

UC Berkeley

UC Berkeley Electronic Theses and Dissertations

Title

Beyond "Thanks": Power as a Determinant of Gratitude

Permalink

<https://escholarship.org/uc/item/4dn0q0sk>

Author

Gordon, Amie Michelle

Publication Date

2013

Peer reviewed|Thesis/dissertation

Beyond “Thanks”: Power as a Determinant of Gratitude

By

Amie Michelle Gordon

A dissertation submitted in partial satisfaction of the

requirements for the degree of

Doctor of Philosophy

in

Psychology

in the

Graduate Division

of the

University of California, Berkeley

Committee in charge:

Professor Serena Chen, Co-Chair
Professor Dacher Keltner, Co-Chair
Professor Dana Carney

Fall 2013

Abstract

Beyond “Thanks”: Power as a Determinant of Gratitude

by

Amie Michelle Gordon

Doctor of Philosophy in Psychology

University of California, Berkeley

Professor Serena Chen, Co-Chair

Professor Dacher Keltner, Co-Chair

Research has compellingly shown that gratitude is important for both personal and relational well-being (e.g., Gordon, Impett, Kogan, Oveis, & Keltner, 2012; Wood, Joseph, & Maltby, 2008); however, little work has documented the factors that moderate the experience of gratitude. One important factor influencing the experience and expression of emotion is social power (Keltner, Gruenfeld, & Anderson, 2003). Low-power individuals are less likely to think, feel, and act in ways that are consistent with their own personality, attending instead to external cues such as social norms. Across four studies, I examined whether low-power individuals would be less likely to rely on their dispositional tendency to be grateful when responding to gratitude-inducing situations, which are governed by strong social norms. As hypothesized, dispositional gratitude and expected feelings of gratitude after receiving help from others were correlated for high- and neutral- but not low-power participants (Studies 1 & 2). That is, after receiving help, high- and neutral-power participants expected to feel grateful in line with their dispositional tendencies, but low-power participants did not. Study 3 replicated the findings of the first two studies using an actual gratitude-inducing situation in the laboratory. In Study 4, power also influenced the interpersonal transmission of gratitude such that low-power individuals were less accurate in transmitting feelings of gratitude to their romantic partners relative to high-power individuals. Across studies I measured and manipulated social power using a variety of methods (e.g., role playing, subtle priming) and examined lay beliefs as well as actual reports of gratitude in response to receiving benefits from others. Taken together, the results of these four studies provide evidence that power is an important factor that influences the experience of gratitude, with low power attenuating the link between disposition and emotion.

Acknowledgements

First, I would like to thank my committee co-chairs and graduate advisors: Serena Chen and Dacher Keltner. Words cannot express how grateful I am for their guidance and support over the past six years. Together, they have taught me to think through both the tiny details and the big ideas. Their careful and thoughtful mentorship has instilled in me a love of science and an appreciation for the rigors of the scientific method. Without their support, I would not be completing this degree. I also want to thank Dana Carney for her helpful ideas and advice regarding my dissertation. In addition, I would like to express my thanks to the members of the Self, Identity, and Relationships Lab and the Berkeley Social Interaction Lab for being an incredible sounding board for research ideas during my tenure in graduate school. I couldn't have asked for a better cohort in Anna Luerssen, Jennifer Stellar, and Juliana Breines. Their support and friendship these past six years has been invaluable. Finally, none of this would have been possible without the love and support of my husband and best friend, Ryan Mullins, who has always believed in me.

Beyond “Thanks”: Power as a Determinant of Gratitude Expression

Gratitude is important for both personal and relational well-being. People who experience more gratitude are more satisfied with life, less likely to experience depression (e.g., Wood, Joseph, & Maltby, 2008), and they report greater happiness and commitment in intimate relationships (e.g., Algoe, Gable, & Maisel, 2010; Gordon, Impett, Kogan, Oveis, & Keltner, 2012). Gratitude also acts to build relationships, promoting prosocial behaviors towards other individuals (e.g., Bartlett & DeSteno, 2006; Tsang, 2007). Given the importance of gratitude for well-being, researchers have begun to explore the appraisal patterns that give rise to gratitude (e.g., Algoe, Haidt, & Gable, 2008), the dispositional tendency to experience gratitude (McCullough, Emmons, & Tsang, 2002), and the expressive behaviors associated with gratitude and related states (Hertenstein, Keltner, App, Bulleit, & Jaskolka, 2006). Notwithstanding these advances, little research has documented the factors that moderate the experience of gratitude. One important factor influencing the way people experience and express emotion is social power (Keltner, Gruenfeld, & Anderson, 2003). In my dissertation, I consider the ways in which having (or lacking) power over other people influences people’s experience and expression of gratitude after receiving benefits from others.

Social power affects how we perceive the world and how we interact with others. Power differentials are prevalent in our daily lives and have been linked with both positive and negative social outcomes (e.g., Fiske, 1993; Karremans & Smith, 2010; Keltner et al., 2003). In my dissertation, I examine whether having power over others might be an important social factor that moderates the association between individuals’ dispositional tendency to experience gratitude and their actual gratitude in response to receiving a benefit from another person (i.e., benefit-triggered gratitude; Lambert, Graham, & Fincham, 2009). In particular, I propose that under conditions of low but not high power, individuals will be less likely to act in line with their dispositional tendency to be grateful, relying instead on social norms.

Benefit-Triggered Gratitude

Benefit-triggered gratitude is the positive emotional experience that flows from the perception that one has benefited from the costly, intentional, and voluntary actions of another individual (*cf.* McCullough, Kimeldorf, & Cohen, 2008; see also Weiner, Russell, & Lerman, 1979). That is, individuals are more grateful to the extent that they perceive that their benefactor has incurred a cost in providing the benefit (e.g., Tesser, Gatewood, & Driver, 1968), has provided the benefit purely to help the individual (e.g., Tesser et al., 1968; Tsang, 2007), and did so out of choice rather than obligation (McCullough et al., 2008). Researchers have also suggested that gratitude is greater when people perceive the benefit as valuable (Tesser et al., 1968).

Other factors also influence the extent to which people feel grateful after receiving benefits from others. Recent research shows that people feel more grateful when benefactors act in a way that is perceived as *thoughtful* and *responsive* to their needs (Algoe et al., 2008; Kubacka, Finkenauer, Rusbult, & Keijers, 2011). For example, Algoe and colleagues (2008) found that new sorority sisters felt more grateful during a gift-giving week in their sorority when they received gifts that they perceived as responsive to their needs. Experiences of gratitude may also be influenced by individuals’ *expectations* of help (Algoe et al., 2008; Bar-Tal, Bar-Zohan, Greenberg, & Hermon 1977). Bar-Tal and colleagues (1977) found in a scenario study that

people believed they would feel less grateful when they received help from a close other than when they receive the same help from a stranger. Additionally, Algoe's sorority sisters felt more grateful when they were surprised by their gifts.

Understanding the appraisals that give rise to gratitude helps illuminate the features of the situation that shape how much people will feel grateful in response to another's kind act. However, even when faced with the same gratitude-inducing situation, personality psychologists have compellingly shown that there are differences in people's dispositional tendency to feel grateful. That is, not everyone experiences gratitude in their daily lives with the same intensity, frequency, or breadth (McCullough et al., 2002).

Individual Differences in Gratitude: The Grateful Disposition

Termed the "grateful disposition," those individuals who are high in this affective trait experience gratitude more frequently, intensely, and in response to a wider breadth of situations relative to those individuals who are less predisposed towards gratitude (McCullough et al., 2002; McCullough, Tsang, & Emmons, 2004). Grateful people reap the rewards of experiencing this social emotion—people who self-report being higher in the grateful disposition also report being more satisfied with life, more optimistic and hopeful, less depressed and anxious, more empathic, and as seen as more prosocial (as rated by peers; McCullough et al., 2002). Thus, the grateful disposition appears to promote experiences of gratitude and, as a result, is linked with greater well-being and social cooperation.

The research on the grateful disposition suggests that people tend to respond to gratitude-inducing events in line with their grateful dispositions. However, is this always the case? Might there be circumstances in which people's affective responses are guided by external cues rather than their trait gratitude? In the current work, I explore these questions, examining whether social power moderates the association between the grateful disposition and emotional experiences of gratitude after receiving help from others. Research has shown that power influences whether people act in line with their dispositional tendencies (e.g., Chen, Lee-Chai, & Bargh, 2001; Côté et al., 2011; Gordon & Chen, 2013). Thus, to understand how the grateful disposition is linked to momentary experiences of gratitude, we must consider whether or not people feel powerful during gratitude-inducing situations.

Power's Effect on Dispositional Tendencies

Power, defined as having control and influence over others and being the decision-maker in relationships (Keltner et al., 2003), amplifies individuals' dispositional tendencies such that high-power individuals act more in line with their personalities relative to low-power individuals (e.g., Chen et al., 2001; Côté et al., 2011; Gordon & Chen, 2013). For example, the link between dispositional self-other focus and prosocial behavior, such as perspective-taking, is enhanced among those individuals who feel powerful. Powerful individuals feel more authentic relative to low-power individuals (Kraus, Chen, & Keltner, 2011), acting more consistently in line with their personality across diverse situations. Power also heightens pursuit of goals (Guinote, 2007), and enhances approach tendencies (Anderson & Berdahl, 2002; Keltner et al., 2003), which help powerful individuals strive towards and obtain rewards (Keltner et al., 2003). These aspects of power promote high-power individuals thinking, feeling, and acting in ways that are consistent with their own personality. Thus, it is very reasonable to expect that when it comes to gratitude,

high-power individuals will experience and express more or less gratitude in line with their dispositional tendencies.

In contrast to the amplifying effects of high power, low power tends to dampen the association between internal states and external expressions (Anderson, John, Keltner, & Kring, 2001; Chen et al., 2001; Galinsky, Magee, Gruenfeld, Whitson, & Liljenquist, 2008; Keltner et al., 2003). Individuals who have little power are dependent on their more powerful counterparts, relying on them to make decisions and determine outcomes. This reliance on others and lack of control over their environment constrains low-power individuals' freedom of expression, focusing them on external forces (such as the desires of their high-power counterparts) rather than their own internal states (Galinsky et al., 2008; Keltner et al., 2003). As a demonstration of the disconnect between low-power individuals' internal states and momentary experiences, researchers have shown that whereas individuals' dispositional self-other focus is correlated with their reported perspective taking for high-power individuals, this correlation is diminished or negated for low-power individuals (Côté et al., 2011; Gordon & Chen, 2013).

In light of these findings relating power to the expression of pre-existing dispositions, I anticipate that power will moderate the link between the grateful disposition and the emotional experience of gratitude after receiving benefits from others. That is, I posit that high-power individuals will act in accord with their dispositional tendencies when in gratitude-inducing situations, whereas low-power individuals will not.

Powerless and Grateful: Attuned to Social Norms?

If those who are less powerful are not experiencing and expressing gratitude in accord with their dispositional tendencies, what is driving the presence or absence of their gratitude in response to others' kind acts? People in low-power positions are more constrained by the environment, leading them to focus more on external cues rather than their internal states when making decisions about how to behave (Galinsky et al., 2008). One important external cue that guides behavior is social norms. Low-power individuals are more likely to conform in social situations (Galinsky et al., 2008) and are more attuned to social norms (Keltner et al., 2003; Van Kleef, Homan, Finkenauer, Gündemir, & Stamkou, 2011).

Gratitude-inducing situations are guided by one strong social norm—the norm of reciprocity. When an individual is provided a benefit from another person, the norm of reciprocity dictates that the benefited individual should express gratitude and respond in kind (Whatley, Webster, Smith, & Rhodes, 1999). Given that expressions of gratitude and reciprocity are expected social behaviors and that low-power individuals are more attuned to social norms, I anticipate that these individuals will exhibit relatively high levels of gratitude after receiving help from others regardless of their dispositional tendencies due to increased attention to social norms. If indeed social norms are what constrain the link between the grateful disposition and gratitude behaviors for low-power individuals, then in more ambiguous situations, when social norms do not clearly dictate the need for expressions of gratitude, low-power individuals should be more likely to act in accord with their grateful disposition. That is, under conditions in which social norms are clear, such as returning a favor to a benefactor, I anticipate that low-power individuals will express gratitude regardless of their dispositional tendencies, whereas high-power individuals will act in line with their grateful disposition. In contrast, when there are no clear social norms, such as when considering whether or not to do a favor for a stranger, I

anticipate that both high and low-power individuals will act in line with their grateful disposition.

Overview of Current Research

In line with research showing that low power constrains the link between personality and behavior (Gordon & Chen, 2013), I hypothesized that the association between the grateful disposition and emotional experiences of gratitude after receiving help from others will be diminished among low-power individuals. In contrast, under conditions of high power, I predicted that people's emotional experiences of gratitude would be determined by their dispositional tendency to be grateful (i.e., their internal state). As such, I expected there to be a positive association between the grateful disposition and reported gratitude in response to receiving a benefit from another individual for high-power, but not low-power, individuals. For low-power individuals, I anticipated that emotional experiences of gratitude would be dictated by external cues, in particular, the social norm of reciprocity which dictates that one should be grateful and respond in kind when receiving a benefit from others

Four studies tested these hypotheses. Study 1 tested people's lay beliefs about the link between power and gratitude. After completing a measure of dispositional gratitude, participants read about either a high- or low-power individual and reported how grateful they believed that person would be in response to hypothetical acts of kindness from others. Study 2 extended Study 1 by using a subtle power priming technique (i.e., sentence unscrambling; Smith & Trope, 2006), assessing people's beliefs about their own gratitude under conditions of power, and including a neutral condition to assess whether high or low power was driving the effects.

In Study 3, I extended the previous two studies by assessing participants' self-reported experiences of gratitude during an actual gratitude-inducing situation (i.e., having one's computer fixed by a fellow participant). I examined both self-reported and behavioral measures of gratitude, following previous studies (Bartlett & DeSteno, 2006; DeSteno, Bartlett, Baumann, Williams, & Dickens, 2010; Tsang, 2007). More specifically, as a behavioral measure of gratitude, I assessed the extent to which individuals responded prosocially towards others (i.e., share money with them) after receiving a favor. Study 3 also served a second purpose: to examine whether the link between the grateful disposition and emotional experiences of gratitude is diminished for low-power individuals because they are constrained by social norms. Toward this end, I assessed whether the link between disposition and behavior was constrained for low-power individuals when there was a clear norm of reciprocity, but not when there was no norm of reciprocity. In gratitude-relevant situations in which there was no norm of reciprocity, such as giving to a third party after receiving help from someone else, I expected low-power individuals, like high-power individuals, would act in accord with their grateful disposition.

Relationships with close others may be the most important and pervasive power dynamics in our lives and gratitude plays a vital role in helping maintain interpersonal relationships (Algoe et al., 2010; Gordon et al., 2012). Thus, in the final study (Study 4), I examined whether social power influenced the transmission of gratitude in romantic relationships. Specifically, I examined whether there would be a stronger link between one partner's feelings of gratitude and the other partner's feelings of being appreciated when the grateful partner was more powerful relative to less powerful. To test this, both partners of romantic couples reported on their perceived power in their relationship, their tendency to feel grateful towards their partner, and their feelings of being appreciated by their partner. By

examining the transmission of gratitude across romantic partners, this study links reports of gratitude across individuals, examining whether the effects of power on gratitude extend beyond the grateful individual's own self-reports.

Taken together, these four studies provide a comprehensive examination of power's moderating role in the association between the grateful disposition and state gratitude. Across the first three studies I manipulated power using a variety of methods (target descriptions, subtle priming, role playing), and I measured relationship-specific power in Study 4. I also used diverse measures of benefit-triggered gratitude, including measures of self-reported gratitude in response to imagined and actual favors, behavioral measures of prosociality after receiving a favor, and romantic partners' reports of feeling appreciated. In addition, by manipulating the norm of reciprocity in Study 3, I tested the proposed mechanism for these moderated effects – differences in attention and adherence to social norms. That is, I tested whether low power constrains the association between disposition and emotion because low-power individuals are more attentive and likely to adhere to the norm of reciprocity, which dictates that people should express gratitude and respond in kind when they receive favors from others.

Study 1

In Study 1, I tested my primary hypothesis that the link between one's grateful disposition and one's emotional experience of gratitude in response to receiving a benefit would be moderated by power by examining people's lay beliefs about power and gratitude using a scenario-based paradigm. Participants completed a measure of the grateful disposition and then took part in a "person perception study" where they read about a target individual who was either powerful or powerless at work. Participants then rated how they imagined the target would respond in a variety of situations, including three scenarios in which the target received a favor from a friend, family member, or stranger. People often project their own attitudes, beliefs, and feelings onto others, predicting how other people would respond to situations by imagining themselves in the same situation (e.g., Gilovich, 1990; Marks & Miller, 1987; Van Boven & Lowenstein, 2003); thus, I anticipated that individuals would rate the target's reactions to the gratitude-inducing situations in line with their own grateful disposition and corresponding beliefs about how they would respond under conditions of high or low power.

Method

Participants

One hundred and fourteen (85 female) undergraduates took part in this study in return for psychology course credit. Participants were 20.34 years old on average (Range = 18-28; $SD = 1.52$). Nine participants were removed from analyses because they failed to comply with attention checks (i.e., items embedded amongst the questionnaires that told participants which answer to select). Of the remaining participants, 52.6% were Asian/Asian American, 21.1% were European/European American, 10.5% were Hispanic, 1.9% were African/African American and 14.1% were of other ethnicities.

Procedure

Participants who were interested in the study were directed to a secure online website where they completed demographics and a variety of personality measures, including a measure of the grateful disposition (McCullough et al., 2002) and a measure of empathic concern (Davis, 1983).

After completing the personality measures, participants took part in the “person perception study” where they read biographical information about a target person and then predicted how that person would respond in a variety of situations. The gender of the target was matched to the gender of the participant (i.e., males read about a target named “Jon” and females read about a target named “Jan”). Female participants read that “Jan is 35 years old. She is outdoorsy and likes to hike on the weekends. Jan is close to her family and has monthly get-togethers with her three siblings. Her favorite food is Italian and she eats at a local Italian restaurant almost every week.” In the **high-power condition**, participants then read that “Jan works at a moderately sized company. She is a high-ranking employee, with several subordinates who answer to her and carry out her requests, and whose performance she evaluates. Within Jan’s company, there are not many employees who rank above her.” In the **low-power condition**, participants read that “Jan works at a moderately sized company. She is a low-ranking employee, with a direct supervisor who determines her work responsibilities and evaluates her performance. Within Jan’s company, there are not many employees who rank below her.”

After reading about the target, participants then rated how they believed the target would act in six different scenarios. In three of these scenarios, participants read about the target being the recipient of a favor (i.e., receiving a ride from a friend when her car broke down, having a surprise party thrown for her by her sister, being told to go ahead in line by a stranger when she had only one item at the grocery store). In all three scenarios, the target received a benefit from someone who was outside of the power structure.¹ For each gratitude-inducing scenario, participants reported the extent to which they believed the target would experience a variety of different thoughts and feelings, including their experienced and expressed gratitude towards the benefactor. At the end of the study, participants reported on their perceptions of the target.

Background Measures

Grateful disposition. Participants rated their dispositional tendency to experience gratitude using the six-item Grateful Disposition Questionnaire (GRQ-6; McCullough et al., 2002). This scale includes items such as “I have so much in life to be thankful for,” and “When I look at the world, I don’t see much to be grateful for” (reverse scored) rated on 7-point scales (1= *Strongly disagree*, 7 = *Strongly agree*). In this sample, alpha = .81.

Empathic concern. Participants rated their general tendency to be other-focused using the seven-item Empathic Concern subscale of the Interpersonal Reactivity Index (Davis, 1983). This subscale includes items such as “I often have tender, concerned feelings for people less fortunate than me” and “Other people’s misfortunes do not usually disturb me a great deal” (reverse scored) on 5-point scales (1= *Does not describe me at all*, 5 = *Does describe me well*). In this sample, alpha = .77.

Dependent Measures

Expected gratitude. Participants rated the extent to which they believed the target would experience and express gratitude by responding to the items: “How grateful do you think

Jan felt towards [the benefactor]?", "How thankful do you think Jan was?", and "To what extent do you think Jan expressed her thanks to [the benefactor]?" All the items were measured on 7-point scales (1 = *Not at all*, 7 = *Completely*). The three items were highly correlated (alphas = .91, .87, .86) and were averaged together to create an index of gratitude within each scenario. I then averaged across the three scenarios to create a single measure of gratitude (alpha = .80).

Positive affect. In addition to measuring gratitude, I also measured the extent to which participants believed the target would feel "*happy*," "*content*," and "*joyful*" (1 = *Not at all*, 7 = *Completely*) in response to each of the gratitude-eliciting situations, because both power and the grateful disposition are associated with heightened positive affect (Keltner et al., 2003; McCullough et al., 2002). As with the experience of gratitude, the three items were averaged within each scenario (alphas = .90, .89, .83), and then combined across scenarios to create a single measure of positive affect (alpha = .50).

Manipulation check. Participants rated their perceptions of the target, including the extent to which they were *powerful* and *likeable* (1 = *Not at all*, 7 = *Completely*).

Results

Manipulation Check

Participants who were in the high-power condition perceived the target as significantly more powerful ($M = 5.11$) relative to participants in the low-power condition ($M = 3.98$), $t(76) = 5.69$, $p < .001$. Participants in the high-power condition did not, however, perceive the target as more likable relative to low-power participants (HP $M = 5.27$; LP $M = 5.30$), $t < 1$.

Main Analyses

To assess whether the grateful disposition moderated the association between power condition and reports of gratitude, I regressed reported gratitude onto power condition (HP = 1, LP = -1), standardized grateful disposition, and their interaction term. People higher in the grateful disposition reported that the target would experience more gratitude in response to receiving benefits from others, $\beta = .34$, $t(100) = 3.68$, $p < .001$. There was no main effect of power ($\beta = -.04$, $t < 1$), but as anticipated and shown in Figure 1, there was a significant interaction, $\beta = .21$, $t(100) = 2.33$, $p < .03$. This effect remained marginally significant when controlling for positive affect, $\beta = .17$, $t(99) = 1.95$, $p = .054$. Simple slopes analyses (Aiken & West, 1991) revealed that participants' dispositional tendency to be grateful was positively associated with attributions of gratitude in the high-power condition ($\beta = .55$, $t(100) = 4.44$, $p < .001$), but there was no significant association between the grateful disposition and attributions of gratitude in the low-power condition, $\beta = .12$, $t < 1$.

To rule out the possibility that these effects were simply tapping into a general tendency to be other-focused, I reran the analyses including an interaction between power and empathic concern. The grateful disposition was positively correlated with empathic concern ($r = .41$, $p < .001$); however, when examining the moderating role of power on the link between empathic concern and reported gratitude, there was no effect ($\beta = -.06$, $t < 1$). In contrast, power continued to significantly moderate the association between the grateful disposition and attributions of gratitude when controlling for empathic concern, ($\beta = .25$, $t(98) = 2.32$, $p < .02$), suggesting that these effects are unique to dispositional gratitude.

Discussion

The results from this first study of lay beliefs provide evidence that the grateful disposition influences the attributions that people make about a target's experience of gratitude in response to imagined favors from others, but only among those participants who read about a powerful individual. In contrast, there was no association between the grateful disposition and attributions of gratitude among participants who read about an individual who had little power. Importantly, these results held when controlling for empathic concern, suggesting that the effects are unique to dispositional gratitude and not tapping into a more general other-focused disposition.

Study 2

In Study 2, participants again read scenarios about individuals who received help from others. However, in this study, participants were asked to place themselves in the scenario and report how they would feel and act if they were in that situation. This study extended the previous study in three important ways: First, rather than manipulating the power of the targets in the scenarios, I manipulated power using a subtle power priming procedure in which participants unscrambled sentences (Smith & Trope, 2006). Second, I included a neutral condition to examine whether the moderating effects of power on gratitude were being driven by high or low power. That is, when power is not primed, what does the association between the grateful disposition and gratitude after receiving help from others look like? I anticipated that there would be a positive association between the grateful disposition and reported gratitude in the neutral condition, and only when people were constrained by low power would there be disconnect between their grateful disposition and state gratitude. Finally, I used a national adult sample to ensure that the effects found in Study 1 generalized beyond the undergraduate population.

Method

Participants

One hundred and forty-nine (74 female) adults were recruited through the website Mechanical Turk and took part in this study in return for a small monetary payment. Participants were 36.30 years old on average (Range = 18-79; $SD = 13.15$). Eighty-five percent of participants were European/European American, 7.4% were African/African American, 2% were Asian/Asian American, 1.3% were Hispanic, and 4.7% were of other ethnicities.

Procedure

As in Study 1, participants who were interested in the study were directed to a secure online website where they completed demographics and a variety of personality measures, including measures of the grateful disposition (McCullough et al., 2002) and empathic concern (Davis, 1983). After completing the personality measures, participants completed the sentence unscrambling power prime (described as a "Sentence Construction Task") in which participants unscrambled sixteen different sentences by creating a four word sentence out of five possible

words (Smith & Trope, 2006). In the **high-power condition**, eight of the sentences contained high-power words (e.g., *influence, command, dominate*). In the **low-power condition**, those eight sentences contained low-power words (e.g., *complied, submits, obey*). In the **neutral condition**, there were no power-related words.

After completing the power prime, participants were told that the next task was a “literary reaction task” in which they would read six short stories and answer a series of questions regarding their reactions to the stories. As in Study 1, three of the stories involved the target in the story being the recipient of a favor from another person (i.e., neighbor fixed target’s computer, peer helped target study for an exam, friend helped target lose weight). The gender of the target in the story was again matched to the gender of the participant. After reading each story, participants responded to questions asking how they would feel if they found themselves in that situation. They also rated how similar they felt to the person in the story, and how likeable they thought the person was.

Measures

Grateful disposition. Participants completed the same measure of the grateful disposition described in Study 1. In this sample, $\alpha = .90$.

Empathic concern. Participants completed the same measure of empathic concern described in Study 1. In this sample, $\alpha = .92$.

Reported gratitude. Participants rated the extent to which they believed they would be “grateful,” “thankful,” and “appreciative” (1 = *Not at all*, 5 = *Very much*) in each of the six stories. For the three stories concerning benefit-triggered gratitude, I combined the three items into an index of gratitude (α s = .88, .88, .92). As in Study 1, I aggregated across the three stories to form a single measure of gratitude ($\alpha = .86$).

Manipulation check. Participants rated their perceptions of the target, including the extent to which they were *similar* to the participant and *likeable* (1 = *Not at all*, 5 = *Very much*).

Results

Manipulation Check

Participants in the three conditions did not differ significantly in terms of how similar they felt to the targets in the stories (HP $M = 2.87$; LP $M = 2.75$; Neutral $M = 2.88$; $F < 1$) nor in terms of how likeable they felt the targets were (HP $M = 3.43$; LP $M = 3.58$; Neutral $M = 3.68$), $F(2, 146) = 1.12, ns$.

Main Analyses

To assess whether the grateful disposition moderated the association between power condition and reported gratitude in response to the gratitude-inducing scenarios, I dummy coded the three power conditions (High-Power Dummy: HP = 1, LP & Neutral = 0; Low-Power Dummy Variable: LP = 1, HP & Neutral = 0) and regressed state gratitude onto the two dummy variables, standardized grateful disposition, and their interaction terms. There was a marginal effect of power such that participants in the high-power condition reported that they would feel less gratitude than the other conditions, $\beta = -.16, t(135) = 1.76, p = .08$. As shown in Figure 2,

there was a significant interaction between the low-power dummy variable and the grateful disposition ($\beta = -.26$, $t(135) = 2.43$, $p < .02$), but no significant interaction between the high-power dummy variable and the grateful disposition, $\beta = -.03$, $t < 1$. As in Study 1, participants in the high-power condition displayed the expected positive association between the grateful disposition and their expected gratitude in response to receiving help from others ($\beta = .48$, $t(135) = 4.17$, $p < .001$), but there was no association between the grateful disposition and gratitude in response to the scenarios in the low-power condition, $\beta = .02$, $t < 1$. In the neutral condition, there was also a strong positive association between the grateful disposition and gratitude in response to the scenarios ($\beta = .522$, $t(135) = 3.62$, $p < .001$), suggesting that the moderating effect of power on the association between the grateful disposition and reported gratitude was primarily driven by participants in the low-power condition.

As in Study 1, I tested whether these effects were specific to dispositional gratitude. Replicating the previous findings, dispositional gratitude and empathic concern were positively correlated ($r = .63$, $p < .001$), but power did not moderate the link between empathic concern and reported gratitude ($t < 1$). In contrast, power did continue to moderate the link between the grateful disposition and the low-power dummy variable when controlling for empathic concern, $\beta = -.28$, $t(133) = 2.21$, $p < .03$.

Discussion

Study 2's results replicate and extend the previous findings by showing that a subtle power manipulation exerts the same moderating effect on the association between the grateful disposition and expectations of gratitude in response to favors from others. In addition, by including a neutral condition, I was able to explore whether high or low power was driving the effects. In line with my hypothesis that low power eliminates individual differences, rather than high power amplifying them, I found that in the neutral condition, the grateful disposition was positively associated with reported gratitude in response to the scenarios. That is, in with work on the grateful disposition (McCullough et al., 2004) participants responded to gratitude-inducing scenarios in accordance with their own dispositional tendencies to be grateful when there was no presence of power. Moreover, the lack of an interaction effect for the high-power dummy variable showed that the high power and neutral conditions did not differ significantly from each other, providing further evidence that low power was driving the effect.

Study 3

The goals of Study 3 were twofold: The first was to address limitations of the previous studies by (a) moving beyond scenario studies to examine whether power moderates the association between the grateful disposition and state gratitude during an actual benefit-giving situation, and (b) gathering both self-report and behavioral measures of gratitude. To examine gratitude in response to receiving an actual benefit from a stranger, participants engaged in a gratitude-inducing situation in which their computer broke and was fixed by another participant, saving them from having to re-do a tedious task (adapted from DeSteno et al., 2010). To measure people's gratitude behavior, in addition to self-reported gratitude, I assessed the amount of money participants gave away in an economic exchange game which pits self-interest against the interest of the partner (also adapted from DeSteno et al., 2010).

In the study, power was manipulated using a role-playing paradigm. In line with prior work on power (Anderson & Berdahl, 2002; Chen, Langner, & Mendoza-Denton, 2009), participants were told that they would take part in a problem-solving task with another partner and were assigned to be the boss (high power), employee (low power), or a team member (equal power). I anticipated that as in the previous two studies, those participants who were assigned to the high or equal power roles would report more or less gratitude towards the other participant who fixed their computer in line with their grateful disposition. In contrast, I expected that the link between dispositional gratitude and gratitude towards the other participant would be attenuated for those participants assigned to the low-power role.

The second goal was to test the hypothesis that low power attenuates the association between trait and state gratitude because low-power individuals are more influenced by social norms, specifically the norm of reciprocity. To do so, I manipulated the norm of reciprocity as part of the economic exchange game. Gratitude promotes prosocial behavior both towards the benefactor and towards third-party strangers (Bartlett & DeSteno, 2006; DeSteno et al., 2010); however, the norm of reciprocity only dictates that individuals should respond prosocially towards their benefactors, not towards third parties. Indeed, in other research using the same economic exchange game, grateful participants gave tokens away to strangers as a result of gratitude, but not due to feelings of obligation to reciprocate (DeSteno et al., 2010). Thus, I manipulated social norms by giving participants an opportunity during the economic exchange game to either give tokens worth money to their benefactor (i.e., reciprocate) or an anonymous stranger who did not help them out previously. In line with previous research (DeSteno et al., 2010), I anticipated that the more grateful high and equal power participants tended to be, the more they would give away. For low-power participants, however, I anticipated that there would be no correlation between dispositional gratitude and number of tokens given away when giving to a benefactor. Instead, these individuals should be attuned to the norm of reciprocity in this situation, leading them to reciprocate regardless of their grateful disposition. In contrast, when giving to a stranger, I anticipated that similar to high and equal power participants, low-power participants would give away tokens in line with their grateful disposition, because social norms do not dictate that individuals should give to strangers (DeSteno et al., 2010). Finally, as a further test of the hypothesis that low power constrains the trait-state link for gratitude due to enhanced attention to social norms, I also measured participants' motivations for giving away tokens. I anticipated that low-power participants would be more likely than their high and equal power counterparts to give tokens to a benefactor in an attempt to fulfill an obligation.

Method

Participants

Ninety-eight (61 female) individuals from the UC Berkeley campus and surrounding community took part in this study in return for \$10 or psychology course credit. Participants were 20.24 years old on average (Range = 18-40; $SD = 3.48$). Fourteen participants were removed from final analyses. Four were removed because they failed four or five (out of five) attention checks, two were removed due to experimenter error, and nine were removed because they did not believe the gratitude manipulation as indicated in their suspicion probe responses and comments made to the confederate. Of the remaining participants, 71.1% were Asian/Asian

American, 19.3% were European/European American, 6.0% were Hispanic, and 3.6% were of other ethnicities.

Procedure

Interested participants were told that they were taking part in a study on teamwork and decision-making. After signing up for a laboratory session, participants were given the link to a secure online website which had demographics and a series of questionnaires, including the measures of the *grateful disposition* (McCullough et al., 2002; $\alpha = .82$) and *empathic concern* (Davis, 1983; $\alpha = .76$) used in Studies 1 and 2. These measures were completed, on average, just over 5 days prior to the laboratory session.

In the laboratory, participants believed that they were one of two people participating in an experiment on teamwork and decision-making. In actuality, the other “participant” was a female confederate blind to the study hypotheses. Upon the participant’s arrival, the Experimenter (always female) seated him or her and the confederate at a table and then left, allowing the confederate time to establish friendly but benign contact with the participant and impart two critical pieces of information: First, she told the participant that she had a meeting to attend after the lab session and commented that she hoped the session wouldn’t last too long. This was done to make it clear that the confederate had a time constraint. Second, the confederate told the participant that she was a political science major taking part in the study for monetary compensation. This was done to establish that the participant would not be interacting with her again in the context of psychology courses (in the unlikely event that the participant was also a political science major, she said she was majoring in English).

When the experimenter reentered, she explained that two participants were going to engage in a series of tasks, some of which would require them to work individually and others with a partner. There were purportedly four tasks to complete: A general knowledge exam, a teamwork task that required completing brain teasers with a partner (power manipulation), a lexical decision task (gratitude-inducing situation), and an economic exchange game (social norm manipulation).

For the first task, the general knowledge exam, each partner worked to complete half of the questions and then switched questions and filled out what the other person had not yet completed. This task was used to give credibility to the cover story that the study was about teamwork, as well as to provide legitimacy for later questions regarding the participant’s feelings towards the confederate given that the two partners were ostensibly working together on the task (adapted from Bartlett & DeSteno, 2006; DeSteno et al., 2010).

Upon completion of this task, the **power manipulation** occurred under the guise of preparing for the Brain Teasers Teamwork task, which would ostensibly come later in the session. More specifically, the experimenter explained that the Lexical Decision Task was up next but would take time to set up. Accordingly, to save time, the experimenter told participants that they could fill out a pre-survey that had to be completed in preparation for the later Brain Teasers Teamwork Task while the Lexical Decision Task was being set up. As part of this pre-survey, participants were randomly assigned to one of three power roles: Boss, Employee, or Team Member. Across power conditions, the first page of the pre-survey explained to participants that they would take part in a teamwork task with a new partner at the end of the session, someone who they had not previously met, and that they would need to play a particular role during the task. A detailed description of the duties associated with their role was then

provided. On the second page of the pre-survey, they were asked to complete three questions supposedly as a means of helping them prepare for their role. The first question required them to describe a previous time when they had been in a similar role. The second question provided a **manipulation check**, asking them to what extent they thought they would be making decisions during the task (1 = Not at all, 5 = Very much). The third question asked about divvying up the reward that would be given out at the end of the brain teasers task. **Bosses** were asked how they would divide up the reward if the reward was 7 pieces of candy. **Employees** were asked how they anticipated their Boss dividing up 7 pieces of candy. **Team members** were asked how they would divide up 10 pieces of candy. To keep their power roles salient throughout the gratitude induction, when they moved onto the next task participants were instructed to bring the Brain Teasers Teamwork Task form with them for later. Most participants placed the form next to them at their computer work station.

After completing the pre-survey, participants were directed to individual computer work stations to take part in the Lexical Decision Task. The gratitude induction took place at the end of this task. For this task, participants were instructed to decide whether each of a series of letter strings flashed on the computer screen was a word or non-word as quickly and accurately as possible, which would yield a score reflecting their performance at the end of three blocks of letter-string trials, which would need to be written down. In reality, the scores were predetermined and identical for all participants. The task displayed several hundred word strings, was highly repetitive, and took about ten minutes to complete. The goal of this task was to create an aversive experience that the participants would not want to repeat. The participants were also instructed that at the end of the task the program would end and they should complete the questionnaire that appeared on the screen.

To induce gratitude, the participant's computer was rigged so that there was a loud beep and the screen went blank right before the participant's scores were supposed to appear at the end of the task (Bartlett & DeSteno, 2006; DeSteno et al., 2010). The confederate waited several seconds and then asked what was wrong and alerted the experimenter that there was a problem. The experimenter examined the computer and informed the participant that a technician needed to be called and that the participant would need to do the task over again because the computer did not record his or her data. The experimenter let the confederate know that she would not have to stay once she finished questionnaire and then left the room to call a technician to fix the computer. The confederate pretended to finish her questionnaire and then started to ask the participant questions about his or her computer. Following an established script, the confederate entered key sequences and wiggled loose cords to try to fix the computer. During this time the confederate surreptitiously hit a key that restarted the monitor after a set period of time, turning the participant's computer back on. The confederate then went into the hallway to let the experimenter know she had fixed the computer. The experimenter returned and instructed the participant to write down his or her scores and move on to completing the questionnaire. She then left the room purportedly to call off the technician, but in actuality to give the participant and confederate a brief period of time alone during which the participant could express gratitude to the confederate for her help. After returning yet again, the experimenter explained that the two participants needed to be separated for the next task and allegedly sent the confederate to a different lab room.

The questionnaire completed by the participant included three components: The first assessed current emotions such as feelings of *frustration*, *happiness*, and *boredom*. The second component assessed the participant's experiences during the first two tasks (i.e., General

Knowledge Exam and Lexical Decision Task), including questions such as *familiarity with the task, enjoyment of the task and boredom during the task*. The final component, which was the critical section of the questionnaire, assessed feelings towards the confederate. In particular, the third component assessed how *grateful* and *positive* the participant felt towards the confederate (1 = *Not at all*, 7 = *Completely*) as well as how much the participant *liked the confederate* (1 = *Not at all*, 5 = *Completely*). Participant's feelings of positivity were measured as a control variable to examine whether findings were specific to state gratitude or reflected a more general positive view of the benefactor.

In the third task, participants took part in the economic exchange game into which the **social norm manipulation** occurred (adapted from DeSteno et al., 2010). For this task, participants were told that they were playing an economic game with another partner. In this game, each partner was given four tokens and had to decide whether to give any of the tokens to the other person. Tokens kept were worth \$1, tokens given to the partner were worth \$2. In the **strong social norm** (i.e., reciprocation) condition, participants were told that they would be distributing tokens between themselves and the confederate (set up in a separate lab room). In the **weak social norm** (i.e., giving to a stranger) condition, participants were told that they were playing with an anonymous partner in the economics department. As in previous research (DeSteno et al., 2010; Tsang, 2007), the number of tokens the participants chose to distribute to their partner was used as the *behavioral measure of gratitude*. After they made their distribution decision, participants completed a series of questions concerning the reasons behind their decision. In particular, participants rated the extent to which they were motivated by the following concerns when making their decision: *to get money, be fair, help the other participant, express gratitude, fulfill an obligation, reciprocate a favor, and act morally* (Tsang, 2007). All items were rated on a 7-point scale (1 = *Not at all*, 7 = *Totally*). The item "reciprocate a favor" was used as a **manipulation check** to ensure that participants felt more of a need to reciprocate in the strong social norms condition relative to the weak social norms condition.

After completing the economics game, participants were informed that they would not take part in the Brain Teaser Teamwork Task after all because there was no time left in the session due to the computer malfunction. Participants were then paid \$5 for the economic game and probed for suspicion both verbally and in written form. To maintain the naivety of participants, all participants were debriefed after data collection was complete.

Results

Manipulation Check

Participants in the three power conditions differed in the expected ways in terms of how much they thought they would be the one making the decisions during the Brain Teaser Task (HP $M = 3.70$; LP $M = 2.00$; Equal $M = 3.03$), $F(2,76) = 43.69$, $p < .001$. They did not differ significantly in terms of how likeable they felt the confederate was (HP $M = 3.54$; LP $M = 3.36$; Neutral $M = 3.47$), $F < 1$. For the social norm manipulation, participants were marginally significantly more likely to report giving tokens to their partner in order to "reciprocate a favor" in the strong social norm condition relative to the weak social norm condition (*Strong* $M = 3.74$, *Weak* $M = 3.00$), $t(81) = 1.69$, $p < .095$.

Main Analyses

Self-reported gratitude. As in Study 3, to assess whether the grateful disposition moderated the association between power condition and self-reported gratitude towards the confederate, I dummy coded the three power conditions (High-Power Dummy Variable: HP = 1, LP & Equal = 0; Low-Power Dummy: LP = 1, HP & Equal = 0) and regressed reported gratitude onto the two dummy variables, standardized grateful disposition, and their interaction terms. As shown in Figure 3 and replicating the findings from Study 2, there was a significant interaction between the low power dummy variable and the grateful disposition ($\beta = -.47$, $t(82) = 2.38$, $p < .02$), but no significant interaction between the high-power dummy variable and the grateful disposition, ($\beta = -.10$, $t < 1$), suggesting that the moderating effects were driven by low power. Participants in the high-power condition displayed a nonsignificant positive association between the grateful disposition and self-reported gratitude ($\beta = .31$, $t(82) = 1.52$, $p < .14$) and participants in the equal power condition displayed a significant positive association between the grateful disposition and self-reported gratitude, $\beta = .51$, $t(82) = 2.20$, $p < .04$. In contrast, there was no association between the grateful disposition and self-reported gratitude in the low-power condition, $\beta = -.16$, $t(82) = 1.01$, $p > .31$.

To rule out the possibility that these effects were due to positive feelings towards the confederate more generally, I reran the analyses using self-reported feelings of “positivity toward the partner” as the outcome variable. In contrast to the findings with gratitude, power did not moderate the effects of the grateful disposition on general feelings of positivity towards the partner (both interaction $ts < 1$). In addition, replicating the previous two studies, the grateful disposition and empathic concern were positively correlated ($r = .42$, $p < .001$); however, power did not moderate the association between dispositional empathic concern and self-reported gratitude (both interaction $ts \leq 1$), providing further evidence that this effect is specific to the association between trait and state gratitude.

Behavioral gratitude. Participants gave away two (out of four) tokens on average, with the number of tokens given away ranging from zero to four. To examine whether the constraining effects of low power hold only under situations involving strong social norms, I tested whether there was a three-way interaction between social norms (strong vs. weak), power (high vs. low vs. equal), and the grateful disposition predicting number of tokens given to one’s partner. Contrary to my hypothesis, this interaction was not significant, $F < 1$.

Giving motivations. Turning to participants’ reasons for giving away their tokens in the economic exchange game, there was a marginally significant three-way interaction when predicting giving away tokens due to *feelings of obligation*, $F(2, 71) = 2.45$, $p < .094$. In particular, as shown in Figure 4, when participants believed that they were exchanging tokens with the confederate, the more dispositionally-grateful participants who were in the high- and equal-power conditions, the more they reported giving away tokens to fulfill an obligation. In contrast, participants in the low-power condition reported high levels of giving away tokens to fulfill an obligation regardless of their grateful disposition. This effect was not present in the weak social norm condition when participants believed they were giving away tokens to a stranger. Although the pattern was similar for *expressing appreciation*, the three-way interaction was not significant, $F < 1$.

Discussion

The findings from this study replicate and extend the results of the previous two studies. Using an actual gratitude-inducing situation in the laboratory, I found that power moderated the link between people's tendencies to be grateful and their self-reported gratitude in response to receiving help from another. As in Study 2, this effect was driven by low power constraining dispositional tendencies; participants in the neutral and high-power conditions did not differ significantly from each other, with both exhibiting a positive association between their grateful disposition and self-reported gratitude toward the confederate.

Contrary to expectations, there was no moderating effect of power on the number of tokens given away to a partner (i.e., the behavioral measure of gratitude) during the economic exchange game. Why was there an effect for self-reported but not behavioral gratitude? Perhaps power influences people's reported emotions more than their actual behaviors. Another possibility is that people were motivated to give away tokens for many different reasons, not just expressing gratitude. In terms of methodological considerations, the manipulation of social norms reduced the sample sizes within each condition, so it may be that the samples were too small to detect an effect. Although the present data cannot speak to the answer, this is an important question and I consider it in more detail in the General Discussion.

Although I did not find the expected differences in number of tokens given away, power did moderate the association between the grateful disposition and people's underlying motivations when giving away tokens in a manner consistent with my hypotheses. Specifically, low power participants who believed they were giving away tokens to the confederate reported giving them away to fulfill an obligation, regardless of how dispositionally grateful they were. In contrast, among participants in the high and equal power conditions, only those high in dispositional gratitude reported giving away tokens to fulfill an obligation. That is, low power participants gave to fulfill an obligation regardless of their dispositional gratitude, whereas high and equal power participants only sought to fulfill an obligation if they were grateful. Why did grateful participants in the high and equal power conditions feel the need to fulfill an obligation? These participants reported experiencing more gratitude, suggesting they were aware of the help that had been given to them. Returning a favor is an important part of the gratitude experience; thus, it is likely that these participants who felt increased gratitude also felt an increased need to fulfill an obligation to their benefactor.

Taken together, the findings from Studies 1 through 3 providing compelling evidence that people's dispositional tendencies to feel grateful do not always predict their gratitude towards benefactors (both imagined and real). In particular, individuals tend to act less in line with their disposition under conditions of low power. In the final study, I extend this line of reasoning in two novel directions: the domain of interpersonal relationships and the transmission of gratitude.

Study 4

Gratitude is a social emotion that helps to build and maintain close relationships (Algoe et al., 2008; 2010; Gordon et al., 2012). Thus, it is vital that we understand what factors aid or inhibit the successful transmission of gratitude between close others. Romantic relationships are governed by power differentials (Felmlee, 1994; Sprecher & Felmlee, 1997); thus, in the final study, I wanted to extend the previous findings in two important ways. First, I examined whether perceived power was associated with experiences of gratitude within romantic relationships.

Second, rather than examining the *intrapersonal* link between one person's dispositional and emotional experiences of gratitude, I examined whether perceived power in a romantic relationship influenced the *interpersonal* transmission of gratitude from one partner to the other. That is, if low power attenuates the link between people's grateful disposition and their expressions of gratitude, then does low power also attenuate the accurate transmission of gratitude, such that recipients of gratitude, like romantic partners, do not feel appreciated in line with the individuals' reports of being grateful? Power influences the interpersonal experience and expression of emotions. For example, the link between dispositional self-other focus and empathic accuracy during relationship conflict is reduced for low-power individuals relative to high-power individuals (Gordon & Chen, 2013). In addition, relative to individuals who feel powerful in their relationships, low-power individuals are more likely to change their emotions relative to be consistent with the emotions experienced by their romantic partners (Anderson et al., 2003). Power also plays a role in how people are influenced by others' emotions (Van Kleef, De Dreu, Pietroni, & Manstead, 2006), with low-power individuals being more influenced by others' emotions. By examining whether low power constrains the accurate transmission of gratitude between romantic partners, I am adding to a rich literature on how power influences the affective tone of interpersonal interactions.

In terms of the role of power in the transmission of gratitude, I expected that among people who felt powerful in their relationship, their feelings of gratitude towards their partners would be accurately transmitted to their partner, such that they would be significantly correlated with their partners' reports of feeling appreciated by them. In contrast, I expected a dampening effect among people who felt less powerful in their relationship, such that their tendency to feel grateful for their relationship partners would be less correlated with their partners' reports of feeling appreciated by them. Findings such as these would suggest that among individuals who feel less powerful, situational constraints may guide expressions of gratitude not only between strangers but also between partners in ongoing romantic relationships.

To test these hypotheses, I brought couples into the lab and gathered self-report measures of each partner's power in the relationship, gratitude towards their partner, and feelings of being appreciated by their partner. This study extended the previous findings by assessing cross-partner effects. That is, measuring the *interpersonal* effect of gratitude and power rather than the *intrapersonal* effects by examining the partner's feelings of being appreciated. This study also extended the previous studies by measuring partner's feelings of being appreciated for past favors from an ongoing relationship partner, rather than imagined or manufactured favors, and by assessing individual differences in relationship-specific power, rather than manipulating power.

Method

Participants and Procedure

Seventy-one heterosexual couples in romantic relationships were recruited from a large public university on the West Coast and the surrounding community through online websites and community flyers. Five participants were removed from analyses for failing to pass 4 or 5 (out of 5) attention checks. Relationship duration ranged from one month to six and a half years ($M = 21.65$ months, $SD = 20.47$). Ages ranged from 18 to 56 ($M = 21.75$, $SD = 5.52$). The sample was ethnically diverse with 39% European/European American, 40% Asian/Asian American, 7 %

Hispanic, 2% African/African American, 2% Pacific Islander, and 12% Other. Each partner was given \$10 or course credit for their participation.

As part of a larger study, interested couples scheduled a laboratory session through email. Two days before their session, each partner was sent an email with a link directing them to a secure website containing background measures. As part of these background measures, each partner completed measures assessing their power in their relationship, their gratitude towards their romantic partner, and their feelings of being appreciated by their romantic partner.

Measures

Relationship-specific sense of power. To measure power in the relationship, I used the eight-item Sense of Power Scale (Anderson, John, & Keltner, 2012) adapted to be about a participant's sense of power in their romantic relationship. Sample items include "In my relationship with my partner, I think I have a great deal of power," "In my relationship with my partner, I can get my partner to do what I want," and "In my relationship with my partner, my wishes don't carry much weight" (reverse scored). All items were measured on 7-point scales (1 = *Disagree strongly*, 7 = *Agree strongly*). In this sample, $\alpha = .80$. There was a non-significant positive correlation between partners' reports of power, $r(68) = .19, ns$.

Gratitude towards a romantic partner. Tendency to be grateful towards one's romantic partner was measured with the nine-item appreciative subscale of the Appreciation in Relationships Scale (AIR; Gordon et al., 2012). This measure of gratitude in relationships is positively correlated with the grateful disposition and exhibits strong stability over time (Gordon et al., 2012). Sample items include "I appreciate my partner," and "At times I take my partner for granted" (reverse scored). All items were measured on 7-point scales (1 = *Completely disagree*, 7 = *Completely agree*). In this sample, $\alpha = .81$.

Feeling appreciated. Feelings that one's romantic partner was grateful (i.e., feelings of being appreciated) were measured with the seven-item subscale of the AIR scale (Gordon et al., 2012). Example items include "My partner makes sure I feel appreciated," and, "My partner often expresses her/his thanks when I do something nice, even if it's really small." All items were measured on 7-point scales (1 = *Completely disagree*, 7 = *Completely agree*). In this sample, $\alpha = .84$.

Results

Data Analytic Strategy

Because this study included both members of romantic couples, I analyzed the data using mixed models in PASW 18.0 to account for the nested nature of the data. The couples were treated as distinguishable dyads with gender as the distinguishing variable, and I used the Actor-Partner Interdependence Model (APIM; Kenny, Kashy, & Cook, 2006) to estimate both the effect that one's own independent variable has on one's own dependent variable (actor effect) and the effect that one's own independent variable has on one's partner's dependent variable (partner effect). Actor and partner effects were estimated simultaneously, controlling for each other. For this study, the partner effects represent the primary effects of interest because the partner effects represent the correlation between the powerful or powerless person's tendency to

feel grateful, and his or her *partner's* feelings of being appreciated (i.e., the cross partner transmission of gratitude).

Main Analyses

To assess whether power moderated the association between one partner's gratitude and the other partner's feelings of being appreciated, I simultaneously regressed their partners' feelings of being appreciated onto participants' gratitude (standardized), relationship-specific sense of power (standardized), and their interaction term, as well as onto partners' own gratitude (standardized), relationship-specific sense of power (standardized), and their interaction term. The first three variables in Table 1 represent our variables of interest: the effects of the participant's gratitude and the participant's power on the partner's feelings of being appreciated (i.e., partner effects). The second three variables represent the actor effects and were entered to control for correlations between the two partners' power and gratitude. As anticipated, partners felt more appreciated by participants who were more grateful, but this effect was qualified by a significant interaction between participants' power and gratitude. As depicted in Figure 5, there was a stronger association between participants' tendency to feel gratitude towards their partners and their partner's feelings of being appreciated for participants who felt that they had more power in their relationships ($b = .49, t(109) = 5.35, p < .001$) than for participants who felt they had less power in their relationship, $b = .23, t(120) = 2.88, p < .01$. As noted, these effects exist above and beyond the effects of partner's own sense of power and gratitude on their feelings of being appreciated.

Discussion

Study 4's results extend the findings from the first three studies into the close relationship domain in two important ways: First, by providing evidence that power plays a role in the experience of gratitude within the context of romantic relationships, and second, by showing that perceived power influences the interpersonal transmission of gratitude between romantic partners. The findings in Study 4 provide evidence that power influences not only empathic accuracy and emotional convergence in relationships, but also how accurately people are able to express their gratitude towards a romantic partner, with people who feel less powerful in their relationships having less of a link between their own feelings of gratitude and their partners' feelings of being appreciated by them. That is, low power individuals were less able to accurately transmit their feelings of gratitude to their romantic partners relative to their high-power counterparts.

Consistent with the previous studies, the association between one's tendency to be grateful and one's partner's reports of feeling appreciated were stronger for people who felt more powerful in their relationships relative to people who felt less powerful. In contrast to the previous two studies, however, there was still a significant association between one's gratitude and one's partner's feelings of being appreciated for participants who felt less powerful. This could be due to the fact that the measure of gratitude was more closely tied to people's experiences in their relationships as opposed to their general dispositional tendency. It may also be that low-power people perceive themselves as less able to express their gratitude in line with their dispositional tendencies, when in fact other people, such as romantic partners, are able to

pick up somewhat on these personality differences, creating a discrepancy between perceived and actual expressions of gratitude by the powerless.

General Discussion

Individuals who are higher in the grateful disposition experience gratitude more often, more deeply, and in a wider breadth of situations (McCullough et al., 2002; 2004). However, across four studies, my dissertation provides evidence that an individual's grateful disposition is just one of many factors influencing emotional experiences of gratitude in response to receiving a benefit from others. In particular, I show that the link between people's disposition and emotion differs for people high and low in social power. High-power individuals' reports of feeling more or less gratitude when receiving help are in line with their dispositional tendencies to feel grateful. That is, the more grateful high-power people tend to be, the more gratitude they report feeling after receiving help. This finding is in line with research showing that power promotes authenticity, allowing people to act in line with their true selves (Kraus et al., 2011). In contrast, low-power individuals' reports of gratitude after receiving help were less correlated with their dispositional tendencies. In other words, low power dampened the effect of the grateful disposition on individuals' emotional experience of gratitude. Results from Study 3 provided some evidence that low power's dampening effect may be because people in low-power positions are more attentive to contextual cues such as social norms. Helping behaviors are strongly guided by the social norm of reciprocity which dictates that people should be grateful and reciprocate when receiving help from others. Thus, low-power people may feel the need to be grateful and respond in kind to a benefactor regardless of their dispositional tendency to be more or less grateful.

Study 4 extended these findings in two important ways: First, by examining the effects of power on gratitude within the domain of romantic relationships, and second, by examining whether low power constrained the interpersonal transmission of gratitude. People who believed they had less power in their romantic relationships exhibited less of a link between their own feelings of gratitude for their romantic partners and their partners' reports of feeling appreciated by them. That is, people who felt less powerful in their relationship less accurately transmitted their feelings of gratitude to their partners relative to their high-power counterparts. These findings add to an important literature showing that power influences emotional experiences during interpersonal interactions.

Implications for the Gratitude Literature

These findings have a number of implications for the literature on the psychology of gratitude. To date, social psychological research on gratitude has focused on the downstream consequences of gratitude, uncovering the multitude of emotional, psychological and physical benefits that come from feeling grateful. Little work, in comparison, has considered the factors that determine whether people will feel grateful in response to a gratitude-inducing situation, such as receiving help from a friend or stranger. The current findings suggest that people's feelings of power in a given moment will play a role in whether or not they experience gratitude and act accordingly. More specifically, the findings suggest that under conditions of low power, even those people who tend to feel less grateful on a chronic basis may experience and express gratitude. Under conditions of high power, however, people are more likely to respond in line

with their dispositional tendencies to be grateful (or not). That is, when receiving help from others, high-power individuals' experience gratitude is dictated by their general dispositional tendencies.

Personality psychologists propose that people who rate high on the dispositional tendency to feel grateful experience gratitude more often, more deeply, and in response to a greater breadth of stimuli (McCullough et al., 2002); however, little work has been done linking the grateful disposition with reports of gratitude when actually receiving help from others. Instead, researchers have focused on the correlates and downstream consequences of a grateful disposition (e.g., McCullough et al., 2002; Wood et al., 2008). My research provides important evidence that in contexts absent of power (or in high-power contexts), people do respond to gratitude-inducing situations in ways that are consistent with their grateful disposition. This link between trait and state may not be assumed, however, within low-power contexts.

My dissertation also highlights the role of social norms in gratitude, particularly for those low in power. Gratitude-inducing situations, such as receiving help from a stranger, may influence people's experiences of gratitude differently depending on the social norms in place. Social norms vary from culture to culture. Perhaps then, there are cultural differences in the experience of gratitude and the link between power and gratitude, an intriguing idea that deserves further research. For example, religious cultures have strong norms surrounding gratitude (Tsang, Schulwitz, & Carlisle, 2009), and research examining the link between social norms and gratitude within more religious cultures would be exciting. If gratitude is highly valued, are the effects of low power particularly pronounced? In religious contexts, do people tend to act in line with norms rather than their grateful disposition?

Finally, the findings point to the notion that low power encourages less dispositionally grateful individuals to report feeling more grateful when receiving help from others. Are these less grateful low-power individuals simply falling in line with social norms and faking their feelings of gratitude, or does their low-power position promote genuine feelings of gratitude? For people in the high and neutral conditions, are those who are less dispositionally grateful less grateful in the moment because they do not perceive the situation as one that deserves gratitude (e.g., do not think they were helped), or are they aware of the help they receive and simply do not experience an emotional response? The current findings cannot speak to the authenticity of people's reported gratitude and it would be interesting and informative to pursue future research that could tease apart forced versus actual gratitude and attention to gratitude cues.

Implications for the Power Literature

This set of studies also has implications for research on social power. In particular, these findings speak at least initially to the relative roles of high and low power. Studies 2 and 3 included neutral conditions in which participants were not primed with power (Study 2) or were told they were going to be working as a team member with another partner (Study 3). By including a neutral condition, I was able to parse apart the unique effects of low and high power, rather than simply comparing them to each other. In both Studies 2 and 3, the association between trait and state gratitude was suppressed for low-power participants but not for participants in the neutral/equal or high-power condition. In fact, there were no significant differences between participants in the neutral/equal and high-power conditions. The results comparing power to the neutral condition provided evidence that for gratitude, the effects of power are driven by the constraints of low power, rather than an enhancing effect of high power

(as has been shown in other research; e.g., Chen et al., 2001; Schmid Mast, Jonas & Hall, 2009). Much of the work on power has focused on the effects of high power for personal and interpersonal outcomes. The current work highlights some of the unique interpersonal effects of low power and illustrates the need to consider the locus of effect when conducting research on power.

In terms of the literature on power and emotion expression during interpersonal interactions, previous work has generally focused on how having or not having power influences the way one perceives and reacts to others' emotions, such as the effect of power on the ability to accurately detect others' emotions (Galinsky, Magee, Inesi, & Gruenfeld, 2006). In Study 4, I examine the role of power in the other side of this emotional experience, exploring how the power of one's partner influences how one perceives and reacts to the partner's emotions. Another unique addition of the current work is the examination of an interpersonal emotion that has two sides (being grateful and feeling appreciated). Thus, the current work extends previous findings by looking at both giving and receiving gratitude, a uniquely interpersonal emotional experience.

Limitations and Future Directions

Although this set of studies used a variety of methods and measures providing strong evidence that power moderates the association between dispositional and state gratitude, there are many limitations that need to be acknowledged. One important limitation is the reliance on scenario-based paradigms in Studies 1 and 2 and self-reported gratitude throughout all four studies. The results of Studies 1 and 2 provide evidence about lay beliefs and how people believe they would react in gratitude-inducing situations; however, it is possible that these effects would not translate to actual experiences of gratitude. Perhaps when confronted with a real-life gratitude-inducing experience, even high-power individuals feel the constraints of strong social norms. There is some evidence that this is not the case: Study 3 replicated the self-report effects of Studies 1 and 2 in an actual gratitude-inducing situation, and Study 4 measured feelings of being appreciated by a romantic partner. However, in Study 3, power did not moderate the link between dispositional gratitude and giving away tokens (i.e., the behavioral measure of gratitude). Thus, it is possible that the effects shown for the self-report measures do not translate to people's actual behavior. Although this may be the case, there are several other possibilities for why there was no effect for the behavioral measure in Study 3. As noted earlier, one possible account is the relatively small sample size. Alternatively, people might have also given tokens for reasons other than feeling grateful, masking any gratitude effects. Indeed, participants reported giving away tokens for a variety of reasons, such as self-presentation concerns (not looking selfish), not wanting the money, and not believing the money was real. This behavioral measure and other similar ones have been linked with feelings of gratitude in prior research (DeSteno et al., 2010; Tsang, 2007). However, it appears that with this sample there may have been many other motivations besides gratitude driving people's decisions. Given the inconsistency between self-report and behavioral measures in Study 3, it is important that future research examines whether the self-report findings extend to other behavioral measures of gratitude.

Another limitation of the current work is that it focused primarily on benefit-triggered gratitude. That is, gratitude felt in response to receiving a benefit from another person. This type of gratitude has received the most attention in the current gratitude literature, but there are other

types of gratitude as well. For example, some research distinguishes between benefit-triggered gratitude and generalized gratitude (Lambert et al, 2009). Generalized gratitude is an emotional response to an awareness and appreciation of that which is valuable and meaningful to oneself (Lambert et al., 2009, p. 1194), such as feeling grateful for being alive or for having one's health. Would power exert the same effects on other types of gratitude, such as feeling grateful for one's health? The current research cannot speak directly to this question, but I suspect the answer is generally no. Generalized gratitude tends to be an internal experience that is not governed by strict social norms or other environmental constraints, thus it is unlikely that people would feel that they had to be grateful for their health under conditions of low power. Instead, I suspect that people's experiences of generalized gratitude would be influenced by their dispositional tendencies, regardless of their power position.

Finally, in the first three studies, power was manipulated outside of the gratitude context. That is, people had power over one person (or power was subtly primed) and received help from someone else. In the fourth study, power was measured as perceived power over a relationship partner, and the partner's perceived power was controlled for. This conservative approach to manipulating power ensured that our results could be ascribed to the power of the participant and not their benefactor. That is, people in low-power positions were not simply reporting more gratitude because they were helped by a high-power person, and vice versa. However, power is a relational phenomenon, making it likely that people do experience a particular power dynamic with the person who is helping them out. How might the results have differed if I had primed people to think about their power in relation to the person who was helping them? Future research should directly test this question, but I speculate that similar results would be found. In fact, the results may even be stronger because the power in that context may be even more salient and relevant. Perhaps, for example, high power might actually enhance people's dispositional tendencies relative to a neutral condition, given that they are being helped by a subordinate upon whom they are not dependent.

Concluding Comments

Gratitude is the social glue that binds people together. However, not everyone experiences gratitude in the same way. In my dissertation I examined whether social power could influence people's experiences of gratitude after receiving help from others. My findings suggest that although people tend to respond to help from others in ways that are in line with their dispositional tendency to be grateful, when people feel low in power they are more constrained by social norms, which dictate being grateful rather than relying on their internal tendencies.

References

- Algoe, S. B., Gable, S. L., & Maisel, N. (2010). It's the little things: Everyday gratitude as a booster shot for romantic relationships. *Personal Relationships, 17*, 117-133.
- Algoe, S. B., Haidt, J., & Gable, S. L. (2008). Beyond reciprocity: gratitude and relationships in everyday life. *Emotion, 8*, 425-429.
- Anderson, C., & Berdahl, J. L. (2002). The experience of power: examining the effects of power on approach and inhibition tendencies. *Journal of Personality and Social Psychology, 83*, 1362.
- Anderson, C., John, O. P., Keltner, D. (2012). The personal sense of power: An interactionist approach. *Journal of Personality, 80*, 313-344.
- Anderson, C., John, O. P., Keltner, D., & Kring, A. M. (2001). Who attains social status? Effects of personality and physical attractiveness in social groups. *Journal of Personality and Social Psychology, 81*, 116-132.
- Bar-Tal, D., Bar-Zohar, Y., Greenberg, M. S., & Hermon, M. (1977). Reciprocity behavior in the relationship between donor and recipient and between harm-doer and victim. *Sociometry, 293-298*.
- Bartlett, M. Y. & DeSteno, D. (2006). Gratitude and prosocial behavior: Helping when it costs you. *Psychological Science, 17*, 319-325.
- Chen, S., Langner, C. A., & Mendoza-Denton, R. (2009). When dispositional and role power fit: Implications for self-expression and self-other congruence. *Journal of Personality and Social Psychology, 96*, 710-727.
- Chen, S., Lee-Chai, A. Y., & Bargh, J. A. (2001). Relationship orientation as a moderator of the effects of social power. *Journal of Personality and Social Psychology, 80*, 173.
- Côté, S., Kraus, M. W., Hayden Cheng, B., Oveis, C., van der Löwe, I., Lian, H., & Keltner, D. (2011). Social power facilitates the effect of prosocial orientation on empathic accuracy. *Journal of Personality and Social Psychology, 101*, 217-232.
- Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology, 44*, 113-126.
- DeSteno, D., Bartlett, M. Y., Baumann, J., Williams, L. A., & Dickens, L. (2010). Gratitude as a moral sentiment: Emotion-guided cooperation in economic exchange. *Emotion, 10*, 289-293.
- Felmlee, D. H. (1994). Who's on top? Power in romantic relationships. *Sex Roles, 31*, 275-295.
- Fiske, S. T. (1993). Controlling other people: The impact of power on stereotyping. *American Psychologist, 48*, 621-628.
- Galinsky, A. D., Magee, J. C., Gruenfeld, D. H., Whitson, J. A., & Liljenquist, K. A. (2008). Power reduces the press of the situation: implications for creativity, conformity, and dissonance. *Journal of Personality and Social Psychology, 95*, 1450-1466.
- Galinsky, A. D., Magee, J. C., Inesi, M. E., & Gruenfeld, D. H. (2006). Power and Perspectives Not Taken. *Psychological Science, 17*, 1068-1074.
- Gilovich, T. (1990). Differential construal and the false consensus effect. *Journal of Personality and Social Psychology, 59*, 623-634.
- Gordon, A. M. & Chen, S. (2013). Does power help or hurt? The moderating role of self-other focus on power and perspective taking in romantic relationships. *Personality and Social Psychology Bulletin, 39*, 1097-1110.

- Gordon, A. M., Impett, E. A., Kogan, A., Oveis, C., & Keltner, D. (2012). To have and to hold: Gratitude promotes relationship maintenance in intimate bonds. *Journal of Personality and Social Psychology, 103*, 257-274.
- Guinote, A. (2007). Power and goal pursuit. *Personality and Social Psychology Bulletin, 33*, 1076-1087.
- Hertenstein, M. J., Keltner, D., App, B., Bulleit, B. A., & Jaskolka, A. R. (2006). Touch communicates distinct emotions. *Emotion, 6*, 528-533.
- Karremans, J. C., & Smith, P. K. (2010). Having the power to forgive: When the experience of power increases interpersonal forgiveness. *Personality and Social Psychology Bulletin, 36*, 1010-1023.
- Keltner, D., Gruenfeld, D. H., & Anderson, C. (2003). Power, approach, and inhibition. *Psychological Review, 110*, 265-284.
- Kenny, D. A., Kashy, D. A., & Cook, W. L. (2006). *Dyadic Data Analysis*. Guilford Press.
- Kraus, M. W., Chen, S., & Keltner, D. (2011). The power to be me: Power elevates self-concept consistency and authenticity. *Journal of Experimental Social Psychology, 47*, 974-980.
- Kubacka, Finkenauer, Rusbult, & Keijsers (2011). Maintaining close relationships: Gratitude as a motivator and a detector of maintenance behavior. *Personality and Social Psychology Bulletin, 37*, 1326-1375.
- Lambert, N. M., Graham, S. M., & Fincham, F. D. (2009). A prototype analysis of gratitude: Varieties of gratitude experiences. *Personality and Social Psychology Bulletin, 35*, 1193-1207.
- Marks, G., & Miller, N. (1987). Ten years of research on the false-consensus effect: An empirical and theoretical review. *Psychological Bulletin, 102*, 72-90.
- McCullough, M.E., Emmons, R.A., & Tsang, J. (2002). The grateful disposition: A conceptual and empirical topography. *Journal of Personality and Social Psychology, 82*, 112-127.
- McCullough, M. E., Kimeldorf, M. B., & Cohen, A. D. (2008). An adaptation for altruism? The social causes, social effects, and social evolution of gratitude. *Current Directions in Psychological Science, 17*, 281-285.
- McCullough, M. E., Tsang, J., & Emmons, R. A. (2004). Gratitude in intermediate affective terrain: Links of grateful moods to individual differences and daily emotional experience. *Journal of Personality and Social Psychology, 86*, 295-309.
- Schmid Mast, M., Jonas, K., & Hall, J. A. (2009). Give a person power and he or she will show interpersonal sensitivity: The phenomenon and its why and when. *Journal of Personality and Social Psychology, 97*, 835-850.
- Smith, P. K., & Trope, Y. (2006). You focus on the forest when you're in charge of the trees: power priming and abstract information processing. *Journal of Personality and Social Psychology, 90*, 578-596.
- Sprecher S., & Felmlee, D. (1997). The balance of power in heterosexual couples over time from "his" and "her" perspectives. *Sex Roles, 37*, 361-379.
- Tesser, A., Gatewood, R., & Driver, M. (1968). Some determinants of gratitude. *Journal of Personality and Social Psychology, 9*, 233-236.
- Tsang, J. (2007). Gratitude for small and large favors: A behavioral test. *Journal of Positive Psychology, 2*, 157-167.
- Tsang, J., Schulwitz, A., & Carlisle, R. D. (2009). An experimental test of the relationship between religion and gratitude. *Psychology of religion and spirituality, 4*, 40-55.

- Van Boven, L., & Loewenstein, G. (2003). Social projection of transient drive states. *Personality and Social Psychology Bulletin*, 29, 1159-1168.
- Van Kleef, G. A., De Dreu, C. K.W., Pietroni, D. and Manstead, A. S. R. (2006). Power and emotion in negotiation: Power moderates the interpersonal effects of anger and happiness on concession making. *European Journal of Social Psychology*, 36, 557–581.
- Van Kleef, G. A., Homan, A. C., Finkenauer, C., Gündemir, S., & Stamkou, E. (2011). Breaking the rules to rise to power: How norm violators gain power in the eyes of others. *Social Psychological and Personality Science*, 2, 500–507.
- Weiner, B., Russell, D., & Lerman, D. (1979). The cognition-emotion process in achievement related contexts. *Journal of Personality and Social Psychology*, 37, 1211-1220.
- Whatley, M. A., Webster, J. M., Smith, R. H., & Rhodes, A. (1999). The effect of a favor on public and private compliance: How internalized is the norm of reciprocity? *Basic and Applied Social Psychology*, 21, 251-259.
- Wood, A. M., Joseph, S., & Maltby, J. (2008). Gratitude uniquely predicts satisfaction with life: Incremental validity above the domains and facets of the five factor model. *Personality and Individual Differences*, 45, 49–54.

Footnotes

¹ Removing the favor from the power structure ensures that any differences in gratitude as a result of power must be due to differences in the power of the recipient and not the power of the benefactor.

Table 1. *Actor and Partner Effects of Power and Gratitude on Partner's Feelings of Being Appreciated in Study 4.*

DV: Feeling Appreciated	<i>B</i>	<i>t</i>	<i>p</i>
Partner Effects			
Relationship SOP	.07	1.17	.24
Gratitude	.36	5.63	.001
RelationshipSOP*Gratitude	.13	2.33	.02
Actor Effects			
Relationship SOP	.15	2.37	.02
Gratitude	.42	6.53	.001
RelationshipSOP*Gratitude	-.21	3.36	.01

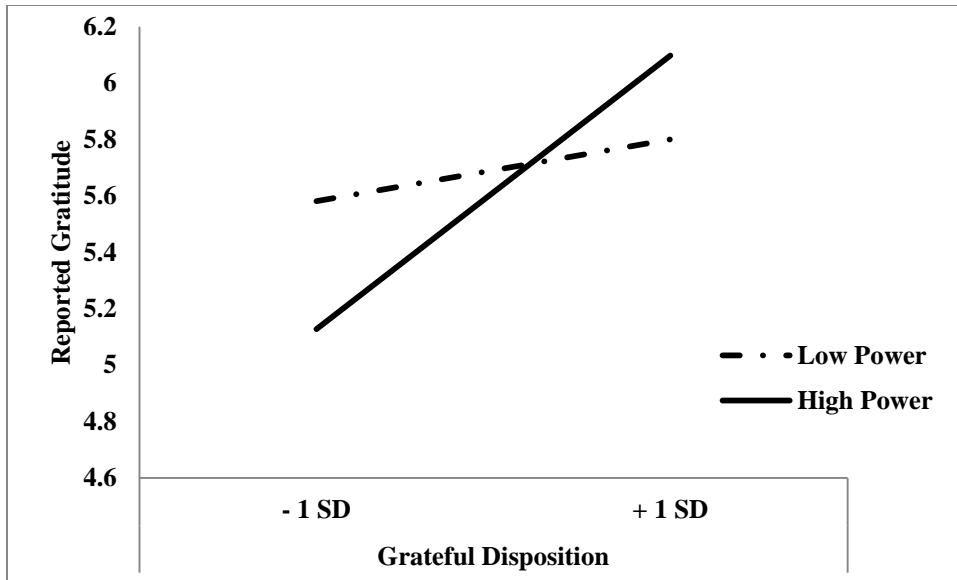


Figure 1. Power moderates the association between the grateful disposition and expectations of target's gratitude after receiving help from others in Study 1.

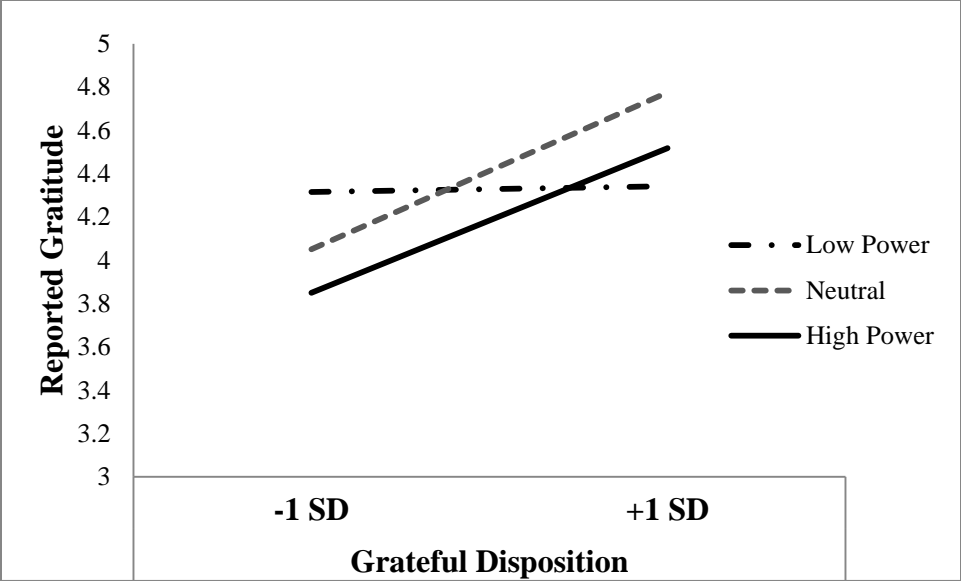


Figure 2. Power moderates the association between the grateful disposition and expectations of own gratitude after receiving help from others in Study 2.

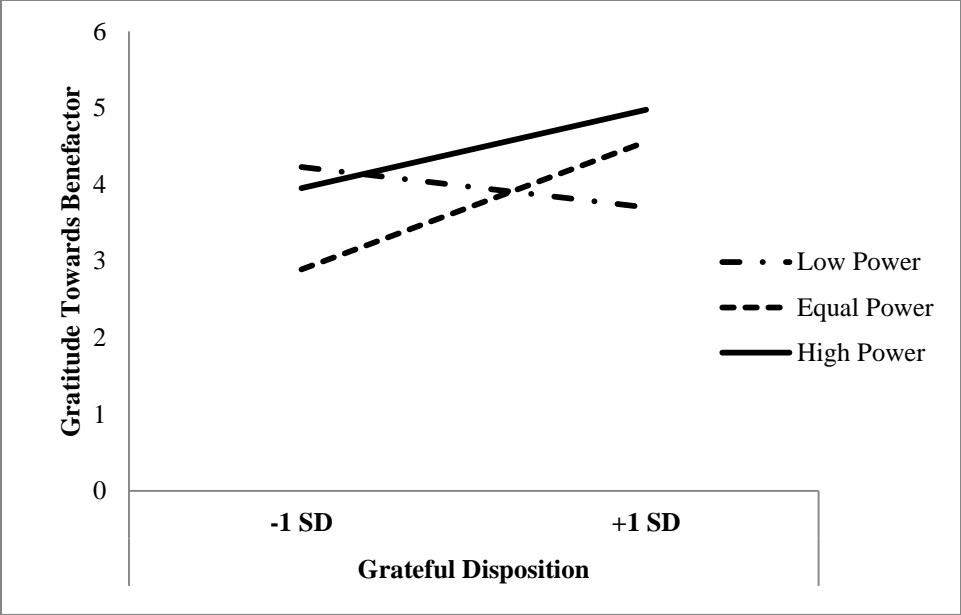


Figure 3. Power moderates the association between the grateful disposition and self-reported gratitude towards benefactor after receiving help from a confederate (ostensibly another participant) in Study 3.

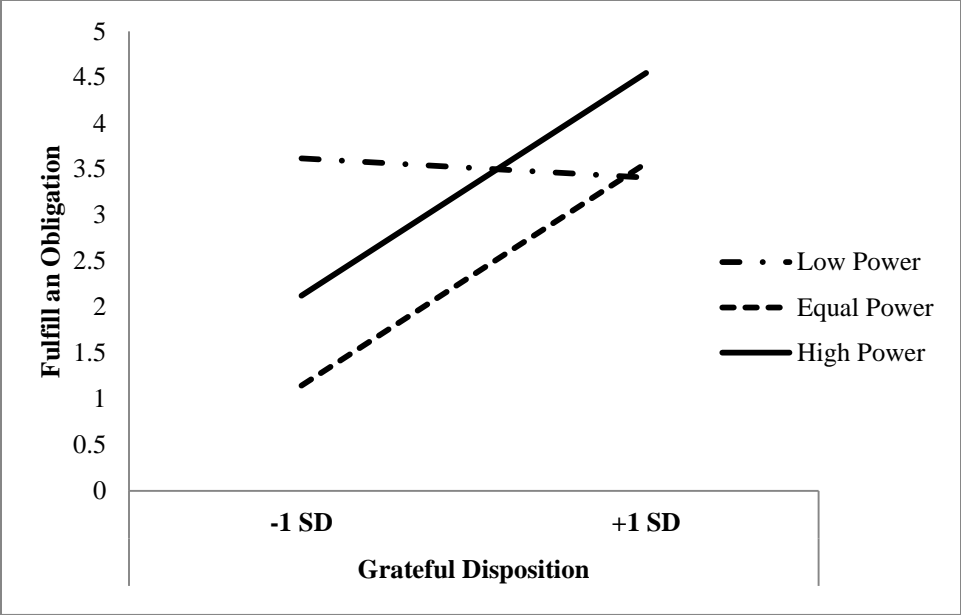


Figure 4. Power moderates the association between the grateful disposition and giving away tokens to fulfill an obligation toward a benefactor in Study 3.

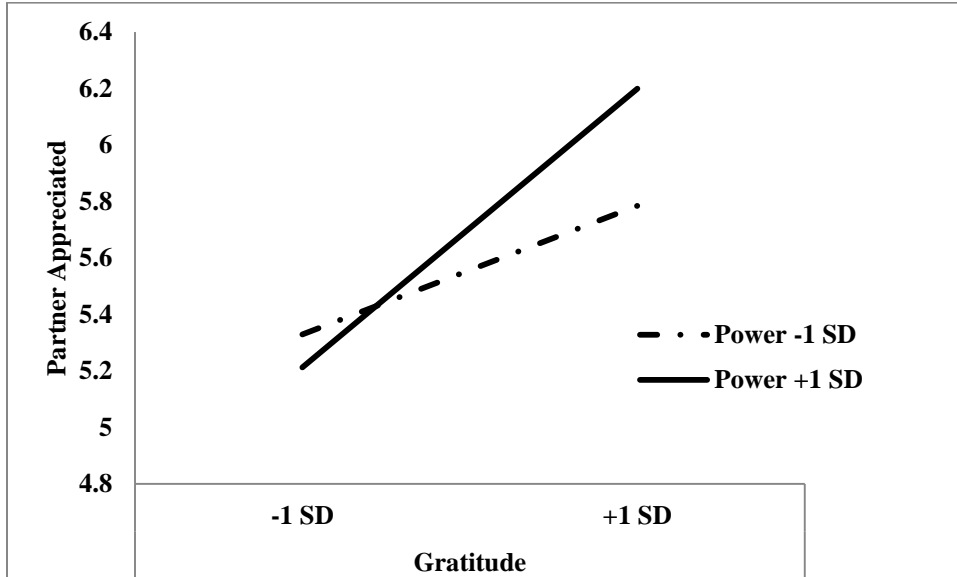


Figure 5. Relationship-specific sense of power moderates the transmission of gratitude between partners in Study 4.