\_fit\_Cx/TI\_KML2015\_1A\_final\_fit\_Cx\_loop\_loop.m, set alpha\_lowPE = 0.1 and alpha\_highPE to the corresponding fitted value derived from KML2015\_1A/final\_fit\_summary\_plot/TI\_KML2015\_1A\_final\_fit\_matched\_dprime\_interpolate\_alpha.m
   2. Run KML2015\_1A/final\_fit\_Cx/TI\_KML2015\_1A\_final\_fit\_Cx\_loop\_loop.m
   3. Results stored in KML2015\_1A/final\_fit\_Cx/results/
2. For αlowPE = 0.1, use the fitted value for αhighPE derived in step 3 of the previous section to run the Cδ simulation
   1. In KML2015\_1A/final\_fit\_Cd/TI\_KML2015\_1A\_final\_fit\_Cd\_loop\_loop.m, set alpha\_lowPE = 0.1 and alpha\_highPE to the corresponding fitted value derived from KML2015\_1A/final\_fit\_summary\_plot/TI\_KML2015\_1A\_final\_fit\_matched\_dprime\_interpolate\_alpha.m
   2. Run KML2015\_1A/final\_fit\_Cd/TI\_KML2015\_1A\_final\_fit\_Cd\_loop\_loop.m
   3. Results stored in KML2015\_1A/final\_fit\_Cd/results/