Power decreases trust in social exchange

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How does lacking vs. possessing power in a social exchange affect people's trust in their exchange partner? An answer to this question has broad implications for a number of exchange settings in which dependence plays an important role. Here, we report on a series of experiments in which we manipulated participants' power position in terms of structural dependence and observed their trust perceptions and behaviors. Over a variety of different experimental paradigms and measures, we find that more powerful actors place less trust in others than less powerful actors do. Our results contradict predictions by rational actor models, which assume that low-power individuals are able to anticipate that a more powerful exchange partner will place little value on the relationship with them, thus tends to behave opportunistically, and consequently cannot be trusted. Conversely, our results support predictions by motivated cognition theory, which posits that low-power individuals want their exchange partner to be trustworthy and then act according to that desire. Mediation analyses show that, consistent with the motivated cognition account, having low power increases individuals' hope and, in turn, their perceptions of their exchange partners' benevolence, which ultimately leads them to trust.

trust | power | social exchange | dependence | hope

Understanding the circumstances under which individuals trust other individuals is of enduring interest to social scientists from different backgrounds (1), including sociologists (2), psychologists (3), political scientists (4), and economists (5). Trust is a critical ingredient in successful social exchange (6), but the threat of misplacing one's trust and suffering the detrimental consequences of trust breaches causes people to be very careful in deciding to whom to make themselves vulnerable (7–9). Thus, researchers have paid considerable attention to the factors that facilitate or hinder trust in various settings (10–15).

However, one potentially important source of variation in trust has received relatively little attention so far—namely, power (16). This omission in the literature is surprising because many—if not most—trust relationships involve nontrivial power inequalities between exchange partners. Examples include relationships between patients and doctors, students and professors, employees and supervisors, and small and large firms. Power-dependence theory (17–19) emphasizes that behavior in social exchange relationships is significantly affected by power inequalities that involve one actor depending on the other, with dependence being a positive function of the relative value of the exchange resource and a negative function of the availability of the exchange resource from alternatives. This conceptualization of power in terms of structural dependence has become the dominant approach in both sociological and psychological inquiry (20, 21). The prevalence of power inequalities in relationships in which trust is critical leads us to ask: Does having power or lacking power increase or decrease an actor's tendency to place trust in others?

In response to this question, we can derive two directly opposing predictions from distinct theoretical accounts. First, the encapsulated interest account (22–25) assumes that people engage in rational calculations about whether it will pay off to encapsulate the interests of their exchange partners and to behave in a trustworthy fashion. One key reason for trustees to be trustworthy is their motivation to maintain the relationship

(22, 26). The encapsulated interest account further assumes that trustors put themselves in the position of the trustee to predict how the trustee will behave. Therefore, when considering whether or not to trust someone, an individual assesses how valuable the relationship is to the other person. Applying this line of thinking to a relationship involving a power inequality, the power-advantaged party should have reason to believe that the power-disadvantaged party places high value on the relationship. This belief is based on the notion that people low in power view the exchange resource as valuable, possess few alternatives to access this resource, and therefore are highly dependent on the exchange partners they do have (17, 27). Given this dependence, low-power individuals should place high value on their existing relationships, strive to maintain them, and thus behave cooperatively. In anticipation of this reasoning, the more powerful party should perceive their less powerful exchange partner as trustworthy and in turn be willing to trust that partner. Conversely, the less powerful party should be aware of the fact that their more powerful partner has several other valuable exchange opportunities, is less dependent on any particular relationship, and thus has greater freedom to act opportunistically when doing so would result in higher immediate returns (also see *SI Formal Analysis of Incentive Structures*). In sum, according to the encapsulated interest account, more powerful actors should place greater trust in others than less powerful actors.

Second, the motivated cognition account (28–32) starts with the assumption that people strive to arrive at conclusions they want to arrive at in an effort to mitigate cognitive dissonance. Accordingly, the decision to place trust may be based more on one's motivation to protect oneself from unwanted realities than on relatively rational calculations of the other party's deliberations. In particular, with increasing dependence, people will be motivated to see their partner as more trustworthy to avoid the anxiety inherently attached to their feelings of dependence. Power-disadvantaged actors thus effectively protect themselves by perceiving power holders in a positive light, even if little or no relevant information would support such perceptions. Their hope that their powerful partner will be trustworthy thus dominates their cognition and decision making. The powerful partner,

Significance

Trust is pivotal to the functioning of society. This work tests competing predictions about how having low vs. high power may impact people's tendency to place trust in others. Using different experimental paradigms and measures and confirming predictions based on motivated cognition theory, we show that people low in power are significantly more trusting than more powerful people and that this effect can be explained by the constructs of hope and perceived benevolence. Our findings make important contributions to the literatures on trust, power, and motivated cognition.

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conversely, has no reason to engage in significant motivated cognition (33). Having multiple valuable exchange alternatives available, the power-advantaged party has little incentive to view his/her partner in a better light than the objective information would justify. In sum, according to the motivated cognition account, more powerful actors should place less trust in others compared to less powerful actors.

We report four studies that investigated these opposing predictions (details are in *SI Materials and Methods*). Throughout this research, we sought to generalize our results across different experimental tasks using various operationalizations of power and both perceptual and behavioral measures of trust. In studies 1–4, we tested whether being in a weaker or stronger power position is linked to differences in perceptual trust (study 1) and behavioral trust (studies 2–4). Additionally, in study 4, we extended our research by starting to examine which mechanisms help explain why power is associated with trust.

Study 1: Power Decreases Trust in a Negotiation Task

Study 1 used an established negotiation task (34, 35), in which participants were asked to negotiate over a consignment of cell phones. All participants were assigned to the role of seller and were provided with a payoff chart showing the points allocated to them for different combinations of price, warranty period, and service contract duration. Participants then received a non-negotiable offer from a first buyer, which allowed for manipulating structural power in terms of alternatives (34). Subsequently, participants were ostensibly connected to a second, alternative buyer with whom they were asked to negotiate an agreement within six rounds. In the event that no agreement was achieved with the second buyer, the proposal advanced by the first buyer had to be accepted. Trust in the second buyer, the study's dependent variable, was measured twice—once before the negotiation (T1) and once after the negotiation (T2). As such, study 1 did not assess *behavioral trust* (i.e., a trusting choice) but instead measured *perceptual trust*. An exemplary item was: *The second buyer can be trusted* (see *SI Materials and Methods* for a full report on how perceptual trust was measured). The negotiation task had the sole purpose of manipulating structural power (but not to assess behavioral trust).

We checked the effectiveness of our manipulation using self-reported information on perceived power, given that structural and perceived power tend to be strongly related (19). Results revealed that our power manipulation was successful: Participants in the high self's power condition perceived themselves to be significantly more powerful ($M = 4.47$, $SD = 1.21$) than did participants in the low self's power condition ($M = 3.90$, $SD = 1.53$), $t(399) = 4.16$, $P < 0.001$, Cohen's $d = 0.42$.

We next tested the effect of self's power on trust. A repeated-measure analysis of variance with self's power (low, high) as a between-subjects independent variable, time as a within-subjects factor, and trust measured twice (at T1 and T2) as the dependent variable revealed a significant negative effect of self's power on trust. Participants in the high self's power condition trusted significantly less ($M = 2.35$, $SE = 0.04$) than did participants in the low self's power condition ($M = 2.52$, $SE = 0.03$), $F(1, 399) = 12.05$, $P = 0.001$, $\eta^2 = 0.03$. Results also revealed a significant effect of time on trust, $F(1, 399) = 127.62$, $P < 0.001$, $\eta^2 = 0.24$. Although there was no difference in trust between the two power conditions before the negotiation started ($M_{\text{trust, low self's power}} = 2.59$, $SD = 0.47$ vs. $M_{\text{trust, high self's power}} = 2.59$, $SD = 0.46$), after the negotiation, participants in the high self's power condition trusted significantly less ($M = 2.12$, $SD = 0.64$) than did participants in the low self's power condition ($M = 2.46$, $SD = 0.64$). This finding was qualified by an interaction effect between self's power and time, $F(1, 399) = 39.47$, $P < 0.001$, $\eta^2 = 0.09$, suggesting that when self's power is high, trust decreases significantly more over time (difference between

M_{T1} and $M_{T2} = -0.48$) compared with when self's power is low (difference between M_{T1} and $M_{T2} = -0.15$).

Study 2: Power Decreases Trust in a Monetary Exchange Game

Study 2 used an established exchange game—also known as the trust game—(36), in which participants were endowed with money and asked to either send their endowment to an exchange partner or to keep it for themselves. Instructions indicated that the money would be tripled if they decided to send it to their partner, and the partner would then decide whether to reciprocate and equally share the amount sent with the participant or to defect and keep all of the money. Participants then received information about their own and the other person's ability to switch to different partners within the game, which allowed for manipulating structural power by varying the availability of alternatives. Subsequently, participants were asked to choose whether they would send their money to the partner (and thus trust that the partner would send back half the tripled amount) or keep the original endowment for themselves (and thus not trust the partner). The binary choice served as a behavioral measure of trust, the study's dependent variable. Study 2 assessed behavioral trust (here, either keeping or sending a monetary endowment), see *SI Materials and Methods*. Note that we do not interpret the participants' decision to send the endowment as necessarily reflecting an expectation of fair returns per trial; rather, we adopt a broader definition of trust as participants' willingness to make themselves vulnerable to the actions of another party (12), measured in study 2 through their decision to send their endowment.

Results revealed that our manipulation of power was successful: Participants in the high self's power condition perceived themselves to be significantly more powerful ($M = 4.58$, $SD = 1.09$) than did participants in the low self's power condition ($M = 2.77$, $SD = 1.30$), $t(346) = 14.04$, $P < 0.001$, Cohen's $d = 1.51$.

We next tested the effect of self's power on trust. A binary logistic regression with self's power (low, high) as a between-subjects independent variable and trust as the dependent variable revealed a significant negative effect of self's power, $B = -0.86$, $SE = 0.33$, $t = -2.60$, $P = 0.009$: Participants in the high self's power condition were significantly less trusting (19% chose to keep their endowment and 81% chose to send it) compared to those in the low self's power condition (9% chose to keep their endowment and 91% chose to send it), $\chi^2 = 7.03$, $P = 0.008$. These results replicate our findings from study 1.

Study 3: Power Decreases Trust in the Provision of Typing Services

Study 3 used an established vignette (37), in which participants assumed the role of a typist offering services to a new potential client. Participants were given several pieces of information about themselves and the new client, specifying the relative value and availability of the resources in the typist–client exchange, which allowed for manipulating structural power (37). Based on the background information, participants indicated whether they would offer a free sample project to the new client (and thus trust that the client would come back with a follow-up job) or whether they would prefer to save time and not offer a free sample (and thus not trust the client). The binary choice served as the trust measure, the study's dependent variable. Like study 2, study 3 assessed behavioral trust (here, either saving 3 h by not providing a free sample or investing 3 h to work on a free sample), see *SI Materials and Methods*.

Results revealed that our manipulation of power was successful: Participants in the high self's power condition perceived themselves to be significantly more powerful ($M = 4.18$, $SD = 1.17$) than did participants in the low self's power condition ($M = 3.80$, $SD = 1.15$), $t(411) = 3.27$, $P = 0.001$, Cohen's $d = 0.33$.

Also, participants in the low other's power condition perceived themselves to be significantly more powerful ($M = 4.27$, $SD = 1.04$) than did participants in the high other's power condition ($M = 3.72$, $SD = 1.24$), $t(411) = 4.86$, $P < 0.001$, Cohen's $d = 0.48$.

We next tested the effects of self's power (i.e., the typist's power) and other's power (i.e., the client's power). A binary logistic regression revealed a significant negative effect of self's power ($B = -0.87$, $SE = 0.21$, $t = -4.24$, $P < 0.001$): Participants in the high self's power condition were significantly less trusting (69% chose not to provide a free sample and 31% chose to provide one) than those in the low self's power condition (48% chose not to provide a free sample and 52% chose to provide one), $\chi^2 = 18.23$, $P < 0.001$. These results replicate our findings from studies 1 and 2. However, no significant effect was found for the other's power position, $B = 0.16$, $SE = 0.21$, $t = 0.79$, $P > 0.1$. We briefly elaborate on this latter finding in the *Discussion*.

Study 4: Hope and Trustworthiness Perceptions Explain the Negative Effect of Power on Trust

Studies 1–3 provided convergent evidence that, *ceteris paribus*, people low in power place greater trust in their exchange partner than do people high in power. Study 4 extends this finding by investigating mediating mechanisms that explain the negative power–trust effect. Based on motivated cognition theory (28–32), having low power amplifies people's hope that their exchange partner will turn out to be trustworthy, which then leads to their decision to trust. This reasoning involves a multistep causal chain starting with an effect of power on hope—defined as the degree to which one yearns for a possible but uncertain outcome (38, 39). Consistent with research by Molm and colleagues (40, 41), having low power tends to increase perceived uncertainty. To avoid cognitive dissonance associated with their uncertainty and anxiety, low-power actors compensate for their inferior structural position by hoping that the exchange will work out fine for them. Such hope may result in the formation of positive impressions about the more powerful exchange partner, with trustworthiness being a critical partner trait in the context of trust relationships (12). That is, individuals higher (vs. lower) in hope will be motivated to perceive their counterpart as someone who can be trusted, which eventually justifies the behavioral decision to trust. Conversely, actors high (as opposed to low) in power have less reason to engage in motivated cognition (33) and will thus have lower levels of hope and in turn less elevated trustworthiness perceptions, which ultimately results in comparatively lower trust.

Study 4 used the same vignette as study 3 and additionally investigated the roles of hope and perceived trustworthiness of the client as mediators of the effect of structural power on trust. The binary choice, as described in study 3, served as the trust measure, the study's dependent variable. Like studies 2 and 3, study 4 also assessed behavioral trust (here again, either saving 3 h by not providing a free sample or by investing 3 h to work on a free sample), see *SI Materials and Methods*.

Results revealed that our manipulation of power was again successful: Participants in the high self's power condition perceived themselves to be significantly more powerful ($M = 4.30$, $SD = 1.00$) than participants in the low self's power condition ($M = 3.66$, $SD = 1.33$), $t(399) = 5.47$, $P < 0.001$, Cohen's $d = 0.54$. Similarly, participants in the low other's power condition perceived themselves to be significantly more powerful ($M = 4.37$, $SD = 1.08$) than participants in the high other's power condition ($M = 3.62$, $SD = 1.22$), $t(399) = 6.49$, $P < 0.001$, Cohen's $d = 0.65$.

We next tested the main effects of self's power (i.e., the typist's power) and other's power (i.e., the client's power). A binary logistic regression revealed a significant negative effect of self's power, $B = -0.48$, $SE = 0.24$, $t = -2.05$, $P = 0.041$: Participants in

the high self's power condition were significantly less trusting (80% chose not to provide a free sample and 20% chose to provide one) than those in the low self's power condition (71% chose not to provide a free sample and 29% chose to provide one), $\chi^2 = 4.25$, $P = 0.039$. These results replicate our findings from studies 1–3. Moreover, as in study 3, no significant effect was found for the other's power position, $B = -0.31$, $SE = 0.24$, $t = -1.30$, $P > 0.1$.

We then fit a serial two-mediators model based on the standard PROCESS script (42) using 1,000 bootstrap samples and a 95% confidence level for confidence intervals, with self's power as a covariate, hope as mediator 1, trustworthiness as mediator 2, and trust as the dependent variable. The mediation model revealed that self's power was a significant negative predictor of hope ($B = -0.87$, $SE = 0.14$, $t = -6.28$, $P < 0.001$), but not of trustworthiness ($B = 0.04$, $SE = 0.08$, $t = 0.45$, $P > 0.1$). Hope, in turn, was a significant positive predictor of both trustworthiness ($B = 0.21$, $SE = 0.03$, $t = 7.27$, $P < 0.001$) and trust ($B = 1.02$, $SE = 0.15$, $t = 6.92$, $P < 0.001$). In addition, trustworthiness was a significant predictor of trust ($B = 0.34$, $SE = 0.16$, $t = 2.21$, $P = 0.027$), suggesting that hope is a distal mediator and trustworthiness is a proximal mediator. Power did not predict trust in this mediation model ($B = 0.19$, $SE = 0.28$, $t = 0.69$, $P > 0.1$), suggesting full mediation (43). In support of statistically significant mediation, the indirect effect of self's power through hope and trustworthiness on trust was significant ($B = -0.06$, $SE = 0.03$, $t = -2.00$, $P = 0.046$). Fig. 1 illustrates the mediation model.

Because perceived trustworthiness can be thought of as comprising three separate dimensions—ability, benevolence, and integrity (12)—we also estimated individual mediation models for each of these three dimensions separately, using the PROCESS script parameters reported above. Although hope was a significant predictor of ability ($B = 0.22$, $SE = 0.04$, $t = 5.73$, $P < 0.001$), benevolence ($B = 0.22$, $SE = 0.04$, $t = 5.22$, $P < 0.001$), and integrity ($B = 0.19$, $SE = 0.03$, $t = 6.82$, $P < 0.001$), neither ability ($B = 0.11$, $SE = 0.12$, $t = 0.98$, $P > 0.1$) nor integrity ($B = 0.19$, $SE = 0.17$, $t = 1.14$, $P > 0.1$) predicted trust; hence, these two dimensions will not be discussed further.

Self's power was a significant negative predictor of hope ($B = -0.87$, $SE = 0.14$, $t = -6.28$, $P < 0.001$), but not benevolence ($B = 0.07$, $SE = 0.12$, $t = 0.56$, $P > 0.1$). Hope, in turn, was a significant predictor of both benevolence ($B = 0.22$, $SE = 0.04$, $t = 5.22$, $P < 0.001$) and trust ($B = 1.05$, $SE = 0.15$, $t = 7.11$, $P < 0.001$). Benevolence was a significant positive predictor of trust ($B = 0.34$, $SE = 0.11$, $t = 3.10$, $P = 0.002$), but self's power did not predict trust in this mediation model ($B = 0.19$, $SE = 0.28$, $t = 0.67$, $P > 0.1$), suggesting full mediation by hope and benevolence. In support of statistically significant mediation, the indirect effect of self's power through hope and benevolence on trust was significant ($B = -0.07$, $SE = 0.03$, $t = -2.50$, $P = 0.013$). In sum, these results suggest that the mediating role of the general trustworthiness construct is explained by benevolence, but not by either ability or integrity (Fig. 1).

Discussion

Despite power and trust being crucial aspects of social exchange, the nature of the relationship between them has rarely been investigated. Is having low (vs. high) power a driver or a barrier to placing trust in others? Answering this question can help us to better understand trust dynamics in a variety of social relationships that involve power inequalities. Across four different experiments, we report convergent evidence for a negative effect of an actor's power on his/her trust in others, suggesting that low-power actors tend to trust to a higher degree than high-power actors do.

The present research makes several contributions to extant literatures. First, it provides initial empirical evidence regarding

In addition, future research could investigate how the role of power in trust relations develops over time. Do trust levels among low-power (and high-power) actors increase or decrease with repeated interactions, and at what point? It seems likely that, *ceteris paribus*, power inequalities may lose some of their importance in determining trust over time as people increasingly

come to make trust decisions based on their personal experiences with a particular exchange partner rather than based on structural features. Another interesting question for future research is whether the low-power actor's placement of (seemingly unjustified) trust in the power-advantaged partner could initiate a domino effect in which the power-advantaged actor feels morally obligated to reciprocate, thus enabling a long-term relationship that might have been unlikely to emerge without the low-power actor's initial leap of faith. To answer this question, the present study's account of how power inequalities influence the trustor's initial trust needs to be complemented by a better understanding of how power inequalities influence the behavior of the trustee. In sum, whereas our paper focused on the initial round of interaction, future research should investigate the role of power and trust in determining what kind of equilibrium is eventually reached at what rate.

On a related note, do low- and high-power actors react differentially to breaches of trust? Motivated cognition theory suggests that low-power individuals invest more cognitive resources in processing trust-related information that becomes available in an exchange than high-power individuals do (51, 52). Given that trust recovery becomes less likely when people engage in extensive deliberations about the trust breach (8), one might expect that low-power individuals may be less forgiving and less willing to trust again after a breach than high-power individuals are. On the flipside, experiencing positive acts of reciprocity may be particularly appreciated and translated into trust by low-power individuals (53, 54), suggesting that low-power individuals may generally react more sensitively to both opportunistic and trustworthy partner behavior compared to high-power individuals.

Another interesting contingency worthy of further study is whether the exchange relation has a negotiated or a reciprocal structure (55). In negotiated exchanges, parties engage in direct exchanges in which bilateral agreements are jointly negotiated (akin to our study 1). In reciprocal exchanges, parties perform individual acts without negotiation and without knowing whether the other party will reciprocate (akin to our studies 2–4). Future research that holds all variables except for the form of exchange and structural power constant would allow for systematic comparison

of the power–trust effect between forms of exchange. Building on Molm's previous work (56), we can only speculate at this point that, *ceteris paribus*, trust differences between low- and high-power conditions may be more pronounced in reciprocal compared to negotiated forms of exchange.

Finally, it would be interesting to explore whether the results reported here are generalizable to cultures other than the United States (1). Given the notion that important differences in the acceptance of power imbalances exist between cultures (57), would low-power members of cultures that generally accept greater power imbalances (such as China or Mexico) trust power holders even more than indicated by the present findings? In summary, we anticipate that future follow-up work on the role of power in trust relations will shed light on several important issues.

To conclude, on the most general level, our findings may help better understand why societies with stark hierarchical differences can be functioning and enduring (6). In a counterfactual world where people low in power would refuse to place trust in power holders, many of the advantages of hierarchies [such as improved coordination, reduced conflict, and stability (58)] might not be attainable. These considerations underline the centrality of “irrational” acts of trust for the existence of a relatively stable society.

Materials and Methods

Four experiments provide convergent support for the negative effect of structural power on trust. Following recommendations for constructive replication (59), the four experiments used a variety of different tasks, manipulations, and dependent measures. In all of our studies, we recruited participants from the subject pool of Amazon's Mechanical Turk (MTurk), an online crowdsourcing service with large volumes of small web-based tasks offered to anonymous online workers for monetary compensation. MTurk allows behavioral experiments to be run comparatively quickly and inexpensively, provides access to a broad cross-section of the population, and has repeatedly been shown to have the capacity to produce highly valid data (60–65). The research was approved by the Institutional Review Board of the University of Arizona, and participants voluntarily agreed to take part after reading a disclosure form for research participation.

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