Appendix: Scoring rule

Before subjects chose actions in any round, they were asked to enter into the computer the probability vector that they felt represented their beliefs or predictions about the likelihood that their opponent would use each of his of her available actions. We rewarded subjects for their beliefs in experimental points which are converted into dollars at the end of the experiment as follows:

First Sender subjects report their beliefs about the likelihood that the Returner would return an amount in each of ten possible ranges. For example, if the Sender sent 20, then the maximum amount that could be returned would be 60, and the subject stated the likelihood that an amount from 0 to 6, from 7 to 12, etc., would be returned. The subject thus entered a vector $r = (r_1, \ldots, r_{10})$ indicating their belief about the probability that the other subject will take each of 10 possible actions(n the instructions the r_j is expressed as numbers in [0,100], so are divided by 100 to get probabilities.). Since only one such action will actually be taken, the payoff to the Sender (subject i) when action k is chosen by the Returner and r is the reported belief vector of subject i will be:

$$\pi_i = 20{,}000 - \left\{ (100 - r_k)^2 + \sum_{j \neq k} {r_j}^2 \right\}. \tag{1}$$

The payoffs from the prediction task were all received at the end of the experiment.

Note what this function says. A subject starts out with 20,000 points and states a belief vector $r = (r_1, \ldots, r_{10})$. If the Returner chooses 1, then the Sender would have been best off if he or she had put all of their probability weight on 1. The fact that he or she assigned it only r_1 means that he or she has, ex post, made a mistake. To penalize this mistake we subtract $(100 - r_1)^2$ from the subject's 20,000 point endowment. Further, the subject is also penalized for the amount he or she allocated to the other strategies, r_2 to r_{10} by subtracting $(r_i)^2$, $i = 2, \ldots, 10$, from his or her 20,000 point endowment as well. The worst possible guess, i.e. predicting a particular pure strategy only to have your opponent choose another, yields a payoff of 0 . It can easily be demonstrated that this reward function provides an incentive for subjects to reveal their true beliefs about the actions of their opponents, provided subjects are risk neutral expected utility maximizers.[1]Telling the truth is optimal.

Returners were compensated for their predictions about the Sender in a similar fashion. The Returners predicted the likelihood that an amount in each of ten possible ranges (dividing the 100 possible francs into 10 ranges: 0 to 10, 11 to 20, etc.) would be sent by the Sender. Thus the Returners submitted a vector of ten numbers, and were compensated as above, being penalized for putting too little weight on the range containing the actual amount sent, and for putting too much weight on the ranges not containing the actual amount sent.

[1] An identical elicatation procedure was used successfully by Nyarko and Schotter (2002).