eAppendix: Supplementary Material

Association of circumscribed subcortical gray and white matter lesions with apraxic deficits in patients with left hemisphere stroke

Supplementary Analysis.

Statistical comparison of lesion load in additional, marginally affected anterior-posterior white matter tracts (arcuate fasciculus, superior longitudinal fasciculus)

Concerning white matter tracts connecting frontal, temporal, and parietal regions that have been previously associated with apraxia, the fronto-temporal segment of the arcuate fasciculus (AF) and the fronto-parietal segment of the AF that partially overlaps with the ventral component of the superior longitudinal fasciculus (i.e., SLF-III) had only marginal overlap with the patients' subcortical lesions and were thus not included in the primary lesion analysis.
Nevertheless, we tested for a difference in the proportion of lesioned voxels within the AF and the SLF-III between the apraxic and non-apraxic patients by subjecting the mean percentages of damage ('lesion load') in these two white matter tracts to a mixed model analysis of covariance (ANCOVA) with *White matter tract* (AF, SLF-III) as within-subject factor and *Apraxia* (apraxic, non-apraxic) as between-subjects factor. Note that the patients' subcortical lesions had only marginal overlap with the AF (mean overlap ± standard deviation [SD]: 1.8 ± 4.5%) and SLF-III (mean overlap ± SD: 0.3 ± 0.8%). As with the primary lesion analysis, the patients' total number of lesioned voxels was included as a covariate to control for overall lesion size. An alpha level of $P < 0.05$ was used to determine significance.

The ANCOVA testing for a differential proportion of lesioned voxels within the two anterior-posterior white matter tracts between the apraxic and non-apraxic stroke patients, while controlling for overall lesion size, revealed no significant *White matter tract* x *Apraxia* interaction effect [$F_{(1,36)} = 1.63$, $P = 0.210$, $\eta_p^2 = 0.04$].

Accordingly, there was no significant difference in lesion load in the fronto-temporal segment of the arcuate fasciculus (AF) and the ventral component of the superior longitudinal fasciculus (SLF-III) between the apraxic and non-apraxic patients with subcortical strokes involving the basal ganglia or thalamus.