

whose classification performance did not achieve significance in the right SFS. **A** Left IPS. **B** Right medial SPL. **C** Right SFS.

Supplementary Figure 1. Back-projection of MVPC weights.

For each subject, classification rates from 6 seconds following the cue were binarized and back-projected into the brain. Here, a single slice through each region is presented for each subject.

Supplementary Figure 2. Within-domain classification: Location Shift.

Accuracy in classifying left-to-right from right-to-left shifts. **A** Left IPS. **B** Right medial SPL. **C** Right SFS.

Supplementary Figure 3. Within-domain classification: Counter Shift.

Accuracy in classifying Counter A-to-B from Counter B-to-A shifts. **A** Left IPS. **B** Right medial SPL. **C** Right SFS.

Supplementary Figure 4. Mean-centered event-related multivoxel pattern classification.

Mean-centering resulted in no qualitative and minimal quantitative changes to the er-MVPC results. See Figure 6 for comparison.

Cortical Mechanisms of Cognitive Control for Shifting Attention in Vision and Working Memory

Benjamin J. Tamber-Rosenau, Michael Esterman, Yu-Chin Chiu, and Steven Yantis

We thank an anonymous reviewer for suggesting that the regions of interest (ROIs) submitted to multivoxel pattern classification (MVPC) could form a distributed network in which the pattern of mean ROI-level activations across ROIs could encode more or additional information compared to the within-ROI patterns analyzed in the main text. We tested this idea by performing an additional MVPC analysis comparing location shifts to counter shifts. For each event of interest, all voxels in each region were averaged, resulting in three ROI-specific means for each event. These were entered into a new MVPC analysis for each subject at each timepoint in which the three ROI means were the three features for the SVM. The SVMs used for this MVPC analysis were otherwise identical to those used in the main analysis (i.e., same cost value, same independence of timepoints). This led to 72 total tests (12 timepoints, -8 sec to 14 sec in 2 sec steps; 6 subjects). Only 5 of these tests resulted in significantly above-chance classification ($p < .05$ calculated via the randomization test), and these tests were distributed across only three subjects and occurred at various timepoints, not at the expected peak of the BOLD response.

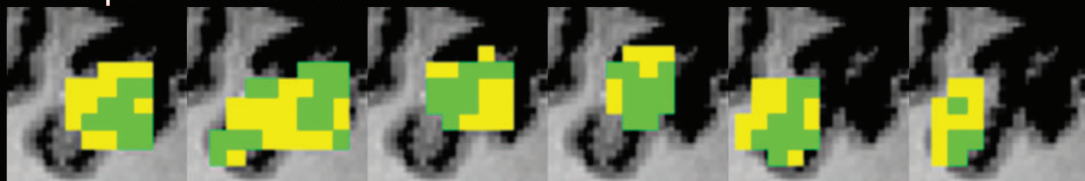
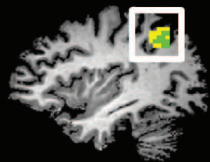
Supplemental Table 1. Spatial and WM attentional control regions.

Contrast	Sign	X	Y	Z	Volume	Region Label
LocSh – Hold	+	49	-45	11	972	Superior Temporal Gyrus
	+	30	-82	28	324	Cuneus
	-	29	-33	8	297	Caudate
	+	21	-2	59	1890	SFG
	+	23	48	34	486	SFG
	+	8	-61	47	2889	SPL / Precuneus / IPS
	+	-17	-64	45	2295	SPL / Precuneus / IPS
	+	-15	-6	66	351	SFG
	+	-21	-7	52	837	SFS
	+	-36	-46	38	594	SMG / SPL / IPS
CouSh – Hold	+	50	-41	42	675	Inferior Parietal Lobule
	+	41	28	29	1215	MFG
	+	25	3	49	1134	SFS
	+	13	-66	44	486	Precuneus
	+	-7	-3	53	513	SFG
	-	-8	48	19	513	SFG
	-	-10	55	24	324	SFG
	-	-8	-53	17	405	Posterior Cingulate / Precuneus
	+	-15	-4	19	351	Caudate
	+	-16	2	8	378	Globus Pallidus
	-	-34	-59	-13	351	Fusiform Gyrus
	-	-33	-84	6	432	MOG
	+	-34	-45	37	297	SPL / IPS
	-	-39	-72	0	1431	MOG / Inferior Occipital Gyrus
	-	-31	-33	-14	405	Parahippocampal Gyrus
	-	-38	-16	2	540	Insula
LocSh – CouSh	-	51	-10	31	324	Precentral Gyrus
	-	51	-43	43	783	Inferior Parietal Lobule / SMG
	+	43	16	8	324	IFG / Frontal Operculum
	+	29	-77	21	4779	Precuneus / Cuneus / MOG
	+	40	-64	-7	324	MOG
	+	1	-49	47	6642	Precuneus
	+	9	-58	11	432	Lingual Gyrus / Calcarine Sulcus / Precuneus
	+	-2	-25	41	459	Cingulate Gyrus
	+	-2	41	2	351	Anterior Cingulate
	+	-7	-57	16	297	Posterior Cingulate
	+	-15	-72	29	783	Precuneus
	+	-34	-80	8	5913	MOG / Angular Gyrus
	+	-27	22	44	405	MFG
	+	-26	-51	-8	594	Lingual Gyrus / Fusiform Gyrus
	-	-37	28	22	459	MFG
	-	-37	37	6	297	IFG
	+	-38	-67	-17	297	Inferior Occipital Gyrus
Conjunction	+	24	1	55	378	SFS / SFG / MFG
	+	11	-66	45	486	Medial SPL / Precuneus
	+	-36	-47	39	405	IPS / SPL

Complete set of regions passing threshold in select contrasts. Abbreviations used in table: LocSh – Location Shift; CouSh – Counter Shift; Conjunction – Conjunction of Location Shift – Hold and Counter Shift – Hold; Sign – Sign of Contrast, where + indicates the nominal direction and – indicates the opposite direction; X, Y, Z – Talairach coordinates of center of mass of region; Volume – Volume in mm³ of region; SFG – Superior Frontal Gyrus; SPL – Superior Parietal Lobule; IPS – Intraparietal Sulcus; SFS – Superior Frontal Sulcus; SMG – Supramarginal Gyrus; MFG – Middle Frontal Gyrus; MOG – Middle Occipital Gyrus; IFG – Inferior Frontal Gyrus.

A

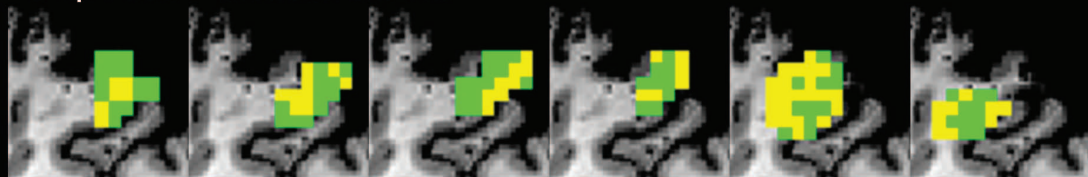
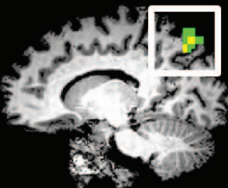
Intraparietal Sulcus



X = -36

B

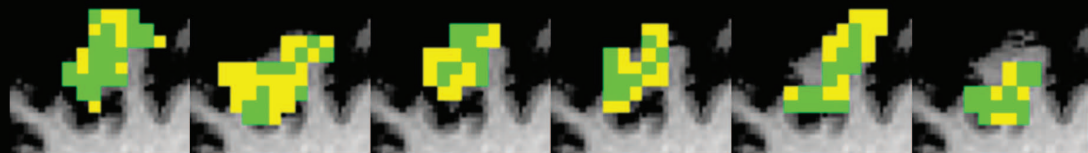
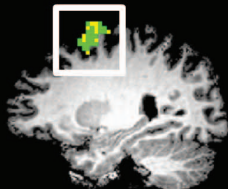
Superior Parietal Lobule



X = 12

C

Superior Frontal Sulcus



X = 24

