

**Connectedness reveals a posterior-frontoparietal dissociation in
numerosity adaptation**

Supporting Information

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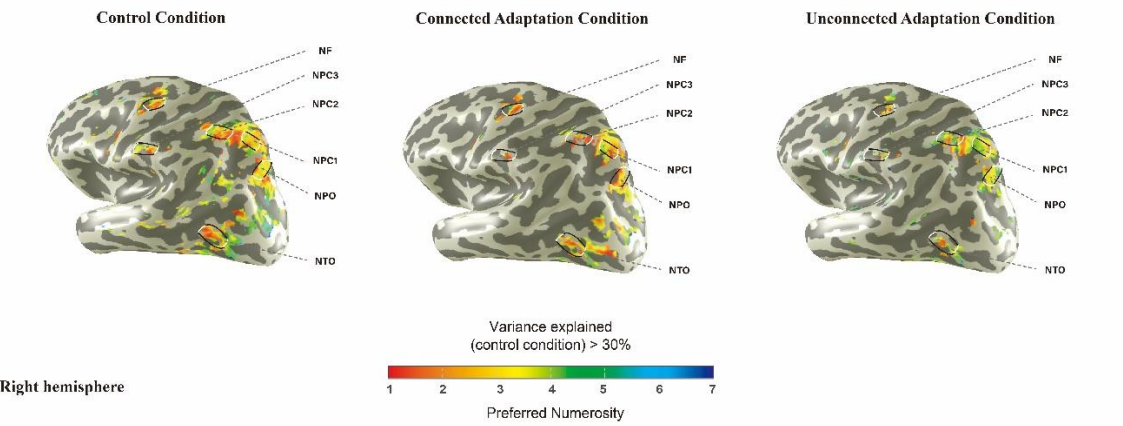
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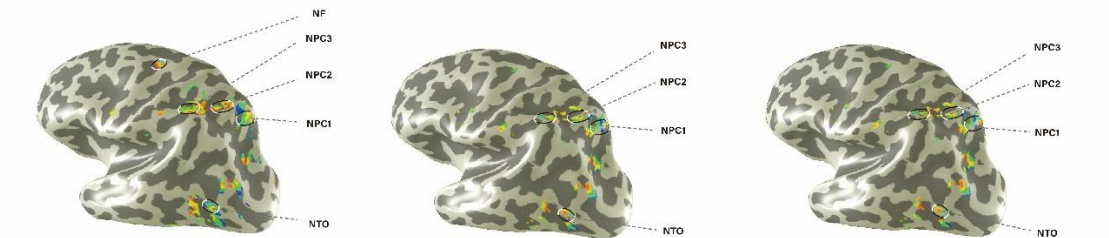
Participant 01
Left hemisphere



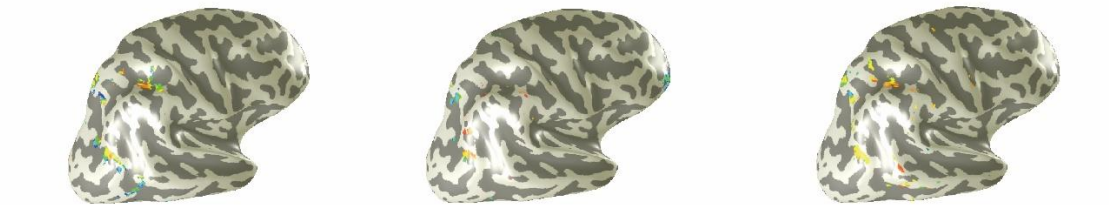
Right hemisphere



Participant 02
Left hemisphere



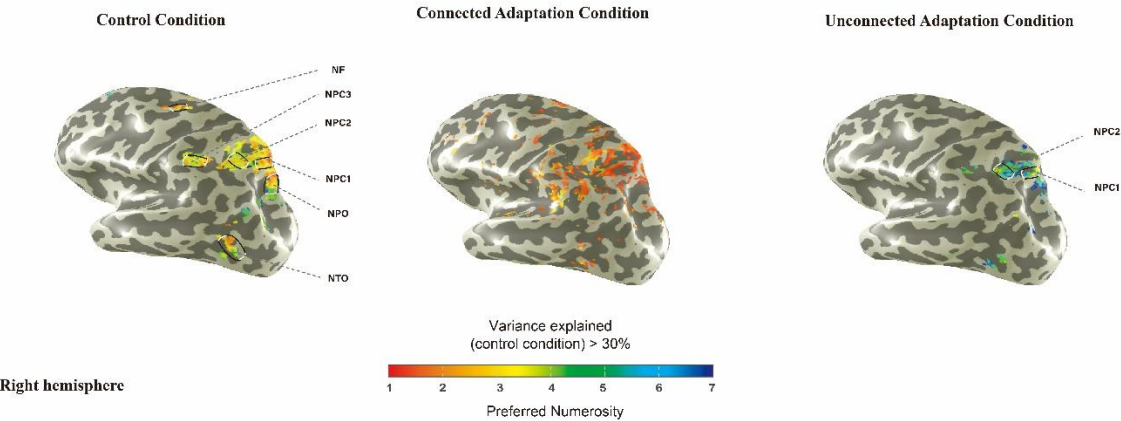
Right hemisphere



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Participant 03
Left hemisphere



Right hemisphere



Participant 04
Left hemisphere



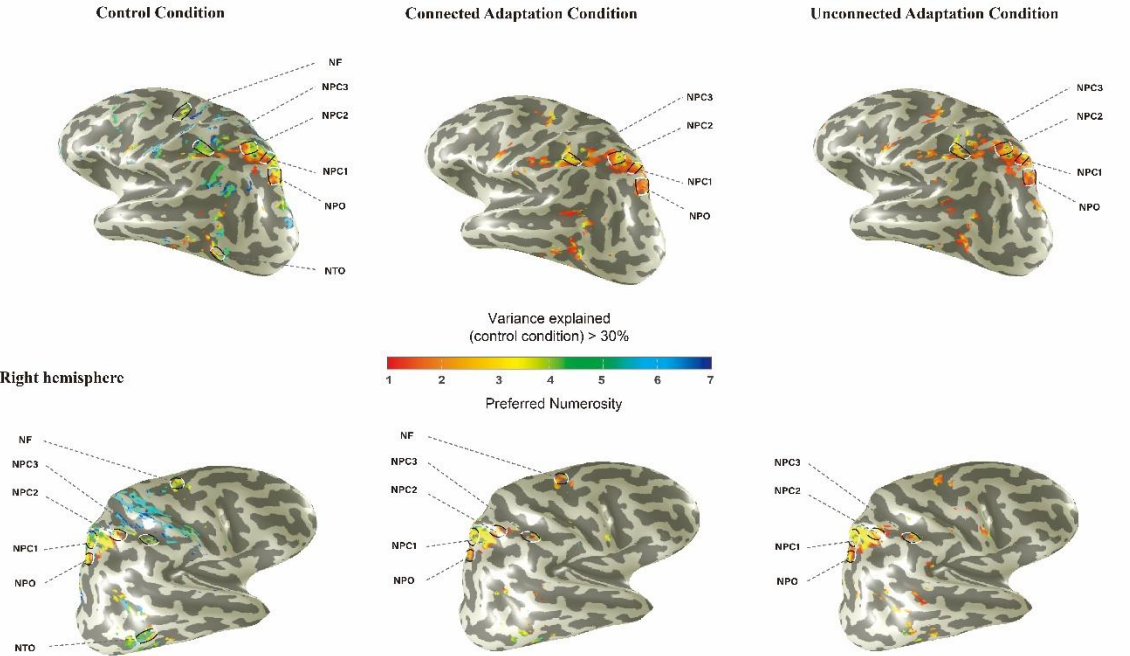
Right hemisphere



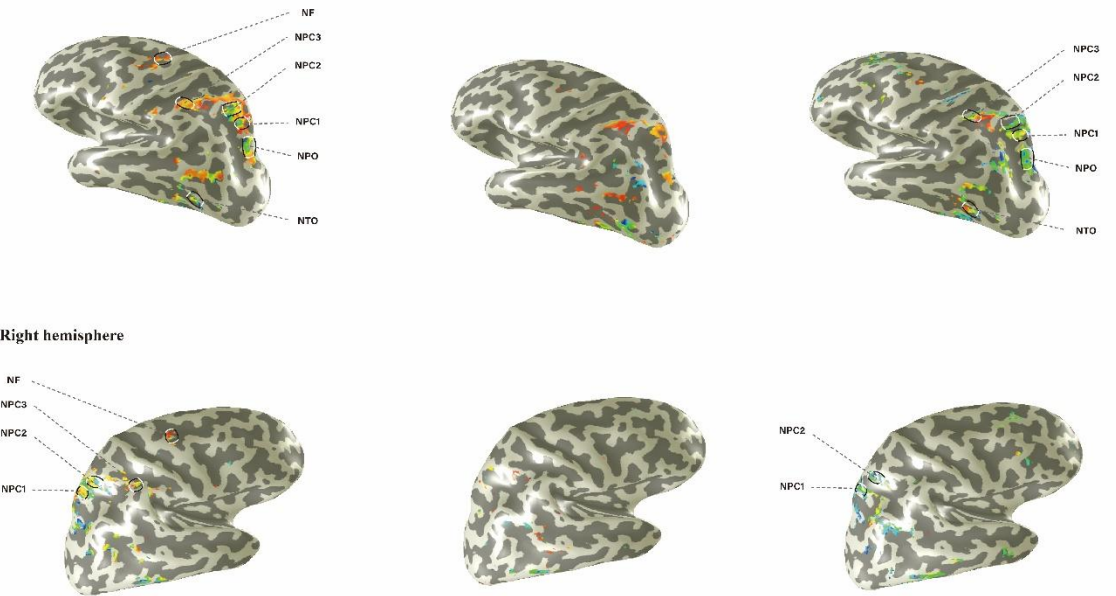
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Participant 05
Left hemisphere



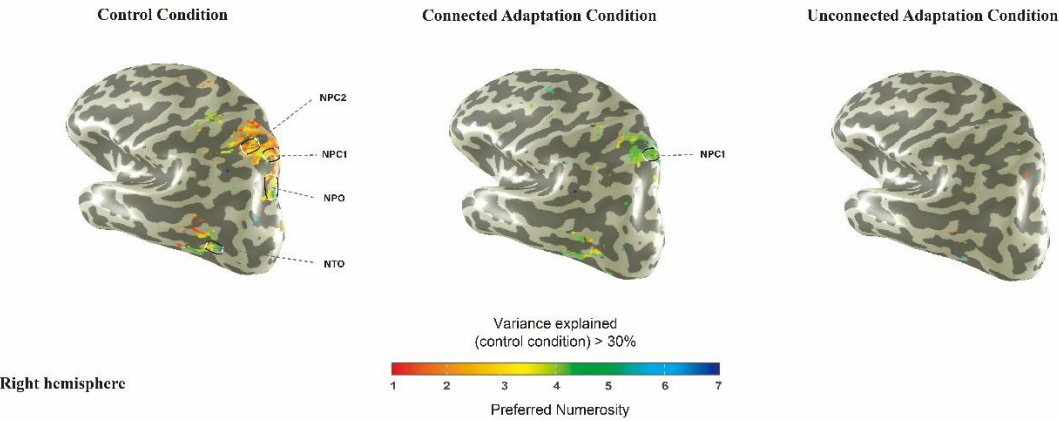
Participant 06
Left hemisphere



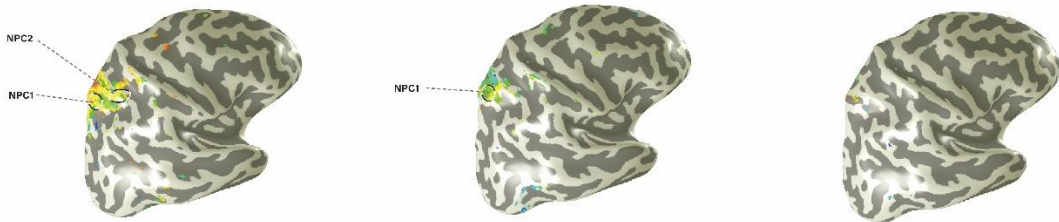
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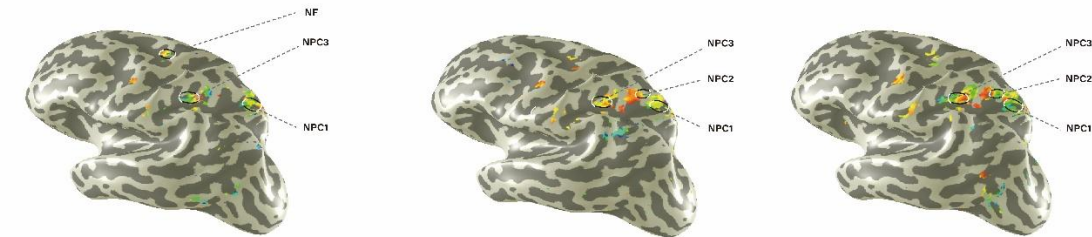
Participant 07
Left hemisphere



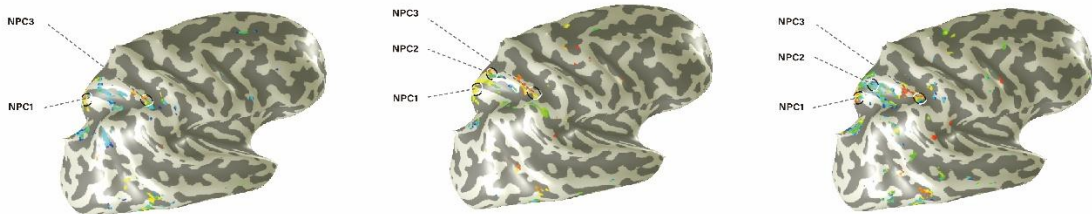
Right hemisphere



Participant 08
Left hemisphere



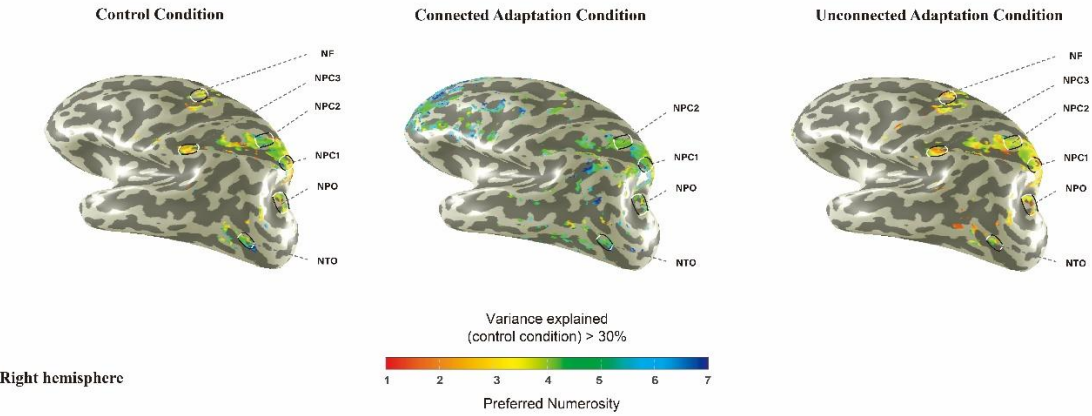
Right hemisphere



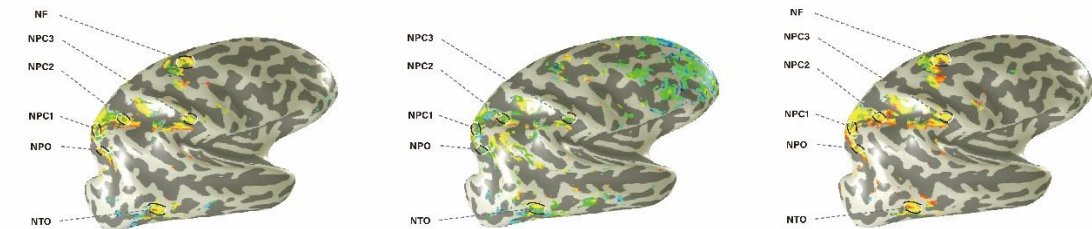
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Participant 09
Left hemisphere



Right hemisphere



Participant 10
Left hemisphere



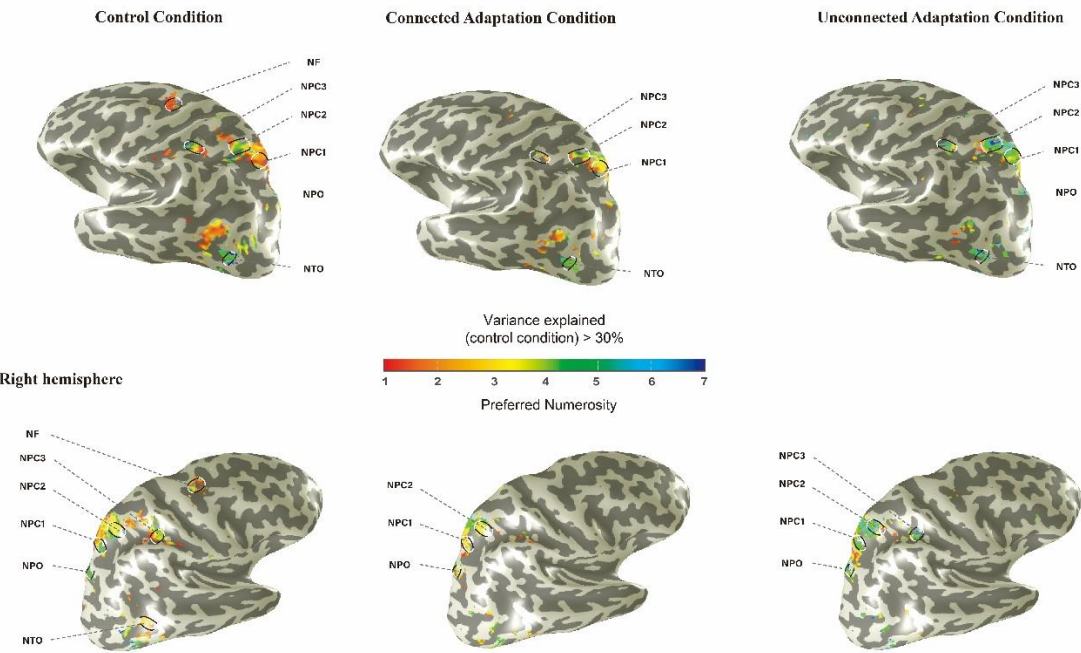
Right hemisphere



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Participant 11
Left hemisphere



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55 **Figure S1: Numerosity selective areas in each hemisphere of each participant.**

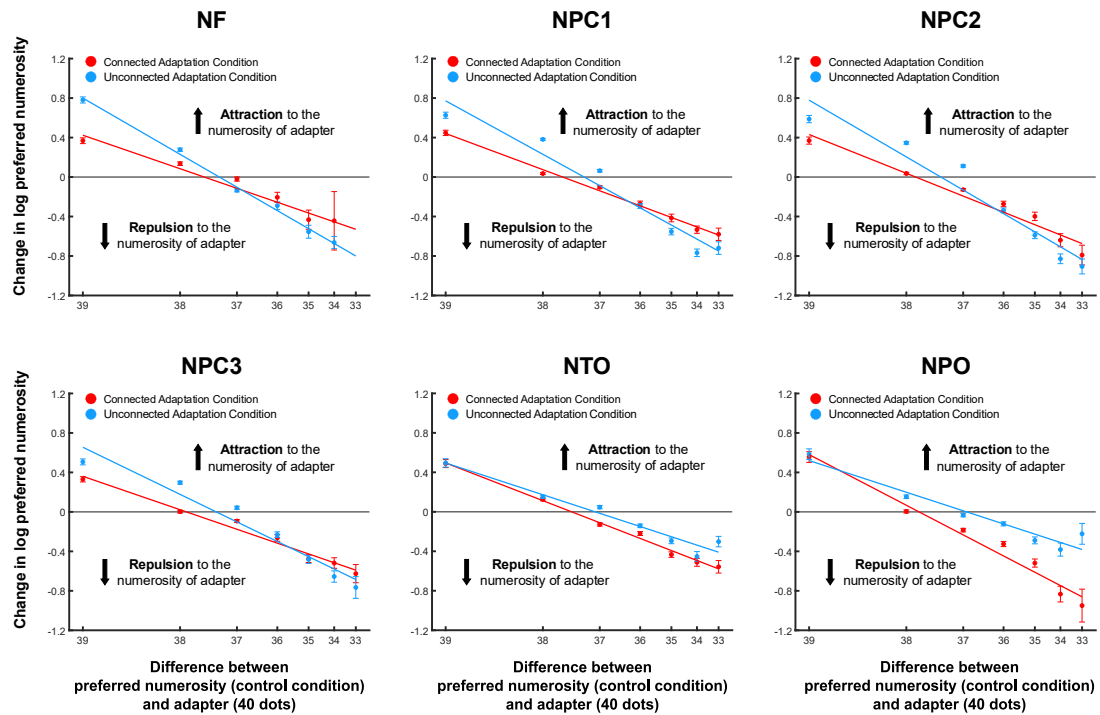
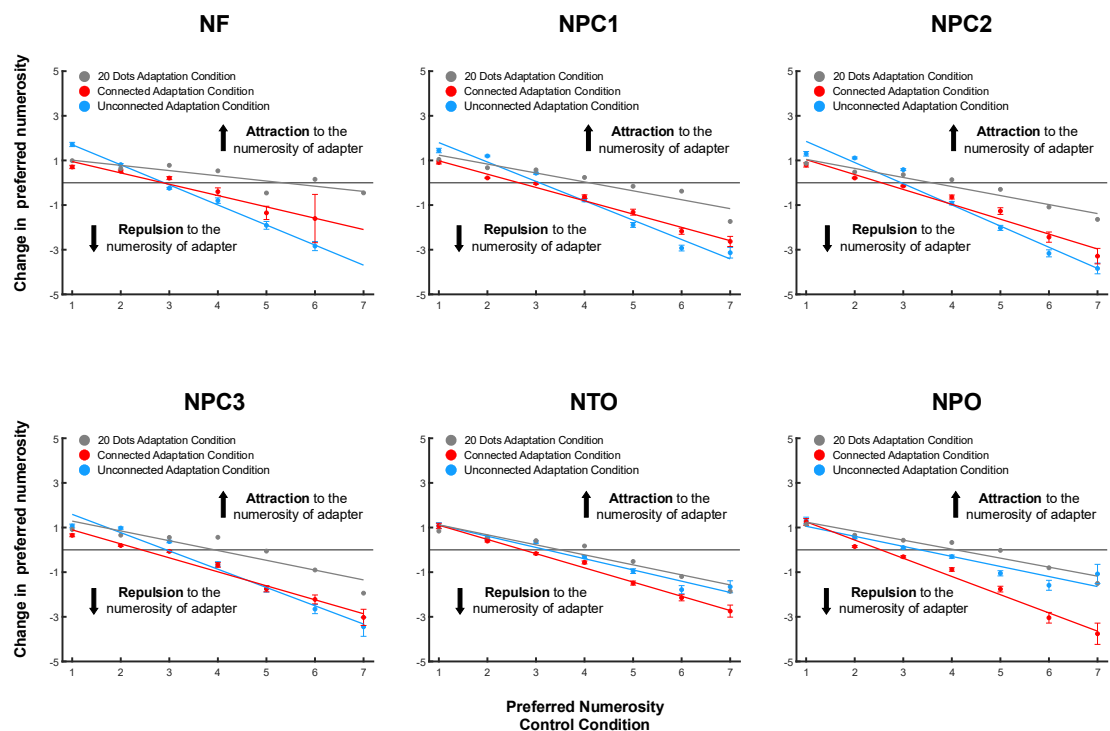


Figure S2. Distance-dependent shifts in preferred numerosity across numerosity-selective maps



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62 **Figure S3. Linear-scale benchmarking of distance-dependent modulation across**
 63 **numerosity-selective maps**

64 **Table S1. Group-level Wilcoxon signed-rank tests on log-distance slopes**

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Map	Condition	N	Median slope	<i>p</i>	<i>q</i> (BH-FDR)
NF	Connected	8	-0.6569	0.007812	0.01172
	Unconnected	8	-0.6238	0.007812	0.01172
NPC1	Connected	9	-0.5338	0.003906	0.007812
	Unconnected	9	-0.6634	0.003906	0.007812
NPC2	Connected	9	-0.5920	0.003906	0.007812
	Unconnected	9	-0.7029	0.003906	0.007812
NPC3	Connected	9	-0.4648	0.003906	0.007812
	Unconnected	9	-0.5301	0.003906	0.007812
NPO	Connected	7	-0.7189	0.01562	0.01562
	Unconnected	7	-0.6922	0.01562	0.01562
NTO	Connected	7	-0.6033	0.01562	0.01562
	Unconnected	7	-0.4997	0.01562	0.01562

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67 N indicated the number of valid participants included in the statistical analysis for each
68 map. IQR, interquartile range, was calculated as $Q3 - Q1$. *P* values are from two-sided
69 Wilcoxon signed-rank tests against 0. *Q* values are FDR-adjusted *p* values computed
70 using the Benjamini–Hochberg procedure.

Table S2. Voxel-pooled bootstrap test of the condition-difference index (Diff) for distance-dependent adaptation slopes

Map	Valid voxels	Mean slope (Connected)	Mean slope (Unconnected)	Diff	95% CI	p (two-sided)	q (BH-FDR)
NF	1268	-0.475	-0.818	0.343	[0.144, 0.507]	0.0020	0.0024
NPC1	3381	-0.529	-0.782	0.254	[0.183, 0.321]	<0.0004	<0.0004
NPC2	2762	-0.569	-0.829	0.260	[0.170, 0.350]	<0.0004	<0.0004
NPC3	1915	-0.488	-0.689	0.201	[0.111, 0.284]	0.0004	0.0006
NPO	1499	-0.741	-0.463	-0.278	[-0.410, -0.133]	0.0004	0.0006
NTO	1818	-0.551	-0.464	-0.088	[-0.154, -0.025]	0.0088	0.0088

The number of valid voxels, the mean slope estimated under the connected and unconnected adaptation conditions and their difference ($diff = Slope_{con} - Slope_{uncon}$) were reported. The 95% bootstrap confidence interval (CI) and two-sided p value test whether $diff$ differs from 0. q values are BH–FDR adjusted across the six maps.

Table S3. Pairwise comparisons of the condition-difference index (diff) across maps

Map _A	Map _B	δ_{mean}	95% CI [lower, upper]	p (two-tailed)	q (BH-FDR)
NTO	NPO	0.190	[0.030, 0.337]	0.021	0.035
NTO	NPC1	-0.341	[-0.436, -0.247]	<0.001	<0.0004
NTO	NPC2	-0.348	[-0.459, -0.238]	<0.0004	<0.0004
NTO	NPC3	-0.288	[-0.395, -0.182]	<0.0004	<0.0004
NTO	NF	-0.431	[-0.606, -0.219]	<0.0004	<0.0004
NPO	NPC1	-0.531	[-0.678, -0.373]	<0.0004	<0.0004
NPO	NPC2	-0.538	[-0.698, -0.373]	<0.0004	<0.0004
NPO	NPC3	-0.478	[-0.634, -0.312]	<0.0004	<0.0004
NPO	NF	-0.621	[-0.842, -0.382]	<0.0004	<0.0004
NPC1	NPC2	-0.007	[-0.118, 0.102]	0.913	0.913
NPC1	NPC3	0.053	[-0.056, 0.165]	0.342	0.402
NPC1	NF	-0.089	[-0.269, 0.121]	0.348	0.402
NPC2	NPC3	0.060	[-0.065, 0.183]	0.342	0.402
NPC2	NF	-0.083	[-0.271, 0.134]	0.413	0.443
NPC3	NF	-0.142	[-0.328, 0.075]	0.176	0.263

δ_{mean} indicated the mean difference in the condition-difference index between Map_A and Map_B, calculated as $diff_{map_A} - diff_{map_B}$. Confidence intervals were estimated using bootstrap resampling. Two-tailed p values were corrected for multiple comparisons using the Benjamini–Hochberg false discovery rate procedure

Table S4. Likelihood-ratio test for adding the $\text{map} \times \text{condition}$ interaction in the LME models

Model	Fixed effects	DF	AIC	BIC	LogLik	LRStat	ΔDF	p (LRT)
Reduced (no interaction)	$\text{cond}_c + \text{map}$	12	21482	21579	-10729			
Full (with interaction)	$\text{cond}_c * \text{map}$	17	21394	21532	-10680	98.197	5	$< 1 \times 10^{-16}$

Model-comparison statistics are reported for the log-scale PN shift (see main text). The full model included the $\text{map} \times \text{condition}$ interaction ($y \sim \text{cond}_c * \text{map} + (1 + \text{cond}_c | \text{subject}) + (1 | \text{VoxelKey})$), whereas the reduced model omitted the interaction term ($y \sim \text{cond}_c + \text{map} + (1 + \text{cond}_c | \text{subject}) + (1 | \text{VoxelKey})$). Both models were fitted by maximum likelihood (ML) and compared using a likelihood-ratio test (LRT). The table reports degrees of freedom (DF), the Akaike information criterion (AIC), the Bayesian information criterion (BIC), and the log-likelihood (LogLik) for each model, as well as the likelihood-ratio test statistic (LRStat; χ^2), the change in degrees of freedom (ΔDF), and the p value for the reduced-versus-full comparison.

Table S5. Robustness of voxel-pooled bootstrap estimates to resampling parameters

Map	Runs (n)	Range of $diff_{Mean}$ (max–min)	Range of 95% CI lower endpoint (max–min)	Range of 95% CI upper endpoint (max–min)	Range of 95% CI width (max–min)
NF	9	0.0027876	0.025	0.016	0.037
NPC1	9	0.0018124	0.009	0.002	0.009
NPC2	9	0.0012426	0.004	0.003	0.004
NPC3	9	0.0019175	0.007	0.008	0.006
NPO	9	0.0029555	0.012	0.008	0.015
NTO	9	0.0015157	0.004	0.003	0.004

Bootstrap robustness analysis for the voxel-pooled condition-difference index ($diff$; defined in the main text). The voxel-pooled bootstrap was repeated across three resampling counts (500, 2,000, and 10,000) and three random seeds ($3 \times 3 = 9$ runs per map). For each map, the table reports the run-to-run range (maximum minus minimum) of $diff_{Mean}$, the lower and upper endpoints of the 95% confidence interval (CI), and the CI width ($CI_{high} - CI_{low}$). Smaller ranges indicate higher numerical stability across bootstrap parameter settings.