

Supplemental data

Behavioral data

Interaction item x context for reaction time

The interaction effect [$F(4,168) = 7.32$; $p < .001$; $\eta_p^2 = .15$] was firstly characterized by larger interference effects (comparison of incongruent and neutral items) in the MN context by comparison to MI [$F(1,42) = 8.51$; $p < .01$] and MC [$F(1,42) = 13.87$; $p = .001$] contexts. Second, the comparison of incongruent and congruent items was characterized by significantly larger differences in MN than MI context [$F(1,42) = 18.63$; $p < .0001$] and in MC than in MN context [$F(1,42) = 6.28$; $p = .02$]. Finally, the same pattern of results was observed for the comparison of congruent and neutral items [(MI-MN : $F(1,42) = 6.73$; $p < .05$) ; (MC-MN : $F(1,42) = 5.37$; $p < .05$)].

Main effects and interaction context x item for item accuracy

We observed a significant effect of item [$F(2,84) = 69.09$; $p < .0001$; $\eta_p^2 = .62$] and context [$F(2,84) = 7.45$; $p < .005$; $\eta_p^2 = .15$]. Planned comparisons showed that the item effect was characterized by less accurate responses for incongruent than for congruent [$F(1,42) = 65.80$; $p < .0001$] or neutral [$F(1,42) = 98.29$; $p < .0001$] items. The context effect was characterized by a better accuracy in MI context by comparison to MC [$F(1,42) = 8.46$; $p < .01$] and MN [$F(1,42) = 24.07$; $p < .0001$] contexts, but also by a better accuracy in MC than MN context [$F(1,42) = 6.21$; $p < .05$]. An interaction effect between context and item has been also observed [$F(4,168) = 3.18$; $p = .02$; $\eta_p^2 = .07$]. This interaction was firstly characterized by a larger difference between congruent and neutral items in MC context than in MI [$F(1,42) = 17.37$; $p < .001$] or MN [$F(1,42) = 6.26$; $p = .02$] contexts. A larger difference was also observed between incongruent and congruent items in MN by comparison to MI context [$F(1,42) = 4.26$; $p = .046$].

Table S1: General interference effect in the whole sample of participants. Local maxima of brain area showing more activity in the incongruent than neutral items in the MI, MC and MN contexts.

Hemisphere	Anatomical region	MNI coordinates			Cluster size	Z score	P value
		x	y	z			
R	Anterior Cingulate	8	20	36	1311	5.70	< .001
R	Medial frontal	2	12	50	1311	6.28	< .001
	Superior frontal	18	4	64	1311	5.24	<.001
L and R	Middle frontal	-44	24	24	4751	6.42	< .001
		-44	6	28	4751	Inf	< .001
		40	36	26	76	4.80	<.01
R	Insula	32	22	6	938	6.73	< .001
L and R	Inferiorparietal (BA 40)	-44	-42	46	5404	7.46	< .001
		-38	-46	50	5404	7.10	< .001
		64	-40	24	16	4.72	<.05
L	Precuneus (BA 31)	-24	-72	30	5404	6.94	< .001
R	Cuneus	10	-70	-30	1215	7.11	< .001
L	Inferior occipital	-38	-82	-6	1718	6.66	< .001
		46	10	12	938	6.00	<.005
		48	-42	16	21	4.67	<.05
L and R	Thalamus	-14	-24	10	298	5.59	< .001
		12	-6	4	341	4.63	<.05
		20	-26	10	341	5.55	< .001
		6	-30	-4	18	4.55	<.05
L and R	Lentiform nucleus	-18	-2	12	22	4.69	<.05
		20	4	12	341	4.96	<005
		-40	-56	-24	1718	6.25	< .001
		-38	-60	-14	1718	6.20	< .001
		30	-60	-30	1215	7.14	< .001
L	Cerebellum (claustrum)	-32	20	4	4751	Inf	< .001

L/R = left or right; x, y, z: coordinates (mm) in the stereotactic space defined by the Montreal Neurological Institute (MNI). The analysis was conducted with a *p* value < .05 FWE corrected.

Table S2: Interference effect in proactive and reactive controlconditions in the whole sample of participants. (1) Local maxima of brain regions showing more transient brain activity for the interference effect (interferent vs. neutral items) during MI blocks and MC blocks in the whole sample at a p value < .05 FWE corrected. (2) Local maxima of brain regions showing more activation for interferent, facilitator and neutral items in the mostly incongruent condition than in the mostly congruent condition at a voxel p value < .001 uncorrected.

Hemisphere	Anatomical region	MNI coordinates			Cluster size	Z score	P value				
		x	y	z							
(1) Transient activity											
MI (proactive control)											
R	Cerebellum (declive)	10	-70	-30	23	4.85	.007				
MC(reactive control)											
L	Middle frontal	-32	-2	56	17	4.56	.024				
L	Inferior frontal	-52	10	32	37	4.61	.020				
L	Precentral gyrus	-54	10	4	13	4.52	.029				
L	Inferior parietal	-48	-38	48	317	5.29	<.001				
L and R	Insula	-34	18	4	450	5.57	<.001				
		42	20	2	61	4.47	.035				
		36	22	8	61	4.67	.015				
		-36	-46	52	317	4.85	<.001				
R	Cerebellum (declive)	30	-60	-28	27	4.89	.005				
R	Cerebellum (claustrum)	26	22	6	61	4.49	.032				
(2) Sustained activity											
MI (proactive control)											
NOTHING											

L/R = left or right; x, y, z: coordinates (mm) in the stereotactic space defined by the Montreal Neurological Institute (MNI).