

Cohort	Sample size	Age	Gender (F)	Years of Education	Estimated WAIS <sup>1</sup>	Etiology	Hemisphere
DLPFC	6	57 (8.37)	4	16.17 (2.86)	99 (8.50)	Stroke (6)	Left (5) Right (1)
OFC <sup>2</sup>	7	46.71 (16.86)	3	15.14 (2.85)	109.83 (9.26)	Traumatic brain injury <sup>3</sup> (6) Tumor resection (1)	Bilateral (6) Left (1)
DLPFC age-matched comparison	11	54.40 (9.94)	5	15.77 (1.05)	107.8 (15.98)	-	-
OFC age-matched comparison	16	44.13 (15.65)	7	15.81 (1.07)	105.5 (13.26)	-	-

Parentheses contain standard deviations. WAIS: Wechsler Adult Intelligence Scale.

<sup>1</sup> WAIS scores were estimated from Shipley Institute of Living Scale.

<sup>2</sup> WAIS in OFC lesion cohort is taken as average over 6 patients, as one did not complete the IQ test.

**Supplementary Table 1:** Demographic information of age-matched healthy comparison cohorts for DLPFC and OFC, respectively, on mean and standard deviation.

Option A		Option B	
Own	Other	Own	Other
15	5	5	15
6	5	5	15
6	5	5	6
5	20	20	5
5	10	6	5
10	12	12	10
10	5	5	20
5	10	10	5
6	5	10	4.99
10	4.99	4	5
10	6	10	5
8	10	10	12

**Supplementary Table 2:** Full table of trial options.

<b>Cohorts</b>	<b>Choice<sup>1</sup></b>	<b>Message<sup>1</sup></b>	<b>Choice – Message<sup>2</sup></b>
L DLPFC (N=5) vs. healthy comparison	$p > .10$ Kruskal-Wallis test	$p < .005$ Kruskal-Wallis test	$p < .005$ Wilcoxon rank sum test
L DLPFC (N=5) vs. OFC	$p > .10$ Kruskal-Wallis test	$p < .005$ Kruskal-Wallis test	$p < .005$ Wilcoxon rank sum test
L DLPFC (N=5) vs. R DLPFC (N=1)	$p > 0.10$ Wilcoxon rank sum test	$p > 0.10$ Wilcoxon rank sum test	$p > 0.10$ Wilcoxon rank sum test

<sup>1</sup>Null hypothesis: Amount given is the same across cohorts in Choice and Message conditions.

<sup>2</sup>Null hypothesis: Paired difference between Choice and Message conditions is the same across cohorts. All tests are two tailed.

**Supplementary Table 3:** DLPFC laterality effects. Previous rTMS studies have suggested that hemispheric differences in DLPFC contributions to behavior, and specifically that the right DLPFC might be particularly important for social decisions. Accordingly, we assessed both the robustness of our findings in left DLPFC patients, as well as possible hemispheric differences. We found that our results were robust to exclusion of the patient with right DLPFC damage (row 1). Additionally we did not observe a significant association between DLPFC laterality and amount given under either the Choice condition, the Message condition, or the difference between Message and Choice conditions (row 2). However, we note that given our lesion cohort composition, we lack adequate power to detect hemispheric differences. Future studies using larger cohorts will be needed to address this important issue.

Cohort	Choice Condition	Message Condition	Honesty Effect
DLPFC	.82 (.05)	.75 (.09)	-.07 (.08)
OFC	.79 (.07)	.43 (.06)	-.36 (.10)
Healthy Comparison	.73 (.05)	.29 (.04)	-.44 (.06)

**Supplementary Table 4:** Effect of messages on weight placed on own payoff. In the Choice condition, all participants placed similar weight on own payoff, placing greater weight on one's own payoff than that of the receiver. In the Message condition, OFC patients and healthy participants placed significantly greater weight on the receiver's payoff, whereas DLPFC patients did not exhibit a significant shift. All cohorts exhibited similar elasticity of substitution, captured by  $\sigma = \frac{1}{\rho-1}$  (DLPFC:  $-.48 \pm .22$ , OFC:  $-.38 \pm .13$ , and healthy comparison:  $-.40 \pm .07$ ), and were not significantly different (chi-square test,  $p > .52$ , two-sided). Honesty effect is calculated as the paired difference between the weights in the Message and Choice conditions. Parentheses contain bootstrap standard errors.