

Shared genetic aetiology between cognitive performance and brain activations in language and math tasks

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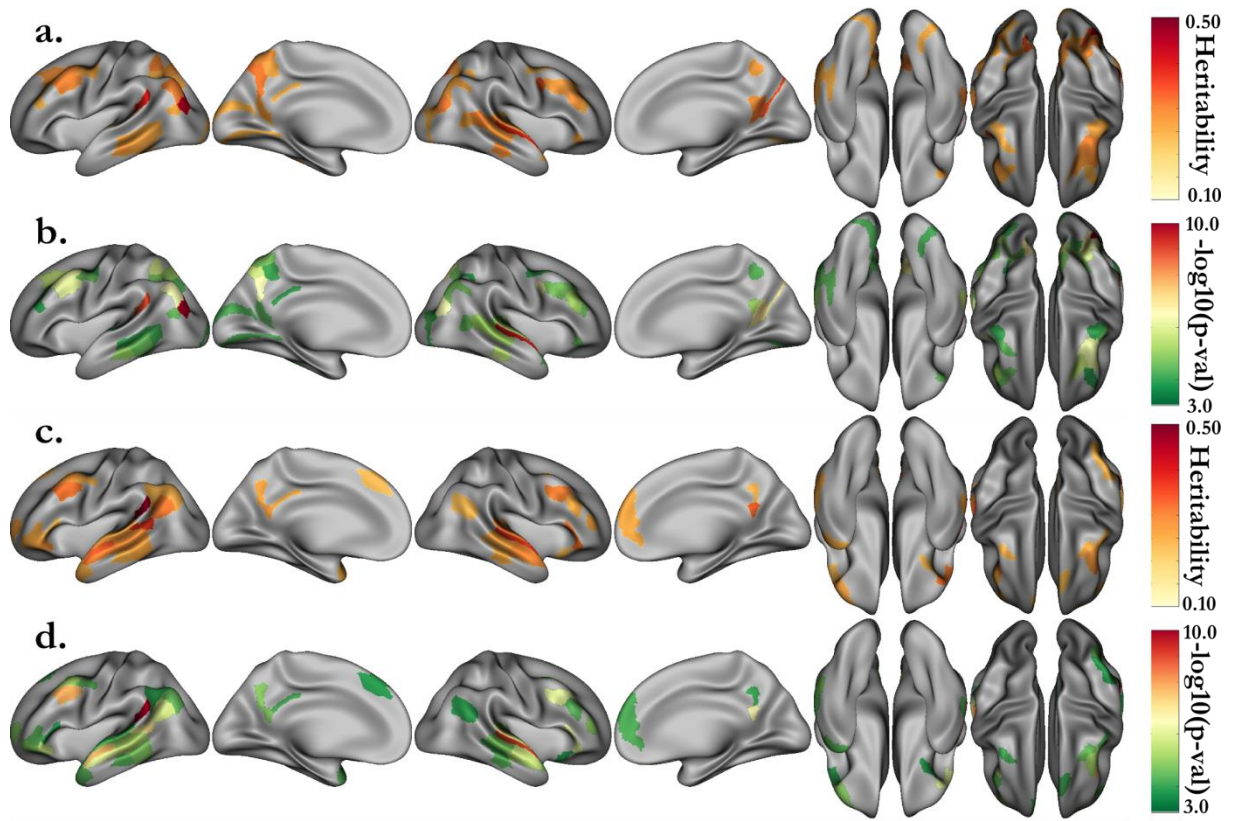
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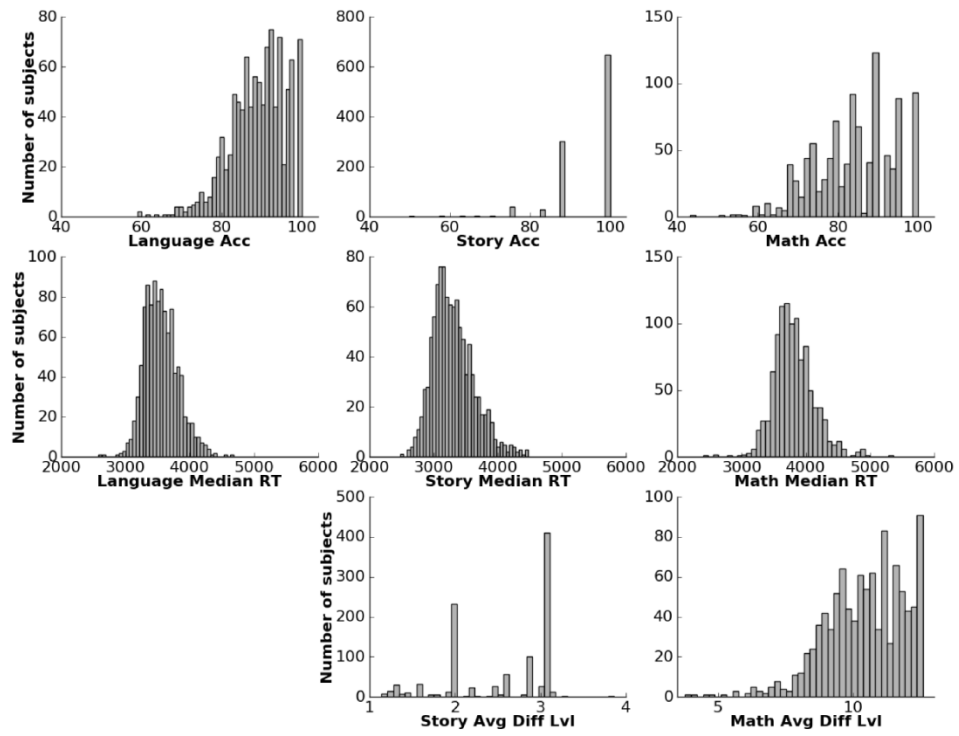
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Supporting Information

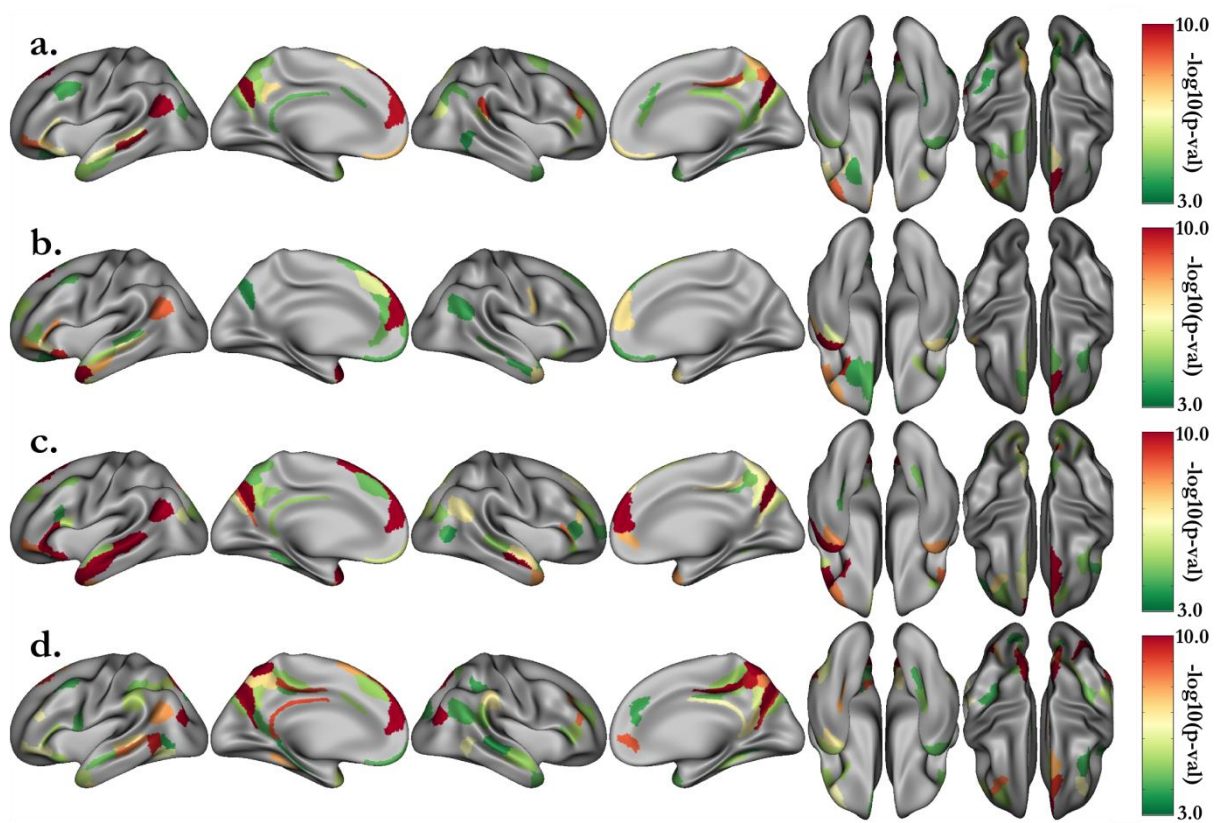
Supplementary Figures followed by Supplementary Tables.



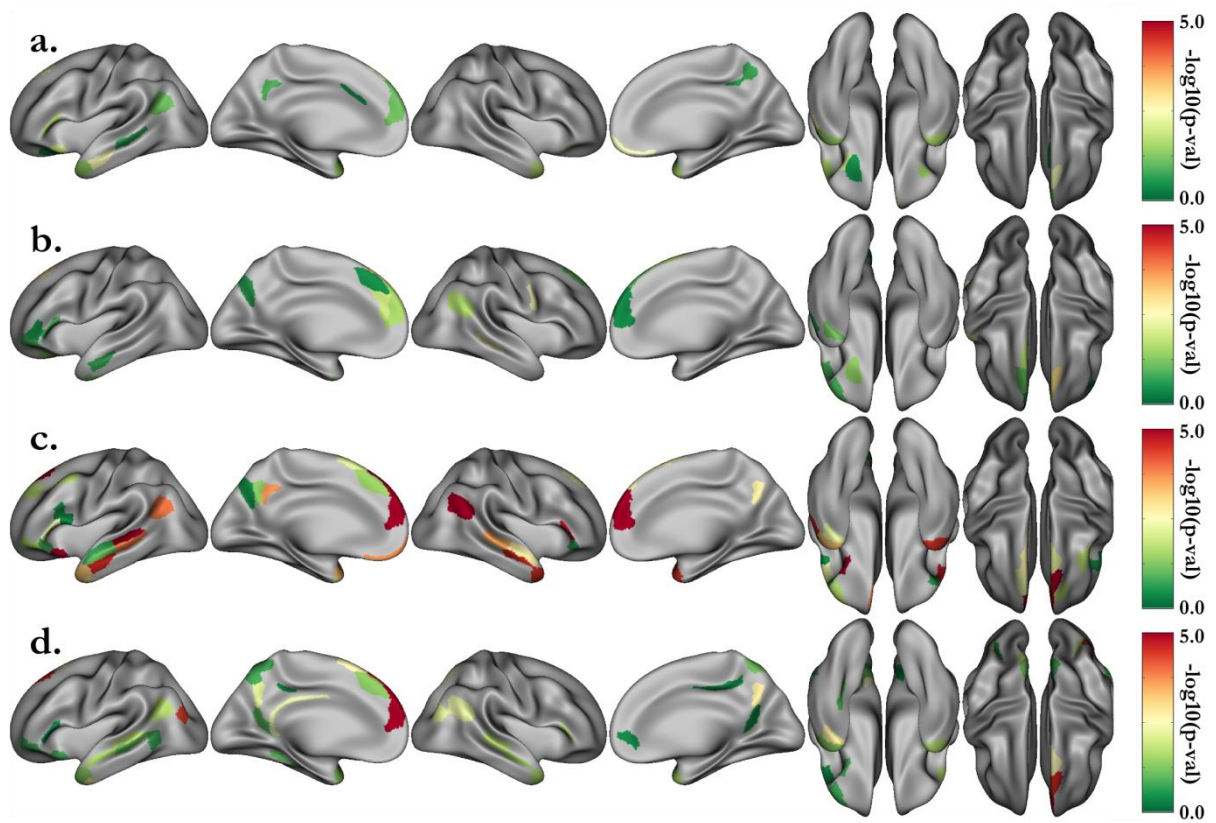
S1 Fig. Heritability estimates for the activations of the tasks MATH (a.) and STORY (c.), and their associated p-values (respectively b., d.), using median z-stat per areal. Only the estimates significant after correction ($p < 0.05/360$, with 180 areals in each hemisphere) are displayed. Activations correspond to the median z-stat in each areal of the HCP multimodal parcellation. There is almost no difference with Fig. 2, when using the median parameter estimate (β) as a proxy for the activation in each areal.



S2 Fig. Distribution of behavioral scores collected by HCP during the language fMRI task, composed of MATH and STORY tasks.



S3 Fig. P-values associated to the phenotypic correlation (Figure 4) between the grayordinates activations of the STORY-MATH contrast and the NIH behavioral scores. a. Fluid Intelligence (PMAT24_A_CR). **b.** Working Memory (ListSort). **c.** Vocabulary Comprehension (PicVocab). **d.** Reading Decoding (ReadEng). All p-values < 0.05/360, Bonferroni correction.



S4 Fig. P-values associated to the genetic correlation (Figure 5) between the grayordinates activations of the STORY-MATH contrast and the NIH behavioral scores. a. Fluid Intelligence (PMAT24_A_CR). **b.** Working Memory (ListSort). **c.** Vocabulary Comprehension (PicVocab). **d.** Reading Decoding (ReadEng). All p-values $p < 0.05$, uncorrected.

S1 Table. Heritability estimates for the NIH behavioral variables. see Methods for description of the analysis.

Trait	$h^2 \pm SE$ (p)	Age p-val	Age ²	Sex	Age*Sex	Age ² *Sex	Hispanic	Educ	$h^2 cov\%$
Fluid Intelligence CR	0.43±0.06 ($5.8 \cdot 10^{-13}$)	0.2	0.48	$3.6 \cdot 10^{-5}$	0.21	0.24	0.55	$1.0 \cdot 10^{-10}$	9.1
Fluid Intelligence RT	0.22±0.06 ($1.0 \cdot 10^{-4}$)	0.94	0.3	$1.5 \cdot 10^{-6}$	0.11	0.1	0.97	$2.6 \cdot 10^{-6}$	5.7
Fluid Intelligence SI	0.29±0.06 ($3.0 \cdot 10^{-7}$)	0.03	0.22	$9.2 \cdot 10^{-5}$	0.12	0.24	0.91	$3.3 \cdot 10^{-9}$	7.7
Vocabulary Comprehension	0.64±0.04 ($2.7 \cdot 10^{-30}$)	0.68	0.45	$3.5 \cdot 10^{-5}$	0.24	0.79	0.71	$1.7 \cdot 10^{-25}$	16.5
Processing Speed	0.33±0.06 ($1.0 \cdot 10^{-7}$)	0.65	0.36	0.24	0.1	0.19	0.53	0.13	0.0
Verbal Episodic Memory CR	0.46±0.06 ($2.6 \cdot 10^{-13}$)	$3.2 \cdot 10^{-3}$	0.3	0.4	0.55	0.1	0.72	0.21	3.2
Verbal Episodic Memory RT	0.33±0.06 ($4.3 \cdot 10^{-8}$)	0.24	0.76	0.21	0.4	0.97	0.48	$1.1 \cdot 10^{-5}$	2.6
Working memory	0.52±0.05 ($1.1 \cdot 10^{-18}$)	$6.0 \cdot 10^{-3}$	0.06	0.53	$6.1 \cdot 10^{-3}$	0.1	0.29	$4.1 \cdot 10^{-7}$	4.8
Episodic Memory	0.44±0.06 ($3.8 \cdot 10^{-14}$)	0.21	0.03	$1.3 \cdot 10^{-4}$	0.93	0.11	0.97	$1.7 \cdot 10^{-7}$	5.2
Cognitive Flexibility	0.38±0.06 ($1.2 \cdot 10^{-10}$)	0.26	0.43	0.27	0.56	0.3	0.97	$7.9 \cdot 10^{-3}$	1.0
Inhibition	0.31±0.06 ($3.0 \cdot 10^{-7}$)	0.14	0.32	0.02	0.11	0.49	0.27	0.32	1.7
Reading Decoding	0.67±0.04 ($1.2 \cdot 10^{-30}$)	0.32	0.8	0.01	0.14	0.29	0.63	$1.1 \cdot 10^{-24}$	15.7

All scores have been measured by HCP. They follow protocols described in the NIH toolbox.

Fluid Intelligence: measured by the Penn Progressive Matrices Test (CR: Number of Correct Responses, SI: Total Skipped Items, RT: Median Reaction Time for CR)

Language/Vocabulary Comprehension: measured by the Picture Vocabulary Test

Processing Speed: measured by the Pattern Comparison Processing Speed Test

Verbal Episodic Memory: measured by the Penn Word Memory Test (CR: Number of Correct Responses, RT: Median Reaction Time for CR)

Working memory: measured by the List Sorting Working Memory Test

Episodic Memory: measured by the Picture Sequence Memory Test

Executive Function/Cognitive Flexibility: measured by the Dimensional Change Card Sort Test

Executive Function/Inhibition: measured by the Flanker Inhibitory Control and Attention Test

Language/Reading Decoding: measured by the Oral Reading Recognition Test

More details can be found at: <https://wiki.humanconnectome.org/display/PublicData/HCP+Data+Dictionary+Public+-+500+Subject+Release>

S2 Table. Genetic ($\rho_p(p)$ / $\rho_g \pm \sigma_g(p)$) (above diagonal) and phenotypic (below diagonal) correlations for the NIH standard behavioral scores and task variables.

	Language Acc	Language Median RT	Story Acc	Story Median RT	Story Avg Diff level	Math Acc	Math Median RT	Math Avg Diff level	PMAT24 A CR	PMAT24 A SI	PMAT24 A RTCR	PicVocab	ProcSpeed	IWRD TOT	IWRD RTC	ListSort	PicSeq	CardSort	Flanker	ReadEng
Language Acc	*	-0.41 ±0.19 (0.03)	0.66 ±0.11 (10 ⁻³)	-0.06 ±0.19 (0.74)	0.88 ±0.07 (10 ⁻⁸)	0.9 ±0.04 (10 ⁻⁹)	-0.73 ±0.23 (10 ⁻⁴)	0.67 ±0.11 (10 ⁻⁵)	0.61 ±0.14 (10 ⁻⁵)	-0.53 ±0.16 (10 ⁻³)	0.22 ±0.17 (0.18)	0.57 ±0.10 (10 ⁻⁸)	0.44 ±0.16 (10-3)	0.32 ±0.15 (0.04)	-0.24 ±0.13 (0.07)	0.50 ±0.12 (10 ⁻⁷)	0.76 ±0.14 (10 ⁻⁹)	0.61 ±0.15 (10 ⁻⁵)	0.55 ±0.15 (10 ⁻⁴)	0.67 ±0.10 (10 ⁻¹⁰)
Language Median RT	-0.15 (10 ⁻⁷)	*	-0.18 ±0.27 (0.49)	0.9 ±0.06 (10 ⁻³)	-0.41 ±0.2 (0.04)	-0.46 ±0.16 (10 ⁻³)	0.85 ±0.08 (10 ⁻³)	-0.39 ±0.24 (0.07)	-0.42 ±0.17 (0.01)	0.4 ±0.2 (0.05)	-0.05 ±0.22 (0.8)	-0.2 ±0.15 (0.17)	-0.49 ±0.2 (0.02)	-0.54 ±0.2 (10-3)	0.3 ±0.16 (0.08)	-0.13 ±0.16 (0.41)	-0.27 ±0.17 (0.1)	-0.13 ±0.19 (0.5)	-0.1 ±0.21 (0.62)	0.0 ±0.14 (0.99)
Story Acc	0.71 (10 ⁻¹⁶⁰)	-0.01 (0.67)	*	-0.22 ±0.27 (0.39)	0.25 ±0.2 (0.22)	0.27 ±0.18 (0.13)	-0.09 ±0.28 (0.75)	0.98 ±0.12 (10 ⁻⁶)	0.33 ±0.18 (0.06)	-0.27 ±0.22 (0.19)	0.18 ±0.23 (0.41)	0.65 ±0.15 (10 ⁻⁶)	0.26 ±0.22 (0.22)	0.59 ±0.21 (10-3)	-0.15 ±0.18 (0.38)	0.17 ±0.17 (0.3)	0.52 ±0.21 (10 ⁻³)	0.45 ±0.2 (0.02)	0.49 ±0.22 (0.02)	0.60 ±0.16 (10 ⁻⁵)
Story Median RT	-0.06 (0.07)	0.83 (10 ⁻²⁶⁴)	-0.02 (0.53)	*	0.01 ±0.2 (0.97)	-0.01 ±0.18 (0.95)	0.54 ±0.21 (0.05)	-0.42 ±0.26 (0.06)	-0.27 ±0.17 (0.12)	0.28 ±0.21 (0.17)	0.11 ±0.22 (0.61)	-0.14 ±0.14 (0.33)	-0.37 ±0.2 (0.07)	-0.41 ±0.2 (0.04)	0.2 ±0.17 (0.25)	-0.03 ±0.16 (0.85)	-0.01 ±0.17 (0.94)	-0.12 ±0.19 (0.55)	-0.01 ±0.21 (0.98)	0.17 ±0.13 (0.21)
Story Avg Diff level	0.6 (10 ⁻¹⁰⁵)	-0.12 (10 ⁻⁵)	0.13 (10 ⁻⁵)	-0.07 (0.03)	*	0.98 ±0.05 (10 ⁻⁹)	-0.88 ±0.28 (10 ⁻⁵)	0.29 ±0.16 (0.09)	0.51 ±0.14 (10 ⁻⁴)	-0.55 ±0.17 (10 ⁻³)	0.14 ±0.18 (0.44)	0.31 ±0.11 (100)	0.31 ±0.16 (0.06)	0.32 ±0.16 (0.05)	-0.24 ±0.14 (0.09)	0.47 ±0.12 (10 ⁻⁴)	0.47 ±0.13 (10 ⁻⁴)	0.70 ±0.14 (10 ⁻⁶)	0.25 ±0.16 (0.14)	0.46 ±0.11 (10 ⁻⁵)
Math Acc	0.81 (10 ⁻²⁴³)	-0.2 (10 ⁻¹¹)	0.15 (10 ⁻⁷)	-0.06 (0.04)	0.73 (10 ⁻¹⁷⁸)	*	-0.86 ±0.19 (10 ⁻⁶)	0.31 ±0.14 (0.03)	0.59 ±0.13 (10 ⁻⁶)	-0.57 ±0.15 (10 ⁻⁴)	0.21 ±0.16 (0.18)	0.35 ±0.10 (10 ⁻⁴)	0.41 ±0.15 (10-3)	0.1 ±0.14 (0.48)	-0.22 ±0.12 (0.07)	0.54 ±0.11 (10 ⁻⁶)	0.67 ±0.11 (10 ⁻⁹)	0.50 ±0.14 (10 ⁻⁴)	0.44 ±0.14 (10 ⁻³)	0.51 ±0.09 (10 ⁻⁷)
Math Median RT	-0.19 (10 ⁻¹⁰)	0.81 (10 ⁻²⁵⁰)	-0.0 (0.95)	0.34 (10 ⁻³¹)	-0.13 (10 ⁻⁵)	-0.27 (10 ⁻¹⁹)	*	-0.19 ±0.23 (0.4)	-0.49 ±0.19 (10 ⁻³)	0.43 ±0.22 (0.05)	-0.23 ±0.23 (0.32)	-0.16 ±0.16 (0.29)	-0.46 ±0.23 (0.04)	-0.55 ±0.23 (0.01)	0.34 ±0.17 (0.06)	-0.21 ±0.17 (0.23)	-0.49 ±0.19 (10 ⁻³)	-0.1 ±0.21 (0.65)	-0.19 ±0.22 (0.39)	-0.22 ±0.15 (0.14)
Math Avg Diff level	0.44 (10 ⁻⁵⁰)	0.1 (10 ⁻³)	0.48 (10 ⁻⁶²)	0.18 (10 ⁻⁹)	0.28 (10 ⁻²⁰)	0.21 (10 ⁻¹²)	-0.02 (0.51)	*	0.16 ±0.14 (0.26)	-0.12 ±0.17 (0.49)	-0.19 ±0.18 (0.3)	0.57 ±0.10 (10 ⁻⁷)	0.07 ±0.17 (0.67)	0.32 ±0.16 (0.05)	-0.36 ±0.15 (0.01)	0.38 ±0.13 (10 ⁻³)	0.39 ±0.14 (10 ⁻³)	0.22 ±0.16 (0.16)	0.45 ±0.17 (0.39)	0.28 ±0.11 (0.01)
PMAT24 A CR	0.36 (10 ⁻³³)	-0.12 (10 ⁻⁴)	0.16 (10 ⁻⁷)	-0.06 (0.05)	0.3 (10 ⁻²⁴)	0.37 (10 ⁻³⁵)	-0.13 (10 ⁻⁵)	0.17 (10 ⁻⁸)	*	-0.97 ±0.02 (10 ⁻¹⁰)	0.62 ±0.09 (10 ⁻⁴)	0.51 ±0.08 (10-8)	0.16 ±0.14 (0.26)	0.34 ±0.12 (10-3)	-0.22 ±0.11 (0.05)	0.61 ±0.10 (10 ⁻⁹)	0.4 ±0.11 (10 ⁻⁴)	0.33 ±0.12 (10 ⁻³)	0.22 ±0.13 (0.09)	0.44 ±0.08 (10 ⁻⁶)
PMAT24 A SI	-0.32 (10 ⁻²⁷)	0.1 (10 ⁻³)	-0.14 (10 ⁻⁵)	0.05 (0.08)	-0.28 (10 ⁻²⁰)	-0.34 (10 ⁻³⁰)	0.11 (10 ⁻⁴)	-0.15 (10 ⁻⁶)	-0.97 (10 ⁻³⁰⁰)	*	-0.73 ±0.08 (10 ⁻⁴)	-0.54 ±0.10 (10 ⁻⁷)	-0.21 ±0.17 (0.21)	-0.36 ±0.15 (0.02)	0.3 ±0.13 (0.03)	-0.75 ±0.13 (10 ⁻⁹)	-0.36 ±0.13 (10 ⁻³)	-0.35 ±0.14 (0.02)	-0.23 ±0.16 (0.14)	-0.44 ±0.10 (10 ⁻⁵)
PMAT24 A RTCR	0.17 (10 ⁻⁸)	0.01 (0.78)	0.08 (10 ⁻³)	0.04 (0.17)	0.12 (10 ⁻⁴)	0.17 (10 ⁻⁸)	-0.03 (0.35)	0.01 (0.73)	0.72 (10 ⁻¹⁹³)	-0.7 (10 ⁻¹⁷⁸)	*	0.13 ±0.13 (0.3)	-0.22 ±0.19 (0.24)	0.26 ±0.19 (0.16)	-0.05 ±0.16 (0.77)	0.37 ±0.15 (0.01)	0.06 ±0.15 (0.7)	0.07 ±0.17 (0.68)	-0.07 ±0.18 (0.72)	0.28 ±0.13 (0.03)
PicVocab	0.4 (10 ⁻⁴²)	-0.13 (10 ⁻⁵)	0.27 (10 ⁻¹⁹)	-0.09 (10 ⁻³)	0.32 (10 ⁻²⁶)	0.33 (10 ⁻²⁹)	-0.13 (10 ⁻⁵)	0.28 (10 ⁻²¹)	0.5 (10 ⁻⁷⁶)	-0.47 (10 ⁻⁶⁷)	0.26 (10 ⁻¹⁹)	*	0.11 ±0.1 (0.31)	0.36 ±0.09 (10 ⁻⁴)	-0.24 ±0.09 (10 ⁻³)	0.39 ±0.08 (10 ⁻⁶)	0.08 ±0.09 (0.37)	0.14 ±0.10 (0.13)	0.18 ±0.11 (0.09)	Rhog ERROR
ProcSpeed	0.17 (10 ⁻⁸)	-0.15 (10 ⁻⁷)	0.07 (0.02)	-0.13 (10 ⁻⁵)	0.21 (10 ⁻¹¹)	0.17 (10 ⁻⁸)	-0.13 (10 ⁻⁵)	0.17 (10 ⁻⁸)	0.15 (10 ⁻⁷)	-0.14 (10 ⁻⁶)	-0.04 (0.18)	0.16 (10 ⁻⁸)	*	0.06 ±0.16 (0.72)	-0.46 ±0.12 (10 ⁻⁴)	0.22 ±0.12 (0.07)	0.25 ±0.13 (0.06)	0.48 ±0.11 (10 ⁻³)	0.30 ±0.14 (0.07)	0.01 ±0.11 (0.95)
IWRD TOT	0.2 (10 ⁻¹¹)	-0.08 (0.01)	0.12 (10 ⁻⁵)	-0.01 (0.65)	0.18 (10 ⁻⁹)	0.18 (10 ⁻⁹)	-0.12 (10 ⁻⁴)	0.13 (10 ⁻⁵)	0.23 (10 ⁻¹⁵)	-0.21 (10 ⁻¹³)	0.13 (10 ⁻⁶)	0.26 (10 ⁻²⁰)	0.14 (10 ⁻⁷)	*	-0.48 ±0.11 (10 ⁻⁴)	0.2 ±0.11 (0.1)	0.47 ±0.12 (10 ⁻⁴)	0.3 ±0.14 (0.03)	0.49 ±0.16 (10 ⁻³)	0.38 ±0.09 (10 ⁻⁴)
IWRD RTC	-0.1 (10 ⁻⁴)	0.21 (10 ⁻¹¹)	-0.01 (0.77)	0.14 (10 ⁻⁶)	-0.16 (10 ⁻⁷)	-0.14 (10 ⁻⁶)	0.2 (10 ⁻¹¹)	-0.13 (10 ⁻⁵)	-0.09 (10 ⁻³)	0.08 (10 ⁻³)	0.08 (10 ⁻³)	-0.18 (10 ⁻¹⁰)	-0.25 (10 ⁻¹⁹)	-0.28 (10 ⁻²²)	*	-0.35 ±0.10 (10 ⁻⁴)	-0.26 ±0.11 (0.02)	-0.15 ±0.12 (0.24)	-0.14 ±0.13 (0.31)	-0.24 ±0.09 (10 ⁻³)
ListSort	0.34 (10 ⁻³⁰)	-0.12 (10 ⁻⁴)	0.16 (10 ⁻⁷)	-0.05 (0.09)	0.3 (10 ⁻²³)	0.34 (10 ⁻³⁰)	-0.14 (10 ⁻⁶)	0.2 (10 ⁻¹¹)	0.36 (10 ⁻³⁷)	-0.34 (10 ⁻³⁴)	0.14 (10 ⁻⁷)	0.34 (10 ⁻³³)	0.18 (10 ⁻¹⁰)	0.16 (10 ⁻⁸)	-0.1 (10 ⁻⁴)	*	0.54 ±0.09 (10 ⁻⁸)	0.26 ±0.11 (0.02)	0.13 ±0.12 (0.29)	0.38 ±0.08 (10 ⁻⁶)
PicSeq	0.26 (10 ⁻¹⁸)	-0.11 (10 ⁻⁴)	0.14 (10 ⁻⁵)	-0.03 (0.38)	0.21 (10 ⁻¹²)	0.25 (10 ⁻¹⁷)	-0.16 (10 ⁻⁷)	0.17 (10 ⁻⁸)	0.3 (10 ⁻²⁵)	-0.28 (10 ⁻²²)	0.12 (10 ⁻⁵)	0.2 (10 ⁻¹²)	0.2 (10 ⁻¹³)	0.24 (10 ⁻¹⁷)	-0.12 (10 ⁻⁵)	0.34 (10 ⁻³⁵)	*	0.29 ±0.12 (0.02)	0.35 ±0.14 (10 ⁻³)	0.16 ±0.09 (0.06)
CardSort	0.25 (10 ⁻¹⁶)	-0.17 (10 ⁻⁸)	0.12 (10 ⁻⁴)	-0.12 (10 ⁻⁴)	0.26 (10 ⁻¹⁷)	0.25 (10 ⁻¹⁶)	-0.16 (10 ⁻⁷)	0.14 (10 ⁻⁶)	0.22 (10 ⁻¹⁴)	-0.22 (10 ⁻¹⁵)	0.04 (0.22)	0.19 (10 ⁻¹¹)	0.42 (10 ⁻⁵³)	0.15 (10 ⁻⁷)	-0.14 (10 ⁻⁷)	0.21 (10 ⁻¹³)	0.21 (10 ⁻¹³)	*	0.50 ±0.11 (10 ⁻⁴)	0.30 ±0.09 (10 ⁻³)
Flanker	0.16 (10 ⁻⁷)	-0.13 (10-5)	0.07 (0.03)	-0.11 (10 ⁻⁴)	0.17 (10 ⁻⁸)	0.17 (10 ⁻⁸)	-0.11 (10 ⁻⁴)	0.13 (10 ⁻⁵)	0.13 (10 ⁻⁶)	-0.12 (10 ⁻⁵)	-0.01 (0.61)	0.2 (10 ⁻¹³)	0.39 (10 ⁻⁴⁶)	0.08 (10 ⁻³)	-0.16 (10 ⁻⁸)	0.14 (10 ⁻⁶)	0.15 (10 ⁻⁷)	0.52 (10 ⁻⁸³)	*	0.14 ±0.11 (0.18)
ReadEng	0.46 (10 ⁻⁵⁶)	-0.1 (10-3)	0.23 (10 ⁻¹³)	-0.01 (0.83)	0.39 (10 ⁻⁴⁰)	0.45 (10 ⁻⁵⁴)	-0.16 (10 ⁻⁷)	0.23 (10 ⁻¹⁴)	0.48 (10 ⁻⁷⁰)	-0.45 (10 ⁻⁶²)	0.3 (10 ⁻²⁶)	0.7 (10 ⁻¹⁷⁸)	0.16 (10 ⁻⁸)	0.28 (10 ⁻²²)	-0.15 (10 ⁻⁷)	0.36 (10 ⁻³⁸)	0.21 (10 ⁻¹³)	0.25 (10 ⁻¹⁸)	0.18 (10 ⁻¹⁰)	*

S3 Table. Heritability estimates for MATH activations in the left hemisphere and associated p-values for covariates.
Only significant estimates after Bonferroni correction, $p < 1.4 \cdot 10^{-4}$, are presented.

Trait	$h^2 \pm SE(p)$	Age	Age ²	Sex	Age*Sex	Age ² *Sex	Ethni	Educ
		p-val						
Area 7m	0.3 $\pm$ 0.06 ($1.0 \cdot 10^{-6}$)	0.55	0.76	0.55	0.58	0.9	0.17	0.49
Area 8Ad	0.26 $\pm$ 0.07 ($3.2 \cdot 10^{-5}$)	0.54	0.44	0.89	0.75	0.41	0.52	$9.8 \cdot 10^{-3}$
Area 8Av	0.29 $\pm$ 0.06 ($1.2 \cdot 10^{-6}$)	0.94	0.48	0.02	0.86	0.04	0.11	0.15
Area 8C	0.29 $\pm$ 0.06 ($1.6 \cdot 10^{-6}$)	0.68	0.25	$3.8 \cdot 10^{-3}$	0.58	0.01	0.65	0.15
Area FST	0.27 $\pm$ 0.06 ($1.0 \cdot 10^{-5}$)	0.18	0.37	0.33	0.57	0.1	0.41	0.48
Area IntraParietal 0	0.33 $\pm$ 0.07 ($6.0 \cdot 10^{-7}$)	0.62	0.13	0.01	0.73	0.02	0.23	0.59
Area IntraParietal 1	0.29 $\pm$ 0.06 ($2.1 \cdot 10^{-6}$)	0.61	0.02	0.04	0.74	$8.8 \cdot 10^{-3}$	$6.1 \cdot 10^{-5}$	0.09
Area Lateral IntraParietal dorsal	0.27 $\pm$ 0.06 ($5.5 \cdot 10^{-6}$)	0.83	0.25	0.16	0.72	0.09	$1.2 \cdot 10^{-3}$	0.91
Area Lateral IntraParietal ventral	0.3 $\pm$ 0.06 ($1.4 \cdot 10^{-6}$)	0.77	0.64	0.97	0.58	0.51	0.35	0.55
Area PF opercular	0.26 $\pm$ 0.06 ($3.3 \cdot 10^{-5}$)	0.12	0.44	0.21	0.83	0.3	0.62	0.33
Area PGp	0.45 $\pm$ 0.06 ($5.2 \cdot 10^{-13}$)	0.73	0.78	0.03	0.9	0.52	0.84	0.64
Area PGs	0.3 $\pm$ 0.07 ($2.4 \cdot 10^{-6}$)	0.88	0.9	0.55	0.78	0.51	0.17	0.07
Area TE1 Middle	0.28 $\pm$ 0.07 ($1.1 \cdot 10^{-5}$)	0.85	0.55	0.41	0.66	0.8	0.05	0.1
Area TE1 posterior	0.25 $\pm$ 0.07 ($1.1 \cdot 10^{-4}$)	0.94	0.28	$1.4 \cdot 10^{-3}$	0.92	$4.5 \cdot 10^{-3}$	0.1	0.01
Area p32 prime	0.25 $\pm$ 0.07 ($1.0 \cdot 10^{-4}$)	0.59	0.39	0.4	0.79	0.23	0.8	0.69
Inferior 6-8 Transitional Area	0.3 $\pm$ 0.06 ($6.0 \cdot 10^{-7}$)	0.72	0.39	0.03	0.99	0.04	0.13	$2.6 \cdot 10^{-4}$
Lateral Area 7P	0.29 $\pm$ 0.06 ($2.9 \cdot 10^{-6}$)	0.89	0.36	0.21	0.73	0.1	0.55	0.04
Medial Area 7A	0.29 $\pm$ 0.07 ($1.1 \cdot 10^{-5}$)	0.56	0.69	0.85	0.48	0.64	0.93	0.25
Medial Area 7P	0.29 $\pm$ 0.07 ($1.1 \cdot 10^{-5}$)	0.51	0.18	0.74	0.23	0.04	0.46	0.89
Medial IntraParietal Area	0.25 $\pm$ 0.07 ($5.6 \cdot 10^{-5}$)	0.55	0.49	$7.2 \cdot 10^{-3}$	0.94	0.1	0.16	0.41
Parieto-Occipital Sulcus Area 1	0.26 $\pm$ 0.07 ($7.4 \cdot 10^{-5}$)	0.47	0.53	0.27	0.43	0.41	0.94	0.59
PeriSylvian Language Area	0.42 $\pm$ 0.06 ($1.5 \cdot 10^{-10}$)	0.3	0.09	0.42	0.83	$5.3 \cdot 10^{-3}$	0.03	0.35
Superior 6-8 Transitional Area	0.23 $\pm$ 0.07 ($1.3 \cdot 10^{-4}$)	0.39	0.64	0.13	0.5	0.64	0.49	$5.4 \cdot 10^{-3}$

S4 Table. Heritability estimates for MATH activations in the right hemisphere and associated p-values for covariates.
Only significant estimates after Bonferroni correction, $p < 1.4 \cdot 10^{-4}$, are presented.

Trait	$h^2 \pm SE(p)$	Age	Age ²	Sex	Age*Sex	Age ² *Sex	Ethni	Educ
		p-val						
Area 46	0.25±0.07 ($4.9 \cdot 10^{-5}$)	0.51	0.49	0.68	0.9	0.15	0.81	0.79
Area 47l	0.25±0.07 ($5.4 \cdot 10^{-5}$)	0.81	0.45	0.96	0.7	0.43	0.76	0.42
Area 7m	0.24±0.07 ($1.1 \cdot 10^{-4}$)	0.7	0.43	0.27	0.87	0.29	0.01	0.41
Area 8C	0.25±0.07 ($1.3 \cdot 10^{-4}$)	0.18	0.84	0.28	0.35	0.6	0.21	0.9
Area IntraParietal 0	0.26±0.07 ($2.5 \cdot 10^{-5}$)	0.87	0.7	0.74	0.08	0.05	0.55	0.76
Area Lateral IntraParietal dorsal	0.27±0.07 ($5.5 \cdot 10^{-5}$)	0.82	0.82	0.33	0.49	0.16	0.03	0.44
Area PGp	0.29±0.06 ($1.6 \cdot 10^{-6}$)	0.28	0.76	$5.6 \cdot 10^{-3}$	0.81	0.22	0.64	0.32
Area PGs	0.25±0.07 ($4.8 \cdot 10^{-5}$)	0.5	0.66	$3.8 \cdot 10^{-3}$	0.55	0.99	0.53	0.75
Area STGa	0.26±0.07 ($1.4 \cdot 10^{-4}$)	0.93	0.69	0.98	0.55	0.35	0.17	0.14
Area STSd posterior	0.3±0.07 ($3.2 \cdot 10^{-6}$)	0.11	0.55	0.07	0.55	0.91	0.66	0.45
Area TA2	0.28±0.07 ($1.2 \cdot 10^{-5}$)	0.4	0.9	0.25	0.25	0.8	0.75	0.59
Area TE1 Middle	0.28±0.06 ($6.6 \cdot 10^{-6}$)	0.6	0.44	0.31	0.21	0.83	0.82	0.81
Area TemporoParietoOccipital Junction 1	0.29±0.07 ($2.1 \cdot 10^{-5}$)	0.53	0.18	0.07	0.52	0.92	0.27	0.97
Area TemporoParietoOccipital Junction 2	0.24±0.07 ($1.0 \cdot 10^{-4}$)	0.18	0.62	0.14	0.52	0.44	0.93	0.36
Area posterior 9-46v	0.3±0.06 ($1.7 \cdot 10^{-6}$)	0.68	0.09	$6.7 \cdot 10^{-3}$	0.97	0.02	0.54	0.63
Area ventral 23 a+b	0.29±0.07 ($7.4 \cdot 10^{-6}$)	0.92	0.77	$6.7 \cdot 10^{-3}$	0.51	0.63	0.21	0.54
Auditory 4 Complex	0.28±0.06 ($3.4 \cdot 10^{-6}$)	0.78	0.63	0.01	0.68	0.8	0.41	0.3
Auditory 5 Complex	0.39±0.06 ($1.3 \cdot 10^{-10}$)	0.22	0.11	0.05	0.42	0.07	0.19	0.99
Dorsal Transitional Visual Area	0.31±0.07 ($1.7 \cdot 10^{-6}$)	0.33	0.62	0.02	0.96	0.53	0.55	0.79
Fourth Visual Area	0.25±0.07 ($6.8 \cdot 10^{-5}$)	0.15	0.07	0.89	0.84	0.02	0.3	0.22
Inferior 6-8 Transitional Area	0.24±0.06 ($7.9 \cdot 10^{-5}$)	0.08	0.51	0.32	0.1	0.05	0.15	0.92
Lateral Area 7P	0.35±0.07 ($1.0 \cdot 10^{-7}$)	0.59	0.26	0.55	0.56	0.13	0.68	$5.6 \cdot 10^{-3}$
Lateral Belt Complex	0.29±0.07 ($2.3 \cdot 10^{-6}$)	0.71	0.1	0.55	0.53	0.12	0.5	0.75
Medial IntraParietal Area	0.26±0.07 ($3.5 \cdot 10^{-5}$)	0.53	0.98	0.94	0.06	0.41	0.17	0.25
ParaBelt Complex	0.35±0.06 ($2.5 \cdot 10^{-8}$)	0.65	0.43	0.49	0.68	0.16	0.23	0.74
Parieto-Occipital Sulcus Area 1	0.32±0.06 ($1.0 \cdot 10^{-7}$)	0.98	0.61	$7.0 \cdot 10^{-3}$	0.31	0.95	0.56	0.43
PreCuneus Visual Area	0.29±0.07 ($3.8 \cdot 10^{-5}$)	0.2	0.78	$7.3 \cdot 10^{-3}$	0.78	0.87	0.16	0.35
Premotor Eye Field	0.36±0.06 ($2.6 \cdot 10^{-8}$)	0.74	0.64	0.82	0.82	0.46	0.72	0.36
Primary Auditory Cortex	0.26±0.07 ($4.5 \cdot 10^{-5}$)	0.99	0.11	0.58	0.6	0.06	$1.1 \cdot 10^{-3}$	0.36

S5 Table. Heritability estimates for STORY activations in the left hemisphere and associated p-values for covariates.
Only significant estimates after Bonferroni correction, $p < 1.4 \cdot 10^{-4}$, are presented.

Trait	$h^2 \pm SE(p)$	Age	Age ²	Sex	Age*Sex	Age ² *Sex	Ethni	Educ
		p-val						
Area 45	0.22±0.06 ($1.4 \cdot 10^{-4}$)	0.98	0.04	0.59	0.24	0.04	0.49	0.08
Area 47l	0.29±0.06 ($1.5 \cdot 10^{-6}$)	0.76	0.29	0.01	0.17	0.1	0.92	0.37
Area 7m	0.26±0.07 ($2.0 \cdot 10^{-5}$)	0.2	0.64	$4.4 \cdot 10^{-3}$	0.11	0.64	0.46	0.7
Area 8Av	0.28±0.06 ($4.9 \cdot 10^{-6}$)	0.75	0.14	0.83	0.68	0.02	0.43	0.56
Area 8C	0.32±0.06 ($2.1 \cdot 10^{-8}$)	0.32	0.88	0.03	0.46	0.05	0.96	0.83
Area PGi	0.32±0.07 ($9.0 \cdot 10^{-7}$)	0.21	0.31	0.41	0.86	0.11	0.05	0.11
Area PGs	0.24±0.07 ($1.2 \cdot 10^{-4}$)	0.48	0.35	0.55	0.36	0.12	0.16	0.1
Area STSd anterior	0.28±0.06 ($3.0 \cdot 10^{-6}$)	0.42	0.01	0.13	0.43	$2.7 \cdot 10^{-3}$	0.51	0.02
Area STSd posterior	0.25±0.07 ($7.9 \cdot 10^{-5}$)	0.33	0.29	0.64	0.59	0.04	0.1	0.12
Area STSv anterior	0.28±0.06 ($5.5 \cdot 10^{-6}$)	0.47	0.03	0.5	0.87	0.02	0.22	0.07
Area STSv posterior	0.27±0.06 ($1.0 \cdot 10^{-5}$)	0.35	0.43	0.25	0.42	0.19	0.08	0.39
Area TA2	0.31±0.07 ($1.2 \cdot 10^{-6}$)	0.17	0.08	$1.8 \cdot 10^{-3}$	0.97	0.03	0.54	0.49
Area TE1 Middle	0.28±0.06 ($6.0 \cdot 10^{-6}$)	0.33	0.96	0.93	0.62	0.6	0.28	0.04
Area TE1 anterior	0.23±0.06 ($1.2 \cdot 10^{-4}$)	0.02	0.49	0.04	1.0	0.94	0.02	0.93
Area TE1 posterior	0.25±0.07 ($5.1 \cdot 10^{-5}$)	0.92	0.18	0.07	0.37	$6.7 \cdot 10^{-3}$	0.27	0.07
Area TemporoParietoOccipital Junction 1	0.39±0.07 ($1.0 \cdot 10^{-7}$)	0.16	0.01	0.46	0.63	$1.4 \cdot 10^{-4}$	0.2	0.03
Area anterior 47r	0.24±0.06 ($7.8 \cdot 10^{-5}$)	0.61	0.4	0.02	0.65	0.05	0.44	0.04
Area posterior 10p	0.22±0.06 ($9.5 \cdot 10^{-5}$)	0.61	0.79	0.57	0.14	0.87	0.43	0.18
Area posterior 47r	0.25±0.07 ($9.5 \cdot 10^{-5}$)	0.12	0.45	0.01	0.22	0.21	0.75	0.5
Area ventral 23 a+b	0.28±0.07 ($1.4 \cdot 10^{-5}$)	0.5	0.95	0.04	0.2	0.45	0.05	0.05
Inferior 6-8 Transitional Area	0.23±0.06 ($8.4 \cdot 10^{-5}$)	0.97	0.2	0.11	0.37	0.05	0.71	$6.0 \cdot 10^{-3}$
ParaBelt Complex	0.24±0.07 ($1.2 \cdot 10^{-4}$)	0.02	0.1	0.63	0.59	0.05	0.3	0.51
Parieto-Occipital Sulcus Area 2	0.26±0.07 ($5.7 \cdot 10^{-5}$)	0.15	0.56	0.12	0.56	0.29	0.59	0.01
PeriSylvian Language Area	0.55±0.05 ($1.3 \cdot 10^{-17}$)	0.48	0.16	0.89	0.8	0.07	0.06	0.85

S6 Table. Heritability estimates for STORY activations in the *right hemisphere* and associated p-values for covariates.
Only significant estimates after Bonferroni correction, $p < 1.4 \cdot 10^{-4}$, are presented.

Trait	$h^2 \pm SE(p)$	Age	Age ²	Sex	Age*Sex	Age ² *Sex	Ethni	Educ
		p-val						
Area 45	0.3±0.07 ($1.8 \cdot 10^{-6}$)	0.76	0.92	0.31	0.9	0.93	0.21	0.18
Area 47l	0.31±0.07 ($2.6 \cdot 10^{-6}$)	0.14	0.59	0.22	0.35	0.75	0.84	0.74
Area 8Av	0.24±0.07 ($1.0 \cdot 10^{-4}$)	0.46	0.97	0.13	0.69	0.17	0.38	0.15
Area 8C	0.27±0.07 ($1.5 \cdot 10^{-5}$)	0.09	0.54	0.24	0.12	0.56	0.52	0.94
Area 9 Middle	0.25±0.07 ($7.2 \cdot 10^{-5}$)	0.13	0.75	0.06	0.3	0.75	0.1	0.45
Area STGa	0.3±0.07 ($8.1 \cdot 10^{-6}$)	0.93	0.2	0.59	0.99	0.17	0.88	0.06
Area STSd anterior	0.28±0.07 ($7.4 \cdot 10^{-6}$)	0.57	0.29	0.02	0.61	0.41	0.91	0.03
Area STSd posterior	0.29±0.06 ($1.6 \cdot 10^{-6}$)	0.1	0.77	0.11	0.97	0.81	0.85	0.09
Area STSv anterior	0.26±0.06 ($1.7 \cdot 10^{-5}$)	0.2	0.02	0.63	0.87	0.17	0.2	0.16
Area TA2	0.36±0.06 ($1.8 \cdot 10^{-8}$)	0.08	0.33	$1.6 \cdot 10^{-3}$	0.36	0.43	0.12	0.09
Area anterior 9-46v	0.24±0.06 ($5.2 \cdot 10^{-5}$)	0.14	0.5	0.01	0.61	0.1	0.52	0.05
Area p32	0.25±0.07 ($7.0 \cdot 10^{-5}$)	0.93	0.77	0.25	0.46	0.48	0.69	0.24
Area ventral 23 a+b	0.34±0.07 ($3.0 \cdot 10^{-7}$)	0.55	0.95	$8.1 \cdot 10^{-4}$	0.27	0.89	0.14	0.43
Auditory 4 Complex	0.33±0.06 ($2.0 \cdot 10^{-7}$)	0.62	0.8	0.06	0.48	0.9	0.49	0.87
Auditory 5 Complex	0.39±0.06 ($9.1 \cdot 10^{-11}$)	0.22	0.09	0.22	0.64	0.08	0.34	0.76
Inferior 6-8 Transitional Area	0.24±0.07 ($1.2 \cdot 10^{-4}$)	0.34	0.54	0.11	0.07	0.21	0.1	0.85
Lateral Belt Complex	0.25±0.07 ($3.3 \cdot 10^{-5}$)	0.58	0.05	0.92	0.63	0.08	0.97	0.67
Medial Belt Complex	0.27±0.07 ($9.2 \cdot 10^{-5}$)	0.92	0.06	0.2	1.0	0.23	0.25	0.83
ParaBelt Complex	0.38±0.06 ($1.8 \cdot 10^{-9}$)	0.38	0.38	0.98	0.46	0.09	0.43	0.34
Primary Auditory Cortex	0.27±0.07 ($1.4 \cdot 10^{-5}$)	0.96	0.05	0.45	0.53	0.07	$9.7 \cdot 10^{-3}$	0.56

S7 Table. Bivariate genetic analysis results for areals in the *left hemisphere* with the STORY-MATH contrast median activation and the HCP language task accuracy. ρ_p : phenotypic correlation, ρ_g : shared genetic variance, ρ_e : environment correlation

Trait	ρ_p (p)	$\rho_g \pm SE$ (p)	ρ_e (p)
Anterior Ventral Insular Area	0.13 ($4.8 \cdot 10^{-5}$)	0.61 ± 0.17 ($3.0 \cdot 10^{-4}$)	-0.12 (0.11)
Area 10v	0.19 ($6.6 \cdot 10^{-10}$)	0.23 ± 0.15 (0.13)	0.11 (0.12)
Area 31pd	0.16 ($3.0 \cdot 10^{-7}$)	0.47 ± 0.15 ($3.4 \cdot 10^{-3}$)	0.01 (0.88)
Area 44	0.19 ($4.1 \cdot 10^{-10}$)	0.35 ± 0.13 (0.02)	0.12 (0.08)
Area 45	0.25 ($8.0 \cdot 10^{-16}$)	0.46 ± 0.13 ($9.4 \cdot 10^{-4}$)	0.11 (0.14)
Area 47l	0.2 ($2.1 \cdot 10^{-11}$)	0.43 ± 0.14 ($2.6 \cdot 10^{-3}$)	-0.0 (1.0)
Area 47m	0.17 ($3.2 \cdot 10^{-8}$)	0.29 ± 0.14 (0.04)	0.07 (0.28)
Area 47s	0.19 ($2.8 \cdot 10^{-10}$)	0.4 ± 0.13 ($3.6 \cdot 10^{-3}$)	0.01 (0.93)
Area 7m	0.2 ($1.4 \cdot 10^{-10}$)	0.44 ± 0.14 ($2.2 \cdot 10^{-3}$)	0.02 (0.75)
Area 8Av	0.17 ($2.1 \cdot 10^{-8}$)	0.39 ± 0.12 ($3.5 \cdot 10^{-3}$)	0.01 (0.88)
Area 8BM	0.2 ($1.2 \cdot 10^{-10}$)	0.75 ± 0.14 ($8.9 \cdot 10^{-7}$)	-0.08 (0.27)
Area 8B Lateral	0.28 ($4.5 \cdot 10^{-20}$)	0.73 ± 0.14 ($5.2 \cdot 10^{-7}$)	0.02 (0.72)
Area 9 Middle	0.26 ($1.5 \cdot 10^{-17}$)	0.44 ± 0.13 ($1.4 \cdot 10^{-3}$)	0.08 (0.29)
Area 9 Posterior	0.13 ($1.5 \cdot 10^{-5}$)	0.52 ± 0.21 (0.01)	-0.02 (0.76)
Area 9 anterior	0.14 ($8.6 \cdot 10^{-6}$)	0.3 ± 0.14 (0.04)	0.03 (0.68)
Area IFSp	0.15 ($1.6 \cdot 10^{-6}$)	0.42 ± 0.12 ($9.4 \cdot 10^{-4}$)	-0.04 (0.58)
Area IntraParietal 0	-0.13 ($1.9 \cdot 10^{-5}$)	-0.21 ± 0.12 (0.1)	0.0 (0.97)
Area PGi	0.28 ($9.8 \cdot 10^{-21}$)	0.54 ± 0.13 ($1.4 \cdot 10^{-4}$)	0.11 (0.14)
Area PGp	-0.15 ($9.0 \cdot 10^{-7}$)	-0.27 ± 0.11 (0.01)	0.06 (0.47)
Area STGa	0.18 ($9.2 \cdot 10^{-9}$)	0.34 ± 0.15 (0.03)	0.08 (0.26)
Area STSd anterior	0.19 ($2.1 \cdot 10^{-10}$)	0.52 ± 0.16 ($1.9 \cdot 10^{-3}$)	0.06 (0.39)
Area STSd posterior	0.24 ($7.8 \cdot 10^{-15}$)	0.47 ± 0.11 ($1.9 \cdot 10^{-4}$)	0.09 (0.22)
Area STSv anterior	0.22 ($1.0 \cdot 10^{-12}$)	0.35 ± 0.15 (0.03)	0.12 (0.1)
Area STSv posterior	0.23 ($4.3 \cdot 10^{-14}$)	0.45 ± 0.12 ($6.5 \cdot 10^{-4}$)	0.05 (0.45)
Area TE1 anterior	0.21 ($5.5 \cdot 10^{-12}$)	0.41 ± 0.15 ($8.5 \cdot 10^{-3}$)	0.1 (0.15)
Area TG Ventral	0.21 ($6.2 \cdot 10^{-12}$)	0.51 ± 0.14 ($6.6 \cdot 10^{-4}$)	0.01 (0.92)
Area TG dorsal	0.23 ($1.5 \cdot 10^{-14}$)	0.44 ± 0.15 ($5.1 \cdot 10^{-3}$)	0.06 (0.37)
Area anterior 47r	0.21 ($1.9 \cdot 10^{-11}$)	0.48 ± 0.14 ($1.2 \cdot 10^{-3}$)	-0.02 (0.82)
Area posterior 47r	0.13 ($1.6 \cdot 10^{-5}$)	0.44 ± 0.17 (0.01)	-0.03 (0.63)
Auditory 5 Complex	0.14 ($7.8 \cdot 10^{-6}$)	0.54 ± 0.14 ($2.0 \cdot 10^{-4}$)	-0.05 (0.45)
Dorsal Transitional Visual Area	-0.15 ($4.9 \cdot 10^{-7}$)	-0.16 ± 0.16 (0.33)	-0.05 (0.43)
Lateral Area 7P	-0.13 ($4.4 \cdot 10^{-5}$)	-0.04 ± 0.12 (0.74)	-0.04 (0.54)
Medial Area 7A	-0.14 ($5.6 \cdot 10^{-6}$)	-0.14 ± 0.14 (0.33)	-0.06 (0.43)
Parieto-Occipital Sulcus Area 2	-0.26 ($1.5 \cdot 10^{-17}$)	-0.19 ± 0.12 (0.11)	-0.15 (0.03)
PeriSylvian Language Area	0.13 ($1.2 \cdot 10^{-5}$)	0.47 ± 0.12 ($2.0 \cdot 10^{-4}$)	-0.13 (0.09)
Perirhinal Ectorhinal Cortex	0.14 ($5.2 \cdot 10^{-6}$)	0.59 ± 0.3 (0.03)	0.0 (0.97)
RetroSplenial Complex	-0.15 ($1.6 \cdot 10^{-6}$)	-0.5 ± 0.16 ($1.9 \cdot 10^{-3}$)	0.02 (0.71)
Superior Frontal Language Area	0.27 ($4.8 \cdot 10^{-19}$)	0.52 ± 0.11 ($3.4 \cdot 10^{-5}$)	0.07 (0.37)

S8 Table. Bivariate genetic analysis results for areals in the *right hemisphere* with the STORY-MATH contrast median activation and the HCP language task accuracy. ρ_p : phenotypic correlation, ρ_g : shared genetic variance, ρ_e : environment correlation

Trait	ρ_p (p)	$\rho_g \pm SE$ (p)	ρ_e (p)
Area 10v	0.15 ($1.3 \cdot 10^{-6}$)	0.32 $\pm$ 0.13 (0.02)	0.03 (0.66)
Area 23c	-0.17 ($2.0 \cdot 10^{-8}$)	-0.38 $\pm$ 0.15 (0.01)	-0.01 (0.91)
Area 23d	-0.12 ($8.8 \cdot 10^{-5}$)	-0.31 $\pm$ 0.17 (0.07)	-0.01 (0.92)
Area 31a	-0.16 ($2.2 \cdot 10^{-7}$)	-0.19 $\pm$ 0.14 (0.18)	-0.07 (0.32)
Area 45	0.14 ($2.5 \cdot 10^{-6}$)	0.42 $\pm$ 0.15 ($7.1 \cdot 10^{-3}$)	-0.0 (0.98)
Area 46	-0.19 ($3.5 \cdot 10^{-10}$)	-0.14 $\pm$ 0.15 (0.36)	-0.12 (0.08)
Area 47l	0.12 ($1.1 \cdot 10^{-4}$)	0.51 $\pm$ 0.14 ($2.3 \cdot 10^{-4}$)	-0.04 (0.56)
Area 7m	0.18 ($1.7 \cdot 10^{-9}$)	0.48 $\pm$ 0.15 ($1.9 \cdot 10^{-3}$)	0.0 (0.95)
Area 8B Lateral	0.16 ($3.3 \cdot 10^{-7}$)	0.41 $\pm$ 0.14 ($4.6 \cdot 10^{-3}$)	0.0 (0.98)
Area 9 Middle	0.14 ($3.9 \cdot 10^{-6}$)	0.35 $\pm$ 0.16 (0.03)	-0.01 (0.9)
Area IFSa	-0.13 ($3.6 \cdot 10^{-5}$)	-0.2 $\pm$ 0.14 (0.15)	0.01 (0.9)
Area IntraParietal 0	-0.16 ($2.6 \cdot 10^{-7}$)	-0.33 $\pm$ 0.12 ($9.3 \cdot 10^{-3}$)	0.0 (0.98)
Area IntraParietal 2	-0.15 ($2.3 \cdot 10^{-6}$)	-0.29 $\pm$ 0.15 (0.05)	-0.02 (0.8)
Area PF Complex	-0.13 ($3.7 \cdot 10^{-5}$)	-0.22 $\pm$ 0.13 (0.1)	-0.03 (0.72)
Area PFM Complex	-0.12 ($5.5 \cdot 10^{-5}$)	-0.09 $\pm$ 0.15 (0.55)	-0.08 (0.28)
Area PGi	0.12 ($6.5 \cdot 10^{-5}$)	0.42 $\pm$ 0.15 ($8.0 \cdot 10^{-3}$)	0.02 (0.76)
Area PGp	-0.18 ($5.1 \cdot 10^{-9}$)	-0.4 $\pm$ 0.12 ($9.6 \cdot 10^{-4}$)	0.11 (0.13)
Area PHT	-0.14 ($7.3 \cdot 10^{-6}$)	-0.18 $\pm$ 0.14 (0.21)	-0.01 (0.85)
Area STGa	0.15 ($2.0 \cdot 10^{-6}$)	0.24 $\pm$ 0.16 (0.14)	0.06 (0.38)
Area STSd anterior	0.19 ($4.6 \cdot 10^{-10}$)	0.4 $\pm$ 0.12 ($2.0 \cdot 10^{-3}$)	0.05 (0.51)
Area STSd posterior	0.12 ($1.0 \cdot 10^{-4}$)	0.27 $\pm$ 0.14 (0.05)	0.03 (0.68)
Area STSv anterior	0.14 ($2.8 \cdot 10^{-6}$)	0.36 $\pm$ 0.13 (0.01)	-0.0 (0.95)
Area TE1 anterior	0.12 ($6.8 \cdot 10^{-5}$)	0.32 $\pm$ 0.15 (0.04)	0.07 (0.32)
Area TG dorsal	0.19 ($9.8 \cdot 10^{-10}$)	0.65 $\pm$ 0.17 ($1.5 \cdot 10^{-4}$)	-0.02 (0.81)
Area anterior 10p	-0.14 ($5.2 \cdot 10^{-6}$)	-0.21 $\pm$ 0.18 (0.24)	-0.05 (0.45)
Area anterior 9-46v	-0.12 ($7.7 \cdot 10^{-5}$)	0.05 $\pm$ 0.15 (0.73)	-0.1 (0.13)
Area p32	-0.15 ($1.2 \cdot 10^{-6}$)	-0.49 $\pm$ 0.2 ($9.7 \cdot 10^{-3}$)	0.04 (0.5)
Dorsal Transitional Visual Area	-0.15 ($7.4 \cdot 10^{-7}$)	-0.2 $\pm$ 0.15 (0.2)	-0.02 (0.73)
Frontal OPercular Area 4	-0.12 ($4.9 \cdot 10^{-5}$)	0.02 $\pm$ 0.19 (0.93)	-0.09 (0.18)
Lateral Area 7P	-0.15 ($9.8 \cdot 10^{-7}$)	-0.32 $\pm$ 0.12 ($9.9 \cdot 10^{-3}$)	0.08 (0.29)
Medial Area 7A	-0.16 ($1.2 \cdot 10^{-7}$)	-0.34 $\pm$ 0.17 (0.05)	0.02 (0.76)
Medial Area 7P	-0.19 ($6.0 \cdot 10^{-10}$)	-0.21 $\pm$ 0.15 (0.18)	-0.05 (0.45)
Middle Insular Area	-0.12 ($5.9 \cdot 10^{-5}$)	-0.0 $\pm$ 0.19 (0.98)	-0.1 (0.12)
Parieto-Occipital Sulcus Area 1	-0.12 ($1.0 \cdot 10^{-4}$)	-0.17 $\pm$ 0.12 (0.15)	0.04 (0.59)
Parieto-Occipital Sulcus Area 2	-0.26 ($7.7 \cdot 10^{-18}$)	-0.34 $\pm$ 0.12 ($5.5 \cdot 10^{-3}$)	-0.06 (0.39)
PeriSylvian Language Area	-0.15 ($6.4 \cdot 10^{-7}$)	-0.34 $\pm$ 0.18 (0.05)	-0.03 (0.67)
PreCuneus Visual Area	-0.14 ($2.8 \cdot 10^{-6}$)	-0.54 $\pm$ 0.18 ($1.5 \cdot 10^{-3}$)	0.1 (0.13)
RetroSplenial Complex	-0.13 ($2.0 \cdot 10^{-5}$)	-0.28 $\pm$ 0.16 (0.07)	0.01 (0.88)
Superior Frontal Language Area	0.13 ($3.6 \cdot 10^{-5}$)	0.49 $\pm$ 0.15 ($1.1 \cdot 10^{-3}$)	-0.05 (0.5)