Supplementary Information



Supplementary Figure 1: Reward structures and behavioral impact of Speed/Accuracy emphasis

In different blocks, Speed/Accuracy emphasis was encouraged either by (a) awarding points for correct responses (Speed: 100 pts, vs. loss of 20 pts for errors, Accuracy: 60 pts vs. -60 pts) within a discrete deadline (1s in Speed vs. 2.4s in Accuracy, loss of 120 pts/60 pts for any later response), or (b) by adjusting a declining slope of points awarded as a function of reaction time (Speed: -50 pts/s vs. Accuracy: -4.2 pts/s). Solid lines indicate the number of points won for a correct response, while dashed lines indicate the penalty for incorrect responses. In both types of regime manipulation, Speed and Accuracy trials were randomly interleaved for comparison against one another. If no response was recorded before stimulus offset (2.4s), the maximum penalty of the respective reward regime was awarded. This occurred on an extremely low proportion of trials (0.0164 \pm 0.011 across all subjects and experimental conditions). The proportion of such missed trials was highest for low contrast trials under Accuracy emphasis

 $(0.0035 \pm 0.0081;$ Speed pressure, low Contrast: $0.00080 \pm 0.0023;$ Accuracy emphasis, high Contrast: $0.00027 \pm 0.0011;$ Speed pressure, high Contrast: $0.00080 \pm 0.0017)$. To motivate participants, they were informed that their monetary reward for participation in the experiment would be a function of the points won on four randomly chosen experimental blocks.

(c-d) Reaction time distributions of correct (solid) and error (dashed) trials were not significantly different between response time constraints implemented through deadlines (c) and linearly decreasing rewards over reaction time (d) between the two speed or between the two accuracy conditions (Kolmogorov-Smirnov, all p>0.7).

(e-f) Conditional accuracy functions of both methods of response time constraints - deadlines (e) and decreasing rewards over reaction time (f) - show the characteristic decrease in response accuracy over reaction time in combination with low conditional accuracy for the fastest responses under speed pressure. Analyses of accuracy and reaction times revealed that the methods were equally effective in altering decision speed and accuracy, producing the same qualitative pattern of effects (see c-f). We therefore collapsed across the deadline and decreasing-reward conditions in all analyses. Subjects won significantly more points on Speed trials than on Accuracy trials (2-Way ANOVA: F(1,15) = 68.8; $p = 5.48*10^{-7}$; Supplementary Table **5h**).



Supplementary Figure 2: Spectral traces of individual SSVEP frequencies

SSVEP traces for individual phase-reversal frequencies without normalization or baseline correction revealed that the boost in differential SSVEP during decision formation under the Speed regime was unlikely driven by a general boost in both SSVEP frequencies, either before or during decision formation. Bottom plots in panels a, b and c trace the time courses of the 20, 22.5 and 25 Hz frequency bins respectively. Dashed vertical lines indicate mean RT for each condition. F-value time-courses (top panels) illustrate the lack of a main effect of Speed/Accuracy regime during the decision formation period even though both individual SSVEP frequencies (a+c) are strongly modulated by the contrast of the respective visual target. An intermediate frequency (b) is shown as a control, to verify the lack of modulation of non-excited frequencies and lack of effect of Speed/Accuracy regime on frequencies neighboring the sensory-driven SSVEPs.



Supplementary Figure 3: Centro-parietal positivity without subtracting stimulus-locked auditory evoked response. All analyses in the main body of the article concerning the centroparietal positivity were carried out on waveforms from which an ERP component evoked by an auditory stimulus played at evidence onset was subtracted out (see Methods). Here we provide an analysis of the original data without such auditory EP subtraction to verify that the effects on CPP reported in the main text could not be attributed to such a technicality of the analysis. CPP amplitude at pre-stimulus baseline was measured in regime cue-locked epochs and therefore not influenced by this processing step. (a) Stimulus-locked and (b) Response-locked CPP traces, the latter revealing that the slope of the CPP maintained its significant relationships with Speed/Accuracy regime (F(1,15) = 11.6, p = 0.0039; Supplementary Table **5i**) and Contrast (F(1,15) = 21.0, p=0.00036). (c) The amplitude of the CPP at response was significantly increased for faster reaction time ($X^2(1) = 23.2$, $p = 1.45*10^{-6}$, Supplementary Statistical analysis details 1k) and under Accuracy compared to Speed pressure ($X^2(1) = 4.2$, p = 0.040, Supplementary Table **3b**), verifying the reliability of the effects reported for the data with subtracted auditory activation.



Supplementary Figure 4: Unilateral motor potentials and determination of CPP measurement window. Unilateral motor potentials measured at lateral sites over motor cortex (standard sites 'C3' and 'C4') locked to response execution. As is typical, the motor signal contralateral to the response-executing limb initially exhibits a slow negativity known as the Readiness Potential, before reversing in polarity just before the response¹. In the present data this inflection point occurred approximately 100 ms before the button click (lower panel). Based on previous work interpreting the inflection point of effector-selective activity as the time of decision commitment², and evidence from the monkey saccade system that commitment does occur some tens of milliseconds before action onset³, we calculated the amplitude of the centroparietal positivity "at response" as the integrated amplitude in a 60 ms-window centered on this timepoint (gray shading). This, however, implies the assumption that there are no delays in the transmission of feed-forward evidence-accumulation signals into the motor preparation and response circuitry. To understand our results with respect to this uncertainty regarding such time lags between decision commitment and the registration of the button click, we traced the size of the principal effects of interest on CPP amplitude as a function of the time of measuring "CPP at decision commitment". Specifically, we repeated the same linear mixed-effects models on the CPP amplitude as in the main text, in several 60-ms time windows centered on the time points indicated on the abscissa. In the upper panel the p-values for the effect of Speed/Accuracy Regime are shown, with the gray horizontal line indicating our alpha-level of 0.05. While the significant effect of reaction time on CPP amplitude at response is stable over different time windows of measurement, time windows earlier than the one chosen in the main text (the 60-ms window centered around the mean motor time of -100 ms), indicate a significant effect of speed pressure on CPP amplitude at response (p < 0.05 for windows centered anywhere between -170 to -130 ms).



Supplementary Figure 5: Motor preparation as a function of reaction time

(a) Baseline motor preparation was measured as the mean Mu/Beta amplitude (8-30Hz) in the 300ms before stimulus onset. Baseline motor preparation for the ultimately executed response was relatively increased under speed pressure and decreased for later reaction time (see main text). (b) Motor preparation at baseline for the withheld response showed the same relationship with RT. Such a predictive relationship constitutes empirical evidence for starting point variability across trials at the motor level. The fact that the motor preparation for both the ultimately executed and the withheld response show such correlations suggests that these trial-by-trial fluctuations may reflect fluctuations in subjective speed emphasis across trials. We also observed a significant correlation between the differential motor preparation at baseline and RT (linear mixed-effect model; $X^2(1) = 4.6$, p = 0.031, Supplementary Table **3c**).

(c) The excursion in motor preparation for the withheld response was measured as ipsilateral Mu/Beta amplitude just before evidence onset subtracted from the Mu/Beta amplitude ipsilateral to the responding hand at the time of response. As this analysis was aimed at examining the time-dependence in the evidence-independent build-up of motor preparation, we only included trials that resulted in a correct response, so that the sensory evidence actually opposed these ipsilateral signals reflecting partially prepared, but ultimately withheld responses.



Supplementary Figure 6: Time course of sensory encoding, accumulation and motor preparation as a function of RT

For each individual subject and condition (Regime, Contrast, onset delay and Target Type). trials were split into reaction time tertiles and each tertile was then collapsed across conditions. Mean neural signals of the three RT bins are plotted locked to evidence onset (a, c, e) and response (b, d, f). Vertical lines in the stimulus-locked panels indicate mean RT per tertile. For each time point, we computed the correlation between RT (tertile means) and mean signal amplitude within subjects. We then computed t-tests to test whether the distributions were significantly different from zero across subjects. Time points with significant correlations are marked with grav stars at the bottom of each panel. (a) Stimulus-locked Mu/Beta signals predict reaction time shortly before and after evidence onset with greater motor preparation (lower Mu/Beta amplitude) predicting faster response times. Significant negative correlations between motor preparation and RT more than 1000ms after evidence onset are a byproduct of a decrease in motor preparation after response execution. (b) Response-locked motor preparation has a negative relationship with RT until around 300 ms before the response, reflecting the fact that motor preparation builds over a narrower timeframe on the trials with faster RT, and then reaches uniform levels at the time of response execution. (c) Stimulus-locked CPP predicts RT between 200 and 600 ms after evidence onset, consistent with shallower evidence integration on trials with slower responses. Similar to motor preparation, positive correlations between CPP amplitude and RT beyond about 700 ms result from the decrease in signal amplitude once a response is made. (d) As expected, response-locked CPP traces show positive correlations with RT well in advance of the response and negative correlations after response commitment. Replicating the results of trials split by condition (Figure 4h). CPP amplitude is lower for very fast and very slow responses around the time of decision commitment (-130 to -70 ms). (e) Stimulus-locked SSVEP does not predict RT at any time point before the mean reaction time of the fastest RT bin. (f) Response-locked SSVEP amplitude correlates positively with RT until 350 ms before the response. This is simply due to the initial ramp-up of the SSVEP differential at evidence onset occurring at different pre-response times for the different RT bins.

Supplementary Methods

Statistical analysis details

As described in the Statistical Analysis section of the Methods, we used linear mixed-effects models to statistically test effects that were expected to depend on reaction time. All linear mixed-effects models were constructed to include the fixed effect factors of reaction time (RT), RT², Regime (Speed/Accuracy), stimulus Contrast, and Trial Type (Left/Right) to maintain consistency across measures. Linear mixed-effects (LME) models were constructed to include random slopes factors that significantly contribute to goodness-of-fit. This was determined through an iterative procedure, where each random slopes factor was tested in turn using chi-squared tests. Below we exhaustively list the steps in this model construction for each of the LME tests carried out in the paper. The upper part (white background) of each table shows the tests for inclusion of each individual random slopes factor to construct the full model, and the bottom part (gray background) gives the chi-squared tests for each fixed-effect factor in the final model, as quoted in the main text.

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c	PP amplitude at baseline Mu/Beta amplitude at response (executed)	model Baseline model Final model Baseline model	Mu + (CF + (CF + (u/Beta at RT ~ RT + RT ² + (1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast u/Beta at RT ~ RT + RT ² + (1 + RT + RT ² + Speed/Accuracy + Effect RT Speed/Accuracy Left/Right Contrast v/Beta at RT ~ RT + RT ² + Speed/Accuracy Effect RT Speed/Accuracy Left/Right Contrast P baseline ~ RT + RT ² + 1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast P baseline ~ RT + RT ² + (1 Subject) Effect RT P baseline ~ RT + RT ² + (1 Subject) Effect RT	Speed/Accuracy X ² 35.67 22.56 18.19 17.79 25.15 Speed/Accuracy Contrast + Left/Rigl X ² 0.42 0.026 0.55 0.72 1.93 Speed/Accuracy X ² 4.37*10 ⁻¹¹ 0.77 1.16*10 ⁻¹⁰ 0.92 2.32 Speed/Accuracy X ² 0.89	+ Con DF 2 2 2 2 2 2 2 2 2 2 2 2 2	p 1.80*10 ⁸ 0.0000126 0.00011 0.00014 3.45*10 ⁶ htrast + Left/Right 0.52 0.87 0.46 0.46 0.46 0.46 0.46 0.46 0.31 htrast + Left/Right
c	CPP amplitude at baseline Mu/Beta amplitude at response (executed)	al model Baseline model Final model Baseline model	Mu + (+ (CFF + (CFF + (u/Beta at RT ~ RT + RT ² + (1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast u/Beta at RT ~ RT + RT ² + (1 + RT + RT ² + Speed/Accuracy + Effect RT Speed/Accuracy Left/Right Contrast v/Beta at RT ~ RT + RT ² + Speed/Accuracy Effect RT Speed/Accuracy Left/Right Contrast P baseline ~ RT + RT ² + 1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast P baseline ~ RT + RT ² + (1 Subject) Effect RT P baseline ~ RT + RT ² + (1 Subject) Effect RT RT RT RT Left/Right Contrast P baseline ~ RT + RT ² +	Speed/Accuracy X ² 35.67 22.56 18.19 17.79 25.15 Speed/Accuracy Contrast + Left/Rigl X ² 0.42 0.026 0.55 0.72 1.93 Speed/Accuracy X ² 4.37*10 ⁻¹¹ 0.77 1.16*10 ⁻¹⁰ 0.92 2.32 Speed/Accuracy X ² 0.89 0.012	+ Con DF 2 2 2 2 2 2 2 2 2 2 2 2 2	p 1.80*10 ⁸ 0.0000126 0.00011 0.00014 3.45*10 ⁶ htrast + Left/Right p 0.52 0.87 0.46 0.46 0.46 0.46 0.46 0.46 0.31 htrast + Left/Right
c	CPP amplitude at baseline Mu/Beta amplitude at response (executed)	Final model Baseline model Final model Baseline model	Mu + (+ (CFF + (CFF + (u/Beta at RT ~ RT + RT ² + (1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast u/Beta at RT ~ RT + RT ² + (1 + RT + RT ² + Speed/Accuracy + Effect RT Speed/Accuracy Left/Right Contrast u/Beta at RT ~ RT + RT ² + Speed/Accuracy Effect RT Speed/Accuracy Left/Right Contrast P baseline ~ RT + RT ² + 1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast P baseline ~ RT + RT ² + 1 Subject) Effect RT P baseline ~ RT + RT ² + 1 Subject) Effect RT RT ² Speed/Accuracy Left/Right Contrast PP baseline ~ RT + RT ² +	Speed/Accuracy X ² 35.67 22.56 18.19 17.79 25.15 Speed/Accuracy Contrast + Left/Rigl X ² 0.42 0.026 0.55 0.72 1.93 Speed/Accuracy X ² 4.37*10 ⁻¹¹ 0.77 1.16*10 ⁻¹⁰ 0.92 2.32 Speed/Accuracy X ² 0.89 0.012 1.51	+ Con DF 2 2 2 2 2 2 2 2 2 2 2 2 2	p 1.80*10 ⁸ 0.0000126 0.00011 0.00014 3.45*10 ⁶ htrast + Left/Right p 0.52 0.87 0.46 0.46 0.46 0.46 0.417 htrast + Left/Right = p 0.63 0.31 htrast + Left/Right
c	CPP amplitude at baseline Mu/Beta amplitude at response (executed)	Final model Baseline model Final model Baseline model	Mu + (+ (CF + (u/Beta at RT ~ RT + RT ² + (1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast u/Beta at RT ~ RT + RT ² + (1 + RT + RT ² + Speed/Accuracy - Effect RT Speed/Accuracy Left/Right Contrast u/Beta at RT ~ RT + RT ² + Speed/Accuracy Effect RT RT ² Speed/Accuracy Left/Right Contrast P baseline ~ RT + RT ² + 1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast P baseline ~ RT + RT ² + 1 Subject) Effect RT RT ² Speed/Accuracy Left/Right Contrast P baseline ~ RT + RT ² + 1 Subject) Effect RT RT ² </td <td>Speed/Accuracy X² 35.67 22.56 18.19 17.79 25.15 Speed/Accuracy Contrast + Left/Rigl X² 0.42 0.026 0.55 0.72 1.93 Speed/Accuracy X² 4.37*10⁻¹¹ 0.77 1.16*10⁻¹⁰ 0.92 2.32 Speed/Accuracy X² 0.89 0.012 1.51 0.0013</td> <td>+ Con DF 2 2 2 2 2 2 2 2 2 2 2 2 2</td> <td>p 1.80*10⁸ 0.0000126 0.00011 0.00014 3.45*10⁶ htrast + Left/Right p 0.52 0.87 0.46 0.46 0.46 0.46 0.417 htrast + Left/Right = p 0.63 0.31 htrast + Left/Right</td>	Speed/Accuracy X ² 35.67 22.56 18.19 17.79 25.15 Speed/Accuracy Contrast + Left/Rigl X ² 0.42 0.026 0.55 0.72 1.93 Speed/Accuracy X ² 4.37*10 ⁻¹¹ 0.77 1.16*10 ⁻¹⁰ 0.92 2.32 Speed/Accuracy X ² 0.89 0.012 1.51 0.0013	+ Con DF 2 2 2 2 2 2 2 2 2 2 2 2 2	p 1.80*10 ⁸ 0.0000126 0.00011 0.00014 3.45*10 ⁶ htrast + Left/Right p 0.52 0.87 0.46 0.46 0.46 0.46 0.417 htrast + Left/Right = p 0.63 0.31 htrast + Left/Right

Supplementary Table 1: Results of linear mixed-effects models

		_	CF + (PP at RT ~ RT + RT ² +	Speed/Accuracy +	Cont	rast + Left/Right
	nse	del	• (Random slope	v ²	DE	
		ŭ		RT	18.97	2	0.000759
		ne		RT ²	14.23	2	0.00081
	spc	sel		Speed/Accuracy	1 19	2	0.55
а	reș	Ba		Left/Right	0	2	1
	e at			Contrast	0	2	1
	nde		CE	PP at $RT \sim RT + RT^2 +$	Speed/Accuracy +	Cont	rast + Left/Right
	plit		+ (1 + Contrast Subject)	opeou// (course)		_onught
	m	lel	Ì	Effect	X ²	DF	
	Å	noc		RT	10.09	1	0.0015
	ü	al r		RT ²	5.9	1	0.015
		Fin		Speed/Accuracy	11.91	1	0.00056
				Left/Right	0.00012	1	0.99
				Contrast	3.12	1	0.077
		el	EN + (/IG slope ~ RT + RT² + 1 Subject)	Speed/Accuracy +	Cont	rast + Left/Right
		por		Random slope	X ²	DF	
	(p	ω		RT	7.71	2	0.021
	ute	lin		RT ²	7.50	2	0.024
	cec	ase		Speed/Accuracy	2.29	2	0.32
	(e)	В		Left/Right	0	2	1
b	ise			Contrast	7.28*10 ⁻¹²	2	1
~	ofr		EN	MG slope ~ RT + RT ² +	Speed/Accuracy +	Cont	rast + Left/Right
	te	_	+ (1 + RT + RT ² + Speed/Accuracy	+ Contrast + Left/Righ	nt Sub	oject)
	o ra	ode		Effect	X ²	DF	
	Ň	ŭ		RT	3.91	1	0.048
	ш	nal		RT ²	1.31	1	0.25
		Ë		Speed/Accuracy	16.25	1	5.55*10-5
				Left/Right	0.11	1	0.74
				Contrast	1.42	1	0.23
			EN	MG at RT ∼ RT + RT ² +	Speed/Accuracy +	Cont	trast + Left/Right
		_	+ (1 Subject)			-
	ted)	labc	+ (1 Subject) Random slope	x ²	DF	
	scuted)	model	+ (1 Subject) Random slope RT	X ²	DF 2	1.80*10 ⁻⁸
	executed)	ine model	+ (1 Subject) Random slope RT RT ²	X ² 35.67 22.56	DF 2 2	1.80*10 ⁻⁸
	se (executed)	seline model	+ (1 Subject) Random slope RT RT ² Speed/Accuracy	x ² 35.67 22.56 18.19	DF 2 2 2	1.80*10 ⁻⁸ 0.0000126 0.00011
	onse (executed)	Baseline model	+ (1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right	x ² 35.67 22.56 18.19 17.79	DF 2 2 2 2	1.80*10 ⁸ 0.0000126 0.00011 0.00014
	ssponse (executed)	Baseline model	+ (1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast	x ² 35.67 22.56 18.19 17.79 25.15	DF 2 2 2 2 2 2 2	1.80*10 ⁸ 0.0000126 0.00011 0.00014 3.45*10 ⁶
С	it response (executed)	Baseline model	+ (1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast IG at RT ~ RT + RT ² +	X ² 35.67 22.56 18.19 17.79 25.15 Speed/Accuracy +	DF 2 2 2 2 2 2 2 2 0 Cont	1.80*10 ⁻⁸ 0.0000126 0.00011 0.00014 3.45*10 ⁻⁶
с	le at response (executed)	Baseline model	+ ((EN + (1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 + RT + RT ² + Speed/Accuracy	x ² 35.67 22.56 18.19 17.79 25.15 Speed/Accuracy + + Contrast + Left/Righ	DF 2 2 2 2 2 2 2 Cont 1 Sub	1.80*10 ⁻⁸ 0.0000126 0.00011 0.00014 3.45*10 ⁻⁶ trast + Left/Right oject)
С	tude at response (executed)	del Baseline model	+ (EN + (1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 + RT + RT ² + Speed/Accuracy Effect	x ² 35.67 22.56 18.19 17.79 25.15 Speed/Accuracy + + Contrast + Left/Righ x ²	DF 2 2 2 2 2 2 Cont t Sub	1.80*10 ⁻⁸ 0.0000126 0.00011 0.00014 3.45*10 ⁻⁶ trast + Left/Right oject)
С	nplitude at response (executed)	model Baseline model	+ (EN + (1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 + RT + RT ² + Speed/Accuracy Effect RT	x ² 35.67 22.56 18.19 17.79 25.15 Speed/Accuracy + + Contrast + Left/Righ x ² 0.42	DF 2 2 2 2 2 2 2 2 2 2 0 5 1 5	1.80*10 ⁻⁸ 0.000126 0.00011 0.00014 3.45*10 ⁻⁶ trast + Left/Right oject) 0.52
С	amplitude at response (executed)	al model Baseline model	+ (EN + (1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 + RT + RT ² + Speed/Accuracy Effect RT RT ²	x ² 35.67 22.56 18.19 17.79 25.15 Speed/Accuracy + + Contrast + Left/Righ x ² 0.42 0.026	DF 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	1.80*10 ⁻⁸ 0.000126 0.00011 0.00014 3.45*10 ⁻⁶ trast + Left/Right oject) 0.52 0.87
C	MG amplitude at response (executed)	Final model Baseline model	+ ((1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 + RT + RT ² + Speed/Accuracy Effect RT RT ² Speed/Accuracy	$\frac{X^2}{35.67}$ 22.56 18.19 17.79 25.15 Speed/Accuracy + Contrast + Left/Righ $\frac{X^2}{0.42}$ 0.42 0.026 0.55	DF 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	1.80*10 ⁻⁸ 0.000126 0.00011 0.00014 3.45*10 ⁻⁶ trast + Left/Right oject) 0.52 0.87 0.46
С	EMG amplitude at response (executed)	Final model Baseline model	+ ((1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 + RT + RT ² + Speed/Accuracy Effect RT RT ² Speed/Accuracy Left/Right	$\frac{x^2}{35.67}$ 22.56 18.19 17.79 25.15 Speed/Accuracy + Contrast + Left/Righ $\frac{x^2}{0.42}$ 0.42 0.026 0.55 0.72	DF 2 2 2 2 2 2 2 2 2 0 0 1 1 1 1 1 1 1	1.80*10 ⁻⁸ 0.000126 0.00011 0.00014 3.45*10 ⁻⁶ trast + Left/Right oject) 0.52 0.87 0.46 0.40
С	EMG amplitude at response (executed)	Final model Baseline model	+ ((EN + (1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 + RT + RT ² + Speed/Accuracy Effect RT RT ² Speed/Accuracy Left/Right Contrast	$\begin{array}{r} X^2 \\ \hline X^2 \\ \hline 35.67 \\ \hline 22.56 \\ \hline 18.19 \\ \hline 17.79 \\ \hline 25.15 \\ \hline \\ \textbf{Speed/Accuracy +} \\ \textbf{+ Contrast + Left/Righ} \\ \hline X^2 \\ \hline 0.42 \\ \hline 0.026 \\ \hline 0.55 \\ \hline 0.72 \\ \hline 1.93 \\ \hline \end{array}$	DF 2 2 2 2 2 2 2 0 0 1 1 1 1 1 1 1 1 1	1.80*10 ⁻⁸ 0.000126 0.00011 0.00014 3.45*10 ⁻⁶ trast + Left/Right ject) 0.52 0.87 0.46 0.40 0.17
C	d) EMG amplitude at response (executed)	tel Final model Baseline model	+ ((EN + () EN + ()	1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 + RT + RT ² + Speed/Accuracy Effect RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + Iffect RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 Subject)	X ² 35.67 22.56 18.19 17.79 25.15 Speed/Accuracy + Contrast + Left/Right X ² 0.42 0.026 0.55 0.72 1.93 Speed/Accuracy +	DF 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	1.80*10 ⁻⁸ 0.000126 0.00011 0.00014 3.45*10 ⁻⁶ trast + Left/Right 0.52 0.87 0.46 0.40 0.17 trast + Left/Right
С	held) EMG amplitude at response (executed)	nodel Final model Baseline model	+ ((EN + (EN + (1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 + RT + RT ² + Speed/Accuracy Effect RT RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 Subject) Random slope	X² 35.67 22.56 18.19 17.79 25.15 Speed/Accuracy + Contrast + Left/Right X² 0.42 0.026 0.55 0.72 1.93 Speed/Accuracy + X²	DF 2 2 2 2 2 2 2 2 2 2 2 2 2	1.80*10 ⁻⁸ 0.000126 0.00011 0.00014 3.45*10 ⁻⁶ trast + Left/Right 0.52 0.87 0.46 0.40 0.17 trast + Left/Right
С	vithheld) EMG amplitude at response (executed)	e model Final model Baseline model	+ ((EN + () EN + ()	1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 + RT + RT ² + Speed/Accuracy Effect RT RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 Subject) Random slope RT	X² 35.67 22.56 18.19 17.79 25.15 Speed/Accuracy + + Contrast + Left/Right X² 0.42 0.026 0.55 0.72 1.93 Speed/Accuracy + X² 4.37*10 ⁻¹¹	DF 2	1.80*10 ⁻⁸ 0.0000126 0.00011 0.00014 3.45*10 ⁻⁶ trast + Left/Right 0.52 0.87 0.46 0.40 0.17 trast + Left/Right 1
C	> (withheld) EMG amplitude at response (executed)	eline model Final model Baseline model	+ ((EN + (EN + (1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 + RT + RT ² + Speed/Accuracy Effect RT RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 Subject) Random slope RT RT ²	X² 35.67 22.56 18.19 17.79 25.15 Speed/Accuracy + + Contrast + Left/Right X² 0.42 0.026 0.55 0.72 1.93 Speed/Accuracy + X² 0.72 1.93 Speed/Accuracy + X² 0.72 1.93	DF 2 2 2 2 2 2 2 2 2 2 2 2 2	1.80*10 ⁻⁸ 0.0000126 0.00011 0.00014 3.45*10 ⁻⁶ trast + Left/Right 0.52 0.87 0.46 0.40 0.17 trast + Left/Right 1 0.68
С	nse (withheld) EMG amplitude at response (executed)	taseline model Final model Baseline model	+ ((EN + (EN + (1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 + RT + RT ² + Speed/Accuracy Effect RT RT Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 Subject) Random slope RT RT ² Speed/Accuracy	X² 35.67 22.56 18.19 17.79 25.15 Speed/Accuracy + Contrast + Left/Right X² 0.42 0.026 0.55 0.72 1.93 Speed/Accuracy + X² 0.42 0.026 0.55 0.72 1.93 Speed/Accuracy + X² 0.77 1.0*10 ⁻¹¹ 0.77 1.16*10 ⁻¹⁰	DF 2 2 2 2 2 2 2 2 2 2 2 2 2	1.80*10 ⁻⁸ 0.0000126 0.00011 0.00014 3.45*10 ⁻⁶ trast + Left/Right 0.52 0.87 0.46 0.40 0.17 trast + Left/Right 1 0.68 1 0.68 1 0.05
C	ponse (withheld) EMG amplitude at response (executed)	Baseline model Final model Baseline model	+ ((EN + (1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 + RT + RT ² + Speed/Accuracy Effect RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast	X² 35.67 22.56 18.19 17.79 25.15 Speed/Accuracy + Contrast + Left/Right X² 0.42 0.026 0.55 0.72 1.93 Speed/Accuracy + X² 0.42 0.026 0.55 0.72 1.93 Speed/Accuracy + X² 4.37*10 ⁻¹¹ 0.77 1.16*10 ⁻¹⁰ 0.92	DF 2 2 2 2 2 2 2 2 2 2 2 2 2	1.80*10 ⁻⁸ 0.0000126 0.00011 0.00014 3.45*10 ⁻⁶ trast + Left/Right 0.52 0.87 0.46 0.40 0.17 trast + Left/Right 1 0.68 1 0.68 1 0.68 1 0.68
c	response (withheld) EMG amplitude at response (executed)	Baseline model Final model Baseline model	+ ((EN + (EN + (1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 + RT + RT ² + Speed/Accuracy Effect RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast	χ^2 35.67 22.56 18.19 17.79 25.15 Speed/Accuracy + Contrast + Left/Right χ^2 0.42 0.026 0.55 0.72 1.93 Speed/Accuracy + χ^2 0.12 1.93 Speed/Accuracy + χ^2 0.72 1.93 Speed/Accuracy + χ^2 4.37*10 ⁻¹¹ 0.77 1.16*10 ⁻¹⁰ 0.92 2.32	DF 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 1 1 1 1 1 1 1 1 1 1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	1.80*10 ⁻⁸ 0.0000126 0.00011 0.00014 3.45*10 ⁻⁶ trast + Left/Right 0.52 0.87 0.46 0.40 0.17 trast + Left/Right 1 0.68 1 0.63 0.31
c	ide at response (withheld) EMG amplitude at response (executed)	Baseline model Final model Baseline model	+ ((EN + () EN + () EN + ()	1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 + RT + RT ² + Speed/Accuracy Effect RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 + RT ² + Speed/Accuracy	X² 35.67 22.56 18.19 17.79 25.15 Speed/Accuracy + Contrast + Left/Right X² 0.42 0.026 0.55 0.72 1.93 Speed/Accuracy + X² 4.37*10 ⁻¹¹ 0.77 1.16*10 ⁻¹⁰ 0.92 2.32 Speed/Accuracy +	DF 2 2 2 2 2 2 2 2 2 2 2 2 2	1.80*10 ⁻⁸ 0.0000126 0.00011 0.00014 3.45*10 ⁻⁶ trast + Left/Right 0.52 0.87 0.46 0.40 0.17 trast + Left/Right 1 0.68 1 0.63 0.31 trast + Left/Right
c	litude at response (withheld) EMG amplitude at response (executed)	odel Baseline model Final model Baseline model	+ (1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 + RT + RT ² + Speed/Accuracy Effect RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 + RT ² + Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 + RT + RT ² + Speed/Accuracy	X² 35.67 22.56 18.19 17.79 25.15 Speed/Accuracy + Contrast + Left/Right X² 0.42 0.026 0.55 0.72 1.93 Speed/Accuracy + X² 4.37*10 ⁻¹¹ 0.77 1.16*10 ⁻¹⁰ 0.92 2.32 Speed/Accuracy + Left/Right Subject) X²	DF 2 2 2 2 2 2 2 2 2 2 2 2 2	1.80*10 ⁻⁸ 0.0000126 0.00011 0.00014 3.45*10 ⁻⁶ trast + Left/Right 0.52 0.87 0.46 0.40 0.17 trast + Left/Right 1 0.68 1 0.63 0.31 trast + Left/Right
c	mplitude at response (withheld) EMG amplitude at response (executed)	model Baseline model Final model Baseline model	+ (1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 + RT + RT ² + Speed/Accuracy Effect RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 + RT ² + Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 + RT + RT ² + Speed/Accuracy Effect RT	X² 35.67 22.56 18.19 17.79 25.15 Speed/Accuracy + Contrast + Left/Right X² 0.42 0.026 0.555 0.72 1.93 Speed/Accuracy + X² 4.37*10 ⁻¹¹ 0.77 1.16*10 ⁻¹⁰ 0.92 2.32 Speed/Accuracy + Left/Right Subject) X² 0.89	DF 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 1 2 2 2 2 2 2 2 2 2 2 2	1.80*10 ⁻⁸ 0.0000126 0.00011 0.00014 3.45*10 ⁻⁶ trast + Left/Right 0.52 0.87 0.46 0.40 0.17 trast + Left/Right 1 0.68 1 0.63 0.31 trast + Left/Right
c	3 amplitude at response (withheld) EMG amplitude at response (executed)	nal model Baseline model Final model Baseline model	+ ((EN + () EN + () EN + ()	1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast IG at RT ~ RT + RT ² + 1 + RT + RT ² + Speed/Accuracy Effect RT RT ² Speed/Accuracy Left/Right Contrast IG at RT ~ RT + RT ² + 1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast IG at RT ~ RT + RT ² + 1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast IG at RT ~ RT + RT ² + 1 + RT ² + Speed/Accuracy Left/Right Contrast IG at RT ~ RT + RT ² + 1 + RT + RT ² + Speed/Accuracy Effect RT RT ² Speed/Accuracy Left/Right Contrast IG at RT ~ RT + RT ² + Speed/Accuracy Left/Right Contrast IG at RT ~ RT + RT ² + 1 + RT + RT ² + Speed/Accuracy	X² 35.67 22.56 18.19 17.79 25.15 Speed/Accuracy + Contrast + Left/Right X² 0.42 0.026 0.555 0.72 1.93 Speed/Accuracy + X² 4.37*10 ⁻¹¹ 0.77 1.16*10 ⁻¹⁰ 0.92 2.32 Speed/Accuracy + Left/Right Subject) X² 0.89 0.012	DF 2 2 2 2 2 2 2 2 2 2 2 2 2	1.80*10 ⁻⁸ 0.0000126 0.00011 0.00014 3.45*10 ⁻⁶ trast + Left/Right 0.52 0.87 0.46 0.46 0.40 0.17 trast + Left/Right 1 0.68 1 0.63 0.31 trast + Left/Right 0.35 0.91
c	EMG amplitude at response (withheid) EMG amplitude at response (executed)	Final model Baseline model Final model Baseline model	+ ((EN + () + () EN + ()	1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 + RT + RT ² + Speed/Accuracy Effect RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 + RT ² + Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 + RT + RT ² + Speed/Accuracy Effect RT RT ² Speed/Accuracy	X² 35.67 22.56 18.19 17.79 25.15 Speed/Accuracy + Contrast + Left/Right X² 0.42 0.026 0.555 0.72 1.93 Speed/Accuracy + X² 4.37*10 ⁻¹¹ 0.77 1.16*10 ⁻¹⁰ 0.92 2.32 Speed/Accuracy + Left/Right Subject) X² 0.89 0.012 1.51	DF 2 2 2 2 2 2 2 2 2 2 2 2 2 2 1	1.80*10 ⁻⁸ 0.0000126 0.00011 0.00014 3.45*10 ⁻⁶ trast + Left/Right 0.52 0.87 0.46 0.46 0.40 0.17 trast + Left/Right 1 0.68 1 0.68 1 0.63 0.31 trast + Left/Right 0.35 0.91 0.22 0.62
c	EMG amplitude at response (withheid) EMG amplitude at response (executed)	Final model Baseline model Final model Baseline model	+ (1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 + RT + RT ² + Speed/Accuracy Effect RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 + RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 + RT ² Speed/Accuracy Left/Right Contrast MG at RT ~ RT + RT ² + 1 + RT + RT ² + Speed/Accuracy Effect RT RT ² Speed/Accuracy Left/Right Contrast	X² 35.67 22.56 18.19 17.79 25.15 Speed/Accuracy + Contrast + Left/Right X² 0.42 0.026 0.55 0.72 1.93 Speed/Accuracy + X² 4.37*10 ⁻¹¹ 0.77 1.16*10 ⁻¹⁰ 0.92 2.32 Speed/Accuracy + Left/Right Subject) X² 0.89 0.012 1.51 0.0013	DF 2 2 2 2 2 2 2 2 2 2 2 2 2	1.80*10 ⁻⁸ 0.0000126 0.00011 0.00014 3.45*10 ⁻⁶ trast + Left/Right 0.52 0.87 0.46 0.46 0.40 0.17 trast + Left/Right 1 0.68 1 0.68 1 0.63 0.31 trast + Left/Right 0.35 0.91 0.22 0.97

Supplementary Table 2: Results of linear mixed-effects models (continued)

		odel	Mu/Beta exc. ~ RT + RT ² + (1 Subject)	+ Speed/Accuracy +	Contra	st + Left/Right
	excursion" (withheld)		Random slope	X ²	DF	р
		eu	RT	11.46	2	0.033
а		iľ	RT ²	0.038	2	0.98
		ase	Speed/Accuracy	11.29	2	0.0035
		ä	Left/Right	71.91	2	2.22*10 ⁻¹⁶
			Contrast	1.96	2	0.37
-			Mu/Beta exc. ~ RT + RT ² + (1 + RT + Speed/Accuracy + Lef	+ Speed/Accuracy + t/Right Subject)	Contra	st + Left/Right
	ta '	de	Effect	X ²	DF	р
	Bei	Ĕ	RT	2.76	1	0.097
	/n/	al	RT ²	0.82	1	0.37
	~	긆	Speed/Accuracy	2.31	1	0.13
			Left/Right	8.11	1	0.0044
			Contrast	2.36	1	0.12
	(d	del	CPP at RT ~ RT + RT ² + (1 Subject)	- Speed/Accuracy +	Contra	st + Left/Right
	AE	ě	Random slope	X ²	DF	р
	ith	e	RT	27.63	2	1.00*10 ⁻⁶
	^)	ili	RT ²	2.35	2	0.31
	ISe	ase	Speed/Accuracy	4.21	2	0.12
	noc	Ш	Left/Right	6.77	2	0.034
h	le at resp		Contrast	13.28	2	0.0013
D						
	de at i	_	+ $(1 + RT + Contrast + Left/Right)$	- Speed/Accuracy + Subject)	Contra	st + Left/Right
	itude at I	del	+ (1 + RT + Contrast + Left/Right Effect	- Speed/Accuracy + Subject) X ²	Contra DF	st + Left/Right
	nplitude at I	model	+ (1 + RT + Contrast + Left/Right Effect RT	Speed/Accuracy + Subject) X ² 23.22 23.22	DF	st + Left/Right p 1.45*10 ⁻⁶
	amplitude at I	nal model	+ (1 + RT + Contrast + Left/Right Effect RT RT ²	Speed/Accuracy + Subject) X ² 23.22 1.45	DF 1	p 1.45*10 ⁻⁶ 0.23
	:PP amplitude at I	Final model	+ (1 + RT + Contrast + Left/Right Effect RT RT ² Speed/Accuracy	Speed/Accuracy + Subject) X ² 23.22 1.45 4.22 4.22	DF 1 1 1	st + Left/Right p 1.45*10 ⁻⁶ 0.23 0.040 0.040 0.040
	CPP amplitude at I	Final model	+ (1 + RT + Contrast + Left/Right Effect RT RT ² Speed/Accuracy Left/Right	Speed/Accuracy + Subject) X ² 23.22 1.45 4.22 1.18	DF 1 1 1 1	p 1.45*10 ⁻⁶ 0.23 0.040 0.28
	CPP amplitude at I	Final model	+ (1 + RT + Contrast + Left/Right Effect RT RT ² Speed/Accuracy Left/Right Contrast	Speed/Accuracy + Subject) X ² 23.22 1.45 4.22 1.18 2.34 1.18	DF 1 1 1 1 1 1 1 1	p 1.45*10 ⁻⁶ 0.23 0.040 0.28 0.13
	vith.) CPP amplitude at I	del Final model	+ (1 + RT + Contrast + Left/Right Effect RT RT ² Speed/Accuracy Left/Right Contrast Mu/Beta base. diff. ~ RT + RT + (1 Subject)	Speed/Accuracy + Subject) X ² 23.22 1.45 4.22 1.18 2.34 2.34	DF 1 1 1 1 1 1 Contr	p 1.45*10-6 0.23 0.040 0.28 0.13 ast + Left/Right
	– with.) CPP amplitude at I	nodel Final model	+ (1 + RT + Contrast + Left/Right Effect RT RT ² Speed/Accuracy Left/Right Contrast Mu/Beta base. diff. ~ RT + RT + (1 Subject) Random slope	Speed/Accuracy + Subject) X ² 23.22 1.45 4.22 1.18 2.34 2.34 * Speed/Accuracy X ² X ²	DF 1 1 1 1 1 Contr	st + Left/Right p 1.45*10-6 0.23 0.040 0.28 0.13 ast + Left/Right
	sc. – with.) CPP amplitude at I	e model Final model	+ (1 + RT + Contrast + Left/Right Effect RT RT ² Speed/Accuracy Left/Right Contrast Mu/Beta base. diff. ~ RT + RT + (1 Subject) Random slope RT	Speed/Accuracy + Subject) X ² 23.22 1.45 4.22 1.18 2.34 2.34 * Speed/Accuracy X ² 1.75	DF 1 1 1 1 1 0 Contr DF 2	st + Left/Right p 1.45*10-6 0.23 0.040 0.28 0.13 ast + Left/Right p 0.42 0.42
	exec. – with.) CPP amplitude at I	eline model Final model	+ (1 + RT + Contrast + Left/Right Effect RT RT ² Speed/Accuracy Left/Right Contrast Mu/Beta base. diff. ~ RT + RT + (1 Subject) Random slope RT RT ²	Speed/Accuracy + Subject) X ² 23.22 1.45 4.22 1.18 2.34 2.34 * * X ² 1.75 0.33 1	DF 1 1 1 1 1 1 2 2 2	st + Left/Right p 1.45*10-6 0.23 0.040 0.28 0.13 ast + Left/Right p 0.42 0.85
	:e (exec. – with.) CPP amplitude at I	aseline model Final model	+ (1 + RT + Contrast + Left/Right Effect RT RT ² Speed/Accuracy Left/Right Contrast Mu/Beta base. diff. ~ RT + RT + (1 Subject) Random slope RT RT ² Speed/Accuracy	Speed/Accuracy + Subject) X ² 23.22 1.45 4.22 1.18 2.34 2.34 *** Speed/Accuracy X ² 1.75 0.33 -7.28*10 ⁻¹²	DF 1 1 1 1 1 1 2 2 2 2 2	st + Left/Right p 0.23 0.040 0.28 0.13 0.13 ast + Left/Right p 0.42 0.85 1 1 1
	snce (exec. – with.) CPP amplitude at	Baseline model Final model	+ (1 + RT + Contrast + Left/Right Effect RT RT ² Speed/Accuracy Left/Right Contrast Mu/Beta base. diff. ~ RT + RT + (1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right	 Speed/Accuracy + Subject) X² 23.22 1.45 4.22 1.18 2.34 2.34 * Speed/Accuracy + X² 1.75 0.33 -7.28*10⁻¹² -7.28*10⁻¹² 	DF 1 1 1 1 1 1 2 2 2 2 2 2 2	st + Left/Right p 0.23 0.040 0.28 0.13 0.13 ast + Left/Right p 0.42 0.85 1 1 1
c	ference (exec. – with.) CPP amplitude at	Baseline model Final model	+ (1 + RT + Contrast + Left/Right Effect RT RT ² Speed/Accuracy Left/Right Contrast Mu/Beta base. diff. ~ RT + RT + (1 Subject) Random slope RT RT ² Speed/Accuracy Left/Right Contrast	$\begin{tabular}{ c c c c } \hline & & & & & & \\ \hline & & & & & & \\ \hline & & & &$	DF 1 1 1 1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2	st + Left/Right p 0.23 0.040 0.28 0.13 0.13 ast + Left/Right p 0.42 0.85 1 1 0.99
с	ne difference (exec. – with.) CPP amplitude at	Baseline model Final model	<pre>+ (1 + RT + Contrast + Left/Right Effect RT RT² Speed/Accuracy Left/Right Contrast Mu/Beta base. diff. ~ RT + RT + (1 Subject) RT RT² Speed/Accuracy Left/Right Contrast Mu/Beta baseline diff. ~ RT + I + (1 Subject)</pre>	Speed/Accuracy + Subject) X ² 23.22 1.45 4.22 1.18 2.34 2.34 ** Speed/Accuracy X ² 0.33 -7.28*10 ⁻¹² -7.28*10 ⁻¹² 0.021 0.021	DF 1 1 1 1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	p 1.45*10 ⁻⁶ 0.23 0.040 0.28 0.13 ast + Left/Right p 0.42 0.85 1 0.99 trast + Left/Right
c	eline difference (exec. – with.) CPP amplitude at	del Baseline model Final model	<pre>+ (1 + RT + Contrast + Left/Right Effect RT RT² Speed/Accuracy Left/Right Contrast Mu/Beta base. diff. ~ RT + RT + (1 Subject) RT RT² Speed/Accuracy Left/Right Contrast Mu/Beta baseline diff. ~ RT + I + (1 Subject) Effect</pre>	Speed/Accuracy + Subject) X ² 23.22 1.45 4.22 1.18 2.34 2.34 *2 1.75 0.33 -7.28*10 ⁻¹² -7.28*10 ⁻¹² 0.021 RT ² + Speed/Accuracy X ²	DF 1 1 1 1 1 2 1 0 0 0 0 0 0 0 0 0	st + Left/Right p 1.45*10 ⁻⁶ 0.23 0.040 0.28 0.13 ast + Left/Right p 0.42 0.85 1 1 0.99 rast + Left/Right
С	baseline difference (exec. – with.) CPP amplitude at I	model Baseline model Final model	<pre>cFP at K1 ~ K1 + K1 + K1 + + K1 + + + + + + + + + +</pre>	Speed/Accuracy + Subject) X ² 23.22 1.45 4.22 1.18 2.34 2.34 ** Speed/Accuracy X ² 1.75 0.33 -7.28*10 ⁻¹² -7.28*10 ⁻¹² 0.021 RT ² + Speed/Accuracy X ² X ² 4.65	DF 1 1 1 1 1 0 OF 2 2 2 2 2 2 2 2 2 2 2 2 2 2 1 0 0 0 0 0 0 0 1	st + Left/Right p 1.45*10 ⁻⁶ 0.23 0.040 0.28 0.13 ast + Left/Right p 0.42 0.85 1 1 0.99 rast + Left/Right p 0.031
С	ta baseline difference (exec. – with.) CPP amplitude at I	al model Baseline model Final model	<pre>cFP at RT ~ RT + RT + RT + + RT + + + + + + + + + +</pre>	Speed/Accuracy + Subject) X ² 23.22 1.45 4.22 1.18 2.34 2.34 ** Speed/Accuracy X ² 1.75 0.33 -7.28*10*12 -7.28*10*12 0.021 RT ² Speed/Accuracy X ² 4.65 3.23 -	DF 1 1 1 1 1 1 1 Contra DF 2 2 2 2 2 2 2 2 1 0 DF 1 1 1 0 0 0 0 1 0 1 0 1 0 0 0 1 1	st + Left/Right p 1.45*10 ⁻⁶ 0.23 0.040 0.28 0.13 ast + Left/Right p 0.42 0.85 1 1 0.99 rast + Left/Right p 0.031 0.072
С	Beta baseline difference (exec. – with.) CPP amplitude at I	Final model Baseline model Final model	<pre>cFP at K1 ~ K1 + K1 + K1 + + K1 + + + + + + + + + +</pre>	Speed/Accuracy + Subject) X ² 23.22 1.45 4.22 1.18 2.34 2.34 * Speed/Accuracy X ² 1.18 2.34 2.34 * Speed/Accuracy X ² 1.75 0.33 -7.28*10 ⁻¹² -7.28*10 ⁻¹² 0.021 RT ² + Speed/Accuracy X ² 4.65 3.23 0.30 0.30	DF 1 1 1 1 1 1 1 OF 2 2 2 2 2 2 2 2 1 0 0 0 0 0 0 1 1	st + Left/Right p 1.45*10 ⁻⁶ 0.23 0.040 0.28 0.13 ast + Left/Right p 0.42 0.85 1 1 0.99 rast + Left/Right p 0.031 0.072 0.58
С	Mu/Beta baseline difference (exec. – with.) CPP amplitude at I	Final model Baseline model Final model	<pre>+(1 + RT + Contrast + Left/Right Effect RT RT² Speed/Accuracy Left/Right Contrast Mu/Beta base. diff. ~ RT + RT +(1 Subject) Random slope RT RT² Speed/Accuracy Left/Right Contrast Mu/Beta baseline diff. ~ RT + I +(1 Subject) Effect RT RT² Speed/Accuracy Left/Right Contrast Left/Right</pre>	Speed/Accuracy + Subject) X ² 23.22 1.45 4.22 1.18 2.34 2.34 *2 1.75 0.33 -7.28*10*12 -7.28*10*12 0.021 RT ² + Speed/Accuracy X ² 4.65 3.23 0.30 0.039	DF 1 1 1 1 1 1 1 • Contra DF 2 2 2 2 2 2 2 2 1 1 1 DF 1 1 1 1 1 1 1 1 1	st + Left/Right p 1.45*10 ⁻⁶ 0.23 0.040 0.28 0.13 ast + Left/Right p 0.42 0.85 1 1 0.99 rast + Left/Right p 0.031 0.072 0.58 0.84

Supplementary Table 3: Results of linear mixed-effects models (continued)

Supplementary Table 4: Full results of the ANOVAs reported in the main text

This table lists the results of all Analyses of Variance reported in this study. An alpha level of 0.05 was set for all tests. For details regarding the direction and interpretation of these effects, please refer to the Results and Supplementary Information.

AEP = auditory evoked potential; CAF = conditional accuracy function; CPP = centro-parietal positivity; SSVEP = Steady-State Visual Evoked Potential.

			F	df1	df2	р
		Speed/Accuracy	46.63	1	15	5.71*10 ⁻⁶
а	Reaction time	Contrast	86.67	1	15	1.27*10 ⁻⁷
		Speed/Accuracy * Contrast	23.47	1	15	0.00021455
		Speed/Accuracy	23.18	1	15	0.00022753
b	Response accuracy	Contrast	106.81	1	15	3.23*10 ⁻⁸
		Speed/Accuracy * Contrast	3.86	1	15	0.068
		Speed/Accuracy	1.66	1	15	0.22
		Contrast	2.70	1	15	0.12
		Left/Right	0.021	1	15	0.89
с	Decline in CAF (6 bins for cut-off)	Speed/Accuracy * Contrast	1.16	1	15	0.30
		Speed/Accuracy * Left/Right	0.39	1	15	0.54
		Contrast * Left/Right	0.073	1	15	0.79
		Speed/Accuracy * Contrast * Left/Right	1.08	1	15	0.32
		Speed/Accuracy	0.047	1	15	0.83
		Contrast	3.52	1	15	0.080
	.	Left/Right	26.77	1	15	0.0028
d	Stimulus-locked	Speed/Accuracy * Contrast	0.99	1	15	0.34
	SSVEP amplitude	Speed/Accuracy * Left/Right	5.47	1	15	0.034
		Contrast * Left/Right	41.24	1	15	1.15*10 ⁻⁵
		Speed/Accuracy * Contrast * Left/Right	1.79	1	15	0.20
		Speed/Accuracy	1.07*10 ⁻⁷	1	15	1.00
		Contrast	2.32	1	15	0.15
		Left/Right	27.28	1	15	0.0026
е	Response-locked	Speed/Accuracy * Contrast	0.014	1	15	0.91
-	SSVEP (-50ms)	Speed/Accuracy * Left/Right	5.67	1	15	0.031
		Contrast * Left/Right	38.01	1	15	1 81*10 ⁻⁵
		Speed/Accuracy * Contrast * Left/Right	1 28	1	15	0.28
		Speed/Accuracy	0.28	1	15	0.61
		Contrast	1 79	1	15	0.20
		L eff/Right	26.50	1	15	0.0082
f	Response-locked	Speed/Accuracy * Contrast	4 64	1	15	0.048
•	SSVEP (+50ms)	Speed/Accuracy * Left/Right	2 90	1	15	0.11
		Contrast * Left/Right	41.46	1	15	1 12*10 ⁻⁵
		Speed/Accuracy * Contrast * Left/Right	2.58	1	15	0.13
		Speed/Accuracy	0.36	1	15	0.10
		Contrast	24.26	1	15	0.00
		L eff/Right	8 98	1	15	0.00010
a	Stimulus-locked	Speed/Accuracy * Contrast	2 30	1	15	0.0030
9	SSVEP (20 Hz)	Speed/Accuracy * Left/Pight	0.53	1	15	0.14
		Contract * Left/Right	8.65	1	15	0.40
		Speed/Accuracy * Contrast * Left/Right	1.04	1	15	0.010
		Speed/Accuracy Contrast Lett/Right	2.49	1	15	0.10
		Contract	1.60	1	15	0.14
	Stimulus-locked SSVEP (25Hz)	L off/Pight	21.00	1	15	0.23
h		Speed/Acouracy * Contract	21.94	1	15	0.00029
		Speed/Accuracy Contrast	0.72	1	15	0.41
		Speed/Accuracy Leit/Right	1.97	1	15	0.10
			23.58	4	15	0.00021
		Speed/Accuracy Contrast Cett/Right	0.75	1	15	0.40
			0.38	1	15	0.00000
	.		21.49	1	15	0.00032
,	Stimulus-locked	Speed/Accuracy	0.029	1	15	0.87
1	SOVER (correct vs. incorrect)	Correct/Incorrect * Lett/Right	1./1	1	15	0.014
	(conect vs. incorrect)	Correct/Incorrect * Speed/Accuracy	0.036	1	15	0.85
		Lett/Right * Speed/Accuracy	4.62	1	15	0.048
		Correct/Incorrect * Left/Right * Speed/Accuracy	0.073	1	15	0.79

Supplementary Table 5: Full results of the ANOVAs reported in the main text (continued)

This table lists the results of all Analyses of Variance reported in this study. An alpha level of 0.05 was set for all tests. For details regarding the direction and interpretation of these effects, please refer to the Results and Supplementary Information.

AEP = auditory evoked potential; CAF = conditional accuracy function; CPP = centro-parietal positivity; SSVEP = Steady-State Visual Evoked Potential.

			F	df1	df2	р
	Den il diamatan	Speed/Accuracy	23.55	29	435	0.031
а	Pupil diameter	Time	41.92	29	435	2.17*10 ⁻⁶
	over time	Speed/Accuracy * Time	17.62	29	435	0.00046
		Speed/Accuracy	0.038	1	15	0.85
		Contrast	2.78	1	15	0.12
		Left/Right	27.57	1	15	0.0026
		Pupil diameter	1.12	1	15	0.31
		Speed/Accuracy * Contrast	0.31	1	15	0.59
		Speed/Accuracy * Left/Right	10.71	1	15	0.0051
		Speed/Accuracy * Pupil diameter	0.092	1	15	0.77
b	Pupil and SSVEP	Contrast * Left/Right	39.68	1	15	1.43*10 ⁻⁵
		Contrast * Pupil diameter	1.17	1	15	0.30
		Left/Right * Pupil diameter	10.83	1	15	0.0050
		Speed/Accuracy * Contrast * Left/Right	1.32	1	15	0.27
		Speed/Accuracy * Contrast * Pupil	0.12	1	15	0.73
		Speed/Accuracy * Left/Right * Contrast	3.10	1	15	0.098
		Contrast * Left/Right * Pupil diameter	1.29	1	15	0.27
		Speed/Accuracy * Contrast * Left/Right * Pupil	1.73	1	15	0.21
		Speed/Accuracy	11. <u>51</u>	1	15	0.004
с	Mu/Beta rate of rise	Contrast	9.22	1	15	0.0083
	(executed response)	Speed/Accuracy * Contrast	0.58	1	15	0.46
		Speed/Accuracy	5.43	1	15	0.034
d	CPP rate of rise	Contrast	12.99	1	15	0.0026
		Speed/Accuracy * Contrast	0.23	1	15	0.64
		Speed/Accuracy	3.08	1	15	1.00
		Contrast	0.036	1	15	0.85
	Mar/Data and literals	Executed/Withheld	14.26	1	15	0.0018
е	Mu/Beta amplitude	Speed/Accuracy * Contrast	0.26	1	15	0.62
	at response	Speed/Accuracy * Executed/Withheld	0.00014	1	15	0.99
		Contrast * Executed/Withheld	2.30	1	15	0.15
		Speed/Accuracy * Contrast * Executed/Withheld	1.75	1	15	0.21
	Deenenee leeks d	Speed/Accuracy	14.04	1	15	0.0019
f	CPP peak time	Contrast	0.32	1	15	0.58
		Speed/Accuracy * Contrast	1.85	1	15	0.19
	Difference ODD	Speed/Accuracy	7.83	1	15	0.014
g	Difference CPP	Contrast	0.0061	1	15	0.94
	peak • motor time	Speed/Accuracy * Contrast	2.07	1	15	0.17
		Speed/Accuracy	68.85	1	15	5.48*10 ⁻⁷
h	Points won	Deadline/Slope	4.49	1	15	0.051
L		Speed/Accuracy * Deadline/Slope	64.45	1	15	8.24*10 ⁻⁷
	000 / / /	Speed/Accuracy	11.64	1	15	0.0039
i	CPP rate of rise	Contrast	21.00	1	15	0.00036
	(WITT AEP)	Speed/Accuracy * Contrast	0.16	1	15	0.70

Supplementary References

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