Replication of Casella et al 2018,
"Communication in context: Interpreting promises in an experiment on competition and trust"
PNAS 2018 115 (5), 933-938.
https://www.pnas.org/content/115/5/933

The original paper includes two studies but only one on MTurk. In this between-subject experiment, participants play a one-shot modified trust game with an outside option that is preceded by one-sided, nonbinding communication. Participants are divided into senders and receivers. Receivers can refuse the game and receive a fixed low payment, or accept the game so that senders are given a monetary amount that they can freely divide between themselves and the receivers. Senders can send non-binding promises to receivers before receivers make their decision whether to play the game or not. Participants are randomized to either the one-sender treatment (1S) – where there is just one sender, or the two-sender treatment (2S) – where there are two senders and thus competition between senders. Senders send higher nonbinding promises to send back money in one-sided nonbinding communication in the 2S treatment than in the 1S treatment.

Hypothesis to replicate and bet on: Senders send higher nonbinding promises to send back money to receivers when there are two senders than when there is only one sender. The authors test the above hypothesis in an independent samples *t*-test ($t(594) = 3.465$, $p = .000568$, reported as $p < 0.001$ in the paper; the exact *t*-value and *p*-value was calculated by the replicating team based on the original data uploaded to PNAS); p. 935.

Criteria for replication: The criteria for replication are an effect in the same direction as the original study and a *p*-value < 0.05 in a two-sided independent samples *t*-test.

Power analysis: The original study had 596 senders, with 201 senders in 1S and 395 senders in 2S. The standardized effect size (Cohen's *d*) was $d = 0.284$. To have 90% power to detect 67% of the original effect size, a total sample size of $n = 1174$ senders is required. In addition, the replication involves collecting data for additional participants who are receivers, but these are not included in the test.

Sample: Only participants based in California with a HIT approval rate of 95% or above were allowed to participate in the original study. Participants were also blocked from replying more than once from the same account. The replication experiment will implement the same criteria. We will also check all IP addresses via https://www.ipqualityscore.com/; and we will remove any participants where one or more of the following is true: fraud score >= 85; TOR = True; VPN = True; Bot = True; abuse velocity = high. The replication sample size is the sample size after any exclusions of participants.

Materials: We will use the same material as in the original study, kindly provided by the original authors. In particular, the experiment will be conducted using the original *Qualtrics* survey.

Procedure: We will closely follow the procedure of the original experiment. The following summary of the experimental procedure is therefore largely based on the description of the experiment in the article (pp. 933–934).

Participants will first be shown a Captcha, and will thereafter provide informed consent. After this we will include an attention check that participants will need to pass to continue to the study. This attention check is in addition to any other potential attention check(s) used in the original study. Participants will be randomly allocated to either the one-sender treatment (1S) or the two-sender treatment (2S). In 1S, two partners, a sender and a receiver, will be matched randomly and anonymously. Receivers will be given the choice to play with a sender or not. Before making this choice, senders send their receiver a nonbinding message of the form "If you decide to play with me, I will give you x cents" where x can be any integer between 0 and 100. Receivers can then accept or reject this hypothetical offer. If they accept, the sender will then be given $1.00 to divide between himself and the receiver as desired, whereas if they reject, both the sender and the receiver will receive $0.20. In 2S, one receiver and two senders instead of one sender will be matched randomly and anonymously. Receivers will receive messages (nonbinding and private, of the same form as for 1S) from the senders who are identified solely as sender 1 and sender 2 in S2. Receivers can then click on one of three choices in S2: to play with sender 1, to play with sender 2, or to reject both senders. If receivers reject both senders, all three players will receive $0.20. If the receiver selects a sender, this sender will then be given $1.00 to divide between himself and the receiver as desired, while senders who are not selected will receive $0.20.

After senders have sent their message, senders will be asked how much they will transfer if their receiver chooses to play with them, without being informed of their receiver's actual choice. Beliefs from receivers will also be elicited with incentives regarding what they expect to receive and from senders in terms of what they believe receivers to expect.

Participants will be given comprehension quizzes before making any choices, and those who fail to reply correctly will be prevented from proceeding. We will run the survey over an interval of three days. We will first collect data from senders, randomly allocating participants into the 1S and the 2S treatment. In the second wave of the survey, we will collect receivers' data for the two treatments. Each receiver will be shown one (1S) or two (2S) senders' messages, randomly drawn from the responses to the survey's first two waves (sampled with replacement to overcome discrepancies in exact number of senders and receivers). Payoffs will be calculated ex post, after all surveys are received, by randomly matching senders and receivers, respecting the specific messages that have been drawn for each receiver.

Analysis: The analysis will be performed as in the original paper. That is, we will compare mean offers from senders in S1 and S2 using a two-sided independent samples *t*-test.

Subject payments: We are standardizing payments across all replications so that studies have a certain show-up fee depending on the expected length of the study, with an hourly wage from the show-up fee of $8 and a minimum payment of $1 (for studies with incentive payment we use the same incentive payment as in the original study; and this payment is paid in addition to the show-up fee). If we have problems recruiting, we will increase the show-up fee.