



Supplementary Information for

Comparing human and chimpanzee temporal lobe neuroanatomy reveals modifications to human language hubs beyond the fronto-temporal arcuate fascicle

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Fig. S1. Overlap of probabilistic tractography results (tractograms) of humans (upper) and chimpanzees (lower) and right-hemispheric seeds (pMTG and ATL) from 10% (purple) to 100% (red) of the subjects. Results for the left hemisphere are reported in the main manuscript (see Fig 1). Brains are not to scale.

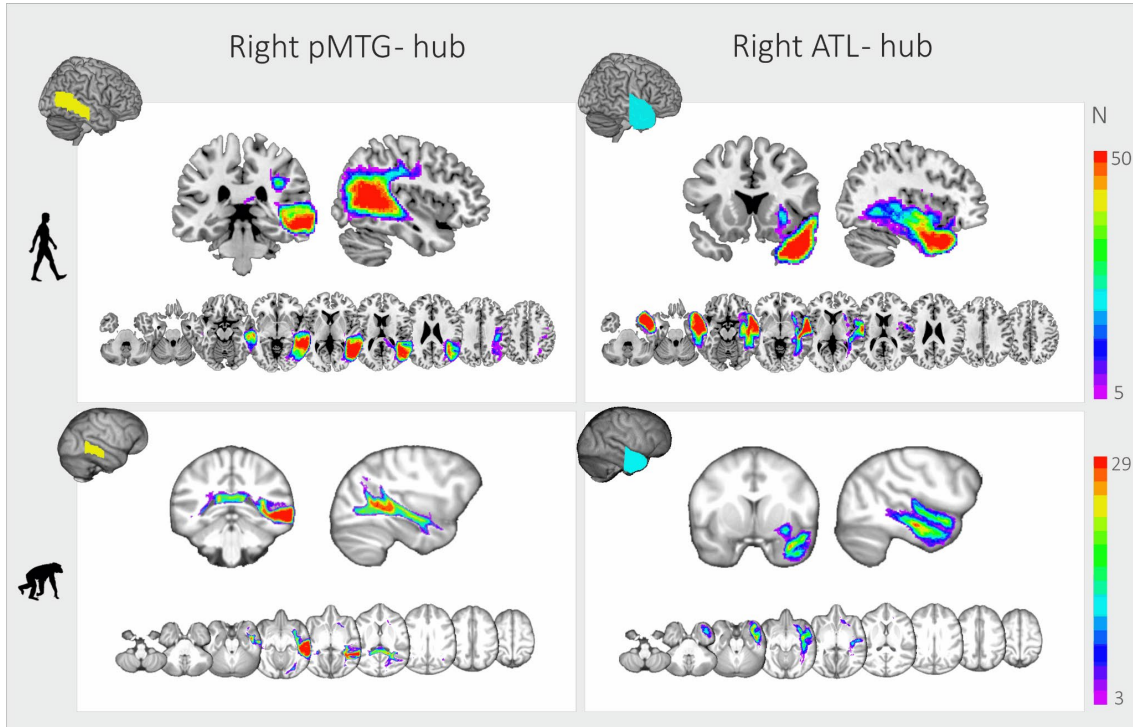


Fig. S2. Mean of the normalized, thresholded tractograms of the three subdivisions of the arcuate fasciculus (AF): fronto-parietal (a), parieto-temporal (b), and fronto-temporal (c) in humans and chimpanzees. Brains are not to scale. L = left; R = right.

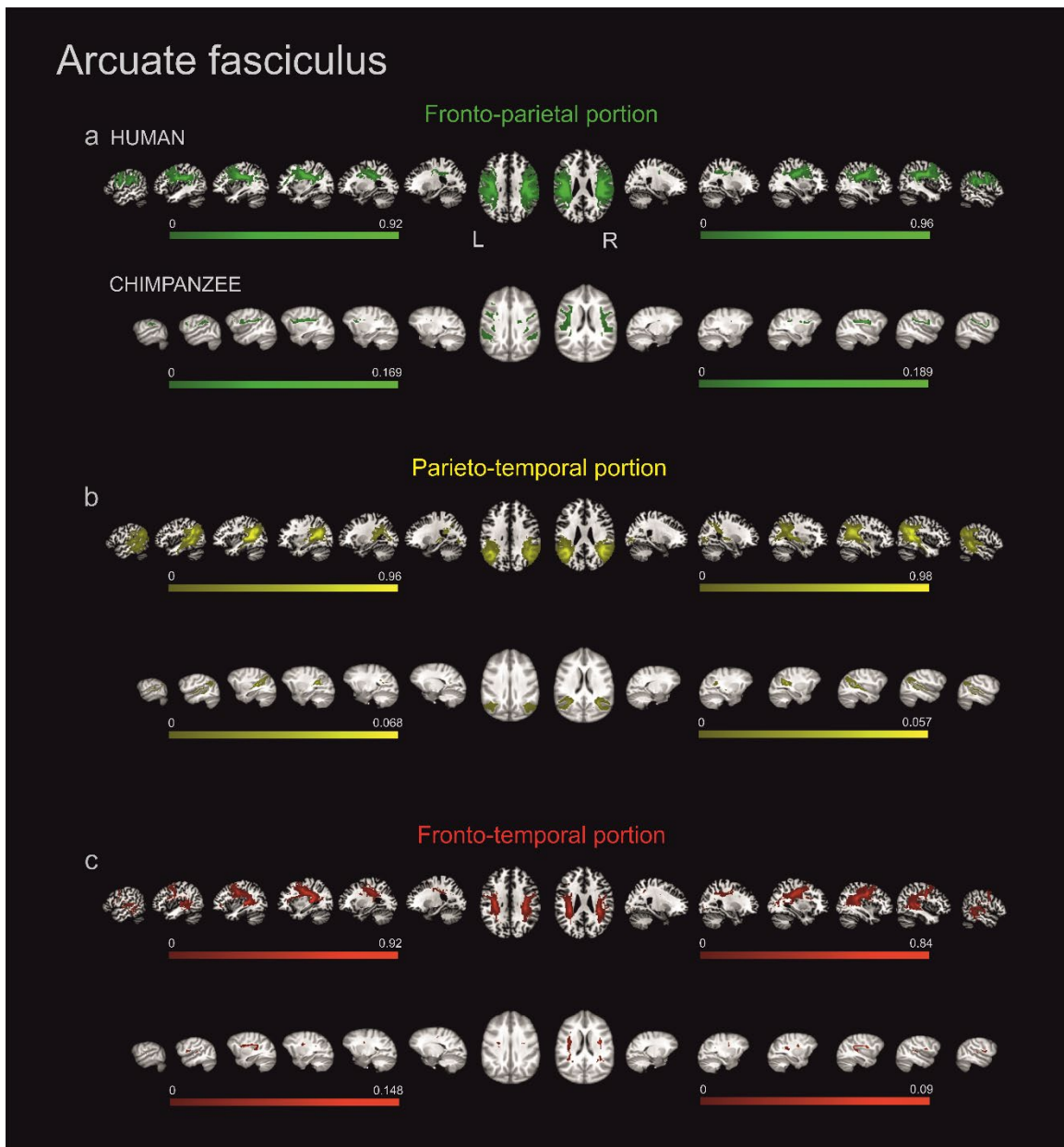


Fig. S3. The three versions of possible anatomical limits of the chimpanzee pMTG masks. A) a mask stopping at the posterior edge of the Sylvian fissure (green), B) a mask expanded to reach the descending ramus of the STS (yellow) and further selected as the best candidate for further analyses, and C) a mask created based on the atlas proposed by Vickery and colleagues (2020), (blue).

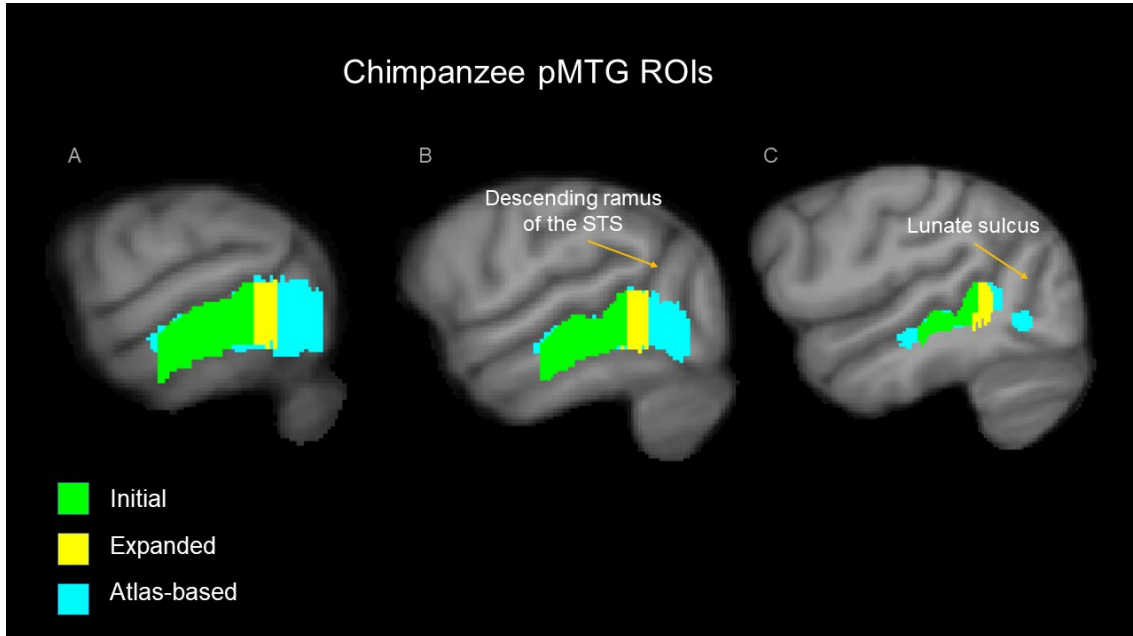


Fig. S4. Representation of three anatomical proposals of pMTG regions of interest (ROI) delineation with tractograms corresponding to each ROIs. a) posterior limit at the end of the Sylvian fissure; b) posterior limit of the ROI reaching the descending ramus of the superior temporal sulcus (STS) and c) reproduced after the chimpanzee brain parcellation atlas by Vickery et al. (2020).

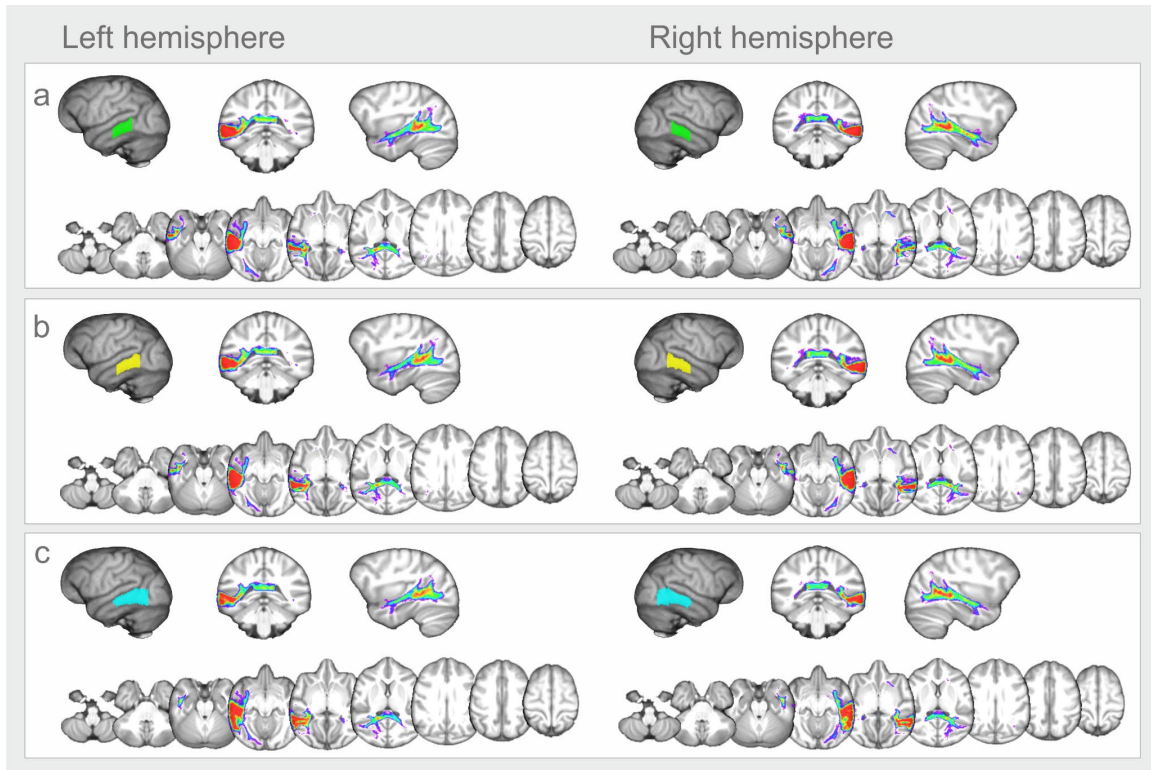


Table S1. Results of the repeated measures ANOVA for the effects of species, hemisphere, stream, and their interactions, for the posterior middle temporal gyrus seed.

	df	F value	p value
Species	1,77	9.065	.004
Hemisphere	1,77	11.5	.001
Hemisphere by Species	1,77	< 1	.993
Stream	1,77	35.73	<.001
Stream by Species	1,77	454.9	<.001
Hemisphere by Stream	1,77	16.93	<.001
Hemisphere by Stream by Species	1,77	22.81	<.001

Table S2. Results of the repeated measures ANOVA for the effects of species, hemisphere, stream, and their interactions, for the anterior temporal lobe seed.

	df	F value	p value
Species	1,77	137.7	<.001
Hemisphere	1,77	19.74	<.001
Hemisphere by Species	1,77	5.201	0.025
Stream	1,77	4593	<.001
Stream by Species	1,77	351.5	<.001
Hemisphere by Stream	1,77	7.255	<.001
Hemisphere by Stream by Species	1,77	15.42	<.001

Table S3. Results of the repeated measures ANOVAs for the effects of species, stream, and their interaction, per seed and hemisphere. hem = hemisphere; L = left; R = right; ATL = anterior temporal lobe; pMTG = posterior middle temporal gyrus.

hem	seed	term	df	F value	p value
L	ATL	species	1,77	117.707	< .001
L	ATL	stream	1,77	2886.808	< .001
L	ATL	stream by species	1,77	287.454	< .001
L	pMTG	species	1,77	6.463	.013
L	pMTG	stream	1,77	2.959	.089
L	pMTG	stream by species	1,77	190.4	< .001
R	ATL	species	1,77	97.689	< .001
R	ATL	stream	1,77	2421.978	< .001
R	ATL	stream by species	1,77	133.684	< .001

R	pMTG	species	1,77	8.73	.004
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R	pMTG	stream	1,77	42.4	< .001
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R	pMTG	stream by species	1,77	291.2	< .001
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