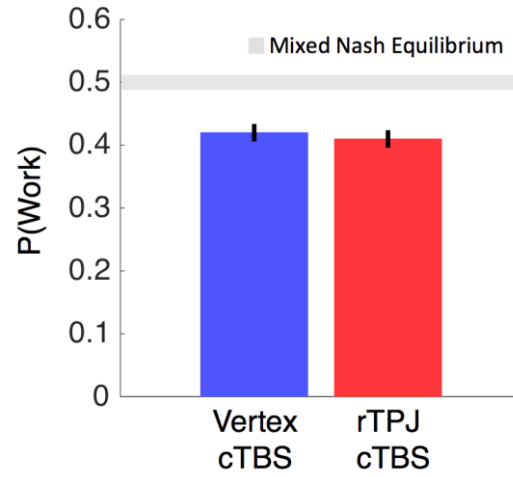Supplementary Figure 1

Hierarchical Bayesian influence model

Graphical representation of the Hierarchical Bayesian influence model fitted to the data for each subject. Clear shapes indicate latent variables and filled shapes observed variables (in this case, the choice of the subject/employee Ch_{yee} and the choice of the opponent/employer Ch_{yer}). The index t denotes trial and s denotes subject. The same procedure was applied for fictitious play and Reinforcement learning where $p_{(s,t)}$ depends only on Ch_{yer} and follows equation [8] and [3] respectively.

Supplementary Figure 2

Deviation from random responding

The population-level parameter P(Work) deviates from the Mixed-Nash Equilibrium of 0.5 for vertex-cTBS ($p_{mcmc} \cong 0$) and rTPJ-cTBS ($p_{mcmc} \cong 0$). Standard deviations are shown in black.

Measurement	Vertex-cTBS Mean (s.e.m)	rTPJ-cTBS Mean (s.e.m)	Two sample t-test Bonferroni α = 0.006
Age	24.8(0.33)	23.7(0.36)	$t(56) = -1.92$, $p = 0.06$
Working memory (2-Back)	12.53(1.51)	13.40(1.35)	$t(56) = 0.42$, $p = 0.67$
Working memory (3-Back)	9.46(1.1)	7.93(1.40)	$t(56) = -0.84$, $p = 0.40$
Depth of strategic thinking (Beauty contest)	1.82(0.25)	2.03(0.28)	$t(53) = 0.56$, $p = 0.58$
Social value orientation (SVO angle)	25.13(2.21)	28.8(2.44)	$t(54) = 1.13$ $p = 0.26$
Reaction time (Task-related decision RT)	0.55(0.02)	0.54(0.019)	$t(56) = -0.4$, $p = 0.68$
Peripheral symptoms "How uncomfortable was TMS"	2.67(1.94)	3.74(0.47)	$t(53) = 1.7$ $p = 0.08$
Beliefs about TMS "Improved my ability"	3.11(1.87)	3.44(0.39)	$t(53) = 0.63$ $p = 0.53$
Beliefs about TMS "Decreased my ability"	2.42(1.83)	2.96(0.56)	$t(53) = 1.02$ $p = 0.31$

Supplemental table S1: Participant matching

Participants in both experimental groups were matched in terms of gender (15 male, 15 females per condition). Additionally, we assessed working memory capacity for each group using the 2-back task and 3-back task[1], Depth of strategic thinking with the incentivized beauty contest[2], Social preferences using the social value orientation scale [3] peripheral symptoms reported by the subjects with regards to the cTBS stimulation and beliefs with regards to the effects of stimulation.

Condition	Region	Hemi	x	y	z	*t*-statistic	voxels
Vertex-cTBS	pSTS/TPJ	R	45	-46	28	6.16	1326
	dlPFC	R	51	23	37	5.84	606
	dlPFC	L	-39	23	49	5.50	431
	pSTS/TPJ	L	-33	-46	46	5.20	721
rTPJ-cTBS	Post.Occi/STS/TPJ	R	-33	-88	-2	5.45	1013
Combined	Post.Occi/STS/TPJ	R	33	-88	-2	7.68	1894
	Precuneus	-	6	-58	49	6.56	442
	dlPFC	L	-36	26	49	5.26	738
	Post.Occi	L	-24	-68	-8	5.37	506
	STS/TPJ	L	-48	-70	10	5.12	1094
	dlPFC	R	48	17	46	4.96	1171

Supplemental table S2: *Whole brain analysis: Areas exhibiting significant changes in BOLD associated with the influence update. All p < 0.05 FWE cluster-corrected for cluster forming threshold t = 2.66 using non-parametric permutation tests (5000 permutations and no t-value smoothing) as implemented in the open-source software package SnPM.*

Region	Hemi	x	y	z	*t*-statistic	voxels
dmPFC	-	-9	-41	-40	3.94	332

Supplemental table S3: *Whole brain analysis: Psychophysiological interactions at the time of feedback with TPJ time series (vertex-cTBS minus rTPJ-cTBS). All p < 0.05 FWE cluster-corrected for cluster forming threshold t = 2.66 using non-parametric permutation tests (5000 permutations and no t-value smoothing) as implemented in the open-source software package SnPM.*

REFERENCES

1. Owen, A. M., McMillan, K. M., Laird, A. R. & Bullmore, E. N-back working memory paradigm: A meta-analysis of normative functional neuroimaging studies. in *Human Brain Mapping* **25,** 46–59 (2005).
2. Bosch-Domènech, A., Montalvo, J. G., Nagel, R. & Satorra, A. One, two, (three), infinity, ... : Newspaper and lab beauty-contest experiments. *American Economic Review.* **92,** 1687–1701 (2002).
3. Murphy, R. O., Ackermann, K. a. & Handgraaf, M. J. J. Measuring Social Value Orientation. *Journal of Judgment and Decision Making.* **6,** 771–781 (2011).