

## ONLINE SUPPLEMENTAL MATERIAL

**Table S1. Preoperative Neurocognitive Functioning**

<b>Domain and Test</b>	<b>Score<sup>†</sup></b>	<b>Interpretive Range<sup>††</sup></b>
<i>Premorbid Function</i>		
WTAR Predicted FSIQ	116	High Average
<i>Attention</i>		
WAIS-IV Digit Span	-0.67	Low Average
WAIS-IV Arithmetic	-0.33	Average
<i>Verbal Learning and Memory</i>		
HVLT-R Total Recall	-3.37	Severely Impaired
HVLT-R Delayed Recall	-3.12	Severely Impaired
HVLT-R Recognition	-2.00	Moderately Impaired
<i>Visuospatial Learning and Memory</i>		
BVMT-R Total Recall	-1.50	Mildly Impaired
BVMT-R Delayed Recall	-0.50	Average
BVMT-R Recognition	> -1.00	Within Normal Limits
<i>Processing Speed</i>		
WAIS-IV Coding	-0.33	Average
WAIS-IV Symbol Search	-0.67	Low Average
Trail Making Test Part A	-0.20	Average
<i>Executive Function</i>		
Trail Making Test Part B	-1.40	Mildly Impaired
WAIS-IV Similarities	0.00	Average
<i>Language</i>		
MAE COWA	-2.47	Moderately Impaired
Animal Fluency	-1.70	Mildly Impaired
Boston Naming Test	-2.00	Moderately Impaired
<i>Visuospatial Function</i>		
WAIS-IV Block Design	1.00	High Average
BVMT-R Copy	---	Within Normal Limits
<i>Manual Dexterity</i>		
Grooved Pegboard-Right Hand	0.10	Average
Grooved Pegboard-Left Hand	1.60	Superior

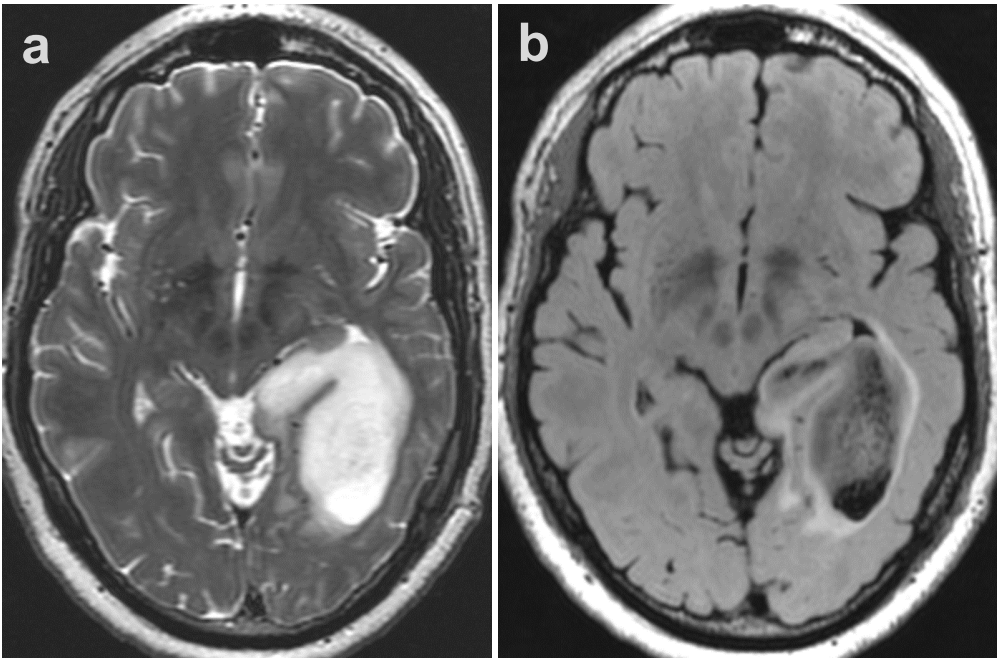
<sup>†</sup>WTAR FSIQ is a predicted standard score (M = 100, SD = 15) incorporating age, education, and ethnicity; All others represent z-scores (M = 0, SD = 1) adjusted for age (and education where appropriate).

<sup>††</sup>Z-score interpretive ranges: Severely Impaired (-3.00 or less), Moderately Impaired (-2.99 - -2.00), Mildly Impaired (-1.99 - -1.34), Low Average (-1.33 - -0.67), Average (-0.66 - 0.66), High Average (0.67 - 1.33), Superior (1.34 - 2.00), Very Superior (greater than 2.00).

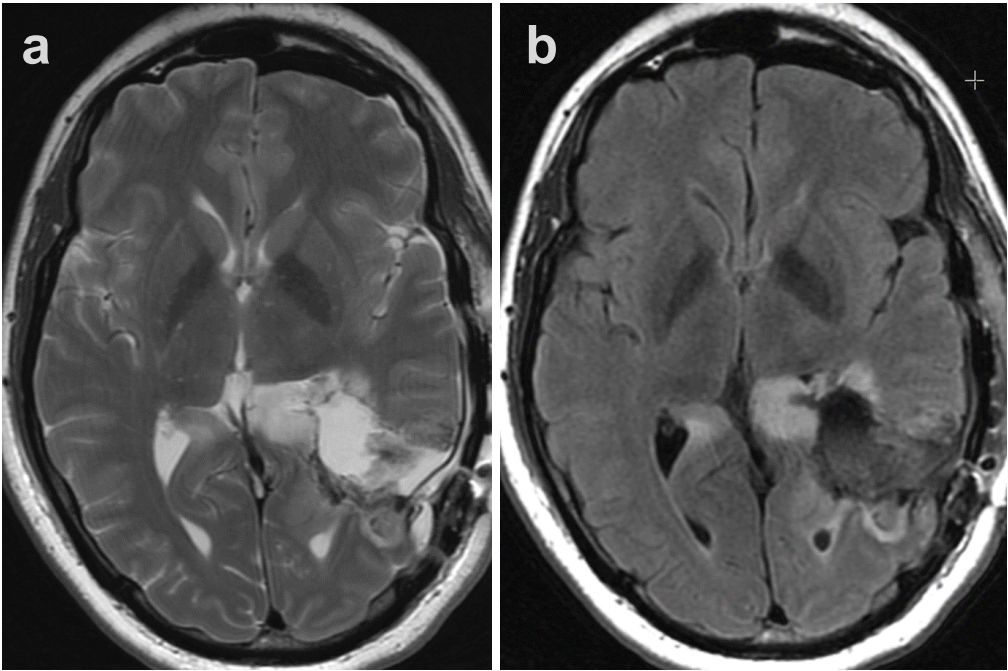
Abbreviations: WTAR, Wechsler Test of Adult Reading; WAIS-IV, Wechsler Adult Intelligence Scale-Fourth Edition; BVMT-R, Brief Visuospatial Memory Test-Revised; HVLT-R, Hopkins Verbal Learning Test-Revised; MAE COWA, Multilingual Aphasia Examination Controlled Oral Word Association.

**Figure S1. Pre- and Postoperative Structural MRI**

**Preoperative**

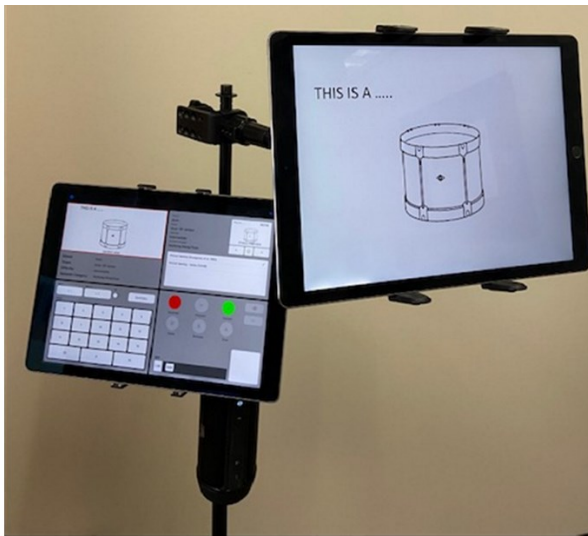


**Postoperative**



Note. a) axial T2, b) axial FLAIR. MRI brain demonstrates an expansile non-enhancing glioma primarily centered within the left posterior temporal lobe and occipital lobe. The glioma demonstrates a T2-FLAIR mismatch sign consistent with an IDH mutant astrocytoma. Postcontrast scans were not presented as the lesion was non-enhancing.

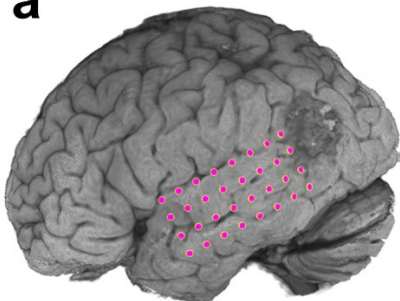
**Figure S2. NeuroMapper Platform**



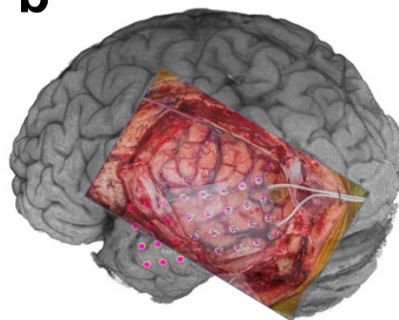
Note. Examiner iPad (left) coupled to the patient stimulus presentation display (right) and a speaker (below left) via Bluetooth.

**Figure S3. ECoG Grid Placement**

**a**

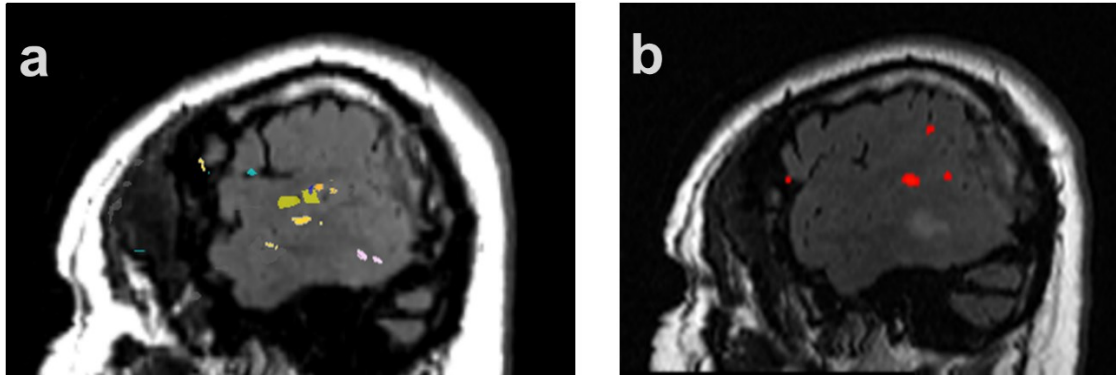


**b**



Note. a) grid placement over the cortical surface, b) grid placement with craniotomy overlay.

**Figure S4. Preoperative fMRI Language Mapping**



Note. a) yellow represents sentence completion task-based fMRI BOLD activation, b) red represents resting-state fMRI posterior language network detected by seeding at the anterior word generation and sentence completion fMRI BOLD activations. Both correlate with maximal ECoG heat map activation and positive DCS sites.