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## Full Length Article

Does power corrupt the mind? The influence of power on moral reasoning and self-interested behavior<sup>☆</sup>Laura M. Giurge<sup>a,\*,1</sup>, Marius van Dijke<sup>b,2</sup>, Michelle Xue Zheng<sup>c,3</sup>, David De Cremer<sup>d,4</sup><sup>a</sup> Cornell SC Johnson College of Business, Cornell University<sup>b</sup> Rotterdam School of Management, Erasmus University and Nottingham Business School, Nottingham Trent University<sup>c</sup> China Europe International Business School (CEIBS)<sup>d</sup> NUS Business School, National University of Singapore

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## ABSTRACT

We test whether leaders' power shapes their reasoning about moral issues and whether such moral reasoning subsequently influences leaders' display of self-interested behavior. We use an incentivized experiment to manipulate two components of leader power: *power over* more versus fewer followers and *power to* enforce one's will by having discretion over more versus fewer payout options to allocate between oneself and one's followers. We find that having power over more followers decreased leaders' principled moral reasoning, whereas having higher power to enforce one's will enabled leaders to engage in self-interested behavior. We also find suggestive evidence that *power over* increases self-interested behavior by decreasing principled moral reasoning; the effect of *power to* was *not* mediated by moral reasoning. These results illustrate that power activates self-interest within and outside the context in which power is held. They also show that moral reasoning is not a stable cognitive process, but that it might represent an additional path via which power affects self-interested behavior.

## Introduction

"I didn't set out to commit a crime. I certainly didn't set out to hurt anyone. When I was working at Enron, you know, I was kind of a hero, because I helped the company make its numbers every quarter. And I thought I was doing a good thing. I thought I was smart. But I wasn't."

Andy Fastow – former CFO of Enron (Elkind, 2013)

Power can bring many benefits to those who have it, such as access to valuable resources or decision autonomy. However, the above example is one out of many real life cases suggesting that it may also corrupt. Unfortunately, prior research testing whether or not power corrupts suffers from various limitations (e.g., demands characteristics) that make it difficult to draw conclusions about this effect of power and about possible processes that may explain it (Sturm & Antonakis, 2015).

In the present paper, we use an incentivized experimental design to manipulate power and present a novel theoretical approach to whether and why power might corrupt. In particular, we investigate how power, defined as "having the discretion and the means to asymmetrically enforce one's will over others" (Sturm & Antonakis, 2015, p. 139), influences leaders' engagement in behavior that benefits the self at the expense of others, hereafter referred to as *self-interested behavior*. We also test whether power shapes thinking about moral issues, a process known as *moral reasoning*, as a possible mechanism that may explain why power leads to more self-interested behavior.

Whereas self-interested behavior is not always unethical, it has been linked to ethical standards in organizations and scholars have called for more research addressing this type of behavior and in particular the "thinking behind individuals' self-interested pursuits" (Kish-Gephart, Detert, Treviño, Baker, & Martin, 2014, p. 267). Given that decisions made by powerful individuals are often more consequential than those

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made by individuals with less power (Sande, Ellard, & Ross, 1986; Schaerer, du Plessis, Yap, & Thau, 2018; Van Vugt, 2006), it is important to understand the processes underlying the decisions made particularly by powerful individuals. Yet, to date, the relationship between power and moral reasoning is poorly understood (Bendahan, Zehnder, Pralong, & Antonakis, 2015) because previous work on power (measured as hierarchical position in organizations) and moral reasoning is correlational (Elm & Nichols, 1993; Ponemon, 1990, 1992; Weber, 1990, 1996; Weber & Wasieleski, 2001). It is therefore not possible to conclude from this prior work whether power influences moral reasoning, whether individuals who use a certain moral reasoning are more likely to seek and be promoted to high power positions, or whether a higher-order, third variable influences both moral reasoning and power (Treviño & Weaver, 2003; Treviño, Weaver, & Reynolds, 2006). We use a manipulation of two dimensions of leader power (*power over* others: one vs. three follower and *power to* enforce one's will: allocate three vs. four payouts) that capture essential characteristics of power (Sturm & Antonakis, 2015) as it exists in organizations (e.g., number of direct reports, Mintzberg, 1979; Sherman et al., 2012; coercive vs. reward power, French & Raven, 1959). We test if these two dimensions of leader power influence moral reasoning and self-interested behavior.

Our research also has implications for our understanding of moral reasoning. For decades, moral reasoning has been thought to be a stable process that becomes gradually more principled and less self-centered with age and that reliably predicts engagement in behaviors that benefit others and behaviors that benefit the self (see Loe, Mansfield, Ferrell, & Mansfield, 2000; O'Fallon & Butterfield, 2005; Tenbrunsel & Smith-Crowe, 2008; Treviño et al., 2006, for reviews). In line with untested suggestions that factors present in the surrounding context can influence the reasoning that individuals apply to moral dilemmas (cf. Krebs & Denton, 2005), we study whether power influences moral reasoning. Furthermore, prior work on the relationship between moral reasoning and moral behavior is correlational. This makes it impossible to draw conclusions about the causal ordering of these relationships. By using our experimental manipulations of power as instrumental variables, our design allows estimating a causally unambiguous effect of moral reasoning on self-interested behavior.

## Theoretical framework

### *Moral reasoning and moral development theory*

The most influential theory on moral reasoning and the most influential theory in moral psychology during the second half of the twentieth century is Kohlberg's (1969) theory of moral development. Kohlberg argued that an individual's judgment of what is morally right or wrong is influenced by how he or she reasons about moral issues. The construct of moral development reflects the cognitive structures that individuals use to reason about what ought to be the morally right thing to do. An essential feature of Kohlberg's argument is that the ability of individuals to reason about moral issues develops from childhood onward, following a well-defined hierarchy that spans across six sequential and irreversible stages (Colby et al., 1983; Kohlberg & Kramer, 1969; Nisan & Kohlberg, 1982; Rest, 1975; White, Bushnell, & Regnemer, 1978).

Stage 1 moral reasoners are guided by the concrete consequences of their actions, be these punishments or rewards. The just and morally right action is whichever action satisfies one's own interests in line with the principle "what's in it for me?". Stage 2 moral reasoners rely on favors and on the principle "you scratch my back, I'll scratch yours". Together, Stage 1 and 2 form the *pre-conventional moral reasoners* group, whose moral reasoning is motivated by self-interest and are therefore considered the least sophisticated reasoners.

Stage 3 and Stage 4 form the *conventional moral reasoners* group who, unlike the pre-conventional reasoners, are less self-centered and

more other-centered, albeit in a rather instrumental way. Stage 3 moral reasoners focus on what significant others, such as family members or peers at work, desire. Judgment of whether an action is morally right is driven by what is thought to gain social approval and trust from significant others. Stage 4 moral reasoners start to incorporate in their judgment the broader social, legal, or religious systems of norms that are present within their society.

Stage 5 moral reasoners reason about what action ought to be morally appropriate by placing emphasis on the collective well-being. Finally, Stage 6 moral reasoners aim to combine the rules of the society with universal principles of justice and care for the collective well-being. Together, Stage 5 and 6 form the *post-conventional moral reasoners* group. Considered to be the most sophisticated and principled reasoners, individuals in this group approach moral issues in a more autonomous manner because they move beyond the need to conform with others' expectations, rules, and laws as well as beyond their own self-interest of avoiding punishments and gaining rewards when deciding what ought to be the morally appropriate action.

Perhaps owing to its influence in the field, Kohlberg's theory of moral development has often been the target of criticism. One main target of criticism has been Kohlberg's argument that moral reasoning develops one stage at a time, in an upward, progressive manner and without skipping a stage or regressing to a previously acquired stage (Krebs, Denton, Vermeulen, Carpendale, & Bush, 1991; Siegler, 1997). Yet, decades of empirical research provide support for the proposed sequential stage development (see Colby et al., 1983; Kohlberg & Kramer, 1969; Nisan & Kohlberg, 1982; Rest, 1975; White et al., 1978, for longitudinal studies) and some have shown that individuals prefer to reason at the highest acquired stage (Treviño, 1992).

However, some studies found signs of stage regression (cf. Holstein, 1976). Weber (1990) showed that managers used less principled structures of moral reasoning when responding to dilemmas that involved a business decision compared to dilemmas that involved a non-business decision (see also Bredemeier & Shields, 1984, 1986 for similar findings in the sports domain). Similarly, Weber (1996) found that managers used less principled structures of moral reasoning when responding to dilemmas that involved psychological, rather than physical harm. Based on such findings, Krebs and Denton (2005) proposed to view moral development not as a progression of reasoning stages, but as an expansion of structures that individuals use when thinking through moral issues. Defining moral development in terms of structures makes it clearer that individuals do not abandon their previously acquired moral reasoning structures. Thus, an individual might be a post-conventional reasoner but, at times, might still reason about moral dilemmas the way a conventional reasoner would. Moral development may therefore not represent a fixed cognitive construct, but it might instead be relatively flexible and potentially affected by contextual factors that reside outside the content of the dilemma.

Unfortunately, the available research to date on antecedents of moral reasoning has rarely looked at the possibility that contextual factors could affect moral reasoning. In fact, to the best of our knowledge, only Reall, Bailey, and Stoll (1998) investigated contextual factors outside of the content of the dilemma. In their study, Reall and colleagues claimed that students used less advanced structures of moral reasoning during a competitive game than prior to playing the game. However, the use of different instruments to assess moral reasoning before and during the game prevents a comprehensive comparison of moral reasoning between the two time points.

In the following sections, we argue that *power* is an important but poorly understood socio-contextual factor that can lower powerholders' principled moral reasoning.

### *Power, self-interest, and moral reasoning*

As mentioned, we define power as the amount of discretion and means that one has to influence others in line with one's own will

(Sturm & Antonakis, 2015). This definition highlights two important components of power: power to enforce one's will and power over others. Specifically, *power to* refers to the amount of discretion, in this case number of payout options, that leaders have to enforce their will over others, whereas *power over* refers to how many others, in this case followers, are dependent on and affected by the leaders' actions. High power therefore means having more payout options to choose from and influence over more followers (see also Bendahan et al., 2015).

Research in the power literature has shown that power enables the powerholder to engage in self-interested behavior. For instance, van Dijk, De Cremer, and Handgraaf (2004) found that power increased individuals' tendency to use information to their personal advantage and to make more self-serving allocations in an ultimatum game. In a dictator game context, Handgraaf, van Dijk, Vermunt, Wilke, and De Dreu (2008) found that higher power made powerholders more self-interested, although this effect diminished when the powerholder interacted with an entirely powerless other. Bendahan et al. (2015) showed that leaders who had more power, that is, more followers and more discretionary choices, were more likely to make decisions that increased their own payouts by eroding the payouts to their followers. Rucker, Dubois, and Galinsky (2011) found that power increased spending on the self. Dubois, Rucker, and Galinsky (2015) found that power increased unethical behavior (e.g., lying) when it benefited the self, but decreased unethical behavior when it benefited others. Finally, Lammers and Stapel (2009) found that power increased reliance on rule-based moral frameworks when a decision would not affect the powerholder, whereas power increased reliance on an outcome-based moral framework when a decision would benefit the powerholder.

The effects of power on self-interested behavior can be understood through the lenses of research showing that power activates cognitive networks (Bargh, Raymond, Pryor, & Strack, 1995; Smith & Galinsky, 2010; Tost, 2015) and, in particular, cognitive networks related to goal focus (Galinsky, Gruenfeld, & Magee, 2003; Guinote, 2007a, 2007b, 2008, 2017). A cognitive network represents an unconscious learnt association that, once activated, persists over various contexts (Luchins, 1942) and can even influence choices on unrelated tasks (Smith & Galinsky, 2010). The idea is that over time, individuals' direct or indirect experiences with power produce a set of learnt cognitive, affective, and even behavioral associations around the concept of power and these associations are stored in memory (Smith & Galinsky, 2010; Tost, 2015). Importantly, self-interest, that is a focus on what benefits the self, represents a pervasive goal that exerts a strong and unconscious influence on judgment and behavior (Moore & Loewenstein, 2004; Moore, Tetlock, Tanlu, & Bazerman, 2006) and various streams of research provide evidence for such a claim. For instance, research on ego depletion shows that people are more likely to engage in behaviors, such as lying or cheating, that bring short-term benefits, such as higher compensation, for the self rather than for others when their cognitive resources are depleted (Barnes, Schaubroeck, Huth, & Ghumman, 2011; Gino, Schweitzer, Mead, & Ariely, 2011; see also Shalvi, Eldar, & Bereby-Meyer, 2012). Neuropsychological research provides further evidence that people's automatic tendency is to serve their self-interest. Trying to override self-interested tendencies activates brain areas associated with self-control (Greene & Paxton, 2010). In sum, power activates a cognitive network that is associated with one's goal of self-interest.

Prior work on power indicates that goal-focused cognitive networks drive powerholders' responses not only within the context in which power is held (Guinote, 2007a, 2008), but also outside such a context (Galinsky et al., 2003; Guinote, 2007b; Wiltermuth & Flynn, 2013). For instance, Galinsky et al. (2003) found that individuals in a high power position were more likely to take a card in a blackjack game that was presented as unrelated to their power role compared to individuals in a low power position. The authors explained this effect in terms of the cognitive association between the concept of power and the behavioral tendency of taking action. Similarly, Guinote (2007b) found that power

facilitated goal-consistent responses that resided outside the context in which power was exercised. As a final example, Wiltermuth and Flynn (2013) showed that individuals who were asked to recall an instance in which they had high power felt more certain in judging the current ethical transgressions of others, compared to individuals who were asked to recall an instance in which they had low power.

In sum, power triggers goal-focused cognitive networks that can affect powerholders' responses inside and outside of the situation in which power is exercised, and power also enhances a focus on self-interest. We therefore argue that power and its effects on self-interest will emerge not only in the power context by enhancing self-interested behavior, but also beyond the power context. In his theory of moral development, Kohlberg argues that the more advanced, principled structures of moral reasoning reflect a reasoning based on considerations of justice and care for the collective well-being. Thus, the more advanced moral reasoning structures reflect a less self-interested thinking compared to the less advanced moral reasoning structures. In line with Kohlberg's argument, we therefore argue that having high power will reduce the use of principled structures of moral reasoning.

It is further possible that having power influences self-interested behavior, via moral reasoning. Empirical work has generally found weak correlations between moral reasoning and self-interested behaviors (Kish-Gephart, Harrison, & Treviño, 2010; Villegas de Posada & Vargas-Trujillo, 2015).<sup>5</sup> Among others, past research found moral reasoning to be moderately correlated with reduced cheating (Malinowski & Smith, 1985), fewer unethical decisions (Kohlberg & Candee, 1984), higher altruism (Underwood & Moore, 1982), and higher honesty (Kish-Gephart et al., 2010; Villegas de Posada & Vargas-Trujillo, 2015). As noted, there is also ample empirical evidence showing that power increases individuals' propensity to enact self-interested behaviors (Bendahan et al., 2015; Dubois et al., 2015; Handgraaf et al., 2008; Lammers & Stapel, 2009; Rucker et al., 2011; van Dijk et al., 2004; for overviews see Galinsky, Rucker, & Magee, 2015; Sturm & Antonakis, 2015; Tost, 2015). Together, these streams of research suggest that power may have an indirect effect on self-interested behavior, via moral reasoning.

## Study overview

Most of the experimental papers on power mentioned above (Dubois et al., 2015; Galinsky et al., 2003; Guinote, 2007a, 2007b, 2008; Lammers & Stapel, 2009; Rucker et al., 2011; Wiltermuth & Flynn, 2013; for exceptions see Bendahan et al., 2015; Handgraaf et al., 2008; van Dijk et al., 2004) use the recall procedure (i.e., asking participants to recall a time when they had power over others vs. when others had power over them) or the role assignment procedure (i.e., placing participants in a manager vs. a subordinate role) to manipulate power. However, both manipulations of power might induce demand effects because they provide cues about the purpose of the study, leading participants to behave in line with implicit expectations of how they think they are expected to behave (Sturm & Antonakis, 2015). It is therefore unclear whether the effects of power observed in studies using the recall or the role assignment procedure are due to having power or due to participants doing what is asked or implicitly expected of them to do.

To avoid demand effects, we follow recommendations from Sturm and Antonakis (2015) and use a power manipulation procedure

<sup>5</sup> Individual studies, however, show variation in whether moral reasoning predicts behavior with some studies finding no relationship (e.g., Cohen, Panter, Turan, Morse, & Kim, 2014; West, Ravenscroft, & Shrader, 2004) and some even finding a negative relationship (e.g., Au & Wong, 2000). The reason could well be the different conceptualizations and measures of behavior: Cohen and colleagues looked at organizational citizenship behaviors and counter-productive work behaviors, whereas Au and Wong looked at ethical judgment.

developed by Bendahan et al. (2015) that orthogonally manipulates two dimensions of leader power: power over others (one vs. three followers) and power to enforce one's will (having discretion over three vs. four options of payouts to allocate between the leader and their followers).

## Method

### Participants and design

Four hundred and forty five undergraduate business students from a medium-sized European university participated in return for course credits and money ( $N = 220$ ) or just for money ( $N = 225$ ).<sup>6</sup> We randomly assigned 177 out of these participants to one of four leader conditions in a two-by-two design (*power over*: 1 vs. 3 followers; *power to*: 3 vs. 4 payout options). We assigned the remaining students to the follower role.<sup>7</sup> Participants were paid according to the payment structure that Bendahan et al. (2015) employed, although payments were made in Euro instead of Swiss Francs (see Table 1 for the payment structure). In the leader condition with 4 payout options (3 payout options), leaders could earn between €11 and €18.5 (€10.5 and €13.5), whereas subordinates could earn between €0.5 and €10.5 (€6.5 and €10.5). Because our focus is on leader power, we did not analyze the follower data (for a similar procedure, see Bendahan et al., 2015).

Based on criteria explained below (see “Participant exclusion”), we excluded 28 participants, leaving 149 participants to be included in

<sup>6</sup> We ran the analyses only with participants who took part in our study for credits ( $N = 109$ ), meaning that the payment was extra, and found similar results to those presented in the main text except that in Model 4 the effect of moral reasoning on self-interested behavior ( $\beta = -0.02$ ,  $z = -0.82$ ,  $p = .414$ ) and the mediation effect (*indirect effect* = 0.06, *bootstrap S.E.* = 0.05, 95% *bias-corrected CI*: [-0.0099; 0.1835]) were no longer significant, potentially due to reduced statistical power. The sample size reported here ( $N = 109$ ) is different from the one reported in the main text ( $N = 220$ ) for two reasons. First, out of these 220 respondents who participated just for money, only 123 were assigned the role of the leader. The remaining participants were assigned to be followers and were therefore not part of the main analyses. Second, out of those assigned to be a leader, we excluded participants who failed the reliability and validity check for the moral reasoning scale ( $N = 11$ ) and those who were in sessions where we could not guarantee anonymity ( $N = 3$ , see footnote 7 for additional explanations).

<sup>7</sup> Given the challenge of running group studies in the laboratory and the time constrains we faced, we decided to maximize the data sample by allowing the sessions to vary in size. To preserve anonymity, we aimed for sessions of at least four students. However, there were cases when students cancelled last minute or were more than 15 min late for the group study. In such cases, we either discarded the data (if the session consisted of only two or four students, depending on the required leader condition; see “Participant exclusion”) or we assigned the follower role to two students for the leader condition with one follower (if the session consisted of only three students). If the session consisted of four students, we assigned two leader conditions with one follower. If the session consisted of six students, we either assigned three leader conditions with one follower or one leader condition with three followers and one leader condition with one follower. We followed a similar assignment of leader conditions for sessions with more than six students. We recorded the session size only during the second period of the data collection ( $n = 51$ ). For sessions with 3 students, we had 5 leaders with 1 follower/3 payout options and 2 leaders with 1 follower/4 payout options. For sessions with 4 students, we had 6 leaders with 1 follower/3 payout options, 2 leaders with 3 followers/3 payout options, 3 leaders with 1 follower/4 payout options, and 2 leaders with 3 followers/4 payout options. For sessions with 5 students, we had 2 leaders with 1 follower/4 payout options. For sessions with 6 students, we had 1 leader with 1 follower/3 payout options, 2 leaders with 3 followers/3 payout options, 1 leader with 1 follower/4 payout options, and 1 leader with 3 followers/4 payout options. For sessions with 8 students, we had 6 leaders with 1 follower/3 payout options, 4 leaders with 3 followers/3 payout options, 6 leaders with 1 follower/4 payout options, and 3 leaders with 3 followers/4 payout options. For sessions with 16 students, we had 2 leaders with 3 followers/3 payout options, 2 leaders with 1 follower/4 payout options, and 1 leader with 3 followers/4 payout options.

subsequent data analyses. Of the 149 participants, 51.7% were male and the average age was 20.68 years ( $SD = 2.42$ ). Thirty-nine percent indicated currently having a job, working on average 13.27 h per week ( $SD = 9.68$ ). In terms of education, 82.6% had a high school diploma, 14.8% had a bachelor's diploma, 0.7% had a master's diploma, and 2% indicated having finished another type of education (e.g., whether or not they passed the first year exam for the bachelor's studies).

### Participant exclusion

Out of the 177 participants that were assigned to the leader role, 12 were excluded because they were in a session of only two students, which reduces participants' anonymity. We excluded two additional participants because they were in a session with four students and were assigned to the leader condition in which they had power over three followers, which again reduces participants' anonymity.<sup>8</sup>

In line with recommendations from Rest (1986), we checked the reliability and consistency of participants' answers on the Defining Issues Test (DIT), an established moral reasoning test (Kish-Gephart et al., 2010; Rest, Narvaez, Bebeau, & Thoma, 1999; Thoma, 2006). Eleven participants failed the reliability check, meaning that they gave a rating higher than four for certain items that were written to sound exaggeratedly fancy but were actually nonsensical, such as in the Doctor's dilemma item number six: “What is the value of death prior to society's perspective on personal values?”. Five participants failed the consistency check, meaning that they chose a ranking order that was not in line with the chosen importance ratings across two or all three dilemmas. In line with recommendations from Rest (1986), we excluded these participants from further analyses.

### Procedure

The experiment was conducted in the laboratory in two consecutive academic years.<sup>9</sup> All information was presented on paper. In each session, we informed students that their compensation for participating in the study would depend either on their own decision or on the decision of another student in the room who would be assigned the role of the leader. To further ensure that role assignment was anonymous, we instructed participants not to talk with each other. Depending on the number of students present in each session, we randomly arranged the booklets with the leader and, respectively, follower condition on the tables and asked students to pick a place to sit. There were five long tables in the group lab with two chairs placed at each end, thereby ensuring that students would not be able to see each other's papers and determine who was in which role. Once seated, students were instructed to open the booklet in front of them and read about their role and the payout options; the number of followers over whom they had power depended on whether they were in the leader condition with more (three followers) or less (one follower) power over others; simi-

<sup>8</sup> Results with the inclusion of these 14 participants ( $N = 161$ ) are similar to those presented in the main text except, in Model 2 number of followers significantly predicts moral reasoning ( $\beta = -7.67$ ,  $z = -2.75$ ,  $p = .006$ ), whereas the effect of number of options on moral reasoning ( $\beta = -1.10$ ,  $z = -0.39$ ,  $p = .697$ ) and the effect of moral reasoning on self-interested behavior ( $\beta = -0.21$ ,  $z = -1.17$ ,  $p = .242$ ) are no longer significant. In Model 4, the effect of moral reasoning on self-interested behavior is also no longer significant ( $\beta = -0.14$ ,  $z = -1.16$ ,  $p = .246$ ). Moreover, across models 1, 3 and 4, the effect of number of options on self-interested behavior is no longer significant, suggesting that perhaps when leaders could identify who their followers are, they might be less likely to engage in self-interested behavior. However, the indirect effect of number of followers on self-interested behavior, via moral reasoning, was still significant (*indirect effect* = 1.08, *bootstrap SE* = 1.19, 95% *bias-corrected CI*: [0.0288; 5.1007]).

<sup>9</sup> We collected 65.8% of the data in January–February 2017 and 34.2% of the data in May–June 2018. The data collection period did not correlate significantly with any of our study variables (see Table 2).

**Table 1**  
Payment structure used.

Leader's decision choice	To leader	To 1 follower	To leader	To each of 3 followers
	1 follower, 3 payout options		3 followers, 3 payout options	
Default	220	190	220	190
Pro-social	Minus 10 points	Plus 20 points	Minus 10 points	Plus 20 points
Antisocial	Plus 50 points	Minus 60 points	Plus 50 points	Minus 20 points
	1 follower, 4 payout options		3 follower, 4 payout options	
Default	220	190	220	190
Pro-social	Minus 10 points	Plus 20 points	Minus 10 points	Plus 20 points
Antisocial	Plus 50 points	Minus 60 points	Plus 50 points	Minus 20 points
Very antisocial	Plus 150 points	Minus 180 points	Plus 150 points	Minus 60 points

Note. Students were informed that 100 points was the equivalent of 5 Euro.

larly, the payout options depended on whether they were in the leader condition with more (four payout options) or less (three payout options) power to enforce their will. The instructions further read that leaders would need to make one single decision and that this decision would impact not only their own payment, but also that of the other students present in the room who were assigned to be his/her follower (s). At this point, participants were only informed about their payout options and were told that they would need to decide on the payout for themselves and their followers at the end of the study, allowing for causal inferences between moral reasoning and the payout decision.

Following the information about their role, we measured participants' moral reasoning structure. Afterwards, participants were reminded of the payout options and were asked to circle the payout option they decided upon. They were again reminded that their decision would impact the payment of their assigned follower(s) who, as indicated before, were present with them in the room. Demographics such as age, gender, education, and work experience were recorded at the beginning of the study, on the first page of the booklet.

#### Moral reasoning

We measured participants' moral reasoning with the short form of Rest's (1986) DIT. The short DIT form is comprised of a subset of three out of six moral dilemmas. Participants were presented with the following three dilemmas: (1) the Student take-over: whether or not students should take over an administration building to protest war; (2) the Webster story: whether or not a minority member should be hired when the community is clearly biased against minorities; and (3) the Doctor's dilemma: whether or not a doctor should administer an overdose of painkillers to a patient in pain.

For each dilemma, we asked participants to complete three tasks. First, we asked participants to indicate a decision or action choice on a 3-point scale: 1 (*take action*), 2 (*can't decide*), and 3 (*not take action*). Next, we asked participants to rate the relative importance of 12 items (e.g., item from the Webster story: "Whether hiring capable men like Mr. Lee would use talents that would otherwise be lost to society?") in helping them make the decision on a 5-point scale from 1 (*no importance*) to 5 (*great importance*). Lastly, we presented participants with all 12 items again and we asked them to rank the four most important ones in helping them make the decision. The 12 items for each dilemma are designed to be consistent with reasoning at various stages of moral development, or else are designed for reliability purposes. In line with previous literature (Abdolmohammadi & Sultan, 2002; Cummings, Dyas, Maddux, & Kochman, 2001; Jordan, Brown, Treviño, & Finkelstein, 2011), we derived the P-score as an overall measure of moral reasoning. The P-score represents the percentage of items comprising the principled reasoning stages from Kohlberg (Stage 5 and 6; 1981, 1984). In other words, the P-score indicates the degree to which individuals place great importance on post-conventional and principled

considerations when making a decision. A higher P-score represents a less self-centered and a more principled structure of moral reasoning.<sup>10</sup>

#### Self-interested behavior

We operationalized self-interested behavior as the decision that leaders made in terms of payouts for themselves and for their followers. In line with the procedures outlined by Bendahan et al. (2015), we presented Option 1 as the "default option" and all the other payout options as "Option 2," "Option 3," and "Option 4", respectively. As can be seen in Table 1, the leader would be paid slightly more than the follower in the default option, whereas the payouts for the leader and the follower would be the same at a cost incurred by the leader for "Option 2" (prosocial option). "Option 3" and "Option 4" represent progressively higher payouts for the leader, but also an erosion of the public surplus by decreasing the payouts to the follower(s). Thus, choosing "Option 3" or "Option 4" is an operationalization of self-interested behavior because it represents making a socially inefficient choice that heightens one's own personal profit (see also Dubois et al., 2015). To avoid adding potential confounds, we kept a constant ratio of leader gains to follower losses of 5 to 6 across conditions.

#### Results and discussion

Table 2 presents the means, standard deviations, and correlations among our variables. Table 3 presents the frequency of choices participants made across the leader power conditions.

#### Hypothesis testing

We tested our hypothesis using structural equations modeling with maximum likelihood (ML) estimation in STATA (Version 15.1). We present graphic representations of the statistical models used (see Fig. 1) and the corresponding statistical equations (see Appendix A). We

<sup>10</sup> We also computed the N2-score, which is based on the ratings and the rankings of the 12 items and represents the relative preference participants give to items representing the principled structures of moral reasoning (Stage 5 and 6), in comparison to items representing the more self-centered, conventional (Stage 3 and 4) and pre-conventional structures of moral reasoning (Stage 1 and 2) (see Rest, Thoma, Narvaez, & Bebeau, 1997). Results with the N2-score were similar to those obtained with the P-score except in Model 2 the effect of the N2-score on self-interested behavior was no longer significant ( $\beta = -0.12$ ,  $z = -1.95$ ,  $p = .051$ ). However, this model barely passed the over-identification tests (LR test of model vs. saturated model:  $\chi^2[3] = 7.13$ ,  $p = .068$ ; Satorra-Bentler scaled test:  $\chi^2[3] = 7.52$ ,  $p = .057$ ). Importantly, the indirect effect of number of followers on self-interested behavior, via the N2-score, was still significant (*indirect effect* = 0.06, *bootstrap SE* = 0.04, 95% *bias-corrected CI*: [0.0048; 0.1946]). Overall, these results illustrate that number of followers affects in a similar manner the proportion of the principled to the more self-centered structures of moral reasoning and subsequently self-interested behavior.

**Table 2**  
Means, standard deviations, and correlations among our variables.

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. P-score (moral reasoning)	39.32	13.47	-											
2. Number of followers <sup>a</sup>	0.42	0.49	-0.22	-										
3. Number of payout options <sup>b</sup>	0.48	0.50	-0.06	-0.03	-									
4. Self-interested behavior <sup>c</sup>	2.24	0.94	-0.18	0.02	0.33	-								
5. Age	20.68	2.42	0.01	-0.16	-0.04	-0.06	-							
6. Gender <sup>d</sup>	0.48	0.50	0.08	0.02	0.01	-0.14	-0.09	-						
7. Education <sup>e</sup>	1.22	0.55	-0.13	-0.12	0.19	0.11	0.56	-0.02	-					
8. Work <sup>f</sup>	0.42	0.53	0.08	0.08	-0.06	-0.10	0.04	0.00	0.05	-				
9. Work hours	13.27	9.68	-0.17	0.04	-0.07	-0.08	0.55	-0.17	0.44	-0.16	-			
10. Compensation <sup>g</sup>	0.26	0.44	0.02	-0.37	0.25	0.15	0.26	0.05	0.30	-0.21	0.24	-		
11. Session size <sup>h</sup>	6.76	3.64	0.01	0.26	0.13	0.15	-0.15	-0.01	-0.15	-0.12	-0.17	0.20	-	
12. Data collection period <sup>i</sup>	0.66	0.47	-0.06	0.14	0.05	0.09	-0.06	-0.23	-0.06	-0.10	0.03	-0.16	-	-

Note.  $N = 149$ . For significance levels,  $r > |0.17|$ ,  $p < .05$ ;  $r > |0.22|$ ,  $p < .01$ ;  $r > |0.27|$ ,  $p < .001$ .

<sup>a</sup> Coded as 0 = One follower, 1 = Three followers.

<sup>b</sup> Coded as 0 = Three payout options, 1 = Four payout options.

<sup>c</sup> Coded as 1 = Default decision, 2 = Pro-social decision, 3 = Antisocial decision; 4 = Very antisocial decision.

<sup>d</sup> Coded as 0 = Male, 1 = Female.

<sup>e</sup> Coded as 1 = High-school degree, 2 = Bachelor degree, 3 = Master degree, 4 = Other.

<sup>f</sup> Coded as 1 = Working, 0 = Not working.

<sup>g</sup> Coded as 1 = Money, 0 = Course credits and money.

<sup>h</sup> Recorded only during the second data collection period ( $n = 51$ ).

<sup>i</sup> Coded as 0 = data collected in 2018, 1 = data collected in 2017.

**Table 3**  
Frequency distribution (count) of payout options chosen by leader condition.

Leader decision choice (payout option chosen)	Leader condition				Total
	1 follower, 3 payout options	3 follower, 3 payout options	1 follower, 4 payout options	3 follower, 4 payout options	
Default	16 (44.4%)	8 (22.2%)	7 (19.4%)	5 (13.9%)	36
Prosocial	16 (28.1%)	17 (29.8%)	13 (22.8%)	11 (19.3%)	57
Antisocial	10 (25%)	9 (22.5%)	14 (35%)	7 (17.5%)	40
Very antisocial	-	-	9 (56.3%)	7 (43.8%)	16
Total	42 (28.2%)	34 (22.8%)	43 (28.9%)	30 (20.1%)	149

Note.  $N = 149$ .

Percentage within leader decision choice is presented within brackets.

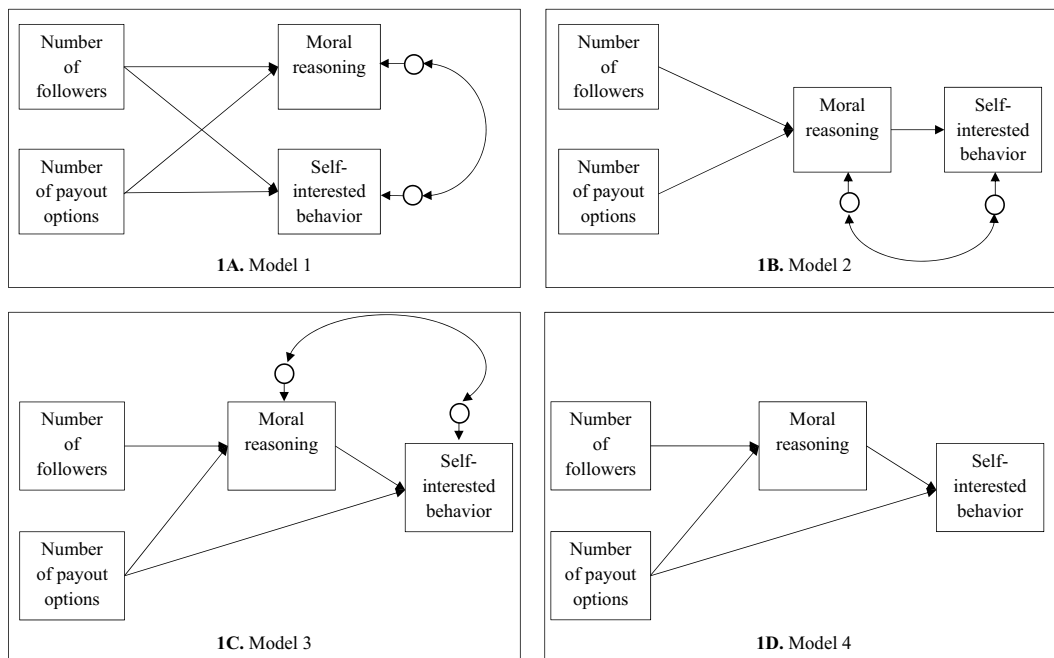


Fig. 1. Graphical representations of the statistical models.

**Table 4**  
Structural equations models with compensation and its interaction terms with both power conditions as control variables.

Predictors	Model 1		Model 2		Model 3		Model 4	
	Moral reasoning	Self-interested behavior	Moral reasoning	Self-interested behavior	Moral reasoning	Self-interested behavior	Moral reasoning	Self-interested behavior
	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate
Moral reasoning	-6.62 (-2.43) <sup>a</sup>	0.14 (0.82)	-2.39 (-1.45)	-0.11 (-2.05) <sup>a</sup>	-6.63 (-2.44) <sup>a</sup>	-0.02 (-0.80)	-6.62 (-2.43) <sup>a</sup>	-0.01 (-2.25) <sup>a</sup>
Number of followers <sup>a</sup>	-2.92 (-1.08)	0.61 (3.26) <sup>**</sup>	-4.79 (-2.09) <sup>b</sup>		-2.92 (-1.08)	0.55 (2.57) <sup>*</sup>	-2.92 (-1.08)	0.59 (3.20) <sup>**</sup>
Number of payout options <sup>b</sup>	-6.91 (-1.77)	0.36 (1.21)	-1.27 (-0.38)	0.39 (1.38)	-7.01 (-1.81)	0.18 (0.79)	-6.91 (-1.77)	0.22 (1.09)
Compensation <sup>c</sup>	4.73 (0.66)	-0.22 (-0.41)	2.50 (0.62)		5.00 (0.73)		4.73 (0.66)	
Compensation * Number of followers	7.28 (1.56)	-0.19 (-0.53)	2.90 (0.94)		7.36 (1.59)		7.28 (1.56)	
Compensation * Number of payout options								

Note. N = 149.

Robust z-statistics are presented in brackets. The two regressors, moral reasoning and self-interested behavior, were entered as endogenous variables whereas number of followers, number of options and the control variables (compensation and the two interaction terms) were entered as exogenous variables.

<sup>a</sup> Coded as 0 = One follower, 1 = Three followers.

<sup>b</sup> Coded as 0 = Three payout options, 1 = Four payout options.

<sup>c</sup> Coded as 1 = Money, 0 = Course credits and money.

\*\* p < .01.

\* p < .05.

included compensation (whether participation was for credits or money) and its interaction terms with both power conditions as control variables across all models<sup>11</sup> for two reasons. First, compensation correlated significantly with the two power conditions and marginally with self-interested behavior. Second, having participants who took our study for money and/or credits represents the primary difference between our design and that of Bendahan et al. (2015) who gave all their participants a show-up fee.

We first estimated a model in which the observed exogenous variables *power over* (number of followers: 1 vs. 3) and *power to* (number of payout options: 3 vs. 4) predicted the observed endogenous variables, moral reasoning and self-interested behavior (see Fig. 1A; Table 4, Model 1). Power over more (vs. fewer) followers led to less principled moral reasoning, but did not affect self-interested behavior. Having power to choose among more (vs. fewer) payout options led to more self-interested behavior, but did not affect moral reasoning.<sup>12</sup>

Next, we examined whether power indirectly influenced leaders' tendency to engage in self-interested behavior, via moral reasoning. To do so, we fitted a structural equations model (using ML estimation), as above, but this time, the observed endogenous variable self-interested behavior was predicted by the endogenous variable moral reasoning only. Moral reasoning was predicted by the exogenous variables: number of followers and number of payout options (see Fig. 1B; see Table 4, Model 2). In this model, we found a significant effect of moral reasoning on self-interested behavior. The effect of number of followers on moral reasoning was not significant, whereas the effect of number of payout options on moral reasoning was. However, this model barely passed the overidentification test (LR test of model vs. saturated model:  $\chi^2[3] = 7.39, p = .060$ ; Satorra-Bentler scaled test:  $\chi^2[3] = 7.45, p = .059$ ), suggesting that model restrictions are not tenable and that this model does not provide a valid representation of the data.

We performed post-hoc exploratory analyses in which self-interested behavior was predicted by the endogenous observed variable, moral reasoning, and the exogeneous variable, number of payout options. Moral reasoning was predicted by the exogenous variables, number of followers and number of payout options (see Fig. 1C; see Table 4, Model 3). In this model, we found no effect of moral reasoning on self-interested behavior. As in the first analysis however, we find that number of payout options significantly influenced self-interested behavior. This analysis further revealed a significant effect of number of followers on moral reasoning. The overidentification tests were not significant (LR test of model vs. saturated model:  $\chi^2[1] = 0.06, p = .801$ ; Satorra-Bentler scaled test:  $\chi^2[1] = 0.04, p = .834$ ), suggesting that model restrictions were tenable.

Next, we tested whether there is endogeneity in the effect of moral reasoning on self-interested behavior using two-stage least squares (2SLS) regression (see Table 5). In the first stage, moral reasoning was instrumented using number of payout options, number of followers, and the three control variables (compensation and its interaction terms with the power conditions). In the second stage, the instrumented moral

<sup>11</sup> We conducted additional analyses that included all control variables for which we had complete data across both data collection periods namely: compensation and its interaction terms with the two power conditions, age, gender, work, education, and data collection period. Results were similar to those presented in the main text except that, probably as a result of reduced statistical power, in Model 4, the effect of moral reasoning on self-interested behavior was no longer significant ( $\beta = -0.008, z = -1.59, p = .112$ ) and the mediation effect was also no longer significant: *indirect effect* = 0.05, *bootstrap S.E.* = 0.04, 95% *bias-corrected CI*: [-0.0049; 0.1701].

<sup>12</sup> A two-factor ANOVA in SPSS revealed no significant interaction between the two dimensions of leader power on moral reasoning ( $\beta = -0.39, SE = 4.38, F[1, 145] = 0.008, p = .929$ ) or on self-interested behavior ( $\beta = -0.22, SE = 0.29, F[1, 145] = 0.552, p = .459$ ). We therefore estimated only main effects of these two independent power variables in the structural equations models.

**Table 5**  
Two-least square (2SLS) regression with compensation and its interaction terms with both power conditions as control variables.

Predictors	First stage regression on moral reasoning	Second stage regression on self-interested behavior
	Estimate	Estimate
Moral reasoning		-0.02 (0.02)
Number of followers <sup>a</sup>	-6.62 (2.58)*	
Number of payout options <sup>b</sup>	-2.92 (2.61)	0.55 (0.20)**
Compensation <sup>c</sup>	-6.91 (4.91)	0.21 (0.33)
Compensation * Number of followers	4.73 (7.40)	-0.11 (0.46)
Compensation * Number of payout options	7.28 (5.65)	-0.03 (0.43)

Note. N = 149.

<sup>a</sup> Coded as 0 = One follower, 1 = Three followers.

<sup>b</sup> Coded as 0 = Three payout options, 1 = Four payout options.

<sup>c</sup> Coded as 1 = Money, 0 = Course credits and money. Standard errors are presented in brackets.

\*\* p < .01.

\* p < .05.

reasoning was entered as a substitute for its endogenous term used in the traditional OLS model plus the exogenous variable number of payout options and the three control variables. Given that number of followers does not correlate with self-interested behavior (see Table 2 and Table 4, Model 1), we did not include this variable as a predictor of self-interested behavior. The overidentification test was not significant (Sargan-Hansen  $\chi^2[1] = 0.18, p = .669$ ), suggesting that model restrictions were tenable. However, the weak instruments robust tests were not significant (Anderson-Rubin Wald test,  $\chi^2[1] = 0.72, p = .397$ ; Stock-Wright LM S statistic,  $\chi^2[1] = 0.71, p = .398$ ), suggesting that the null hypothesis that the instruments selected are weak cannot be rejected. The Wu-Hausman F test ( $F[1, 142] = 0.17, p = .677$ ) and the Durbin-Wu-Husman test ( $\chi^2[1] = 0.18, p = .669$ ), which assess the improvement in model fit when treating moral reasoning as exogenous rather than endogenous to self-interested behavior, were not significant, suggesting that there is no endogeneity in moral reasoning and that the 2SLS estimates are similar to the OLS estimates.

In light of the tentative 2SLS findings, which provide no evidence for endogeneity in the effect of moral reasoning on self-interested behavior, we fitted a structural equations model (using ML estimation) in which the observed endogenous variable, self-interested behavior, was predicted by moral reasoning and number of payout options, and both of these predictors were treated as exogenous to self-interested behavior (Antonakis, Bendahan, Jacquart, & Lalive, 2010; Kennedy, 2008). In model terms, we did not allow covariance between the error terms of moral reasoning and self-interested behavior. Moral reasoning was predicted by the exogenous variables, number of followers and number of payout options (see Fig. 1D; see Table 4, Model 4). In this model, we found significant effects of moral reasoning and of number of payout options on self-interested behavior. Moral reasoning was significantly influenced by number of followers. The over-identification tests were not significant (LR test of model vs. saturated model:  $\chi^2[2] = 0.22, p = .893$ ; Satorra-Bentler scaled test:  $\chi^2[2] = 0.18, p = .910$ ), suggesting that these post-hoc specifications in the model were not rejected by the data.

We subsequently conducted indirect effects tests using the bootstrap subcommand of SEM in STATA to obtain bias-corrected confidence intervals. Results revealed a significant indirect effect of number of followers on self-interested behavior, via moral reasoning (indirect effect = 0.07, bootstrap SE = 0.04, 95% bias-corrected CI: [0.0079; 0.2056]).

**Table 6**  
Structural equations models without control variables.

Predictors	Model 1		Model 2		Model 3		Model 4	
	Moral reasoning	Self-interested behavior	Moral reasoning	Self-interested behavior	Moral reasoning	Self-interested behavior	Moral reasoning	Self-interested behavior
	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate
Moral reasoning								
Number of followers <sup>a</sup>	-6.10 (-2.83)**	0.06 (0.45)	-0.49 (-0.71)	-0.23 (-1.25)	-6.10 (-2.83)**	-0.01 (-0.45)	-6.10 (-2.83)**	-0.01 (-2.26)*
Number of payout options <sup>b</sup>	-1.86 (-0.87)	0.62 (4.30)***	-2.68 (-1.25)		-1.86 (-0.87)	0.60 (4.16)***	-1.86 (-0.87)	0.60 (4.20)***

Note. N = 149.

Robust z-statistics are presented in brackets. The two regressors, moral reasoning and self-interested behavior, were entered as endogenous variables whereas number of followers, number of payout options and the control variables (compensation and the two interaction terms) were entered as exogenous variables.

<sup>a</sup> Coded as 0 = One follower, 1 = Three followers.

<sup>b</sup> Coded as 0 = Three payout options, 1 = Four payout options.

\*\*\* p < .001.

\*\* p < .01.

\* p < .05.



**Table 7**  
Two-least square (2SLS) regression without control variables.

Predictors	First stage regression on moral reasoning	Second stage regression on self-interested behavior
	Estimate	Estimate
Moral reasoning		– 0.01 (0.02)
Number of followers <sup>a</sup>	– 6.10 (2.18)**	
Number of payout options <sup>b</sup>	– 1.86 (2.16)	0.60 (0.14)***

Note.  $N = 149$ .

Standard errors are presented in brackets.

<sup>a</sup> Coded as 0 = One follower, 1 = Three followers.

<sup>b</sup> Coded as 0 = Three payout options, 1 = Four payout options.

\*\*\*  $p < .001$ .

\*\*  $p < .01$ .

### Supplemental analyses

We conducted additional analyses without control variables (see Tables 6 and 7). Results were similar to those presented above except Model 2 in which the effect of number of payout options on moral reasoning and the effect of moral reasoning on self-interested behavior were no longer significant. However, the overidentification tests were significant (LR test of model vs. saturated model:  $\chi^2[1] = 7.40$ ,  $p = .007$ ; Satorra-Bentler scaled test:  $\chi^2[1] = 8.05$ ,  $p = .005$ ), suggesting that model restrictions are not tenable and that the model does not provide a valid representation of the data. Importantly, the indirect effect of number of followers on self-interested behavior, via moral reasoning, was still significant (*indirect effect* = 0.06, *bootstrap SE* = 0.04, 95% *bias-corrected CI*: [0.0087; 0.1751]).

### Discussion

We hypothesized that having high, as opposed to low, power not only increases self-interested behavior, but also decreases the use of principled moral reasoning. Results from an experiment in which we manipulated leader power along two dimensions (*power over*: one vs. three followers; *power to*: having discretion over three vs. four payout options to allocate between the leader and their followers) provide partial support for our prediction. Specifically, we found that participants who had power over more (vs. fewer) followers, were less likely to use moral reasoning structures that emphasize considerations of justice and care for the collective well-being. However, participants who were given more (vs. fewer) payout options to enforce their will over their followers did not differ in how they reasoned about moral issues, but they did have a higher tendency to engage in self-interested behavior. We further found suggestive evidence that having power over more followers indirectly increased self-interested behavior, via the use of less principled moral reasoning structures.

### Theoretical and practical implications

Our findings have implications for the power literature. Prior research has shown that power prompts the powerholder to engage in self-interested behaviors (Bendahan et al., 2015; Dubois et al., 2015; Handgraaf et al., 2008; Lammers & Stapel, 2009; Rucker et al., 2011; van Dijk et al., 2004). Moreover, prior theoretical work (Smith & Galinsky, 2010; Tost, 2015) argues that the effects of power can influence powerholders' responses outside the context in which power is acquired. Building and expanding such work, we showed that leaders'

power to enforce their will over others does make the leader more focused on their self-interest within the situation in which their power is grounded, whereas leaders' *power over* others extends beyond such contexts to, for example, how leaders judge what action would be morally preferred in a context that was unrelated to their power. The novelty of our paper lies in that we focus on power and its effects on self-interest that was either connected to the power context (i.e., self-interested behavior) or that transcended the power context (i.e., less use of the principled moral reasoning).

Our results further suggest a more nuanced understanding of *why* power leads to self-interested behavior. Research shows that power makes people more effective in pursuing their goals (Guinote, 2007c). Because self-interest is such a goal (Moore et al., 2006; Moore & Loewenstein, 2004), it should be enhanced by having high power. We found suggestive evidence that power (operationalized as number of followers) also makes people more likely to engage in self-interested behaviors via the mediating mechanism of reasoning about moral dilemmas in more self-interested ways, that is by triggering less principled structures of moral reasoning. Moral reasoning scholars have explained the effect of moral reasoning on moral behavior in terms of consistency between thoughts and actions (Blasi, 1980; Kish-Gephart et al., 2010; Villegas de Posada & Vargas-Trujillo, 2015). As a result, how individuals think about moral issues should be reflected in how they behave. Our findings thus suggest a specific process through which power may influence self-interested behavior: power makes people approach moral issues in less principled ways, which increases the motivation to behave more in line with one's self-interest.

Moreover, we are, to the best of our knowledge, the first to attempt to derive an estimate of the effect of moral reasoning on self-interested behavior, using 2SLS regressions with the exogenous dimensions of power as instrumental variables. Prior research on the relationship between moral reasoning and outcome variables has been correlational. This means that any correlation obtained in prior work could imply an effect of moral reasoning on the outcome variable, an effect of the outcome variable on moral reasoning, the operation of a higher level variable that causes both moral reasoning and the outcome, or even method artifacts (e.g., common method variance). Our analytic approach can, in principle, address such issues (Antonakis et al., 2010; Kennedy, 2008). Our results suggest that moral reasoning influences self-interested behavior (rather than just being correlated with it), although this conclusion should be taken with caution given that our instrumental variables were not strong.

Finally, by showing that power over others leads to lower principled moral reasoning, our research also has implications for our understanding of moral reasoning processes. Previous research addressing the link between power and moral reasoning used correlational designs (Elm & Nichols, 1993; Ponemon, 1990, 1992; Weber, 1990, 1996; Weber & Wasieleski, 2001), making it impossible to draw any conclusions about causality. For decades, scholars studied moral reasoning as a cognitive process that progresses to more complex, principled structures of reasoning over relatively long periods of time (Kohlberg, 1969; Loe et al., 2000; O'Fallon & Butterfield, 2005; Tenbrunsel & Smith-Crowe, 2008; Treviño et al., 2006). Our results indicate that moral reasoning is less stable than it is often portrayed to be and that factors unrelated to the moral issue, such as having power in a context outside the dilemma, influence moral reasoning.

From a practical perspective, understanding the impact of power on moral reasoning and self-interested behavior is important for various reasons. First, decisions about moral issues are often made in asymmetric and unequal-power relationships (Lammers, Galinsky, Dubois, & Rucker, 2015) that heightened the salience of self-interest (Schaerer et al., 2018). Second, high power organizational leaders are considered

to be the central points of information in organizations and, for that reason, they are often charged with formulating and communicating not only strategic plans, but also the organization's value system (Ireland & Hitt, 1999; Treviño & Brown, 2004; Weaver, Treviño, & Agle, 2005). As a result, the decisions made by those in high power positions are arguably more consequential than the decisions made by those in lower power positions (Sande et al., 1986; Schaerer et al., 2018; Van Vugt, 2006) because they affect those working in the organization as well as other stakeholders such as suppliers, customers, and ultimately the society the organization operates in (Brown & Treviño, 2006; Brown, Treviño, & Harrison, 2005; Jordan et al., 2011; Treviño, 1986; Treviño et al., 2006). In line with the confession of Andy Fastow, our results illustrate that the more power one has, the less likely it is to include principles of justice and care for the collective well-being in one's moral reasoning. As a result, the powerholder may be more likely to view their actions as justifiable in line with their duty to the well-being of the company (Graham, Haidt, & Nosek, 2009).

#### *Strengths, limitations, and suggestions for future research*

The experimental design of our study has notable strengths. First, it allowed manipulating actual power (rather than imagined power, as it is often the case in prior work) without triggering demand effects. Asking participants to take on a role in which they make decisions that affect imaginary others could pose generalizability problems because participants often behave differently when given hypothetical, rather than actual power (Flynn, Gruenfeld, Molm, & Polzer, 2011; Magee & Galinsky, 2008; Sturm & Antonakis, 2015; Tost, 2015). In the current study, we assigned participants to actual leader and follower positions and gave leaders autonomy to decide how to allocate payouts to themselves and to their followers, making the exercise of power consequential. Furthermore, demand effects are less problematic in the current design because the power manipulations were not salient to participants: we told participants that they would either be a leader or a follower with no further information about some leaders having more power than others. Finally, using a more realistic manipulation of power should, at the very least, increase the ecological validity of our results (Sturm & Antonakis, 2015).

In spite of the strengths outlined above, our research is not without limitations. Although our manipulation of leader power reflects how power exists in organizations (French & Raven, 1959; Mintzberg, 1979; Sherman et al., 2012), the fact that we conducted our study in a controlled laboratory setting among students limits the generalizability of our findings to actual leadership settings. For instance, it has been argued that power might not always be salient to powerholders in organizations, suggesting that the effects of power in the field might be weaker than in our experiment. It should, however, be noted that field studies reveal strong and highly significant correlations between one's actual position of power and one's experienced power (see van Dijke, De Cremer, Langendijk, & Anderson, 2018), reducing the likelihood that the effects of power on moral reasoning and self-interested behavior would disappear in field settings.

Furthermore, some research suggests that power in organizational settings can produce a sense of responsibility instead of a sense that one can do what one wants (Tost, 2015). However, prior work that offered such conclusions either suffers from demand effects (De Wit, Scheepers, Ellemers, Sassenberg, & Scholl, 2017; Sassenberg, Ellemers, & Scheepers, 2012; Scholl, Sassenberg, Scheepers, Ellemers, & de Wit, 2017) or used cross-sectional designs (Smith & Hofmann, 2016) that may be plagued by reverse causality (e.g., feelings of responsibility leading to higher power) or by omitted variables. In contrast to such work, our experimental design allows drawing clear causal conclusions

about the relationship between power and moral reasoning and, respectively, power and self-interested behavior. Future work could aim to identify relevant moderators that qualify the main effects we observe for leader power. The literature on power provides various candidates and we address some of them in the following paragraphs.

In the current paper we kept the ratio of leader gains to follower losses constant across the power conditions so that we could isolate the effects of power on moral reasoning and self-interested behavior. Future research could alter this design in various ways. First, in line with research on intergenerational decision-making (Wade-Benzoni, 2002; Wade-Benzoni, Hernandez, Medvec, & Messick, 2008), adding a temporal separation between the moment when leaders make a choice and the moment when they as well as others get to enjoy the benefits of that choice might result in less self-interested behavior. Second, leaders have the discretion not only to take away from, but also to give to a common pool. Previous work (Brewer & Kramer, 1986; Galinsky et al., 2003) would suggest that when leaders are presented with the choice of increasing public welfare (rather than taking away from it), they may exhibit more prosocial behavior and this is, in part, because leaders would have to forgo a potential gain rather than give up an already possessed resource, as it was the case in the current design. Third, a recent body of work in social psychology argues that the effects of power depend on how leaders construe the power they have (De Wit et al., 2017; Sassenberg et al., 2012; Scholl et al., 2017). In particular, leaders who construe their power as responsibility towards others, rather than as opportunity for goal attainment, engage in less harmful behaviors. Future research could examine whether nudging leaders to take into account others' interest would result in higher moral reasoning as well as less self-interested behavior. Lastly, mirroring the organizational reality, leaders in an organizational context are often confronted with multiple responsibilities not only towards their subordinates, but also towards the organization and towards stakeholders. In the present design, we relaxed such responsibilities. However, as the work by Overbeck and Park (2001) illustrates, when leaders face conflicting responsibilities they tend to favor those towards the organization. Future research could examine how multiple conflicting responsibilities shape leaders' moral reasoning as well as their allocation decisions.

We built our theoretical argument on the idea that self-interest is a pervasive and unconscious goal for everyone. Because power activates goal-focused cognitive networks, power should make individuals more effective at pursuing their self-interest goals. However, the extent to which individuals engage in self-interested behaviors might vary. This point is illustrated by prior research that looked at how power interacts with personality characteristics in predicting self-interested versus prosocial behavior. Such research has shown that for individuals who have a natural tendency to be concerned about others (e.g., communal relationship orientation), power can actually enhance such a tendency (Chen, Lee-Chai, & Bargh, 2001; see also Côté et al., 2011; Schmid Mast, Jonas, & Hall, 2009). Future research could therefore explore whether the negative effect of number of followers on moral reasoning is diminished or even reversed for powerholders who have a natural tendency to focus on the collective.

A potential limitation inherent in the experimental design used in the present paper is the manipulation of the leader power component of *power to*. In particular, power was manipulated by increasing the number of payout options available to the leader from 3 to 4. Research suggests that having more choices can place cognitive constraints on decision-making such that more choice might not always result in optimal, rational decision-making (Schwartz, 2004). Research also suggests that presenting the more extreme "very antisocial" option next to the less extreme "antisocial" option might increase the likelihood of

anchoring one's choice in the latter option because it seems comparatively less bad (Ariely, Loewenstein, & Prelec, 2003; Tversky & Kahneman, 1974). One might therefore argue that leaders with 4 payout options, as opposed to those with 3 payout options, found it easier to justify picking the “antisocial” option, which would be an alternative explanation for the effect of number of options on self-interested behavior. However, if this had been the case then we should have observed that leaders in the 4 options condition picked the antisocial option more often than those in the 3 payout options condition, while few picked the very antisocial option. Yet, when inspecting the frequency of choices leaders made across conditions (see Table 3), we see that when moving from 3 to 4 payout options, leaders tended to pick the prosocial or default option less often and opted for the very antisocial option rather than primarily opting for the antisocial option. Irrespective of this observation, future research could aim to avoid choice overload or potential anchoring effects by replacing the antisocial option with the very antisocial option for the *power to* condition with 3 payout options. This would ensure that there is only one selfish option presented across both *power to* conditions. Alternatively, scholars could opt for a mixed design with number of followers as a between-person factor and number of payout options as a within-person factor and examine whether the same leader tends to anchor their choice onto the antisocial option as the number of payout options increases.

Another potential limitation of the present experimental design is the variation in the size of the group sessions, which could have compromised anonymity. We ensured that leaders' allocation decisions regarding the payouts were anonymous in three ways. First, followers were not informed about the structure of the payout options, but merely about the range of payment. Second, followers learned about the leader's allocation decision only when the data collection was finished and they received their earning in their bank account. Third, followers did not know how many leaders were in the room, making it impossible for them to attribute their earnings to one specific leader. Nevertheless, we found a weak correlation between one of the leader power manipulations – number of followers – and the size of the laboratory group sessions ( $r = 0.26, p = .06, n = 51$ ), suggesting that our findings for number of followers might be confounded with session size. However, the other leader power manipulation – number of payout options – was not correlated with session size ( $r = 0.13, p = .34, n = 51$ ). One way in which number of followers might be confounded with session size is that in larger sessions leaders potentially felt more anonymous and therefore more inclined to act in self-interested ways. However, it is hard to see how such decreased anonymity could affect leaders' principled moral reasoning (which is by definition anonymous), but would have no effect on actual self-interested behavior.

Whereas Bendahan et al. (2015) found an effect of number of followers on self-interested behavior, we did not. One potential explanation for the null effect observed in our study lies in our experimental procedure whereby leaders and followers were brought to the lab in smaller groups than in a large classroom setting as Bendahan and colleagues did in Study 1. Smaller groups might have triggered different construals of the situation. In particular, it is possible that the presence of fewer others made the leader's lack of power more salient. Past work suggests that others' level of power can influence the choices leaders make by triggering either strategic or social responsibility considerations when making allocation decisions. For instance, it has been shown that negotiation opponents who are completely powerless often end up with better negotiation outcomes, compared to opponents who have a bit of power (Schaerer, Swaab, & Galinsky, 2015). When an opponent is confronted with a weak recipient, the allocator will assess the decision as strategic and competitive (Suleiman, 1996) and would also be more

likely to act in an aggressive way towards the recipient (Baumeister, Smart, & Boden, 1996; De Dreu & Van Knippenberg, 2005). However, when the recipient is completely powerless and therefore cannot retaliate in any way, prosocial rather than self-serving considerations become more prominent in the opponent's allocation decision (Handgraaf et al., 2008). Future research could address such issues by varying the degree of power that followers have (cf. Handgraaf et al., 2008) and examine how this shapes leaders' moral reasoning and their allocation decisions.

Finally, we wish to address the distinct effects of *power over* and *power to*. We found a main negative effect of power over others, but not of power to enforce one's will, on moral reasoning. We further found a main positive effect of power to enforce one's will, but not of power over others, on self-interested behavior. These distinct effects are intriguing and suggest that the two components of leader power might trigger a focus on the goal of self-interest via different routes, namely by differentially shaping individuals' construal level. According to construal level theory (Trope & Liberman, 2003, 2010; see also Wiesenfeld, Rey, Brockner, & Trope, 2017), mental representations can be concrete and situationally-bound (low construal level) or abstract and decontextualized (high construal level). Our results suggest that power to enforce one's will over others may have activated concrete, thus situationally-bound, action-oriented cognitive networks, which enabled leaders to engage in self-interested behavior. In contrast, power over others may have activated abstract, and thus not situationally-bound, cognitive networks, which affected leaders' moral reasoning. Indeed, theoretical (Fiske, 1993) and empirical (Guinote, Brown, & Fiske, 2006; Overbeck & Park, 2001, Study 3) work on power suggests that having power over more followers triggers abstract cognitive shortcuts, such as stereotypes. Overall, the type of construal that power activates might depend on the operationalization of power: power to enforce one's will triggers low level construal, whereas power over others triggers high level construal. Our suggestion is in contrast with prior construal level work on power that argues that power triggers abstract and decontextualized thinking (cf. Smith & Trope, 2006; Stel, van Dijk, Smith, van Dijk, & Djalal, 2012). In line with our results and with recent recommendations (cf. Wiesenfeld et al., 2017), future research addressing the relationship between power and construal level might benefit from exploring how different components of leader power relate to construal level.

## Conclusion

Moral issues are the most prevalent and among the most difficult challenges that organizational leaders have to deal with (Zhang, Gino, & Margolis, 2018). Part of the difficulty lies in that solving moral issues often involves a tradeoff between conflicting, yet valued principles (cf. Graham et al., 2009). Yet, another part of the difficulty lies in that power may influence how leaders think about moral issues and, subsequently, how they behave. In the present paper we found suggestive evidence that power triggers self-interested behavior because it influences their moral reasoning. However, we did find clear evidence that the two dimensions of leader power – number of followers and number of payout options – have distinct effects on moral reasoning and, respectively, on self-interested behavior. Whereas, it might be tempting to say that Andy Fastow behaved unethically because power corrupts, our results suggests that the effects of power on corruption are less straightforward than previously thought. To conclude, power is a complex phenomenon and should be studied as such if we are to unveil its true colors.

## Appendix A

For clarity and symmetry with the graphic representation of our models (see Fig. 1), we present the statistical equations without any control variables. We note, however, that we estimated models that include compensation and its interaction terms with both power conditions as control variables in the main analyses. In Models 1 through 3, we allowed the error terms of moral reasoning and self-interested behavior to covary. In Model 4, we fixed the covariance of the error terms of moral reasoning and self-interested behavior to 0.

### A.1. Model 1

$Moral\ Reasoning = \beta_0 + \beta_1 \text{Number of followers} + \beta_2 \text{Number of payout options} + e$

$Self\text{-interested behavior} = \gamma_0 + \gamma_1 \text{Number of followers} + \gamma_2 \text{Number of payout options} + u$

### A.2. Model 2

$Moral\ Reasoning = \beta_0 + \beta_1 \text{Number of followers} + \beta_2 \text{Number of payout options} + e$

$Self\text{-interested behavior} = \gamma_0 + \gamma_1 \text{Moral reasoning} + u$

### A.3. Model 3

$Moral\ Reasoning = \beta_0 + \beta_1 \text{Number of followers} + \beta_2 \text{Number of payout options} + e$

$Self\text{-interested behavior} = \gamma_0 + \gamma_1 \text{Moral reasoning} + \gamma_2 \text{Number of payout options} + u$

### A.4. Model 4

$Moral\ Reasoning = \beta_0 + \beta_1 \text{Number of followers} + \beta_2 \text{Number of payout options} + e$

$Self\text{-interested behavior} = \gamma_0 + \gamma_1 \text{Moral reasoning} + \gamma_2 \text{Number of payout options} + u$

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