People believe they have more free will than others

Emily Pronin[a,b,1] and Matthew B. Kugler[a]

[a]Department of Psychology and [b]Woodrow Wilson School of Public and International Affairs, Princeton University, Princeton, NJ 08540

Edited* by Richard E. Nisbett, University of Michigan, Ann Arbor, MI, and approved November 15, 2010 (received for review August 13, 2010)

Four experiments identify a tendency for people to believe that their own lives are more guided by the tenets of free will than are the lives of their peers. These tenets involve the a priori unpredictability of personal action, the presence of multiple possible paths in a person's future, and the causal power of one's personal desires and intentions in guiding one's actions. In experiment 1, participants viewed their own pasts and futures as less predictable a priori than those of their peers. In experiments 2 and 3, participants thought there were more possible paths (whether good or bad) in their own futures than their peers' futures. In experiment 4, participants viewed their own future behavior, compared with that of their peers, as uniquely driven by intentions and desires (rather than personality, random features of the situation, or history). Implications for the classic actor–observer bias, for debates about free will, and for perceptions of personal responsibility are discussed.

agency | attribution | psychology | self–other | introspection

> My first act of free will shall be to believe in free will.
>
> William James

> We have to believe in free will. We've got no choice.
>
> Isaac Bashevis Singer

Many a philosopher, psychologist, and college freshman have lost sleep debating whether people have free will. Scholarly arguments against the existence of free will have sprung from theories of hard determinism in philosophy and from experimental studies of animal behavior, nonconscious processes, and neuronal activity (e.g., refs. 1–6). Just as important as the issue of whether people have free will is the issue raised by the above quotations: whether people believe they have free will. That belief affects whether people take responsibility for the outcomes of their actions and whether they go through life assuming that they can control their destiny—or whether they think there is such a thing as destiny at all.

Regardless of how most of us view free will in the abstract, our conscious experience generally provides us with the sense that we have it. We feel as though our desires and intentions precede and influence our actions, and that we face junctures in life where we make genuine, exciting, and often frightening choices about what path to take. At the same time, however, we often observe those around us and have the sense that their decisions (e.g., about what career path to pursue) and successes (e.g., in getting accepted at a top college) were predetermined by things like personality, upbringing, or genes. These contrasting experiences about the self vs. others may resolve themselves in a simple (although logically untenable) way: people, it is predicted, are likely to believe that the tenets of free will apply more in their own lives than in the lives of others.

This prediction draws on and aims to contribute to theorizing about the differing perspectives of "actors" vs. "observers" (7, 8). The actor–observer bias first described by Jones and Nisbett in 1971 (7) is typically thought of as the tendency for people to view their own actions as caused by the situation, while viewing others' actions as caused by those others' personalities. At first blush, this classic bias seems antithetical to our theorizing. If people view their own behavior as controlled by the situation but others' behavior as a product of their own personality, how could they view their own behavior as more freely willed? The answer, we suggest, is that the usual heuristic for describing the actor–observer bias is more catchy and convenient than it is complete and accurate. People, we suggest, do not view situations as inevitably and automatically controlling their actions. Instead, they are highly aware, as Jones and Nisbett noted (7), of the "emotional states and intentions" produced by their situations, and it is these feelings that are the foundations of their attributions. Thus, a more nuanced view of the actor–observer bias suggests that people are likely to perceive others' actions as constrained by their stable and unchanging personalities, while viewing their own actions as intentional responses to changing situations. Given that personality is often seen as a fixed characteristic, people might therefore perceive their own actions as more reflective of free will than the actions of others.

Generally speaking, the concept of free will involves the capacity for individuals to choose particular courses of action from among various alternatives (9). Perhaps the most well-known tenet associated with this notion involves indeterminism (i.e., the notion that a person's actions are not predetermined and cannot be predicted a priori). Some theorists (known as "compatibilists") adhere to the belief that free will can exist even without indeterminism, but they suggest that other tenets are required. Of these, the two tenets that have gained the most traction in discussions of free will are one requiring that when a person takes a particular course of action, that person "could have done otherwise" (i.e., multiple possible paths were available), and another requiring that a person's desires and intentions play a causal role in that person's actions (see ref. 5 for background).

Although no prior research that we know of has examined the prediction made in this article, some studies are suggestive. On the one hand, people generally overestimate the causal impact of their desires and intentions. Indeed, exaggerations of personal agency are a hallmark of mental health (10). People show illusions of control, whereby they assume that their wishes can influence chance or near-chance events (11, 12). They can even become convinced that they have caused seemingly magical outcomes (such as influencing a professional sports team's performance from the comfort of one's sofa) when they have had intentions consistent with those outcomes (13). On the other hand, people are not as prone to assuming that others' desires and intentions exert causal influence. When predicting others' future behavior, people sometimes are less interested in an "inside view" that takes into account those others' plans and intentions and more interested in an "outside view" that takes into account those others' past behavior or even population base rates (14–17). People view information about their own intentions as essential for understanding their own actions but they view information about others' intentions as inessential for making those same assessments about them (18).

Author contributions: E.P. and M.B.K. designed research; E.P. performed research; E.P. analyzed data; and E.P. and M.B.K. wrote the paper.

The authors declare no conflict of interest.

*This Direct Submission article had a prearranged editor.

[1]To whom correspondence should be addressed. E-mail: epronin@princeton.edu.

This article contains supporting information online at www.pnas.org/lookup/suppl/doi:10.1073/pnas.1012046108/-/DCSupplemental.

Research in experimental philosophy has begun to take up the question of lay beliefs in free will, but has reached few firm conclusions (e.g., refs. 19, 20). Although logic suggests that there is one answer to the question of whether people have free will, people's lay beliefs appear to be more complex. In four experiments, we aim to show that participants view their own actions, compared with those of others, as more consistent with the tenets of free will—i.e., as less predictable a priori (experiment 1), more capable of taking different possible paths (experiments 2 and 3), and more determined by in-the-moment intentions and desires as opposed to personality, history, or circumstance (experiment 4).

Experiment 1: Predictability

Indeterminism (the most classic tenet of free will) refers to the notion that individuals' actions cannot be predetermined or predictable a priori. We hypothesized that college undergraduates would view their own past decisions and future decisions as less predictable a priori than those of a roommate. Participants were asked about the degree to which various events in either their own or their roommate's life were predictable a priori (events such as the demise of a past relationship or the path of a future career). Although past decisions and future decisions were examined, the hypothesized self–other difference was not expected to differ between the two types of decisions (prior theorizing suggested that future events might be perceived as less predictable overall; ref. 1).

Results of Experiment 1. Participants perceived their own outcomes as less predictable a priori than those of a roommate ($M = 3.86$ vs. 4.81, on a 7-point scale ranging from 1 = not at all predictable to 7 = extremely predictable); $F(1, 48) = 14.46$, $P = 0.0004$. This self–other difference was significant for both past outcomes ($M = 4.32$ vs. 5.16), $F(1, 48) = 6.40$, $P = 0.01$ and future outcomes ($M = 3.40$ vs. 4.47), $F(1, 48) = 8.46$, $P = 0.005$.

Consistent with previous theorizing (1), there also was a main effect for time, whereby people perceived the future as less predictable than the past ($M = 3.93$ vs. 4.74); $F(1, 48) = 10.94$, $P = 0.002$. There was no interaction between past/future and self/other ($F < 1$).

Participants viewed their own pasts and futures as less predictable than those of their peers. These results suggest that participants believed that their own choices in life were, and would be, less predetermined than those of their peers. Moreover, participants provided these assessments in the context of roommate relationships, where they were likely to have a good deal of information about the person whom they were judging.

It is worth considering potential alternative accounts for why participants claimed that their actions were less predictable than their peers'. Perhaps they saw predictability as undesirable (and wanted to protect their self-image). Or, perhaps, our results reflected our participant sample—i.e., young people attending an elite college. Perhaps these individuals were atypically prone to imagining that the world of possibilities was open to them. Our next two experiments sought to build on our first, while addressing these alternative explanations.

Experiment 2: Possibilities

A central tenet of the concept of free will is that people are able to choose among options—to take one path when they "could have done otherwise" (21–23). If free will exists, people's futures must contain multiple different possibilities that could genuinely occur. We hypothesized that participants would view their own futures as possessing more possible paths than the futures of others. Employees of two local restaurants were asked to indicate from a set of options all of the possibilities that they saw as plausible with respect to their own future vs. a coworker's. Those possibilities included things such as different places where they might reside 10 years from now.

Results of Experiment 2. Our primary prediction was that participants would indicate a larger number of "genuine possibilities" for their own future place of residence, job, and lifestyle than for those of a familiar coworker. Indeed, participants circled more options as being genuine possibilities in the case of themselves than a coworker ($M = 7.00$ vs. 5.66, out of 21 total possibilities); $F(1, 27) = 8.30$, $P = 0.008$. Moreover, this effect held for each question domain—place of residence, $F(1, 27) = 4.85$, $P = 0.04$; employment, $F(1, 27) = 5.27$, $P = 0.03$; and lifestyle, $F(1, 27) = 4.99$, $P = 0.03$ (Fig. 1). There were no order effects.

We next examined a secondary prediction suggested by our theoretical analysis. We expected that there was one possibility for each question that participants would see as more likely for their coworker than themselves—i.e., the possibility that in the next 10 y one would be in the "same" position as "right now." Because this possibility runs contrary to the conception that the future is open to novel possibilities, we expected it to be viewed as more common for others. Indeed, participants circled the same as right now possibility more frequently for others than themselves ($M = 35$ vs. 20%); χ^2 ($n = 84$) $= 4.31$, $P = 0.03$. Participants believed that their own futures contained many possible paths, but that others were likely to continue on whatever path they were currently walking.

We conducted one final series of analyses to explore whether participants claimed that more possibilities were in their future simply because those possibilities were desirable (and thus viewing more of them as options was self-enhancing). We asked four employees from our sample to rate what they saw as the two "most desirable" and "least desirable" possibilities for each question. On the basis of their ratings, we created composites of the home/job/lifestyle combinations that our restaurant employees viewed as most desirable and least desirable. Participants were generally positive about their own and their coworkers' futures: there was a main effect whereby they viewed more of the options from the desirable triad as genuinely possible than options from the less desirable triad ($M = 1.30$ vs. 0.41); $F(1, 27) = 38.44$, $P < 0.0001$. As predicted, however, there was no difference between self vs. other assessments in participants' tendency to view desirable vs. undesirable options as genuine possibilities; $F(1, 27) = 0.23$, $P = 0.64$. Thus, our results could not be attributed to participants' trying to self-enhance by ascribing more desirable possibilities (vs. undesirable ones) to themselves vs. others. This result is an interesting counterpoint to past research showing that people view positive events (e.g., living past 80) as more likely to happen to them than to others and negative events (e.g., being fired from a job) as less likely to happen to them than to others (24). Perhaps our participants believed that the ratio of good to bad things in their future was better than that ratio for others but still could not escape the notion that even the less desirable outcomes were possible for

Fig. 1. Perceived number of genuine possibilities in own vs. a coworker's future. Error bars indicate 1 SE above the mean (experiment 2).

them. This could reflect the fact that none of the possibilities in this study were genuinely undesirable (e.g., participants were asked whether it was possible that they would live in a different house or work a different job, but not if they might live in a shoddy house or work a dull job). Our next experiment sought to explore this phenomenon further by seeking to more directly rule out self-enhancement.

Experiment 3: Possibilities and Self-Enhancement

Undergraduates were asked about various possibilities that might be in their own postgraduation future or that of a peer. For each question, they were presented with one relatively desirable possibility (e.g., I might have an exciting job), one relatively undesirable possibility (e.g., I might have a boring job), and the conjunction of those two possibilities (i.e., both are possible), and they were asked to select which of those three options best represented what was genuinely possible. Self-enhancement would predict that people would select more desirable possibilities for themselves than for others and fewer undesirable possibilities for themselves than for others. Our free will hypothesis would predict that people would choose more possibilities overall (i.e., including desirable and undesirable ones) for themselves than for others.

Results of Experiment 3. Our primary prediction was that participants would designate the conjunction of desirable and undesirable prospects as "genuinely possible" more often for themselves than for others. Consistent with this prediction, participants chose that conjunction a greater percentage of the time for themselves than a peer (M = 52 vs. 36%); $F(1, 48) = 10.44$, $P = 0.002$ (Table 1). When thinking about their own futures, they chose that option more often than they chose desirable options alone (M = 31%); $F(1, 24) = 9.74$, $P = 0.005$. By contrast, they did not show this pattern of choosing the conjunction more than desirable options alone when judging a peer (M = 43%); $F(1, 24) < 1$, NS, and this interaction (self/other × conjunction/desirable only) was significant; $F(1, 48) = 8.34$, $P = 0.006$. When participants did select only one outcome for themselves, they were more likely to choose a desirable one than an undesirable one (31 vs. 6%); $F(1, 24) = 23.00$, $P < 0.0001$, but they also showed this tendency for a peer (43 vs. 12%); $F(1, 24) = 33.57$, $P < 0.0001$, and there was no self–other difference, $F < 1$.

Participants reported that there were more possibilities, rather than more desirable ones, in their own futures than those of a friend. They seemed to believe that their future was not written in stone (for good or for ill). We expected that they believed that some variable that was not stable or predetermined—one that involved not randomness, but rather the exertion of their free will—was critical for predicting their future actions. Our next experiment further tested this hypothesis.

Experiment 4: Agency

A distinct tenet of free will is that it involves the ability to overcome the influences of situation and personality, to choose what one wants, and to act accordingly on one's preferences (5, 25). This experiment explored the hypothesis that people view their own behavior, in comparison with others', as more the product of ongoing wants and intentions (rather than past history, fixed traits, or random circumstances). To test this hypothesis, we asked participants to draw box models for predicting their own and a peer's behavior (on either "a particular Saturday night" or "after finishing college"). For each model, participants were instructed to include four predictors (the situation, personality, desires and intentions, and past behavior), with the size of the box that they used for each one indicating the amount of predictive weight they imputed to it.

Results of Experiment 4. Our primary prediction was that participants would assign a greater amount of predictive weight in their models to their own desires and intentions (relative to their personality, past behavior, and situation) than to others' desires and intentions. We first calculated the sum total area (length × height) of each box participants drew, and we thereby were able to calculate the proportion of total area participants assigned to each individual predictor (the situation, personality, desires and intentions, and past behavior). Consistent with our hypothesis, participants viewed their own desires and intentions as a stronger predictor of future behavior than others' desires and intentions. On average, they assigned more of the total predictive value to their desires and intentions (M = 36%) than to others' (M = 27%); $F(1, 54) = 13.46$, $P = 0.0006$. This difference was apparent for participants who predicted future Saturday night activities, $F(1, 28) = 6.18$, $P = 0.02$ (Fig. 2), and for those who predicted postcollege activities, $F(1, 26) = 8.62$, $P = 0.007$ (Fig. S1).

Notably, participants in general viewed their own desires and intentions as the strongest predictor of their behavior. They viewed it as a stronger predictor than personality, $F(1, 56) = 32.24$, $P < 0.0001$; the situation, $F(1, 56) = 8.17$, $P = 0.006$; or past behavior, $F(1, 56) = 48.34$, $P < 0.0001$. In the case of their roommates, by contrast, participants viewed personality as the strongest predictor, although their tendency to perceive it as

Table 1. Percentage of participants rating desirable possibilities, undesirable possibilities, or both, as genuinely possible for themselves or a peer in the year after graduation (experiment 3)

	Self			Other		
Question domain	Desirable, %	Undesirable, %	Both, %	Desirable, %	Undesirable, %	Both, %
Job (exciting/boring)	28	0	72	12	32	56
Apartment (nice/crappy)	16	16	68	52	16	32
Grad school (top/mediocre)	40	0	40	60	4	32
Romance (fall in love/heartbreak)	24	0	72	28	4	68
Time (be useful/waste)	40	4	56	44	16	40
Family (impress/disappoint)	76	4	20	72	4	24
Home city (beautiful/ugly)	48	0	52	56	4	40
Friends (great/not enough)	40	8	52	72	0	28
Med school (best/not top)	4	12	28	4	16	20
Law school (best/not top)	8	8	48	24	24	12
Employment (dream/grunt)	16	16	64	44	12	44
Total (across items)	31	6	52	43	12	36

Words in parentheses indicate desirable/undesirable options in domain. For some questions (e.g., Med school), the sum of the three options is less than 100% because, for some respondents, none of the options were seen as genuinely possible.

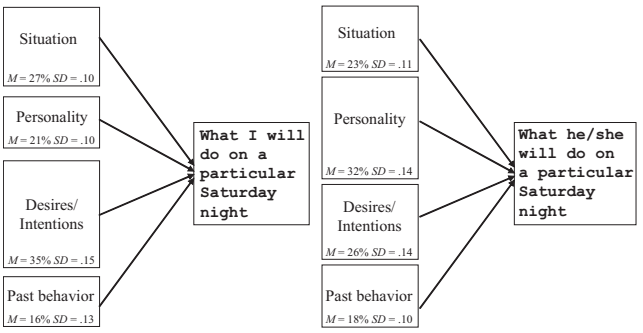

Fig. 2. Average graph drawn by participants modeling their own (*Left*) and their roommate's (*Right*) behavior on a future Saturday night. Differences in box size indicate average differences across participants. Mean and SD indicate, consistent with box size, percentage of total area assigned to each predictor (experiment 4).

more important than desires and intentions was not significant; $F(1, 55) = 2.15$, $P = 0.15$.

Finally, we examined self–other differences on each of our other predictor variables. Consistent with past research (26), participants viewed their own personality as a less strong predictor of future action than their roommate's personality (M = 21 vs. 32%); $F(1, 54) = 24.42$, $P < 0.0001$. They also tended toward viewing their own circumstances (or "situation") as a stronger predictor of action than their roommate's circumstances (M = 28 vs. 24%); $F(1, 54) = 2.93$, $P = 0.09$. Participants did not assign different predictive weight to their own vs. their roommate's past behavior (M = 15 vs. 17%); $F(1, 54) = 1.25$, NS.

In summary, participants showed a disconnect between the role that they believed ongoing intentions and desires played in determining their own vs. their roommate's future behavior. In the case of themselves, but not a roommate, participants viewed intentions and desires as the strongest determinant of their behavior and as a more important determinant than predetermined factors such as personality and past history.

Discussion

This research supports the hypothesis that people perceive themselves as possessing more of the ingredients that constitute free will than those around them. Individuals in our experiments viewed their past and future behaviors as less predictable a priori than those of their peers (experiment 1), and they believed that, relative to their peers, there were more possible paths that their own lives could take (experiments 2 and 3). Moreover, this self–other asymmetry did not reflect a tendency for individuals to simply see their own lives as more guided by randomness. Our participants indicated that it was internal desires and intentions that best predicted their own (but not others') future behavior (experiment 4).

These results were not simply the product of privileged "Ivy Leaguers" viewing their futures as open to anything they might desire. College students and restaurant waiters alike indicated that their own futures contained more possible paths than those of others in their circumstances. Nor did the results simply reflect self-enhancement. Experiments 2 and 3 revealed that participants' claims of free will can be self-deprecating rather than enhancing. Participants in those studies did not claim more desirable futures than their peers, but rather more possibilities in those futures—whether those possibilities were to succeed or to fail. Experiment 4 ruled out the possibility that people see their futures as less predetermined simply because they see those futures as more dictated by randomness. In that study, participants indicated that it was internal desires and intentions that best predicted their behavior (as opposed to personality, situation, or past behavior).

Revisiting a Classic Bias. This work has implications for the classic actor–observer bias. That bias often is conceptualized, in convenient shorthand, as the tendency for people to make situational attributions for their own actions and dispositional attributions for others' actions. Although this conceptualization is catchy, it provides an incomplete picture of the true actor–observer bias. It suggests that people view themselves as simply blown about by the situational wind. A more nuanced view, and one supported by the present results, is that people view their actions not as driven by the situation in an automatic or stimulus–response fashion (a view that would negate the possibility of free will), but rather that they view their actions as actively chosen responses to the situation (a view completely consistent with free will).

A recent metaanalysis by Malle (27) defined the actor–observer bias as the tendency for people to view their own actions as externally determined but others' actions as internally generated, and it found little support for the bias when defined in that way. The present results suggest that the actor–observer bias indeed exists, but that it is more complicated than this definition. Past findings have already hinted at this. For example, people avoid characterizing their behavior in terms of one of two opposing internal traits (e.g., "lenient" vs. "firm") if they are given the option to say it "depends on the situation," whereas they readily choose a trait for others (26); however, people do not prefer the depends-on-the-situation option for themselves when they are permitted to pick both opposing internal traits (e.g., lenient and firm) (28). This pair of findings suggests that people view their own behavior as caused by something internal to them, rather than external, but they view that internal cause as a fluid response to circumstances rather than a fixed response pattern.

A more nuanced view of the actor–observer bias not only offers to enrich our understanding of the classic bias, but it also helps to account for various everyday observations and empirical results. For example, past research suggests that people avoid explaining their actions in terms of situational factors that operate nonconsciously (e.g., ref. 29). The conceptualization of the actor–observer bias that we offer suggests that actors focus on the motives, desires, and intentions that they have in response to ongoing circumstances and that, as a result, they are only prone to making "situational" attributions when they feel that they have consciously responded to the situation (and not when the situation exerts its effects nonvolitionally or nonconsciously). More generally, we suggest, this conceptualization brings the actor–observer bias in line with the everyday observation that people tend not to view their own behaviors as affected by situational cues that elude conscious awareness.

The present experiments suggest that people, on the whole, believe that their own lives are more guided by free will than others' lives. Certain individuals and groups of people may hold this belief particularly strongly, and others may hold it weakly or even not at all. Culture influences people's tendency to view others' actions as caused by internal factors—with individuals from individualistically oriented cultures, such as the United States and Western Europe, emphasizing internal factors more than individuals from collectivistically oriented cultures, such as China, India, and Japan (30–32). This raises the question of whether our results would be replicated in those cultures. It is also possible that the effect would be stronger in collectivistic cultures, as those individuals are especially attuned to the contextual factors that seem to control others' behavior. Although additional research would be needed to resolve this question, the self–other difference in perception of free will might be expected to appear cross-culturally to the extent that individuals across cultures are persuaded by their own experience of intending things before doing those things.

Age is another variable that might influence people's perception of the operation of free will in their lives. As people advance from youth and middle age to old age, the way in which they think about problems involving other people (namely, conflicts between people and groups) shifts such that they are more likely to acknowledge uncertainty and recognize multiple perspectives (33). This raises the interesting question of whether people's beliefs about free will shift over time, as people become more aware of the range of possibilities in others' (and perhaps their own) decisions and actions.

The present results and this view of the actor–observer bias are consistent with research on the introspection illusion (18, 34, 35), which entails people's tendency to view their own motives, intentions, and desires as the key to understanding their actions (a tendency not shown in the case of others). People have rich introspective access to the conflicting desires, complex thoughts, and impinging circumstances that precede their actions (but not others' actions), and this may contribute to their heightened sense of freely choosing those actions. This raises the possibility that hearing about others' mental wavering and mixed emotions will make others' actions seem more freely willed, although this possibility may be diminished by people's general lack of faith in the probative value of others' mental reports (18, 34, 35).

Philosophers have long speculated that the introspective feeling of free will provides the force behind people's belief in it (20). By placing heavy weight on our own introspections (but not those of others), we may find ourselves uniquely convinced of our own free will. In some ways, this conviction is likely to be liberating—endowing us with a greater feeling of power in our lives. Future studies should investigate other effects of this belief. For one, does people's tendency to view their outcomes as more freely willed than others' lead them to feel guiltier when things go wrong? At first, this may seem to contradict the observation that malefactors often see themselves as less blameworthy than others see them. However, the present theorizing suggests that those denials of blameworthiness are most common for unintended wrongdoings (which may feel less freely willed due to the absence of relevant prior thoughts). Another possible effect: To the extent that people can imagine multiple possible paths not only in their futures but also in their pasts (as suggested by experiment 1), they may be particularly prone to ruminating over what "could have been" and what they should have done differently.

This article is concerned with perceptions of free will, rather than with its objective existence. However, it is difficult not to wonder whether our results reveal that people incorrectly inflate their own free will or incorrectly deflate the free will of those around them. This question cannot be answered here, as it is bound up in the larger, unsolved mystery of whether free will exists. That mystery is likely to continue causing endless debate—debate in which we perceive two clashing views of free will: the view we have of ourselves and the view we have of others.

Methods

Experiment 1. ***Participants and design.*** Fifty Princeton University juniors and seniors received candy for completing one of two versions (self or other) of a questionnaire.

Procedure and materials. Participants who completed the self version of the questionnaire were asked to indicate the degree to which certain past and future events in their lives could have been predicted a priori. The past events were: their decision to attend Princeton, the demise of their last romantic relationship, and their choice of major. The future events were: their ultimate career path, the specific person they would marry, and the part of the country where they would live after graduation. For example, participants were asked: "Think about your choice of what to major in. How easy would it have been to predict that you would end up choosing that major?" (1 = not at all predictable, 7 = extremely predictable). Participants who completed the "other" version of the questionnaire were asked to indicate the initials of their roommate and to indicate the predictability of these same events for that roommate.

Experiment 2. ***Participants and design.*** Twenty-eight employees of two Italian restaurants in Princeton, New Jersey volunteered to participate by responding to a series of questions about themselves and a coworker, with order counterbalanced.

Procedure and materials. Participants' questionnaires posed a series of questions about themselves and a coworker of their choice whom they knew "reasonably well." For each question, participants were asked to think about what they (or their coworker) would be doing over the next 10 y, and they were provided with a list of seven possibilities. From that list, they were asked to circle all of the options that they viewed as "genuine possibilities." The first question involved places where one might live. Participants were instructed: "Of the following places, please circle all the ones that are genuine possibilities for where [you/your coworker] might live at some point in the next 10 years." The possibilities included: the house/apartment [I am/he or she is] living in right now; another house/apartment in the same town; another state in the Northeast; the West Coast; the Midwest; the South; or abroad. The second question concerned "genuine possibilities for what [your/his or her] job might be at some point in the next 10 years" (same exact job as right now; same job, but working for a different employer; same employer, but different job; a job that makes a lot more money; a job that is a lot more interesting; a job that has been a life-long dream; or no job: retired, unemployed, or hanging out). The third question concerned "genuine possibilities for what [your/his or her] life might be like at some point in the next 10 years" (same lifestyle as right now; more fun-loving lifestyle; more career-focused lifestyle; more family-focused lifestyle; more adventurous lifestyle; more conservative lifestyle; more relaxed and calm lifestyle).

Experiment 3. ***Participants and design.*** Fifty Princeton undergraduates received candy for completing one of two versions (self, or other) of a questionnaire.

Procedure and materials. Participants were randomly assigned to make predictions for the postgraduation lives of either themselves or another person (a friend of their choosing). They were presented with 11 questions asking about different life domains such as career, romance, and social life. For each question, they were asked to circle which of three response options best captured the "genuine possibilities" for what might happen "during the year after graduation." One option was always desirable, one undesirable, and one simply the conjunction of the other two (it stated: Both are possible). The desirable and undesirable options were pretested with two undergraduate raters who unanimously rated each of the items as desirable (or undesirable). Sample items were: have an exciting job (have a boring job); live in a really nice apartment or house (live in a really crappy apartment or house); end up in a top graduate program (end up in a mediocre graduate program); and do something useful (waste some time).

Experiment 4. ***Participants and design.*** Fifty-eight Princeton undergraduates received candy for drawing box models depicting the behavior of themselves and of a roommate.

Procedure and materials. To familiarize participants with their experimental task, they first were told that there are "models for predicting all sorts of things" and that these models generally "include a number of different factors that are believed to predict an outcome, and they assign different values to those factors depending on how important each one is thought to be." Participants then were shown an example of a box model for predicting the price of corn on the basis of three factors (with the importance of each factor indicated by the size of its box; Fig. S2). Next, they were asked to draw two of their own models. They either were asked to draw a model for predicting their own behavior on "a particular Saturday night" and their roommate's behavior on one, or they were asked to draw models predicting what they (and their roommate) would do "after finishing college." For each model, they were instructed to include four predictors: the situation, personality, desires and intentions, and past behavior. They were instructed to draw a box for each of the four predictors, with the size of each box indicating its predictive importance and with arrows from each box (situation, personality, etc.) pointing to the outcome they were predicting (e.g., What I will do on a particular Saturday night). They were furnished with pieces of graph paper for drawing their models. Our dependent measure involved the relative sizes of the different boxes that they drew.

ACKNOWLEDGMENTS. We thank Joel Cooper and Susan Fiske for valuable comments concerning this article. We thank Amy Ricci, Kathleen Schmidt, and Nasim Sobhani for research assistance. This research was supported in part by a grant from the National Science Foundation (to E.P.).

1. Bargh JA (2008) *The Psychology of Free Will*, ed Baer J (Oxford Univ Press, Oxford, UK), pp 128–154.
2. Haggard P (2005) Conscious intention and motor cognition. *Trends Cogn Sci* 9: 290–295.
3. Libet B (1985) Unconscious cerebral initiative and the role of conscious will in voluntary action. *Behav Brain Sci* 8:529–566.
4. Skinner BF (1971) *Beyond Freedom and Dignity* (Bantam, New York).
5. Watson G (1982) *Free Will* (Oxford Univ Press, Oxford, UK).
6. Wegner DM (2002) *The Illusion of Conscious Will* (MIT Press, Cambridge, MA).
7. Jones EE, Nisbett RE (1971) *The Actor and the Observer: Divergent Perceptions of the Causes of Behavior* (General Learning Press, New York).
8. Gilbert DT, Malone PS (1995) The correspondence bias. *Psychol Bull* 117:21–38.
9. O'Connor T (2008) *The Stanford Encyclopedia of Philosophy*, ed Zalta EN (Stanford University, Stanford, CA).
10. Taylor SE, Brown JD (1988) Illusion and well-being: A social psychological perspective on mental health. *Psychol Bull* 103:193–210.
11. Langer EJ (1975) The illusion of control. *J Pers Soc Psychol* 32:311–328.
12. Matute H (1996) Detecting response-outcome independence in analytic but not in naturalistic conditions. *Psychol Sci* 7:289–293.
13. Pronin E, Wegner DM, McCarthy K, Rodriguez S (2006) Everyday magical powers: The role of apparent mental causation in the overestimation of personal influence. *J Pers Soc Psychol* 91:218–231.
14. Kahneman D, Lovallo D (1993) Timid choices and bold forecasts: A cognitive perspective on risk taking. *Manage Sci* 39:17–31.
15. Buehler R, Griffin D, Ross M (1994) Exploring the "planning fallacy": Why people underestimate their task completion times. *J Pers Soc Psychol* 67:366–381.
16. Epley N, Dunning D (2000) Feeling "holier than thou": Are self-serving assessments produced by errors in self- or social prediction? *J Pers Soc Psychol* 79:861–875.
17. Kahneman D, Tversky A (1982) *Judgment Under Uncertainty: Heuristics and Biases*, eds Kahneman D, Slovic P, Tversky A (Cambridge Univ Press, Cambridge, UK).
18. Pronin E (2008) How we see ourselves and how we see others. *Science* 320:1177–1180.
19. Nahmias E, Morris S, Nadelhoffer T, Turner J (2005) Surveying freedom: Folk intuitions about free will and moral responsibility. *Philos Psychol* 18:561–584.
20. Nichols S (2006) Folk intuitions on free will. *J Cogn Cult* 9:67–86.
21. Aristotle (1985) *Nichomachean Ethics,* trans Irwin T (Hackett Publishing, Indianapolis, IN).
22. Chisholm R (1982) *Free Will*, ed Watson G (Oxford Univ Press, Oxford, UK), pp 24–35.
23. Descartes R (1984) *Meditations on First Philosophy and Passions of the Soul,* trans Cottingham J, Stoothoff R, Murdoch D (Cambridge Univ Press, Cambridge, UK).
24. Weinstein ND (1980) Unrealistic optimism about future life events. *J Pers Soc Psychol* 39:806–820.
25. Frankfurt H (1982) *Free Will*, ed Watson G (Oxford Univ Press, Oxford, UK), pp 81–95.
26. Nisbett RE, Caputo C, Legant P, Marecek J (1973) Behavior as seen by the actor and as seen by the observer. *J Pers Soc Psychol* 27:154–164.
27. Malle BF (2006) The actor-observer asymmetry in attribution: A (surprising) meta-analysis. *Psychol Bull* 132:895–919.
28. Sande GN, Goethals GR, Radloff CE (1988) Perceiving one's own traits and others': The multifaceted self. *J Pers Soc Psychol* 54:13–20.
29. Nisbett RE, Wilson TD (1977) Telling more than we can know: Verbal reports on mental processes. *Psychol Rev* 84:231–259.
30. Miller JG (1984) Culture and development of everyday social explanation. *J Pers Soc Psychol* 46:961–978.
31. Morris M, Peng K (1994) Culture and cause: American and Chinese attributions for social and physical events. *J Pers Soc Psychol* 67:949–971.
32. Choi I, Nisbett RE (1998) Situational salience and cultural differences in the correspondence bias and actor–observer bias. *Pers Soc Psychol Bull* 24:949–960.
33. Grossmann I, et al. (2010) Reasoning about social conflicts improves into old age. *Proc Natl Acad Sci USA* 107:7246–7250.
34. Pronin E, Berger J, Molouki S (2007) Alone in a crowd of sheep: Asymmetric perceptions of conformity and their roots in an introspection illusion. *J Pers Soc Psychol* 92:585–595.
35. Pronin E, Kugler MB (2007) Valuing thoughts, ignoring behavior: The introspection illusion as a source of the bias blind spot. *J Exp Soc Psychol* 43:565–578.