Supplementary Material for "Belief Formation in a Signaling Game without Common Prior: An Experiment"

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A   Instructions for treatments with an unknown value of p

Please read these instructions carefully. Please do not talk to other people taking part in the experiment and remain quiet throughout. If you have a question, please raise your hand. We will come to you to answer it.

In this experiment you can earn an amount of money, depending on which decisions you and other participants make. The experiment consists of 36 rounds, in each of which you can earn Points. Your payout at the end of the experiment is equal to the sum of Points you earn in all rounds, converted to pounds. For every 10 Points you will be paid 5p.

Description of the experiment

Participants are assigned the role of either "A-participant" or of "B-participant". In each round of the experiment, all participants are matched randomly in pairs, one from each role. A random draw determines the type of the A-participant, which can be either "Type 1" or "Type 2". The random draw is such that with an $X\%$ chance the A-participant is of Type 1, and with a $(100 - X)\%$ chance of Type 2. There is a new random draw each round, and the value of X is constant over all rounds of the experiment. After the random draw, the A-participant is informed about his/her type and decides between options "C" and "D". After that, the B-participant is informed about which option was chosen by the A-participant, but not about the type of the A-participant, and chooses between options "E" and "F". The payoffs of the two participants are determined according to the tables overleaf on page 2.

In some rounds of the experiment, the B-participant is asked to predict the type of the matched A-participant, both before and after the A-participant has chosen an option, and the A-participant is asked to predict the option that will be chosen by the matched B-participant. You are asked "What is the chance that the participant is of Type 1 / chooses option E" and "What is the chance that the participant is of Type 2 / chooses option F". You answer with two numbers Y and Z between 0% and 100%, and the sum of the two numbers should be 100. The points you earn depend on your prediction and on the actual type or option chosen by the participant according to the formulas overleaf on page 3.

[In the treatments with known value of p, X was explicitly given, e.g. 75. In the last paragraph, the word "before" was deleted, i.e. the B-participant was asked only after the A-participant has chosen an option.]

Payoffs

Payoffs from the choice of options

The payoffs of both participants depend on the A-participant's type, the option chosen by the A-participant and the option chosen by the B-participant.

The A-participant's payoffs

The payoffs of the A-participant (in blue) in each round are given in the following two tables (along with the B-participant's payoffs in red). For the A-participant of Type 1, payoffs are given by the table on the left, and for the A-participant of Type 2, by the table on the right.

Payoff table for Type 1 of the A-participant:

		Decision of the B-participant	
		E	**F**
Decision of the	**C**	**15**, 10	**80**, 80
A-participant	**D**	**25**, 10	**50**, 50

Payoff table for Type 2 of the A-participant:

		Decision of the B-participant	
		E	**F**
Decision of the	**C**	**80**, 80	**15**, 30
A-participant	**D**	**50**, 50	**25**, 30

The B-participant's payoffs

The payoffs of the B-participant (in red) in each round are given in the following two tables (along with the A-participant's payoff in blue). If the A-participant chose option "C", the payoffs are given by the table on the left, and if the A-participant chose option "D", by the table on the right.

Payoff table for the B-participant if A-participant chose option "C":

		Decision of the B-participant	
		E	**F**
Type of the	**1**	15, **10**	80, **80**
A-participant	**2**	80, **80**	15, **30**

Payoff table for the B-participant if A-participant chose option "D":

		Decision of the B-participant	
		E	**F**
Type of the	**1**	25, **10**	50, **50**
A-participant	**2**	50, **50**	25, **30**

Payoffs from predictions

The payoffs of both participants depend on the prediction and on the actual type of, or option actually chosen by, the matched participant.

The A-participant's payoffs

If an A-participant predicts that the chance that the B-participant chooses option "E" is $E\%$ and the chance that the B-participant chooses option "F" is $F\% = (100 - E)\%$, the points earned are

$$50 \cdot (1 - (1 - E/100)^2) \quad \text{if the B-participant actually chooses "E"}$$
$$50 \cdot (1 - (1 - F/100)^2) \quad \text{if the B-participant actually chooses "F"}$$

rounded to the nearest integer.

The B-participant's payoffs

If a B-participant predicts that the chance that the A-participant is of Type 1 is $Y\%$ and the chance that the A-participant is of Type 2 is $Z\% = (100 - Y)\%$, the points earned are

$$50 \cdot (1 - (1 - Y/100)^2) \quad \text{if the A-participant actually is of Type 1}$$
$$50 \cdot (1 - (1 - Z/100)^2) \quad \text{if the A-participant actually is of Type 2}$$

rounded to the nearest integer.

Note that you get the maximum 50 points when you predict, for example, that the chance of Type 1 is 100% and Type 1 actually happens, or that the chance of Type 1 is 0% and Type 2 actually happens. You get 0 points if you prediction is completely wrong. You get an intermediate number of points if you predict that the chance of each type or of each action is between 0% and 100%. The formulas are designed in such a way that you maximize your expected payoff from your prediction if you state your true belief about the chance of the type of the A-participant, or of the action about to be chosen by the B-participant.

Summary

To give you an overall picture of the rules, the timing of events in each round can be summarized as follows:

1. The computer randomly matches participants in pairs.

2. The computer randomly determines the A-participant's type. With an $X\%$ chance the A-participant is of Type 1 and with a $(100 - X)\%$ chance of Type 2. The value of X is constant over all rounds of the experiment.

3. The A-participant is informed about his/her type. Then the A-participant chooses between options "C" and "D".

4. The B-participant is informed about the choice of the A-participant, but not about his/her type. Then the B-participant chooses between options "E" and "F".

5. Payoffs result as described in the tables above.

6. In some rounds, the participants are asked to predict the type of, or the option that will be chosen by, the matched participant. Payoffs for these predictions are added to the payoffs above.

Number of rounds, role assignment and matching

The experiment consists of 36 rounds.

The role of either the A-participant or the B-participant will be randomly assigned to each participant in the room at the beginning of the experiment. You will then keep the same role during the entire experiment.

In each round the computer will randomly match one A-participant and one B-participant from a group of eight subjects. The matching is completely random, meaning that there is no relation between the participant you have been matched with last round (or any other previous round) and the participant with whom you are matched in the current round.

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B Additional Tests and Data

B.1 Tests for initial beliefs

The results of the tests for the initial (Period 1) prior beliefs of Receivers about Senders' types in N treatments are

Period 1 prior beliefs about Senders' types and comparison tests		
	t-test	Signed-rank test
$\Pr(t_1) = 0.5$	0.54 vs 0.50 (0.059)*	0.54 vs 0.50 (0.063)*

Note: p-values in parentheses. 56 observations. For both tests, H_0 is stated in the first column. * - $p < 0.1$.

The rank-sum test results for Period 1 posterior beliefs of Receivers are

Period 1 posterior beliefs about Senders' types and comparison tests			
	$N1$ vs $N2$	$N1$ vs $N3$	$N2$ vs $N3$
$\Pr_{Nx}(t_1\|m_1) = \Pr_{Ny}(t_1\|m_1)$	0.60 vs 0.47 (0.218)	0.60 vs 0.57 (1.000)	0.47 vs 0.57 (0.256)
$\Pr_{Nx}(t_1\|m_2) = \Pr_{Ny}(t_1\|m_2)$	0.60 vs 0.48 (0.519)	0.60 vs 0.30 (0.054)*	0.48 vs 0.30 (0.451)
	$K1$ vs $K2$	$K1$ vs $K3$	$K2$ vs $K3$
$\Pr_{Kx}(t_1\|m_1) = \Pr_{Ky}(t_1\|m_1)$	0.31 vs 0.49 (0.040)**	0.31 vs 0.68 (0.001)***	0.49 vs 0.68 (0.098)*

Note: p-values in parentheses. In $N1$, 18 observations for $t_1|m_1$ and 6 observations for $t_1|m_2$; in $N2$, 11 observations for $t_1|m_1$ and 5 observations for $t_1|m_2$; in $N3$, 12 observations for $t_1|m_1$ and 4 observations for $t_1|m_2$. In $K1$, 20 observations for $t_1|m_1$; in $K2$ 14 observations; in $K3$, 9 observations. There are two few observations for $t_1|m_2$ in each of the K treatments. For all tests, H_0 is stated in the first column. * - $p < 0.1$, ** - $p < 0.05$, *** - $p < 0.01$.

The rank-sum test results for the comparison of Period 1 posterior beliefs of Receivers about Senders' types between different messages and with Period 1 prior beliefs are

Period 1 posterior beliefs about Senders' types and comparison tests			
	N treatments	$K1$ treatment	$K2$ and $K3$ treatments
$\Pr(t_1\|m_1) = \Pr(t_1\|m_2)$	0.56 vs 0.48 (0.416)	0.31 vs 0.38 (0.492)	0.56 vs 0.63 (0.786)
$\Pr(t_1\|m) = \Pr(t_1)$	0.54 vs 0.54 (0.997)	0.32 vs 0.25 (0.654)	0.58 vs 0.61 (0.607)

Note: p-values in parentheses. In N treatments: 41 observations for $t_1|m_1$, 15 observations for $t_1|m_2$; in $K1$ treatment: 20 observations for $t_1|m_1$, 4 observations for $t_1|m_2$; in combined $K2$ and $K3$ treatments: 23 observations for $t_1|m_1$, 5 observations for $t_1|m_2$. For all tests, H_0 is stated in the first column.

The rank-sum test results for the comparison of Period 1 Senders' beliefs about Receivers are

Period 1 Senders' beliefs about Receivers' actions and comparison tests			
	$N1$ vs $N2$	$N1$ vs $N3$	$N2$ vs $N3$
$\Pr_{Nx}(a_1|m_1) = \Pr_{Ny}(a_1|m_1)$	0.51 vs 0.54 (0.77)	0.51 vs 0.39 (0.35)	0.54 vs 0.39 (0.31)
$\Pr_{Nx}(a_1|m_2) = \Pr_{Ny}(a_1|m_2)$	0.49 vs 0.45 (0.57)	0.49 vs 0.33 (0.15)	0.45 vs 0.33 (0.26)
	$K1$ vs $K2$	$K1$ vs $K3$	$K2$ vs $K3$
$\Pr_{Kx}(a_1|m_1) = \Pr_{Ky}(a_1|m_1)$	0.65 vs 0.49 (0.180)	0.65 vs 0.21 (0.001)***	0.49 vs 0.21 (0.024)**

Note: p-values in parentheses. In $N1$, 18 observations for $a_1|m_1$ and 6 observations for $a_1|m_2$; in $N2$, 11 observations for $a_1|m_1$ and 5 observations for $a_1|m_2$; in $N3$, 12 observations for $a_1|m_1$ and 4 observations for $a_1|m_2$. In $K1$, 20 observations for $a_1|m_1$; in $K2$ 14 observations; in $K3$, 9 observations. There are two few observations for $a_1|m_2$ in each of the K treatments. For all tests, H_0 is stated in the first column. * - $p < 0.1$, ** - $p < 0.05$, *** - $p < 0.01$.

For the comparison of initial beliefs of Senders about the actions of Receivers across messages and with the uniform belief the rank-sum test results are

Period 1 Senders' beliefs about Receivers' action and comparison tests		
	N treatments	$K1$ treatment
$\Pr(a_1|m_1) = \Pr(a_1|m_2)$	0.48 vs 0.43 (0.695)	0.65 vs 0.55 (0.204)
$\Pr(a_1|m) = 0.5$	0.47 vs 0.50 (0.350)	0.63 vs 0.50 (0.007)***

Note: p-values in parentheses. In N treatments: 41 observations for $a_1|m_1$, 15 observations for $a_1|m_2$. In $K1$ treatment: 20 observations for $a_1|m_1$, 4 observations for $a_1|m_2$. For all tests, H_0 is stated in the first column. *** - $p < 0.01$.

B.2 Tests for final beliefs and for comparison of final and initial beliefs

The results of the sign-rank tests for paired observations of reports of the prior beliefs of Receivers about Senders' types in Period 1 and in Period 36 in the N treatments are

Prior beliefs about Senders' types and comparison test			
	$N1$	$N2$	$N3$
$\Pr_{\tau=1}(t_1) = \Pr_{\tau=36}(t_1)$	0.53 vs 0.39 (0.014)**	0.54 vs 0.61 (0.135)	0.54 vs 0.77 (0.005)***

Note: p-values in parentheses. For $N1$, 24 observations; for $N2$ and $N3$, 16 observations in each. H_0 is stated in the first column. ** - $p < 0.05$, *** - $p < 0.01$.

For the comparison of Period 36 posterior beliefs of Receivers about Senders' types and of beliefs of Senders about Receivers' actions, the rank-sum test results are

	Treatment $N1$	Treatment $K1$
Posterior beliefs about Senders' types and comparison tests		
$\Pr_{\tau=36}(t_1|m_1) = \Pr_{\tau=36}(t_1|m_2)$	0.38 vs 0.46 (0.667)	0.14 vs 0.98 (0.000)***
Senders beliefs about Receivers' actions and comparison tests		
$\Pr_{\tau=36}(a_1|m_1) = \Pr_{\tau=36}(a_1|m_2)$	0.64 vs 0.66 (0.828)	0.73 vs 0.10 (0.002)***

The sign-rank test results for the comparison of initial (Period 1) and final (Period 36) posterior beliefs of Receivers about Senders' types and of beliefs of Senders about Receivers' actions are

	Treatment $N1$	Treatment $K1$
Posterior beliefs about Senders' types and comparison tests		
$\mathrm{Pr}_{\tau=1}(t_1|m_1) = \mathrm{Pr}_{\tau=36}(t_1|m_1)$	0.60 vs 0.38 (0.044)**	0.31 vs 0.14 (0.001)***
$\mathrm{Pr}_{\tau=1}(t_1|m_2) = \mathrm{Pr}_{\tau=36}(t_1|m_2)$	0.60 vs 0.46 (0.461)	0.38 vs 0.98 (0.013)**
Senders' beliefs about Receivers' actions and comparison tests		
$\mathrm{Pr}_{\tau=1}(a_1|m_1) = \mathrm{Pr}_{\tau=36}(a_1|m_1)$	0.51 vs 0.64 (0.199)	0.65 vs 0.73 (0.193)
$\mathrm{Pr}_{\tau=1}(a_1|m_2) = \mathrm{Pr}_{\tau=36}(a_1|m_2)$	0.49 vs 0.66 (0.565)	0.55 vs 0.10 (0.023)**

The estimation results for all four belief adjustment models for the posterior beliefs about types are

(756 obs)	Base	Empirical		
		Forgetting $\gamma = 0.98$	Init. strength $A_{Ps} = 1.66$	$\gamma = 0.97$ $A_{Ps} = 2.29$
SSE	66.32	66.07	55.92	55.43
Best resp.	0.82	0.81	0.81	0.82

and for beliefs about strategies they are

(756 obs)	Base	Empirical		
		Forgetting $\gamma = 1.02$	Init. strength $A_{Ps} = 2.73$	$\gamma = 1.00$ $A_{Ps} = 2.59$
SSE	74.75	74.62	61.53	61.52

B.3   Tests for comparison of behavior in treatments with $p = 1/4$

B.3.1   Data for the tests reported in Table 7

The following tables show the proportions of strategies observed in periods 21-36 in each matching group (MG) of each treatment and the total proportions by treatment. Notation "b" refers to treatments with belief elicitation and "nb" to treatments without belief elicitation.

Proportions of Senders playing $m_1 \mid t_1$ in Periods 21-36				
	$N1b$	$K1b$	$N1nb$	$K1nb$
MG1	(10/18) 0.556	(0/18) 0.000	(5/18) 0.278	(6/18) 0.333
MG2	(8/18) 0.444	(5/18) 0.278	(13/18) 0.722	(1/18) 0.056
MG3	(10/18) 0.556	(13/18) 0.722	(17/18) 0.944	(4/18) 0.222
MG4	(15/18) 0.833	(0/18) 0.000	(5/18) 0.278	(9/18) 0.500
MG5	(13/18) 0.722	(0/18) 0.000	(14/18) 0.778	(8/18) 0.444
MG6	(12/18) 0.667	(4/18) 0.222	(11/18) 0.611	(4/18) 0.222
Total	(68/108) 0.630	(22/108) 0.204	(65/108) 0.602	(32/108) 0.296

Proportions of Senders playing $m_1 \mid t_2$ in Periods 21-36				
	$N1b$	$K1b$	$N1nb$	$K1nb$
MG1	(44/46) 0.957	(46/46) 1.000	(33/46) 0.717	(46/46) 1.000
MG2	(31/46) 0.674	(41/46) 0.891	(28/46) 0.609	(46/46) 1.000
MG3	(34/46) 0.739	(46/46) 1.000	(30/46) 0.652	(46/46) 1.000
MG4	(20/46) 0.435	(45/46) 0.978	(45/46) 0.978	(46/46) 1.000
MG5	(44/46) 0.957	(45/46) 0.978	(7/46) 0.152	(34/46) 0.739
MG6	(22/46) 0.478	(46/46) 1.000	(46/46) 1.000	(43/46) 0.935
Total	(195/276) 0.707	(269/276) 0.975	(189/276) 0.685	(261/276) 0.946

Proportions of Receivers playing $a_1 \mid m_1$ in Periods 21-36				
	$N1b$	$K1b$	$N1nb$	$K1nb$
MG1	(52/54) 0.963	(46/46) 1.000	(30/38) 0.789	(52/52) 1.000
MG2	(23/39) 0.590	(42/46) 0.913	(18/41) 0.439	(47/47) 1.000
MG3	(31/42) 0.738	(55/59) 0.932	(27/47) 0.574	(44/50) 0.880
MG4	(19/35) 0.543	(34/45) 0.756	(50/50) 1.000	(54/55) 0.982
MG5	(48/57) 0.842	(45/45) 1.000	(4/21) 0.190	(39/42) 0.929
MG6	(14/34) 0.412	(44/50) 0.880	(41/57) 0.719	(47/47) 1.000
Total	(187/261) 0.716	(266/291) 0.914	(170/254) 0.669	(283/293) 0.966

Proportions of Receivers playing $a_1 \mid m_2$ in Periods 21-36				
	$N1b$	$K1b$	$N1nb$	$K1nb$
MG1	(5/10) 0.500	(2/18) 0.111	(16/26) 0.615	(2/12) 0.167
MG2	(22/25) 0.880	(8/18) 0.444	(13/23) 0.565	(1/17) 0.059
MG3	(15/22) 0.682	(0/5) 0.000	(9/17) 0.529	(2/14) 0.143
MG4	(25/29) 0.862	(2/19) 0.105	(1/14) 0.071	(0/9) 0.000
MG5	(1/7) 0.143	(2/19) 0.105	(34/43) 0.791	(10/22) 0.455
MG6	(18/30) 0.600	(1/14) 0.071	(2/7) 0.286	(0/17) 0.000
Total	(86/123) 0.699	(15/93) 0.161	(75/130) 0.577	(15/91) 0.165

The results of the rank-sum tests are reported in the main text.

B.3.2 Tests for robustness of the results reported in Table 7

All periods

The following tables show the proportions of strategies observed in periods 1-36 in each matching group (MG) of each treatment and the total proportions by treatment. Recall

that "b" refers to treatments with belief elicitation and "nb" to treatments without belief elicitation.

	Proportions of Senders playing $m_1|t_1$ in Periods 1-36			
	$N1b$	$K1b$	$N1nb$	$K1nb$
MG1	(26/37) 0.703	(13/37) 0.351	(22/38) 0.579	(15/38) 0.395
MG2	(25/38) 0.658	(12/38) 0.316	(29/38) 0.763	(7/38) 0.184
MG3	(25/38) 0.658	(27/38) 0.711	(34/38) 0.895	(15/38) 0.395
MG4	(32/38) 0.842	(6/38) 0.158	(14/38) 0.368	(18/38) 0.474
MG5	(27/38) 0.711	(4/38) 0.105	(32/38) 0.842	(14/38) 0.368
MG6	(28/38) 0.737	(17/38) 0.447	(30/38) 0.789	(17/38) 0.447
Total	(163/227) 0.718	(79/227) 0.348	(161/228) 0.706	(86/228) 0.377

	Proportions of Senders playing $m_1|t_2$ in Periods 1-36			
	$N1b$	$K1b$	$N1nb$	$K1nb$
MG1	(83/107) 0.776	(97/107) 0.907	(60/106) 0.566	(101/106) 0.953
MG2	(64/106) 0.604	(85/106) 0.802	(64/106) 0.604	(105/106) 0.991
MG3	(67/106) 0.632	(104/106) 0.981	(72/106) 0.679	(99/106) 0.934
MG4	(54/106) 0.509	(99/106) 0.934	(91/106) 0.858	(97/106) 0.915
MG5	(82/106) 0.774	(102/106) 0.962	(27/106) 0.255	(77/106) 0.726
MG6	(42/106) 0.396	(104/106) 0.981	(98/106) 0.925	(95/106) 0.896
Total	(392/637) 0.615	(591/637) 0.928	(412/636) 0.648	(574/636) 0.903

	Proportions of Receivers playing $a_1|m_1$ in Periods 1-36			
	$N1b$	$K1b$	$N1nb$	$K1nb$
MG1	(90/109) 0.826	(105/110) 0.955	(55/82) 0.671	(112/116) 0.966
MG2	(44/89) 0.494	(78/97) 0.804	(40/93) 0.430	(100/112) 0.893
MG3	(51/92) 0.554	(118/131) 0.901	(52/106) 0.491	(98/114) 0.860
MG4	(43/86) 0.500	(78/105) 0.743	(83/105) 0.790	(101/105) 0.878
MG5	(79/109) 0.725	(105/106) 0.991	(13/59) 0.220	(71/91) 0.780
MG6	(26/70) 0.371	(98/121) 0.890	(83/128) 0.648	(91/112) 0.813
Total	(333/555) 0.600	(582/670) 0.869	(326/573) 0.569	(573/660) 0.868

	Proportions of Receivers playing $a_1|m_2$ in Periods 1-36			
	$N1b$	$K1b$	$N1nb$	$K1nb$
MG1	(15/35) 0.429	(10/34) 0.294	(31/62) 0.500	(8/28) 0.286
MG2	(42/55) 0.734	(22/47) 0.468	(26/51) 0.510	(3/32) 0.094
MG3	(32/52) 0.615	(1/13) 0.077	(16/38) 0.421	(9/30) 0.300
MG4	(40/55) 0.690	(4/39) 0.103	(4/39) 0.103	(1/29) 0.034
MG5	(6/35) 0.171	(9/38) 0.237	(63/85) 0.741	(26/53) 0.491
MG6	(39/74) 0.527	(7/23) 0.304	(5/16) 0.313	(0/32) 0.000
Total	(174/309) 0.563	(53/194) 0.273	(145/291) 0.498	(47/204) 0.230

The results of the rank-sum tests are:

Proportions of strategies for $p = 1/4$ (Periods 1-36) and comparison tests				
	Senders		Receivers	
	$m_1\|t_1$	$m_1\|t_2$	$a_1\|m_1$	$a_1\|m_2$
$N1b$ vs $N1nb$	0.72 vs 0.71	0.62 vs 0.65	0.60 vs 0.57	0.56 vs 0.50
	(0.574)	(0.688)	(0.631)	(0.262)
$K1b$ vs $K1nb$	0.35 vs 0.38	0.93 vs 0.90	0.87 vs 0.87	0.27 vs 0.23
	(0.377)	(0.574)	(1.000)	(0.522)
$N1b$ vs $K1b$	0.72 vs 0.35	0.63 vs 0.93	0.60 vs 0.87	0.56 vs 0.27
	(0.010)***	(0.002)***	(0.008)***	(0.019)**

Note: p-values in parentheses. 6 observations per treatment. For $N1b$ vs $N1nb$ and $K1b$ vs $K1nb$, $H_0 : Prop_{X1b} = Prop_{X1nb}$. For $N1b$ vs $K1b$, $H_0 : Prop_{N1b} \leq Prop_{K1b}$ for $m_1|t_1$ and $a_1|m_2$, $H_0 : Prop_{N1b} \geq Prop_{K1b}$ for $m_1|t_2$ and $a_1|m_1$. ** - $p < 0.05$; *** - $p < 0.01$.

Last eight periods (Periods 29-36)

The following tables show the proportions of strategies observed in periods 29-36 in each matching group (MG) of each treatment and the total proportions by treatment.

Proportions of Senders playing $m_1\|t_1$ in Periods 29-36				
	$N1b$	$K1b$	$N1nb$	$K1nb$
MG1	(4/11) 0.364	(0/11) 0.000	(2/11) 0.182	(4/11) 0.364
MG2	(4/11) 0.364	(4/11) 0.364	(8/11) 0.727	(1/11) 0.091
MG3	(4/11) 0.364	(7/11) 0.636	(10/11) 0.909	(2/11) 0.182
MG4	(9/11) 0.818	(0/11) 0.000	(4/11) 0.364	(6/11) 0.545
MG5	(8/11) 0.727	(0/11) 0.000	(9/11) 0.818	(6/11) 0.545
MG6	(7/11) 0.636	(1/11) 0.091	(7/11) 0.636	(4/11) 0.364
Total	(36/66) 0.545	(12/66) 0.182	(40/66) 0.606	(23/66) 0.348

Proportions of Senders playing $m_1\|t_2$ in Periods 29-36				
	$N1b$	$K1b$	$N1nb$	$K1nb$
MG1	(21/21) 1.000	(21/21) 1.000	(15/21) 0.714	(21/21) 1.000
MG2	(17/21) 0.890	(20/21) 0.952	(17/21) 0.810	(21/21) 1.000
MG3	(18/21) 0.857	(21/21) 1.000	(12/21) 0.571	(21/21) 1.000
MG4	(11/21) 0.524	(21/21) 1.000	(21/21) 1.000	(21/21) 1.000
MG5	(21/21) 1.000	(20/21) 0.952	(3/21) 0.143	(16/21) 0.762
MG6	(9/21) 0.429	(21/21) 1.000	(21/21) 1.000	(21/21) 1.000
Total	(97/126) 0.770	(124/126) 0.984	(89/126) 0.706	(121/126) 0.960

Proportions of Receivers playing $a_1\|m_1$ in Periods 29-36				
	$N1b$	$K1b$	$N1nb$	$K1nb$
MG1	(24/25) 0.960	(21/21) 1.000	(13/17) 0.765	(25/25) 1.000
MG2	(13/21) 0.619	(23/24) 0.958	(11/25) 0.440	(22/22) 1.000
MG3	(17/22) 0.773	(27/28) 0.964	(12/22) 0.545	(21/23) 0.913
MG4	(11/20) 0.550	(16/21) 0.762	(25/25) 1.000	(26/27) 0.963
MG5	(24/29) 0.828	(20/20) 1.000	(2/12) 0.167	(21/22) 0.955
MG6	(7/16) 0.438	(19/22) 0.864	(18/28) 0.643	(25/25) 1.000
Total	(96/133) 0.722	(126/136) 0.926	(81/129) 0.628	(140/144) 0.972

Proportions of Receivers playing $a_1|m_2$ in Periods 29-36				
	$N1b$	$K1b$	$N1nb$	$K1nb$
MG1	(4/7) 0.571	(0/11) 0.000	(10/15) 0.667	(1/7) 0.143
MG2	(8/11) 0.727	(4/8) 0.500	(3/7) 0.429	(0/10) 0.000
MG3	(5/10) 0.500	(0/4) 0.000	(7/10) 0.700	(2/9) 0.222
MG4	(11/12) 0.917	(1/11) 0.091	(0/7) 0.000	(0/5) 0.000
MG5	(0/3) 0.000	(0/12) 0.000	(15/20) 0.750	(4/10) 0.400
MG6	(9/16) 0.563	(1/10) 0.100	(0/4) 0.000	(0/7) 0.000
Total	(37/59) 0.627	(6/56) 0.107	(35/63) 0.556	(7/48) 0.146

The results of the rank-sum tests are:

Proportions of strategies for $p = 1/4$ (Periods 29-36) and comparison tests				
	Senders		Receivers	
	$m_1|t_1$	$m_1|t_2$	$a_1|m_1$	$a_1|m_2$
$N1b$ vs $N1nb$	0.55 vs 0.61	0.77 vs 0.71	0.72 vs 0.63	0.63 vs 0.56
	(0.623)	(0.807)	(0.522)	(0.629)
$K1b$ vs $K1nb$	0.18 vs 0.35	0.98 vs 0.96	0.93 vs 0.97	0.11 vs 0.15
	(0.166)	(0.673)	(0.507)	(0.798)
$N1b$ vs $K1b$	0.55 vs 0.18	0.77 vs 0.98	0.72 vs 0.93	0.63 vs 0.11
	(0.016)**	(0.043)***	(0.019)**	(0.017)**

Note: p-values in parentheses. 6 observations per treatment. For $N1b$ vs $N1nb$ and $K1b$ vs $K1nb$, $H_0 : Prop_{X1b} = Prop_{X1nb}$. For $N1b$ vs $K1b$, $H_0 : Prop_{N1b} \leq Prop_{K1b}$ for $m_1|t_1$ and $a_1|m_2$, $H_0 : Prop_{N1b} \geq Prop_{K1b}$ for $m_1|t_2$ and $a_1|m_1$. ** - $p < 0.05$; *** - $p < 0.01$.

B.4   Tests for behavior in treatments with $p = 1/2$ and $p = 3/4$

The following tables show the proportions of strategies observed in periods 21-36 in each matching group (MG) of each treatment and the total proportions by treatment. Recall that "b" refers to treatments with belief elicitation and "nb" to treatments without belief elicitation.

Proportions of Senders playing $m_1|t_1$ in Periods 21-36				
	$N2$-$3b$	$K2$-$3b$	$N2$-$3nb$	$K2$-$3nb$
MG1 ($p = 1/2$)	(23/32) 0.719	(27/32) 0.844	(30/32) 0.938	(31/32) 0.969
MG2 ($p = 1/2$)	(28/32) 0.875	(27/32) 0.844	(32/32) 1.000	(32/32) 1.000
MG3 ($p = 1/2$)	(32/32) 1.000	(27/32) 1.000	(32/32) 1.000	(32/32) 1.000
MG4 ($p = 1/2$)	(23/32) 0.719	(27/32) 1.000	(32/32) 1.000	(30/32) 0.938
MG1 ($p = 3/4$)	(49/49) 1.000	(49/49) 1.000	(49/49) 1.000	(45/49) 0.918
MG2 ($p = 3/4$)	(49/49) 1.000	(49/49) 1.000	(49/49) 1.000	(49/49) 1.000
MG3 ($p = 3/4$)	(49/49) 1.000	(43/49) 0.878	(48/49) 0.980	(49/49) 1.000
MG4 ($p = 3/4$)	(36/49) 0.735		(49/49) 1.000	(49/49) 1.000
Total	(289/324) 0.892	(259/275) 0.942	(321/324) 0.991	(317/324) 0.978

Proportions of Senders playing $m_1|t_2$ in Periods 21-36				
	N2-3b	*K2-3b*	*N2-3nb*	*K2-3nb*
MG1 ($p = 1/2$)	(6/32) 0.188	(13/32) 0.406	(3/32) 0.094	(5/32) 0.156
MG2 ($p = 1/2$)	(13/32) 0.406	(10/32) 0.313	(3/32) 0.094	(4/32) 0.125
MG3 ($p = 1/2$)	(5/32) 0.156	(11/32) 0.344	(2/32) 0.063	(4/32) 0.125
MG4 ($p = 1/2$)	(9/32) 0.281	(0/32) 0.000	(6/32) 0.188	(7/32) 0.219
MG1 ($p = 3/4$)	(4/15) 0.267	(4/15) 0.267	(1/15) 0.067	(4/15) 0.267
MG2 ($p = 3/4$)	(4/15) 0.267	(7/15) 0.467	(0/15) 0.000	(1/15) 0.067
MG3 ($p = 3/4$)	(8/15) 0.533	(10/15) 0.667	(1/15) 0.067	(0/15) 0.000
MG4 ($p = 3/4$)	(8/15) 0.533		(4/15) 0.267	(0/15) 0.000
Total	(57/188) 0.303	(55/173) 0.318	(20/188) 0.106	(25/188) 0.133

Proportions of Receivers playing $a_1|m_1$ in Periods 21-36				
	N2-3b	*K2-3b*	*N2-3nb*	*K2-3nb*
MG1 ($p = 1/2$)	(3/29) 0.103	(1/40) 0.025	(2/33) 0.061	(1/36) 0.028
MG2 ($p = 1/2$)	(7/41) 0.171	(8/37) 0.216	(0/35) 0.000	(4/36) 0.111
MG3 ($p = 1/2$)	(0/37) 0.000	(4/33) 0.093	(0/34) 0.000	(2/36) 0.056
MG4 ($p = 1/2$)	(4/32) 0.125	(0/32) 0.000	(0/38) 0.000	(0/37) 0.000
MG1 ($p = 3/4$)	(3/53) 0.057	(11/54) 0.204	(0/50) 0.000	(0/49) 0.000
MG2 ($p = 3/4$)	(2/53) 0.038	(0/56) 0.000	(0/49) 0.000	(0/50) 0.000
MG3 ($p = 3/4$)	(0/57) 0.000	(4/53) 0.075	(1/49) 0.020	(0/49) 0.000
MG4 ($p = 3/4$)	(0/44) 0.000		(2/53) 0.038	(0/49) 0.000
Total	(19/346) 0.055	(28/315) 0.089	(5/341) 0.015	(7/342) 0.020

Proportions of Receivers playing $a_1|m_2$ in Periods 21-36				
	N2-3b	*K2-3b*	*N2-3nb*	*K2-3nb*
MG1 ($p = 1/2$)	(4/35) 0.114	(16/24) 0.667	(23/31) 0.742	(14/28) 0.500
MG2 ($p = 1/2$)	(8/23) 0.348	(19/27) 0.704	(20/29) 0.690	(22/28) 0.786
MG3 ($p = 1/2$)	(22/27) 0.815	(17/21) 0.810	(29/30) 0.967	(27/28) 0.964
MG4 ($p = 1/2$)	(15/32) 0.469	(25/32) 0.781	(18/26) 0.692	(14/27) 0.519
MG1 ($p = 3/4$)	(11/11) 1.000	(8/10) 0.800	(7/14) 0.500	(13/15) 0.867
MG2 ($p = 3/4$)	(7/11) 0.636	(6/8) 0.750	(15/15) 1.000	(14/14) 1.000
MG3 ($p = 3/4$)	(3/7) 0.429	(2/11) 0.181	(13/15) 0.867	(15/15) 1.000
MG4 ($p = 3/4$)	(2/20) 0.100		(6/11) 0.545	(14/15) 0.933
Total	(72/166) 0.434	(93/133) 0.699	(131/171) 0.766	(133/170) 0.782

The results of the rank-sum tests are:

Proportions of strategies for $p = 1/2$ and $p = 3/4$ (Periods 21-36) and comparison tests				
	Senders		Receivers	
	$m_1\|t_1$	$m_1\|t_2$	$a_1\|m_1$	$a_1\|m_2$
$N2b$ vs $N2nb$	0.83 vs 0.98	0.26 vs 0.11	0.10 vs 0.01	0.42 vs 0.76
	$(0.089)^*$	$(0.056)^*$	$(0.091)^*$	(0.149)
$K2b$ vs $K2nb$	0.92 vs 0.98	0.27 vs 0.16	0.09 vs 0.05	0.74 vs 0.69
	(0.536)	(0.245)	(0.885)	(0.773)
$N3b$ vs $N3nb$	0.93 vs 0.99	0.40 vs 0.10	0.025 vs 0.01	0.47 vs 0.75
	(0.850)	$(0.036)^{**}$	(0.642)	(0.468)
$K3b$ vs $K3nb$	0.96 vs 0.98	0.47 vs 0.08	0.09 vs 0.00	0.55 vs 0.95
	(0.659)	$(0.048)^{**}$	$(0.078)^*$	$(0.032)^{**}$
$N2b$ vs $K2b$	0.83 vs 0.92	0.26 vs 0.27	0.10 vs 0.09	0.42 vs 0.74
	(0.369)	(0.664)	(0.663)	(0.248)
$N3b$ vs $K3b$	0.93 vs 0.96	0.40 vs 0.47	0.02 vs 0.09	0.47 vs 0.55
	(1.000)	(0.711)	(0.271)	(0.724)

Note: p-values in parentheses. 4 observations in all treatments, except for 3 observations in $K3b$. The null hypotheses are $H_0 : Prop_X = Prop_Y$ for all tests. * - $p < 0.1$; ** - $p < 0.05$.