Seeing power in action: The roles of deliberation, implementation, and action in inferences of power

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A B S T R A C T

Six experiments investigate the hypothesis that social targets who display a greater action orientation are perceived as having more power (i.e., more control, less dependence, and more influence) than less action-oriented targets. I find evidence that this inference pattern is based on the pervasive belief that individuals with more power experience less constraint and have a greater capacity to act according to their own volition. Observers infer that targets have more power and influence when they exhibit more implementation than deliberation in the process of making decisions in their personal lives (Study 1a), in a public policy context (Study 1b), and in small groups (Study 2). In an organizational context, observers infer that a target who votes for a policy to change from the status quo has more power than a target who votes not to change from the status quo (Study 3). People also infer greater intra-organizational power and higher hierarchical rank in targets who take physical action toward a personal goal than in those who do not (Studies 4–5).

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Hierarchy pervades social life (Eibl-Eibesfeldt, 1989; Magee & Galinsky, 2008; Wright, 1994), and in navigating the social world, individuals try to make sense of the influence that others have over their personal and professional lives (Ellyson & Dovidio, 1985; Goffman, 1957; Krackhardt, 1990). To figure out just how much power people have, individuals often look to symbols of status. Material possessions, sex, race, education, and job titles all provide useful clues, but not perfect information, about others' capacity to influence importance outcomes (Berger, Cohen, & Zelditch, 1972; Berger, Ridgeway, Fisek, & Norman, 1998; Domhoff, 1998; Henley, 1977; Pfeffer, 1992; Weber, 1947). Some observable behaviors seem to imply the possession of power, almost by definition. Loaning money, giving orders, and barring entry all involve giving rewards or meting out punishments based on controlling access to resources (Goldhamer & Shils, 1939; for related definitions of power, see Fiske, 1993; Keltner, Gruenfeld, & Anderson, 2003), and people's ratings of a group member's power are positively related to the number of attempts he or she makes to influence the group (Levinger, 1959; Lippitt, Polansky, & Rosen, 1952). These represent easy cases for lay people to determine degrees of others' power; however, most behavior does not so clearly reveal who has power and influence.

People attend to numerous subtle verbal and nonverbal behaviors when making judgments about individuals' positions in social hierarchies. Individuals who make external attributions for their actions suggest to others that they do not have control over their environment, which, in turn, implies that they do not have power (Lee & Tiedens, 2001). People who speak earlier to their interaction partners (for a review, see Hollander, 1985), speak more about the focal task (Bales, Strodtbeck, Mills, & Roseborough, 1951), and interrupt more frequently and hesitate less when they speak (for a review, see Hall, Coats, & LeBeau, 2005) are thought to have more influential positions in groups. Emotionally and physically expressive behavior can be interpreted as a signal of power as well. People tend to judge expressed anger (Fabes & Eisenberg, 1992; Tiedens, 2001) and more postural expansion, bodily shifting, and gesturing as indicative of elevated hierarchical standing (for a review, see Hall et al., 2005). Also, observers infer that individuals who initiate touching their interaction partners are more powerful than those who either reciprocate or do not reciprocate others' touch (Goldberg & Katz, 1990; Major & Heslin, 1982; Summerhayes & Suchner, 1978).

One way to interpret much of this previous research is that, whereas taking action and generating activity convey power, inactivity conveys powerlessness. For example, influence attempts, interruptions, and touching others all involve action, and anger is an emotion associated with a tendency to take action against the anger's cause (Roseman, Wiest, & Swartz, 1994). These results suggest that a more general phenomenon may be at work: observers infer an actor's level of power based on his or her orientation toward action, both in social interaction and in approaching personal and organizational goals. According to this hypothesis, observers infer that individuals who exhibit a greater action orientation have more power than individuals who are less action-oriented.

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The current research investigates the process by which lay observers make action orientation-based inferences of targets' power. Before examining this hypothesis and explaining how and why these action orientation-based inferences of power might be made, the central constructs in this research are described in detail below.

Definition of constructs

Action orientation

Gollwitzer and colleagues (Gollwitzer, Heckhausen, & Steller, 1990; Gollwitzer & Kinney, 1989) point out that, prior to taking action, individuals focus on two sequentially ordered processes. The first process involves *deliberative* thinking, in which an individual chooses a goal from a selection of multiple potential goals. During deliberation, one weighs the pros and cons of different options before choosing which goal to pursue. Extensive deliberation inhibits goal selection and, ultimately, action. To move closer to action, an individual must select a goal and then engage in the next process, characterized by *implemental* thinking, which involves planning the actions that are necessary to reach the chosen goal. The implemental process typically ends with a commitment to take *action* (Brandstätter, Lengfelder, & Gollwitzer, 2001). As individuals move along this continuum from deliberation to implemental thinking and from implemental thinking to action, they can be seen by observers as more action-oriented (see Diefendorff, Hall, Lord, & Strean, 2000 and Kuhl, 1994 for a related distinction).

For purposes of the current research, individuals are more *action-oriented* in the eyes of observers when they display a relative emphasis on implementation over deliberation and action over inaction. People show varying degrees of an action orientation depending on the relative amount of time they spend on deliberation and implementation in their own thinking. In group settings, the emphasis one places on these two processes signals one's action orientation. Observers can see signs of action orientation in the behavior of the targets they observe: individuals who demonstrate a tendency to swiftly make decisions, make a strong commitment to a course of action, or change from the status quo appear more action-oriented than individuals who have more deliberative tendencies or who refrain from taking action or changing the status quo.

Action orientation has been linked to power in previous research finding that power facilitates goal pursuit (Guinote, 2007) and the taking of action (Galinsky, Gruenfeld, & Magee, 2003). Yet, within previous studies on inferences of power, none has directly tested whether observers use targets' action orientation in inferences of targets' power.

Power

Although the present research is concerned with social observers' subjective inferences of power, the measures include a number of features central to definitions of power. One important feature is that people are dependent on each other for social and material resources. This creates asymmetrical outcome dependence in social relationships: one person (one with more power) is less dependent on another person than vice versa (Emerson, 1962; Fiske & Berdahl, 2007). A result of this outcome dependence, power corresponds to the capacity to control others' outcomes (Dépret & Fiske, 1993; Fiske, 1993; French & Raven, 1959; Keltner et al., 2003; Thibaut & Kelley, 1959). In general, the more power one possesses vis-a-vis others, the more influence one has over them (Dahl, 1957; Goldhamer & Shils, 1939; Russell, 1938).

Power, in the terms described above, is situationally sensitive; dependence and control relative to others can vary depending on the parties or the resources involved. Typically, this is correlated with hierarchical rank, which is invariant across situations within a hierarchy. For example, supervisors are less dependent on subordinates than subordinates are on supervisors, and supervisors control subordinates more than subordinates control supervisors. However, power differences can also exist among employees at the same level of the organization when, for example, one depends disproportionately on another for advice, referrals, or emotional support.

The current research is concerned with the extent to which observers think an actor has power (their subjective inferences) rather than the objective level of power that an actor actually has in a given situation. Observers can infer individuals' power based on their observable behavior. Absent specific knowledge of dependence and control, for example, observers might see implementation as representative of more power than deliberation over a decision. Likewise, without knowledge of an actor's formal hierarchical rank, observers can infer his or her rank based on behavior. For example, observers might infer that someone who changes the environment to remove aversive stimuli is more likely to occupy a supervisory position than someone who makes no such change. The accuracy of these subjective inferences is beyond the scope of this research.

Inferring power from action orientation

Why would a pattern of inferences about power develop based on action orientation? The studies reviewed above, which investigated touching behavior and perceived power (Goldberg & Katz, 1990; Major & Heslin, 1982; Summerhayes & Suchner, 1978), provide a useful example to consider. One's touching of another individual might indicate to observers that one can act according to one's own volition, whereas reciprocation implies that the initiator's actions determine one's own behavior. This suggests that the apparent volitional nature of a target's behavior can be used by observers as an indication of his or her level of power. After all, there is a widespread belief that power-holders experience less constraint than others (Overbeck, Tiedens, & Brion, 2006) and, therefore, are able to take more action in service of their goals than the powerless. Thus, people might develop a mental association between power and the capacity to act according to one's own volition, which operates implicitly when people make inferences about power based on action orientation. The following studies are designed to investigate whether people use a target individual's action orientation to determine his or her level of power and whether this inference process is based on the proposed mental association between power and the capacity for volitional action.

Overview

The primary goal of these studies is to document the causal relationship between a target's action orientation and observers' inferences of his or her power across a variety of contexts. These studies explore multiple facets of action orientation, and although the particular methods vary from study to study, the result that they all share in common is that observers infer greater power in individuals whose behavior is more action-oriented. Studies 1a–b investigate whether social targets appear to have more power when they exhibit implemental planning as opposed to deliberation about private and public policy decisions. Study 2 uses an interactive group decision-making context to illustrate the importance of implementation and deliberation relative to myriad other features of the situation when people make inferences of group members' power. Study 3 explores whether people infer that someone who votes for a policy that changes the status quo is more powerful than someone who votes not to change the status

quo. Study 4 examines whether people infer greater intra-organizational power in people who take more physical action, even when the goal that the action satisfies is not relevant to the goals of the organization. Study 5 builds on these results by also investigating the volition-based mechanism by which people infer power from action orientation and finds that when action appears situationally determined rather than individually initiated, inferences of power are attenuated.

Study 1a

In Study 1a, participants read a vignette about the decision-making process of an individual who was engaged either in deliberation or in implemental thinking. Thus, participants observed different levels of action orientation precisely as it was defined above. One might expect that deliberation, rather than implementation, would signal power. After all, deliberation involves consideration of different options, and having options implies having control (i.e., power) over factors that otherwise could constrain one's decisions. This logic based on control is similar to the notion that people who make internal attributions for negative outcomes signal that they have control over environmental factors and thus have more power than people who focus on external attributions (Lee & Tiedens, 2001).

Not only do people expect power-holders to have control over their environment but also that they have responsibility for subordinates' outcomes. With this responsibility, power-holders might be expected to be more deliberative and careful in their reasoning to avoid errors in judgment that would make them responsible for others' poor outcomes. Moreover, Suedfeld and Rank (1976) showed that leaders with a deliberative style are able to recognize the competing demands of their environments and are likely to stay in power longer than are leaders who ignore these complexities. In sum, there is sufficient reason to think that participants might consider the deliberative individual more powerful than the implemental individual; however, consistent with the theory laid out above, the hypothesis was exactly the opposite.

To provide further evidence that action orientation and power are uniquely associated in observers' minds, this study sought to illustrate that inferences of power do not simply reflect judgments of competence. The ability to focus on implemental planning is surely illustrative of competence but so too is considering the available alternatives and acknowledging one's constraints. Therefore, no difference was predicted between deliberation and implementation with respect to perceived competence and that only implementation would be seen as an indicator of power.

Method

Participants

Participants were 119 students and staff (69 women, 36 men, and 14 unknown) at a private West Coast university who volunteered to participate as part of a larger testing session in exchange for $10. They were recruited from an electronic mailing list that advertises opportunities to participate in studies in exchange for money. The median age of participants was 20 years, and the racial composition was 45% Caucasian ($n = 53$), 26% Asian/Asian-American ($n = 31$), 9% Black/African-American ($n = 11$), 8% Chicano/Hispanic/Latino ($n = 10$), and 12% other ($n = 14$).

Design and procedure

Participants were instructed that they would read "a transcript of a real person writing about a decision—whether or not to take a job overseas." In fact, the transcripts were adapted from autobiographical deliberation and implementation stories that participants from an unrelated study had written following directions adapted from Gollwitzer et al. (1990). Participants were randomly assigned to read one of two transcripts. The *deliberative* transcript showed a person who had not decided whether to take the job and was weighing the pros and cons to both sides of the decision, as follows:

> I am not sure about going. On one hand, it seems like a good opportunity to learn a different culture and change paths in life. I will also have a chance to practice my language skills overseas. On the other hand, I am not sure that I want to accept everything that comes with it. For example, I will have to sacrifice my career plans here. Though it seems like it would give me a unique perspective, I need to think about these tradeoffs before I decide whether or not to go.

The *implemental* transcript illustrated a person who had decided to take a new job overseas and was thinking through the steps necessary to prepare for departure, as follows:

> Despite having to sacrifice my career plans here, I made the decision to go and immerse myself in a different culture. Now, I need to plan everything to prepare to go. First, I need to go on-line and find a plane ticket. Then, I will have to apply for a passport and visa. I'll want to study the language, so I will take classes and pick up a book to learn slang expressions on my own. Finally, I will get out my suitcase, plan out everything I need, and pack it all up.

Participants rated the protagonist on one 7-point scale: "How powerful is this person?" (1 = *not very powerful*; 7 = *very powerful*). Then, they rated the protagonist on two 7-point semantic differential scales: competent-incompetent (reverse-scored), and ignorant-knowledgeable. One manipulation check asked, "To what extent does this person think things over before making decisions?" (1 = *very little*; 7 = *a lot*). Finally, participants were asked for their race, age, and sex and were paid and dismissed.

Results and discussion

There were no significant effects due to participant sex, so men and women were combined in all analyses.

Manipulation check

An independent samples t-test on the manipulation check item revealed that participants in the deliberative condition ($M = 5.57$, $SD = 0.99$) thought the protagonist generally thinks things over more than did participants in the implemental condition ($M = 4.59$, $SD = 1.81$), $t(117) = 3.63$, $p < .001$, $d = 0.67$. Thus, the manipulation was effective.

Power and competence inferences

The *knowledgeable* and *competent* ratings were averaged to form a *competence* index ($\alpha = .72$; $M = 4.34$, $SD = 1.14$). Next, separate independent samples t-tests were conducted for *power* and *competence*. Specifically, participants rated the implemental protagonist as more powerful ($M = 4.34$, $SD = 1.35$) than the deliberative protagonist ($M = 3.55$, $SD = 1.01$), $t(117) = 3.61$, $p < .001$, $d = 0.67$; however, there were no such differences in the competence ratings. Participants rated the deliberative ($M = 4.71$, $SD = 1.01$) and implemental ($M = 4.69$, $SD = 1.23$) protagonists as equally competent ($t < 1$). Regressing inferences of power on competence ratings and action orientation (implemental = 1, deliberative = −1), participants' ratings of competence were significantly related to inferences of power, $b = 0.33$, $SE = 0.09$, $t(116) = 3.47$, $p = .001$, and action orientation was still a significant predictor of power inferences, $b = 0.40$, $SE = 0.11$, $t(116) = 3.80$, $p < .001$, independent of the effect of competence.

As predicted, participants inferred different amounts of power but not competence depending on the target's level of action orien-

tation. In other words, action orientation displayed through implemental planning, compared to deliberation, signaled the possession of power. If people hold a belief that an emphasis on either deliberation or implementation is more indicative of competence and that competent people ascend to power, then ratings of competence would have differed between conditions. The fact that no difference was found for competence ratings helps validate the explanation based on a belief about volition and power posited here; yet, the conclusions that can be drawn from these results are not definitive. One possible alternative explanation is that the implemental target was described in a more positive light than the deliberative target, who expressed the "tradeoff" involved in "sacrificing" a domestic career for an opportunity abroad. The positive progress of the implemental target, rather than the target's implementation focus per se, could have been perceived as a sign of greater power than was the deliberative target's more negative outlook. The materials for the next study were designed to reduce this potential concern.

Study 1b

In Study 1b, I wanted to extend the findings of the previous study to show that inferences of important leaders' power can be based on the extent to which they use implemental versus deliberative language. Both the language and the inferences of power were embedded within a meaningful context: judgments of the U.S. President's power following a speech in which he expresses his thoughts about a public policy. To demonstrate further that observers use implementation versus deliberation specifically in their power inferences, not in other potentially related trait judgments, a number of trait ratings—competence, likeability, and dominance—were included in addition to the measures of inferred power.

Method

Participants

Participants were 30 students and staff (20 women and 10 men) at a private university who volunteered to participate as part of a larger testing session in exchange for $10. They were recruited from an electronic mailing list that advertises opportunities to participate in studies in exchange for money. The median age of participants was 19 years, and the racial composition was 57% Asian/Asian-American ($n = 17$), 30% Caucasian ($n = 9$), and 13% other ($n = 4$).

Materials, design, and procedure

From a pool of 39 State of the Union addresses given by past presidents, I selected a number of statements to use in creating an ostensible "excerpt from a speech delivered by a president of the United States" on the topic of education. Building on these statements, I created two versions of the speech excerpt, one with six *implemental* phrases and another with six corresponding *deliberative* phrases. Participants read one of the versions in a between-subjects design. The deliberative version is below (with modifications for the implemental version in brackets):

> Over a year ago I presented my views on this public education program. Now, we must examine how [go forward] to improve the quality of our teachers. I have a very deep belief in America's education system. We should, regardless of party, contemplate [carry forward resolutely to finalize] our plan to improve the pipeline for public school teachers. We are assessing [attacking] major problems facing us, and we must deliberate extensively over how [act decisively] to meet our goals. We must closely study [push forward] this program to find our best and brightest citizens interested in the teaching profession. I shall consider [propose] new measures where possible. This program

must be above and beyond politics. Our public schools are absolutely vital to the quality of our lives.

After reading the speech excerpt, participants were asked to rate the extent to which a number of characteristics "describe the president who delivered this speech." Participants made their trait ratings of the ostensible president using pairs of 7-point semantic differential scales (*stupid-intelligent, competent-incompetent* [reverse-coded]; *unlikeable-likeable, trustworthy-untrustworthy* [reverse-coded]; *dominant-submissive* [reverse-coded], and *assertive-unassertive* [reverse-coded]). Consistent with the previous experiment, no differences were predicted between conditions on these trait ratings.

The trait ratings were followed by the inferred power dependent measures on 7-point scales: "To what extent did this president have influence in shaping this program?" and "To what extent did this president have the capacity to influence Congress?" To check the effectiveness of the manipulation, participants then rated on separate 7-point scales the extent to which the speech was focused on "deliberating about the program" (deliberation) and "moving forward with the program" (implementation).

Results

There were no significant effects due to participant sex, so men and women were combined in all analyses.

Manipulation check

A mixed-model analysis of variance (ANOVA) with implemental versus deliberative condition as a between-subjects factor and the manipulation check question (focus of the speech: implementation vs. deliberation) as a within-subjects factor revealed that, although there was a significant main effect of the manipulation check question, $F(1, 28) = 8.10$, $p = .008$, $\eta^2 = .22$, there was also the expected interaction, $F(1, 28) = 4.90$, $p = .035$, $\eta^2 = .15$. Participants who read the deliberative speech thought it was more focused on deliberation ($M = 4.87$, $SD = 1.51$) than did participants who read the implemental speech ($M = 4.07$, $SD = 1.67$). Likewise, participants who read the implemental speech thought it was more focused on implementation ($M = 5.67$, $SD = 1.05$) than did participants who read the deliberative speech ($M = 5.07$, $SD = 1.79$). Thus, the manipulation was effective.

Trait ratings and power inferences

The *intelligent* and *competent* ratings were averaged to form a *competence* index ($\alpha = .86$; $M = 5.02$, $SD = 1.23$), the *likeable* and *trustworthy* ratings were averaged to form a *likeability* index ($\alpha = .76$; $M = 4.83$, $SD = 0.99$), and the *dominant* and *assertive* ratings were averaged to form a *dominance* index ($\alpha = .77$; $M = 5.55$, $SD = 0.96$). The two items measuring participants' inferences of the president's power were also averaged to form a *power* index ($\alpha = .78$; $M = 4.57$, $SD = 0.99$).

Independent samples *t*-tests comparing the competence, likeability, dominance, and power ratings in the deliberative and implemental conditions supported the prediction that implemental language, in contrast to deliberative language, is used as a basis of power inferences but not of competence, likeability, and dominance trait judgments. Specifically, participants rated the president whose language was implemental as more powerful ($M = 4.93$, $SD = 0.84$) than the president whose language was deliberative ($M = 4.20$, $SD = 1.01$), $t(28) = 2.15$, $p = .040$, $d = 0.79$; however, there were no such differences in the competence ($M_I = 5.03$, $SD_I = 1.33$ vs. $M_D = 5.00$, $SD_D = 1.16$), likeability ($M_I = 4.97$, $SD_I = 0.99$ vs. $M_D = 4.70$, $SD_D = 1.00$), or dominance ($M_I = 5.67$, $SD_I = 0.99$ vs. $M_D = 5.43$, $SD_D = 0.94$) ratings (all $ts < 1$).

Discussion

Paralleling the results of the previous study, participants who read an implemental speech inferred that the speaker had more power than did participants who read a deliberative speech. Furthermore, the ratings of power were made in a meaningful, policy-setting context. The results of Study 1b also corroborate the results of Study 1a by pinpointing that observers' inferences of a target's power, in particular, not their judgments of his competence, warmth, or dominance, are based on his action orientation. The lack of a difference across conditions for the dominance ratings is particularly noteworthy. Although interpersonal dominance is sometimes seen by observers as a signal of power (Levinger, 1959), these results suggest that an actor's focus on implementation rather than deliberation is not seen as indicative of his dominance. Thus, these results highlight that a target's action orientation is a point of divergence for observers' inferences of power and dominance.

In Studies 1a–b, the deliberative target could also be characterized as indecisive, and a difference in decisiveness rather than deliberation could account for the difference in power inferences between conditions. To reduce this concern, the next study manipulated deliberation in multiple ways, none of which was overtly indecisive. Also, in Studies 1a–b, the experimental environment was tightly controlled so observers' inferences of power were affected reliably by the manipulation of action orientation. One limitation of this method is that it does not address the ecological validity of the action orientation-power association. People typically have many features of an individual's behavior to attend to, and individuals' behavior takes place in a social context. To address these issues, the next study used the dynamic, social context of group decision-making to explore whether individuals' deliberation and implementation would affect group members' inferences about their power.

Study 2

Study 2 used a quasi-experimental group decision-making design to investigate inferences of power based on action orientation. Task-oriented groups such as these are especially useful to explore for three reasons. First, even if members have equal footing at the outset, social hierarchy tends to emerge in these groups (e.g., Bales et al., 1951; Berger et al., 1998). Although members' judgments about each other's power are often implicit, this type of cognition does occur spontaneously (Ellyson & Dovidio, 1985). The measures in this study thus capture individuals' judgments about the natural power differentiation that develops across a group's members. Second, group members interact with each other and are interdependent so that each member's inferences of the other members' power are psychologically meaningful within the context of the study. Third, task-oriented groups would reveal whether or not action orientation is used as an indicator of power in more complex social interactions even when other, more salient information might compete in shaping inferences of power, such as personality dominance (e.g., Aries, Gold, & Weigel, 1983), competence (e.g., Driskell, Olmstead, & Salas, 1993), and sex of the group members (e.g., Berdahl & Anderson, 2005; Dovidio, Brown, Heltman, Ellyson, & Keating, 1988; Eagly & Karau, 1991).

Method

Participants

Participants were 372 Masters-level students (272 women and 100 men) at a private university on the East Coast who participated as part of a teamwork seminar. The median age of participants was 27 years, and the racial composition was 65% Caucasian ($n = 242$), 17% Asian ($n = 63$), 9% African-American ($n = 33$), 4% Chicano/Hispanic/Latino ($n = 15$), and 5% other ($n = 19$).

Overview and design

Participants met in groups of six to complete an exercise that they were told would address the title of the teamwork seminar, "Roles, Conflict, and Team Process." The decision-making exercise was designed so that group members discussed a topic for which they did not have strong, value-based attitudes: they were asked to choose a color that would represent their group. Before the group discussion, each group member was assigned one of six roles and either a preference for, or an aversion toward, one of three colors (red, blue or yellow). The roles selected for this study have been found to emerge naturally in working groups (Bales, 1958; Benne & Sheats, 1948; Mudrack & Farrell, 1995). Four roles were adapted as a within-group action orientation manipulation: one (the Initiator) was designed to be focused on implementation (*high-action orientation*), and three others (the Information Seeker, the Harmonizer, and the Active Listener) were deliberative (*low-action orientation*). These roles have qualitative differences in the degree to which they facilitate the group's deliberation and implementation, which make them an ideal method for manipulating action orientation in a group setting. Each group also contained two roles whose characteristics did not relate to action orientation (the Opinion Giver and the Tension Reliever).

After reading their role descriptions, groups met to choose a color for their group. Following their meeting, they rated each member's power as well as their perceptions of each member's deliberation and implementation. Thus, action orientation was manipulated through role assignments, but perceptions of action orientation were also measured for each group member. The role manipulation and perceptions of action orientation were expected to predict inferences of power after controlling for a number of variables that research suggests would affect these inferences, such as demographic characteristics (e.g., sex, race, and age; Berger, Rosenholz, & Zelditch, 1980; Dovidio et al., 1988), perceptions of competence (Berger et al., 1980; Driskell et al., 1993), familiarity with group members (Moskowitz, 1993), personality dominance (Aries et al., 1983), and whose color was actually chosen by the group.

Materials and procedure

Prior to the seminar, the instructor randomly assigned participants to six-person groups ($n = 62$). Each group was given a large manila envelope containing two smaller envelopes and was directed to a break-out room to meet and choose a color as the symbol of the group. The instructions also asked each group member to select one letter-sized envelope, which contained a role assignment and color preference. Participants were asked not to share this information with each other. The complete role descriptions and color preferences are listed below.

- Role 1: Information Seeker—keeps communication channels open; suggests broad participation and deliberation.
- Position: You want the color to be *blue*. Do all you can to see that blue is chosen.
- Role 2: Harmonizer—attempts to reconcile disagreements; gets people to explore differences.
- Position: You want the color to be *yellow*. Do all you can to see that yellow is chosen.
- Role 3: Initiator—proposes tasks, goals, or actions; suggests procedures to reach a decision.
- Position: You want the color to be *red*. Do all you can to see that red is chosen.

- Role 4: Opinion Giver—evaluates ideas negatively; questions contributions of others.
- Position: You are *opposed to* the choice of *yellow* as the group's color. Do all you can to keep yellow from being chosen.
- Role 5: Active Listener—listens intently to others; asks clarifying questions.
- Position: You are *opposed to* the choice of *blue* as the group's color. Do all you can to keep blue from being chosen.
- Role 6: Tension Reliever—uses humor to reduce tension, such as jokes.
- Position: You are *opposed to* the choice of *red* as the group's color. Do all you can to keep red from being chosen.

To help insure that the high-action orientation role manipulation, rather than its assigned color preference or the role opposed to its color preference (Tension Reliever above), was responsible for differences in power inferences, the color preferences for the Initiator and the Information Seeker (blue vs. red) were swapped for some of the groups (*n* = 27).

Each role slip also indicated to put on a nametag with one of the following capital letters: K, L, M, N, O, or P, according to the order of the roles listed above (e.g., Information Seeker was "K," and Tension Reliever was "P"). The nametags allowed group members to identify each other when they completed the questionnaires about each other. The instructions further indicated that the group should spend 15 min choosing a color, after which the members should record the color on a sheet of paper contained in the envelope. Finally, the instructions indicated to move on to Envelope #2 after all the steps above were completed.

Dependent measures. Envelope #2 contained the questionnaires, and each group member rated each of their group members in the following order (excluding their own role): Information Seeker (K), then Harmonizer (L), then Initiator (M), then Opinion Giver (N), then Active Listener (O), then Tension Reliever (P). All questions began "To what extent…" and the responses were provided on 7-point scales. There were four items measuring inferences of power (the items for rating "K", the Information Seeker, are provided as examples): "was K influential in determining the color that your group chose?", "did K influence your own personal choices and decisions during the group meeting?", "did the color your group chose depend on what K said and did?", and "did K have power in the group?"

Subjective perceptions of deliberation and implementation. Perceptions of task-related action orientation were measured with two 7-point items, one for deliberation ("To what extent was K focused on considering as many alternatives as possible?") and one for implementation ("To what extent did K get the group to focus on which actions to take to decide on a color?").

Covariates. The remaining items in the questionnaire served as covariates in the analysis. Perceptions of competence and familiarity were each measured with one 7-point item. The competence item was reverse-scored, "To what extent was K incompetent during the group meeting?", and the familiarity item read, "To what extent are you friendly with K?"

Following the ratings about their fellow group members, participants completed a number of items about themselves. The first set of items measured interpersonal dominance (Trapnell & Wiggins, 1990) in a format similar to the Ten-Item Personality Inventory (Gosling, Rentfrow, & Swann, 2003). That is, participants were asked to indicate the extent to which each of eight pairs of characteristics (e.g., *dominant, domineering*; *shy, bashful* [reverse-scored]) applied to them broadly. Then, participants were asked to rank order their personal preferences for the three colors in the study (*red,*

blue, and yellow). Finally, participants provided their own race, age, and sex. Upon completion, all group members inserted their questionnaires back into Envelope #2 and the materials were returned to the instructor.

Results

Preliminary analyses

Two participants did not complete their self-ratings of dominance, four participants did not rate their group members, and 30 additional target ratings were not complete[1]. These observations were spread across 19 different groups and were removed from all analyses. Because this research was concerned with inferences about others' power, rather than one's own, participants' self-ratings of power, implementation, deliberation, competence, and familiarity were not included in this study. Thus, the final sample size was 1,800 observations made by 366 individuals in 62 groups.

Manipulation checks. The measures of subjective perceptions of deliberation and implementation were used to assess differences in perceptions of the level of action orientation in the roles. Consistent with the study design, contrast codes were created to compare the implemental (Initiator; code: 3) and the deliberative roles (Information Seeker, Harmonizer, and Active Listener; code: −1), setting the neutral roles (Opinion Giver, Tension Reliever) to zero. To account for non-independence of the observations within groups, the data were analyzed with multilevel maximum likelihood regression models with target ratings (*N* = 1800) nested within individuals (*N* = 366) nested within groups (*N* = 62) Kenny, Mannetti, Pierro, Livi, & Kashy (2002).

Ratings of implementation were higher than ratings of deliberation on average, $b = 0.21$, $SE = 0.05$, $t(58) = 4.40$, $p < .001$; however, as expected a significant interaction between target role type and the ratings of deliberation and implementation emerged, $b = 0.23$, $SE = 0.03$, $t(1539) = 7.71$, $p < .001$. The pattern of means was consistent with the design, indicating that the role manipulation was effective at eliciting different levels of deliberative and implemental behavior in the group members. The high-action orientation role was perceived as more implemental ($M = 4.31$, $SD = 1.87$) than the low-action orientation roles ($M = 3.84$, $SD = 1.66$), and the neutral roles were perceived at a low level of implementation relative to the other roles ($M = 3.63$, $SD = 1.69$), $b = 0.12$, $SE = 0.03$, $t(1735) = 4.14$, $p < .001$. The low-action orientation roles were perceived as more deliberative ($M = 3.74$, $SD = 1.79$) than the high-action orientation role ($M = 3.27$, $SD = 1.88$), and the neutral roles were perceived as moderately deliberative ($M = 3.68$, $SD = 1.85$), $b = −0.12$, $SE = 0.03$, $t(1735) = −3.96$, $p < .001$.

Power inferences. The four items measuring inferences of each target group member's power displayed high inter-item reliability ($.76 < \alpha < .88$) and were averaged to form an inferred power index.

Covariates. I expected that group members would use the color their group chose as a cue for who had power during the discussion. Specifically, if a color advocated by a given role (for Information Seekers, Harmonizers, and Initiators) or a color other than the one a given role was trying to block (for Opinion Givers, Active Listeners, and Tension Relievers) was chosen by the group, I expected

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[1] Of the 6 participants whose ratings were entirely removed due to incompleteness, 3 were Harmonizers, 1 was an Initiator, 1 was an Active Listener, and 1 was a Tension Reliever. Of the 30 additional target ratings that were not complete, 4 were of Information Seekers, 9 were of Harmonizers, 3 were of Initiators, 2 were of Opinion Givers, 6 were of Active Listeners, and 6 were of Tension Relievers. In sum, only 60 ratings out of 1860 (3.2%) were omitted/missing, and these ratings were distributed across roles and groups such that it is unlikely that they biased the results systematically.

Table 1
Means, standard deviations, and intercorrelations for variables, Study 2

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. FEM	0.73	0.44	—	−.05	−.19*	.02	.05	−.01	−.07*	−.02	−.01	−.05	.08*	.03	.07*	.09*	−.01
2. CAUC	0.65	0.48		—	.08*	.01	.00	.16*	.07*	−.02	.00	.08*	−.17*	.05	.12*	.07*	.07*
3. lnAGE	3.31	0.14			—	−.03	.00	−.07*	.04	−.07*	.03	.11*	−.05	−.03	−.04	−.05	-.05
4. FAMIL	3.13	1.74				—	.01	.01	−.03	.04	.00	−.04	−.02	−.01	.15*	.15*	.15*
5. COMP	5.70	1.45					—	−.03	−.07*	.09*	−.01	−.13*	−.01	−.02	.27*	.14*	.19*
6. DOM	5.03	0.93						—	.11	−.07*	−.02	.10*	−.02	.03	.13*	.11*	.11*
7. COL	0.50	0.50							—	−.23*	−.36*	.36*	.21*	.33*	.02	.06	.24*
8. ISKR[a]	0.17	0.37								—	−.20*	−.20*	−.20*	−.20*	.04	−.05	−.04
9. HARM	0.17	0.37									—	−.20*	−.20*	−.20*	−.06	.01	−.15*
10. OGIV	0.17	0.37										—	−.20*	−.20*	−.14*	−.10*	.00
11. ALIS	0.17	0.37											—	−.20*	.01	.12*	.01
12. TREL	0.17	0.37												—	.03	.11*	.10*
13. IMP	3.85	1.72													—	.45*	.50*
14. DEL	3.64	1.83														—	.22*
15. POW	3.75	1.39															—

Note. N = 1800. FEM = female (0, 1), CAUC = caucasian (0, 1), FAMIL = perceived familiarity, COMP = perceived competence, DOM = dominance, COL = member's color chosen, ISKR = Information Seeker (0, 1), HARM = Harmonizer (0, 1), OGIV = Opinion Giver (0, 1), ALIS = Active Listener (0, 1), TREL = Tension Reliever (0, 1), IMP = perceived implementation, DEL = perceived deliberation, POW = inferences of power.

[a] 8–12 are target role dummy variables; the reference role is Initiator.

* $p < .01$.

that the member occupying that role would be perceived as more powerful than if his or her assigned preferences did not match the group's decision outcome. This individual preference-group outcome relationship was coded with a dummy variable (1 = *successful advocating/blocking a color*, 0 = *unsuccessful advocating/blocking a color*).[2,3]

The remaining variables were centered at the group mean. Self-ratings of dominance displayed high inter-item reliability ($\alpha = .83$), and the eight items were averaged to form a dominance index prior to centering. Age was positively skewed, so a natural log transformation was performed on this variable prior to centering. The means, standard deviations, and intercorrelations between the variables are presented in Table 1.

Main analyses

Three multilevel maximum likelihood regression models (see Table 2) were used to analyze inferences of group members' power, including tests of the effects of the covariates (Model 1), the effects of subjective perceptions of implementation and deliberation (Model 2), and the effect of the role-based, within-group action orientation manipulation (Model 3).

In support of the hypothesis that implemental and deliberative behavior have opposite effects on inferences of power, Model 2 illustrates that subjective perceptions of implementation and deliberative behavior were significantly related to power inferences. As predicted, perceptions of implementation were positively related, $b = 0.37$, $SE = 0.02$, $t(1434) = 18.51$, $p < .001$, and perceptions of

deliberation were negatively related, $b = −0.04$, $SE = 0.02$, $t(1433) = −2.26$, $p = .024$, to inferences of power.

The hypothesis was also supported through a comparison of the implemental and deliberative role manipulations using the contrast codes discussed above. Model 3 shows that group members did indeed infer more power in the implemental role than in the deliberative roles, $b = .12$, $SE = 0.02$, $t(1508) = 5.87$, $p < .001$.[4]

Discussion

This study extends the findings in Studies 1a–b in a number of ways. Participants were actively engaged in a group decision-making task, and group members' behavior served as the basis for power inferences. Group members' subjective perceptions of targets' deliberative and implemental behavior predicted their inferences of targets' power during the group discussion. Specifically, observers thought greater deliberation was a signal of less power at the same time that they thought more implementation was representative of greater power. One potential difficulty in interpreting these results is that subjective impressions of action orientation and inferences of power were measured on the same questionnaire and thus share method variance. The role-based manipulation of action orientation, however, provides stronger evidence in support of the hypothesis.

Another possible concern in interpreting the results of this study is that participants in the deliberative roles might have had more competing demands in their roles than did participants in the implemental role. According to this potential explanation, whereas focusing the group on implementation is consistent with advocating for a color in the group task, encouraging a group to deliberate conflicts with advocating one's opinion about a color.

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[2] This coding strategy resulted in roles that were trying to block a color scoring 1 more frequently than roles advocating a color, as evidenced by the significant correlations between the roles dummy variables and member's color chosen (see Table 1). This was exacerbated by the fact that 31 of the 62 groups (50%) did not choose red, blue, or yellow, instead generating a different color. In some cases, these colors appeared to be compromises (e.g., green, purple, orange), but not in all cases (e.g., gold). Without data about the decision-making process and because I was simply trying to control for obvious cases when members would infer greater power in other members because the decision outcome matched their preferences, this coding strategy was appropriate for the goals of the study.

[3] Analysis of which color was preferred by the majority of each group's members according to their self-reported color preferences revealed that a majority of groups (57% [35 of 62]) was predisposed to select blue as the group's color. Further, personal preferences were indeed a significant factor in the groups' color choices: 19 of the 62 groups' (31%) color choices matched the preference of the majority of the group. This highlights my concern that some roles might have been perceived as more powerful based on their apparent influence in the group decision, when in fact personal color preferences also played a role.

[4] Although I did not predict any other differences across roles, I ran one model with two additional sets of orthogonal contrast codes. One set tested for differences across the deliberative roles: Information Seeker = 2; Harmonizer and Active Listener = −1; Initiator and the two neutral roles = 0. The reason for this set of contrast codes is that, in the small groups literature, roles served by the Harmonizer and Active Listener are often described as socioemotional or maintenance roles, whereas the Information Seeker is sometimes considered a task-related role (see Benne & Sheats, 1948; Mudrack & Farrell, 1995). This set of contrast codes, therefore, was designed to test for a difference between the effects of task-related and group maintenance-related deliberation on inferences of power. Another set compared the two neutral roles (codes: −2) to the four roles involved in the action orientation manipulation (codes: 1). These contrasts were not significant ($ps > .09$), and the effect of implemental vs. deliberative roles remained significant ($p < .001$).

Table 2
Multilevel models predicting inferences of power, Study 2

	Model 1	Model 2	Model 3
Intercept	3.32*** (.08)	3.44*** (.08)	3.31*** (.08)
Female	−0.03 (.07)	−0.08 (.06)	−0.01 (.07)
Caucasian	0.16* (.06)	0.06 (.06)	0.12 (.06)
lnAge	−0.66** (.23)	−0.45* (.21)	−0.69** (.23)
Perceived familiarity	0.16*** (.03)	0.09*** (.03)	0.16*** (.03)
Perceived competence	0.28*** (.03)	0.13*** (.03)	0.27*** (.03)
Dominance	0.14*** (.03)	0.06* (.03)	0.13*** (.03)
Color chosen	0.68*** (.06)	0.65*** (.05)	0.73*** (.06)
Perceived implementation	–	**0.37*** (.02)**	–
Perceived deliberation	–	**−0.04* (.02)**	–
Implemental vs. deliberative roles[a]	–	–	**0.12*** (.02)**

Note. Multiple target ratings ($N = 1800$) are nested within individuals ($N = 366$) nested within groups ($N = 62$). Coefficients are restricted maximum likelihood estimates with standard errors in parentheses. Results in bold highlight hypothesis tests.

[a] These roles are contrast coded. The Implemental role is the Initiator (code: 3), and the Deliberative roles are the Information Seeker, Harmonizer, and Active Listener (codes: −1). The two neutral roles (Opinion Giver and the Tension Reliever) are coded 0.

* $p < .05$.
** $p < .01$.
*** $p < .001$.

Thus, differences in group members' power would have been inferred based on the absence versus presence of role conflict in the group members' behavior. Although perceived role conflict was not measured, the significant results for perceived implementation and perceived deliberation on inferences of power suggest that the hypothesized effects of group members' implementation and deliberation did matter in inferences of power. The results of Study 2, taken together with the results of Studies 1a–b, suggest that there is a causal relationship between a target's deliberative and implemental behavior and observers' inferences of that target's power. Moreover, observers used targets' action orientation over and above myriad other variables that can be and, in this study, were in fact related to inferences of power.

In the next experiment, action orientation was operationalized as an explicit decision to change the status quo. The target's decision takes place in an organizational context, which provides a setting for the analysis of inferences of power as it is relevant within that organization.

Study 3

This study used a vignette about an individual (the protagonist) who works for the Food and Drug Administration (FDA). In the vignette, a regulatory decision-making group within the FDA is faced with a difficult decision whether or not to approve a new drug that will prevent disease but also has serious side effects, including fatalities. Participants were told that the regulatory group typically takes a vote to make its decision and either that the protagonist votes to approve the drug (i.e., votes for the FDA to change the status quo treatment on the market) or that the protagonist votes not to approve the drug (i.e., votes for the FDA to maintain the status quo). Participants were expected to infer that the individual who votes to approve the drug has more power than the individual who votes not to approve the drug.

Method

Participants

Participants were 44 students and staff (25 women and 19 men) at a private university who volunteered to participate as part of a larger testing session in exchange for $10. They were recruited from an electronic mailing list that advertises opportunities to participate in studies in exchange for money. The median age of participants was 20 years, and the racial composition was 55% Caucasian ($n = 24$), 23% Asian/Asian-American ($n = 10$), 9% Black/African-American ($n = 4$), 7% Chicano/Hispanic/Latino ($n = 3$), and 7% other ($n = 3$).

Design and procedure

All participants read a version of a vignette adapted from materials developed by Tetlock and Boettger (1994) (see Appendix) about an individual who works for the FDA, which is considering whether or not to approve a new heart medication called Carozile. There were four versions of the vignette, which were identical except for two orthogonal factors that were manipulated between subjects. First, some participants read about a male protagonist (Tom) and others read about a female (Jane). No difference was predicted across this factor, the sex of the protagonist, rather it was included to check that the predicted effect generalizes to male and female targets. Second, at the end of the vignette participants read that the protagonist either "votes to put Carozile on the market" (i.e., votes for the FDA to change the status quo) or "votes not to put Carozile on the market" (i.e., votes for the FDA to maintain the status quo). This constituted the action orientation manipulation, and participants who read about a protagonist who voted to approve the drug were hypothesized to rate the protagonist's power as greater than participants who read about a protagonist who voted not to approve the drug, regardless of the protagonist's sex.

After reading the vignette, participants responded on 7-point scales to a series of questions about the target's power. The questions took the form, "To what extent does Tom [Jane] have… at the FDA?" and included *control over resources, control over other people*, and *power over other people*. Participants then rated the protagonist's competence on a 7-point semantic differential scale: *ignorant-knowledgeable*. The rating of competence was particularly important in this study because approval of the drug was expected to save a greater number of lives (even taking into account expected fatalities due to the new drug's side effects) than the status quo treatment. Thus, participants might rate the protagonist who voted for the drug's approval as more competent than the protagonist, who voted not to approve the drug, and these inferences of competence, rather than the protagonist's action orientation, might drive participants' inferences of power. Finally, participants completed a 7-point manipulation check question, "To what extent did Tom [Jane] vote for the FDA to take action with respect to heart medication?"

Results and discussion

There were no significant effects due to participant sex or the sex of the protagonist in the vignette, so the data were combined across these factors in all analyses.

Manipulation check

An independent samples *t*-test on the manipulation check item revealed that participants ($M = 4.96$, $SD = 1.49$) thought that the protagonist who voted for the FDA to approve the medication made a more action-oriented choice than the protagonist who voted not to approve the medication ($M = 3.57$, $SD = 1.69$), $t(42) = 2.89$, $p = .006$, $d = 0.87$. Thus, the manipulation was effective.

Power and competence inferences

The three power measures (*control over resources, control over other people, power over other people*) were averaged to form a power index ($\alpha = .70$; $M = 3.58$, $SD = 1.04$). Next, separate independent samples *t*-tests were conducted for *power* and *competence*. As

predicted, participants rated the protagonist who voted for the FDA to approve the drug as more powerful ($M = 3.93$, $SD = 0.95$) than the protagonist who voted not to approve the drug ($M = 3.21$, $SD = 1.01$), $t(42) = 2.43$, $p = .019$, $d = 0.73$. Also as predicted, no such difference emerged for the competence ratings. Participants rated the protagonist who voted not to approve the drug ($M = 5.24$, $SD = 1.22$) and the protagonist who voted to approve the drug ($M = 5.17$, $SD = 1.11$) as equally competent ($t < 1$). Regressing inferences of power on competence ratings and action orientation (approve the drug = 1, do not approve the drug = -1), participants' ratings of competence were not significantly related to inferences of power, $b = 0.22$, $SE = 0.13$, $t(41) = 1.74$, $p = .090$, but action orientation remained a significant predictor of power inferences, $b = 0.37$, $SE = 0.15$, $t(41) = 2.54$, $p = .015$.

In this study, the actor's behavior was embedded in a rich organizational context, and participants' inferences were about the actor's power within the relevant social relations and organizational resources in that context. Participants perceived an employee's vote for the organization to change from the status quo as a more action-oriented behavior than a vote for the organization not to make that change, and they inferred more power in the more action-oriented target.

The next two experiments build on the previous studies by investigating whether overt, goal-directed physical action, relative to inaction, is seen as a signal of a target's power in her organization.

Study 4

Previous research has shown that high-power individuals are more likely than low-power individuals to behave in an action-oriented manner by removing an irritating stimulus (Galinsky et al., 2003). Specifically, these researchers found that participants who were primed with the experience of high power were more likely to remove an annoying fan when it was unclear whether doing so was permissible than were people who were primed with low power (Galinsky et al., 2003, Experiment 2). Here, I investigated a different but related question: Will a person who moves the fan be perceived as more powerful than someone who does not move the fan?

Method

Participants

Participants were 43 students and staff (26 women and 17 men) at a private West Coast university who volunteered to participate in exchange for $5. They were recruited from an electronic mailing list that advertises opportunities to participate in studies in exchange for money. The median age of participants was 20 years, and the racial composition was 37% Caucasian ($n = 16$), 28% Asian/Asian-American ($n = 12$), 19% Black/African-American ($n = 8$), 12% Chicano/Hispanic/Latino ($n = 5$), and 5% other ($n = 2$). They participated in sessions that included up to six individuals.

Materials and design

One female actor who was blind to the study's hypothesis was videotaped for two 19-second clips according to three conditions: *fan-no-action, fan-action*, and *baseline*. In both "fan" conditions, the actor walked into a laboratory room that contained a table with a packet of paper, a pen, and a table fan blowing at a moderately annoying rate directly at the chair where she was supposed to sit. The actor was wearing casual winter clothes including a gray wool sweater and a red down vest. In the "no action" condition, the actor sat down at the table and proceeded

to read the packet of paper, glancing up at the fan three times, but never touching the fan. In the "action" condition, the actor redirected the fan, then sat down at the table and proceeded to read the packet of paper. In the *baseline* condition, there was not a fan on the table, and she walked into the room, sat down, and read the packet of paper.

Procedure

Participants were randomly assigned to condition before arriving at the lab. They sat at individual computer workstations where they proceeded through the experiment which was programmed and launched in MediaLab (Jarvis, 2000). The first instruction read as follows:

> Over the last year, we asked the supervisors and subordinates at a nearby organization to participate in an experiment here at the behavioral lab. With their consent, we filmed them during the experiment. You are going to see a brief clip of one of the participants from this experiment. Then, you will be asked to give your impressions of this individual. Although you will not have much information, please just provide your impressions when you are asked. The clip will play automatically when you go on to the next screen.

When participants selected "Continue," the video clip started playing. After watching the video clip, participants responded on 7-point scales to a series of questions about the target's power. The questions took the form, "To what extent does the person have... at the organization?" and included *control over resources, control over others*, and *power*.

Next, as a manipulation check, participants were asked whether or not the person in the video clip had moved the fan. Finally, they were asked to report their race, age, and sex, and were debriefed, paid, and excused.

Results and discussion

Manipulation check

Three participants in the *fan-action* condition responded that the person in the video clip had not moved the fan, when, in fact, she had moved it at the start of the clip. This indicated that they had not paid sufficient attention to the beginning of the video clip and were removed from all subsequent analyses. Thus, all remaining analyses were performed on a final sample of 40 participants. Participant sex was not included in analyses because, when crossed with action condition, there were only two men in one cell.

Power inferences

The three power measures (*control over resources, control over others, power*) showed high inter-item reliability ($\alpha = .94$) and were averaged to form a power index ($M = 3.78$, $SD = 1.38$). This variable was submitted to a one-way ANOVA. The effect of action on inferences of power was significant, $F(2, 37) = 6.49$, $p = .004$, $\eta^2 = .27$. Orthogonal contrast analyses (*fan-action*: 2; *fan-no-action* and *baseline* = -1) showed that participants thought the person in the film clip had more power when she took action ($M = 4.51$, $SD = 1.40$) compared to when she did not ($M = 3.05$, $SD = 0.91$) or when no fan was present ($M = 3.25$, $SD = 1.18$), $t(37) = 3.47$, $p = .001$, $d = 1.14$. The *baseline* condition was not significantly different from the *fan-no-action* condition, $t(37) = -0.36$, $p = .719$, $d = 0.12$.

Participants inferred intra-organizational power in someone else's goal-directed but organizationally irrelevant action. Since the actor in the video clip was a woman and was not wearing attire consistent with a high-power individual (as some participants noted during debriefing), it is not surprising that, on average, par-

ticipants did not infer that she held a great deal of power. Despite this fact, participants saw her taking of action as a signal of her power.

Study 5

Study 5 was designed to elucidate the psychological mechanism driving inferences of power based on action-oriented behavior. I argued that people have an intuition that action is an intended product of one's own volition rather than of some external force (e.g., chance, another person, or some other aspect of the situation) and that they associate volitional action with power. In the final study, two methods were used to directly test the association between volitional action and power as the mechanism for action orientation-based inferences of power. First, situational constraint upon the actor's behavior was manipulated and expected to moderate inferences of power. If the target's action appears to be determined by some factor other than the actor, such as a feature of the situation, observers will discount volition as an explanation for why the target took action (Kelley, 1971). This, in turn, will attenuate inferences of the target's power. Second, to test for the proposed mediating process, participants also made inferences about the actor's capacity for volitional action.

This study used the same target materials from the "fan" conditions in the previous study. The measurement of power inferences was also expanded to include items about dependence (reverse-scored) as well as a dichotomous measure asking for participants' inferences about the target's position in an organizational hierarchy (i.e., boss vs. subordinate).

Method

Participants

Participants were 62 students and staff (37 women and 25 men) at a private West Coast university who participated in exchange for $7. The median age of participants was 20 years old, and the racial composition was 29% Caucasian ($n = 18$), 42% Asian/Asian-American ($n = 26$), 10% Black/African-American ($n = 6$), 13% Chicano/Hispanic/Latino ($n = 8$), and 6% other ($n = 4$). They participated in sessions that included up to eight individuals.

Materials and design

The video clips of the woman responding to the fan from Study 4 were used in a 2 Action Orientation (action vs. no action) × 2 Situational Constraint (coin flip vs. no coin flip determining behavior) between-subjects factorial design. The cover story was a modified version of the cover story used in that study and contained the situational constraint manipulation. The first screen was nearly identical to the instructions in Study 4. The second screen for all participants began as follows:

> Before entering the study room, the participant you are going to observe was informed that she might find some unusual objects in the room.

For the *action* condition in which participants were led to believe a situational constraint determined the actor's behavior, the instructions continued:

> Then, she was asked to flip a coin. If the coin came up heads, she was to move any unusual objects that she found in the room. If the coin came up tails, she was not to move any unusual objects that she found in the room.
> The participant you will observe got "heads" (indicating to move any unusual objects) when she flipped the coin.

In the *no action* condition, the coin flip outcome in the last sentence was replaced with "'tails' (indicating not to move any unusual objects)."

Procedure

Participants were randomly assigned to read one of the cover stories, after which they viewed a video clip. On the next screen, participants were instructed, "In responding to the following questions, think about how this person makes decisions and behaves more generally. Think about what this person typically does based on the information about her that you have." The following screens presented six randomly ordered 7-point scales designed to measure inferences of the actor's volitional capacity. All six questions began "To what extent…" and were anchored at 1 (*not very much*) and 7 (*very much*). Three questions finished "are this person's decisions the product of her own will?", "does this person feel free to do what she wants?", and "is this person's behavior a product of her own volition?" Three reverse-scored items finished "is this person's behavior involuntary?", "does this person lack freedom in deciding what to do?", and "is this person's behavior driven by the wishes of other people?"

Next, participants were instructed, "In responding to the following questions, give your impressions of this person at the organization." Then, participants responded to the three 7-point power scales used in Study 4 and two more reverse-scored items, "To what extent is this person dependent on other employees at the organization for resources that she needs?" (1 = *not very dependent*; 7 = *extremely dependent*) and "To what extent does this person depend on other employees at the organization to achieve the outcomes she desires?" (1 = *depends very little*; 7 = *depends a lot*). One screen then asked whether participants thought the person in the video clip was a *subordinate* or a *supervisor*.

As manipulation checks, participants were asked whether the person moved the fan (*yes/no*), whether the outcome of the coin flip was *heads (move any unusual objects)* or *tails (do not move any unusual objects)* (in the conditions with the situational constraint), and to what extent the person's behavior regarding the fan was determined by chance (1 = *not very much*; 7 = *very much*). Participants were then asked to report their race, age, and sex. Participants were also asked to describe any suspicion they had about the experiment as well as what they thought the experiment was investigating. Finally, they were debriefed, paid, and excused.

Results

Manipulation and suspicion checks

Participants who thought the actor's behavior was determined by a coin flip indicated that her behavior was determined by chance ($M = 3.80$, $SD = 1.90$) more than did participants who did not receive the coin flip story ($M = 2.91$, $SD = 1.51$), $t(60) = -2.06$, $p = .044$, $d = .53$. Thus, the situational constraint manipulation was effective.

Participants' reports of the purpose of the experiment revealed that none detected its true purpose; therefore, the potential effects of experimental demand were not a concern. Two participants were removed for not paying attention to the video clip, and six participants were removed because they indicated they did not believe the woman in the video clip was a member of an organization that had taken part in a previous experiment.[5] Thus, all remaining analyses were performed on a final sample of 54 participants.

Supervisor vs. subordinate

A three-factor loglinear analysis revealed participants' inference about whether the person in the video clip was a supervisor or sub-

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[5] Of the eight participants that were removed from analyses, 3 were in the no action/no constraint condition, 2 were in the no action/constraint condition, 1 was in the action/no constraint condition, and 2 were in the action/constraint condition. Including these participants did not change the statistical significance of any of the results in Study 5.
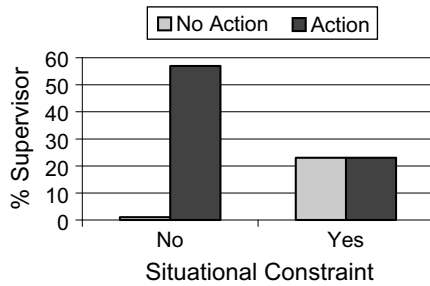
Fig. 1. Percent classifications of target as supervisor by action orientation and situational constraint condition, Study 5. No constraint/No action actually equals 0%.

Fig. 2. Mean ratings of target's power by action orientation and situational constraint condition, Study 5.

ordinate depended on the predicted interaction of the action orientation and situational constraint manipulations, $\chi^2(1, N = 54) = 6.78$, $p = .009$. Separate chi-square analyses within situational constraint conditions revealed that the pattern of the interaction was consistent with the prediction, as can be seen in Fig. 1. When participants were led to believe the behavior was due to the actor's own volition (i.e., no situational constraint), they were more likely to infer that she was a supervisor when she took action against the fan (57%, $n = 8$) than when she did not take action (0 out of 14), $\chi^2(1, N = 28) = 11.20$, $p = .001$, odds-ratio = 0.00. When participants believed the actor's behavior was due to chance (i.e., a situational constraint), there was no difference in the percentage who inferred she was a supervisor due to action orientation (23%, $n = 3$ both for action and for no action), $\chi^2(1, N = 26) = 0.00$, $p = 1$, odds-ratio = 1.00.

Power inferences

The five inferred power measures showed high inter-item reliability ($\alpha = .87$) and were averaged ($M = 3.42$, $SD = 1.02$). Initial analyses revealed no significant differences in power inferences due to participant sex ($Fs < 1.15$). All remaining analyses of power inferences combine both men and women.

To test for the moderating effect of situational constraint on action orientation-based inferences of power, power inferences were submitted to a 2 (Action Orientation) × 2 (Situational Constraint) general linear model. Consistent with the prediction that inferences of power based on action orientation would be attenuated by a situational constraint, the main effect for action orientation was significant ($b = .53$, $SE = 0.11$, $t(50) = 4.68$, $p < .001$), and was qualified by the interaction with situational constraint ($b = -.33$, $SE = 0.11$, $t(50) = -2.90$, $p = .006$). Without a situational constraint to explain the actor's behavior, participants inferred greater power when she acted on the fan ($M = 4.30$, $SD = 0.97$) than when she did not act ($M = 2.60$, $SD = 0.66$), $t(26) = -5.42$, $p < .001$, $d = 2.13$. This is consistent with the results of the previous study. When the cause of the actor's behavior appeared to be determined by chance (a flip of a coin), participants did not infer significantly different levels of power in action ($M = 3.59$, $SD = 0.78$) compared to inaction ($M = 3.19$, $SD = 0.85$), $t(24) = -1.25$, $p = .224$, $d = 0.51$. The main effect for situational constraint was not significant ($t < 1$). These results are displayed in Fig. 2.

Inferred volition mediation analyses

The six inferred volition items showed high inter-item reliability ($\alpha = .87$) and were averaged ($M = 4.16$, $SD = 1.29$). Analyses revealed no significant differences in volition inferences due to participant sex ($Fs < 1$); thus, the following analyses collapse across participant sex.

Inferences of volition were predicted to mediate the relationship between action orientation and inferences of power. There are two ways in which mediation could appear. First, inferences
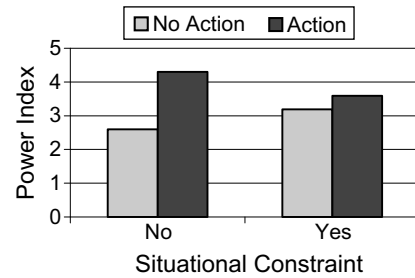
of volition could fully mediate the main effect of action orientation on inferences of power (i.e., simple mediation). Second, the action orientation × situational constraint interaction could have the same effect on volition inferences as it had on power inferences, as long as volition and power inferences were also related (i.e., mediated moderation) (Baron & Kenny, 1986; Muller, Judd, & Yzerbyt, 2005). To test for these forms of mediation, the following models were analyzed, as outlined by Muller et al. (2005):

(1) Volition Inferences = $\beta_0 + \beta_1$Action + β_2Constraint + β_3Action*Constraint + ε_1

(2) Power Inferences = $\beta_0 + \beta_1$Action + β_2Constraint + β_3Action*Constraint + β_4Volition Inferences + β_5Volition Inferences*Constraint + ε_2

In Model 1, participants inferred greater volition when the actor took action than when she did not ($b_1 = .87$, $SE = 0.13$, $t(50) = 6.72$, $p < .001$), and there was not a significant main effect on volition inferences due to the situational constraint manipulation ($b_2 = -.20$, $SE = 0.13$, $t(50) = -1.59$, $p = .119$). The situational constraint x action orientation interaction also was not significant ($b_3 = -.12$, $SE = 0.13$, $t(50) = -0.95$, $p = .347$).

In Model 2, the direct effect of action orientation on power inferences was reduced to non-significance ($b_1 = .09$, $SE = 0.13$, $t(48) = 0.69$, $p = .492$), and the effect of volition inferences was positive and significant ($b_4 = .50$, $SE = 0.10$, $t(48) = 4.87$, $p < .001$). Providing support for simple mediation, a Sobel test indicated a significant reduction in the action orientation slope, $z = 4.01$, $p < .001$. The situational constraint × action orientation interaction term remained significant ($b_3 = -.26$, $SE = 0.13$, $t(48) = -2.03$, $p = .048$), and the situational constraint × volition inferences interaction was not significant ($b_5 = -.00$, $SE = 0.10$, $t(48) = -0.02$, $p = .986$). Thus, there was no evidence for mediated moderation. As in all previous analyses, the effect of situational constraint (b_2) was not significant ($t < 1$). The mediation model presented in Fig. 3 illustrates both the moderating effect of situational constraint
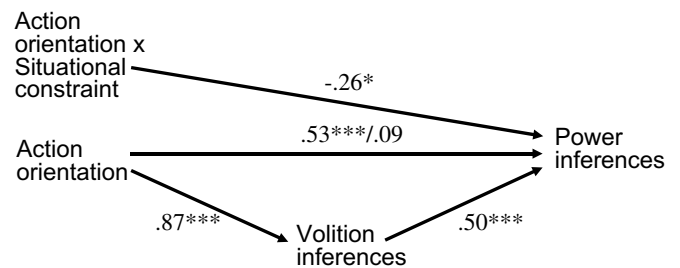

Fig. 3. Inferences of target's volition fully mediate the relationship between action orientation and power inferences (simple mediation) but do not mediate the effect of the interaction between action orientation and situational constraint on power inferences (mediated moderation), Study 5. ***$p < .001$. *$p < .05$. Coefficients are not standardized.

on inferences of power and the simple mediating effect of volition inferences between action orientation and inferences of power.

Discussion

Using two dependent measures of inferred power, one continuous and one dichotomous, about the target's manager or subordinate position in an organization, this study serves as a replication and extension of the previous study. Its most significant contribution is the illustration of the role of volition inferences in inferences of power. The results of this study lend two forms of support to the hypothesized mechanism driving inferences of power based on action orientation. First, when people saw action, they thought the actor tended to act of her own volition, and they hold a mental association between the capacity to act according to one's volition and the possession of power.

Second, when observers had explicit information that a target did not freely choose her behavior, they did not infer power based on action. Although the manipulation of situational constraint on the actor's behavior did affect volition inferences in the predicted direction, the lack of mediated moderation was surprising. It appears that the particular action in this experiment was such a strong signal of volition that it swamped observers' consideration of whether or not the cause of the action (generated by a situational constraint or by the actor) provided sufficient reason to infer an actor's capacity to act on her own volition.

General discussion

The aim of the current research was to investigate whether people use a social target's action orientation to infer how much power he or she possesses. Given the broad definition of action orientation explicated at the outset, it seemed important to find evidence that action orientation is interpreted as a signal of power in a variety of contexts, such as the communications of real world leaders, individual and group decision-making, and physical action. Studies 1a–b established a causal relationship between action orientation and subsequent inferences of power: witnessing others focus on implementation caused observers to infer that those targets are more powerful, but not more competent, dominant, or likeable, than those who focus on deliberation. In a group context, Study 2 showed that group members' implementation had a positive effect, and their deliberation had a negative effect, on other members' inferences of their power. The effect of action orientation was robust after accounting for a number of individual characteristics that typically predict the rapid emergence of hierarchy in task groups.

Moving beyond differences due to deliberation and implementation, Study 3 presented participants with a decision-maker's choice whether or not to vote for a change in policy from the status quo. In that study, participants inferred that a target who voted for the change in policy has more power than a target who voted not to change the policy. In Studies 4 and 5, observers inferred that people who take goal-directed physical action have more intraorganizational power. Study 5 provided insight into how observers make this inference. When they discounted a target's volition as a causal explanation for her action, they attenuated their action-based inferences of power. Furthermore, observers' inferences of an actor's volition fully mediated their inferences of power, providing additional support for an inferential association between volitional action and power.

This research makes a number of contributions to the literatures on action, power, and lay perceptions of hierarchy. First, it extends the work on perceived relations between behavior and hierarchical position (Hall et al., 2005), suggesting that a number of specific nonverbal and verbal behaviors that people think are re-

lated to hierarchy can be characterized in a singular way, as more or less action-oriented. Action orientation provides a more general account than previous work to explain and predict whether a specific behavior would lead to hierarchy-related inferences. Second, this account also illustrates a novel social implication of research on volition and action. Deliberation, implementation, and action are important concepts not only for actors (Gollwitzer & Bargh, 1996; Kuhl & Beckmänn, 1994; Taylor & Gollwitzer, 1995) but also for observers making inferences about actors. Further, the current research has developed a theoretical and empirical account for how power inferences are made based on inferences of whether the actor's volition generated the action. Third, unlike the few previous studies focusing on lay inferences of power, the current research uses multi-item measures of these inferences specifically grounded in theories of power.

Boundary conditions and future research

One notable feature of all of the studies presented here is that they used examples of thought and behavior that are particularly goal-directed. Although this is consistent with how action orientation was defined here, it is an empirical issue whether or not action must be directed toward a goal to positively influence inferences of a target's power. Future research would benefit from manipulating goal-directedness and additional features of action to explore which ones affect inferences of power. The current research suggests that any form or feature of action that signals that the actor is behaving in accord with her own volition could be used as a basis for inferring her power. Seemingly random activity would probably not be perceived as volitional; thus, it would not be used to infer power. It is also possible that observers saw the targets in some of the current studies as differing in decisiveness (e.g., Study 1a) or riskiness (e.g., Study 3) in addition to the aspects of action orientation that were intentionally manipulated, and decisiveness or riskiness, rather than implemental thinking or action, might have been used as bases for power inferences. These alternative explanations are less applicable to other studies, such as the group decision-making context in Study 2, but the intimate connection between decisiveness, riskiness, and action is worth contemplating further within the framework of the current research. Decisive action is probably perceived as both confident and volitional. Risky action, however, depends more on the circumstances. Risky behavior could be seen as evidence of possessing power when it appears volitional, or lacking power when pressed by situational constraints or prior losses. Future research would do well to explore the roles of decisiveness and riskiness in inferences of power in various situations that affect the target's volition.

Similar to Guinote, Judd, and Brauer's (2002) finding that variability in behavior across group members is a sign of a group's power relative to other groups, deviance from a group norm might also be a sign of individual power relative to other group members. Indeed, Galinsky, Magee, Gruenfeld, Whitson, and Liljenquist (in press) and Brauer (2005) have found that powerful individuals act as if they are less affected by conformity pressures, as well as other situational pressures that typically impinge on individual volition, compared to powerless individuals (Fiske, 1993; Keltner et al., 2003; Lewin, 1951). If groups tend to restrict individual volition via behavioral norms, then members who appear immune to this form of constraint by behaving contrary to group norms might be seen as the most powerful members of their groups. Contrary to intuition, this suggests a potential reversal of the action-power inferential rule: in a group bustling with activity, much like a queen bee surrounded by busy workers, the lone member who remains relatively passive may appear to be the only one acting of her own volition and thus the one with the most power. Similarly, an individual who refuses to take action when he or she is directed

by an authority figure probably suggests to observers that the authority figure has less power in the relationship than might be assumed at first blush.

Judgments about leader effectiveness

The current research raises the following question: Can one be too action-oriented? The answer to this question lies in whether one wants to be seen as powerful or as an effective leader. The current studies have dealt with inferences of power rather than with judgments of leader effectiveness. Additional analyses in Study 2 did not reveal a significant quadratic effect of implementation on power inferences (i.e., an inverted U-shaped relationship), and, controlling for implementation, deliberation was negatively related to power inferences. Thus, on the one hand, if one is interested in being seen as powerful, the current research suggests that increasing one's implementation, or decreasing one's deliberation, or both will serve that goal. On the other hand, the existing evidence suggests that tempering one's task-oriented implementation will result in judgments of more effective leadership. People who are overly assertive, for example, are considered ineffective at fostering relationships and thus poor leaders (Ames & Flynn, 2007). In groups, an individual who focuses on implementation but also encourages participation and deliberation might be seen as adequately assertive and sufficiently socially skilled to be perceived as an effective leader. To test these ideas, future research could look at inferences of power and leader effectiveness judgments within the same study to see if indeed they diverge with respect to deliberation.

Power and action revisited

In sum, power and action appear to be connected constructs, and the direction of the association seems to run both ways. In addition to the present findings, experiencing power frees people to be more action-oriented (Galinsky et al., 2003; Keltner et al., 2003). This bidirectional relationship between action and power could create one kind of mutually reinforcing cycle between behavior and perception. Those with more power tend to be more action-oriented than those with less power, and those who are more action-oriented are seen as more powerful by others. One way to understand further whether this cycle is indeed reinforcing would be to investigate whether action-oriented individuals are not just inferred to have more power but are also conferred power, or are actually given more control over resources in their personal and professional relationships. This line of research could shed light on one mechanism by which social hierarchies are self-reinforcing (Magee & Galinsky, 2008). These results also suggest that using action as an indicator of power could be an inferential tool that yields accurate insights into power structures. An analysis of inferential accuracy, or at least social consensus, about power hierarchies in groups could be an interesting line of future research as well.

Conclusion

Although it is important to understand what variables affect who ascends to formal positions of power (French & Raven, 1959; Hollander, 1985) and the thoughts, feelings, and behavior of people in those positions (Keltner et al., 2003), it is equally important to understand what cues people use to figure out just how much power those people have. The studies presented here show that one such cue, action orientation, has dramatic effects on inferences about social targets' power. Extensive deliberation and the failure to act convey little power, and focusing on goal implementation and bold action signal that one is doing what one wants and thus possesses power.

Appendix A

Vignette, Study 3 (adapted from Tetlock & Boettger, 1994)

Tom is part of a regulatory decision-making group composed of people at different ranks at the Center for Drug Evaluation and Research (CDER), a division of the Food and Drug Administration (FDA). As part of the U.S. government, the FDA must, of course, be responsive to the President who appoints the top administrators to the relevant oversight committees of Congress (before whom FDA decision makers frequently testify) and to the Courts (drug companies or citizen groups may appeal certain decisions) and, ultimately, to the American people. In short, the decision makers in the FDA are criticized by a variety of groups for a variety of sometimes contradictory reasons. They do not have an easy job.

Some critics of the FDA think it is far too cautious about approving drugs and that lives are being needlessly lost. Other critics claim the opposite: that the FDA is far too willing to approve drugs that we know with reasonable certainty will cause the death of identifiable people. Some say that the FDA should strive to save as many lives as possible even if that means approving controversial or not fully proven medications; others say that the FDA stamp of approval should be given only to drugs that, we can be reasonably sure, will not kill or seriously injure people.

Currently, the drug the group is considering for market approval is an anti-coagulant called Carozile. In experimental research, scientists have found that Carozile breaks up blood clots that, if left untreated, could lead to fatal heart attacks. This research also found a costly tradeoff to this benefit: Carozile can cause severe internal bleeding, which leads to strokes in certain patients. Unfortunately, research has been unable to identify what factors interact with the drug to cause the bleeding, so it is impossible to predict ahead of time who will suffer internal bleeding as a result of administering the drug. The best available clinical prediction is that between 300 and 900 more people at risk of this kind of heart attack will die each year if doctors do not administer Carozile to them but that 100 to 300 patients per year will die—patients who would not have died otherwise—due to administration of Carozile.

Carozile has no known pharmaceutical substitute for patients who would benefit from its anti-clotting effects. If these patients do not take Carozile, many of them would die, as is now the case. Although there is always a chance of discovering a better drug that would not be limited by the cost of some patients experiencing internal bleeding and strokes, the leading researchers in the field unanimously maintain that this is unlikely to happen anytime soon. The likelihood of significant breakthroughs, or even better evidence about how to predict who would experience internal bleeding from Carozile, in the next year is extremely low.

The CDER regulatory decision-making group has been discussing these issues over a lengthy meeting, and it is time to make a decision. As is the case with so many of their regulatory decisions, the evidence is not clear cut, and the group customarily takes a private vote. Tom has listened to all the arguments for and against putting Carozile on the market, and it is time for him to decide . . .

Tom votes to put Carozile on the market.

References

Ames, D. R., & Flynn, F. J. (2007). What breaks a leader: The curvilinear relationship between assertiveness and leadership. *Journal of Personality and Social Psychology, 92*, 307–324.

Aries, E. J., Gold, C., & Weigel, R. H. (1983). Dispositional and situational influences on dominance behavior in small groups. *Journal of Personality and Social Psychology, 44*, 779–786.

Bales, R. F. (1958). Task roles and social roles in problem-solving groups. In E. E. Maccoby, T. M. Newcomb, & E. L. Hartley (Eds.), *Readings in social psychology* (3rd ed., pp. 437–447). New York: Holt, Rinhart, & Winston.

Bales, R. F., Strodtbeck, F. L., Mills, T. M., & Roseborough, M. E. (1951). Channels of communication in small groups. *American Sociological Review, 16*, 461–468.

Baron, R. M., & Kenny, D. A. (1986). The mediator-moderator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173–1182.

Benne, K. D., & Sheats, P. (1948). Functional roles of group members. *Journal of Social Issues, 4*, 41–49.

Berdahl, J. L., & Anderson, C. (2005). Men, women, and leadership centralization in groups over time. *Group Dynamics: Theory, Research, and Practice, 9*, 45–57.

Berger, J., Cohen, B. P., & Zelditch, M. (1972). Status characteristics and social interaction. *American Sociological Review, 63*, 379–405.

Berger, J., Ridgeway, C. L., Fisek, M. H., & Norman, R. Z. (1998). The legitimation and delegitimation of power and prestige orders. *American Sociological Review, 63*, 379–405.

Berger, J., Rosenholtz, S. J., & Zelditch, M. Jr. (1980). Status organizing processes. *Annual Review of Sociology, 6*, 475–508.

Brandstätter, V., Lengfelder, A., & Gollwitzer, P. M. (2001). Implementation intentions and efficient action initiation. *Journal of Personality and Social Psychology, 81*, 946–960.

Brauer, M. (2005, January). *Reactions to norm transgressions in powerful and powerless groups*. Paper presented at the meeting of the Society of Personality and Social Psychology, New Orleans, LA.

Dahl, R. (1957). The concept of power. *Behavioral Science, 2*, 201–215.

Dépret, E., & Fiske, S. T. (1993). Social cognition and power: Some cognitive consequences of social structure as a source of control deprivation. In F. G. G. Weary & K. Marsh (Eds.), *Control motivation and social cognition* (pp. 176–202). New York: Springer-Verlag.

Diefendorff, J. M., Hall, R. J., Lord, R. G., & Strean, M. L. (2000). Action-state orientation: Construct validity of a revised measure and its relationship to work-related variables. *Journal of Applied Psychology, 85*, 250–263.

Domhoff, G. W. (1998). *Who rules America*. Mountain View, CA: Mayfield.

Dovidio, J. F., Brown, C. E., Heltman, K., Ellyson, S. L., & Keating, C. F. (1988). Power displays between women and men in discussions of gender-linked tasks: A multichannel study. *Journal of Personality and Social Psychology, 55*, 580–587.

Driskell, J. E., Olmstead, B., & Salas, E. (1993). Task cues, dominance cues, and influence in task groups. *Journal of Applied Psychology, 78*, 51–60.

Eagly, A. H., & Karau, S. J. (1991). Gender and the emergence of leaders: A meta-analysis. *Journal of Personality and Social Psychology, 60*, 685–710.

Ellyson, S. L., & Dovidio, J. F. (Eds.). (1985). *Power dominance and nonverbal behavior*. New York: Springer-Verlag.

Eibl-Eibesfeldt, I. (1989). *Human ethology*. New York: Aldine de Gruyter.

Emerson, R. M. (1962). Power-dependence relations. *American Sociological Review, 27*, 31–41.

Fabes, R. A., & Eisenberg, N. (1992). Young children's coping with interpersonal anger. *Child Development, 63*, 116–128.

Fiske, S. T. (1993). Controlling other people: The impact of power on stereotyping. *American Psychologist, 48*, 621–628.

Fiske, S. T., & Berdahl, J. (2007). Social power. In A. W. Kruglanski & E. T. Higgins (Eds.), *Social psychology: Handbook of basic principles* (2nd ed., pp. 678–692). New York: Guilford.

French, J., & Raven, B. (1959). The bases of social power. In D. Cartwright (Ed.), *Studies in social power* (pp. 150–167). Ann Arbor, MI: Institute for Social Research.

Galinsky, A. D., Gruenfeld, D. H, & Magee, J. C. (2003). From power to action. *Journal of Personality and Social Psychology, 85*, 453–466.

Galinsky, A. D., Magee, J. C., Gruenfeld, D. H, Whitson, J., & Liljenquist, K. (in press). Power reduces the press of the situation: Implications for creativity, conformity, and dissonance. *Journal of Personality and Social Psychology*.

Goffman, I. W. (1957). Status consistency and preference for change in power distribution. *American Sociological Review, 22*, 275–281.

Goldberg, M. A., & Katz, B. (1990). The effect of nonreciprocated and reciprocated touch on power/dominance perception. *Journal of Social Behavior and Personality, 5*, 379–386.

Goldhamer, H., & Shils, E. A. (1939). Types of power and status. *American Journal of Sociology, 45*, 171–182.

Gollwitzer, P. M., & Bargh, J. A. (Eds.). (1996). *The psychology of action: Linking cognition and motivation to behavior*. New York: Guilford.

Gollwitzer, P. M., Heckhausen, H., & Steller, B. (1990). Deliberative and implemental mind-sets: Cognitive tuning toward congruous thoughts and information. *Journal of Personality and Social Psychology, 59*, 1119–1127.

Gollwitzer, P. M., & Kinney, R. F. (1989). Effects of deliberative and implemental mind-sets on illusion of control. *Journal of Personality and Social Psychology, 56*, 531–542.

Gosling, S. D., Rentfrow, P. J., & Swann, W. B. Jr, (2003). A very brief measure of the big five personality domains. *Journal of Research in Personality, 37*, 504–528.

Guinote, A. (2007). Power and goal pursuit. *Personality and Social Psychology Bulletin, 33*, 1076–1087.

Guinote, A., Judd, C. M., & Brauer, M. (2002). Effects of power on perceived and objective group variability: Evidence that more powerful groups are more variable. *Journal of Personality and Social Psychology, 82*, 708–721.

Hall, J. A., Coats, E. J., & LeBeau, L. S. (2005). Nonverbal behavior and the vertical dimension of social relations: A meta-analysis. *Psychological Bulletin, 131*, 898–924.

Henley, N. M. (1977). *Body politics: Power, sex, and nonverbal communication*. Englewood Cliffs, NJ: Prentice-Hall.

Hollander, E. P. (1985). Leadership and power (2nd ed.. In G. Lindzey & E. Aronson (Eds.). *The handbook of social psychology* (Vol. 2, pp. 485–538). New York: Random House.

Jarvis, W. B. G. (2000). *MediaLab [Computer software]*. Columbus, OH: Empirisoft.

Kelley, H. H. (1971). Attribution in social interaction. In E. E. Jones, D. E. Kanouse, H. H. Kelley, R. E. Nisbett, S. Valins, & B. Weiner (Eds.), *Attribution: Perceiving the causes of behavior* (pp. 1–26). Morristown, NJ: General Learning Press.

Keltner, D., Gruenfeld, D. H, & Anderson, C. (2003). Power, approach, and inhibition. *Psychological Review, 110*, 265–284.

Kenny, D. A., Mannetti, L., Piero, A., Livi, S., & Kahsy, D. A. (2002). The statistical analysis of data from small groups. *Journal of Personality and Social Psychology, 83*, 126–137.

Krackhardt, D. (1990). Assessing the political landscape: Structure, cognition, and power in organizations. *Administrative Science Quarterly, 35*, 342–369.

Kuhl, J. (1994). A theory of action and state orientations. In J. Kuhl & J. Beckmänn (Eds.), *Volition and personality: Action versus state orientation* (pp. 9–46). Seattle, WA: Hogrefe.

Kuhl, J., & Beckmänn, J. (Eds.). (1994). *Volition and personality: Action versus state orientation*. Seattle, WA: Hogrefe & Huber.

Lee, F., & Tiedens, L. Z. (2001). Who's being served? "Self-serving" attributions in social hierarchies. *Organizational Behavior and Human Decision Processes, 84*, 254–287.

Levinger, G. (1959). The development of perceptions and behavior in newly formed social power relationships. In D. Cartwright (Ed.), *Studies in social power* (pp. 83–98). Ann Arbor, MI: Institute for Social Research.

Lewin, K. (1951). *Field theory in social science: Selected theoretical papers*. Chicago: Harper & Brothers.

Lippitt, R., Polansky, N., & Rosen, S. (1952). The dynamics of power: A field study of social influence in groups of children. *Human Relations, 5*, 37–64.

Magee, J. C., & Galinsky, A. D. (2008). Social hierarchy The self-reinforcing nature of power and status. *Academy of Management Annals, 2*, 351–398.

Major, B., & Heslin, R. (1982). Perceptions of cross-sex and same-sex nonreciprocal touch: It is better to give than to receive. *Journal of Nonverbal Behavior, 6*, 148–162.

Moskowitz, D. S. (1993). Dominance and friendliness: On the interaction of gender and situation. *Journal of Personality, 61*, 387–409.

Mudrack, P. E., & Farrell, G. M. (1995). An examination of functional role behavior and its consequences for individuals in group settings. *Small Group Research, 26*, 542–571.

Muller, D., Judd, C. M., & Yzerbyt, V. Y. (2005). When moderation is mediated and mediation is moderated. *Journal of Personality and Social Psychology, 89*, 852–863.

Overbeck, J. R., Tiedens, L. Z., & Brion, S. (2006). The powerful want to, the powerless have to: Perceived constraint moderates causal attributions. *European Journal of Social Psychology, 36*, 479–496.

Pfeffer, J. (1992). *Managing with power*. Cambridge, MA: HBS Press.

Roseman, I. J., Wiest, C., & Swartz, T. S. (1994). Phenomenology, behaviors, and goals differentiate discrete emotions. *Journal of Personality and Social Psychology, 67*, 206–221.

Russell, B. (1938). *Power: A new social analysis*. London: Routledge Classics.

Suedfeld, P., & Rank, A. D. (1976). Revolutionary leaders: Long-term success as a function of changes in conceptual complexity. *Journal of Personality and Social Psychology, 34*, 169–178.

Summerhayes, D. L., & Suchner, R. W. (1978). Power implications of touch in male–female relationships. *Sex Roles, 4*, 103–110.

Taylor, S. E., & Gollwitzer, P. M. (1995). Effects of mindset on positive illusions. *Journal of Personality and Social Psychology, 69*, 213–226.

Tetlock, P. E., & Boettger, R. (1994). Accountability amplifies the status quo effect when change creates victims. *Journal of Behavioral Decision Making, 7*, 1–23.

Thibaut, J. W., & Kelley, H. H. (1959). *The social psychology of groups*. New York: Wiley.

Tiedens, L. Z. (2001). Anger and advancement versus sadness and subjugation: The effect of negative emotion expressions on social status conferral. *Journal of Personality and Social Psychology, 80*, 86–94.

Trapnell, P. D., & Wiggins, J. S. (1990). Extension of the interpersonal adjective scales to include the Big Five dimensions of personality. *Journal of Personality and Social Psychology, 59*, 781–790.

Weber, M. (1947). *The theory of social and economic organization*. New York: Free Press.

Wright, R. (1994). *The moral animal: Evolutionary psychology and everyday life*. New York: Vintage Books.