

**The Deception Equilibrium:
The Powerful Are Better Liars but the Powerless Are Better Lie-
Detectors**

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ABSTRACT:

Societies rely on harmonious relationships between leaders and followers. One threat to this co-existence is that those with power lie more often and with greater ease. How do the powerless – whose livelihood depends on the powerful – survive in the face of this deception? Two experiments using economic games to induce power examined how actual lies by the powerful and the powerless are evaluated by perceivers who themselves are powerful or powerless. Results showed that power increases the ability to successfully deceive. However, powerlessness increases the ability to successfully detect deception. This pattern of powerful-deceivers competing with powerless-detectors suggests a “deception equilibrium.” Equilibrium is disrupted when resources are scarce because under scarcity, the powerful become better lie-detectors. Overall, an evolutionary arms-race account may explain the findings.

Humans live on a deception tightrope. On the one hand, the ability and proclivity to lie seem to have increased over evolutionary history (1). On the other hand, humans inadvertently reveal their lies through verbal and nonverbal clues (2; 3). By lying, we refer to a false statement made with deliberate intent to deceive. Because lies require extra cognitive resources relative to telling the truth and often produce guilt and fear of detection, it becomes difficult to control nonverbal behavior, resulting in behavioral indicators of deceit (4). Despite the clear presence of these clues, deception-detection rarely exceeds chance (i.e., 54%; 5).

Human deception is characterized by a tension between self-interest (lies increase one's own resources) and others' interest (sharing those resources with others; 6). This tension is heightened by the pervasive asymmetry in resource-control inherent in hierarchically structured human societies (7; 8). Access to resources is inextricably linked to differences in power (9; 8); the very definition of power is control over valuable resources (10). Despite already possessing disproportionate and advantageous access to resources, powerful people lie more often and with more ease (11; 12). Thus, in addition to their resource disadvantage, powerless individuals' survival is in the hand of individuals who have more access to resources and who can further deprive the powerless through deception. Faced with these compounding constraints on resource access, how have powerless individuals competed with the survival advantage of the powerful? We propose that a "deception equilibrium" has emerged through a competitive evolutionary arms race between the powerful and the powerless. Equilibrium phenomena are found across many systems from the molecular to the macro-economic (13). Evolutionary equilibria are even found in animals from different species—for example, the brain sizes of predator-prey species evolve together (14).

The current research tests whether there is a deception equilibrium between the powerful and the powerless. First, we propose that possessing power leads to more effective deception. Power, even when minimally endowed in the laboratory, mitigates the impact of stress associated with dishonesty (11; 12). The experience of power also brings illusory control, and this perceived control may aid the liar in the production of a convincing narrative (6). Finally, high-power individuals are less sensitive to societal norms; e.g., norms that condemn the use of deception (15; 16). Together, these lines of research suggest that deception not only comes easily to the powerful (11; 12) but that the powerful should have an enhanced *ability* to successfully lie. Thus, our first hypothesis is that lies from those having power are more difficult to detect than the lies from those lacking power.

Second, we propose the powerless will be more effective lie-detectors. This deception-detection ability would help offset powerful individuals' advantage in successful lie-telling. In the co-evolutionary struggle between the powerful deceivers and the powerless deceived, each must develop better deception (and counter-deception) tactics than the other. In support of this proposition, research shows that when people lack power, their motivation and ability to be accurate when making sense of others is enhanced (17; 18). In particular, powerlessness increases attention to negative cues (e.g., 19), which could shift the powerless toward accuracy in deception as expressions of fear and disgust reveal deceit in experimentally manipulated high-stakes crime scenarios (20). Thus, our second hypothesis is that powerless individuals will be better lie-detectors than powerful individuals.

Third, we propose that powerful individuals' disadvantage in deception-detection is especially likely to exist when resources are abundant. We expect that when resources are scarce, powerful individuals may become vigilant like the powerless. This vigilance would enhance their ability to detect lies, bringing them into parity with powerless individuals' ability to detect lies. Scarce resources should prompt all individuals to be more attentive to their environment—regardless of how much, or little—power they have (21; 22). Thus, our third hypothesis is that resource scarcity will disrupt the deception equilibrium by taking away the advantage the powerless had in lie-detection.

We conducted two experiments to test our set of hypotheses. We predicted that the powerful will be more effective liars (Experiments 1 & 2), the powerless will be more effective lie detectors (Experiments 1 & 2), and resource scarcity will increase powerful individuals' deception-detection accuracy (Experiment 2).

In Experiment 1, 105 participants played the Dictator Game (23) resulting in half of the participants controlling all the resources (i.e., the dictators/high-power) and the other half depending upon the dictators (i.e., recipients/low-power). After the dictator game, low- and high-power participants observed 12 individuals (6 high-, 6 low-power) lying or telling the truth about having committed a theft. Individuals in these videotaped pleas had been placed in low- or high-power positions through a role-play manipulation plus a dictator game manipulation (see supplemental materials for details). The videotaped pleas contained low- and high-power individuals insisting that they had not stolen a \$100 bill—half of the pleaders were lying and the other half telling the truth. Participants observed the pleaders and rated their veracity on a binary scale: “was lying” versus “was telling the truth.”

Accuracy in detecting deception was calculated by determining the percentage of correct hits for each perceiver. Data were analyzed by using a 2 (participant perceiver

power: low vs. high) x 2 (target pleader power: low vs. high) x 2 (participant perceiver gender: male vs. female) mixed-model ANOVA (target pleader power was within-subjects and all other variables were between) on deception-detection accuracy.

Consistent with our first hypothesis, overall, high-power pleaders were more successful at avoiding deception-detection than low-power pleaders: high-power pleaders were less likely to be accurately “read” (accuracy hit-rate = 47%; $SD = 19\%$), compared to low-power pleaders (57%; $SD = 18\%$), $F(1, 103) = 13.46, p < .0001$; effect size $r = .34$. More focused one-sample t -tests examined the overall accuracy of judging low- and high-power pleaders (across all perceivers—both low- and high-power). Accuracy when judging low-power pleaders (57%; $SD = 18\%$) was significantly better than 50% chance, $t(104) = 3.65, p < .0001$. Accuracy when judging high-power pleaders (47%; $SD = 19\%$) was marginally lower than chance, $t(104) = -1.76, p < .09$.

Consistent with our second hypothesis there was a significant main effect of perceivers’ power on accuracy such that low-power perceivers were significantly better at detecting deception (55%; $SD = 18\%$) than high-power perceivers (49%; $SD = 18\%$), $F(1, 103) = 5.45, p < .022$; effect size $r = .22$. Low-power perceivers’ deception-detection accuracy of 55% was also significantly better than chance, $t(51) = 2.66, p < .011$. In contrast, high-power perceivers’ deception-detection accuracy of 49% did not differ from chance ($p > .51$). There was no interaction between perceiver power and pleader power on accuracy of detecting deception ($p > .86$). There were no main effects or interactions with gender (all $ps > .26$).

In Experiment 2, resource scarcity was manipulated by randomly assigning 126 participants to either be *rich* participants in an abundant condition where they were offered to “take as much candy as you would like” from 3 bowls spilling over with full-sized candy bars (see Figure 1). Alternatively, they were assigned to be *poor* participants in a scarcity condition and were offered to “take one piece of candy if there is any left” from 3 bowls containing only 10 pieces of candy each (not enough for all; see Figure 2). We used the same power manipulation as in Experiment 1 to induce high- and low-power perceivers (23). Participants judged the veracity of 12 targets’ statements (targets were low and high-power liars and truth-tellers; two different batches of 12 videos were used to be sure any effects observed were not specific to the stimuli used in Experiment 1). Accuracy was calculated by totaling each perceiver’s percentage of correct hits across the low- and high-power targets.

A mixed-model ANOVA examined the effect of participant power (low vs. high-power) x target pleaders’ power (low vs. high-power) x 2 (participant gender) x 2 scarcity (scarce vs. abundant) on accuracy of detecting deception. There was a significant

interaction between perceiver power and scarcity, $F(1, 117) = 3.97, p < .05$; effect size $r = .18$ (see Figure 3). Consistent with our theorizing, an environmental condition of resource scarcity significantly increased high-power perceivers' accuracy to 62% ($SD = 17\%$), which was significantly greater than chance, $t(30) = 4.25, p < .0001$ and significantly greater than the 49% accuracy observed in Experiment 1, $t(30) = 4.66, p < .00001$. In contrast, under conditions of resource abundance, high-power perceivers (54%; $SD = 14\%$) were only marginally greater than chance, $t(32) = 1.87, p < .07$. Comparing these two conditions also revealed that resource scarcity led to greater accuracy among the high-power participants, $F(1, 60) = 4.18, p < .05$. In contrast, low-power participants were unaffected by the scarcity manipulation, $F(1, 57) = .50, p > .48$. Overall, the low-power perceivers' accuracy (54%; $SD = 14\%$) was significantly better than chance, $t(62) = 2.36, p < .03$ and entirely consistent with the 55% accuracy observed in Experiment 1, $t(61) = -.57, p > .57$.

Also consistent with Experiment 1, the difference in perceivers' accuracy about low- versus high-power pleaders was statistically significant, $F(1, 117) = 24.29, p < .0001$; effect size $r = .42$. Specifically, low-power pleaders were more readable; accuracy when judging low-power pleaders was 64% ($SD = 18\%$) which was significantly greater than chance, $t(124) = 8.49, p < .001$. In contrast, high-power pleaders were not readable; accuracy was 48% ($SD = 19\%$) which was not significantly different than chance, $t(125) = -1.09, p > .27$.

We also found an interaction between the power of the pleader and perceivers' resource scarcity, $F(1, 117) = 4.60, p < .04$; effect size $r = .19$ (see Figure 4). Under conditions of perceiver abundance, low-power pleaders were read more easily (64%; $SD = 17\%$) than high-power pleaders (46%; $SD = 21\%$), $F(1, 62) = 30.70, p < .0001$; effect size $r = .56$. When perceivers were under conditions of scarcity, low-power pleaders (63%; $SD = 19\%$) were still more readable than high-power pleaders (51%, $SD = 16\%$) but the difference was smaller, $F(1, 55) = 3.23, p < .07$; effect size $r = .24$. There were no significant main effects or interactions with gender (all $ps > .09$).

Taken together, these experiments provide evidence that an equilibrium may exist between the powerful and the powerless in matters of deception. This equilibrium occurs because the powerless show enhanced deception-detection ability which may offset the ability of the powerful to successfully deceive others. This equilibrium is disrupted under conditions of scarcity; conditions of resource scarcity render the powerful at an advantage because they have (a) a superior ability to lie and (b) no disability in deception-detection. Thus, equilibrium in power and deception may only exist when resources are abundant.

These results reveal the mechanics of a deception equilibrium between the powerful and the powerless. The present experiments also highlight how quickly people fall into the role of the powerful and the powerless. Hierarchy is the predominant form of social organization that permeates societies and organizations (10; 24). For hierarchy to function as an organizing principle it is critical that targets experience their rank quickly and accurately. Indeed, research suggests that the psychological and physiological effects of power happen instantly in the lab or the field. For example, a brief power manipulation in a laboratory setting can increase the dominance hormone testosterone and decrease the stress hormone cortisol—an endocrine profile likely ignited to prepare for a challenge (12; 25). Actions, while feeling powerful, are perceived to be easier, psychologically, emotionally, physiologically and physically (12). This is likely the reason why the powerful lie more easily and successfully—lying is not a stressor for the powerful as they have an abundance of cognitive and psychological resources available to control their behavior, allowing them to produce a more convincing lie. The opposite is true of the powerless. The powerless consistently experience more stress, leading to poorly constructed and more easily detected lies.

A second category of phenomena shifted by the psychological and physiological changes associated with power is social perception. Research suggests a host of reasons why the powerless are advantaged in social perception—ranging from a general threat sensitivity explanation to a proximate account, citing their survival-dependence on others (26). Importantly, this work is consistent with our current result demonstrating that decreases in power might increase one’s ability to successfully detect lies, potentially by perceiving subtle behavioral cues.

It is also interesting to speculate on the reasons why scarcity leads to upward shifts in powerful individuals’ ability to detect deception. Scarcity may threaten the stability of a person’s sense of power or rank and lead them to devote more resources toward hierarchy maintenance strategies, including securing their position and scarce resources by paying more attention to potential threats in their environment. This is consistent with work showing that in an unstable hierarchy, high-power people feel more stress and pay more attention to surroundings (27).

The current research provides empirical support for the possibility that asymmetrical arms races occur within species—not just between them (28). Remarkably, in this case, between humans from the same societal strata but whom are in different mindsets: powerful and powerless. These two studies establish a deception equilibrium between the powerful and the powerless—even when power is endowed for only a short time. In an instant, the powerful are more effective deceivers but the powerless are more

effective deception-detectors. And this equilibrium is disrupted when resources are scarce; when resources are scarce, the powerful are at their most powerful.

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Figure 1. An abundance of candy was available in the “abundance” condition. Participants were told there was plenty of candy for everyone and they may take as much candy as they would like.



Figure 2. A scarce amount of candy was available in the “scarce” condition. Participants were told there was hardly any candy left and not enough for everyone but if there was a piece left they could take one.



Figure 3. The Interaction between Low- and High-Power Perceivers under Conditions of Scarcity and Abundance on Deception-Detection.

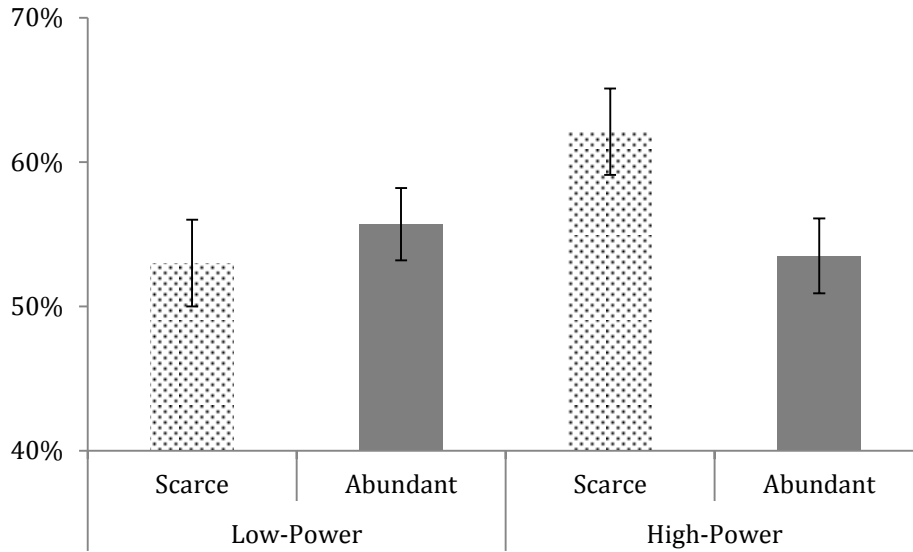
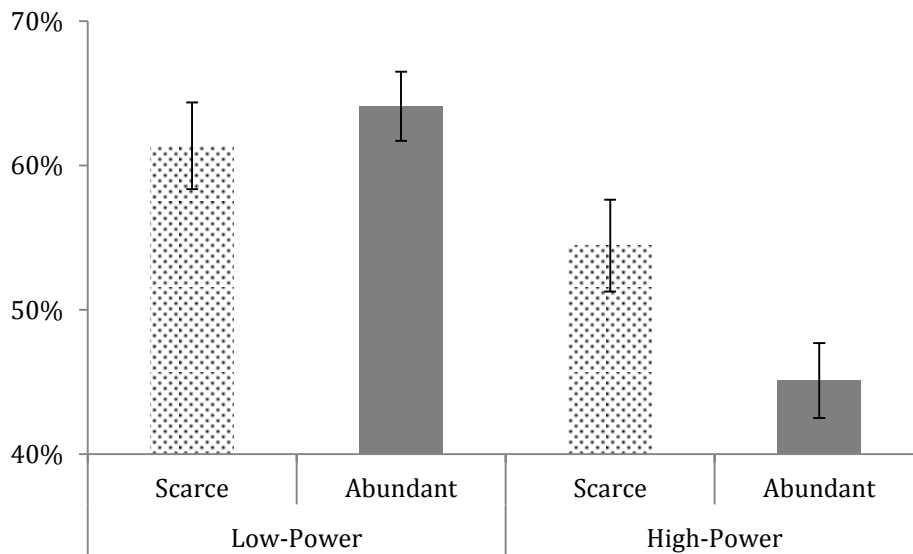


Figure 4. The Interaction between Low- and High-Power Pleaders and Perceiver Scarcity and Abundance on Deception-Detection Accuracy.



Supporting Online Material for

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This PDF file includes:

Materials and Methods
SOM Text

Experiment 1 Methods

The goal of experiment 1 was to test: (1) whether high-power liars would be harder to catch, compared to low-power liars, and (2) whether low-power perceivers would be better at detecting deception, compared to high-power perceivers. All data are reported in the manuscript and the present document—no additional conditions were run nor critical DVs measured. One other scale measuring trait power was assessed which we did not score or analyze. We also asked subjects to make one other (non-deception-related) assessment of the targets in the videos so that the perceivers wouldn't know exactly what the study was about (see description below). Sample size was determined by estimating any expected effect at $r = .30$ and power at $.85$ which yielded a recommended sample of $N = 97$ to detect any effects at $p < .05$. As such, we scheduled three sessions in our computer-equipped laboratory, with a capacity of 36 cubicles each (all 3 sessions were full; however, a typical percentage of participants missed their appointment ~3%). No subjects were excluded from any analyses nor were any covariates modeled. Participants' power was manipulated (low vs. high). Participants viewed and performed judgments about whether 12 target pleaders were lying or telling the truth about having stolen a \$100 bill (e.g., 5,6). Target pleaders' power was also manipulated (low vs. high). The experimental design was a 2 (participant perceiver power: low vs. high) x 2 (target pleader power: low vs. high) on accuracy of detecting deception.

Manipulating the Power of the Target Pleaders (i.e., the Liars and Truth-Tellers)

Standard and repeatedly successfully used power manipulation protocols used in both psychological science and behavioral economics were merged to form one very impactful "legitimate" power manipulation that was: (a) as naturalistic as possible, and (b) would persist through the subsequent mock-crime and interrogation procedure. Targets first completed a "Leadership Questionnaire" (1) that asked for a description of their leadership experiences by responding to a number of open-ended questions. After completing the questionnaire, the experimenters then, ostensibly, assigned participants to the role (leader or subordinate) best suited for them based on the questionnaire. In reality, role was randomly assigned.

The leader and subordinate formed a compensation committee on which they decided bonuses for three individuals and were told that final decisions would be made by the leader and that the leader would decide how much (if any) of a \$20 "paycheck" would be paid to the subordinate versus retained by the leader (i.e., an adaptation of the "dictator game" which served as the second of the three-part power manipulation 1). Role-play manipulations have been used successfully in a great deal of power research and the added components of the legitimacy of the power manipulation (2) as well as the dictator game component (3) further enhanced the ecological validity of the manipulation. To make the power manipulation even more impactful and ecologically valid, the leader was given duplicate copies of the three candidates' resumes and called the subordinate (who was in a small office) into the leader's larger office for the compensation committee meeting. A 10-min interaction ensued after which the leader sent the subordinate back to his/her office while the leader recorded final compensation committee decisions as well

as the portion of the \$20 left to pay the subordinate. A check of the power manipulation confirmed that leaders felt more powerful (a composite variable comprised of: dominant, in control, in charge, high status, like a leader, and powerful—each rated on 5-point scales; $M = 2.78$; $SE = .12$) relative to subordinates ($M = 2.08$; $SE = .21$), $F(1, 11) = 8.56$, $p < .02$; effect size $r = .66$.

The High-Stakes Mock-Crime

A “high-stakes mock-crime paradigm” was borrowed from the criminal justice literature (for a review, see 4). This paradigm has also been used in the social psychological deception literature (e.g., 5; 6). In the current experiment, immediately after the power manipulation, targets were brought into enclosed rooms. An experimenter explained they would have an opportunity to earn an additional \$100 by convincing the experimenter they did not steal a \$100 bill hidden in the testing room.

Targets were told that after the experimenter left the room, the computer would instruct him/her as to whether or not to steal the \$100. All participants were equally incentivized—all were instructed to do their very best during their plea to convince the experimenter that they did not steal the money - whether or not they actually did. This high-stakes mock-crime paradigm created 50% liars and 50% truth-tellers; all pleaders had the ability to earn the \$100 if they succeeded in convincing the experimenter of their innocence. If the target could convincingly plead his/her case to the experimenter (who was blind to lie vs. truth condition), the target kept the \$100 prize and would be entered into a lottery to win \$500 more. All participants reported that they believed the experimenter had no knowledge of whether they actually stole the money. To further encourage belief in experimenters’ blindness, both the experimenter and target discussed and signed a contract stating that the experimenter had no knowledge of whether or not the target would be assigned to steal or not steal the money.

After the high-stakes mock-crime instructions were given, the experimenter left the testing room and closed the door. The target then advanced through a series of computer generated instruction screens for either the “steal” or the “no steal” condition (see Figure 1). The only difference between the conditions was the one critical instruction screen which varied by condition (steal vs. no steal) for which the two versions are clearly marked in Figure 1.

Approximately 5 minutes after the mock theft, the experimenter entered each target’s testing room and immediately turned on a video camera. The experimenter then interrogated the target by asking a series of questions. First, “baseline questions” were asked, followed by “critical questions” (i.e., baseline questions are neutral questions not pertaining to the mock theft but which are verifiable; 5; 6). Questions used in the current research included three baseline questions which were verifiable including, “what are you wearing today?” and “what is the weather like outside?” Seven lie questions were adapted and included, “did you steal the money?”, “why should I believe you?” and “are

you lying to me now?” Immediately after the video recorded interrogation, participants completed the manipulation check.

Manipulating the Power of Participant Perceivers

105 participants (64% female) played the Dictator Game (3). To minimally endow perceiver participants with power they were randomly assigned to be either dictators or recipients in the dictator game (dictators were allowed to allocate \$20). Every person was actually linked to an anonymous other who was in the room with them with whom they played the dictator game. Pairs never met each other. Dictators knew they could decide how much (if any) of the extra \$20 they could keep. Recipients knew that someone else (a dictator) would be deciding how much (if any) of the extra \$20 they would get to have. Offerings made by dictators were not finalized, articulated, nor revealed until the very end of the experiment right before participants left. The powerful and powerless participants remained anonymous to one another. Dictators felt significantly more powerful (powerful, in charge, high status, dominant—all of 5-point scales; $M = 3.63$; $SD = .92$) than recipients ($M = 1.64$; $SD = .95$), $F(1, 104) = 118.05$, $p < .0001$; effect size $r = .73$.

After the dictator game, low- and high-power participants observed 12 low- and high-power individuals lying or telling the truth about having committed theft. Videotaped pleas depicted these low- and high-power individuals insisting they did not steal a \$100 bill (half were high-power, half were low-power; half of the pleaders were lying and the other half telling the truth). As described in detail above, target liars and truth-tellers first were induced to feel and be either high-power or low-power. Then they participated in a “high-stakes mock crime” in which they stole or did not steal \$100 and were interrogated about it on videotape.

Participant Perceivers’ Judgments of Target Pleaders

12 videotapes were randomly selected from a larger database of 47 videos. Participants observed the pleaders in a 1-min video in which they insisted they did not steal the \$100 bill. Participant perceivers rated veracity on a binary scale: “was lying” versus “was telling the truth.” Accuracy in detecting deception was calculated by determining the percentage of correct hits for each perceiver (whether low or high-power) when judging each low and high-power targets.

Experiment 2 Methods

The goal of experiment 2 was to test the mitigating role of resource scarcity on the deception/counter-deception equilibrium finding observed in Experiment 1. Specifically, we tested whether making veracity judgments under the condition of resource scarcity (vs. abundance) would increase accuracy in high-power perceivers. All power analyses ($N = 97$), data treatments, and data exclusions/covariates (one exclusion of an outlier) were conducted using the same rules as in Experiment 1. Participants’ power was manipulated (low vs. high) after they walked into either a resource-rich (candy overflowing and they could take as much as they wanted) or a resource-poor (not enough

candy to go around; they could take a piece if there was some left) environment. Participants then viewed and made ratings about whether 12 target pleaders were lying or telling the truth about having stolen a \$100 bill. The same 12 videos from Experiment 1 or 12 additional videos (to be sure our observed effect generalized) were shown to participant perceivers. The experimental design was a 2 (participant perceiver power: low vs. high) x 2 (resource wealth: scarce vs. abundant) x 2 (target pleader power: low vs. high) on accuracy of detecting deception.

Participant Perceiver and Target Pleader Power

Participant perceivers' ($N = 126$; 74% female) power was manipulated in the same way as Experiment 1 (the dictator game; 3). Target suspects were the same 12 videos used in Experiment 1 or a second batch of 12 videos to make sure any effects observed generalize to pleaders other than those 12 used in Experiment 1. The participant perceiver power manipulation check was based on the same 5 terms as Experiment 1 to test sense of power. Dictators felt significantly more powerful (powerful, in charge, high status, dominant—all of 5-point scales; $M = 3.64$; $SD = .93$) than recipients ($M = 1.63$; $SD = .73$), $F(1, 125) = 184.77$, $p < .001$; effect size $r = .77$. A check of the power manipulation on target pleaders' feelings of power also confirmed that leaders felt more powerful (a composite variable comprised of: dominant, in control, in charge, high status, like a leader, and powerful—each rated on 5-point scales; $M = 2.83$; $SE = .17$) than subordinates ($M = 2.14$; $SE = .20$), $F(1, 23) = 6.95$, $p < .02$; effect size $r = .48$.

Scarcity versus Abundance Manipulation

Scarcity was defined as supply-side scarcity (i.e., when there is not enough supply to meet the demand). In accordance with this definition, we manipulated scarcity by limiting the number of a desired good, where there is not enough for everyone to have one (7). Participants were randomly assigned to either the scarcity or abundance condition. In the abundance condition, a table at the middle of the experimental room contained three extremely large buckets of candy (full-size bars) visible to everyone. Candy was pouring out of the buckets on to the table and participants were told that later they could grab as much candy (ostensibly left over from another experiment) as they wanted. Specifically, all participants were told, "At end you can grab some candy—we have hundreds of pieces—more than enough for everyone. There is so much candy that you can grab many pieces; as many as you'd like. There will be plenty left, please help yourself." In the scarcity condition, participants were told, "At the end of the study you can grab a piece of candy—we have just barely enough—maybe not even enough to go around. There may or may not be any candy remaining but if there is a piece left, please help yourself." In the scarcity condition, the same 3 buckets were on the same table with 10 pieces of candy in each (not enough for everyone to have a piece).

Participant Perceivers' Judgments of Target Pleaders

The same 12 videos from Experiment 1 or a second batch of 12 (from the same pool of stimuli) were used in Experiment 2. Participants' observed the pleaders in a 1-min video in which they insisted they did not steal the \$100 bill. Participant perceivers rated

veracity on a binary scale: “was lying” versus “was telling the truth.” Accuracy in detecting deception was calculated by determining the percentage of correct hits for each perceiver (whether low or high-power) when judging each low and high-power pleaders.

References and Notes

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Figure 1.

