Online-only Materials:

List of elements included:

Path Analysis:

Structural equation modeling (SEM) (path analysis) was implemented using AMOS 7 (SPSS Inc, Chicago)[1]. Endogenous variables representing the same ERP potential to different stimuli were treated as covariates. Initial solutions were determined with all paths considered; least significant paths were sequentially eliminated until only significant paths remained, as determined by consideration of standardized β weights. Goodness of fit was determined by consideration of residual χ^2 error/df (CMIN/df) and residual mean square error (RMSEA).

As predicted based upon published fMRI studies, in the AX-70 version of the task, larger N2 responses to B-cues significantly predicted performance across groups (β=-.145, p=.024). Furthermore, amplitude of N2 responses significantly predicted amplitudes of the subsequent CNV (β=.58, p<.001). However, the CNV did not significantly predict performance (d'-context).

Path analysis also revealed two other sets of relationships. First, across groups N1 amplitude also predicted performance (β=-.17, p=.002), as well as N2 amplitude to both A- (β=.25, p=.05) and B-cues (β=.25, p=.04). Second, P1 across both A- and B-cues (combined) also significantly predicted amplitude of the subsequent N2 response (β=-.35, p=.002) and N1 (β=.22, p=.033) potentials. Group membership exerted a significant effect on both P1 (β=.36, p=.013), N1 (A-cue: β=-.35, p=.02; B-cue: β=-.33, p=.03), and P3 amplitude (A-cue:β=1.90, p=.012; cue B: β=2.23, p=.03). No direct group effects were observed on subsequent ERP components or d'-context scores.

When this path analysis model was extended across task variants, significant effects of N1 to A- (β=54, p=.013) and B-cues (β=-.79, p<.001) on performance (d'-context) were again observed, although effects of N2 on performance were not significant. Group effects were observed on P1 (β=.31, p=.048), and N1 to A- (β=-.34, p=.025) and B-cues (-.52, p<.001), but not on N2. In the AY-70 condition, N1 to AY probes significantly predicted performance (β=-.49, p<.001), but no significant effects of N2 were observed.

CNV Slope Analysis:

Linear regressions were applied to the ERP data points between 550-1200 ms after cue onset for both groups, for both cue types and across task variations **(eTable 1)**. The slopes of the regression were assessed, and an ANOVA was conducted to verify if there were group differences between the slopes. There was no main effect of group across tasks (F1,35=1.74, p=.2), although absolute amplitude was different, as shown in the manuscript.

eTable 1: Slope of CNV (mV/ms)

Task	Controls		Patients	
	Cue A	Cue B	Cue A	Cue B
AX-70	6.53 (1.07)	3.24 (0.98)	5.5 (0.65)	2.84 (0.79)
AY-70	4.28 (0.71)	2.2 (1.18)	4.28 (0.53)	2.2 (0.88)
BX-70	14.6 (1.45)	1.74 (0.74)	9.63 (1.09)	1.55 (0.47)

eTable 2: Effect Sizes

	AX-70		AY-70		BX-70	
d'context	0.83		1.33		1.45	
ERP	**cue**	**probe**	**cue**	**probe**	**cue**	**probe**
P1	0.69	0.61	0.65	0.64	0.64	0.54
N1	0.71	0.75	0.79	0.94	0.92	0.93
N2	0.7	0.63	0.83	0.77	0.85	0.11
CNV	0.51		0.28		0.83	

eReferences:

1. Arbuckle JL. *Amos 7.0 User's Guide*. Spring House, PA: Amos Development Corporation; 2006.
2. Dias EC, Foxe JJ, Javitt DC. Changing plans: a high density electrical mapping study of cortical control. *Cereb Cortex.* 2003;13(7):701-715.
3. Dias EC, McGinnis T, Smiley JF, Foxe JJ, Schroeder CE, Javitt DC. Changing plans: neural correlates of executive control in monkey and human frontal cortex. *Exp Brain Res.* 2006;174(2):279-291.
4. Barch DM, Carter CS, Braver TS, Sabb FW, MacDonald A, 3rd, Noll DC, Cohen JD. Selective deficits in prefrontal cortex function in medication-naive patients with schizophrenia. *Archives of general psychiatry.* 2001;58(3):280-288.

eFigure Legends:

eFigure 1: Activity following presentation of the Cue in task variant AY-70. The activity is presented in two ways. The scalp voltage distributions for each component for patients (right) and controls (left) are shown plotted over the head representation; scales are in μV/step, red is positive and blue is negative. The plots show ERP waveforms recorded at the electrode highlighted over the scalp renditions, for both patients (blue) and controls (red) and for cues A and B.

eFigure 2: Activity following presentation of the Probe in task variant AY-70. The left panel shows activity following presentation of the valid probe (X) and the right panel shows activity following presentation of the invalid probe (Y). Conventions are the same as in eFigure 1.

eFigure 3: Activity following presentation of the Cue in task variant BX-70. Conventions are the same as in eFigure 1.

eFigure 4: Activity following presentation of the Probe in task variant BX-70. Conventions are the same as in eFigure 2.

eFigure 5: Path analysis results in the AX-70 task variant. Component variables are overlaid on a schematic brain based upon generator locations derived from source analysis[2], monkey intracranial recordings[3] and prior fMRI studies[4]. Arrows reflect significant statistical associations as shown by path analysis, with thickness of arrow

representing strength of connection. CMIN/DF of the model was 1.109, and RMSEA was 0.052. For statistics, P1 values were collapsed across A- and B-cues, which were not significantly different ($p>.2$).