

ON-LINE APPENDIX

MATERIALS AND METHODS

Task Description

All paradigms were constructed in block design, with 30 seconds of activation and 30 seconds of resting, resulting in a total time of 5 minutes per paradigm. The verb-generation task consisted of German nouns presented for 2 seconds. Subjects were asked to covertly find verbs associated with the nouns (eg, “book” and “read, write.” The semantic task contains short German sentences that subjects needed to covertly judge as meaningful or non-sense (eg, “A child is playing with a ball” or “A dog eats the

moon”). All visual stimuli were projected on a screen. During resting blocks, which were indicated by a cross, subjects were asked to relax.

Before scanning, every participant was given clear instructions and did a training task to ensure correct performance inside the scanner. Visibility of letters on the screen was tested before scanning and was improved with MR imaging-compatible glasses if necessary.

Task Distribution

Participants performed 1 or 2 different fMRI tasks in 1–5 runs (On-line Table 1). Together, 52.8% of scan time was acquired with the verb generation task; 47.2%, with the semantic task.

On-line Table 1: Distribution of fMRI tasks per group

Counts	Controls	Left nl-TLE	Right nl-TLE	Left MTS	Right MTS	Left Tumor
fMRI scans						
1	4	0	5	0	3	1
2	18	17	18	17	17	11
3	0	2	0	3	1	0
4	0	2	1	1	1	0
5	0	1	0	0	0	0
Verb-generation runs						
0	1	0	0	0	2	0
1	21	19	23	17	18	12
2	0	1	1	4	1	0
3	0	2	0	0	1	0
Semantic task runs						
0	3	0	5	0	1	1
1	19	18	18	20	21	11
2	0	4	1	1	0	0
Excluded scans						
0	18	17	18	18	16	10
1	4	5	5	3	6	2
2	0	0	1	0	0	0

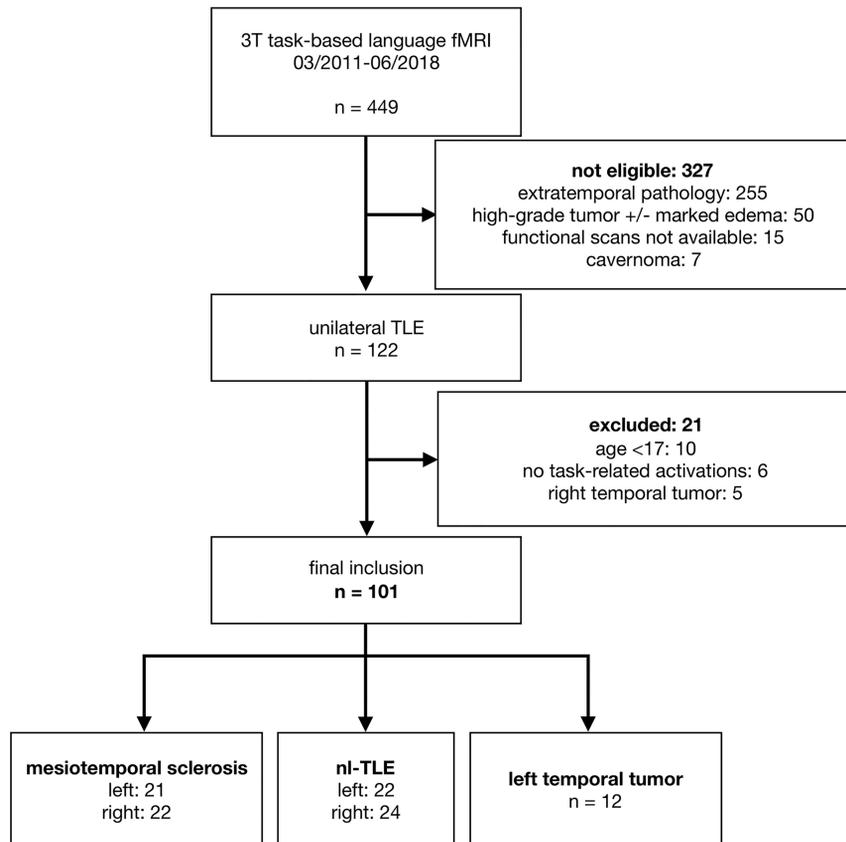
On-Line Table 2: Laterality indices

	Controls		Left nl-TLE		Right nl-TLE		Left MTS		Right MTS		Left Tumor	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
LI verb generation, Broca	0.39	0.47	0.20	0.51	0.48	0.36	0.22	0.49	0.43	0.40	0.29	0.40
LI verb generation, Wernicke	0.61	0.42	0.41	0.48	0.63	0.37	0.65	0.24	0.70	0.26	0.66	0.27
LI semantic task, Broca	0.21	0.44	0.13	0.53	0.11	0.52	0.19	0.54	0.01	0.45	0.30	0.32
LI semantic task, Wernicke	0.53	0.42	0.38	0.54	0.56	0.24	0.56	0.37	0.52	0.46	0.75	0.13
LI verb generation, both ROIs	0.51	0.35	0.30	0.40	0.56	0.30	0.43	0.32	0.57	0.29	0.48	0.27
LI semantic task, both ROIs	0.35	0.38	0.25	0.41	0.34	0.29	0.38	0.40	0.26	0.39	0.53	0.19
LI both tasks, Broca	0.36	0.36	0.16	0.37	0.31	0.32	0.20	0.40	0.17	0.42	0.29	0.27
LI both tasks, Wernicke	0.59	0.39	0.39	0.49	0.60	0.28	0.61	0.25	0.56	0.40	0.71	0.19
LI both tasks, both ROIs	0.47	0.31	0.28	0.35	0.46	0.22	0.40	0.29	0.37	0.36	0.50	0.18

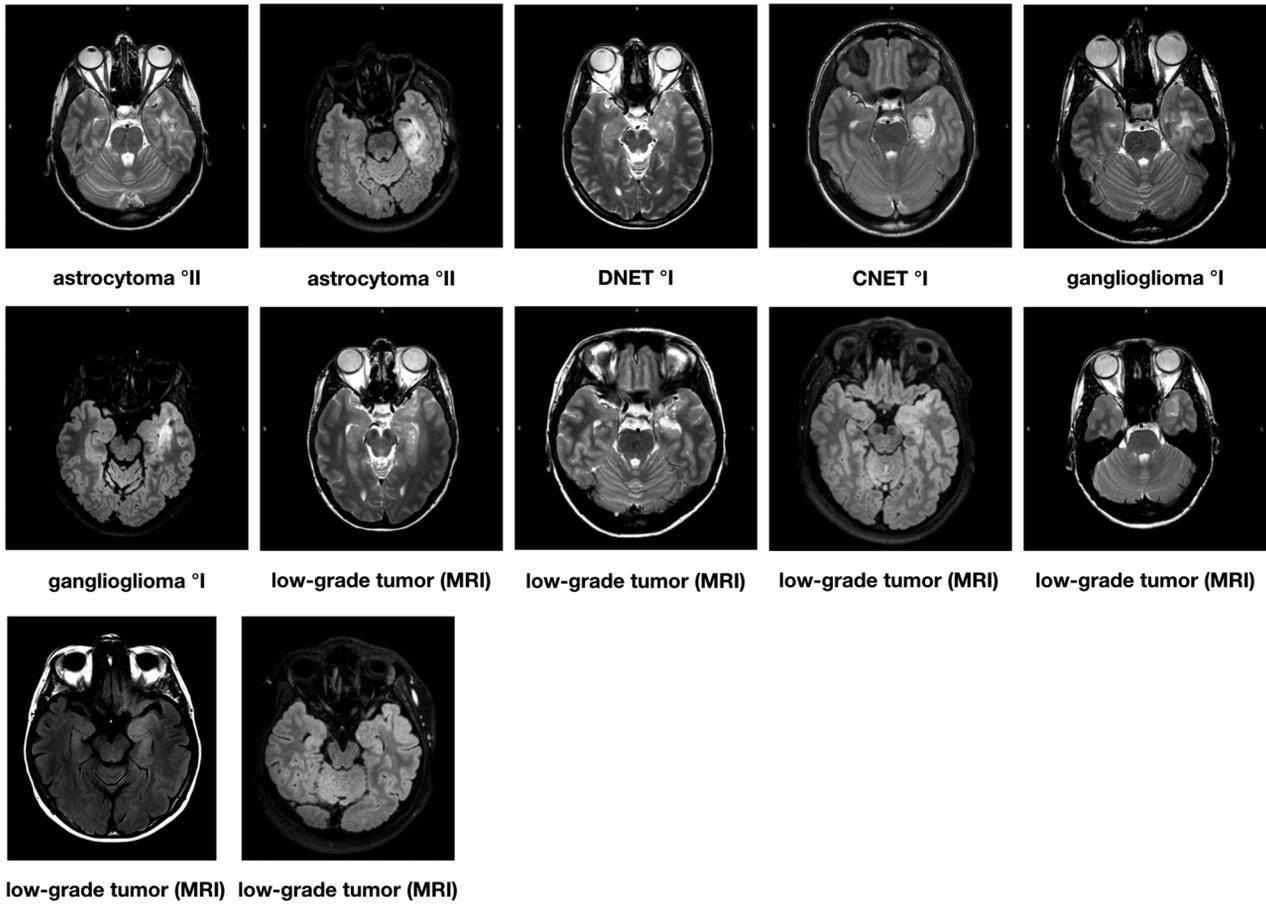
On-line Table 3: ANOVA of laterality indices showing no significant group differences

	Sum of Squares	df	Mean Square	F	Sig.
LI verb generation, Broca					
Between groups	1.46	5	0.29	1.47	.21
Within groups	22.52	113	0.20		
Total	23.98	118			
LI verb generation, Wernicke					
Between groups	1.14	5	0.23	1.75	.13
Within groups	14.96	115	0.13		
Total	16.10	120			
LI semantic task, Broca					
Between groups	0.81	5	0.16	0.69	.63
Within groups	24.92	106	0.24		
Total	25.73	111			
LI semantic task, Wernicke					
Between groups	1.09	5	0.22	1.33	.26
Within groups	17.44	107	0.16		
Total	18.53	112			
LI verb generation, both ROIs					
Between groups	1.03	5	0.21	1.92	.10
Within groups	12.24	114	0.11		
Total	13.27	119			
LI semantic task, both ROIs					
Between groups	0.71	5	0.14	1.05	.39
Within groups	14.35	107	0.13		
Total	15.05	112			
LI both tasks, Broca					
Between groups	0.71	5	0.14	1.07	.38
Within groups	15.45	117	0.13		
Total	16.16	122			
LI both tasks, Wernicke					
Between groups	0.98	5	0.20	1.53	.19
Within groups	14.98	117	0.13		
Total	15.96	122			
LI both tasks, both ROIs					
Between groups	0.64	5	0.13	1.45	.21
Within groups	10.37	117	0.09		
Total	11.01	122			

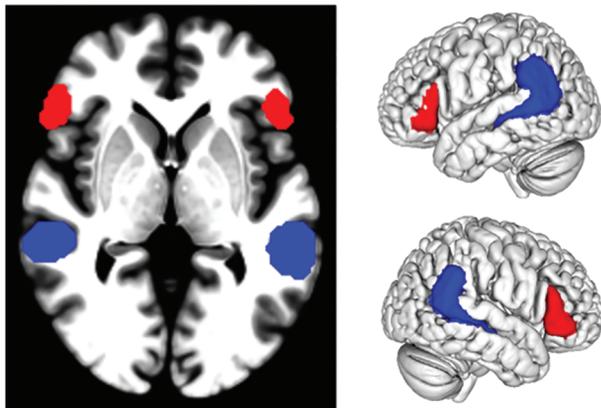
Note:—Sig. indicates significance.



ON-LINE FIG 1. Flow chart illustrating patient selection.



ON-LINE FIG 2. Axial T2WI or FLAIR images of included patients with tumor ($n = 12$). Low-grade tumors substantially affect the left mesiotemporal lobe and show little/no perifocal edema. Diagnoses are based on histopathology or MR imaging (indicated). CNET indicates composite neuroepithelial tumor; DNET, dysembryoplastic neuroepithelial tumor.



ON-LINE FIG 3. Language network ROIs. Red indicates the Broca area and its right-hemispheric homolog; blue, the Wernicke area and its right-hemispheric homolog, axial and 3D projections.