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Predicting Persons' Versus a Person's Goodness: Behavioral Forecasts Diverge for Individuals Versus Populations

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Behavioral forecasts of individuals ("How likely is it a randomly selected person will . . .") and behavioral forecasts of populations ("What percentage of people will . . .") are often used interchangeably. However, 6 studies showed that behavioral forecasts of individuals and populations systematically differ. In judgments of morally relevant behaviors, forecasters estimated that a randomly selected individual (e.g., a student) would act more selflessly (e.g., give to charity) than would the population from which the individual was drawn (e.g., the student body). The studies provided consistent support for 1 of 5 possible explanations for the effect, a differential sensitivity to constraints hypothesis. When considering how an individual will behave, people give weight to an individual-level force on behavior: what an individual's moral conscience would lead one to do. When considering a population, forecasters give more emphasis to a group-level force on behavior: social norms and pressures. A final study extended the differential sensitivity to constraints account to forecasts of non–morally relevant behaviors. Individuals were forecast as more likely than populations to perform behaviors that emerge primarily because of an individual-level force—a person's will—but not behaviors that are encouraged by social norms.

Keywords: forecasting, morality, social judgment, moral conscience, social forces

Managers, policymakers, and everyday people all have cause to forecast the selfish or selfless behaviors of others. A product manager may consider what percentage of consumers will submit fraudulent warranty claims. A government agent may estimate how likely it is that any given American will lie on his or her tax returns next year. A father may wonder what percentage of parents at his child's school will be donating to the school's beautification fund.

These examples differ most obviously in the behaviors they focus on, but they differ in another subtle and heretofore unappreciated sense. The first and third examples focus on population estimates, that is, what people in general are likely to do, whereas the second example focuses on a random individual drawn from that population. Because past researchers have not dwelled on this distinction, psychologists and behavioral economists have used these formats interchangeably, sometimes within the same article (e.g., Flynn & Lake, 2008).

We propose that these seemingly equivalent question formats lead to systematically different forecasts. In this article, we demonstrate this divergence and empirically distinguish among five potential accounts for why this difference emerges. In so doing, we focus on forecasts of selfish and selfless behaviors. Much (if not most) social psychological research on social forecasting has looked at predictions of others' prosocial and antisocial behaviors. For example, recent forecasting studies have asked people to estimate whether others would cooperate in the prisoner's dilemma (Epley & Dunning, 2000), defect in a trust game (Fetchenhauer & Dunning, 2010), donate to a charity (Epley & Dunning, 2000; Miller & Ratner, 1998), or lend a helping hand when asked (Flynn & Lake, 2008). Presumably, this focus is because people's ability to anticipate whether others will behave in a selfless or selfish way has important implications for how trusting or cautious they are in navigating their social worlds. In the present research, we extend this previous work by explicitly examining how the elicitation method for a prediction might affect those forecasts.[1]

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[1] Under a Bayesian approach, predicting the behavioral trend of a population versus a randomly sampled individual from that population is normatively equivalent (e.g., Gigerenzer & Hoffrage, 1995). We do note that those who take a strict frequentist approach to probability would not share this belief, seeing forecasts of individuals other than 0% or 100% to be meaningless (Gigerenzer, 1991). Our data will indicate that all of our participants were (at least implicit) Bayesians.

Pilot Study

Estimates of randomly selected individuals do not always equal the estimates of populations from which those individuals are drawn. Consider the following pilot test that demonstrates this fact. In the study, we did not attempt to account for why forecasts of the behaviors of individuals and populations differ but merely tested whether a difference might arise. The materials were patterned on Critcher and Dunning (2011, Study 1), in which we asked participants to make judgments about academic honesty among American college and university students. In the control condition, participants made estimates about a large population of over 41,000 undergraduates at over 46 schools who had supposedly been surveyed as part of a sociological study of academic dishonesty. The materials precisely defined what constituted academic honesty with four detailed criteria before participants were asked to consider the prevalence of academic honesty during the previous 30 days.

For this pilot study, we asked 91 undergraduates at Yale University to estimate either the prevalence of academic honesty for the *population* of students ("What percentage of students in the study, according to your best estimate, fit the above definition of academic honesty?") or the behavior of a randomly selected *individual* ("Consider a randomly selected student from the study. The student's initials are LB. How likely is it, according to your best estimate, that LB fit the above definition of academic honesty?"). Forecasters arrived at different judgments for an individual and a population. They thought there was a 61.85% ($SD = 18.84\%$) chance that an individual student would be academically honest but thought that only 48.04% of the population of students ($SD = 20.15\%$) were academically honest, $t(89) = 3.38$, $p = .001$, $d = 0.72$.

A Differential Emphasis on Constraints Hypothesis

Why might behavioral forecasts of specific individuals and population averages diverge? We can generate five different reasons for the divergence, but our data ultimately support only one of those accounts. Our studies will show that people making forecasts of the behavior of individuals focus on individual-level dynamics, whereas those forecasting the behavioral trends of populations concentrate on processes taking place at a social level. In judging morally relevant behaviors, forecasters of randomly selected individuals focus more on what an individual's moral conscience would push him or her to do. Instead of considering how an aggregate of people (i.e., a population) might behave, people focus on social norms or pressures that compel behavior.[2]

Our account begins with the basic human intuition that other people are fundamentally self-interested, what Miller (1999; see also Miller & Ratner, 1996) termed the *norm of self-interest*. This basic assumption does not simply reflect a profound cynicism about human nature but rather a view of human motivation that is substantiated both descriptively and prescriptively by academic scholarship and societal institutions (Callan, Kay, Olson, Brar, & Whitefield, 2010; Johnston & Lufrano, 2001; Miller, 1999). For example, modern economic theory holds all behavior to be fundamentally self-interested (Becker, 1976; Pareto, 1909/1971). As well, biological and evolutionary treatments of behavior also emphasize selfishness, even down to the level of the gene, and how organisms work to selfishly enhance their own fitness over competitors in their species (Dawkins, 1976). That entire fields can thrive on the assumption of self-interest bolsters its naturalness and even appropriateness as a guiding principle for social prediction. Thus, it is not a surprise that even when seemingly selfless behavior is observed, people tend to reinterpret it to see more self-interest than was apparent at first pass (Critcher & Dunning, 2011).

Of course, not all behavior is selfish, so people must assume there are checks or constraints on others' behavior. We suggest that forecasts of the behaviors of individuals and populations differ because they diverge in the types of constraints people call on when making forecasts. One type of constraint is the push that comes from the social forces of one's community (e.g., the threat of censure or reprisal). The other is the pull of one's own internal moral conscience.

To understand this distinction, consider Ms. Social, who has no moral conscience. As she is checking out at the grocery store, the teller must leave momentarily to check a price. While the checker is gone, Ms. Social realizes she could easily slip a candy bar from the counter display into her purse without paying for it. Even though her moral conscience does not hold her back, she does worry that others may observe her actions. She decides against stealing because of this social constraint. In contrast, consider Mr. Moral, who realizes while exiting the grocery store that the checker forgot to scan the candy bar he tried to purchase. Initially tempted to leave and enjoy his treat for free, Mr. Moral decides to return to the counter to pay for the candy bar, for his moral conscience keeps him from just leaving without paying. This comes not from a fear of social reprisal but from his own internal moral qualms.

Both Ms. Social and Mr. Moral overcome selfish urges, but they do so by responding to two different types of constraints. Ms. Social is constrained by social forces; Mr. Moral is restrained by his internal moral conscience. The operation—at times simultaneously—of these constraints can be seen in previous work. In describing why people reciprocate assistance that others give to them, Gouldner (1960) noted that people may possess a moral rule that pushes them to behave prosocially (i.e., an internal constraint) or may do so under a fear that certain penalties will be imposed on them (i.e., a social constraint) should they not. In a more recent example, Evans and Krueger (2011) noted that the inclination to betray another person's trust (a selfish impulse) may be held in check by a moral aversion to the inequitable outcome (internal constraint) or a social norm of reciprocity (social constraint).

Our central theoretical assertion is that people will base their forecasts more on an internal, individual-level constraint (moral conscience) when predicting an individual's behavior and on social constraints when making a prediction about a population. Two related lines of reasoning lead us to this assertion. First, according

[2] Haidt and Kesebir (2010) noted that moral systems function to suppress selfishness and thereby make social life possible. But Graham, Haidt, and Nosek (2009) noted there can be substantial disagreement about whether certain behaviors (e.g., unpatriotic speech) are moral violations (see also Graham et al., 2011). Despite this diversity of opinion, there is better consensus that harming others and violating norms of fairness are universal moral intuitions. As such, even though some may see unpatriotic displays as selfish behavior that would be discouraged by a moral conscience, we intentionally focus on selfish and selfless behaviors that relate to more universally agreed-upon moral intuitions.

to the *representativeness heuristic*, people spontaneously look to causes that are similar to their effects (Gilovich, 1991; Gilovich & Savitsky, 2002; Kanwisher, 1989; Spina, Ji, Guo, Zhang, Li, & Fabrigar, 2010). For example, in seeking to explain an extreme crime or a moderate crime, people seem to naturally call on causes that match in terms of magnitude (McClure, Lalljee, & Jaspars, 1991). If this is applied to the current question, in thinking of what would affect an individual versus a population's behavior, people may naturally go to "matching" causes—those that reside at the level of an individual (the moral conscience) or at the level of a population (social forces).

Second and more generally, when there is variability in how the same target can be construed, people's judgments of the target will be guided by features made salient by a given construal. Construal level theory (CLT; Trope & Liberman, 2010)—which notes that people can construe the same target in different ways that emphasize different target features—also leans on this broad point. As emphasized in CLT, different construals (abstract or concrete) prompt perceivers to focus on matching (abstract or concrete) features of a target, which then guide evaluations of the target (e.g., Ledgerwood, Wakslak, & Wang, 2010). To apply this matching principle to the current research question, even though forecasts of the behavior of a randomly selected individual or a population are normatively equivalent, forecasters led to construe the target as an individual or a population should attend to and emphasize individual-level or group-level features, respectively.

For example, Hsee and Weber (1997) applied this idea when speculating on an individual–population asymmetry they observed. Their participants had an easier time understanding that a specific stranger (i.e., an individual) would display risk aversion (an internal, individual-level experience) than would people in general. As Hsee and Weber suggested, by construing the judgment target as an individual, participants may have been more likely to simulate the internal, individual-level aversive experience that gives rise to risk aversion than they would if they focused instead on a more abstract entity such as a population of individuals. We are not saying that people project their own internal dynamics onto others—assuming what they know to be true of their own internal experience (e.g., the sting of risk aversion) will also be true of individuals more than populations. Rather, we claim that people identify and weigh individual-level, internal experiences more when considering individuals versus populations. For example, when perceivers consider an individual victim or a population of victims, perceivers may be more likely to simulate the sympathy-arousing internal, individual-level experience of an individual victim compared with a population of victims (Kogut & Ritov, 2005; see Small & Loewenstein, 2003), even though those victims are in a very different situation from the self.

It is important to consider our first two premises in combination: The first premise narrowly addresses that people look to matching causes of behavior, and the second premise shows that being pushed to consider the same judgment target in different ways leads people to appeal to matching features. Furthermore, given that people tend to engage in a limited or truncated information search (Schwarz, 1998; Shaklee & Fischhoff, 1982), it is likely that people lean on these individual-level social features made salient by an individual or population forecasting target, respectively, and thus base their responses largely on those features.

Implications for Forecasting Selfish Versus Selfless Behavior

If people do pay attention to different constraints as they predict the behavior of individuals versus populations, this in itself does not imply that the behavior of individuals or populations should always be forecast differently. Instead, the forecast asymmetry should change as perceived constraints are seen to vary. The pull of the moral conscience versus the power of social forces may be seen to be stronger or weaker for different types of behaviors.

As one application, our analysis of constraints causes us to focus on the difference between behavior that is prosocial (e.g., giving to charity) versus antisocial (e.g., stealing). We propose that people believe that each category of behavior is shaped by a different formula of constraints. We argue (and buttress those arguments with data) that people believe that good, moral behaviors are driven more by the push of an individual's moral conscience than by social constraints. In contrast, people think that bad behaviors are held in check equally by both forces, external social norms as well as internal moral ones. As a consequence, we predict that respondents will predict that individuals are more likely to choose morally good actions than will populations, because those actions are produced primarily by one's moral conscience. In contrast, people will see individuals and populations as more equally likely to commit morally bad actions, because those actions are held in check by both moral conscience and social norms.

There is evidence that social norms figure less prominently in mandating positive behavior than they do in preventing negative action. For example, social norms, at least as codified by law, tend to focus on antisocial behaviors people must avoid rather than prosocial actions they must execute (Glendon, 1991; Rosenbaum, 2004). Consider the classic first-year law school example of a drowning person. Clearly, people are forbidden by law from pushing a person into a lake (an antisocial action). But if one happens upon a person drowning in a lake, the individual is under no legal obligation to rescue that person (a prosocial action). Whether one does so may depend on the fortitude of his or her moral conscience, but no codified social rule mandates it. The Ten Commandments offer a similar illustration: Eight of the 10 focus on sins to avoid; only two enumerate moral actions to pursue.

Our account also predicts that varying features of actions or contexts to enhance or diminish the perceived power of the moral conscience versus social forces will affect predictions of individuals and populations differently. Making behaviors more relevant to one's moral conscience should influence behavioral forecasts of an individual more than those of a population. Introducing or removing social pressures should influence predictions of a population more than those of an individual. In short, the differential sensitivity to constraints hypothesis suggests that factors that alter the perceived influence of one type of constraint or the other should have a predictable, differential impact on forecasts of the behavior of individuals versus populations.

Four Alternative Accounts

The studies contained herein tested and ruled out four alternative hypotheses for divergent forecasts of the behavior of individuals versus populations.

Denominator Neglect

When considering fractions, people show a *ratio-bias effect*—overweighting numerators and neglecting denominators (Denes-Raj, Epstein, & Cole, 1995; Rudski & Volksdorf, 2002). People see the same proportion expressed out of 1,000 as subjectively larger than the numerically equivalent fraction expressed out of 100 (Galesic, Garcia-Retamero, & Gigerenzer, 2009). In terms of our pilot study, an assessment that 2,534 of 5,275 students (48%) have been academically honest may feel equivalent to a 62% chance that an individual behaves similarly. Of course, this explanation requires the improbable assumption that percentage judgments of populations are translated into frequency counts. Most centrally, this account predicts that all forecasts of the behavior of individuals, compared with forecasts of the behavior of populations, will be inflated, whether judging selfless or selfish behaviors. Thus, we test this possibility.

Accessibility of Angels

When people make behavioral forecasts about an individual, they may do so by first calling to mind a known person and then make judgments about that person. People, however, may spontaneously recruit exemplars that are unrepresentatively selfless or angelic. Morewedge, Gilbert, and Wilson (2005) noted that when people called to mind a previous instance of a category (e.g., a Boston Red Sox victory), they tended to recall an extreme instance (i.e., the best ever Red Sox victory). Thus, when pilot study participants considered a hypothetical student in a a morally relevant situation, they might have brought to mind a particularly angelic exemplar.

Person Positivity

As described by Sears (1983), individual exemplars are judged more positively than are the groups they represent. For example, individual congressmen are judged more positively than is Congress as a whole. In a related tradition, Klar (2002) noted that when a group is viewed positively, each individual in the group may be viewed as better than average in the group. For example, members of a uniformly diligent group may each be rated more diligent than the group average. Like the accessibility of angels hypothesis, the person-positivity alternative predicts that people will always be judged to behave more morally than populations but does not predict that the effect depends on the biased selection of exemplars. But given that Sears's data focused on attitudes (e.g., liking) and not behavioral forecasts, and Klar found that individuals were judged more positively than were groups when evaluated in a comparative manner but not when judged separately (as in the present work), it was not clear that the lesson from these findings would apply to the current examination of behavioral forecasts.

Differential Projection

People predict others' preferences, behaviors, and characteristics more generally on the basis of how those qualities exist in the self (Burson, Faro, & Rottenstreich, 2010; Caruso, Epley, & Bazerman, 2006; Critcher, & Dunning, 2009; Kimmel, Pruitt, Magenau, Konar-Goldband, & Carnevale, 1980; Lee & Andrade, 2011; Pinkley, Griffith, & Northcraft, 1995; Ross & Sicoly, 1979). Given that people tend to hold inflated views of the self (Alicke, Klotz, Breitenbecher, Yurak, & Vredenburg, 1995; Dunning, 2005; Kruger, 1999), if they project from the self onto other individuals more than they do onto populations, then judgments of individuals may be systematically inflated in a prosocial direction. By measuring participants' self-forecasts and then seeing if they differently correlate with predictions about individuals versus populations, one can test for differential projection directly.

Overview of Studies

In sum, we tested whether, when, and why behavioral forecasts of individuals ("What percentage chance is there that [a randomly-selected person] will . . .?") and populations ("What percentage of people will . . .?") differ. Along the way, our methods distinguished between our favored explanation (differential sensitivity to constraints) and the four alternatives we have outlined. In Study 1, we tested whether the individual–population forecast asymmetry could be traced to the moral or immoral nature of the behavior being forecast. All participants predicted the same behavior (compliance), but we varied whether the behavior was framed as morally desirable or undesirable. In Study 2, we tested whether the forecast asymmetry emerged more generally, that is, for behaviors that pretesting had identified to be the most representative selfless or selfish behaviors in which college students have the opportunity to engage. We expected the individual–population asymmetry to emerge more clearly for selfless behaviors, those assumed to be driven more by one's moral conscience than by social forces. In Study 3, we tested whether behavioral forecasts of individuals and populations could be tied to the assumed constraints imposed by a person's moral conscience and a population's social forces, respectively.

Studies 4 and 5 varied the presence and magnitude of these constraints directly to test whether such variations would impact behavioral forecasts of individuals and populations differently. In Study 4, participants predicted selfless behavior that had high or low moral connotations. If forecasts of individuals' behavior are especially influenced by what one's moral conscience would push one to do, this manipulation should especially impact forecasts of the behavior of individuals relative to the behavior of populations. In Study 5, participants forecasted a selfish behavior that would be visible to others or occur under the cloak of anonymity. If behavioral forecasts of populations are especially sensitive to the perceived influence of social forces, then this manipulation should especially impact behavioral forecasts of populations relative to individuals. Study 6 applied the differential sensitivity of constraints account to predict and confirm an individual–population forecasting divergence in a nonmoral domain.

Study 1

In Study 1, we tested whether behavioral forecasts of individuals and aggregates differ because of the moral nature of the behaviors being forecast. We asked participants to forecast the likelihood that a person or people would comply with a request but varied whether compliance was framed as the moral or immoral course of action.

Specifically, participants learned about a parallel study running in the lab, one that asked participants to write an essay in support

of a position that they found morally abhorrent. They then estimated the percentage of participants who would comply with the request. We capitalized on an ambiguity concerning what compliance meant by framing it as either a failure to stand up for what is right (*resistance is moral* condition) or an opportunity for the participants to be helpful (*compliance is moral* condition). We predicted that individuals would be forecast as being more likely than populations to perform the action (resistance or compliance) framed as moral.

Method

Participants and design. Participants were 126 undergraduates at Cornell University who participated in exchange for extra course credit. Participants were assigned to one of four conditions in a 2 (moral framing: compliance is moral or resistance is moral) × 2 (target: individual or population) full-factorial design.

Procedure. Participants were told that they would make estimates relating to another study that was supposedly being run concurrently in the lab. This study was a counterattitudinal advocacy exercise (e.g., Cohen, 1962; see also Festinger & Carlsmith, 1959). At the time, Cornell University (like many universities) was actually experiencing a budget crisis. Participants in the (actually fictitious) other study were supposedly being asked to write an essay that the university should save money by eliminating services for special needs students (e.g., deaf students who need a written transcription of a lecture). This essay would be read by a university committee charged with making a recommendation on the matter.

The description differed depending on the target condition to which participants were assigned. In the *individual* condition, participants were asked to consider the experience of a randomly selected participant, "Participant Y." In the *population* condition, participants were asked to consider the experience of "the participants" in the study. In this way, information was equivalent, but participants were focused on an individual or the population of participants.

After the descriptions, the *moral framing* manipulation was introduced. Depending on the framing condition, participants were led to see writing the essay as the moral or immoral course of action. Those in the *compliance as moral* condition were told, "We want to know how helpful you think Participant Y [participants] will be to the experimenter." In contrast, those in the *resistance as moral* condition were told, "We want to know how likely you think it is that Participant Y [participants] will be willing to stand up to the experimenter and not write an essay that could have negative consequences."

Participants then made two judgments. Those in the individual condition were asked, "How likely is it, do you think, that Participant Y will actually follow the experimenter's instructions and write an essay arguing that the university should save money by eliminating services for special needs students?" Those in the population condition were given the logically equivalent question, "What percentage of participants, do you think, will actually follow the experimenter's instructions and write an essay arguing that the university should save money by eliminating services for special needs students?" Then, all participants indicated how much they personally favored or opposed "eliminating services for special needs students in order to solve the budget shortfall." The scale was anchored at 1(*definitely opposed*) and 5 (*definitely favor*), with 3 labeled *not sure*.

Results

To interpret our results most clearly, we recoded forecasts so that higher numbers reflected a prediction that the behavior framed as moral would transpire. That is, we subtracted the forecasts of those in the compliance as immoral condition from 100%. We then submitted these recoded forecasts to a 2 (framing) × 2 (target) analysis of variance (ANOVA; see Figure 1). The predicted main effect of target emerged, $F(1, 121) = 4.35$, $p = .04$.[3] Individuals were predicted to behave more morally ($M = 49.13\%$, $SD = 26.90\%$) than were populations ($M = 38.97\%$, $SD = 27.20\%$). There was no hint of an interaction, $F < 1$, suggesting that the population–individual asymmetry emerged equally strongly regardless of whether compliance or resistance was framed as moral.

To make certain this difference did not emerge because the manipulations changed participants' own feelings about the policy, we first submitted participants' position on the policy to the same 2 (framing) × 2 (target) ANOVA. Unexpectedly, a main effect of target emerged, $F(1, 122) = 3.87$, $p = .05$. Those who considered an individual were themselves more strongly opposed to the policy ($M = 1.38$, $SD = 0.70$) than were those who considered the population of participants ($M = 1.68$, $SD = 1.00$). Despite this unanticipated difference, controlling for participants' own position did not eliminate the focal main effect, $F(1, 120) = 4.14$, $p = .04$. And, in fact, participants' own degree of opposition to the policy did not predict their estimates of compliance, $F(1, 120) = 1.16$, $p > .28$.

Discussion

These results are consistent with hypotheses that explain different behavioral forecasts for individuals and populations by appealing to the moral or immoral nature of the behavior being forecast. The framing manipulation permitted us to disentangle how moral constraints would guide behavior from other features of the decision to comply. As the differential sensitivity to constraints hypothesis predicted, individuals were forecast as more likely to take the moral course of action than were populations.

The results were inconsistent with an alternative account rooted in denominator neglect. By that alternative, forecasts of the behavior of individuals and populations diverge simply because a forecast of a population's behavior feels subjectively larger than an equivalent forecast about an individual's behavior. That explanation instead predicted that the original (i.e., untransformed) behavioral forecasts of individuals would have been greater than behavioral forecasts of collectives, regardless of whether a "moral" or "immoral" action was being forecast. No such pattern was observed.

[3] Note that this test is logically and statistically equivalent to a test of a Framing × Target interaction term that comes from the ANOVA of the untransformed judgments.

Figure 1. Mean forecast moral behavior as a function of target and framing conditions. Given that participants estimated the percentage of participants who complied, the responses of those in the resistance is moral condition have been reverse coded. Error bars reflect standard errors of the means.

Study 2

Study 2 offered three primary extensions. First, participants made forecasts about 10 different behaviors. This permitted a test of the generality of the effects observed thus far. Second, these behaviors were chosen through multiple rounds of pretesting (described below) as the most representative selfless/moral or selfish/immoral behaviors that college students might engage in. By outsourcing our stimulus generation to pretesting, we guarded against the possibility that we would (unknowingly) choose behavioral domains that were especially likely to show our hypothesized effect.

Third, our different accounts made different predictions about whether individuals and populations should be judged differently for both selfless and selfish behaviors. According to at least two alternative accounts (the accessibility of angels and person-positivity hypotheses), individuals should always be judged more positively—more likely to do good and less likely to do bad—than groups. But according to our favored account (differential sensitivity to constraints), the size of the individual–population difference will depend on the relative importance of each type of constraint. As our pretesting will show, the differential sensitivity to constraints hypothesis predicts that individuals will be judged to be more selfless but not necessarily less selfish than populations.

Pretest 1: Stimulus Selection

The 10 representative target behaviors were chosen through two rounds of pretesting. In the first round, 41 undergraduates were approached on the Cornell University campus and asked to complete a short survey in exchange for candy. Participants were first informed that the survey was interested in what "selfless or moral behaviors" and what "selfish or immoral behaviors" a typical college student "might engage in (or have the opportunity to engage in) on any given day." Across all 41 participants, 202 selfless or moral behaviors and 196 selfish or immoral behaviors were generated. Coders (Clayton R. Critcher and several research assistants) counted 57 unique moral behaviors and 68 unique immoral behaviors.

In the second round of pretesting, these 125 behaviors were presented to a new sample of 24 Cornell University undergraduates who were in a reception room waiting to participate in another study. Participants rated each moral behavior or each immoral behavior on a 5-point scale. Participants were asked to consider to what extent each behavior was characteristic of selfish/immoral or selfless/moral behaviors. Each behavior was rated on a scale from 1 (*this behavior does not fit my idea of selfless or moral [selfish or immoral] behaviors*) to 5 (*this behavior is a very good example of what comes to mind when I think of selfless or moral [selfish or immoral] behaviors*). The five highest-rated behaviors of each type became our prototypical moral and immoral behaviors. By choos-

Table 1
Percentage Forecasts of Prototypical Moral and Immoral Behaviors for Populations and Individuals (Study 2)

Behavior	Population	Individual
Moral/selfless		
Give up a seat on the bus to an elderly person	28.50_a	40.70_b
Alert someone that s/he dropped something from his/her bag	54.40_a	60.77_b
Do one's roommate's chores because s/he has an exam	24.44_a	33.89_b
Carry a book for someone whose hands are full	17.84_a	23.11_b
Give money to the homeless	16.20_a	22.04_b
Average	28.28_a	36.10_b
Immoral/selfish		
Charge library printing expenses to someone else	14.97_a	18.78_a
Take money that is sitting on one's roommate's desk	8.31_a	9.22_a
Not "pull one's own weight" in an academic group project	36.81_a	39.20_a
Cheat on an exam by copying answers from one's neighbor	24.62_a	25.17_a
Arrive late to an event because first stopped at Starbucks	30.60_a	35.52_a
Average	23.06_a	25.58_a

Note. All numbers are percentages reflecting the percentage of students forecasted to engage in a behavior in the next 30 days (population) or the likelihood that a randomly selected student would engage in a behavior in the next 30 days (individual). Means in the same row that do not share the same subscript differ at the $p < .05$ level.

ing behaviors around which there was the clearest consensus, we guarded against the possibility that our process would select behaviors that only some would see as morally relevant (e.g., masturbating). The behaviors are listed in Table 1.

Pretest 2: Do Different Constraints Promote Selflessness Versus Restrain Selfishness?

We conducted an additional pretest with 186 Cornell University undergraduates drawn from the same sample as our main study. First, we presented the participants with the five representative selfish/immoral and five representative selfless/moral behaviors, so it would be clear what was meant by each category. Participants considered what led people to do selfless/moral behaviors and avoid doing selfish/immoral behaviors. We asked them to rate each on a scale from 1 (*social forces/norms*) to 7 (*one's moral conscience*). The midpoint 4 was labeled *both equally*. Participants indicated that selfless behaviors are driven more by the internal force, the moral conscience ($M = 4.57$, $SD = 1.41$), $t(185) = 5.47$, $p < .001$. Participants indicated that selfish behaviors are constrained instead by both equally ($M = 4.02$, $SD = 1.43$), $t < 1$; that is, the mean was not different from the *both equally* midpoint (4).

Thus, our favored differential sensitivity to constraints hypothesis makes a unique prediction. We should find that individual–population differences should emerge on forecasts of selfless behaviors but not necessarily (or at least to a lesser extent) for forecasts of selfish behaviors. That is, if people believe that moral behaviors are driven more by an individual-level force (one's moral conscience) rather than by social norms, one should predict that individuals would perform those behaviors more often than the populations they are drawn from. However, if an internal conscience and social norms both equally constrain immoral actions, then individuals and populations should be judged similarly.

Method

Participants and design. Participants were 307 students at Cornell University who participated in exchange for extra course credit. Each was randomly assigned to one of two conditions in a 2 (target: individual or population) × 2 (behavior: moral or immoral) design, with the second factor manipulated within subjects.

Procedure. Participants were told that researchers would be conducting a poll of undergraduates on campus in 30 days. That survey would ask participants to report on whether they had engaged in each of 10 behaviors in the previous 30 days. Participants were told that they would estimate responses to the survey for each of these 10 different behaviors (i.e., the most representative moral and immoral behaviors as established by pretesting).

For those in the population condition, participants predicted what percentage of Cornell University undergraduates would perform each of 10 behaviors in the next 30 days. Those in the individual condition were instead asked to imagine that we randomly selected 10 undergraduates on campus—Person A, Person B, Person C, . . ., Person J. Each of these 10 randomly selected people was matched to a different one of the 10 behaviors. Participants indicated how likely, from 0% to 100%, each (deindividuated) person was to engage in the listed behavior in the next 30 days.

Results

We began by standardizing and summing the five immoral and five moral behaviors. This created two composites—one reflecting the perceived likelihood of immoral behaviors and one reflecting the perceived likelihood of moral behaviors. We submitted these composites to a 2 (target: individual or population) × 2 (behavior: moral or immoral) mixed-model ANOVA, with the second factor assessed within subjects. The predicted Target × Behavior interaction emerged, $F(1, 305) = 5.44$, $p = .02$, with individuals being forecast to act in a more morally upstanding way than populations. However, follow-up tests showed that this effect was driven asymmetrically by moral, but not immoral, behaviors. That is, as seen in Table 1, individual students were seen to be more likely to perform moral behaviors ($M = 0.13$, $SD = 0.74$) than were the population of students ($M = -0.19$, $SD = 0.70$), $t(305) = 3.85$, $p < .001$. In contrast, individual students were not seen as any less likely to perform immoral behaviors ($M = 0.07$, $SD = 0.65$) than were the population of students ($M = -0.06$, $SD = 0.66$), $t(305) = -1.66$, $p = .10$. As shown in Table 1, all five moral behaviors showed a between-condition difference at the $p < .05$ level. None of the five immoral behaviors showed such a difference.

In sum, these results conceptually replicate the pilot study and Study 1 by showing that individuals are expected to behave more selflessly than people in general. At the same time, they qualified those findings by showing that this effect was driven by forecasts of moral or selfless behaviors; populations and individuals were judged as equally likely to engage in selfish behaviors. This pattern of forecasts is consistent with the differential sensitivity to constraints account. People believe moral behaviors are encouraged by an individual-level force: a moral conscience. If that is the case, then people should think that individuals will display more moral behaviors because people concentrate on internal dynamics more when considering individuals rather than population aggregates. In contrast, people believe that internal constraints and social norms play an equal role in shaping immoral behavior. Because of this, people should not differ (as much) in their forecasts of the behavior of individuals and populations. The results of Study 2 are not predicted by any account that predicts that individuals or populations are conceived of as generally better or worse, regardless of whether a selfish or selfless behavior is at issue.

Study 3

Study 3 built on the previous study in three ways. First, although the results of Study 2—a forecast asymmetry for selfless behaviors but not selfish behaviors—was predicted only by the differential sensitivity to constraints hypothesis, the support for this mechanism was only indirect. In Study 3, we sought to connect perceptions of social and internal constraints to participants' forecasts in order to more directly test our differential sensitivity hypothesis. That is, after making forecasts of the behavior of individuals or populations, participants indicated to what extent social or internal forces would compel better behavior in each case. We then used multilevel modeling to assess whether the two sources of constraints were relied on differently depending on whether the forecast target was an individual or a population (see Burson, Faro, & Rottenstreich, 2010, for a related analytic strategy to establish differential weighting).

Second, one concern with our results to this point is that individual–population differences may not reflect differences in how people make forecasts for each target but instead the difference between making a forecast for a dichotomous event (whether a particular person will or will not perform an action) versus a more continuous statistic (the percentage of people in a group that will perform a behavior). Our normatively equating behavioral forecasts of populations and individuals implicitly takes a Bayesian view of probability; a frequentist perspective would note that the true probability for any given individual is either 0% or 100%.

In Study 3, we attempted to address this concern directly by changing the response format.[4] Participants were asked to estimate the number of times a randomly chosen individual would perform each behavior in the next year or to think of all students at the university and estimate how many times, on average, students would perform each behavior. This change had another unrelated benefit. People tend to be more comfortable working with frequencies than with probabilities, which permits them to escape some of the normative errors present when reasoning with probabilities (Biswas, Zhao, & Lehmann, 2011; Gigerenzer, 1993; Gigerenzer & Hoffrage, 1995). Thus, replicating our effects with a more natural response format would speak to the robustness of our effects.

Third, we had not yet directly tested our final alternative account, differential projection. In Study 3, participants indicated for each behavior whether they were likely to engage in the behavior in the next month. Given that social projection is a robust phenomenon, we expected that these self-forecasts would serve as valuable covariates in controlling for an extraneous source of variability in participants' forecasts. We could also test whether participants projected differently onto individuals and populations.

Method

Participants and design. Participants were 220 students at Cornell University who participated in exchange for extra course credit. Each participant was randomly assigned to one of two conditions in a 2 (target: individual or population) × 2 (behavior: immoral or moral) design, with only the second factor measured within subjects.

Procedure. Participants made estimates about the same 10 behaviors used in Study 2. The estimation task was different from that used in Study 2 in two respects. First, instead of referencing a survey, we merely asked people to make estimates about the university's undergraduate student body in general or about a randomly selected undergraduate student at the university. Second, instead of asking participants to make probability forecasts, we asked them to make frequency forecasts. For participants making judgments about individuals, they were told to "think of the randomly selected student" and estimate "how many times in the next year he or she will do each behavior." As in Study 2, each action was paired with a different person (Person A, Person B, Person C, . . ., Person J). In contrast, those in the population condition were told to "think of all students at the university" and estimate "how many times in the next year the average student" would do each behavior.

Participants then indicated which behaviors they themselves were at least 50% likely to do in the next 30 days. After this, participants considered all 10 behaviors two more times in a counterbalanced order. In one pass, participants indicated to what extent "a moral conscience pushes one to do the 'right thing' in each situation." In the other pass, participants indicated "how strong are the social forces that encourage one to do the 'right thing' in each situation." Each set of ratings was made on a 1 (*not at all*) to 9 (*very much so/very strong*) scale.

Results

Like in Study 2, we began by standardizing participants' forecasts for each behavior. Unlike in Study 2, participants forecast their own behavior as well. Given that people frequently engage in social projection, the self-ratings could serve as a useful covariate in a multilevel model. All inputs into the model were centered.

We first created two variables: *self-forecast* and *behavior.* Self-forecast reflected whether a given participant believed he or she would (1) or would not (−1) engage in a given behavior in the next 30 days. The behavior variable was used to differentiate moral (1) and immoral (−1) behaviors. Both self-forecast and behavior were Level 1 variables that characterized a specific forecast of a specific participant, and these variables were nested within participants in a random-slope, random-intercept, model. This permitted the degree of projection and the individual–population asymmetry to vary for each person (random slope) but also controlled for differences between participants in how conservative or liberal they were with their forecasts in general (random intercept). We created three Level 2 variables. The variable *target* distinguished between participants who made behavioral forecasts about individuals (1) versus populations (−1). Of key interest was the Behavior × Target interaction term, which would test whether individuals or populations were judged to be more or less likely to do good as opposed to bad. Also, we included the Self-Forecast × Target interaction term, which both tests for and controls for any tendency to differentially project onto individuals versus populations.

Replicating Study 2, the Behavior × Target interaction was significant, $B = 0.06$, $SE = 0.02$, $t(202.92) = 2.74$, $p = .01$. As in Study 2, this effect was driven primarily by forecasts of selfless or moral behavior. Individuals were forecast to perform moral behaviors more often in the next year than were populations, $B = 0.14$, $SE = 0.06$, $t(159.87) = 2.47$, $p = .01$. In contrast, individuals were seen as no less likely to perform immoral behaviors, $B = -0.02$, $SE = 0.06$, $t < 1$. The mean frequencies by condition and behavior are listed in Table 2. Showing that participants were projecting, there was a significant effect of self-forecast, $B = 0.16$, $SE = 0.03$, $t(202.59) = 4.90$, $p < .001$. No support was found for the differential projection hypothesis. That is, the Self-Forecast × Target interaction did not approach significance, $t < 1$.

[4] Although we took steps to address the concern empirically, a further look at Study 2 suggests that this point is unlikely to have been problematic for two reasons. First, not a single participant was a strict frequentist. That is, no participant provided forecasts of only 0% or 100%. Participants (at least implicitly) subscribed to a Bayesian view of probability. Second, even if participants took a frequentist view, this likely would have worked against our observed effects. That is, because the behaviors forecast tended to be relatively unlikely (i.e., < 50%), strict frequentists likely would have forecast 0% for most of these behaviors. This would make forecasts of individuals smaller than forecasts of populations, not the other way around (as was observed for selfless behaviors).

Table 2
Frequency Forecasts of Prototypical Moral and Immoral Behaviors for Population and Individuals (Study 3)

Behavior	Population	Individual
Moral/selfless		
Give up a seat on the bus to an elderly person	3.84_a	6.44_b
Alert someone that s/he dropped something from his/her bag	7.00_a	8.90_a
Do one's roommate's chores because s/he has an exam	2.13_a	3.30_b
Carry a book for someone whose hands are full	3.70_a	6.41_b
Give money to the homeless	2.13_a	3.62_b
Average	3.76_a	5.73_b
Immoral/selfish		
Charge library printing expenses to someone else	2.13_a	1.58_a
Take money that is sitting on one's roommate's desk	8.31_a	9.22_a
Not "pull one's own weight" in an academic group project	2.59_a	3.40_a
Cheat on an exam by copying answers from one's neighbor	2.21_a	2.47_a
Arrive late to an event because first stopped at Starbucks	8.02_a	8.40_a
Average	4.65_a	5.01_a

Note. Frequencies reflect the number of times that the students, on average, were forecast to perform each behavior in the next year (population) or the number of times that a randomly chosen student was forecast to perform the behavior in the next year (individual). Means in the same row that do not share the same subscript differ at the $p < .05$ level.

We then tested a more complex model that would permit us to see whether behavioral forecasts of individuals versus populations drew on different sources of constraining forces. The same Level 1 and Level 2 variables were included in the second model, but the following variables were added. First, we added two additional Level 1 variables that were each centered: *social forces* and *internal forces*. These reflected participants' theories for each behavior about how strongly social forces and internal forces (i.e., one's moral conscience) would influence the behavior. Next, we included interaction terms that were necessary to test our proposed mechanism. We included the Social Forces × Target, Internal Forces × Target, Social Forces × Internal Forces, Social Forces × Behavior, and Internal Forces × Behavior interaction terms. These two-way interactions were not all theoretically meaningful but were necessary for the inclusion of the 2 three-way interaction terms of interest. These three-way interaction terms—Social Forces × Behavior × Target and Internal Forces × Behavior × Target—tested whether forecasts of the behavior of individuals versus populations were differentially influenced by perceptions of social and internal forces, respectively.

Consistent with predictions that forecasts of the behavior of individuals versus populations would rely on each source of constraint differently, both three-way interactions were of the opposite sign. That is, a significant Social Forces × Behavior × Target interaction, $B = -0.059$, $SE = 0.023$, $t(347.93) = 2.53$, $p = .01$, showed that forecasts of the behavior of populations were more swayed by perceptions of social forces than were forecasts of the behavior of individuals. An interaction of Internal Forces × Behavior × Target of the opposite sign that approached significance emerged as well, $B = 0.047$, $SE = 0.025$, $t(652.54) = 1.92$, $p = .06$. This interaction reflected that forecasts of the behavior of individuals were (marginally) more swayed by the perceived force of internal factors (i.e., one's moral conscience) than were forecasts of the behavior of populations. An additional model showed that these two betas were significantly different, $t(527.06) = 2.60$, $p = .01$, demonstrating with a single test what the 2 three-way interaction terms considered jointly suggest: Forecasts of the behavior of individuals and populations were differentially influenced by perceptions of internal versus social constraints (see Figure 2).

We proceeded to decompose each three-way interaction term to test exactly how forecasts of the behavior of individuals and populations drew on distinct perceptions of constraint. In particular, we tested for the significance of each Force (moral or social) × Behavior interaction for both the individual and the population target conditions, separately. These analyses showed that forecasts of the behavior of individuals were affected by the assumed constraint of an internal conscience, $B = 0.11$, $SE = 0.03$, $t(413.92) = 3.39$, $p = .001$, but not by the influence of social forces, $B = -0.05$, $SE = 0.03$, $t(227.56) = -1.48$, $p > .14$. In contrast, forecasts of the behavior of populations were impacted by the assumed constraint of social forces, $B = 0.07$, $SE = 0.03$, $t(495.26) = 2.08$, $p = .04$, but not by the assumed influence of the internal conscience, $B = 0.02$, $SE = 0.04$, $t < 1$.[5]

Discussion

In sum, using a frequency rather than a probability measure, Study 3 replicated the forecast pattern observed in Study 2. Individuals were forecast to be more selfless (but no less selfish) than populations. Study 3 also provided support for our differential sensitivity to constraints account. Forecasts of the behavior of individuals were driven by whether one's moral conscience would push one to do the right thing, whereas forecasts of the behavior of populations were influenced by whether social forces would keep

[5] It is worth noting that even though people leaned on individual-level (moral conscience) or population-level (social forces) constraints differently, depending on the nature of the forecasting target, the two sources of constraint were not (and need not be) statistically independent. The zero-order correlation between the two perceived constraints is .45. This offers an interpretable index of the degree of relationship, even though the measure is crude (given the nonindependence of observations).

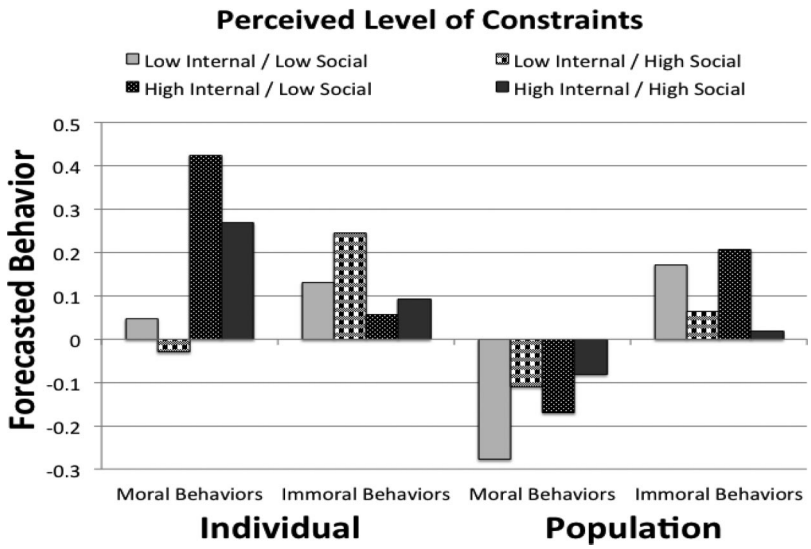

Figure 2. Predicted forecasts as a function of target, type of behavior forecasted, perceived internal constraints, and perceived social constraints. Perceived moral and perceived social constraints are depicted 1 standard deviation (high constraint) and −1 standard deviation (low constraint) from the average perceived constraint of each variety. Forecasts were standardized, so the unit of the *y*-axis can be interpreted as *z* scores. Note that constraints increase the forecasts for moral behaviors but decrease the forecasts of immoral behaviors. Thus, that behavioral forecasts of individuals are more sensitive to moral constraints than to social constraints is evidenced by the left two bars (low internal constraint) in each cluster being different from the right two bars (high internal constraint). That behavioral forecasts of populations are more sensitive to social forces can be seen in that the first and third bars in each cluster (low social constraint) are different from the second and fourth bars in each cluster (high social constraint).

undesirable responses in check. In contrast, no support was found for the differential projection hypothesis. Although participants did rely on information about the self in making forecasts, they did this to the same extent when making behavioral forecasts for individuals as for populations.

By showing the same forecast asymmetry using a frequency instead of a probability format, these findings suggest that our previous results are not due to an artifact of how people think through probability judgments in one-shot cases versus aggregate distributions. At the same time, we note that the claim that individual–population forecasting divergences reflect a normative violation is weaker when the comparisons are made in a frequency rather than in a probability format. In a frequency format, it is possible for the behavior of the average person and average of all people to diverge if the frequency distribution for populations is systematically skewed. Were the effects observed in Study 3 normatively justifiable, an artifact of assumed skew?

That interpretation is possible, but it is minimized by three considerations. First, to make the two forecasting formats more equivalent, we used the language of "average student" instead of "average of all students" for the population condition. Second, the size of the individual–population asymmetry was different for selfless and selfish behaviors. The artifactual account then requires that the assumed frequency distribution of selfless behaviors, but not selfish behaviors, be characterized by skew. This contradicts the idea that immoral behaviors are particularly diagnostic because they are rare and thus must be assumed to come from a skewed frequency distribution (Reeder & Spores, 1983). Third, even if found, skewness in the distribution of behaviors would not undermine the validity of the analyses showing that behavioral forecasts of individuals and populations were more sensitive to individual-level and population-level forces, respectively.

Thus, to this point, the results of our three studies are consistent with only one of five theoretical accounts—that forecasts of the behavior of individuals versus populations reflect differential sensitivity to perceived constraints on behavior. Although Study 3 provided support for this mechanism, the evidence was correlational. With the next two studies, we manipulated features of actions or the situation that should affect perceived internal or social constraints to test whether these manipulations affected forecasts of the behavior of individuals or populations, respectively.

Study 4

By our account, people forecast that individuals behave more selflessly than populations because people assume selflessness is driven by one's moral conscience, and behavioral forecasts of individuals are especially influenced by what the moral conscience would push one to do. By this logic, if the moral connotation of selfless behavior were reduced, then the individual–population asymmetry should evaporate as well. We exploit the fact that although moral systems operate to override antisocial temptations to promote prosocial behavior (Haidt & Kesebir, 2010), it does not follow that all selfless behaviors have high moral connotations that would be encouraged by a moral conscience.

Clayton R. Critcher and six undergraduate research assistants examined the five selfless behaviors used in Studies 2 and 3. Each person attempted to modify the behavior in a way that the basic selfless behavior was equivalent but the moral connotation of the behavior was reduced. Then the research assistants shared their variations, and the group (including Clayton R. Critcher) picked the variation that seemed to best reduce the moral connotations of the behavior while making sure the core selflessness of the behavior was not changed. For example, the item about donating money was changed to "donate money to Doctors Without Borders" (high moral connotation) or "donate money to the U.S. Chamber of Commerce" (low moral connotation). These selfless behaviors—identified as high moral connotation or low moral connotation—are listed in Table 3.

A pretest ($n = 294$) confirmed that one's moral conscience would operate more strongly in promoting the high versus the low moral connotation versions of the behaviors, $t(294) = 4.02$, $p < .001$. In the first pretest, there was also a difference in the perceived social forces that would compel the selfless behaviors, but this was entirely driven by one item: giving up a seat on the bus to an elderly person versus to a random high school student, $t(295) = 6.10$, $p < .001$. We then modified the behavior by adding "no one notices that you or the other person are on the bus." This addition led perceived social forces to be equal.

We predicted that we would replicate the individual–population forecast asymmetry when participants forecast behaviors with a high moral connotation but that this difference would be reduced (or even eliminated) when the moral connotation of the behaviors was low. Furthermore, this reduction should be driven by a shift in forecasts of the behavior of individuals as opposed to forecasts of the behavior of populations.

Method

Participants and design. Participants were 239 students at Cornell University who participated in exchange for extra course credit. Participants were assigned to one condition in a 2 (target: individual or population) × 2 (moral connotation: high or low) full-factorial design.

Procedure. Participants made forecasts in the same percentage format used in Studies 1 and 2. They were asked to make forecasts about the population of undergraduates at their university or about five different randomly selected undergraduates at their university. Like in Study 3, participants then indicated which behaviors they were or were not likely to do.

Results

All forecasts were again standardized. All variables used as inputs into models were centered as well. As in Study 3, we created a variable *self-forecast* that reflected whether a given participant believed that he or she would (1) or would not (−1) perform a given selfless behavior. We again used the variable *target* to differentiate judgments made for those judging individuals (1) and populations (−1). Finally, we created a new variable, *moral connotation*, which differentiated selfless behaviors that had a high moral connotation (1) from those with a low moral connotation (−1). The mean forecasts for each behavior (controlling for self-forecasts) are provided in Table 3.

To test our main hypothesis, we again created a multilevel random-intercept, random-slope, model. We entered one Level 1 variable, self-forecasts, nested within participant. This controlled for variation in forecasts due to social projection. We included two Level 2 predictors: target and moral connotation (the two between-subjects manipulations). We also included the Target × Moral Connotation interaction term, which would permit a test of the main hypothesis. Finally, we included the Self × Target interaction term, which tested (and controlled for) whether the degree of projection differs between those forecasting the behavior of individuals versus populations.

The predicted Target × Moral Connotation interaction approached significance, $B = 0.06$, $SE = 0.03$, $t(232.17) = 1.80$,

Table 3
Frequency Forecasts of Selfless Behaviors With a High or Low Moral Connotation (Study 4)

Behavior	Population	Individual
High moral connotation selfless behavior		
Give up a seat on the bus to an elderly person	50.79_{a}^{*}	59.45_{a}^{*}
Alert someone that s/he dropped $5 from his/her bag	48.19_{a}	62.18_{b}
Do one's roommate's chores because s/he has the GRE the next day	46.67_{a}	48.17_{a}
Carry a book for a fellow student who is trying to carry too many books	33.65_{a}	44.56_{b}
Donate money to Doctors Without Borders	20.55_{a}	34.00_{b}
Average	39.97_{a}	49.67_{b}
Low moral connotation selfless behavior		
Give up a seat on the bus to a healthy 14-year-old	20.22_{a}	16.73_{a}
Alert someone that s/he dropped a pack of cigarettes from his/her bag	48.26_{a}	53.40_{a}
Do one's roommate's chores because s/he has plastic surgery the next day	32.40_{a}	34.42_{a}
Carry a book for a deliveryman who is trying to carry too many books	42.86_{a}	46.01_{a}
Donate money to the U.S. Chamber of Commerce	19.68_{a}	27.50_{b}
Average	32.68_{a}	35.61_{a}

Note. All numbers are percentages reflecting the percentage of students forecast to engage in a behavior in the next 30 days (population) or the likelihood that a randomly selected student would engage in a behavior in the next 30 days (individual). Means in the same row that do not share the same subscript differ at the $p < .05$ level. Starred subscripts differ at the $p < .06$ level.

$p = .07$. To test whether the more specific pattern of hypothesized results did indeed obtain, we probed this interaction further. Specifically, we used the same model to test for the effect of target in the high and low moral connotation conditions separately. When the moral connotation of the behaviors was high, individuals were forecast to display more selflessness than were populations, $B = 0.18$, $SE = 0.05$, $t(243.43) = 3.71$, $p < .001$. When moral connotation was low, the difference was eliminated, $B = 0.06$, $SE = 0.05$, $t(224.52) = 1.15$, $p > .25$. This reduction in the individual–population asymmetry was driven by a change in the way people made forecasts for individuals. That is, the moral connotation of selflessness changed forecasts for a randomly selected individual, $B = 0.20$, $SE = 0.05$, $t(232.01) = 4.23$, $p < .001$, but not for the population, $B = 0.08$, $SE = 0.05$, $t(230.85) = 1.63$, $p > .10$.

Thus, when it was believed that a moral conscience would push one to behave prosocially, we once again observed that individuals were forecast to behave in a more prosocial manner than were populations. But by taking the moral connotations out of selflessness, the individual–population asymmetry was eliminated by deflating the forecast boost given to individuals. In addition, analyses showed that participants projected their own behavior onto others, $B = 0.32$, $SE = 0.03$, $t(219.09) = 12.12$, $p < .001$. However, as observed in Study 3, participants did not project onto individuals any differently than they did onto populations, $t < 1$.

In sum, Study 4 confirmed experimentally what Study 3 suggested correlationally. Forecasts of the behavior of individuals, but not populations, were especially sensitive to the perceived power of one's moral conscience in pushing one toward behaving prosocially. When the moral connotations of selflessness were reduced, so was the difference in forecasts of the behavior of individuals and populations.

Study 5

In Study 5, we manipulated the presence of social forces to test whether such pressures would influence population estimates more than ones about individuals. That is, populations should be forecast to behave more selfishly than individuals if the social forces holding their behavior in check are removed. Participants were asked about people taking part in an economic dictator game. They estimated whether individuals or populations would behave selfishly in that game—taking as many resources as possible for themselves, thereby denying money to their partners. To remove the presence of social constraints, we told some participants that all play was anonymous. Because this should eliminate the social forces that keep selfish behavior in check, an individual–population forecast asymmetry should emerge. Furthermore, this emergent difference should be driven by a shift in behavioral forecasts of populations, which are sensitive to the perceived impact of social constraints.

Method

Participants and design. Participants were 90 undergraduates at Cornell University who participated in exchange for extra course credit. All were randomly assigned to one of four conditions in a 2 (target: individual or population) × 2 (social forces: high or low) design.

Procedure. All participants were told that an experiment would soon take place in which research participants would participate in pairs. One of these participants—chosen at random—would be the "first player" and receive $10. Depending on participants' social forces condition, they were given information about whether the first player would remain anonymous or would ultimately meet a "second player" with whom they were paired. In the *high social forces* condition, participants were told that "No one will be anonymous, as the two players will know each other's identity." Those in the *low social forces* condition were instead told, "The two students will never meet; no one will know with whom he or she was paired."

Then, the rules of the game were spelled out in greater detail. The first player would decide how much of the $10 he or she would like to split with the second player. It was said the player could give as little as one penny but as much as the entire $10. For those in the *individual* condition, they were told that they would estimate the likely behavior of a randomly selected participant in the study: "Participant 66,864." In contrast, those in the *population* condition were told they would estimate what percentage of participants in the study made a specified offer.

Last, participants estimated the likelihood that players would be completely selfish. Those in the individual condition answered the question, "How likely is it that #66,864, if you had to estimate, will give one penny, the least allowed?" In contrast, those in the population condition answered the question, "What percentage of *first players*, if you had to estimate, will give one penny, the least allowed?"

Results and Discussion

We submitted forecasts of selfish behavior to a 2 (target: individual or population) × 2 (social forces: high or low) ANOVA. The predicted Target × Social Forces interaction emerged, $F(1, 86) = 4.58$, $p = .04$ (see Figure 3). When social forces were high, populations were expected to be immoral just as often as were individuals, $t(86) = -1.02$, $p > .31$. This null effect is consistent with our findings in Studies 2 and 3. However, when social constraints on behavior were loosened, participants forecast that populations would act more selfishly than individuals, $t(86) =$

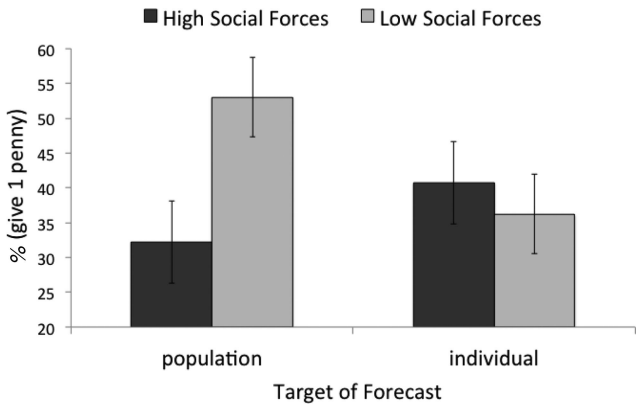

Figure 3. Mean forecasted selfishness in the dictator game as a function of target and the presence of social forces that might keep selfishness in check. Error bars reflect standard errors of the mean.

2.00, $p = .05$. Additional pairwise comparisons showed that the manipulation of social forces altered forecasts of the behavior of populations, $t(86) = 2.40$, $p = .02$, but not forecasts of the behavior of individuals, $t < 1$.

In sum, Study 5 confirmed that by reducing the social forces that discourage selfish behavior, populations—but not individuals—were assumed to become more selfish. That is, an individual–population asymmetry that was not there at baseline (in Studies 2 and 3) emerged once the force assumed to hold populations in check was removed. This pattern shows that people believe that behavior at the population level is more sensitive to external social forces than is behavior at the individual level.

Study 6

One can ask if the patterns of forecasts we discovered are constrained to the moral dimension of selfish and selfless behavior or whether they extend beyond this domain. Although the mechanism we propose and support—a differential sensitivity to constraints—would seem to apply more broadly than just to moral behaviors, one should note that the account makes especially clean predictions for behaviors of a moral nature. For selfish and selfless behaviors, it is straightforward to differentiate the desirable and undesirable courses of action. And when individual- or population-level forces are considered, they operate in the same direction. After all, moral systems operate by keeping people from acting merely on desirable temptations (Haidt & Kesebir, 2010). And in the absence of other individuating information about a person, people tend to assume that the person has positive moral character (Pizarro, Uhlmann, & Salovey, 2003). Although the strength of these individual- or social-level constraints can differ as contexts or behaviors vary, they both push toward more prosocial outcomes.

In contrast, our framework does not necessarily lead to clean predictions in nonmoral domains. Consider a behavior not relevant to moral systems, such as eating a banana. Unlike morally relevant behaviors, there is no obvious tension of forces that might affect the prevalence of banana eaters versus non–banana eaters. Thinking about an individual, one could imagine a person who does or does not like bananas. Thinking about people in general, there is no clear social force that encourages or discourages banana consumption. And for nonmoral behaviors that are socially normative (e.g., eating chicken breast instead of chicken feet), it is unclear why one would not assume that internal forces push one in the same direction as social norms.

That said, we do believe our framework has value in some contexts beyond the dimension of morality (i.e., selfishness vs. selflessness) studied here. In a final study, we examine forecasts of behaviors that are not necessarily encouraged by social forces but that people still display because something inside them may will it. As a point of comparison, we also had participants forecast nonmoral behaviors that actually are encouraged by a social norm. Ten undergraduate research assistants at the University of California, Berkeley, generated possible behaviors in each category. Through discussion, they narrowed the list down to four of each category. A pretest ($n = 82$) confirmed that the behaviors differed in how much they were compelled by an internal will (e.g., start a student club or organization) or by social forces (e.g., buy a trendy piece of clothing), $t(80) = 14.62$, $p < .001$.

Method

Participants and design. Participants were 300 undergraduates at the University of California, Berkeley, who participated as part of a longer session in exchange for course credit or $15. Each participant was randomly assigned to one of two conditions in a 2 (target: individual or population) × 2 (behavior: individually willed or socially normative) design, with only the second factor measured within subjects.

Procedure. Depending on their condition, participants were asked to make forecasts about the behavior of the population of Berkeley undergraduates ("If you had to estimate, what percentage of UC–Berkeley undergraduates do you think will do each of the indicated behaviors in the next year?") or about the behavior of a different randomly selected individual Berkeley undergraduate for each behavior ("If you had to estimate, what percentage chance is there that the randomly selected UC–Berkeley undergraduate will

Table 4
Percentage Forecasts of Nonmoral Behaviors Compelled by Individual Will or Social Forces for Populations and Individuals (Study 6)

Behavior	Population	Individual
Compelled by individual will		
Still attend a football game even when the university stops offering free transportation	33.65_a	39.78_b
Attend an optional lecture	44.90_a	51.33_b
Start a student club or organization	12.08_a	20.77_b
Travel more than 60 miles to see one's favorite band perform	30.14_a	34.62_a
Average	30.19_a	36.63_b
Consistent with social forces		
Buy the most heavily advertised smartphone	51.15_a	52.21_a
Drink more alcohol than they feel comfortable drinking	52.03_a	52.42_a
Buy an item from the trendiest local clothing store	42.57_a	45.20_a
Vote for the same candidate for president as their parents do	57.96_a	56.91_a
Average	50.93_a	51.69_a

Note. All numbers are percentages reflecting the percentage of students forecasted to engage in a behavior in the next year (population) or the likelihood that a randomly selected student would engage in a behavior in the next year (individual). Means in the same row that do not share the same subscript differ at the $p < .05$ level.

do the indicated behavior in the next year?"). Table 4 lists the behaviors forecast in each behavior category.

Results and Discussion

Given the similarity of the present design to that of Study 2, we used a similar data analytic strategy. In particular, we standardized the forecasts for each behavior and created two averaged composites. One reflected the perceived likelihood of individually willed behaviors; the other composite was for socially normative behaviors. We submitted these forecasting composites to a 2 (target: individual or population) × 2 (behavior: individually willed or socially normative) mixed-model ANOVA, with the second factor assessed within subjects. As predicted, we observed a Behavior × Target interaction, $F(1, 298) = 10.90$, $p = .001$. The means by item are listed in Table 4. For behaviors that emerged only to the extent an individual wills it, a randomly selected individual was seen as more likely to perform the behavior ($M = 0.13$, $SD = 0.76$) than were students in general ($M = -0.15$, $SD = 0.61$), $t(296.58) = 3.61$, $p < .001$. In contrast, for behaviors that social norms encourage, forecasts of the behavior of individuals ($M = 0.01$, $SD = 0.68$) and populations ($M = -0.02$, $SD = 0.71$) were statistically equivalent, $t < 1$.

This pattern of data shows that, to the extent that a behavior emerges primarily because of an (individual-level) internal force or will, individuals are forecast to be more likely to engage in that behavior than normatively equivalent behavioral forecasts of populations would suggest. It is notable that populations were not predicted to be more likely than individuals to perform behaviors that stem from social forces. Although our a priori account focused on the interaction, one way to understand this asymmetry in simple effects may be that for behaviors influenced by social forces (i.e., buy an item from the trendiest clothing store), there is not reason to also assume that internal forces will prompt anything different (i.e., forecasters likely believe that individuals from the population inherently prefer the store's clothes). And in the one case in which the individual-level force was different (i.e., drink more alcohol than they feel comfortable drinking), this was noted explicitly, which called everyone's attention to the influence.

Study 6 suggests that the differential sensitivity to constraints account can be applied beyond the question of forecasts of morally relevant behaviors. Of course, this provides only initial confirmation that our theoretical framework has applicability that extends beyond the moral domain. In other research not reported here, we have applied the current theoretical framework to questions beyond behavioral forecasting to examine trait judgment via social comparison. For example, people often compare their own traits and abilities with those of people in general (a population aggregate) or those of a random individual. People in such comparisons tend to claim that they are superior to others, but these claims are much more muted when people compare themselves with a single individual rather than the population at large (Alicke et al., 1995). This modesty is explained, in part, by the differential sensitivity to constraints account (Critcher & Dunning, 2012). That is, comparisons to individuals (but not to populations) are most humble for those traits that describe behaviors that stem from individual-level forces. As such, future research could continue to explore and refine psychologists' understanding of how judgments of individuals and populations differ in other social judgment and forecasting contexts.

General Discussion

Forecasting how others in general will behave appears to be a different task from forecasting how a singular other will act (pilot study and Studies 1–6). In general, individuals were forecast to be more moral than were populations, although this asymmetry did not emerge for all morally relevant behaviors: Individuals were seen as more likely to perform selfless behaviors (Studies 2–4) but no less likely to perform selfish ones (Studies 2–3, 5). As examples, a randomly selected person was seen as more likely than people in general to carry books for someone whose hands were full but was seen as no less likely to fraudulently charge library printing expenses to someone else's account.

Our studies explored five possible reasons why two normatively equivalent forecasting tasks produced systematically different results. Consistent support was found for a differential sensitivity to constraints hypothesis. Decisions about whether to engage in morally relevant behavior involve circumstances in which one may succumb to temptation or be influenced by moral constraints. When participants considered how a randomly selected individual would behave, their forecasts relied more on influences that operate at the level of the *individual*—the constraints from one's internal moral conscience. When participants considered how a population would behave, their forecasts gave relatively more weight to influences that operate at the level of the *population*—the social norms and constraints that keep bad behavior in check.

Because selfless behavior is seen to be driven by one's moral conscience more than by social constraints, forecasts of the behavior of individuals and populations diverged in predicting these moral, prosocial behaviors (Studies 2–3). The same asymmetry did not emerge for forecasts of selfish behaviors, which are assumed to be held in check equally by both social forces and one's moral conscience. Study 3 provided correlational support for this mechanism. In Studies 4 and 5, we manipulated these constraints directly. When the moral connotations of selflessness were reduced, individuals were no longer judged to be more prosocial than populations (Study 4). When the social forces that keep populations' selfishness in check were lifted, people then saw populations as likely to behave more selfishly than individuals (Study 5). In Study 6, we applied the differential sensitivity to constraints account to the forecasting of non–morally relevant behaviors that were compelled by individual- or population-level forces.

The studies consistently contradicted four alternative accounts for the observed asymmetry between individual- and population-level forecasts. Denominator neglect predicted that forecasts of the behavior of individuals would always be higher than forecasts of the behavior of populations, regardless of the behavior in question. Study 1 ruled out this hypothesis, for the direction of the individual–population asymmetry was reversed depending on which behavior was framed to be moral. Two other accounts, accessibility of angels and person-positivity hypothesis, could predict Study 1's findings, but they do not anticipate that this divergence would be limited to selfless behaviors (Studies 2 and 3) or that forecasts would be differentially sensitive to the presence of

different constraints (Studies 3–5). Although Studies 3 and 4 did show that forecasts showed evidence of projection of self-behavior onto others, they provided no evidence that people project their own behavior differentially onto individuals more than populations. Thus, a projection account cannot explain the asymmetry between individual and population predictions.

Directions for Future Research

Going forward, two large questions remain. First, which frame do forecasters spontaneously adopt? In the present research, these frames were forced on people by the measures, but in real-world contexts, forecasters themselves are more likely to be the ones choosing (even if not deliberately) one frame or the other. Second, what explains the variation between people in their beliefs about how much one's moral conscience or social forces will compel behaviors?

Do people naturally make forecasts for people or for a person? Although future research may find that people typically spontaneously represent unspecified forecast targets as populations or as individuals, it will be crucial to identify moderators that may help to explain when one or the other type of forecast is favored. One hint comes from construal-level theory, which suggests that with psychological distance people construe situations more abstractly (Liberman, Trope, & Stephan, 2007; Trope & Liberman, 2010). This suggests that with psychological distance—whether temporal, social, or physical—people may be more likely to make forecasts about abstract entities (populations). With psychological proximity, people may be more likely to make forecasts about concrete entities (individuals). Smith and Trope (2006) found that high-power individuals tend to think more abstractly. And indeed, one group that frequently attempts to make behavioral forecasts is high-powered policymakers and officials. On the basis of the present research, two things may be noteworthy about policymakers' forecasts. First, they may be especially cynical in their expectations for others' selflessness. Second, they may feel that positive change in people's behavior requires external intervention instead of cultivating a sense of moral responsibility. Such a possibility is reminiscent of Heath's (1999) findings that managers overestimate the influence of extrinsic (vs. intrinsic) incentives on workplace performance.

A related question is when people may switch perspectives from forecasting the behavior of populations to forecasting the behavior of individuals or vice versa. For example, consider a strategist at a charitable organization who is considering a change to the charity's solicitation materials. The strategist may know that 3% of people respond to their requests for donations. But as he considers a change to the charity's donation appeal, he may try to simulate the experience of an individual who receives the newly designed request. That is, he may shift from considering the behavior of a population to instead try to forecast the behavior of an individual. But because people tend to expect individuals to behave more selflessly than populations, the mere shift in target may lead the strategist to be optimistic about the impact of the change. This suggests both a possible new effect and an explanation for it: People may be especially optimistic about interventions designed to promote good, because considering the effect of the intervention pushes people from a forecast of a population's behavior to a forecast of an individual's behavior.

What predicts people's beliefs about the power of internal and social constraints? Although our studies show that perceived internal or social forces impact forecasts about the behavior of individuals and populations, respectively, there remains an open question of how people come to their perceptions of these forces' magnitude. That is, individual variation in these beliefs predicted forecasts in Study 3, but from where do these different perceptions originate? Janes and Olson (2003) offered an individual-differences measure of people's zero-sum orientation. Individuals who score high on this measure endorse statements like, "In life, there are winners and there are losers." It seems possible that people with such a competitive worldview may see fewer constraints on behavior. Also, although our American participants tended to believe that social norms restrained selfishness more than they compelled selflessness, it is possible that this is itself a culture-specific belief (cf. Glendon, 1991; Rosenbaum, 2004).

The Question of Accuracy

Past research on behavioral forecasts of selfish and selfless behavior has largely been conducted with an eye to forecasting accuracy. Because people subscribe to a norm of self-interest, errors in social predictions tend to be in a cynical direction (Miller, 1999; although see Epley & Dunning, 2000). For example, Fetchenhauer and Dunning (2009, 2010) showed that people are overly cynical in estimating how many people would be trustworthy in an economic game. Flynn and Lake (2008) found that participants underestimated how likely others would be to offer assistance in response to a help request.

Previous research has identified one reason why people may be overly cynical in their forecasts: They do not appreciate the power of constraints (Balcetis & Dunning, 2008, in press; Flynn & Lake, 2008). More generally, people tend to underestimate the visceral pull of certain forces when they consider such influences from a dispassionate, cool state (Van Boven, Loewenstein, & Dunning, 2005; Van Boven, Loewenstein, Dunning, & Welch, 2012). The present research suggests a different but related problem: Depending on whether a behavioral forecast is framed as a prediction for an individual or a population, a whole class of constraints may be neglected. As observed in Study 3, people who made forecasts of the behavior of individuals or populations did not weight forces that operate at the level of a population or an individual, respectively. Thus, even when people have the capacity to appreciate the power of a constraint, their perspective on a forecasting target may keep them from drawing on this source of information (see Bohns & Flynn, 2010, for a related effect).

Conclusion

Psychologists, as well as anyone who has designed a questionnaire, are aware that there are many ways to ask the same question. As researchers, we may assume (or hope) that such question formats differ in their clarity but not in the subsequent judgment response they evoke. As we have shown, one such seemingly trivial distinction has a systematic effect on judgment. Although our findings offer a note of caution to researchers who may wish to avoid extraneous variation stemming from forecasting frame,

the phenomenon represents a new effect in its own right. The present findings may not only offer insight into why many forecasts sometimes err but may explain why forecasts differ between forecasters and between forecasting studies.

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