Language and Lies: Does the Strength of a Communication Affect the Intrinsic Aversion to Dishonesty?

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Abstract

Does an individual's aversion to a lie depend upon the language used to communicate the lie? We adapt the Lopez-Perez & Spiegelman (2013) dot experiment to measure how a "weak" vs. "strong" message affects individuals' propensities for truthfulness when there is a monetary incentive to lie and no other person is affected by the communication. Weak messages state a fact, whereas strong statements "solemnly swear" to the fact. Under three different payoff incentives, each favoring lying to a different extent, strong (vs. weak) statements increase the percentage of subjects choosing to tell the truth by approximately 30 percentage points. We conclude that, with stronger language, our subjects are intrinsically more averse to dishonesty.

Keywords: Deception, Communication, Lie Aversion

JEL Classifications: D03

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1 Introduction

Recent literature shows that many individuals are intrinsically averse to lies. [1] Such preferences make communication meaningful, with the potential to promote coordination and trust. If communication matters, then the language used in the communication may also be important. Literatures in cognitive science and linguistics document how subtle differences in language can have profound impacts on the perceptions of an audience (e.g., Matlock, 2012; Talmy, 2000).

In this paper, we study how the language used to define a lie or truth affects the communicator. We find that increasing the strength of a message has an enormous impact on propensities for truthfulness in a one-sided setting where there is no one who responds to or is affected in any way by the message.

Prior work studies how the nature of communication affects lying behavior in two-sided environments where a Receiver takes an action and is affected by a Sender's message. Lundquist, Ellingsen, Gribbe & Johannesson (2009) compare weak, strong and free-form messages in a two-sided investment game. Our definitions of weak and strong statements closely follow their language. They find that free-form messages significantly reduce the extent of lying relative to weak or strong messages, and that strong (vs. weak) messages reduce lying for a subset of their sample. In a trust game, Charness & Dufwenberg (2006, 2010) find that free-form promises (akin to strong messages) promote more trustworthiness and trust than do "bare promises" (akin to weak messages). [2]

These results may reflect a greater intrinsic aversion to lies that involve stronger language. However, they may alternately reflect inter-personal considerations. For example, if stronger messages give stronger signals to Receivers about the advantageous course of action, Senders may believe that Receivers expect higher payoffs; lies can then produce more guilt aversion due to higher costs of Receiver disappointment (Charness & Dufwenberg, 2006). Messages

[1] See, for example, Lopez-Perez & Spiegelman (2013), Fischbacher & Foelmi-Heusi (2013), Friesen & Gangadharan (2012), building on early work of Gneezy (2005) and Sanchez-Pages & Vorsatz (2007), among many others. Intrinsic lie aversion may stem from values that underpin individual self-concept (Mazar et al., 2008).

[2] See also Ellingsen & Johannesson (2004).

in these settings also involve persuading a Receiver to take an action, possibly by altering beliefs or preferences (DellaVigna & Gentskow, 2010). To our knowledge, ours is the first study to isolate the effects of language on the *intrinsic aversion* to lies, separate from its effects on interpersonal and strategic considerations.

2 The Experiment

We adapt the Lopez-Perez & Spiegelman (2013) dot experiment in which subjects are exposed to a colored dot, either blue or green. Subjects are asked to report the color to someone who cannot see the dot and does not know the color. The reports take one of two forms, *weak* or *strong*. With the *weak* form, subjects choose whether to report that "the dot is blue" or that "the dot is green." With the *strong* form, subjects report "I solemnly swear that the dot is" blue or green. The actual dot color is randomly varied across participants.

We have a between-subject design with two message treatments (weak or strong) and three payoff treatments. Payoffs vary in the amount of money the subject earns by reporting the false color of the dot. Under the first payoff variation (Gain \$1), the subject earns \$1 for a truthful report and \$2 for an untruthful report. Similarly, under the second and third payoff variations (Gain \$2 and Gain \$3), the subjects earn \$1 for a truthful report and \$3 or \$4 (respectively) for an untruthful report.

The payoff gains to dishonesty are in line with prior literature. For example, subjects earn one euro more when they are dishonest (vs. honest) in Lopez-Perez & Spiegelman (2013). The payoff gain to dishonesty varies from 0.3 to 1.2 Swiss Francs (roughly 25 U.S. cents to \$1.05) in Gibson et al. (2013) and averages at most \$2.60 in Lundquist et al. (2009).

Two features of the design are particularly important. First, although messages are sent to "someone" - other subjects in different classes, who do not observe the dot - "senders" are (truthfully) made aware that their choices have no monetary consequence to anyone other than themselves (see on-line Appendix for details). [3] In addition, to avoid any potential

[3]The receiving subjects are given a fixed amount (one dollar), regardless of the message; are told nothing about the context in which the message is chosen; and have no reason to care about the color of the dot.

concerns for dollar costs to the experimenters or a desire to "please" (see Lopez-Perez & Spiegelman, 2013), we convey verbally to the students that we are interested in their decisions for our research and that they should make the decisions that they would like to make under the indicated circumstances.

Second, decisions in the experiment are made under complete anonymity. Anonymity is stressed both verbally and in written instructions. A number of steps are taken to ensure that, in fact and in the minds of the participants, neither the experimenter nor any other student observes an individual's decisions (see on-line Appendix). These measures include an anonymous payment mechanism explained in detail to the students.

The simple design avoids concerns about responses or consequences to other people in order to isolate treatment effects on intrinsic lying aversion. Like some prior one-sided deception experiments (for example, Friesen & Gangadharan, 2012, and Lopez-Perez & Spiegelman, 2013), the experimenter observes whether a choice is truthful or not, but does not observe the person making the decision.

The experiment is run in three upper division economics courses at the University of California, Merced. Experimenters are not instructors in any of the courses. Participation is purely voluntary and has no bearing on course assessment, both of which are indicated to the students before the experiment begins. Course rosters are used to ensure that no student participates more than once. Treatments are randomly assigned by mixing of questionnaires. Between 40 and 47 subjects are obtained for each treatment, for a total of 258 student participants. There are minor variations in the male proportion across the treatments. Overall, 49.2 percent of our sample is male; the *weak* treatments are comprised of 46.4 percent males and the *strong* treatments are comprised of 51.9 percent males; the z-statistic for the difference equals 0.88.

3 Results

Figure 1 and Table 1 describe the main results from the six treatments. Even with weak statements and larger payoff benefits of lies, statistically significant fractions of subjects are

truthful (z=4.83, 2.64, 3.15 under Gain \$1, \$2, \$3). Strong (vs. weak) messages produce roughly a 30 percentage point increase in the propensity for truth, with strikingly little difference in effect across the different payoffs. On average, the increase amounts to more than a doubling in the rate of truthfulness, from 23% to almost 55%.

Table 2 reports regression results for the choice of a truthful message, controlling for course effects, gender, and alternate payoffs. [4] The first two models are estimated by ordinary least squares, with robust standard errors; the third is estimated by probit. Both methods provide consistent estimates of marginal effects and standard errors. In all models, the estimates indicate a significant effect of the *strong* (vs. *weak*) treatment. The stronger messages are estimated to raise the rate of truthfulness by 32.8 to 38.4 percentage points, with $p < 0.01$ in all cases. Larger gains from deception – \$2 vs. \$1, as captured by the *Gain \$2* indicator, and \$3 vs. \$1, as captured by the *Gain \$3* indicator – are estimated to reduce the propensity for truthfulness, consistent with prior work. The male gender is also estimated to reduce truthfulness, as in a number of other studies (e.g., Friesen & Gangadharan, 2012), but not to a significant extent.

4 Conclusion

We study a one-sided deception experiment with no one at the receiving end who is affected by a Sender's message. We find that the language of the message – whether it is a strong or weak statement – has a large impact on many subjects' truthfulness. The implication is that stronger forms of communication increase intrinsic lie aversion and, as a result, promote truthful exchanges of information that in turn enable advantageous economic interchange.

In practice, the one-sided setting may often be a reasonable representation of circumstances, when the "Receiver" of dishonesty is a bureaucracy or corporation that is distant and impersonal (Friesen & Gangadharan, 2012). Potential examples include tax reporting, consumer claims on product returns, claims on loan or benefit applications, or self-reports of regulatory infractions. In such situations, even though they can involve risks not captured in

[4] We also test for any impact of the blue vs. green dot on deception decisions and treatment effects. As expected, we find none.

our simple experiment, the results suggest that language may be an effective tool to promote truthful communication.

5 References

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Figure 1. Experiment Results

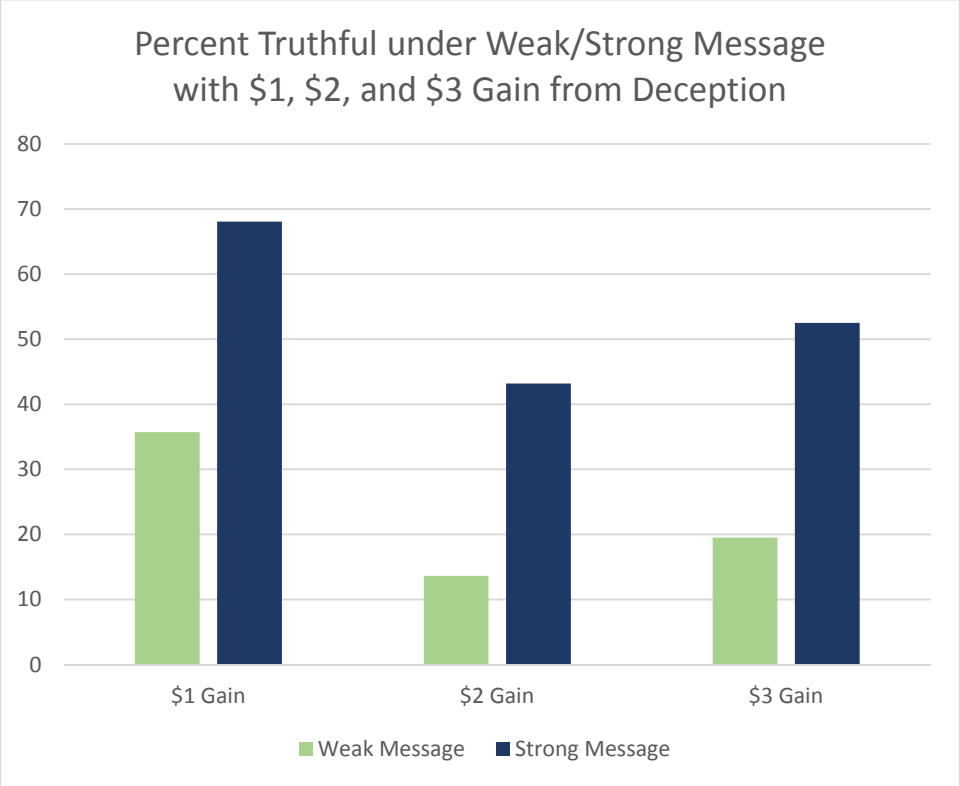

Table 1. Experiment Results

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Message	Gain from Deception	N	Percent Truthful	Difference: Strong - Weak	z-statistic
Weak	$1	42	35.71		
Strong	$1	47	68.08	32.37	3.22**
Weak	$2	44	13.64		
Strong	$2	44	43.18	29.55	3.25**
Weak	$3	41	19.51		
Strong	$3	40	52.50	32.99	3.29**
Weak	$1-$3	127	22.83		
Strong	$1-$3	131	54.96	32.13	5.61**

** p<0.01 (two-tail)

Table 2. Regressions for Truthful Message

	(1)	(2)	(3)
	OLS	OLS	Probit (Marg Effect)
Strong	0.3838 (3.39)**	0.3277 (5.76)**	0.3423 (5.44)**
Strong * Gain $2	-0.0391 (-0.28)	--	--
Strong * Gain $3	0.0059 (0.04)	--	--
Gain $2	-0.2156 (-2.34)*	-0.2343 (-3.40)**	-0.2456 (-3.36)**
Gain $3	-0.1656 (-1.61)	-0.1575 (-2.07)*	-0.1648 (-2.07)*
Male	-0.0313 (-0.42)	-0.0786 (-1.37)	-0.0912 (-1.41)
Male * Strong	-0.0910 (-0.80)	--	--
Course Effects	Yes	Yes	Yes

*p<0.05, ** p<0.01. N=256. Dependent Variable: 1=Truth, 0=Lie. Robust t-statistics in parentheses.