Online Supplementary Material

A Overview of existing experimental evidence

The table below presents a summary of existing experimental evidence. Several representations of the game have been applied so far, as stated in column 1: simultaneous-move strategic-form game (Str), simultaneous-move extensive-form game (Ext), sequential-move game (Seq). The monetary payoffs displayed in columns 2-4 are in USD in Beard and Beil (1994) and Cooper and Van Huyck (2003), in cents of USD in Goeree and Holt (2001), in Yens in Beard, Beil, and Mataga (2001), and in Euros in Jacquemet and Zylbersztejn (2014).

Experiment	Form	Payoff			Outcomes (%)				
		(L)	(R,r)	(R,l)	L	R,r	R,l	$r\|R$	r
Beard, Beil–Tr.1	Seq	(9.75; 3.0)	(10; 5.0)	(3; 4.75)	66	29	6	83	—
Beard, Beil–Tr.3	Seq	(7.00; 3.0)	(10; 5.0)	(3; 4.75)	20	80	0	100	—
Beard, Beil–Tr.4	Seq	(9.75; 3.0)	(10; 5.0)	(3; 3.00)	47	53	0	100	—
Beard et al.–Tr.1	Seq	(1450; 450)	(1500; 750)	(450; 700)	79	18	3	83	—
Beard et al.–Tr.2	Seq	(1050; 450)	(1500; 750)	(450; 700)	50	32	18	64	—
Goeree, Holt–Tr.1	Ext	(80; 50)	(90; 70)	(20; 10)	16	84	0	100	—
Goeree, Holt–Tr.2	Ext	(80; 50)	(90; 70)	(20; 68)	52	36	12	75	—
Goeree, Holt–Tr.3	Ext	(400; 250)	(450; 350)	(100; 348)	80	16	4	80	—
Cooper, Van Huyck–Tr.9	Str	(4; 1)	(6; 5)	(2; 4)	27	—	—	—	86
Cooper, Van Huyck–Tr.9	Ext	(4; 1)	(6; 5)	(2; 4)	21	—	—	—	84
JZ, 2014–Baseline (BT1), round 1	Str	(9.75; 3.0)	(3.0; 4.75)	(10; 5.0)	77	23	0	100	80
JZ, 2014–Baseline (BT1), rounds 2-10	Str	(9.75; 3.0)	(3.0; 4.75)	(10; 5.0)	48	43	9	84	81
JZ, 2014–Baseline (BT1), overall	Str	(9.75; 3.0)	(3.0; 4.75)	(10; 5.0)	51	41	8	84	81
JZ, 2014–ET1	Str	(9.75; 5.0)	(5.0; 9.75)	(10; 10.0)	54	33	13	72	73
JZ, 2014–ET3	Str	(9.75; 5.5)	(5.5; 8.50)	(10; 10.0)	39	48	13	79	76
JZ, 2014–ET4	Str	(8.50; 5.5)	(5.5; 8.50)	(10; 10.0)	25	61	14	82	82
JZ, 2014–ET2	Str	(8.50; 8.5)	(6.5; 8.50)	(10; 10.0)	26	70	4	94	94
JZ, 2014–BT2	Str	(8.50; 7.0)	(6.5; 7.00)	(10; 8.5)	26	70	4	94	94

B Robustness check: Neutral announcements versus promises

The **promises** treatment is a variation of the basic communication treatment, with no oath, in which only the wording of the messages is modified: cheap talk messages (*"Je vais prendre la décision ..."* / "I will choose ...") are turned into promises (*"Je m'engage à prendre la décision ..."* / "I promise to choose ...").[23]

We find no significant differences either in senders' decisions or in their patterns of communication. Figure 9 compares senders and receivers' behavior in both treatments. Figure 9.b indicates that senders' decisions do not vary significantly between the two communication treatments. First order dominance of the EDF from the baseline communication treatment is not significant with $p = .230$. In round 1, the rate of actions r equals 80% in both samples.[24] Overall, the mean number of decision r by subject across

[23] We carried out 2 additional sessions with this new form of communication, each involving 20 subjects and carried out in the lab of University Paris 1 (LEEP) in December 2009 and September 2010. Among 40 participants (14 males, average of about 26), 28 were students with various fields of specialization. 16 subjects were first time participants in economic experiment in LEEP.

[24] Two-sided bootstrap proportion test yields $p = .934$ and two-sided Fisher's exact test yields $p = 1.000$.

FIGURE 9: PROMISES ROBUSTNESS TREATMENT: DECISIONS OF RECEIVERS AND SENDERS BY TREATMENT

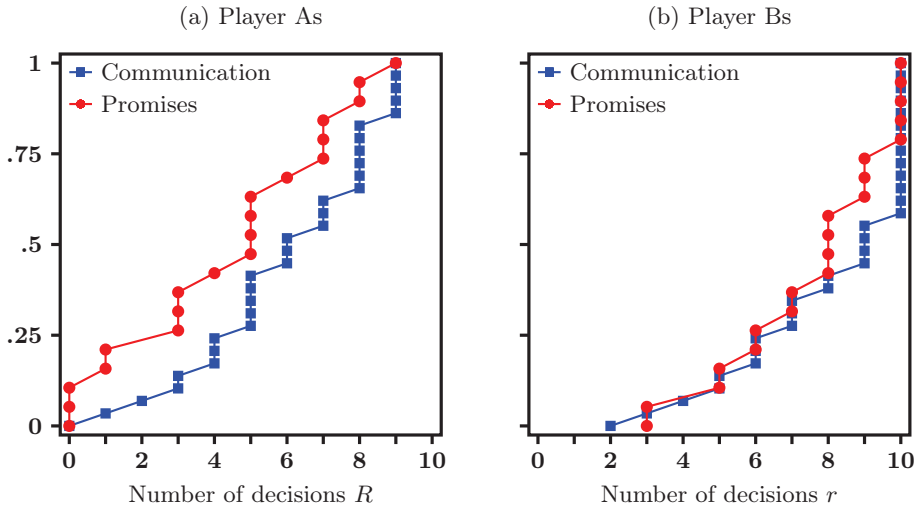
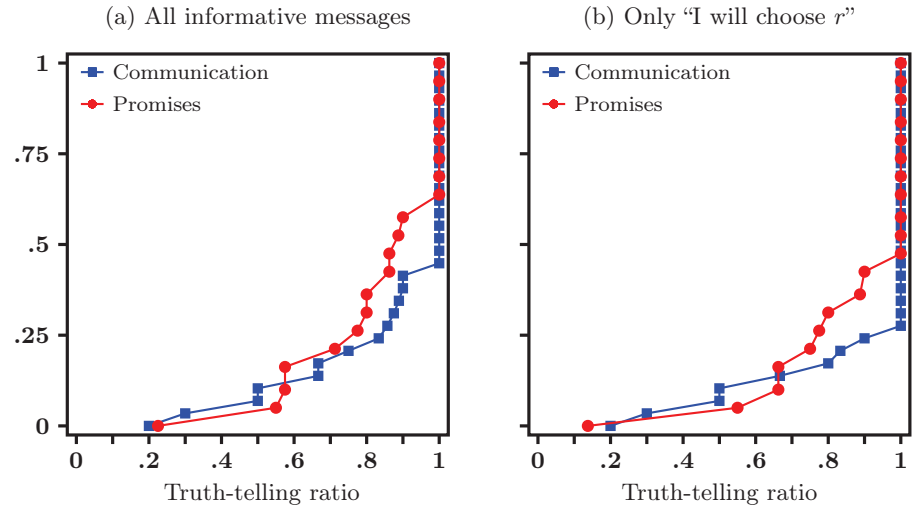


FIGURE 10: PROMISES ROBUSTNESS TREATMENT: TRUTHFULNESS OF SENDERS



10 rounds is 8 with neutral announcements and 7.5 with promises ($p = .500$, two-sided bootstrap mean test). The next two figures report on the truthfulness of senders' messages. Figure 10.a presents the EDF from both treatments for all informative messages and Figure 10.b presents the EDF solely for messages announcing action r. The proportion of senders always sending truthful messages is slightly greater in the baseline communication treatment than in the promises treatment (56.7% vs 40.0%), but the difference is not significant (two-sided proportion test, $p = .240$). The EDF from baseline communication indicates that deceitful messages are less frequent in the former but first order dominance is not statistically significant ($p = .202$). The same conclusions hold when focusing only on the truthfulness of messages announcing r.[25]

[25]The p-values are .178 and .196.

FIGURE 11: PROMISES ROBUSTNESS TREATMENT: COMMUNICATION BEHAVIOR OF SENDERS BY TREATMENT

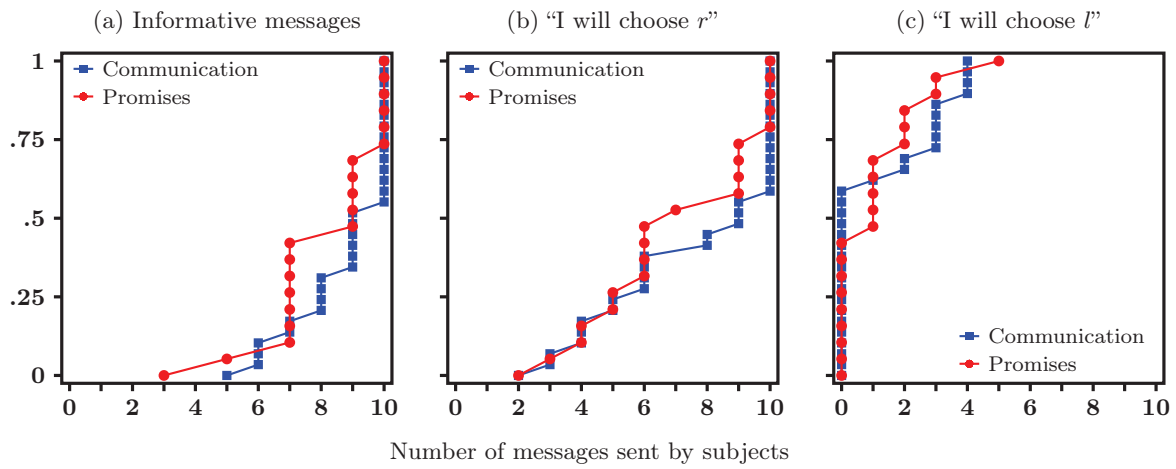


Figure 11 provides a comparison of communication behavior of senders at the individual level. Figure 11.a depicts the empirical distribution of informative messages ("I will/promise to choose r" and "I will/promise to choose l") in both treatments. In both cases communication is widely used by senders, but the EDF indicate that subjects in the promises treatment send fewer informative messages, showing more reluctance to communicate when messages express promises. The number of informative messages sent by subject ranges from 5 to 10 for neutral messages and from 3 to 10 in the promises treatment. This small decrease in informative communication is significant at a 10% threshold with the EDF of informative messages with baseline communication first order dominating the EDF of informative messages in the promises treatment ($p = .093$). The decrease in informative communication is induced by a decrease (albeit small) in both the number of r messages and l messages sent. Figure 11.b presents the EDF exclusively for messages "I will choose r" and Figure 11.c focuses on messages "I will choose l". We observe a slight decrease in the frequency of these messages but, taken separate this decrease is not significant with $p = .254$ and $p = .266$ (using the one-sided bootstrap test presented above).

Overall, the main outcome for the purpose of this paper is that the use of promises instead of neutral messages does not achieve the same outcome as neutral messages under oath. Both the signaling behavior and actions of the senders are only marginally affected by the new treatment.[26] This result is in line with Bochet and Putterman (2009) and Lundquist, Ellingsen, Gribbe, and Johannesson (2009) who suggest that, although cheap talk in open form format is sometimes interpreted as promises, the effect of announcements is not driven by the way they are phrased – fixed-form messages expressing "promises" do not bring any improvement as compared to a neutral cheap talk type of communication.

[26] At the aggregate level, our results even suggest that efficient coordination is less likely with promises than with cheap talk messages– with the frequency of efficient coordination (R, r) decreasing from 52.7% in the baseline communication treatment to 33.5% in the promises treatment. This result is mainly driven by the receivers' reluctance to rely on senders' messages, which makes them choose R less often in the promises treatment. One interpretation is that false promises may be more detrimental to efficient coordination than false neutral messages. Additional results are available upon request.

C Written instructions: communication treatments

You are about to take part in an experiment in which you can earn money. The amount of your gains will depend on your decisions, as well as on decisions made by other participants.

Before starting, we would like to ask you to answer a few standard questions (concerning your age, education, profession, ...) which will help us to get to know you better. **This information, as well as the amount of your gains from this experiment, will remain strictly confidential and anonymous.**

Please, fill in the questionnaire using the interface on your computer screen, which is divided into three parts:

- In the *top* section, you will find information that might help you in making decisions.
- In the *middle* section, you will submit your decisions by clicking on a relevant button.
- In the *bottom* section, you will see all your decisions and gains from previous rounds of the experiment.

Thank you.

The experiment

The experiments consists of several identical rounds. In each round, participants are divided by groups of two. Each pair consists of one player A and one player B. You will be randomly assigned to your role — player A or player B — at the beginning of the experiment, and retain it throughout the experimental session. A message on your computer screen will inform you about your role. **Your role will remain unchanged throughout the entire experiment.**

What happens in each round

At the beginning of each round, participants are be matched into pairs: if your are player A, then a player B is randomly selected to your complete pair; analogously, if your are player B, then a player A is randomly selected to complete your pair. Your pair will **change after each round**, and two participants in opposite roles **may interact at most once during the experiment.**

Each round consists of 6 stages.

Stage 1. At the beginning, a participant is randomly matched to your group.

Stage 2. Player B is asked **to send a message to player A** by choosing one of the options displayed on his/her computer screen and submitting it by clicking 'OK'. **This message does not affect neither players' earnings.**

Stage 3. Player A reads the message from player B and then clicks 'OK' in order to proceed to the next stage.

Stage 4. Player A chooses between L and R by clicking on a relevant button on his/her computer screen.

Stage 5. Player B chooses between l and r by clicking on a relevant button on his/her computer screen.

Stage 6. End of the round and each player is informed about his/her earnings:

- If **player A chose** L, then **regardless of player B's decision**:
  - ▶ Player A earns 9.75 €in this round;
  - ▶ Player B earns 3 €in this round;
- If **player A chose** R then:
  - if **If player B chose** l:
    - ▶ Player A earns 3 €in this round;
    - ▶ Player B earns 4.75 €in this round;
  - if **player B chose** r:
    - ▶ Player A earns 10 €in this round;
    - ▶ Player B 5 €in this round;

At the end of each round, a message on your computer screen will inform you that either a new round is about to start, or that the experiment ends.

Payment of your earnings

At the end of the experiment, **one round is picked at random**. Each participant receives a sum in EUR corresponding to the amount he/she earned in this round, plus a bonus of 5 €for completing the experiment. Payments are made individually and in cash.

For obvious reasons, **you are not allowed to talk during the experiment**. Participants who violate this rule will be excluded from the experiment and all payments. It is crucial that you understand perfectly the rules of this experiment. Should you have any questions to ask, please raise your hand.

Thank you for your participation.

D Written instructions: additional no-communication treatments – Human and Automated players

English translation of the original instructions in French. Variations according to Human/Robot Treatments appear in italics preceded by ***Robots. / Humans.***

You are about to take part in an experiment in which you can earn money. *The amount of your gains will depend on your decisions, as well as on decisions made by other participants.*

Before starting, we would like to ask you to answer a few standard questions (concerning your age, education, profession, . . .) which will help us to get to know you better. **This information, as well as the amount of your gains from this experiment, will remain strictly confidential and anonymous.**

Please fill in the questionnaire using the interface on your computer screen, which is divided into three parts:

- In the top section, you will find information that might help you in making decisions.
- In the middle section, you will submit your decisions by clicking on a relevant button.
- In the bottom section, you will see all your decisions and gains from previous rounds of the experiment.

Thank you.

The experiment

Humans. *The experiment consists of several identical rounds. In each round, participants are divided into groups of two. Each pair consists of one player A and one player B. You will be randomly assigned to your role — player A or player B — at the beginning of the experiment, and retain it throughout the experimental session. A message on your computer screen will inform you about your role.* ***Your role will remain unchanged throughout the entire experiment.***

Robots. *The experiment consists of several identical rounds. In each round, participants are divided into groups of two. Each pair consists of one player A and one player B. Player B is an automated player whose behavior is described below. Throughout the experiment,* ***you will thus play as player A, and the computer will play as player B.***

What happens in each round

Humans. *At the beginning of each round, participants are divided into pairs: if you are player A, then a player B is randomly selected to complete your pair; analogously, if you are player B, then a player A is randomly selected to complete your pair. Your pair will* ***change after each round****, and two participants in opposite roles* ***will interact at most once during the experiment.***

Each round consists of 4 stages.

Stage 1. At the beginning, a participant is randomly matched to your group.

Stage 2. Player A chooses between L and R by clicking on a relevant button on his/her computer screen.

Stage 3. Player B chooses between l and r by clicking on a relevant button on his/her computer screen.

Stage 4. End of the round and each player is informed about his/her earnings:

- If **player A chose** L, then **regardless of player B's decision**:
  - ▶ Player A earns 9.75 €in this round;
  - ▶ Player B earns 3 €in this round;
- If **player A chose** R then:
  - if **player B chose** l:
    - ▶ Player A earns 3 €in this round;
    - ▶ Player B earns 4.75 €in this round;
  - if **player B chose** r:
    - ▶ Player A earns 10 €in this round;
    - ▶ Player B earns 5 €in this round;

At the end of each round, a message on your computer screen will inform you either that a new round is about to start, or that the experiment is over.

Robots. ***In this experiment the computer chooses*** r ***at each round, without exception.***

Payment of your earnings

At the end of the experiment, **one round is picked at random**. Each participant receives a sum in EUR corresponding to the amount he/she earned in this round, plus a bonus of 5 €for completing the experiment. Payments are made individually and in cash.

For obvious reasons, **you are not allowed to talk during the experiment**. Participants who violate this rule will be excluded from the experiment and all payments. It is crucial that you fully understand the rules of this experiment. Should you have any questions, please raise your hand, a staff member will answer you in private.

Thank you for your participation.