

## Supplemental Material

### Materials and Methods

**Supplemental Figures.** Across hemisphere analyses presented in Supplemental Figures 1-3 were performed with the same methods as described for the main ALE subtraction analyses with an FDR of 0.05 and a cluster threshold of 100 mm<sup>3</sup>.

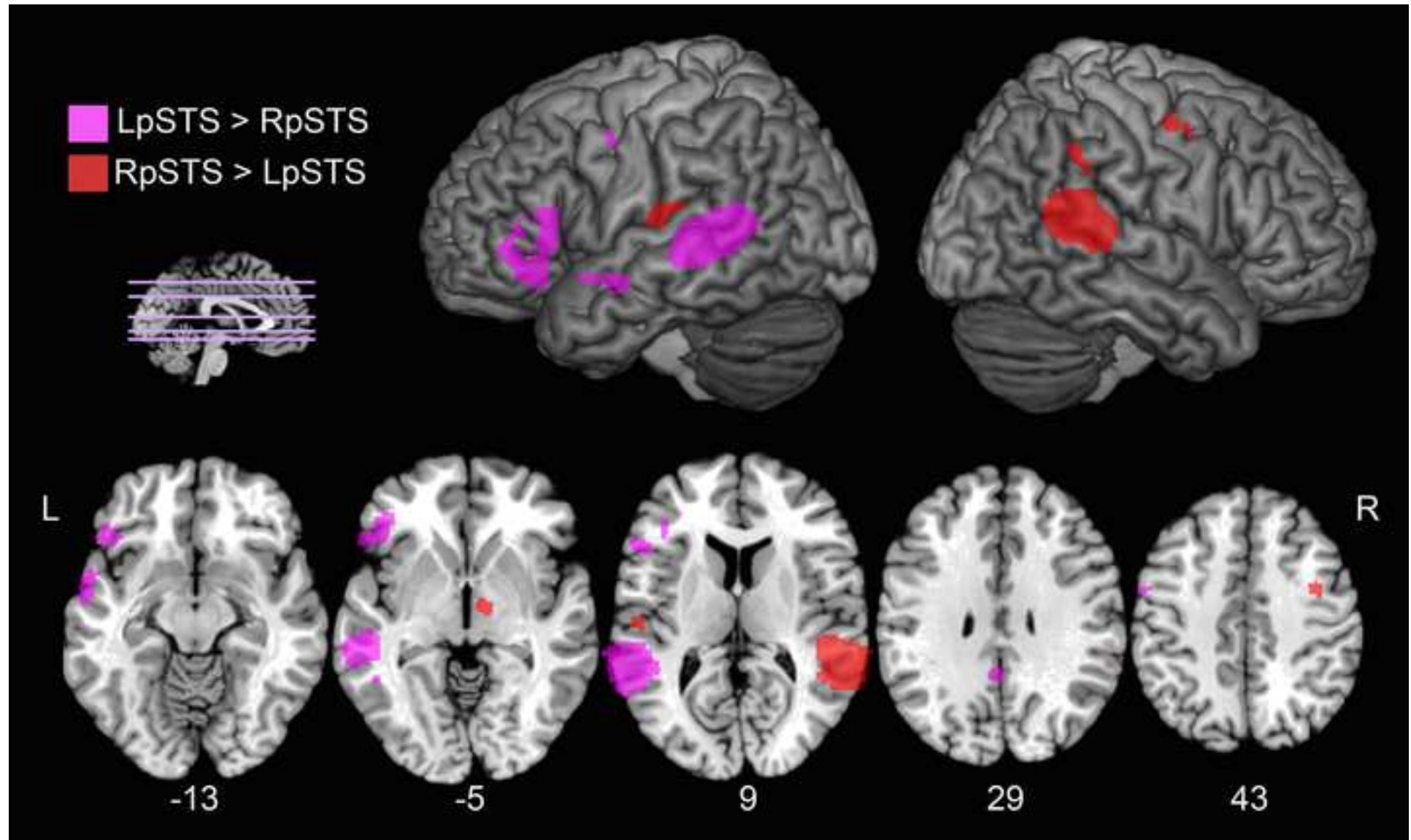
### Captions

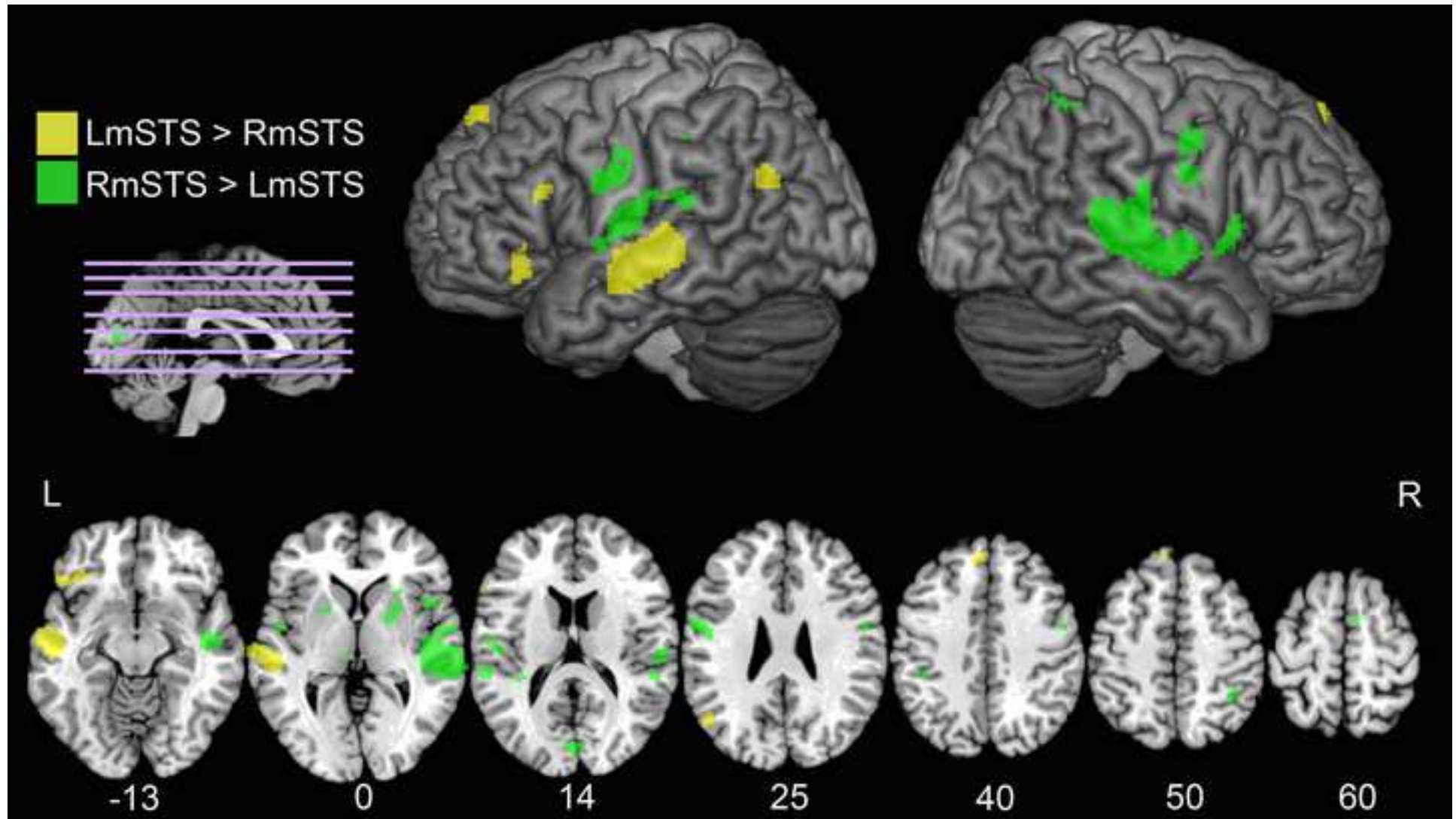
**Supplemental Table 1.** Behavioral analysis of STS ROIs. Behavioral categories were statistically over-represented in the ROI if Z scores were  $\geq 3.0$ , suggesting that the behavioral category had more clustering of foci than predicted by equal distribution of all foci across the brain (see Lancaster et al. (2012) for more details on this method). This analysis was conducted on 12-4-2015 after the original BrainMap search, and these results reflect a different composition of behavioral categories as the BrainMap database has likely changed since the original search, e.g., more experiments added. While this analysis demonstrates that certain behaviors engage these ROIs more often than the rest of the brain, Tables 2 and 3 demonstrate that our dataset includes experiments involving a wide variety of behaviors. Thus, the MACM results reflect general patterns of coactivation across experiments and behaviors. This is supported by STS coactivation findings that are consistent not only with auditory/language models, but also other cognitive functions involving the STS (See Discussion).

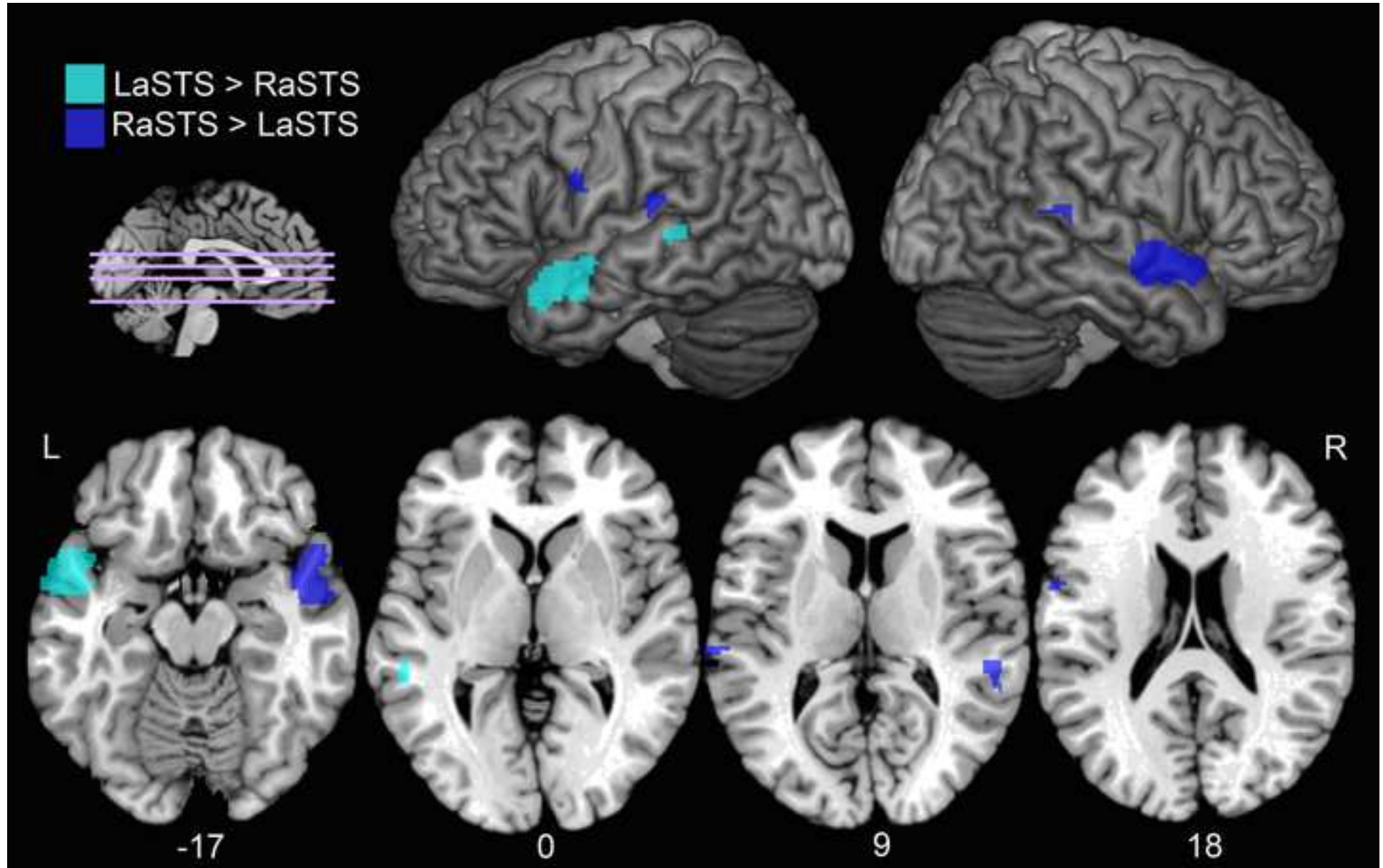
**Supplemental Figure 1.** The comparison of posterior STS in the left and right hemispheres. The LpSTS (purple) had more coactivation than the RpSTS in areas such as the left IFG and left anterior STG. In contrast, the RpSTS (red) had greater coactivation compared to the LpSTS in areas such as right precentral gyrus and right supramarginal gyrus.

**Supplemental Figure 2.** The comparison of middle STS in the left and right hemispheres. The LmSTS (yellow) had more coactivation compared to the RmSTS in regions such as the left IFG and left posterior MTG. In contrast, the RmSTS (green) compared to the LmSTS had more coactivation in multiple regions, such as bilateral subcortical regions, bilateral precentral/postcentral gyrus, bilateral IPL, and left calcarine cortex.

**Supplemental Figure 3.** The comparison of anterior STS in the left and right hemispheres. The LaSTS (light blue) as compared to the RaSTS had more coactivation only in left posterior MTG. In contrast, the RaSTS (dark blue) as compared to the LaSTS had more coactivation in bilateral posterior STG and left postcentral gyrus.







Supplemental Table 1.

Behavioral Category	Z score					
	LaSTS	LmSTS	LpSTS	RaSTS	RmSTS	RpSTS
Action.Execution (Other)	-3.52	-3.70	-1.24	-3.36	-3.66	-3.70
Action.Execution (Speech)	-0.61	0.19	1.52	0.06	-0.62	0.66
Action.Imagination	-1.55	0.11	0.15	-1.72	-0.25	-0.72
Action.Inhibition	-2.18	-0.67	0.70	-0.26	-0.97	2.12
Action.Motor Learning	0.22	0.51	-0.05	-0.94	-1.05	-1.05
Action.Observation	-1.45	-0.55	1.68	-0.84	-1.08	2.76
Action.Preparation	-0.84	-1.05	-1.03	-0.94	-1.04	-0.07
Action.Rest	-0.42	-0.52	-0.51	-0.46	-0.51	-0.52
Cognition.Attention	-3.01	-1.39	0.50	-2.29	-0.07	1.82
Cognition.Language (Orthography)	-1.66	1.07	2.15	-0.16	-0.45	-0.47
Cognition.Language (Other)	1.56	0.56	2.03	1.42	0.58	-0.47
Cognition.Language (Phonology)	0.51	2.33	2.53	0.26	0.31	0.59
Cognition.Language (Semantics)	1.31	<b>3.42</b>	<b>7.26</b>	1.43	2.13	2.52
Cognition.Language (Speech)	-0.24	1.98	<b>6.13</b>	0.36	1.78	<b>3.58</b>
Cognition.Language (Syntax)	-0.10	2.21	2.80	0.31	1.25	0.92
Cognition.Memory (Explicit)	0.36	0.36	0.77	0.06	-0.90	0.02
Cognition.Memory (Other)	0.77	-0.09	-1.05	0.07	-0.08	-0.09
Cognition.Memory (Working)	-2.49	-0.72	0.44	-2.58	-1.75	0.01
Cognition.Music	-0.70	-1.18	-0.60	-0.36	0.54	0.52
Cognition.Other	-0.49	-0.62	-0.21	-2.15	0.59	-0.95
Cognition.Reasoning	-0.25	0.88	0.16	0.17	0.67	-0.19
Cognition.Social Cognition	-0.48	2.13	2.67	1.67	1.59	1.14
Cognition.Soma	-0.93	-1.16	0.39	-1.03	-1.15	-0.22
Cognition.Space	-1.02	-1.06	-0.58	-1.27	-2.16	-1.06
Cognition.Time	0.20	-0.10	0.93	-0.96	-0.09	1.26
Emotion.Anger	1.20	0.53	1.62	0.10	-1.03	2.32
Emotion.Anxiety	-0.78	-0.98	-0.96	-0.87	-0.97	-0.98
Emotion.Disgust	0.41	-1.40	0.87	-0.34	-0.54	0.03
Emotion.Fear	0.08	-0.95	1.09	-0.71	0.46	1.32
Emotion.Happiness (Humor)	1.31	-0.43	-0.42	-0.38	-0.43	-0.43
Emotion.Happiness (Other)	1.74	-0.02	0.83	0.20	0.81	2.11
Emotion.Other	-0.63	0.38	1.27	-0.91	0.88	0.26
Emotion.Sadness	0.45	0.53	-0.47	-1.21	-0.48	-0.50
Interoception.Air-Hunger	-0.67	-0.84	-0.83	0.35	-0.83	0.23
Interoception.Bladder	-0.76	-0.95	-0.93	0.78	-0.94	0.65
Interoception.Hunger	0.60	-0.70	0.44	-0.62	-0.69	0.43
Interoception.Other	-0.61	-0.75	1.63	-0.67	-0.75	0.35
Interoception.Sexuality	0.93	-1.66	0.52	-1.48	0.50	0.11
Interoception.Sleep	-0.67	0.79	-0.82	-0.75	-0.83	-0.84
Interoception.Thermoregulation	-0.24	-0.30	-0.29	-0.27	-0.30	-0.30
Interoception.Thirst	-0.64	0.29	-0.79	0.40	-0.79	0.29
Perception.Audition	1.86	2.91	<b>3.22</b>	2.03	<b>3.31</b>	2.91
Perception.Gustation	0.92	-0.91	0.84	-0.67	-1.65	-0.91
Perception.Olfaction	-0.87	-0.12	-1.07	0.62	0.47	-0.12
Perception.Somesthesis (Other)	-0.56	-1.68	0.55	-1.31	-1.25	-1.28
Perception.Somesthesis (Pain)	-1.82	-2.50	-1.29	-2.13	-2.95	-2.08
Perception.Vision (Color)	-0.59	-0.74	-0.73	-0.66	-0.73	-0.74
Perception.Vision (Motion)	-1.52	-2.15	-1.24	-1.81	-2.65	-1.70
Perception.Vision (Other)	-1.43	0.36	0.41	-0.80	0.38	-0.48
Perception.Vision (Shape)	-2.27	-2.33	0.54	-1.98	-0.80	-1.50