

Supporting Information

Leber et al. 10.1073/pnas.0805423105

	R PostCentG	SupCol	SubThalNuc	L Putamen	R AI	R MFG	R IFG	L MFG	ACC	L ACC	L SFS	L SPL-2	L IPL	L IPS	R SPL	L SPL	R SPL-3	R SPL-2	R IPL	PostCing
R PostCentG		2.24	0.39	3.59	0.41	0.23	-0.45	0.61	2.19	3.17	4.56	5.27	4.79	2.17	1.63	-0.06	3.43	-1.82	0.98	2.63
SupCol	0.05		4.71	4.35	0.86	0.62	-1.55	1.03	4.19	3.86	1.95	-0.07	1.32	2.27	0.82	1.75	0.63	1.10	0.46	3.35
SubThalNuc	0.01	0.23		4.65	2.57	0.85	0.19	0.73	1.80	0.76	3.27	-0.48	1.52	2.39	-0.97	-1.57	0.67	-0.67	-0.53	2.53
L Putamen	0.08	0.13	0.12		8.23	3.21	1.49	5.91	5.42	3.95	5.22	0.88	4.00	1.06	-0.19	0.72	0.89	-2.68	1.25	3.95
R AI	0.01	0.03	0.08	0.22		7.42	4.44	5.14	6.57	2.57	3.20	0.75	2.33	-0.50	1.60	0.95	3.84	0.42	6.21	0.98
R MFG	0.00	0.01	0.02	0.08	0.18		4.61	6.41	6.15	-0.37	3.83	2.13	4.37	1.55	2.76	6.51	6.38	5.29	4.75	2.82
R IFG	-0.01	-0.03	0.00	0.04	0.13	0.12		7.77	4.22	2.68	-0.14	-1.18	3.43	0.97	0.68	-1.02	1.06	0.90	4.57	3.38
L MFG	0.01	0.03	0.02	0.13	0.16	0.14	0.12		8.29	1.53	4.12	0.82	7.03	5.89	2.96	5.00	3.16	3.66	3.40	0.68
ACC	0.06	0.11	0.05	0.12	0.18	0.12	0.11	0.25		8.61	6.41	-0.31	7.75	5.71	2.37	3.81	3.67	10.34	2.90	3.38
L ACC	0.07	0.07	0.02	0.09	0.05	-0.01	0.04	0.04	0.18		5.11	1.33	2.83	2.57	2.33	1.24	3.81	2.54	-0.07	3.13
L SFS	0.12	0.06	0.07	0.13	0.09	0.07	0.00	0.10	0.21	0.13		6.29	8.57	4.92	1.95	5.51	8.22	2.94	0.83	2.35
L SPL-2	0.13	0.00	-0.01	0.02	0.02	0.05	-0.03	0.02	-0.01	0.02	0.13		5.39	3.46	4.07	8.72	7.76	2.52	1.13	1.50
L IPL	0.13	0.04	0.04	0.09	0.06	0.13	0.11	0.33	0.28	0.07	0.24	0.21		12.13	6.62	10.27	10.58	5.48	6.08	3.85
L IPS	0.04	0.05	0.03	0.02	-0.01	0.04	0.02	0.27	0.19	0.05	0.15	0.09	0.49		9.18	11.69	9.20	6.26	2.71	2.07
R SPL	0.04	0.01	-0.03	0.00	0.05	0.09	0.02	0.10	0.07	0.04	0.06	0.18	0.28	0.25		13.07	10.73	6.28	4.47	3.27
L SPL	0.00	0.04	-0.04	0.01	0.02	0.13	-0.03	0.16	0.11	0.02	0.21	0.29	0.38	0.28	0.33		12.34	11.36	4.75	3.54
R SPL-3	0.07	0.01	0.02	0.02	0.11	0.13	0.03	0.09	0.09	0.05	0.19	0.20	0.28	0.14	0.29	0.34		9.14	3.82	5.06
R SPL-2	-0.05	0.03	-0.02	-0.04	0.01	0.12	0.03	0.09	0.16	0.03	0.07	0.09	0.23	0.21	0.26	0.40	0.32		3.19	7.28
R IPL	0.03	0.01	-0.01	0.03	0.14	0.14	0.16	0.11	0.09	0.00	0.02	0.05	0.27	0.09	0.17	0.13	0.13	0.12		3.81
PostCing	0.07	0.11	0.08	0.07	0.01	0.09	0.05	0.01	0.12	0.06	0.05	0.03	0.14	0.06	0.08	0.11	0.13	0.18	0.11	

Fig. S1. Raw values of cross-correlation analysis. Mean Fischer z-values are shown below the diagonal; t-values from group-level random-effects analysis on the Fischer z-values are shown above the diagonal. ACC, anterior cingulate cortex; AI, anterior insula; IPL, inferior parietal lobule; IPS, intraparietal sulcus; L, left; MFG, middle frontal gyrus; R, right; SFS, superior frontal sulcus; SPL, superior parietal lobule; SubThalNuc, subthalamic nucleus; SupCol, superior colliculus. PostCentG, Postcentral Gyrus; PostCing, Posterior Cingulate.

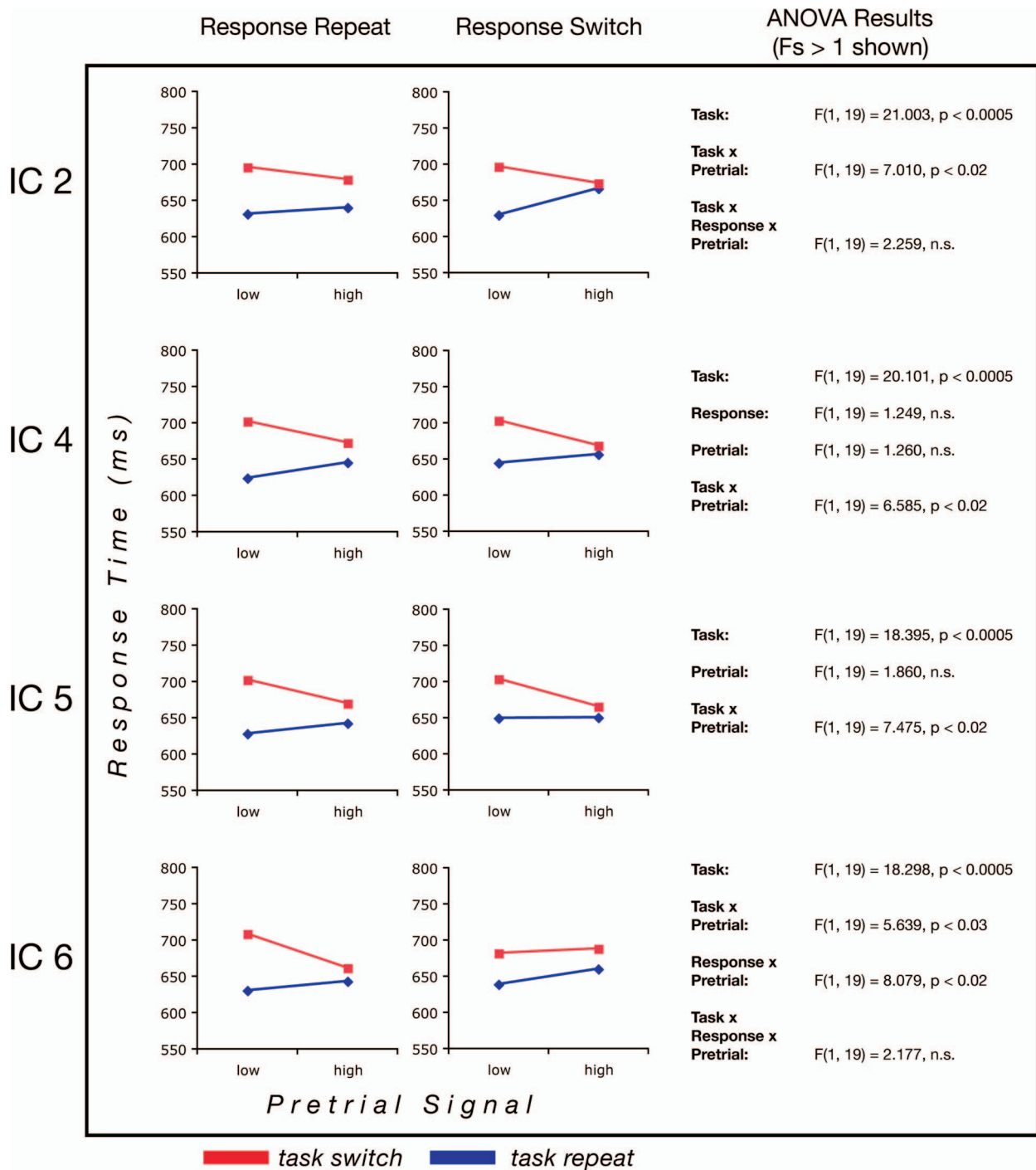


Fig. S2. Pretrial signal from sources IC2, IC4, IC5, and IC6 predict the task switch cost, irrespective of response transition (response repeat versus response switch). RT is plotted as a function of pretrial signal, response transition, and task transition (task repeat versus task switch). Pretrial signal was sorted into "low" and "high" via a median split carried out within each participant. Pretrial signal, response transition, and task transition were entered as independent variables into $2 \times 2 \times 2$ repeated measures ANOVAs for each IC. Results of the ANOVAs are shown in the right column. "Task" indicates task transition, "response" indicates response transition, and "pretrial" indicates pretrial signal. Only $F_s > 1$ are reported.

Table S1. Alternative analysis 1: Removing contributions of previous evoked responses from the pretrial signal

ROI	Coordinates			Relationship between pretrial signal and RT				Difference in slopes (<i>P</i>)
				Switch		Repeat		
	<i>X</i>	<i>Y</i>	<i>Z</i>	Δ ms/sd	<i>P</i>	Δ ms/sd	<i>P</i>	
L IPL	-40	-46	42	-21.893	0.0024	13.072	0.0542	0.0003
SupCol	-1	-29	-2	-24.177	0.0013	10.733	0.0391	0.0007
L MFG	-39	29	20	-16.031	0.0264	14.134	0.0241	0.0014
R SPL	22	-67	45	-11.535	0.0796	10.112	0.0382	0.0059
R AI	37	11	11	-22.696	0.0002	9.840	0.0914	0.0001
L SPL	-11	-65	48	-18.371	0.0022	7.900	0.1448	0.0024
L IPS	-31	-68	37	-16.405	0.0365	7.918	0.0420	0.0049
ACC	-6	10	42	-15.310	0.0094	16.805	0.0069	0.0007
L Putamen	-24	1	11	-14.491	0.0273	16.833	0.0125	0.0037
R SPL-2	4	-70	41	-3.105	0.5734	16.841	0.0170	0.0078
L SFS	-23	-10	51	-14.788	0.0071	18.980	0.0074	0.0008
R MFG	33	39	28	-15.173	0.0055	5.567	0.1674	0.0013
SubThalNuc	2	-13	-2	-15.062	0.0213	13.814	0.0057	0.0029
R SPL-3	11	-63	47	-12.307	0.0488	10.717	0.0974	0.0162
R IPL	50	-40	50	-22.721	0.0001	5.459	0.3603	0.0024
R IFG	39	41	3	-18.924	0.0002	1.304	0.8367	0.0040
L SPL-2	-24	-55	53	-12.427	0.0964	13.953	0.0189	0.0071
PostCingG	2	-36	41	-17.609	0.0057	9.301	0.1067	0.0014
L ACC	-16	4	42	-9.637	0.0580	18.021	0.0062	0.0007
R PostcentralG	48	-22	38	-11.567	0.0999	12.360	0.0373	0.0043

Δ ms/sd, change in RT per standard deviation of pretrial signal; ACC, anterior cingulate cortex; AI, anterior insula; IFG, inferior frontal gyrus; IPL, inferior parietal lobule; IPS, intraparietal sulcus; L, left; MFG, middle frontal gyrus; R, right; SFS, superior frontal sulcus; SPL, superior parietal lobule; SubThalNuc, subthalamic nucleus; SupCol, superior colliculus. PostCentralG, postcentral gyrus; PostCingG, posterior cingulate gyrus.

Table S2. Alternative analysis 2: Removing contributions of previous trial RT from the pretrial signal

ROI	Coordinates			Relationship between pretrial signal and RT				Difference in slopes (<i>P</i>)
				Switch		Repeat		
	<i>X</i>	<i>Y</i>	<i>Z</i>	Δ ms/sd	<i>P</i>	Δ ms/sd	<i>P</i>	
L IPL	-40	-46	42	-22.264	0.0013	12.754	0.0497	0.0002
SupCol	-1	-29	-2	-21.595	0.0013	6.659	0.1048	0.0009
L MFG	-39	29	20	-17.152	0.0155	13.475	0.0176	0.0009
R SPL	22	-67	45	-11.672	0.0295	9.214	0.0408	0.0012
R AI	37	11	11	-19.153	0.0004	9.771	0.0966	0.0003
L SPL	-11	-65	48	-17.122	0.0030	6.217	0.2008	0.0017
L IPS	-31	-68	37	-15.067	0.0214	8.991	0.0087	0.0022
ACC	-6	10	42	-13.699	0.0163	12.059	0.0405	0.0025
L Putamen	-24	1	11	-16.516	0.0172	16.526	0.0195	0.0024
R SPL-2	4	-70	41	-3.766	0.3558	12.503	0.0330	0.0093
L SFS	-23	-10	51	-13.998	0.0112	17.673	0.0100	0.0007
R MFG	33	39	28	-12.959	0.0051	3.802	0.3065	0.0007
SubThalNuc	2	-13	-2	-14.378	0.0152	11.774	0.0089	0.0017
R SPL-3	11	-63	47	-10.003	0.0668	10.229	0.1130	0.0109
R IPL	50	-40	50	-18.163	0.0004	4.675	0.3541	0.0025
R IFG	39	41	3	-17.142	0.0006	-0.864	0.8754	0.0069
L SPL-2	-24	-55	53	-10.806	0.0582	12.075	0.0348	0.0046
PostCingG	2	-36	41	-13.320	0.0224	6.862	0.2009	0.0027
L ACC	-16	4	42	-9.693	0.0318	16.054	0.0128	0.0018
R PostcentralG	48	-22	38	-11.955	0.0922	13.828	0.0282	0.0021

Δ ms/sd, change in RT per standard deviation of pretrial signal; ACC, anterior cingulate cortex; AI, anterior insula; IFG, inferior frontal gyrus; IPL, inferior parietal lobule; IPS, intraparietal sulcus; L, left; MFG, middle frontal gyrus; R, right; SFS, superior frontal sulcus; SPL, superior parietal lobule; SubThalNuc, subthalamic nucleus; SupCol, superior colliculus. PostCentralG, postcentral gyrus; PostCing, posterior cingulate gyrus.