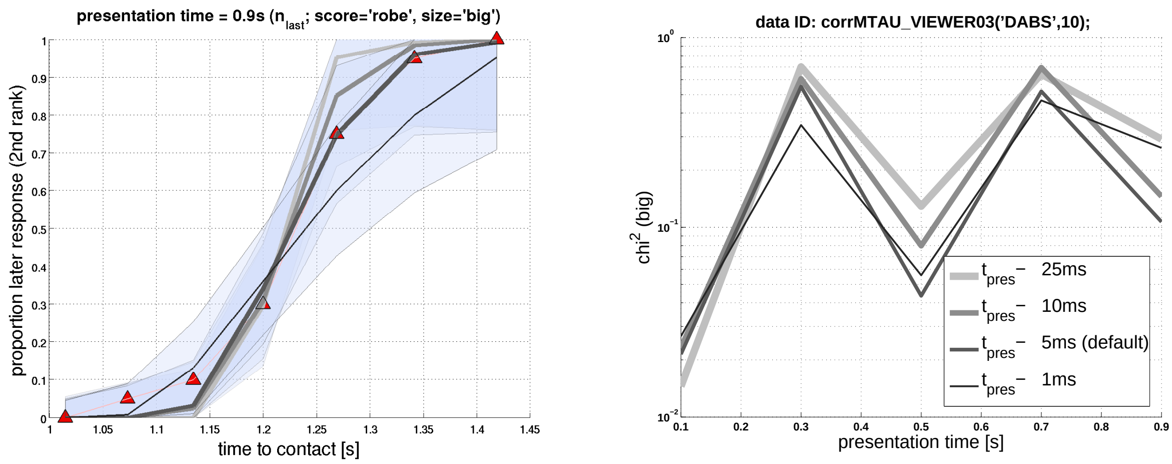
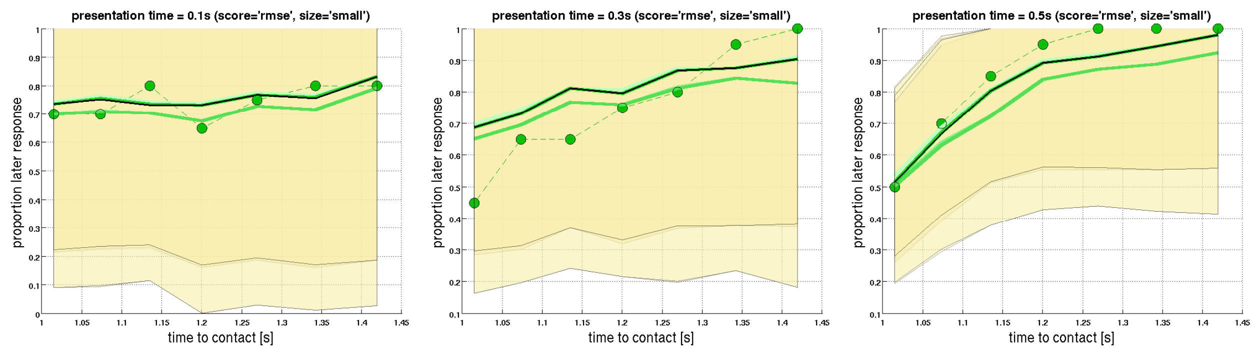
S7 Predictions of *corrected m-Tau* for the Psychophysical Experiment



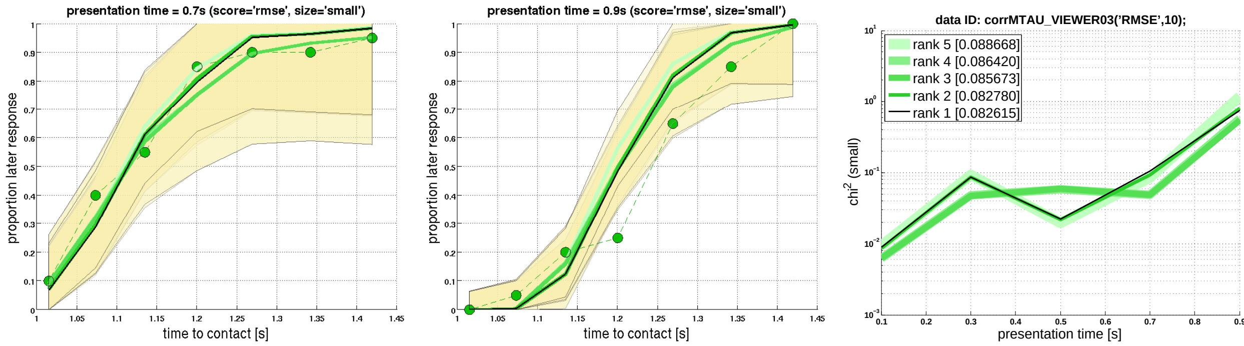
(a) $t_{\mathrm{pres}} = 0.9$ (b) "Chi-square"

Figure S47: ***Corrected m-Tau* predictions for different n_{last} (second E_{rob} rank; *big* diameter).** For the simulation of our psychophysical study, we had to compute whether the *ttc*-prediction (equation 12) of the *corrected m-Tau*-model at t_{pres} was before or after t_{ref}. This *ttc*-prediction is computed according to equation (14), by averaging $t_c(t) \approx \tau_{\mathrm{cm}}(t) + t$ from $t = t_{\mathrm{pres}} - n_{last} \times 1\,ms$ to $t = t_{\mathrm{pres}}$. **(a)** Illustration of the effect of using different averaging intervals ($n_{last} \times 1\,ms \in \{1, 5, 10, 25\,ms\}$) on model predictions ($\tau_{\mathrm{cm}}$ parameters according to second best E_{rob} rank in Table S2 in *Text S5*). The right panel **(b)** shows "Chi-square" as a measure of "goodness-of-prediction" (section 15.1.1 in [1] – smaller values mean better predictions of psychophysical data). "Chi-square" is a standard-deviation-weighted root mean square error. The standard-deviations correspond to the blue-shaded areas in the left figure panel (see Methods Section). Standard deviations decrease with increasing t_{pres}, such that higher weighting is given to longer presentation times.



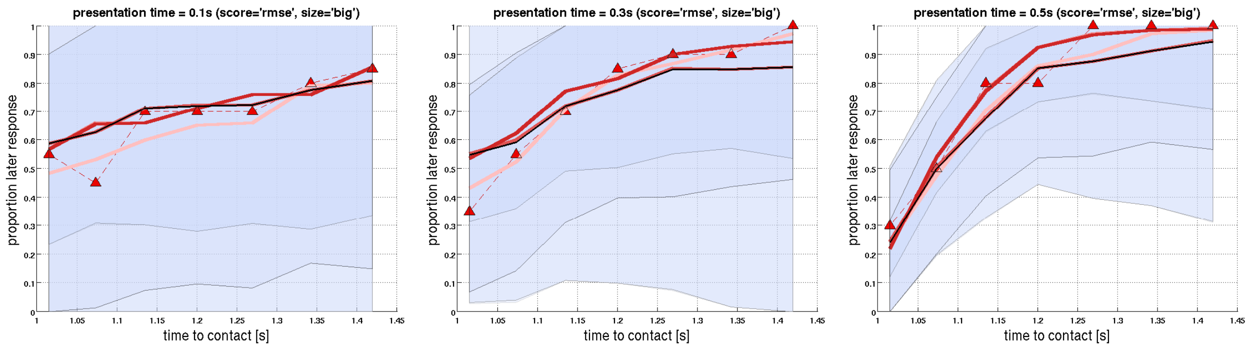
(a) $t_{\mathrm{pres}} = 0.1$ (b) $t_{\mathrm{pres}} = 0.3$ (c) $t_{\mathrm{pres}} = 0.5$

Figure S48: ***Corrected m-Tau* predictions for psychophysical proportion of later response I (E_{rms} score; *small* diameter).** Analogous to Figure 8 - but here parameters were optimized for the *small* diameter, according to E_{rms} scores (Table S1 in *Text S5*).



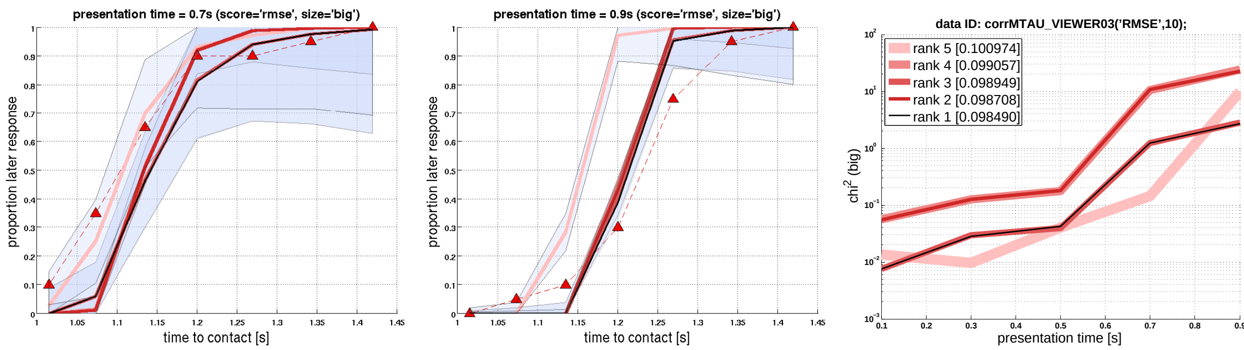
(a) $t_{\text{pres}} = 0.7$ (b) $t_{\text{pres}} = 0.9$ (c) "Chi-square"

Figure S49: ***Corrected m-Tau* predictions II (E_{rms} score; *small* diameter).** Same as the previous figure, but for the remaining two presentation times. **(c)** See Figure S47*b* for an explanation.



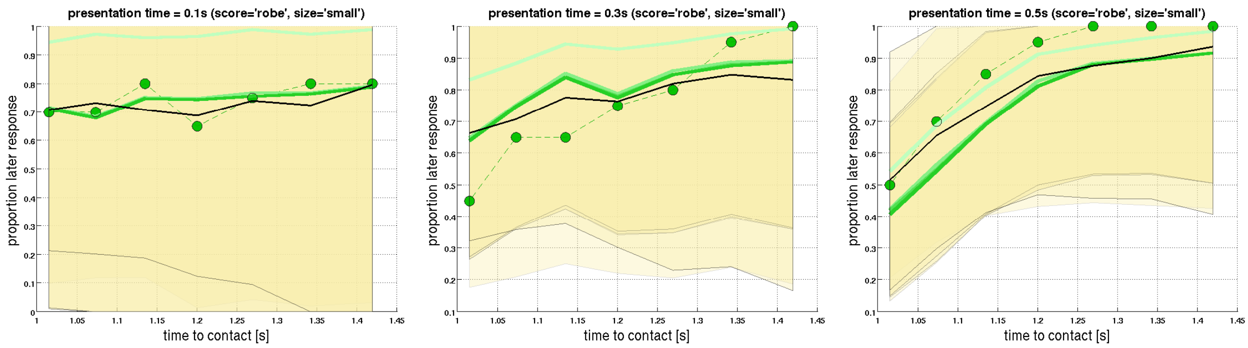
(a) $t_{\text{pres}} = 0.1$ (b) $t_{\text{pres}} = 0.3$ (c) $t_{\text{pres}} = 0.5$

Figure S50: ***Corrected m-Tau* predictions I (E_{rms} score; *BIG* diameter).** Analogous to Figure 8 – but here with parameters optimized for the *big* diameter, according to E_{rms} scores (Table S2 in *Text S5*).



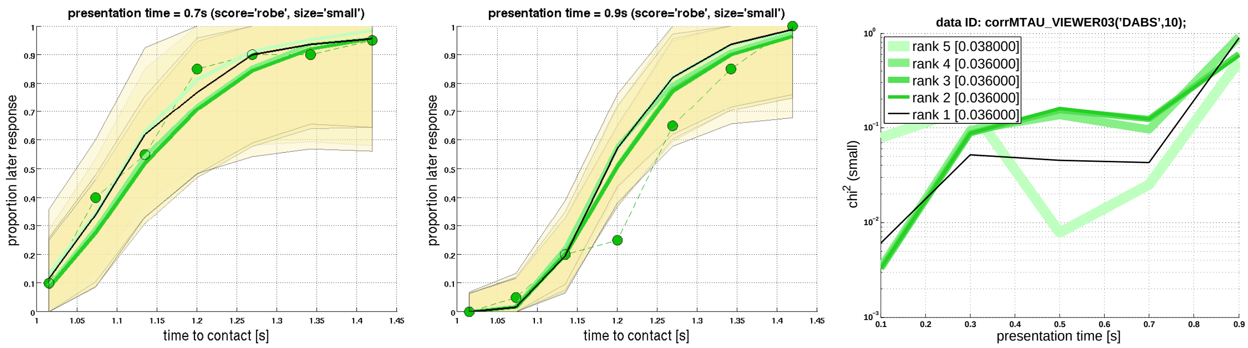
(a) $t_{\text{pres}} = 0.7$ (b) $t_{\text{pres}} = 0.9$ (c) "Chi-square"

Figure S51: ***Corrected m-Tau* predictions II (E_{rms} score; *BIG* diameter).** Same as the previous figure, but for the remaining two presentation times. **(c)** See Figure S47*b* for an explanation.



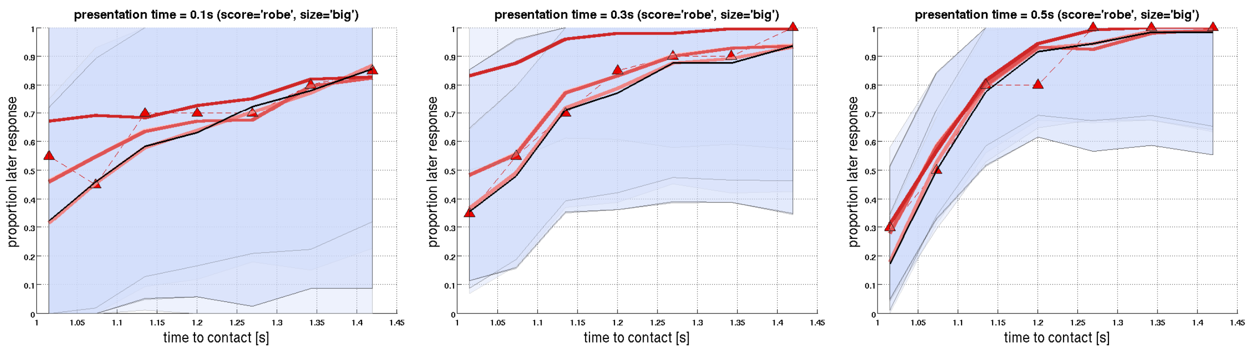
(a) $t_{\text{pres}} = 0.1$ (b) $t_{\text{pres}} = 0.3$ (c) $t_{\text{pres}} = 0.5$

Figure S52: ***Corrected m-Tau* predictions I (E_{rob} score; *small* diameter).** Analogous to Figure 8 – but here τ_{cm}-parameters were optimized for the *small* diameter, according to E_{rob} scores (Table S1 in *Text S5*).



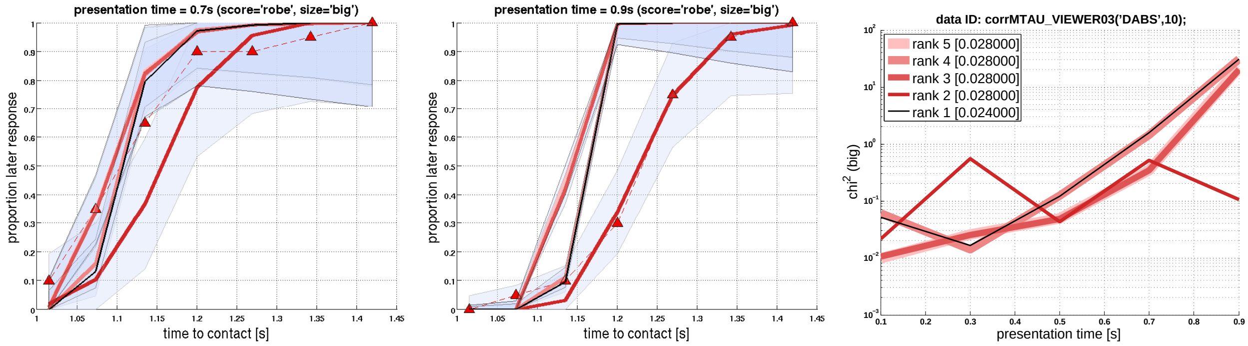
(a) $t_{\text{pres}} = 0.7$ (b) $t_{\text{pres}} = 0.9$ (c) "Chi-square"

Figure S53: ***Corrected m-Tau* predictions II (E_{rob} score; *small* diameter).** Same as the previous figure, but for the remaining two presentation times. **(c)** See Figure S47*b* for an explanation.



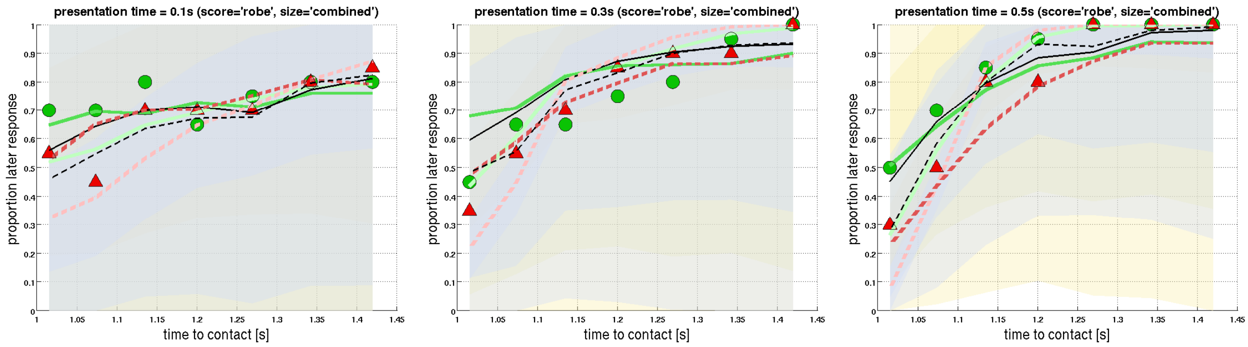
(a) $t_{\text{pres}} = 0.1$ (b) $t_{\text{pres}} = 0.3$ (c) $t_{\text{pres}} = 0.5$

Figure S54: ***Corrected m-Tau* predictions I (E_{rob} score; *BIG* diameter).** Analogous to Figure 8 - but here parameters were optimized for the *big* diameter, according to E_{rob} scores (Table S2 in *Text S5*).



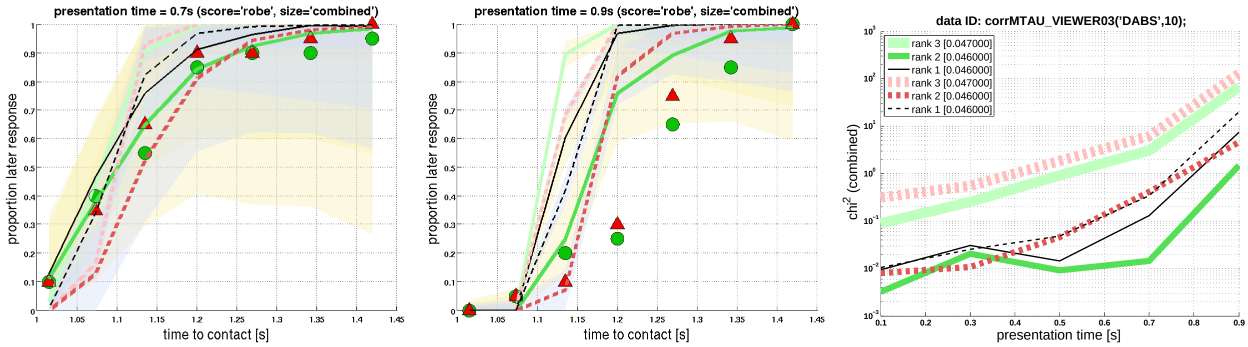
(a) $t_{\text{pres}} = 0.7$ (b) $t_{\text{pres}} = 0.9$ (c) "Chi-square"

Figure S55: ***Corrected m-Tau*** **predictions II (**E_{rob} **score;** ***BIG*** **diameter).** Same as the previous figure, but for the remaining two presentation times. **(c)** See Figure S47*b* for an explanation.



(a) $t_{\text{pres}} = 0.1$ (b) $t_{\text{pres}} = 0.3$ (c) $t_{\text{pres}} = 0.5$

Figure S56: ***Corrected m-Tau*** **predictions I (**E_{rob} **score;** ***combined*** **diameter).** Analogous to Figure 8 - but here with the three best performing parameter sets according to E_{rob} scores (Table S3 in *Text S5*). Notice that the τ_{cm}-predictions for both object diameters were computed with the same parameter set.



(a) $t_{\text{pres}} = 0.7$ (b) $t_{\text{pres}} = 0.9$ (c) "Chi-square"

Figure S57: ***Corrected m-Tau*** **predictions II (**E_{rob} **score;** ***combined*** **diameter).** Same as the previous figure, but for the remaining two presentation times. **(c)** See Figure S47*b* for an explanation.

References

1. Press H, Teukolsky S, Vetterling W, Flannery B (2007) Numerical Recipes: The Art of Scientific Computing, Third Edition. Cambridge University Press.