Judgment and Decision Making, Vol. 7, No. 3, May 2012, pp. 292–303

Dishonestly increasing the likelihood of winning

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Abstract

People not only seek to avoid losses or secure gains; they also attempt to create opportunities for obtaining positive outcomes. When distributing money between gambles with equal probabilities, people often invest in turning negative gambles into positive ones, even at a cost of reduced expected value. Results of an experiment revealed that (1) the preference to turn a negative outcome into a positive outcome exists when people's ability to do so depends on their performance levels (rather than merely on their choice), (2) this preference is amplified when the likelihood to turn negative into positive is high rather than low, and (3) this preference is attenuated when people can lie about their performance levels, allowing them to turn negative into positive not by performing better but rather by lying about how well they performed.

Keywords: lying, decision making, ethics, morality, dishonesty, mixed gambles, choice.

1 Introduction

Losses loom larger than gains (Kahneman & Tversky, 1979), and avoiding losses is more desired than securing gains (Tversky & Kahneman, 1981; Slovic, Fischhoff, & Lichtenstein, 2001), especially when the motivation is in line with the individual's goals (Elliot & Church, 1997; Elliot & Harackiewicz, 1996; Förster, Higgins, & Idson, 1998; Higgins, 1997). Beyond avoiding losses and securing gains, however, people are motivated to create opportunities for securing positive outcomes (Payne, 2005). People seek to increase the probability to win *something*, even at the cost of reduced expected value (Payne, Samper, Bettman, & Luce, 2008). This tendency can translate into large monetary losses in real life, as people attempt to minimize the number of debts they have rather than focusing on reducing the total amount they owe (Amar, Ariely, Ayal, Cryder, & Rick, 2011). Specifically, among people holding multiple credit cards Amar et al. (2011) found evidence for a *debt account aversion*: people consistently paid off small debts first, even though the larger debts had higher interest rates. People's psychological need to turn a *negative-to-positive* can be costly.

Payne and colleagues (Payne, 2005; Payne, et al., 2008; Venkatraman, Payne, Bettman, Luce, & Huettel, 2009) studied people's tendency to attempt increasing their probability of winning a positive outcome using mixed probability gambles. Participants were asked to imagine that they "own a five-outcome gamble with the following payoffs and probabilities: ($100, .20; $50, .20; $0, .20; –$25, .20; –$50, .20)… Now imagine that I tell you that you can change the gamble above in one of two ways. You can add $38 to the outcome that pays $100 or you can add the $38 to the outcome that pays $0." (Payne, 2005; p. 10). Although the expected value of the gamble remains constant regardless of the outcome participants chose to add money to (as all outcome had the same probability to be chosen), 68% of participants preferred to add money to the outcome that increased their probability of winning a positive outcome (e.g., $0; increasing the probability of winning a positive outcome from 2-out-of-5 to 3-out-of-5). The remaining 32% chose to add the money to the alternative outcome that did not increase their likelihood of winning something (e.g., $100).[1] Venkatraman, et al. (2009) further found that 65% of the people who considered the following gamble ($130, .20; $115, .20; $50, .20; $30, .20; –$10, .20), chose to add their $30 to the –$10 outcome (rather than the $50 outcome), allowing them to turn the one negative outcome into a positive outcome, and thus increase their probability of winning something in the gamble from 4-out-of-5 to 5-out-of-5.

Although people can influence their outcomes by choosing how to allocate funds (selecting gambles, Payne, 2005; repaying debt, Amar et al., 2011), they are often also able to influence their outcomes by choosing a task and working on it. For example, observing multiple tasks piling on their desks, such as emails to respond to and exams to grade, people must choose the task they will attend to first. They may choose the more urgent task of grading exams, or alternatively choose the task that is

I wish to thanks Marieke Roskes, Mariska Kret, and Ozum Saygi for their useful comments on earlier drafts of this paper. I also thank the two anonymous reviewers and the editor for their constructive feedback and guidance.

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[1] See Payne (2005) for detailed discussion comparing the alternative predictions by expected utility theory, prospect theory, and cumulative prospect theory.

likely to take the least time to accomplish and reply to (not so urgent) emails. In such, people's desire to have less unattended tasks on their table, might lead them to procrastinate on the more urgent tasks they are facing.[2] The current paper focuses on a situation in which people can influence their outcomes by choosing one of multiple outcomes and adding value to it as a function of their task performance: predicting the outcomes of multiple coin tosses. Specifically, the current work asks whether people choose to invest their efforts in turning a negative outcomes into positive outcomes and thus increase their probability of winning a positive outcome. Additional questions addressed here are whether this tendency is amplified when the likelihood to turn the *negative-to-positive* is high rather than low, that is, when the performance needed to accomplish turning the negative outcome into a positive outcome is relatively feasible (easy to accomplish) rather than relatively less feasible (difficult to accomplish). And finally, I ask whether ambiguous settings in which people may over-report their performance levels (i.e., lie) reduce their sensitivity to the objective feasibility to turn *negative-to-positive*?

To address these questions, I adapted Payne's (2005) paradigm and asked participants to add points to one of three outcomes, labeled "Pot A", "Pot B" and "Pot C", by choosing one of the pots. Participants then predicted the outcomes of 20 coin tosses, gaining one point per correct prediction. Points were added to the pre-selected pot only. After participants completed the coin tossing task, one of the pots was randomly selected to determine the participant's final outcome. Points translated to lottery tickets for an alleged lottery with two €10 prizes. Pot A had a positive initial outcome (38 points), Pot C had a negative initial outcome (–30 points), while Pot B had a negative initial value that could potentially turn into a positive outcome, if participants predicted well enough on the coin tossing task. Specifically, I manipulated whether the initial value of Pot B made it likely to turn from *negative-to-positive* (initial value = –6 points) or unlikely to turn from *negative-to-positive* (initial value = –12 points). As people seek to maximize the probability of winning something, and thus turn negative outcomes into positive ones, they should be sensitive to the likelihood of turning the negative outcome into a positive one. When the likelihood of successfully turning the negative outcome into a positive outcome is low (i.e., when accomplishing the task is possible but relatively difficult due to the initial value of the pot), people should be less likely to choose modifying this outcome. In contrast, when the likelihood of successfully turning the negative outcome into a positive outcome is high (i.e., when accomplishing the task is possible and also relatively easy due to the initial value of the pot), people should be more likely to choose modifying this outcome. Formally put:

> Hypothesis 1: People are more likely to attempt maximizing the probability of winning (choose Pot B) when the likelihood to turn a negative-to-positive is high rather than low.

Relative likelihood to accomplish a task however, matters only when performance is evaluated objectively, that is, when people are not able to over-report their performance levels to (unethically) boost their profit. In contrast, when people have the ability to lie about their performance levels, the difficulty of the task becomes less important, as people can lie (rather than perform) in order to achieve a positive outcome. This begs the question of whether situations allowing people to dishonestly over-report their performance levels may lead people to pay less attention to the likelihood of being able to turn a *negative-to-positive* (for a discussion on the issue in the tax compliance context; Kirchler, 1999; 2007; Kirchler, Hoelzl, & Wahl, 2008). In other words, when people can lie to improve their outcomes, will the likelihood of turning a *negative-to-positive* (i.e., low vs. high initial pot value) no longer be relevant? Moreover, could the possibility to turn a *negative-to-positive* justify lying?

1.1 Justified ethicality

Settings that allow people the freedom to report their performance levels themselves (e.g., annual earnings) consequently enable them to exaggerate their reports. Such settings allow people to lie, rather than perform, for profit. The classic economic approach to people's decision of whether to lie or not is Becker's cost-benefit model of crime and punishment (Becker, 1968). According to this approach, lying depends on the balance between the potential profits generated by the lie, on the one hand, and the likelihood of getting caught multiplied by the magnitude of subsequent punishment, on the other (Becker, 1968). A growing body of research suggests however, that even in completely anonymous settings, where detection of one's lie is impossible, people restrict the amount of their lies (Ariely, 2008; Ayal & Gino, 2011; Bazerman & Tenbrunsel, 2011; Gneezy, 2005; Atanasov & Dana, 2011; Gino, Ayal, & Ariely, 2009; Lundquist, Ellingson, & Johannesson, 2009; Schweitzer, Ordóñez, & Douma, 2004). People seem to strive to balance their competing desires of profiting from lying while maintaining a positive self-view as honest individuals (Mazar, Amir & Ariely, 2008; Shalvi, Handgraaf & De Dreu, 2011), which leads them to lie exactly to the extent that they can self-justify their lies (Shalvi, Dana, Handgraaf, & De Dreu, 2011; Schweitzer & Hsee, 2002).

[2]The example is based on a comment made by Maya Bar-Hillel in response to Moty Amar's presentation at the 2010 Annual Society of Judgment and Decision Making conference in St. Louis, Missouri, USA.

https://doi.org/10.1017/S1930297500002266 Published online by Cambridge University Press

The idea that people need self-justifications for lying is based on Kunda's notion that "people are likely to arrive to conclusions that they want to arrive at, but their ability to do so is constrained by their ability to construct seemingly reasonable justifications for these conclusions" (Kunda, 1990, p. 480; see also Shafir, Simonson, Tversky, 1993; Schweitzer & Hsee, 2002). Indeed, recent work suggests that people seek to appear fair and honest not only in the eyes of others but also in their own eyes (Shalvi, Dana, et al., 2011; see also Toure-Tillery & Fishbach, 2011; Dhar & Wertenbroch, 2012; Chance, Norton, Gino, & Ariely, 2011). Shalvi, Dana, Handgraaf and De Dreu (2011) asked participants to roll a die under a paper cup with small hole in the top allowing only them to see the outcome, and earn money according to what they reported rolling (1=$1, 2=$2, etc). As participants' rolls were truly private, lying was assessed by comparing the reported distribution to the distribution predicted by chance (Fischbacher & Heusi, 2008). Participants were asked to roll three times but report only the outcome of the first roll. While all three rolls were private, the distribution of reported outcomes resembled the distribution of choosing the highest of the three observed rolls. Critically, a condition allowing participants to roll only once, ceteris paribus, revealed less lying (for recent replications of this effect see experiments 3 & 4 in Gino & Ariely, 2012; Shalvi, Eldar, & Bereby-Meyer, in press). Participants clearly found value in being able to justify their lies to themselves.

The theoretical idea behind the finding that more rolls lead to more lying is that observing desired counterfactual outcomes (upward counterfactuals; Roese, 1997; Epstude & Roese, 2008; Markman, Gavanski, Sherman, & McMullen, 1993), in the form of higher values appearing on non-relevant for pay rolls, changes the way participants feel about lying using these specific outcomes. It two additional experiments (Shalvi, Dana et al., 2011; Experiments 3 & 4) participants observed different die roll combinations and reports and were asked to rank the extent to which they considered different combinations to be lies (on a continuous scale ranging from "not at all" to "very much"). Participants ranked justified lies (lies in which the report equaled a value observed on a non relevant for pay roll; 1^{st} roll < report = 2^{nd} roll) as less of a lie compared to unjustified lies (lies in which the report did not equal any of the observed values; 1^{st} roll < report $\neq$ 2^{nd} roll). It seems that lying by shuffling observed facts feels more legitimate than lying by inventing new facts.

In the insurance industry it indeed seems to be the case that justified lies are used more than unjustified lies, as more people exaggerate their otherwise legitimate claims ("buildup") than committing planned or outright fraud by filing claims about events that never occurred (Crocker & Morgan, 1998; Tennyson, 2008). Interestingly, economics students are more likely to use justified lies compared to psychology students, potentially due to their training (or their predisposition) in maximizing profit while maintaining an honest self and public image (Lewis, Bardis, Flint, Mason, Smith, Tickle, & Zinser, 2012). Further support to the idea was gained by the fascinating finding reported by Gino and Ariely (2012) that creative people, who are higher on flexible thinking, and are thus better in creating their own counterfactual reality, do not require extra rolls to justify their lies. While less creative people lied more when they rolled the die multiple times compared to when they rolled only once, creative people were not influenced by the number of rolls they had, and lied extensively in both cases. Evidently, creative people can create alternatives to factual reality using their flexible thinking style.

The question however remains, can the motivation to turn a *negative-to-positive* justify lying? As in other domains in life, people's ethical decisions are influenced by systematic cognitive biases in their information perceptions (Bazerman & Banaji, 2004; Bazerman & Tenbrunsel, 2011). Kern and Chung (2009) provide initial support for this idea by asking people to estimate the likelihood that they would lie in a series of hypothetical scenarios. The researchers found that people state they would lie more to avoid a loss than to secure a gain: Students assessed the likelihood that they, in the role of an entrepreneur interested in buying a competing company, would illegally seek inside information about the competing company. Participants learning that lying would result in a 75% chance of not losing the acquisition were more likely to lie compared to participants learning that lying would result in a 25% chance of winning the acquisition. Furthermore, people lie more the closer they are to achieving their goals (Schweitzer, et al., 2004). Together, as people seek to turn *negative-to-positive,* settings allowing people to over-report performance levels should reduce people's sensitivity to the likelihood of being able to turn a *negative-to-positive* honestly, because they may turn the *negative-to-positive* by lying. Having the private justification to lie in order to have higher probability to win something should lead people to make decisions that would allow them to achieve this goal. That is, as long as their goal of turning a *negative-to-positive* was not met, people will still be in a loss domain and would be motivated to cheat in order to eliminate their loss.

Focusing on actual rather than hypothetical decisions, I manipulated whether people could (vs. not) lie by over-reporting their performance level, to test:

> Hypothesis 2: The likelihood to turn a negative-to-positive will influence pot choice depending on whether lying about performance is possible or not. Specifically, when lying about performance is not possible, a high like-

https://doi.org/10.1017/S1930297500002266 Published online by Cambridge University Press

lihood of success will lead more people to choose the negative-to-positive option (Pot B) than when the likelihood of success is low. In contrast, when lying about performance is possible, the likelihood of success will have less influence on people's choice of the negative-to-positive option (Pot B).

Hypothesis 3: When lying about performance is possible, people will turn negative-to-positive by lying (over-reporting) about their performance levels.

Finally, the extent to which participants were motivated to avoid losing when making the pot selection decision was assessed.

2 Method

2.1 Participants

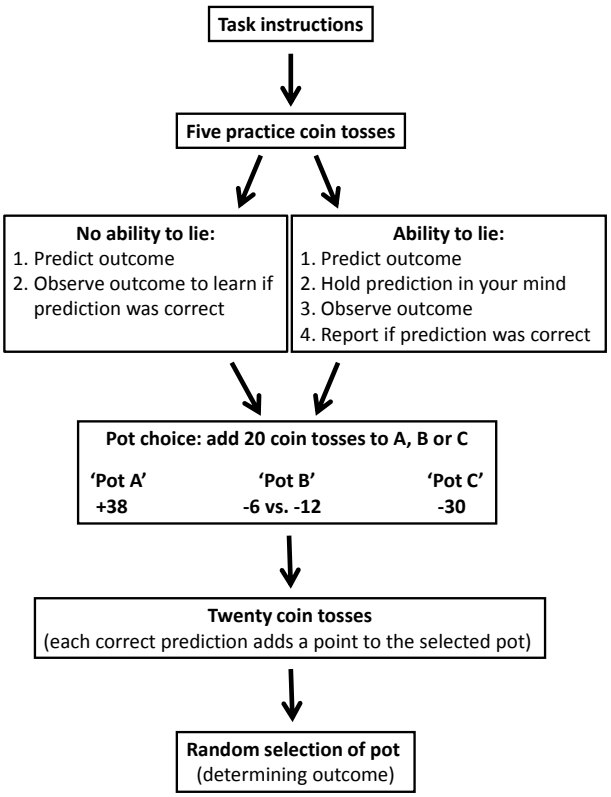
Three hundred and sixty-six students participated as part of a course requirement and were randomly assigned to a condition of a 2 (Ability to lie: Yes vs. No) X 2 (*Negative-to-Positive* Likelihood: Low vs. High) between-participants factorial design.

2.2 Procedure

Participants allocated 20 points into one of three different pots with equal probability of being selected by the computer to determine their outcome. After choosing one of the pots, points were added by predicting the outcome of 20 coin tosses, with every correct prediction adding one point to the pot. Participants were instructed that each point they receive will be converted into a single lottery ticket, and that at the end of the study all participants will enter the lottery with the number of tickets they managed to obtain. It was clarified that more tickets mean a higher chance to win one of two €10 prizes. This procedure was used to motivate participants to perform well on the task (and get as many lottery tickets as they possible can). Critically, I manipulated whether each of the participants' predictions was typed into the computer before observing the outcome or only kept in their mind before reporting if the predictions was correct (for similar approach to studying dishonesty see Greene & Paxton, 2009; Jiang, 2012; Schurr, Ritov, Kareev & Avrahami, 2012). The latter procedure allowed participants to lie by over-reporting the number of correct predictions they made.

Participants chose whether to add points to Pot A which had +38 points, Pot C which had –30 points, or Pot B which had –6 [vs. –12] points and was thus likely [vs. unlikely] to turn from *negative-to-positive* (in case participants reported honestly). Once participants chose a pot, each correct coin toss prediction added a point to the chosen pot. Depending on participants' coin toss predictions, the positive pot thus varied between 38 (=38+0) and 58 (=38+20) points, the negative pot between –30 (=–30+0) and –10 (=–30+20) points, and the *negative-to-positive* pot between –6 (=–6+0) and 14 (=–6+20) [vs. –12 (=–12+0) and 8 (=–12+20)] points. Choosing the *negative-to-positive* pot and predicting well enough thus increased the probability that the randomly selected pot would yield a positive outcome (from 1-in-3 to 2-in-3 pots). Importantly, participants' pot choice did not influence the expected value of the final outcome as all pots were equally likely to be chosen for pay.

Figure 1: Task procedure



Participants read instructions explaining the described procedure, engaged in 5 practice trials familiarizing them with the coin-tossing task, chose to which pot they wanted to add points, engaged in 20 coin-toss predictions, and finally learned which pot was randomly selected for pay. The practice trials ensured that participants in the "ability to lie" condition understood that they were able to over-report the number of coin tosses they correctly predicted, while participants in the "no ability to lie" condition understood that they were not able to over-report the number of coin tosses they correctly predicted. See Figure 1 for a graphical display of the task procedure.

https://doi.org/10.1017/S1930297500002266 Published online by Cambridge University Press

Table 1: Pot selection as a function of likelihood to turn negative-to-positive and ability to lie.

Procedure	Likelihood	Pot selected		
		Positive	*Neg-to-Pos*	Negative
No ability to lie	High (–6)	34.9% (29/83)	41.0% (34/83)	24.1% (20/83)
	Low (–12)	53.0% (44/83)	21.7% (18/83)	25.3% (21/83)
Ability to lie	High (–6)	41.1% (37/90)	32.2% (29/90)	26.7% (24/90)
	Low (–12)	31.8% (28/88)	28.4% (25/88)	39.8% (35/88)

2.3 Dependent variables

The main dependent variable was the pot participants chose to add points to. The aggregate number of correct predictions was measured as an indicator for lying in the condition in which participants were able to lie. While it was not possible to assess whether a specific individual was lying, comparing the distributions of reports in the different conditions to the distribution predicted if participants were reporting honestly (i.e., 50% correct predictions) allowed detecting lying on an aggregate level. After completing the coin-toss predictions, participants' motivation for choosing their selected pot was assessed by asking about the extent to which their choice was "an attempt to avoid losing points" and "an attempt to get as many points as possible" (1 =not at all to 7 =very much). To verify task comprehension participants indicated from how many pots they had to choose (3 or 5) and whether all pots had the same likelihood to be selected (yes vs. no).

3 Results

3.1 Comprehension check

Most participants (95%) understood that they had to choose between three pots and that all pots had the same likelihood to be selected (99%). The 22 participants who failed to answer those questions correctly were excluded from all analyses.

3.2 Pot selection

Results supported Hypothesis 1, a chi-square analysis revealed a main effect for likelihood on the tendency to attempt turning a *negative-to-positive* (choose Pot B). People were more likely to attempt turning *negative-to-positive* when the likelihood to turn a *negative-to-positive* was high (36.4%, 63 of 173) than when it was low (25.1%, 43 of 171), $\chi^2(1) = 4.61$, p = .024.

Hypothesis 2 suggested that the likelihood to turn a *negative-to-positive* will influence pot choice depending on whether lying about performance is possible or not. Specifically, when lying about performance is not possible, a high likelihood to turn a *negative-to-positive* will lead more people to choose this option compared to when the likelihood to turn a *negative-to-positive* is low. In contrast, when lying about performance is possible, the likelihood to turn a negative-to-positive will have less influence on people's choice of this option. Results provided partial support to Hypothesis 2. Descriptively, when participants were not able to lie, more participants chose the *negative-to-positive* pot when the likelihood of success was high (41%) than when it was low (21.7%). In contrast, when participants were able to lie, they chose the *negative-to-positive* pot to similar extents regardless of whether the likelihood of success was high (32.2%) or low (28.4%), see Table 1.

To test the statistical significance of this interaction pattern, a multinominal logistic regression model was used as it allows assessing nominal dependent variables with more than two levels (as in the case of choosing between three pots). A multinominal logistic regression with the likelihood to turn *negative-to-positive* and the ability to lie as independent variables and the selected pot as dependent variable, revealed a significant interaction effect: $\chi^2(2) = 6.206$, $p = .045$. This interaction effect was driven by the interaction between likelihood and the ability to lie influencing the contrast comparing the choice of the positive pot and the *negative-to-positive* pot, B = –1.183 (SE = .529), Wald (1) = 5.01, $p = .025$ ($p = .05$, after using a Bonferroni correction for the two possible contrasts). The contrast between the negative pot and the *negative-to-positive* pot was not significant, $p = .781$.[3] In the general discussion I speculate about possible reasons why only the contrast between the positive pot and the *negative-to-positive* pot was significant.

To further clarify the observed pattern of choices, I assessed whether the proportion of participants choosing to add their points to the *negative-to-positive* pot differed

[3] An additional logistic regression predicting the binary choice between the *negative-to-positive* pot and the other two pots from the likelihood and ability to lie, did not reveal a significant interaction effect, B = –.738 (SE = .477), Wald (1) = 2.393, $p = .06$ (one-tailed).

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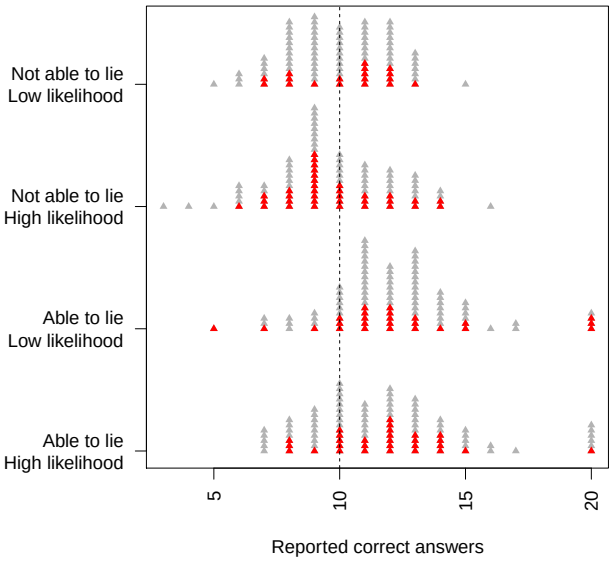
from choosing one of the three pots at random (i.e., 1 of 3). In the "no ability to lie" condition, the proportion of people choosing the *negative-to-positive* pot in the low likelihood condition was lower (21.7%) than if they were choosing a pot at random (1/3; binominal probability, p = .014). Furthermore, the proportion of people choosing the *negative-to-positive* pot in the high likelihood condition was somewhat higher (41.0%) than if they were choosing a pot at random (1/3; binominal probability, p = .088, marginal). In contrast, in the "ability to lie" condition, participants chose the *negative-to-positive* pot at levels that did not differ than the likelihood predicted by choosing a pot in random (high likelihood, 32.2%; binominal probability, p = .19; low likelihood, 28.4%; binominal probability, p = .46).

3.3 Lying

In the condition enabling participant to lie, participants (ab)used their ability to influence their outcomes and over-reported the number of correct predictions. A binominal test revealed that participants that were able to lie over-reported their outcomes, in both low and high likelihood conditions. The number of successes for a person reporting honestly is distributed according to a binominal distribution with the parameters 20 and 0.5 (B (20, 0.5)). Summing over the N subjects in the low likelihood to turn *negative-to-positive* condition (N = 88), the number of success these individuals reported (1070) is distributed according to (B (88*20, 0.5)). The likelihood of observing 1070 or more correct predictions out of the 1760 (= 88 * 20) coin tosses is extremely low, p < .000001. Similarly, in the high likelihood to turn *negative-to-positive* condition (N = 90), the number of success these individuals reported (1063) is distributed according to (B (90*20, 0.5)). The likelihood of observing 1063 or more correct predictions out of the 1800 (= 90 * 20) coin tosses is extremely low, p < .000001. In contrast, in the condition in which participants were not able to lie by over-report their outcomes, they (not surprisingly) predicted at chance levels (820 correct prediction of 1160 in low likelihood condition, p = .64; 805 correct prediction of 1160 in high likelihood condition, p = .23). See Figure 2 for the histograms summarizing (per conditions) the proportion of participants reporting their total correct predictions (out of 20) among participant choosing the *negative-to-positive* pot (red), and among the remaining participants (gray).

Supporting Hypothesis 3, participants who chose to add points to the *negative-to-positive* pot managed to raise the pot's value above zero more often in the condition enabling them to lie compared to the condition not enabling them to lie. When the likelihood to turn a *negative-to-positive* was high (initial value –6, EV= –6 + 10 = 4; probability for positive outcome based on honest reporting = .94), all but one participant managed to end up with a positive outcome regardless of condition. However, when the likelihood to turn a *negative-to-positive* was low (initial value –12, EV = –12 + 10 = –2; probability for positive outcome based on honest reporting = .13), participants in the condition enabling them to lie were more likely to turn a *negative-to-positive* (36%) than participants in the condition not enabling them to lie (5.6%), $\chi^2(1) = 5.45$, p = .02.

Figure 2: Reported scores (out of a possible 20) as a function of experimental conditions. Each triangle is a participant. Red (darker) points are participants who chose Pot B; gray (lighter) points are those who chose Pot A or C. The vertical dashed line represents chance performance.



Interestingly, a Mann-Whitney test comparing the amount of lying between the low and high likelihood conditions did not reveal a significant difference, p = .193. Possibly, this is a result of the fact that, while people usually restrict the amount of their lies, they nevertheless lie a bit. Thus, it might be that, in the high likelihood condition (Pot B = –6), participant were lying (a bit) even though they did not need to in order to turn *negative-to-positive*. In the low likelihood condition (Pot B = -12), participants might have lied to turn the *negative-to-positive* which coincide with lying just a bit. The issue is further discussed in the general discussion.

3.4 Avoid losing

I assessed the extent to which participants in the different conditions were motivated by a desire to minimize the number of points they could lose vs. to gain as many points as possible. To do so, I computed an index of the

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relative desire to avoid losses compared with the desire to secure gains, by adding the avoid loss score and the (reverse coded) maximize gain score (both self-reported ratings measured at the end of the experiment). The index ranged from a desire to maximize gains (–6) to minimize losses (+6). A 2 (Ability to lie: Yes vs. No) X 2 (Likelihood: Low vs. High) between subjects ANOVA predicting the desire to avoid losses revealed no effect for likelihood, $F(1, 340) = .03$, $p = .86$. The main effect for the ability to lie was significant, $F(1, 340) = 4.01$, $p < .05$. Participants who were able to lie justified their decision by a stronger desire to avoid losses ($M = .08$, $SD = 2.71$) than those who were not able to lie ($M = –.54$, $SD = 3.18$). The interaction between the ability to lie and the likelihood to turn a *negative-to-positive* was also significant, $F(1, 340) = 8.13$, $p < .01$. A simple effects analysis revealed that the effect of the ability to lie was not significant when the likelihood for turning *negative-to-positive* was high, $F(1, 340) = .37$, $p = .54$, however, when the likelihood for turning *negative-to-positive* was low, participants who were able to lie justified their decision by a stronger motivation to avoid losses ($M = .57$, $SD = 2.48$) than those who were not able to lie ($M = –.96$, $SD = 3.10$), $F(1, 340) = 11.77$, $p = .001$.

4 Discussion

Seeking to increase to probability of winning something makes people attempt turning *negative-to-positive* even when it comes at a price (Payne, 2005). This tendency influences economic decisions such as choosing which debt to repay first, leading people to seek closure and end up paying higher interest (Amar, et al. 2011). The novel results reported here suggest that (1) people's desire to turn *negative-to-positive* occurs even when doing so depends on task performance, (2) this tendency was amplified when the likelihood to turn the *negative-to-positive* was high, and (3) attenuated when turning *negative-to-positive* could be obtained by dishonestly exaggerating performance levels.

Past work using mixed probability gambles by Payne and colleagues (Payne, 2005; Payne, et al., 2008; Venkatraman, et al., 2009) typically provided participants with a hypothetical gamble composed by payoff and probabilities (often including 5 options) and provided them with the option to add money to one of two options: (1) an option that increased the probability of winning vs. (2) an option that did not increase the probability of winning. As in the example given in the introduction, participants could choose to add \$30 to one of two outcomes in the following gamble: (\$130, .20; \$115, .20; \$50, .20; \$30, .20; –\$10, .20). Participants could either add the \$30 to the outcome that pays -\$10 (which will turn it into a positive outcome and increase the likelihood of winning a positive outcome) or to the outcome paying \$50 (which will not increase the likelihood winning a positive outcome). A typical result in this line of prior work is that about 60%–70% choose to add value to the option that allows them to turn the *negative-to-positive*. In the current work, the proportion of participants choosing that option ranged between 21% (when they were not able to lie and had a low likelihood to turn *negative-to-positive*) to 41% (when they were not able to lie and had a high likelihood to turn *negative-to-positive*). Importantly, these values differed from the choosing an option at random. When the likelihood to turn *negative-to-positive* was low [high] participants were less [more] likely to choose this option compared to choosing an option at random.

There are several possible reasons why a different proportion of people chose the option to turn *negative-to-positive* in the current work compared to the work by Payne and colleagues, all relating to the adaptations of the original task. First, although in prior work participants chose whether to add points to one of two options (enabling vs. not to turn *negative-to-positive*), in the current work participants were asked to choose to add points (lottery tickets) to any of the three options included in the gamble: (Pot A 38, 1/3; Pot B –6 [vs. –12], 1/3, Pot C –30, 1/3). Thus, participants had more options to choose from. Providing an option to choose any of the available options may be considered a more naturalistic choice than limiting the possibilities to only a few selected values. However, this procedure also creates more variance in choice and reduces the likelihood that a given outcome will be chosen.

Although variations in choices between the positive and negative pots were not the focal point of the current work, they allowed discovering some interesting patterns. For example, although the interaction between likelihood and ability to lie influenced the contrast between the positive pot and the *negative-to-positive* pot, it did not influence the contrast between the negative pot and the *negative-to-positive* pot. Specifically, for participants who were not able to lie, having a low likelihood to turn *negative-to-positive* led more people (53%) to choose investing in the positive pot (Pot A) compared to when the likelihood high (34.9%). No difference on choosing the negative pot (Pot C) were observed (25.3% vs. 24.1%, respectively). In contrast, when participants were able to lie, having a low likelihood to turn *negative-to-positive* led more people (39.8%) to choose investing in the negative pot (Pot C) compared to when the likelihood high (26.7%). And a less meaningful difference on choosing the positive pot (Pot A) was observed (31.8% vs. 41.1%, respectively). Future work is needed to validate these unpredicted patterns and clarify how and why varying the likelihood to turn the negative outcome into

https://doi.org/10.1017/S1930297500002266 Published online by Cambridge University Press

positive outcome, influences people's choices regarding other options available to them. Such future work may benefit from considering the tradeoff between the more naturalistic choice structure (allowing choosing any of the given options) and the rich and complex predictions this approach entails.

Second, in the current work points were added in a probabilistic rather than a certain way. This was done by predicting the outcome of 20 coin tosses, having each correct prediction adding a point to the selected gamble. Such reduced certainty that the given gamble will indeed turn from *negative-to-positive* is likely to further contribute to the relative low proportion of participants choosing the *negative-to-positive* compared to prior work. Critically, participants' choices of adding points to the *negative-to-positive* outcome differed between experimental conditions, supporting the proposed theoretical framework.

Third, in the current work a condition in which participants were able to lie about their performance level to boost personal profit was added. A growing body of research provides evidence that, given the possibility to lie without getting caught, people lie (e.g., Barkan, Ayal, Gino, & Ariely, 2012; Mazar, et al. 2008; Vohs & Schooler, 2007; Batson, et a., 1997; Greene & Paxton, 2009; Hao & Hauser, 2010; Lammers et al. 2010). Providing better insight into the conditions which justify such unethical behavior is thus important from theoretical, applied and societal perspectives (Ariely, 2008; Bazerman & Banaji, 2004; Bocchiaro, Zimbardo, Van Lange, 2012; Chugh, et al., 2005; De Cremer, 2009; DePaulo, et al., 1996; Gneezy, 2005; Gunia, Wang, Huang, Wang, & Murnighan, 2012; Haidt, 2007; Jones, 1991; Van Gelder, 2012). Gaining better understanding of people's "ethical blind spots" (Bazerman & Tenbrunsel, 2011) and the places where they feel legitimate to "stretch the truth" (Schweizer & Hsee, 2002) should allow people within and outside organizations to overcome these undesired behavioral biases (Gibson & Murnighan, 2009). The current work contributes to this attempt by pointing out that, when taking actual (rather than hypothetical) decisions, people feel justified taking decisions that will allow them to turn a *negative-to-positive* by lying. Holding the restrictions concerning the specific contrast driving the likelihood by ability to lie interaction in mind, the evidence provide here suggest that compared to participants who were not able to lie, participants who were able to lie were more likely to choose the *negative-to-positive* pot even when the likelihood to turn *negative-to-positive* was low (that is, if they were to report truthfully).

Another interesting finding concerns the levels of dishonesty identified in the current study. Among participants who could have lied, no differences were observed between the amount of lying among participants in the low and high likelihood conditions. As mentioned in the results section, one possibility for this result is the fact that, although people usually restrict the amount of their lies, they nevertheless lie a bit. In the context of 20 coin tosses, participants are expected (on aggregate) to predict 10 tosses correctly. If they lie a bit, they may claim an average of about 12 correct prediction, as was the case in both studied conditions. Thus, it is possible that in the high likelihood condition (Pot B = –6) participant were lying (a bit) even though they did not need to do so in order to turn *negative-to-positive*, while in the low likelihood (Pot B = –12), they might have lied to turn *negative-to-positive* which coincides with lying just a bit. This possibility is supported by the post-decision questions assessing participants' motivation to avoid losses when making the pot choice. Notwithstanding, manipulating the *negative-to-positive* pot to hold an even more extreme initial negative value (e.g., –15 or –17) should allow revealing cheating differences between the different likelihood conditions. The idea is that, because the amount of cheating needed to turn *negative-to-positive* will be larger, it will lead people to lie more than just a bit.

From an applied perspective, the obtained results may be interesting in financial auditing contexts (Bazerman, Loewenstein & Moore, 2002). Tax reports that are filed by individuals or companies are often randomly audited by the tax authorities (Kirchler, 2007; 1999). When reporting taxes, individuals and accountants alike may be tempted to perform "creative book keeping", interpreting the rules loosely to profit financially. It seems plausible that "creative book keeping" is likely in settings allowing one to move from *negative-to-positive*, from owing money to the authority to having the authority owing money to the individual. From an applied perspective, addressing this issue will allow assessing which parts of the books people are more likely to handle in such ethically lenient ways, which seems a promising venture for future research. Such research will be valuable in allowing better system designs (Thaler & Sunstein, 2008) that may increase ethical behavior. One possible avenue to consider is algorithms targeted at detecting tax fraud. Such algorithms may benefit from insights relating to people likelihood to try turn a bottom line leading them to owe money to the authorities to a ("winning") bottom line entitling them with a tax refund. Future research is needed to provide better estimates for such detection algorithms.

The current results point to people's sensitivity to the likelihood that their actions will turn a *negative-to-positive*. People take action when they have high rather than low control over the desired outcomes (Keltner, Gruenfeld, & Anderson, 2003; Galinsky, Gruenfeld, & Magee, 2003; De Dreu & Van Kleef, 2004; Van Kleef et al., 2006; Handgraaf et al., 2008) suggesting that peo-

https://doi.org/10.1017/S1930297500002266 Published online by Cambridge University Press

ple are more likely to attempt turning *negative-to-positive* when acting rather than avoiding action (omission vs. commission; Ritov & Baron, 1990; 1992; 1995; Baron & Ritov, 1994). An interesting possibility to address in future work is whether people do not only act in an attempt to turn a *negative-to-positive* but also endorse defaults allowing a *negative-to-positive* modification without their interference. Such research will allow addressing whether turning *negative-to-positive* is restricted to acts of commission or whether it also exists in omissions.

Another avenue for future research is to assess whether people use private justifications to dishonestly turn a *negative-to-positive* in settings influencing not only their own outcomes but also the outcomes of others. Past work suggests that people indeed take into consideration how their (unethical) behavior will influence others (Van Lange, 1999; De Dreu & Van Lange, 1995; Van Dijk, De Cremer & Handgraaf, 2004; Van Dijk & Vermunt, 2000; Koning, Van Dijk, Van Beest & Steinel, 2011; Steinel & De Dreu, 2004) and how these others expect them to behave (Dana, Cain & Dawes, 2006). For example, Gino and Pierce (2009) found that people tend to lie in order to restore equity between themselves and others: Negative inequity (having less than the other) evokes envy and cheating to hurt the other, while positive inequity (having more than the other) evokes guilt and unethical helping behavior. Recently, Xiao (2011) demonstrated that having to justify one's decision to others makes people more likely to cooperate with those others. Would people also engage in unethical cooperation? And would such unethical cooperation be more likely when people could justify their lies by the fact that they turned another person's outcome from *negative-to-positive*? Will such unethical cooperation be restricted to helping the people from the performer's close surroundings (e.g., family members, friends, colleagues)? Alternatively, will using justified unethical cooperation may extend to settings in which the other is merely singled out of the crowd as a person in need for help (i.e., an identified victim; Kogut 2011a; 2011b, Kogut & Ritov, 2005; 2007; Slovic, 2007; Small & Loewenstein, 2003)? Whether settings in which people's behavior affects others around them are more likely to push them to use unethical justifications, such as turning a *negative-to-positive* by bending ethical rules, remains an open question.

4.1 Conclusion

The desire to hold as many "winners" in one's hands as one possibly can, seems reasonable, but sometimes comes at a cost. Evidence provided here suggests that people are sensitive to their likelihood to turn a negative outcome into a positive one, whether by performing well on a task or by lying to secure desired outcomes. In an attempt to increase the likelihood of getting a positive outcome, people feel justified to pursue all means to turn *negative-to-positive*, even at the cost of sacrificing their honesty.

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