

Figure S1. Silhouette and Dice coefficients as well as their product computed for parcellations with parcel numbers from 2 to 24. Higher Silhouette coefficient means higher separability between clusters and higher Dice coefficient higher reproducibility of the parcellations within participant. The parcellations selected for further investigation are marked with circles.

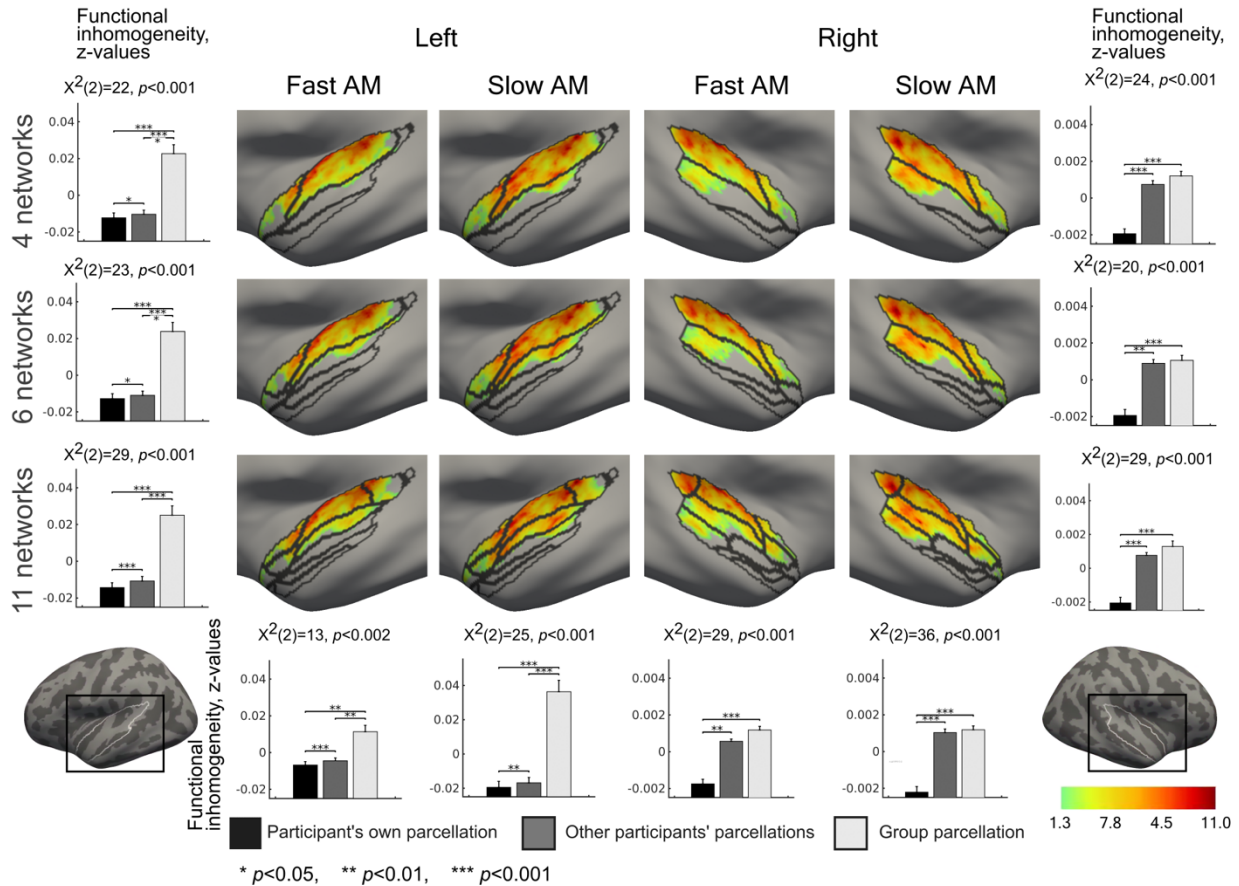


Figure S2. Topographic correspondence between the STC parcellations and amplitude modulation rates, overlaid with the three studied group-level parcellations. The strongest activation to fast AM appears to concentrate to the more medial aspect of early auditory cortex than those for the slow AM. The bar diagrams in the right and left columns show right- and left-hemispheric functional inhomogeneity averaged over fast and slow AM contrast maps within each of the three parcellations. The bar diagrams in the bottom row show functional inhomogeneity averaged over all parcellations within each of the four contrasts. The functional inhomogeneity was computed between the individual GLM contrast map of each participant and 1) their own individual-specific parcellation, 2) individual-specific parcellation of all other participants, and 3) group-average parcellation. The differences between these three conditions were estimated with the Friedman test and pairwise Wilcoxon signed rank tests. The results were corrected for multiple comparisons using Benjamini-Hochberg procedure. Error bars indicate standard errors of the mean (SEM).

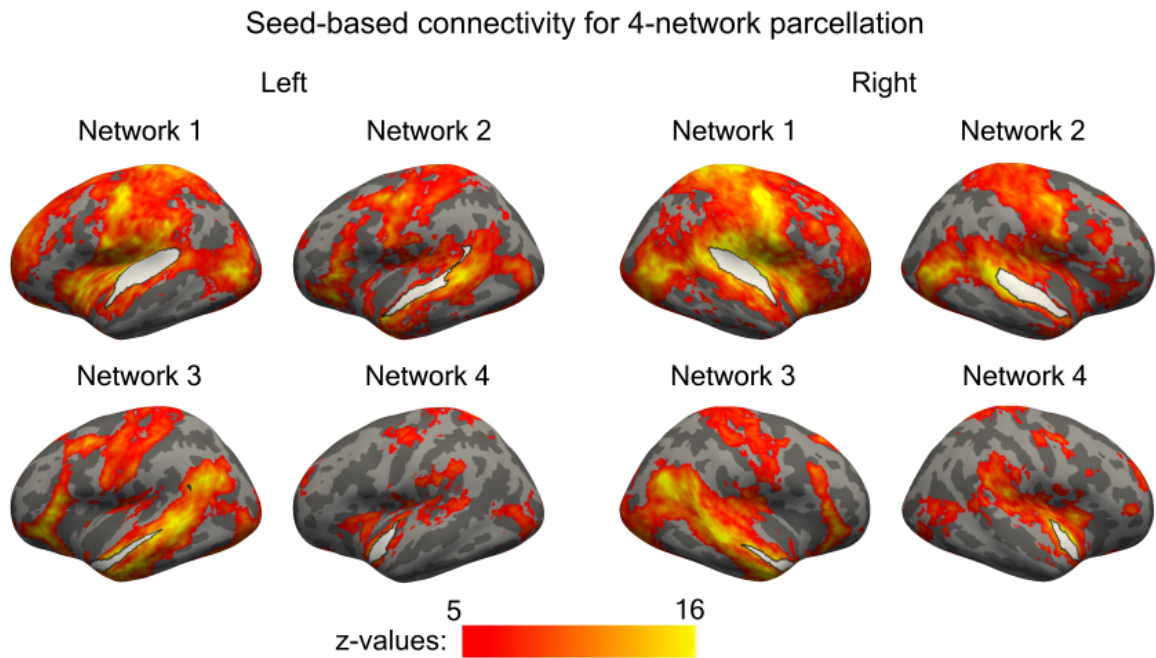


Figure S3. Seed-based functional connectivity maps for each parcel in 4-parcel parcellation. One-sample *t*-test was performed for each vertex. The presented maps are thresholded at $p < 0.05$ and corrected for multiple comparisons with cluster-extent based permutation thresholding with a cluster-forming threshold of $p < 0.001$ (one-sample *T*-test).

Seed-based connectivity for 6-network parcellation

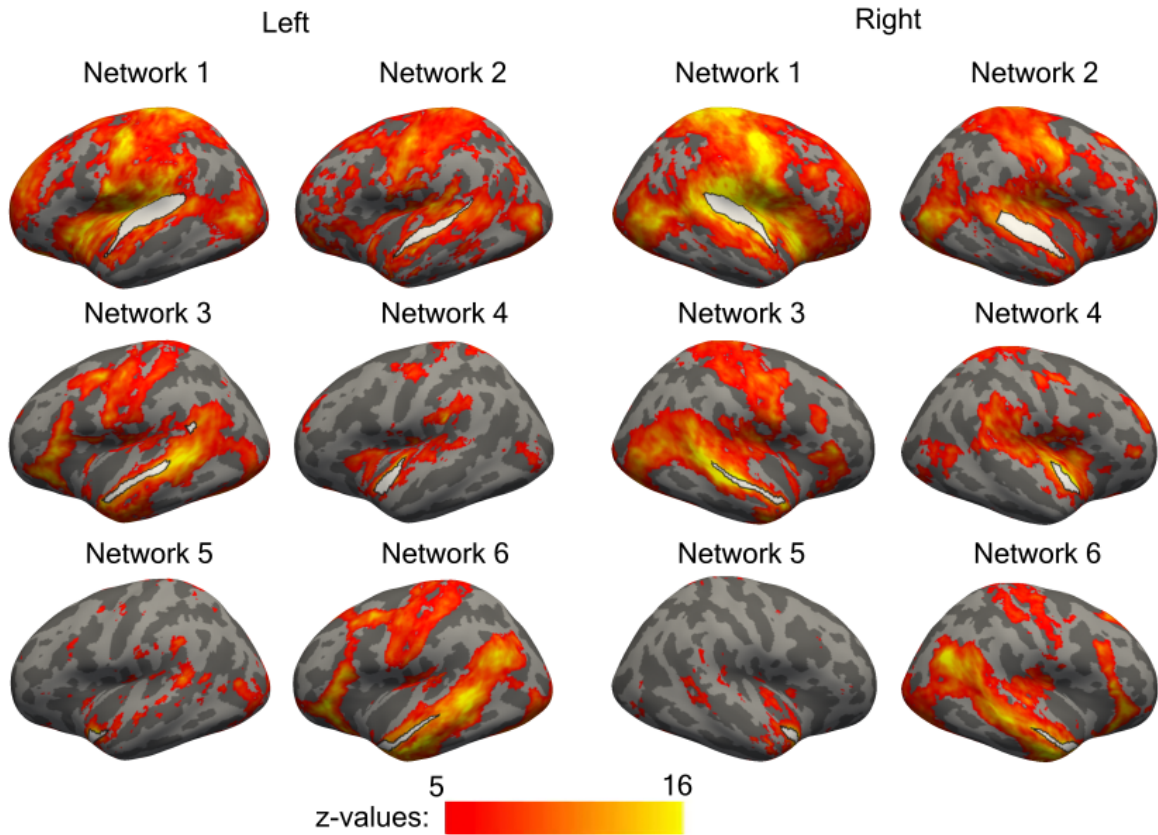


Figure S4. Seed-based functional connectivity maps for each parcel in 6-parcel parcellation. One-sample t -test was performed for each vertex. The presented maps are thresholded at $p < 0.05$ and corrected for multiple comparisons with cluster-extent based permutation thresholding with a cluster-forming threshold of $p < 0.001$ (one-sample T -test).

Table S1. Dice coefficients (mean \pm standard error of the mean, SEM) for resting-state parcellations within and between individuals.

Number of networks	Hemisphere	Resting state, intraindividual (%)	Resting state, interindividual (%)	p-value
4	Left	74 \pm 1.4	62 \pm 0.8	<0.001
6	Left	69 \pm 1.2	57 \pm 0.6	<0.001
11	Left	69 \pm 1.0	57 \pm 0.5	<0.001
4	Right	78 \pm 1.1	68 \pm 0.6	<0.001
6	Right	76 \pm 1.1	64 \pm 0.6	<0.001
11	Right	72 \pm 0.9	62 \pm 0.6	<0.001

Table S2. Dice coefficients (mean \pm SEM) between resting-state and task parcellations within participants and task parcellations between participants.

Number of networks	Hemisphere	Task vs. rest, intraindividual (%)	Task, interindividual (%)	p-value
4	Left	67 \pm 1.4	61 \pm 1.0	<0.002
6	Left	65 \pm 1.1	58 \pm 1.0	<0.001
11	Left	62 \pm 0.9	55 \pm 1.0	<0.001
4	Right	74 \pm 1.0	66 \pm 0.8	<0.001
6	Right	71 \pm 1.0	63 \pm 0.8	<0.001
11	Right	68 \pm 0.8	60 \pm 0.6	<0.001

Table S3. Dice coefficients (mean \pm SEM) between the two resting-state parcellations as well as between task and resting-state parcellations within individuals.

Number of networks	Hemisphere	Resting state, intraindividual (%)	Task vs. rest intraindividual (%)	p-value
4	Left	74 \pm 1.4	67 \pm 1.4	<0.010
6	Left	69 \pm 1.2	65 \pm 1.1	<0.099
11	Left	69 \pm 1.0	62 \pm 0.9	<0.006
4	Right	78 \pm 1.1	74 \pm 1.0	<0.043
6	Right	76 \pm 1.1	71 \pm 1.0	<0.014
11	Right	72 \pm 0.9	68 \pm 0.8	<0.015

Table S4. Dice coefficient (mean \pm SEM) for each parcel of the 4-parcel parcellation. Intraindividual Dice coefficients were calculated between resting state parcellations created from the two resting state sessions of the same participant. Interindividual Dice coefficients were calculated between resting state-parcellations of different participants within the two sessions. Dice coefficients were averaged over the sessions. P-value is the significance of the difference between Dice values (Wilcoxon signed rank test, corrected for multiple comparisons using Benjamini-Hochberg procedure across all parcellations and networks).

Parcel	Hemisphere	Intraindividual (%)	Interindividual (%)	p-value
1	left	70 \pm 0.6	52 \pm 0.2	<0.001
2	left	77 \pm 0.4	64 \pm 0.2	<0.001
3	left	70 \pm 0.5	61 \pm 0.2	<0.001
4	left	79 \pm 0.4	68 \pm 0.2	<0.001
1	right	74 \pm 0.5	60 \pm 0.2	<0.001
2	right	78 \pm 0.3	70 \pm 0.1	<0.001
3	right	78 \pm 0.4	68 \pm 0.2	<0.001
4	right	84 \pm 0.3	74 \pm 0.2	<0.001

Table S5. Dice coefficient (mean \pm SEM) for each parcel of the 6-parcel parcellation. Intraindividual Dice coefficients were calculated between resting state parcellations created from the two resting state sessions of the same participant. Interindividual Dice coefficients were calculated between resting state-parcellations of different participants within the two sessions. Dice coefficients were averaged over the sessions. P-value is the significance of the difference between Dice values (Wilcoxon signed rank test, corrected for multiple comparisons using Benjamini-Hochberg procedure across all parcellations and networks).

Parcel	Hemisphere	Intraindividual (%)	Interindividual (%)	p-value
1	left	69 \pm 0.4	56 \pm 0.2	<0.001
2	left	68 \pm 0.4	60 \pm 0.2	<0.001
3	left	65 \pm 0.7	47 \pm 0.2	<0.001
4	left	74 \pm 0.4	66 \pm 0.2	<0.001
5	left	76 \pm 0.5	65 \pm 0.2	<0.001
6	left	63 \pm 0.6	49 \pm 0.2	<0.001
1	right	78 \pm 0.4	66 \pm 0.2	<0.001
2	right	77 \pm 0.4	69 \pm 0.2	<0.001
3	right	69 \pm 0.5	52 \pm 0.2	<0.001
4	right	76 \pm 0.5	64 \pm 0.2	<0.001
5	right	83 \pm 0.3	73 \pm 0.1	<0.001
6	right	73 \pm 0.5	58 \pm 0.2	<0.001

Table S6. Dice coefficient (mean \pm SEM) for each parcel of the 11-parcel parcellation. Intraindividual Dice coefficients were calculated between resting state parcellations created from the two resting state sessions of the same participant. Interindividual Dice coefficients were calculated between resting state-parcellations of different participants within the two sessions. Dice coefficients were averaged over the sessions. Parcel 4 was rejected from the left and Parcel 3 from the right hemisphere and, therefore, they are not shown in the table. P-value is the significance of the difference between Dice values (Wilcoxon signed rank test, corrected for multiple comparisons using Benjamini-Hochberg procedure across all parcellations and networks).

Parcels	Hemisphere	Intraindividual (%)	Interindividual (%)	p-value
1	left	60 \pm 0.5	45 \pm 0.2	<0.001
2	left	75 \pm 0.4	68 \pm 0.2	<0.001
3	left	65 \pm 0.6	53 \pm 0.2	<0.001
5	left	73 \pm 0.6	57 \pm 0.2	<0.001
6	left	65 \pm 0.7	52 \pm 0.3	<0.001
7	left	72 \pm 0.6	64 \pm 0.2	<0.012
8	left	61 \pm 0.6	44 \pm 0.2	<0.001
9	left	78 \pm 0.4	70 \pm 0.2	<0.019
10	left	76 \pm 0.3	67 \pm 0.2	<0.001
11	left	62 \pm 0.6	47 \pm 0.2	<0.001
1	right	66 \pm 0.6	55 \pm 0.2	<0.001
2	right	77 \pm 0.4	71 \pm 0.2	<0.036
4	right	77 \pm 0.4	63 \pm 0.2	<0.001
5	right	76 \pm 0.5	68 \pm 0.2	<0.001
6	right	66 \pm 0.6	58 \pm 0.3	<0.005
7	right	80 \pm 0.4	68 \pm 0.2	<0.001
8	right	63 \pm 0.6	48 \pm 0.2	<0.001
9	right	80 \pm 0.4	67 \pm 0.2	<0.001
10	right	74 \pm 0.5	69 \pm 0.2	<0.004
11	right	63 \pm 0.7	48 \pm 0.2	<0.001