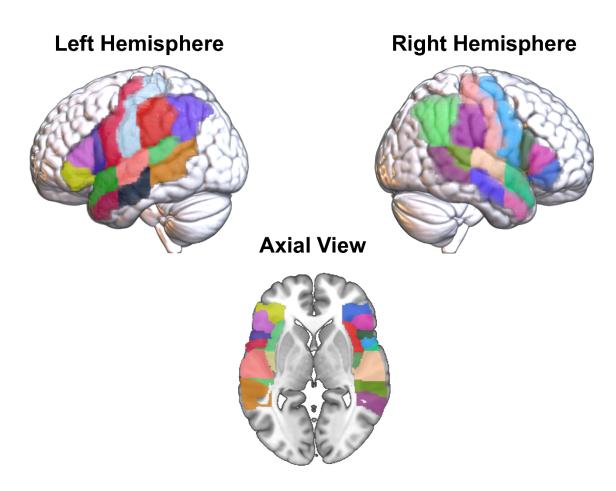
# **Supplementary Material**

# For the manuscript:

Cortical microstructural changes associated with treated aphasia recovery

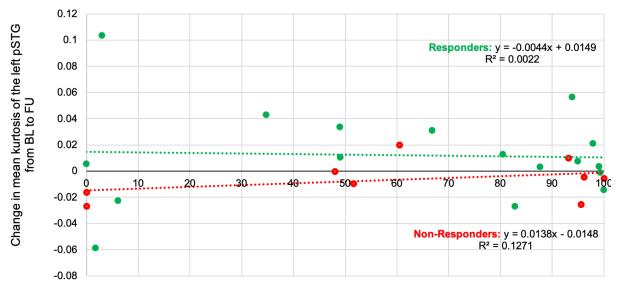
# Authors:

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Supplementary Figure 1: Thirty regions of interests defined by the Johns Hopkins University. Regions of interests are associated with the ventral and dorsal stream of language and its right hemisphere homologous structures.

# Change in correct naming



Regional lesion volume of the left pSTG (%)

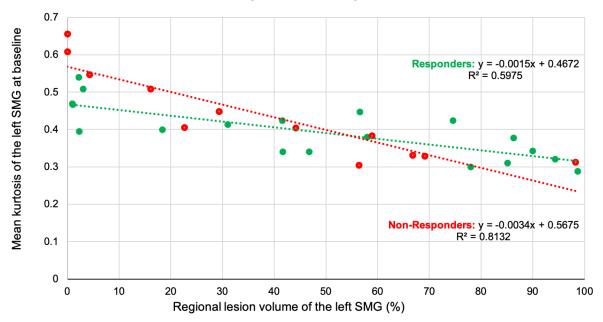
Supplementary Figure 2: Relationship between change in mean kurtosis from baseline to one week after treatment and lesion volume in the posterior superior temporal gyrus (pSTG) for responders (colored in green; participants who produced more correct responses after treatment compared to baseline) and non-responders (colored in red; participants who produced less or equal number of correct responses after treatment compared to baseline).

# Change in correct naming 0.7 Mean kurtosis of the left PoCG at baseline 0.6 Non-Responders: y = -0.0026x + 0.5905R<sup>2</sup> = 0.7517 0.5 0.4 0.3 0.2 **Responders:** y = -0.002x + 0.5311 $R^2 = 0.4138$ 0.1 0 0 10 20 30 50 60 70 80 90 100

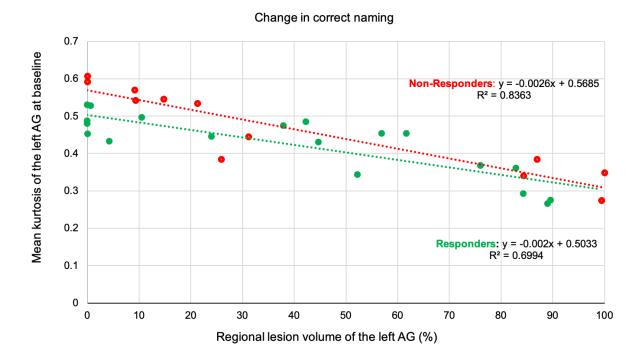
Supplementary Figure 3: Relationship between mean kurtosis at baseline and lesion volume in the precentral gyrus (PoCG) for responders (colored in green; participants who produced more correct responses after treatment compared to baseline) and non-responders (colored in red; participants who produced less or equal number of correct responses after treatment compared to baseline).

Regional lesion volume of the left PoCG (%)

# Change in correct naming

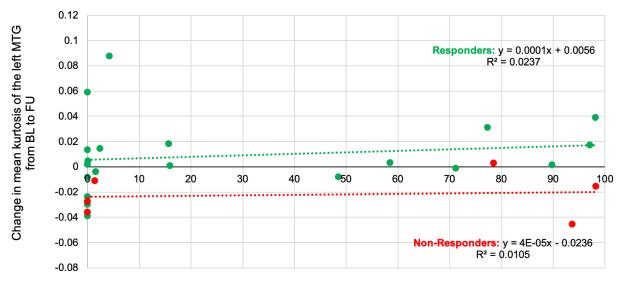


Supplementary Figure 4: Relationship between mean kurtosis at baseline and lesion volume in the supramarginal gyrus (SMG) for responders (colored in green; participants who produced more correct responses after treatment compared to baseline) and non-responders (colored in red; participants who produced less or equal number of correct responses after treatment compared to baseline).



Supplementary Figure 5: Relationship between mean kurtosis at baseline and lesion volume in the angular gyrus (AG) for responders (colored in green; participants who produced more correct responses after treatment compared to baseline) and non-responders (colored in red; participants who produced less or equal number of correct responses after treatment compared to baseline).

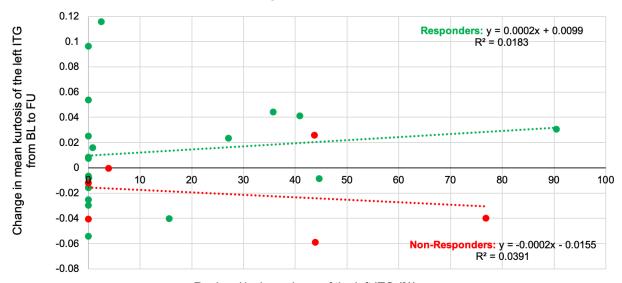
# Change in semantic errors



Regional lesion volume of the left MTG (%)

Supplementary Figure 6: Relationship between change in mean kurtosis from baseline to one week after treatment and lesion volume in the middle temporal gyrus (MTG) for responders (colored in green; participants who produced less semantic errors after treatment compared to baseline) and non-responders (colored in red; participants who produced more or equal number of semantic errors after treatment compared to baseline).

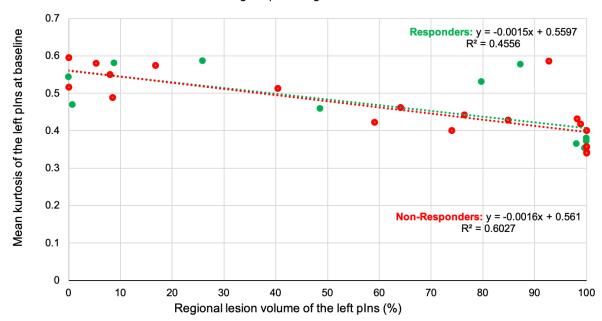
#### Change in semantic errors



Regional lesion volume of the left ITG (%)

Supplementary Figure 7: Relationship between change in mean kurtosis from baseline to one week after treatment and lesion volume in the inferior temporal gyrus (ITG) for responders (colored in green; participants who produced less semantic errors after treatment compared to baseline) and non-responders (colored in red; participants who produced more or equal number of semantic errors after treatment compared to baseline).

# Change in phonological errors



Supplementary Figure 8: Relationship between change in mean kurtosis from baseline to one week after treatment and lesion volume in the posterior insula (plns) for responders (colored in green; participants who produced less phonological errors after treatment compared to baseline) and non-responders (colored in red; participants who produced more or equal number of phonological errors after treatment compared to baseline).