

## Article

# Supplementary Materials: Temporal Electroencephalography Traits Dissociating Tactile Information and Cross-Modal Congruence Effects

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**Table S1.** Classification accuracies and p-values of statistically significant brain regions (Congruent vs. Baseline, 0-1 s). Regions showing significance were marked with \* ( $p < 0.05$ ) or \*\* ( $p < 0.01$ ).

Region		Congruent Accuracy (%)	Baseline Accuracy (%)	p-value	Region	Congruent Accuracy (%)	Baseline Accuracy (%)	p-value
M1	area 4	68.6	48.3	0.001 **	PFop	69.2	49.7	<0.001 **
S1	area 1	68.6	48.3	0.001 **	PFt	69.3	47.6	<0.001 **
	area 2	68.7	48.8	<0.001 **	PF	69.7	48.2	<0.001 **
	area 3a	71.9	51.5	<0.001 **	PFm	69.4	49.1	<0.001 **
	area 3b	68.9	48.9	<0.001 **	PGs	63.2	49.3	0.006
S2	area 43	65.3	53.7	0.015 *	PGi	55.5	49.4	0.054
PL	5L	51.5	48.7	0.526	PGp	59.2	49.0	0.021 *
	5m	61.8	48.8	0.036	TPOJ1	72.1	50.4	<0.001 **
	5mv	55.3	49.1	0.052	TPOJ2	65.3	49.4	<0.001 **
SMA	6ma	53.1	52.4	0.983	TPOJ3	61.1	51.8	0.035 *
	6mp	49.0	50.1	0.939	IP0	58.1	51.5	0.171
	SFL	55.8	49.3	0.322	IP1	55.4	49.4	0.059
	SCEF	50.1	50.1	0.999	IP2	60.6	48.8	0.002 **
PM	6a	52.8	48.6	0.116	IPS1	55.1	50.3	0.350
	6d	54.3	46.5	0.208	AIP	63.9	50.0	0.030 *
	FEF	58.2	53.4	0.495	LIPd	55.4	50.9	0.352
	55b	60.8	52.2	0.101	LIPv	56.9	48.5	0.065
	PEF	67.4	47.2	<0.001 **	MIP	55.0	52.3	0.529
	6v	67.1	48.2	<0.001 **	7PC	61.1	49.0	0.002 **
6r	6r	68.6	50.6	<0.001 **	7AL	52.8	50.7	0.654
	33pr	67.2	48.5	<0.001 **	7AM	57.4	46.0	0.025 *
	24dd	60.6	51.2	0.041 *	7PL	49.0	49.6	0.952
	24dv	48.1	49.6	0.854	7PM	59.4	50.8	0.054
	p24pr	70.7	50.5	0.004 **	VIP	50.1	46.6	0.424
	a24pr	57.9	54.2	0.552	POS1	55.5	51.2	0.212
ACC	p24	53.7	50.1	0.434	POS2	65.0	51.6	0.016 *
	a24	50.8	49.4	0.904	DVT	52.9	49.7	0.614
	p32pr	49.3	47.9	0.759	ProS	52.5	49.9	0.323
	a32pr	46.7	49.5	0.575	V1	55.5	49.5	0.126
	d32	50.1	49.2	0.849	V2	67.8	49.0	0.003 **
	p32	54.2	52.2	0.836	V3	72.2	49.7	<0.001 **
	s32	52.2	50.0	0.806	V4	55.1	54.0	0.952
	area 25	52.1	52.2	1.000	V6	50.1	52.2	0.785
	d23ab	70.3	49.7	<0.001 **	V8	50.6	49.8	0.954
	v23ab	65.9	50.6	0.019 *	PIT	52.3	49.2	0.554
PCC	23c	52.5	47.8	0.229	FFC	54.4	51.1	0.455
	23d	66.4	50.9	0.004 **	VVC	50.5	49.8	0.874
	RSC	66.4	51.4	0.002 **	VMV1	53.3	49.9	0.645
	Ig	57.8	48.1	0.006 **	VMV2	52.2	50.4	0.772
SMG	OP4	70.4	49.9	<0.001 **	VMV3	52.7	51.7	0.845
	OP2-3	63.9	47.8	0.004 **	V6A	55.7	49.5	0.018
	OP1	66.5	47.6	<0.001 **	V3A	51.8	51.4	0.988
	PFcm	68.6	51.3	<0.001 **	V3B	56.1	45.7	0.011 *
	RI	67.6	51.0	<0.001 **	V3CD	55.3	54.4	0.957
	area 52	59.4	46.8	0.002 **	LO1	61.3	50.6	0.055
	A1	65.3	50.3	0.001 **	LO2	61.4	48.2	0.001 **
	Mbelt	65.8	51.1	0.006 **	LO3	54.4	49.4	0.363
	Lbelt	63.9	51.4	0.009 **	V4t	61.7	52.7	0.002 **
	PSL	71.4	50.1	<0.001 **	MT	67.1	49.2	<0.001 **
PC	STV	69.3	52.6	0.005 **	MST	65.0	52.3	0.011 *
	PCV	51.8	50.6	0.943	FST	65.8	49.0	<0.001 **
	7m	63.3	50.0	0.012 *	PH	67.5	47.8	<0.001 **

**Table S2.** Classification accuracies and p-values of statistically significant brain regions (Congruent vs. Baseline, 1-2 s). Regions showing significance were marked with \* ( $p < 0.05$ ) or \*\* ( $p < 0.01$ ).

Region		Congruent Accuracy (%)	Baseline Accuracy (%)	p-value	Region		Congruent Accuracy (%)	Baseline Accuracy (%)	p-value
M1	area 4	46.9	50.9	0.422	PFop		49.0	46.4	0.721
	area 1	45.4	49.8	0.296	PFt		47.1	49.2	0.773
S1	area 2	45.9	48.3	0.864	PF		46.1	51.3	0.342
	area 3a	44.7	51.3	0.075	PFm		47.1	49.3	0.735
	area 3b	45.8	49.4	0.272	PGs		46.0	51.3	0.015 *
S2	area 43	45.7	49.0	0.629	PGi		54.3	47.7	0.063
	5L	49.3	51.9	0.584	PGp		47.2	46.8	0.987
PL	5M	48.8	49.3	0.988	TPOJ1		49.6	50.0	0.987
	5mv	50.5	48.9	0.218	TPOJ2		43.5	52.3	0.074
	6ma	45.0	49.2	0.267	TPOJ3		46.4	49.5	0.656
SMA	6mp	47.6	49.2	0.875	IP0		48.7	51.3	0.635
	SFL	46.4	52.4	0.130	IP1		49.7	44.8	0.320
	SCEF	47.6	51.2	0.505	IP2		47.9	48.1	0.997
	6a	47.4	50.8	0.571	IPS1		48.8	47.4	0.929
	6d	49.9	50.7	0.903	AIP		50.0	49.6	0.993
PM	FEF	47.5	52.8	0.204	LIPd		47.1	49.6	0.643
	55b	46.5	51.8	0.051	LIPv		52.4	49.9	0.799
	PEF	45.9	49.0	0.595	MIP		50.4	51.7	0.835
	6v	49.6	50.4	0.931	7PC		52.3	46.9	0.054
	6r	45.1	49.5	0.147	7AL		52.2	49.9	0.713
	33pr	42.5	49.6	0.051	7AM		47.5	51.6	0.307
	24dd	45.6	51.0	0.142	7PL		51.0	50.1	0.941
	24dv	45.0	50.3	0.350	7PM		44.8	49.4	0.087
	p24pr	50.7	53.9	0.638	VIP		51.3	48.6	0.624
	a24pr	44.2	51.4	0.032 *	POS1		53.3	49.5	0.074
	p24	48.9	48.9	0.990	POS2		47.1	51.7	0.010 **
ACC	a24	46.4	48.8	0.662	DVT		47.1	52.8	0.165
	p32pr	48.2	48.1	0.999	ProS		49.4	51.5	0.231
	a32pr	43.2	49.9	0.093	V1		50.9	50.9	0.998
	d32	46.9	46.4	0.980	V2		48.5	49.6	0.938
	p32	45.7	50.3	0.329	V3		48.2	50.9	0.541
	s32	45.9	50.8	0.104	V4		47.5	50.6	0.564
	area 25	45.9	50.3	0.268	V6		50.4	53.5	0.450
	d23ab	49.9	49.1	0.885	V8		47.4	51.4	0.232
PCC	v23ab	47.4	51.3	0.394	PIT		55.1	52.3	0.222
	23c	47.6	48.9	0.887	FFC		58.4	53.2	0.097
	23d	48.7	49.9	0.912	VVC		49.9	51.1	0.441
	RSC	47.5	53.1	0.083	VMV1		50.3	50.5	0.991
	Ig	42.6	50.6	0.040 *	VMV2		51.4	52.3	0.743
	OP4	45.9	52.1	0.205	VMV3		50.0	50.8	0.658
	OP2-3	46.1	48.3	0.478	V6A		50.1	47.6	0.802
	OP1	49.2	50.8	0.856	V3A		48.8	50.9	0.770
SMG	PFcm	46.5	49.0	0.759	V3B		47.5	50.7	0.481
	RI	45.0	49.2	0.351	V3CD		48.8	49.9	0.943
	area 52	44.4	49.4	0.093	LO1		47.3	48.8	0.737
	A1	48.5	50.1	0.702	LO2		47.3	49.0	0.898
	Mbelt	49.0	49.6	0.976	LO3		51.3	49.8	0.863
	Lbelt	45.7	54.4	0.004 **	V4t		48.5	47.3	0.922
	PSL	49.0	50.3	0.865	MT		46.1	48.6	0.596
	STV	43.3	51.2	0.199	MST		47.4	50.9	0.436
PC	PCV	44.7	50.6	0.133	FST		47.2	54.1	0.051
	7m	48.8	50.7	0.841	PH		45.28	49.9	0.042 *

**Table S3.** Classification accuracies and p-values of statistically significant brain regions (Congruent vs. Baseline, 2-3 s). Regions showing significance were marked with \* ( $p < 0.05$ ) or \*\* ( $p < 0.01$ ).

Region		Congruent Accuracy (%)	Baseline Accuracy (%)	p-value	Region	Congruent Accuracy (%)	Baseline Accuracy (%)	p-value
M1	area 4	48.2	51.3	0.532	PFop	50.3	51.8	0.693
	area 1	45.4	51.1	0.259	PFt	47.5	49.9	0.761
S1	area 2	49.6	50.1	0.986	PF	48.5	49.3	0.943
	area 3a	48.6	54.9	0.231	PFm	48.9	52.4	0.484
	area 3b	47.6	52.2	0.409	PGs	46.8	47.9	0.907
S2	area 43	49.7	48.9	0.885	PGi	48.8	48.9	0.941
	5L	45.7	50.1	0.287	PGp	46.3	48.9	0.283
PL	5M	48.1	49.1	0.911	TPOJ1	48.3	47.8	0.984
	5mv	51.1	49.9	0.653	TPOJ2	49.0	48.3	0.951
	6ma	51.5	52.8	0.883	TPOJ3	49.6	48.3	0.887
SMA	6mp	49.3	50.4	0.945	IP0	48.3	52.6	0.333
	SFL	47.4	50.1	0.493	IP1	48.1	49.6	0.579
	SCEF	50.8	47.2	0.399	IP2	45.9	50.9	0.173
	6a	46.3	50.5	0.196	IPS1	45.3	48.5	0.556
	6d	46.5	51.7	0.245	AIP	45.9	50.9	0.283
PM	FEF	45.3	46.9	0.897	LIPd	50.4	49.4	0.915
	55b	45.7	49.2	0.389	LIPv	50.1	48.9	0.880
	PEF	46.9	50.4	0.429	MIP	46.7	49.5	0.327
	6v	47.5	49.7	0.759	7PC	46.1	48.9	0.620
	6r	47.1	50.8	0.336	7AL	46.3	49.2	0.704
	33pr	45.1	46.7	0.830	7AM	47.8	48.3	0.949
	24dd	48.5	51.6	0.662	7PL	47.1	48.1	0.970
	24dv	48.3	47.2	0.837	7PM	52.1	51.7	0.996
	p24pr	47.5	48.6	0.885	VIP	53.1	50.6	0.563
	a24pr	51.9	50.7	0.895	POS1	49.9	48.8	0.870
ACC	p24	51.4	49.2	0.772	POS2	47.4	47.9	0.973
	a24	48.5	47.3	0.851	DVT	52.4	52.2	0.998
	p32pr	51.4	48.7	0.324	ProS	51.5	51.1	1.000
	a32pr	49.2	49.6	0.991	V1	50.5	49.5	0.861
	d32	47.1	54.5	0.083	V2	51.1	50.9	0.997
	p32	50.0	53.3	0.527	V3	47.5	45.8	0.548
	s32	49.6	51.9	0.851	V4	51.3	48.9	0.640
	area 25	48.1	50.6	0.334	V6	48.1	51.5	0.420
	d23ab	49.9	50.5	0.887	V8	51.9	51.2	0.927
PCC	v23ab	49.2	52.2	0.601	PIT	52.1	51.3	0.785
	23c	50.9	50.4	0.963	FFC	50.5	50.2	0.870
	23d	47.2	48.7	0.820	VVC	53.3	51.1	0.549
	RSC	49.6	52.6	0.589	VMV1	51.1	50.8	0.899
	Ig	46.3	51.0	0.078	VMV2	51.4	52.2	0.884
	OP4	47.4	49.9	0.771	VMV3	50.5	51.1	0.755
	OP2-3	46.9	49.3	0.756	V6A	47.4	50.8	0.293
	OP1	47.1	50.1	0.661	V3A	49.4	52.9	0.283
SMG	PFcm	45.8	53.3	0.111	V3B	50.3	46.1	0.220
	RI	47.8	50.2	0.760	V3CD	50.0	46.8	0.527
	area 52	51.9	46.5	0.282	LO1	44.0	53.8	0.016 *
	A1	46.1	51.8	0.082	LO2	43.8	48.3	0.300
	Mbelt	46.5	48.5	0.877	LO3	44.1	49.4	0.131
	Lbelt	46.5	48.2	0.854	V4t	49.6	48.9	0.940
	PSL	46.4	50.1	0.434	MT	49.8	46.8	0.621
	STV	46.1	52.4	0.256	MST	46.9	49.5	0.821
PC	PCV	45.3	51.2	0.053	FST	48.6	51.5	0.657
	7m	52.6	48.9	0.451	PH	45.6	48.4	0.509

**Table S4.** Classification accuracies and p-values of statistically significant brain regions (Incongruent vs. Baseline, 0-1 s). Regions showing significance were marked with \* ( $p < 0.05$ ) or \*\* ( $p < 0.01$ ).

Region				Region					
Incongruent		Baseline	p-value	Incongruent		Baseline	p-value		
Accuracy (%)		Accuracy (%)		Accuracy (%)		Accuracy (%)			
M1	area 4	68.8	47.7	<0.001 **	PFop	72.9	49.7	<0.001 **	
	area 1	70.6	48.3	<0.001 **		PFt	71.4	47.6	<0.001 **
	area 2	70.4	48.8	<0.001 **		PF	69.9	48.2	<0.001 **
	area 3a	70.8	51.5	<0.001 **		PFm	72.4	49.1	<0.001 **
	area 3b	69.4	48.9	<0.001 **		PGs	63.8	49.3	0.011 *
S2	area 43	70.4	53.7	0.002	IPL	PGi	53.3	49.4	0.253
	5L	58.6	48.7	0.008		PGp	59.0	49.0	0.025 *
PL	5m	59.7	48.8	0.015		TPOJ1	73.9	50.4	<0.001 **
	5mv	55.7	49.1	0.057		TPOJ2	69.0	49.4	<0.001 **
SMA	6ma	55.4	52.4	0.705		TPOJ3	68.1	51.8	0.004 **
	6mp	55.9	50.1	0.318	IP0	59.0	51.4	0.097	
	SFL	62.1	49.3	0.031 *	IP1	62.8	49.4	0.001 **	
	SCEF	56.4	50.1	0.018 *	IP2	65.8	49.9	<0.001 **	
PM	6a	58.9	48.6	<0.001 **	IPS	IPS1	57.1	50.3	0.120
	6d	58.0	46.5	0.038		AIP	63.3	48.8	<0.001 **
	FEF	59.0	53.4	0.058		LIPd	60.3	50.9	0.025 *
	55b	67.1	52.2	0.002 **		LIPv	60.1	48.5	0.001 **
	PEF	70.4	47.2	<0.001 **		MIP	58.5	52.3	0.207
	6v	70.6	48.2	<0.001 **	7PC	61.9	49.0	<0.001 **	
	6r	71.3	50.2	<0.001 **	7AL	55.0	50.7	0.173	
ACC	33pr	67.2	48.5	<0.001 **	SPL	7AM	58.5	46.0	0.013 *
	24dd	64.7	51.2	<0.001 **		7PL	54.6	49.6	0.169
	24dv	55.9	49.6	0.069		7PM	64.7	50.8	0.004 **
	p24pr	70.8	50.5	0.001 **		VIP	55.0	46.6	0.047 *
	a24pr	64.3	54.2	0.015 *	POS	POS1	56.2	51.2	0.062
	a24	57.4	50.1	0.005 **		POS2	67.5	51.6	0.003 **
	p24	57.4	50.1	0.005 **		DVT	52.6	49.7	0.553
PCC	p32pr	52.1	47.9	0.344	ProS	51.5	49.9	0.456	
	a32pr	56.7	49.5	0.074	V1	54.9	49.5	0.321	
	d32	54.3	49.2	0.038 *	V2	70.7	49.0	0.001 **	
	p32	55.0	52.2	0.507	V3	69.2	49.7	<0.001 **	
	s32	54.2	50.0	0.282	V4	61.3	54.0	0.087	
	area 25	58.3	52.2	0.329	V6	55.7	52.2	0.615	
	d23ab	70.6	49.7	<0.001 **	V8	53.5	49.8	0.343	
SMG	v23ab	71.7	50.6	0.001	PIT	53.3	49.2	0.129	
	23c	55.0	47.8	0.056	FFC	54.1	51.1	0.085	
	23d	68.5	50.9	0.002 **	VVC	51.3	49.8	0.675	
	RSC	72.5	51.4	<0.001 **	VMV1	52.8	49.9	0.127	
Occ	Ig	63.2	48.1	<0.001 **	VMV2	54.4	50.4	0.097	
	OP4	72.9	49.9	<0.001 **	VMV3	53.5	51.7	0.174	
	OP2-3	65.0	47.8	<0.001 **	V6A	59.8	49.5	0.020 *	
	OP1	68.8	47.6	<0.001 **	V3A	55.3	51.4	0.049 *	
	PFcm	67.5	51.3	0.051	V3B	58.6	45.7	0.003 **	
	RI	66.5	51.0	<0.001 **	V3CD	57.6	54.4	0.687	
	area 52	61.9	46.8	<0.001 **	LO1	65.3	50.6	0.004 **	
PC	A1	57.1	50.3	<0.001 **	LO2	62.2	48.2	0.002 **	
	Mbelt	67.5	51.1	0.005 **	LO3	58.3	49.4	0.015 *	
	Lbelt	67.4	51.4	<0.001 **	V4t	64.6	52.7	0.005 **	
	PSL	70.0	50.1	0.001 **	MT	67.8	49.2	<0.001 **	
	STV	69.7	52.6	<0.001 **	MST	62.1	52.3	0.021 *	
	PCV	58.6	50.6	0.115	FST	65.8	49.0	<0.001 **	
	7m	55.6	50.0	0.085	PH	69.9	47.8	<0.001 **	

**Table S5.** Classification accuracies and p-values of statistically significant brain regions (Incongruent vs. Baseline, 1-2 s). Regions showing significance were marked with \* ( $p < 0.05$ ) or \*\* ( $p < 0.01$ ).

Congruent					Incongruent				
Region		Incongruent Accuracy (%)	Baseline Accuracy (%)	p-value	Region		Incongruent Accuracy (%)	Baseline Accuracy (%)	p-value
M1	area 4	51.4	50.9	0.982	IPL	PFop	59.2	46.4	0.003 **
	area 1	52.4	49.8	0.055		PFt	55.1	49.2	0.265
	area 2	55.8	48.3	0.019 *		PF	52.4	51.3	0.958
	area 3a	54.9	51.3	0.642		PFm	55.1	49.3	0.118
	area 3b	52.1	49.4	0.685		PGs	51.4	51.3	0.999
S2	area 43	52.2	49.0	0.635		PGi	55.5	47.7	0.063
PL	5L	52.8	51.9	0.937		PGp	53.5	46.8	0.137
	5M	53.5	49.3	0.548		TPOJ1	55.3	50.0	0.085
	5mv	52.5	48.9	0.097		TPOJ2	55.7	52.3	0.638
SMA	6ma	48.1	49.2	0.803		TPOJ3	52.1	49.5	0.706
	6mp	49.4	49.2	0.998	IP0	51.8	51.3	0.946	
	SFL	51.8	52.4	0.978	IP1	56.1	44.8	0.010 **	
	SCEF	51.3	51.2	0.999	IP2	52.1	48.3	0.209	
PM	6a	51.8	50.8	0.919	IPS	IPS1	53.2	47.4	0.242
	6d	50.6	50.7	0.998		AIP	55.9	49.6	0.083
	FEF	51.4	52.8	0.857		LIPd	55.3	49.6	0.109
	55b	50.8	51.8	0.891		LIPv	53.3	49.9	0.598
	PEF	54.2	49.0	0.073		MIP	53.9	51.7	0.695
	6v	52.8	50.4	0.810	7PC	54.0	46.9	0.056	
	6r	52.9	49.5	0.416	7AL	54.4	49.9	0.384	
ACC	33pr	54.3	49.7	0.151	SPL	7AM	50.6	51.6	0.475
	24dd	55.3	51.0	0.176		7PL	55.1	50.1	0.472
	24dv	50.9	50.3	0.989		7PM	53.1	49.4	0.395
	p24pr	54.7	53.9	0.967		VIP	54.9	48.6	0.053
	a24pr	54.0	51.5	0.469	POS	POS1	50.6	49.5	0.344
	p24	54.7	48.9	0.088		POS2	51.4	51.7	0.988
	a24	51.7	48.8	0.488		DVT	48.9	52.8	0.343
	p32pr	54.3	48.1	0.143		ProS	51.1	51.5	0.895
	a32pr	53.6	49.9	0.387		V1	54.4	50.9	0.164
	d32	54.2	46.4	0.094	V2	54.6	49.6	0.348	
p32	53.2	50.3	0.663	V3	52.2	50.9	0.927		
s32	52.8	50.8	0.577	V4	53.1	50.6	0.789		
area 25	52.4	50.3	0.654	V6	52.8	53.5	0.926		
PCC	d23ab	52.2	49.1	0.431	V8	48.8	51.4	0.523	
	v23ab	51.6	51.3	0.995	PIT	51.2	52.3	0.534	
	23c	53.8	48.9	0.358	FFC	55.6	53.2	0.421	
	23d	54.3	49.9	0.534	VVC	52.3	51.1	0.759	
	RSC	54.6	53.1	0.794	VMV1	55.5	50.5	0.076	
SMG	Ig	50.9	50.6	0.995	Occ	VMV2	53.3	52.3	0.327
	OP4	53.1	52.1	0.971		VMV3	51.0	50.8	0.985
	OP2-3	52.6	48.3	0.290		V6A	57.1	47.7	0.034 *
	OP1	52.6	50.8	0.852		V3A	54.7	50.9	0.092
	PFcm	54.3	49.0	0.117		V3B	55.3	50.7	0.260
	RI	52.8	49.2	0.478		V3CD	51.8	49.9	0.783
	area 52	54.7	49.4	0.436		LO1	52.6	48.8	0.422
	A1	51.5	50.1	0.725		LO2	51.3	49.0	0.647
	Mbelt	54.3	49.6	0.274		LO3	54.4	49.8	0.357
	Lbelt	56.3	54.4	0.822		V4t	55.0	47.3	0.108
PSL	52.9	50.3	0.678	MT	52.1	48.6	0.457		
STV	51.3	51.2	0.999	MST	50.7	50.9	0.998		
PC	PCV	51.8	50.6	0.899	FST	53.9	54.1	0.998	
	7m	51.5	50.7	0.979	PH	53.3	49.9	0.555	

**Table S6.** Classification accuracies and p-values of statistically significant brain regions (Incongruent vs. Baseline, 2-3 s). Regions showing significance were marked with \* ( $p < 0.05$ ) or \*\* ( $p < 0.01$ ).

Region					Region				
Incongruent		Baseline	p-value	Incongruent		Baseline	p-value		
Accuracy (%)		Accuracy (%)		Accuracy (%)		Accuracy (%)			
M1	area 4	55.4	51.3	0.289	IPL	PFop	53.6	51.8	0.612
	area 1	54.6	51.1	0.315		PFt	56.3	49.9	0.031 *
	area 2	54.3	50.1	0.222		PF	53.5	49.3	0.394
	area 3a	56.1	54.9	0.865		PFm	55.8	52.4	0.378
	area 3b	54.4	52.2	0.761		PGs	53.8	47.9	0.056
S2	area 43	50.9	48.9	0.741		PGi	52.2	48.9	0.231
PL	5L	51.3	50.1	0.914		PGp	51.1	48.9	0.684
	5M	50.9	49.1	0.871		TPOJ1	53.9	47.8	0.089
	5mv	52.2	49.9	0.231		TPOJ2	56.0	48.3	0.033 *
SMA	6ma	53.2	52.8	0.992		TPOJ3	54.4	48.3	0.274
	6mp	55.3	50.4	0.359	IP0	51.9	52.6	0.974	
	SFL	53.2	50.1	0.637	IP1	51.3	49.6	0.787	
	SCEF	53.3	47.2	0.200	IP2	53.5	50.9	0.607	
PM	6a	50.8	50.5	0.989	IPS	IPS1	53.2	48.5	0.421
	6d	53.1	51.7	0.877		AIP	50.6	50.9	0.995
	FEF	49.0	46.9	0.811		LIPd	51.9	49.4	0.672
	55b	52.5	49.2	0.105		LIPv	56.3	48.9	0.079
	PEF	54.3	50.4	0.448		MIP	53.2	49.5	0.422
	6v	53.8	49.7	0.288		7PC	55.0	48.9	0.292
ACC	6r	56.1	50.7	0.137	7AL	51.8	49.2	0.648	
	33pr	55.3	46.7	0.095	7AM	51.1	48.3	0.361	
	24dd	56.3	51.6	0.491	7PL	52.5	48.1	0.385	
	24dv	56.4	47.2	0.029 *	7PM	51.4	51.7	0.996	
	p24pr	55.6	48.6	0.092	VIP	54.6	50.6	0.287	
	a24pr	52.8	50.7	0.521	POS1	52.2	48.8	0.443	
	p24	55.3	49.2	0.175	POS2	55.4	47.9	0.029 *	
	a24	51.4	47.3	0.175	DVT	55.6	52.2	0.463	
	p32pr	53.6	48.7	0.193	ProS	52.2	51.1	0.887	
	a32pr	56.1	49.6	0.164	V1	53.0	49.5	0.556	
PCC	d32	54.6	54.5	0.999	V2	56.5	51.0	0.045 *	
	p32	50.1	53.2	0.510	V3	53.3	45.7	0.022 *	
	s32	53.1	51.9	0.940	V4	54.7	48.9	0.311	
	area 25	54.7	50.6	0.209	V6	51.9	51.5	0.990	
	d23ab	51.9	50.5	0.455	V8	55.7	51.2	0.191	
	v23ab	51.5	51.3	0.995	PIT	54.4	51.3	0.441	
	23c	57.4	50.4	0.010 **	FFC	53.9	50.2	0.747	
	23d	54.2	48.7	0.089	VVC	55.5	51.1	0.383	
	RSC	51.8	52.6	0.965	VMV1	53.3	50.8	0.331	
	Ig	51.4	51.0	0.991	VMV2	54.4	52.2	0.443	
SMG	OP4	51.7	49.9	0.914	VMV3	55.1	51.1	0.290	
	OP2-3	50.3	49.2	0.935	V6A	55.9	50.8	0.201	
	OP1	53.2	50.1	0.503	V3A	54.4	52.9	0.823	
	PFcm	51.4	53.3	0.778	V3B	59.2	46.1	0.002 **	
	RI	53.8	50.2	0.376	V3CD	53.8	46.8	0.004 **	
	area 52	54.3	46.5	0.083	LO1	50.7	53.8	0.650	
	A1	51.5	51.8	0.992	LO2	53.6	48.3	0.286	
	Mbelt	52.5	48.5	0.379	LO3	53.6	49.4	0.401	
	Lbelt	47.5	48.2	0.984	V4t	53.6	48.9	0.116	
	PSL	50.6	50.1	0.985	MT	51.7	46.8	0.032 *	
PC	STV	50.7	52.4	0.814	MST	58.2	51.5	0.026 *	
	PCV	52.4	51.2	0.927	FST	58.2	51.5	0.026 *	
	7m	55.1	48.9	0.050 *	PH	52.9	48.4	0.284	

**Table S7.** Classification accuracies and p-values of statistically significant brain regions (Congruent vs. Incongruent, 0-1 s). Regions showing significance were marked with \* ( $p < 0.05$ ) or \*\* ( $p < 0.01$ ).

Region		Congruent Accuracy (%)	Incongruent Accuracy (%)	p-value	Region		Congruent Accuracy (%)	Incongruent Accuracy (%)	p-value
M1	area 4	67.8	68.8	0.858	IPL	PFop	69.2	72.9	0.183
	area 1	68.6	70.6	0.759		PFt	69.3	71.4	0.529
S1	area 2	68.8	70.4	0.558		PF	69.7	69.9	0.998
	area 3a	71.9	70.8	0.692		PFm	69.4	72.4	0.417
	area 3b	68.9	69.4	0.944		PGs	63.2	63.8	0.960
S2	area 43	65.3	70.4	0.076		PGi	55.5	53.3	0.953
PL	5L	51.5	48.7	0.042 *		PGp	59.2	59.0	0.998
	5M	61.8	59.7	0.821		TPOJ1	72.1	73.9	0.614
	5mv	55.3	55.7	0.921		TPOJ2	65.3	69.0	0.150
SMA	6ma	53.1	55.4	0.613		<b>TPOJ3</b>	<b>61.1</b>	<b>68.1</b>	<b>0.015 *</b>
	<b>6mp</b>	<b>49.0</b>	<b>56.0</b>	<b>0.022 *</b>	IPS	IP0	58.1	59.0	0.882
	SFL	55.8	62.1	0.024 *		IP1	55.4	62.8	0.049 *
	SCEF	50.1	56.4	0.025 *		IP2	63.9	65.8	0.729
PM	<b>6a</b>	<b>52.8</b>	<b>58.9</b>	<b>0.023 *</b>		IPS1	55.1	57.1	0.723
	6d	54.3	57.9	0.448		AIP	60.6	63.3	0.549
	FEF	58.2	59.0	0.951		LIPd	55.4	60.3	0.049 *
	55b	60.8	67.1	0.024 *		LIPv	56.9	60.1	0.275
	PEF	67.4	70.4	0.358		MIP	55.0	58.5	0.386
	6v	67.1	70.6	0.185	SPL	7PC	61.1	61.9	0.900
	6r	68.6	71.3	0.239		7AL	52.8	55.0	0.670
ACC	33pr	67.2	67.2	1.000		7AM	59.4	50.8	0.025 *
	24dd	60.6	64.7	0.169		7PL	49.0	54.6	0.145
	24dv	48.1	60.0	0.033 *		7PM	59.4	64.7	0.025 *
	p24pr	70.7	70.8	0.991		VIP	50.1	55.0	0.234
	<b>a24pr</b>	<b>57.9</b>	<b>64.3</b>	<b>0.023 *</b>	POS	POS1	55.5	56.2	0.756
	p24	53.8	57.4	0.555		POS2	65.0	67.5	0.500
	a24	50.8	53.1	0.734		DVT	52.9	52.6	0.995
	<b>p32pr</b>	<b>46.7</b>	<b>56.7</b>	<b>0.019 *</b>		ProS	52.5	51.5	0.659
	<b>a32pr</b>	<b>46.7</b>	<b>56.7</b>	<b>0.019 *</b>	Occ	V1	55.5	54.9	0.873
	d32	50.1	54.3	0.118		V2	67.8	70.7	0.437
	p32	54.2	55.0	0.945		V3	72.2	69.2	0.505
	s32	52.2	54.2	0.611		V4	59.4	61.3	0.047 *
	area 25	52.1	58.3	0.230		V6	50.1	56.0	0.050 *
PCC	d23ab	70.3	70.3	1.000		V8	50.6	53.5	0.504
	v23ab	66.0	71.7	0.021 *		PIT	52.3	53.3	0.654
	23c	52.5	55.0	0.559		FFC	54.4	54.1	0.984
	23d	66.4	68.5	0.512		VVC	50.5	51.3	0.874
	RSC	69.9	72.5	0.559		VMV1	53.3	52.8	0.869
SMG	Ig	57.8	63.2	0.124		VMV2	52.2	54.4	0.342
	OP4	70.4	72.9	0.381		VMV3	52.7	53.5	0.789
	OP2-3	63.9	65.0	0.908		V6A	55.7	59.9	0.206
	OP1	66.5	68.8	0.424		V3A	51.8	55.3	0.301
	PFcm	68.6	67.5	0.863		V3B	56.1	58.6	0.530
	RI	67.6	66.5	0.870		V3CD	55.3	57.6	0.611
	area 52	59.4	61.9	0.536		LO1	61.3	65.3	0.171
	A1	65.3	67.1	0.822		LO2	61.4	62.2	0.910
	Mbelt	65.8	67.5	0.785		LO3	54.4	58.3	0.275
	Lbelt	6.9	67.4	0.470		V4t	61.7	64.6	0.450
	PSL	71.4	70.0	0.857		MT	67.1	67.8	0.970
	STV	69.3	69.7	0.986		MST	65.0	62.1	0.510
PC	PCV	51.8	58.6	0.190		FST	65.8	65.8	1.000
	7m	63.3	64.1	0.846		PH	67.5	69.9	0.528

**Table S8.** Classification accuracies and p-values of statistically significant brain regions (Congruent vs. Incongruent, 1-2 s). Regions showing significance were marked with \* ( $p < 0.05$ ) or \*\* ( $p < 0.01$ ).

Region		Congruent Accuracy (%)	Incongruent Accuracy (%)	p-value	Region	Congruent Accuracy (%)	Incongruent Accuracy (%)	p-value
M1	area 4	46.9	51.4	0.354	PFop	49.0	59.2	0.027 *
S1	area 1	45.4	52.4	0.056	PFt	47.1	55.1	0.005 **
	area 2	46.9	55.8	0.006 **	PF	46.1	52.4	0.223
	area 3a	44.7	54.9	0.005 **	PFm	47.1	55.1	0.028 *
	area 3b	45.8	52.1	0.041 *	PGs	45.9	51.4	0.090
S2	area 43	45.7	52.2	0.490	PGi	54.3	55.5	0.755
PL	5L	49.3	52.8	0.404	PGp	47.2	53.5	0.051
	5M	48.8	53.5	0.210	TPOJ1	49.6	55.3	0.143
	5mv	50.5	52.5	0.440	TPOJ2	43.5	55.7	0.010 **
SMA	6ma	45.0	48.1	0.156	TPOJ3	46.4	52.1	0.196
	6mp	47.6	49.4	0.811	IP0	48.8	51.8	0.624
	SFL	46.4	51.8	0.207	IP1	49.7	56.1	0.006 **
	SCEF	47.6	51.3	0.495	IP2	47.9	52.1	0.261
PM	6a	47.4	51.8	0.222	IPS1	48.8	53.2	0.433
	6d	49.9	50.6	0.966	AIP	50.0	56.0	0.077
	FEF	47.5	51.4	0.528	LIPd	47.1	55.3	0.074
	55b	46.5	50.8	0.441	LIPv	52.4	53.3	0.946
	PEF	46.0	54.2	0.002 **	MIP	50.4	53.9	0.535
	6v	49.6	52.8	0.419	7PC	52.4	54.0	0.713
ACC	6r	45.1	52.9	0.037 *	7AL	52.2	54.4	0.633
	33pr	42.5	54.3	0.001 **	7AM	47.5	50.6	0.455
	24dd	45.6	55.3	0.001 **	7PL	50.9	55.1	0.250
	24dv	45.0	50.9	0.076	7PM	44.8	53.1	0.070
	p24pr	50.7	54.7	0.358	VIP	51.3	54.9	0.200
	a24pr	44.2	54.0	0.005 **	POS1	53.3	50.6	0.221
	p24	48.9	54.7	0.061	POS2	47.1	51.4	0.270
	a24	46.4	51.7	0.019 *	DVT	47.1	48.9	0.572
	p32pr	48.2	54.3	0.075	ProS	49.4	51.1	0.555
	a32pr	43.2	53.6	<0.001 **	V1	50.9	54.4	0.419
	d32	46.9	54.2	0.076	V2	48.5	54.7	0.047 *
	p32	45.7	53.2	0.034 *	V3	48.2	52.2	0.416
PCC	s32	46.0	52.3	0.030 *	V4	47.5	53.1	0.167
	area 25	45.9	52.4	0.173	V6	50.4	52.8	0.424
	d23ab	49.9	52.2	0.547	V8	47.4	48.8	0.817
	v23ab	47.4	51.5	0.190	PIT	55.1	51.2	0.192
	23c	47.6	53.8	0.087	FFC	58.4	55.6	0.228
SMG	23d	48.8	54.3	0.031 *	VVC	49.9	52.3	0.381
	RSC	47.5	54.6	0.082	VMV1	50.3	55.5	0.095
	Ig	42.6	51.0	0.038 *	VMV2	51.4	53.3	0.330
	OP4	46.0	53.1	0.083	VMV3	50.0	51.0	0.548
PC	OP2-3	46.1	52.6	0.045 *	V6A	50.1	57.1	0.014 *
	OP1	49.2	52.6	0.322	V3A	48.8	54.7	0.073
	PFcm	46.5	54.3	0.033 *	V3B	47.5	55.3	0.014 *
	RI	45.0	52.3	0.009 **	V3CD	48.8	51.8	0.610
	area 52	44.4	54.7	0.060	LO1	47.4	52.6	0.021 *
	A1	48.5	51.5	0.332	LO2	47.4	51.3	0.572
	Mbelt	49.0	54.3	0.272	LO3	51.3	54.4	0.505
	Lbelt	45.7	56.3	0.003 **	V4t	48.5	52.6	0.019 *
	PSL	49.0	52.9	0.231	MT	46.1	52.1	0.226
	STV	43.3	51.3	0.003 **	MST	47.3	50.7	0.417
PC	PCV	44.7	51.8	0.036 *	FST	47.2	53.9	0.115
	7m	48.8	51.5	0.616	PH	47.3	53.3	0.033 *



**Table S9.** Classification accuracies and p-values of statistically significant brain regions (Congruent vs. Incongruent, 2-3 s). Regions showing significance were marked with \* ( $p < 0.05$ ) or \*\* ( $p < 0.01$ ).

Region		Congruent Accuracy (%)	Incongruent Accuracy (%)	p-value	Region	Congruent Accuracy (%)	Incongruent Accuracy (%)	p-value
M1	area 4	48.2	55.4	0.096	PFop	50.3	53.6	0.438
S1	area 1	45.4	54.6	0.033 *	PFt	47.5	56.3	0.088
	area 2	49.6	54.3	0.357	PF	48.5	53.5	0.111
	area 3a	48.6	56.1	0.115	PFm	48.9	55.8	0.131
	area 3b	47.6	54.4	0.125	PGs	46.8	53.7	0.041 *
S2	area 43	49.7	50.9	0.899	PGi	48.8	52.2	0.090
PL	5L	45.7	51.3	0.134	PGp	46.3	51.1	0.313
	5M	48.1	50.9	0.630	TPOJ1	48.3	53.9	0.016 *
	5mv	51.1	52.2	0.550	TPOJ2	49.0	55.9	0.220
SMA	6ma	51.5	53.2	0.741	TPOJ3	49.6	54.4	0.213
	6mp	49.3	55.3	0.193	IP0	48.3	51.9	0.480
	SFL	47.4	53.2	0.009 **	IP1	48.1	51.3	0.359
	SCEF	50.8	53.3	0.635	IP2	45.9	53.5	0.061
PM	6a	46.3	50.8	0.224	IPS1	45.3	53.2	0.127
	6d	46.5	53.1	0.056	AIP	45.9	50.6	0.149
	FEF	45.3	49.0	0.516	LIPd	50.4	51.9	0.781
	55b	45.7	52.5	0.120	LIPv	50.1	56.3	0.235
	PEF	46.9	54.3	0.150	MIP	46.7	53.2	0.022 *
	6v	47.5	53.8	0.047 *	7PC	46.1	55.0	0.007 **
	6r	47.1	56.1	0.011 *	7AL	46.3	51.8	0.134
ACC	33pr	45.1	55.3	0.016 *	7AM	47.8	51.1	0.267
	24dd	48.5	56.3	0.011 *	7PL	47.1	52.5	0.068
	24dv	48.3	54.4	0.095	7PM	52.1	51.4	0.960
	p24pr	47.5	55.6	0.044 *	VIP	53.1	54.6	0.538
	a24pr	51.9	52.8	0.913	POS1	49.9	52.2	0.310
	p24	51.4	55.3	0.457	POS2	47.4	55.4	0.011 *
	a24	48.5	51.4	0.393	DVT	52.4	55.6	0.365
	p32pr	51.4	53.6	0.522	ProS	51.5	52.2	0.665
	a32pr	49.2	56.1	0.052	V1	50.5	53.0	0.490
	d32	47.1	54.6	0.045 *	V2	51.1	56.5	0.125
PCC	p32	50.0	50.1	0.996	V3	48.5	53.3	0.172
	s32	49.6	53.1	0.460	V4	51.3	54.7	0.617
	area 25	48.1	54.7	0.002 **	V6	48.1	51.9	0.451
	d23ab	49.9	51.9	0.455	V8	51.9	55.7	0.362
	v23ab	49.2	54.7	0.019 *	PIT	52.1	54.4	0.410
	23c	50.9	57.4	0.042	FFC	50.5	53.9	0.331
	23d	47.2	54.2	0.011 *	VVC	53.3	55.5	0.339
	RSC	49.6	51.8	0.568	VMV1	51.1	53.3	0.292
	Ig	46.3	51.4	0.240	VMV2	51.4	54.4	0.183
	OP4	47.4	51.7	0.305	VMV3	50.5	55.1	0.078
SMG	OP2-3	46.9	50.3	0.316	V6A	47.4	56.0	0.004 *
	OP1	47.1	53.2	0.116	V3A	49.4	54.4	0.167
	PFcm	45.8	51.4	0.416	V3B	50.3	59.2	0.017
	RI	47.8	53.8	0.081	V3CD	50.0	53.8	0.432
	area 52	51.9	46.5	0.231	LO1	44.0	50.7	0.104
	A1	46.1	51.5	0.227	LO2	43.8	53.6	<0.001 **
	Mbelt	46.5	52.5	0.109	LO3	44.2	53.6	0.009 **
	Lbelt	46.5	47.5	0.930	V4t	49.6	53.6	0.143
	PSL	46.4	50.6	0.293	MT	49.9	51.7	0.850
	STV	46.1	50.7	0.263	MST	46.9	50.8	0.533
PC	PCV	45.3	52.4	0.038 *	FST	48.6	48.2	0.002 **
	7m	52.6	55.1	0.667	PH	45.6	52.9	0.133