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The Invisibility Cloak Illusion: People (Incorrectly) Believe They Observe Others More Than Others Observe Them

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Whether at a coffee shop, in a waiting room, or riding the bus, people frequently observe the other people around them. Yet they often fail to realize how much other people engage in the same behavior, and that they, therefore, also are being observed. Because it is logically impossible that people, on average, are the subjects of observation more than they are objects of it, the belief that one watches others more than one is watched is an illusion. Several studies show that people incorrectly believe that they observe others more than other people observe them. We call this mistaken belief the "invisibility cloak illusion." People believe that they observe others more than do other people and that they are generally observed less than are others (Studies 1–3, 5, 6). The illusion persists both among strangers in the same vicinity (Study 2) and among friends interacting with one another (Study 3), and it cannot be explained away as yet another general better-than-average bias nor is it the result of believing one has more thoughts, in general, than do other people (Studies 2–3). The illusion is supported by a failure to catch others watching oneself (Studies 1b, 4) and it is manifest in the specific contents of people's thoughts about one another (Studies 5 and 6). Finally, rendering a feature of one's appearance salient to oneself fails to interrupt the illusion despite increasing one's belief that others are paying more attention specifically to that salient feature (Study 6).

Keywords: invisibility cloak illusion, self-other asymmetry, social observation, spotlight effect

People-watching is an age-old pastime. People notice and observe the people around them all the time—on trains, at cafés, waiting in line, at cocktail parties and office meetings, and beyond. Pretty much anywhere there are other people, we spend a good deal of time watching them, wondering who they are, and assessing what they are like. But despite all the watching people do of others people rarely feel as if they, themselves, are being observed as they go about their daily lives. Indeed, people feel relatively invisible. Of course it is impossible that people (on average) observe others more than they themselves are observed. Yet this is precisely what we suspect people believe. We call this bias the *invisibility cloak illusion*. This is an illusion that prevents you from realizing that, whether you are on a plane, in a restaurant, or at a rodeo, when you stop watching people and taking in the social scene—when you turn your attention to whatever else you are doing—the people around you are likely to raise their eyes from whatever they were doing and watch you.

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Why an Invisibility Cloak Illusion Ought to Exist

The invisibility cloak illusion is characterized by two interrelated biases that result in a third bias. First, people believe that they are very socially observant, indeed that they are more observant than are other people. That is, people think that while *they* notice and ponder the people around them with abandon, *other* people do this to a lesser extent. Second, people believe they, personally, are less observed than are other people. That is, people concede that *other* people might be watched but believe that *they themselves* are watched less. The result is that people believe *they* observe others more than *others* observe them.

Our rationale for postulating the existence of an invisibility cloak illusion has several facets. First, people believe that they are more socially observant than are other people. People have far more mental accessibility to their own observations of, and musings about, others than they have to the observations and musings of other people (e.g., Pronin, 2008). Although people tend to lack access to the processes underlying their own internal states and driving their behavior (Nisbett & Wilson, 1977), the outputs of these processes—thoughts, feelings, motivations, and intentions—are highly salient to them. This is one reason why people's own contributions to joint projects loom larger than the contributions made by others (Ross & Sicoly, 1979), and why people tend to believe that their internal states (e.g., thoughts and feelings) are more revealing about whom they really are than is their overt behavior (Andersen, 1984; Andersen & Ross, 1984). But if thought accessibility alone were the bedrock of people's belief that they observe people more than do others, the effect we are describing would be on shaky ground as a new phenomenon. For it would logically follow that people believe they observe *all* things more

than do others, making for just another way in which people tend to think they are superior to others (i.e., "better-than-average" Alicke, 1985).

Instead, we believe that the invisibility cloak illusion pertains specifically to social life (see Figure 1) for the following reasons. When people consider how much they observe other people—as well as inanimate objects—in their environment, they rely on introspection, which is subject to several known biases (Tversky & Kahneman, 1974). One such bias— *availability*—states that thoughts that come to mind more readily (e.g., because they are more salient) are believed to be more plentiful (Schwarz et al., 1991). Because people are so salient to us (e.g., Jones & Nisbett, 1972; indeed more salient than inanimate objects, which have less potential to impact our outcomes, Heider, 1958, p. 21), our thoughts about people ought to come to mind quite readily and thus be perceived as especially abundant. On the other hand, when people consider how much other people observe the people and inanimate objects in their environment, they rely not on introspection but rather on overt, observable behavior (Pronin & Kugler, 2007). And when we look around, it is easy to see other people looking around at both people and at their surrounding environment.

Further, people believe others are less socially observant than themselves. People, for many reasons, largely keep the multitude of their everyday thoughts and observations about others to themselves, both as those thoughts occur and after the fact. That is, people have far more observations of and musings about other people than they reveal. Although this is, by and large, true of everyone, we can still be fooled by others' closed lips disguising their busy minds (Prentice & Miller, 1993). Of course, people may share their thoughts with others but, typically, this is limited to a small subset of those thoughts as well as to a small subset of ears. People may share a social observation with a friend, but it must surpass a certain threshold of importance or noteworthiness to seem worth airing. To talk about all one's *innumerable* observations would be impossible, often rude or dull, and without function. People therefore inevitably remain largely ignorant of the extent to which social thoughts and observations comprise other people's streams of consciousness.

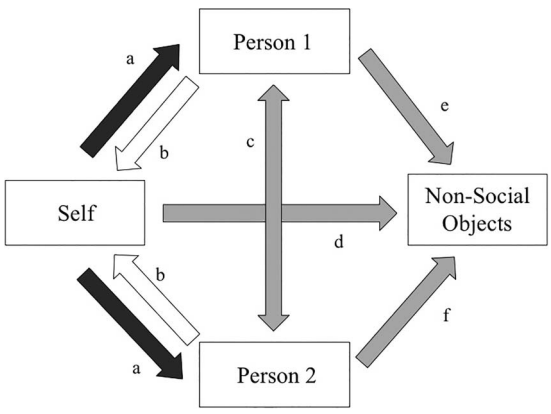

Figure 1. In this depiction of the invisibility cloak illusion, the darkness of the arrows indicates the extent to which people believe observations are being made (the darker the arrow, the greater the amount of observation). The self believes that: he or she observes other people the most (*a* pathways), other people observe himself/herself the least (*b* pathways), and other people observe one another less than the self observes others but more than others observe the self (*c* pathway). The self believes that he or she observes non-social objects to approximately the same extent as others do, and that others observe social and non-social objects in equal degree (*d, e, f* pathways).

This is especially true when it comes to the thoughts others tell us about *us*. Although Sally might tell Diane her thoughts about Mary, she is much less likely to tell Diane her thoughts about Diane, for reasons of etiquette and saving "face" (Goffman, 1967). This brings us to the second bias—people believe they are observed less than are other people. This is in part for the reason mentioned immediately above, but also because people actively strive to hide that they are watching us in the first place (e.g., Laidlaw, Foulsham, Kuhn, & Kingstone, 2011), as evidenced by the fact that people often look away as soon as they suspect their gaze toward others has been detected. When people eavesdrop on a conversation taking place at an adjacent restaurant table or pay attention to who is flirting with whom at a party, they typically take pains to be discreet (Goffman, 1963; Kim, 2012; Zuckerman, Miserandino, & Bernieri, 1983), a phenomenon Goffman (1963) called civil inattention. People quickly look down or away or pretend to be engrossed in something else if it seems as if the target of their observation might catch them. Such behavior may make it difficult to ascertain whether and when one is being observed; indeed, people are notoriously inaccurate at noticing when they are being watched (Argyle & Dean, 1965; Kleinke, 1986). The upshot is that a person's evidence for watching others almost always outweighs his or her evidence of being watched, and this leads to misguided conclusions (e.g., Tversky & Kahneman, 1973).

Further, the tendency to feel less subject to being watched than others are is likely exacerbated by the way the human body is structured—people are visually oriented outward toward the world, with their own physical existence largely edited out of their own field of view compared to the extent that other people are visible (e.g., see Jones & Nisbett, 1972; Storms, 1973; Taylor & Fiske, 1975). For example, closing either eye a person can look toward the middle of one's face and clearly see one side of their nose, then close the other eye and see the other side. But with both eyes open looking straight ahead one's own nose disappears, edited out of existence in secondary visual processing. One's receptors are poorly located for recording nuances of one's own behavior (Jones & Nisbett, 1972, p. 85), and yet they are ideally located for perceiving other people as salient, dynamic features of one's surroundings. Our default orientation, in the absence of reminders of oneself as an object in the world (e.g., one's own image in a mirror or the sound of one's own recorded voice), is thus to feel relatively unseen by others (Wicklund & Duval, 1971). Indeed, this visual orientation is so powerful that people recall more information relevant to a conversationalist if he is seated under a bright light as opposed to if he is not well illuminated (McArthur & Post, 1977), and if one is facing as opposed to sitting behind that person (Taylor & Fiske, 1978).

Considered as a body of evidence, the above rationales consistently provide a strong foundation for the hypothesized invisibility cloak illusion. The upshot of having both the belief that one is *more socially observant* and *less socially observed* than are others

is a belief that one observes others to a greater extent than oneself is observed.

The Present Research

In the present research, we establish evidence for the invisibility cloak illusion. In the studies that follow, we present evidence that (a) people believe they observe others more than other people do, (b) people believe they are observed less than others are, and the logical consequence of the first two premises, that (c) people believe they observe others more than others observe them. The present studies additionally provide evidence for the rationales that we propose for the existence of the invisibility cloak illusion and demonstrate that this bias is specific to beliefs about observing people (vs. non-social targets) and not simply the result of thinking of oneself as generally superior to others (i.e., more observant in general). Taken together, the following studies demonstrate that, as if under a cloak of invisibility, people believe that while they are surveying the social world they somehow remain relatively hidden from view.

Study 1a: The Self Observing Others

We first aimed to establish evidence that (a) people believe they observe people more than others do and that (b) people believe they observe others more than others observe them. Since the proposed invisibility cloak illusion reflects people's lay beliefs, we probed people's opinions outright by soliciting self-reports.

Method

Participants. Two hundred sixty participants (55% female, 44% male, 2 participants indicated sex as "other," M_{age} = 35.87 years, SD = 11.81 years) were recruited on Amazon Mechanical Turk in exchange for payment. The sample included 10% African or Caribbean American, 5% Hispanic/Latino, 8.5% Asian American, 1.2% Native American, 73.8% Caucasian/White, and 1.5% "other." Participants completed this study after having completed an unrelated experiment, and the sample size of 260 participants in a within-participants design was considered to provide sufficient power to detect the predicted effect. No further data were collected after analyses began.

Procedure. Participants read the following instructions: "We are interested in the extent to which people tend to act like natural psychologists or observers of human nature in their everyday lives when they are among people who do not know one another. Please answer the following questions about yourself to the best of your ability. There are no right or wrong answers, so please respond as honestly as you can and to the best of your ability."

Participants responded to five people-watching questions about themselves ("self observing others" items) and five people-watching questions about the average person ("others observing others" items) in two separate blocks that were presented in counterbalanced order across participants: (a) How curious [are you/is the average person] about other people, in general? (b) How interested [are you/is the average person] in other people, in general? (c) How much do [you/the average person] find [yourself/themselves] wondering what makes other people "tick"? (d) How much do [you/the average person] find [yourself/themselves] wondering what the people around [you/them] are thinking about, what they're feeling, or what they are up to? (e) How much [do you find yourself/does the average person find themselves] noticing or observing the people around [you/them]? Participants responded on scales ranging from 1 (*not at all*) to 7 (*very/very much*).

Next, we more explicitly probed people's lay theories about an asymmetry between (a) the extent to which they (vs. others) observe others and (b) the extent to which people observe others and believe others observe them by prompting participants to make direct comparisons. That is, we asked participants to report on the extent to which they agreed with two sets of statements about themselves and others using scales anchored at 1 (*strongly disagree*), 2 (*disagree*), 3 (*neither agree nor disagree*), 4 (*agree*), and 5 (*strongly agree*): (1a) I tend to notice or be aware of other people more than they notice or are aware of other people and (1b) I feel like others tend to notice or be aware of other people more than I notice or am aware of other people, and (2a) I tend to notice or be aware of other people more than they notice or are aware of me and (2b) I feel like others tend to notice or be aware of me more than I notice or am aware of them. Finally, participants answered demographic questions and were debriefed and compensated.[1]

Results

The five people-watching items measuring the extent to which participants observe the people around them formed a reliable composite (Cronbach's α = .92) and were therefore combined to create a new variable, "self observing others." Likewise, our five people-watching items measuring the extent to which people think other people pay attention to the people around them also formed a reliable composite (Cronbach's α = .90) and were therefore combined to create a new variable, "others observing others." Twelve participants did not complete at least one of these items. Their data were excluded from analyses, leaving us with data from 248 participants. A paired t test comparing "self observing others" to "others observing others" revealed a significant difference in the predicted direction, such that participants believed they pay more attention to people (M = 5.05, SD = 1.31) than other people do (M = 4.56, SD = 1.05), $t(247) = 5.33$, $p < .001$, 95% confidence interval (CI) [.31, .66], d = .35.

Next, we ran two paired t tests comparing the extent to which participants agreed with each pair of items reflecting their explicit lay theories about (a) the extent to which they and others engage in social observation, and (b) the extent to which they notice others versus others notice them. The data from one participant were eliminated from the analysis of pair 1 because that participant did not respond to both items. The data from an additional five participants were eliminated from the analysis of the second pair of items because these participants did not respond to both items. A first paired t test revealed that participants were more inclined to think that they observe others more than other people do (M = 3.60, SD = .86) than they were to think that other people observe others more than they do (M = 2.63, SD = .96), $t(254) = 10.76$, $p < .001$; 95% CI [.80, 1.15], d = .87. A second paired t test revealed that participants were more inclined to believe that they observe people more than people observe them (M = 3.75, SD =

[1] All measures and manipulations are reported for this and all subsequent studies.

.86) than they were to believe that people observe them more than they observe those people ($M = 2.67$, $SD = 1.00$), $t(258) = 12.02$, $p < .001$, 95% CI [.91, 1.26], $d = .93$.

Discussion

Study 1a supported our hypotheses that people believe they are more socially observant than are others, and that people think they pay more attention to other people than other people pay to them. Although it is logically impossible that, on average, people actually observe others more than they themselves are observed, that is precisely what people appear to believe.

Study 1b: The Self as Object of Observation

In Study 1b, we aimed to replicate and extend the results of Study 1a in a number of ways. First, we sought to assess (and rule out) the possible validity of an alternative explanation of the results of Study 1a. Specifically, we wanted to make sure that the differences we observed in Study 1a in people's beliefs about the extent to which they versus others engage in social observation could not be attributed to people making judgments about a single other person (themselves) versus a collective (people on average). In Study 1b we therefore asked participants about "a person selected at random (person x) rather than "the average person."

Next, we wanted to find out whether we would obtain the same evidence for the invisibility cloak illusion that we observed in Study 1a, that people think they observe others more than others observe them, even when participants are not prompted to engage in a direct comparison of themselves with others (i.e., reporting the extent to which "I tend to notice or be aware of other people *more than* they notice or are aware of me"). That is, in Study 1b we additionally asked participants to report on their own observations of other people and other people's observations of them in two separate blocks of questions presented in randomized order. These additional measures also allowed us to test our hypothesis that people tend to believe not only that they are more socially observant (i.e., that they observe others more than other people do) but also that they are less likely to be observed (i.e., that people observe others more than they observe the self).

Last, we wanted to explore one possible reason for the existence and persistence of the invisibility cloak illusion: That people tend to intentionally disguise the fact that they watch or notice other people by strategically averting their gaze. The upshot of people doing this, writ large, is that it may prove difficult for people to realize the extent to which they are the targets of social observation. Therefore we included a final set of questions in Study 1b to measure people's tendency to disguise the fact that they watch people.

Method

Participants. One hundred ninety-eight participants (56% female, $M_{age} = 37.50$ years, $SD = 12.68$ years) were recruited on Amazon Mechanical Turk in exchange for payment. The ethnic sample of the participants included 11.2% African or Caribbean American, 3.5% Hispanic/Latino, 8.6% Asian American, 1.5% Native American, 72.2% Caucasian/White, and 2.5% "other." Participants completed this study after having completed an unrelated experiment, and we considered the sample size of 198 participants in a within-participants design to provide sufficient power to detect the predicted effect. No further data were collected after analyses began.

Procedure. The procedures were nearly identical to Study 1a except in the ways outlined above. Participants first responded to the same 10 people-watching questions about themselves ("self observing others" items) and about others ("others observing others" items) as in Study 1a except this time we replaced "the average person" with "a person selected at random ('person x')" (e.g., "How much [do you find yourself/does person x find themselves] noticing or observing the people around [you/them]?").

The next series of questions was designed to compare the extent to which people think they observe others to the extent to which they think others observe *them*, without their making explicit comparisons. To this end, we presented participants with two separate blocks of five questions in counterbalanced order across participants. In one question block, participants answered questions about themselves; in the other they answered questions about a person selected at random (person x). Specifically, we asked participants to indicate the extent to which they agreed with the following statements about themselves and others when in a public place using scales anchored at 1 (*not at all*) and 7 (*very/very much*): (a) How curious do you think [you/person x] would be about [person x/you]? (b) How interested do you think [you/person x] would be about [person x/you]? (c) How much do you think [you/person x] would find [yourself/person x] wondering what makes [person x/you] "tick"? (d) How much do you think [you/person x] would find [yourself/themselves] wondering what [person x/you] are thinking about, what [they're/you're] feeling, or what [they/you] are up to? (e) How much do you think [you/person x] would find [yourself/themselves] noticing or observing [person x/you]?

Next, participants were asked to make the same direct comparisons as in Study 1a to probe their explicit theories about an asymmetry between (a) the extent to which they think about others and other people think about others and also (b) the extent to which people think about others and believe others think about them.

Finally, to explore whether people disguise the fact they are watching others, a behavior that could contribute to the persistence of the illusion, we asked participants to report the extent to which they agree with each of the following statements on scales anchored at 1 (*strongly disagree*), 2 (*disagree*), 3 (*neither agree nor disagree*), 4 (*agree*), and 5 (*strongly agree*): (a) If someone noticed me looking at them, I would avert my gaze and pretend I was not looking at them, (b) I try to not let others see me observing them, and (c) If someone catches me looking at them, I feel uncomfortable. Last, participants answered a series of demographic questions and were debriefed and compensated.

Results

Just as in Study 1a, our five people-watching items measuring the extent to which participants pay attention to the people around them formed a reliable composite (Cronbach's $\alpha = .93$) and were combined to create a new variable, "self observing others." Two participants failed to respond to all five items and therefore their data were excluded from the analyses, leaving data for 196 participants. Likewise, the five people-watching items measuring the

extent to which participants think others pay attention to the people around them formed a reliable composite (Cronbach's $\alpha = .91$) and were combined to create a new variable, "other observing others." Seven participants failed to respond to all five items and their data were excluded from analysis, leaving data for 191 participants. A paired *t* test comparing "self observing others" to "others observing others" revealed that participants reported they would pay more attention to the people around them ($M = 4.49$, $SD = 1.43$) than they thought person x would ($M = 3.85$, $SD = 1.14$), $t(195) = 6.58$, $p < .001$, 95% CI [.4, .83], $d = .48$, replicating the results of Study 1a.

A second pair of composite variables was created for the next analyses. These analyses were designed to test the extent to which people believe they would observe another person and the extent to which they believe that person would observe them. The five items measuring the extent to which participants believed they would observe a random person in their vicinity (person x) formed a reliable composite (Cronbach's $\alpha = .95$) and were combined to create a new variable, "self observing other person." Five participants failed to respond to all five items and therefore their data were excluded from the analyses, leaving data for 193 participants. Likewise, the five people-watching items measuring the extent to which participants thought someone would observe them formed a reliable composite (Cronbach's $\alpha = .95$) and were combined to create a new variable, "other person observing self." Two participants failed to respond to all five items and their data too were excluded from analysis, leaving data for 196 participants. A paired *t* test revealed that participants believed they would observe someone selected at random ($M = 3.92$, $SD = 1.50$) to a greater extent than they thought that person would observe them ($M = 3.31$, $SD = 1.37$), $t(190) = 6.63$, $p < .001$, 95% CI [.43, .79], $d = .49$.

Further, because we measured both the extent to which people thought person X would observe other people in general and the extent to which they thought person X would observe *them*, we additionally were able to test our hypothesis that people tend to believe they are observed to a lesser extent than are other people. A paired *t* test revealed that participants did indeed believe that they ($M = 3.31$, $SD = 1.39$) would be less observed by a random individual in their environment than would other people ($M = 3.85$, $SD = 1.14$), $t(194) = 7.65$, $p < .001$, 95% CI [.41, .69], $d = .56$.

Next, as in Study 1a, we ran two paired *t* tests comparing the extent to which participants agreed with each pair of items reflecting their explicit lay theories about (a) the extent to which they and others engage in social observation, and (b) the extent to which they notice others versus others notice them. The data from five participants were eliminated from the analysis of the first pair of items for not responding to both items, and the data from four participants were eliminated from the analysis of the second pair of items for not responding to both items. A first paired *t* test revealed that participants were more inclined to think that they observe others more than other people do ($M = 3.38$, $SD = 1.00$) than to think that other people observe others more than they do ($M = 2.70$, $SD = 1.00$), $t(196) = 5.64$, $p < .001$, 95% CI [.45, .93], Cohen's $d = 0.63$. A second paired *t* test revealed that participants were more inclined to believe that they observe people more than people observe them ($M = 3.26$, $SD = 1.00$) than to believe that people observe them more than they observe those people ($M = 2.59$, $SD = 1.00$), $t(193) = 5.73$, $p < .001$, 95% CI [.44, .90], Cohen's $d = 0.56$. These tests provided direct replications of the results of Study 1a.

Last, we tested whether people disguise the fact that they watch other people. The three items measuring the extent to which people avert their gaze so as to not reveal that they are paying attention to others formed a reliable composite (Cronbach's $\alpha = .85$) and were combined to create a new variable in which 1 indicates not hiding their gaze and 5 indicates hiding their gaze. Four participants failed to respond to all three items and their data were therefore excluded from analyses. A one-sample *t* test comparing participants' mean scores on this variable to the neutral midpoint (i.e., 3 – *neither agree nor disagree*) revealed that they reported hiding the fact that they observe others to a significantly greater extent ($M = 3.7$, $SD = .88$) than the neutral midpoint, $t(193) = 10.48$, $p < .001$, 95% CI [.54, .78].

Discussion

The results of Study 1b successfully replicated those of Study 1a, providing further evidence for, and confidence in, the invisibility cloak illusion. These results also extended Study 1a in several ways. Results from Study 1b suggest that the effect observed in Study 1a was not an artifact of differences between how a single person (i.e., the participant) is judged versus how an aggregate of people (i.e., "the average person") is judged. Additionally, support for the illusion was found both when we asked participants to make explicit comparisons between their own observations and others' observations and when we asked participants about their own and others' observations in separate questions that did not elicit direct comparisons. We also found that people believe not only that they are more socially observant than are other people, but also that they are observed less.

The results of the present study additionally provided evidence that people tend to disguise the fact that they watch others from the targets of their observations. People's efforts to hide their eye gaze from the people whom they are observing likely contributes to the persistence of the invisibility cloak illusion, a finding that fits well with prior discussions and demonstrations of civil inattention (Goffman, 1963; Kim, 2012; Zuckerman et al., 1983).

Study 2: Social (and Non-Social) Observations in the Dining Hall

Studies 1a and 1b, although providing proof of concept, rely on people's beliefs about how much attention they *would* pay to other people and how much attention other people *would* pay to them. These beliefs were based on hypothetical considerations of what they would do and how they would feel if they were around other people. To find out whether the invisibility cloak illusion exists in a naturally occurring real-world context, in Studies 2 and 3 we recruited participants immediately upon their exit from a college dining hall so that we could ask them about the extent to which they had just observed others and felt observed by others while eating a meal in a public place. We probed participants immediately after their meal rather than during it, when we expected the bias to be operative, to avoid interfering with the effect. Note that this is the same procedure that has been used in the measurement of many other self-other biases (e.g., illusion of transparency—Gilovich, Savitsky, & Medvec, 1998; spotlight effect–Gilovich,

Medvec, & Savitsky, 2000); in these studies, people were asked to reflect upon events immediately after they had occurred rather than while the events were unfolding.

Also, in contrast with Studies 1a and 1b, in Studies 2 and 3 we measured how much participants observed others and believed they were being observed by others using a between-subjects design. This provided a more conservative test of the invisibility cloak illusion, since the bias was measured in absolute as opposed to relative terms, such that participants in any one condition had no specific comparison value (i.e., those asked how much they observed others did not know that other participants were asked how much other people observed them, and vice versa).

Further, in Studies 2 and 3 we sought to rule out two alternative explanations of the invisibility cloak illusion. First, we wanted to find out whether the invisibility cloak illusion is simply part and parcel of a broader phenomenon of feeling that one is more observant of one's environment in general than are other people. If the illusion is caused by feeling more observant of all kinds of things across the board (e.g., as a manifestation of the better-than-average effect; Alicke, 1985), then people should report being more aware of inanimate objects in addition to being more aware of people. We predicted that people would believe they are more observant than are other people of their social (but not non-social) surroundings, and that they would think other people are equally observant of their social and non-social environments. Second, we wanted to find out whether people tend to think their own minds are simply more active (i.e., full of thoughts and feelings) than are other people's minds, so that others, logically, would seem less likely than oneself to be thinking about other people (in addition to other things). We predicted that people would not believe their own mind is generally more active than other people's minds, because the supports and rationale for the invisibility cloak effect outlined above are specific to social life and not about just any kind of thoughts. In short, our assumption is that the invisibility cloak illusion is specifically about social life and we predicted that the pattern of results of Studies 2 and 3 would reflect this.

Method

Participants. One hundred seventy-six participants (43% female, 53% male, eight participants failed to report their gender; M_{age} = 20.85 years, SD = 5.48 years, nine participants failed to report their age) were recruited outside of a popular dining hall at Yale University during the lunch period (12 p.m. to 3 p.m.) and compensated with candy. We set out a priori to recruit at least 150 participants. No further data were collected after analyses began. The ethnic sample of the participants included 9.9% African or Caribbean American, 7.7% Hispanic/Latino, 26% Asian American, .6% Native American, 40.3% Caucasian/White, and 6.6% "other."

Procedure. Immediately upon exiting a university dining hall, participants were asked to fill out a brief questionnaire. Upon consenting, participants were handed a one-page survey attached to a clipboard. Participants were assigned randomly to one of three conditions: self observing others (self-other), others observing self (other-self), others observing others (other-other). Experimenters were blind to condition. All three conditions contained questions designed to measure social observations (questions 1–3), non-social observations (questions 4–5), and how many thoughts and feelings people have in general (question 6).

How much do we watch others? (self-other condition). The first condition was designed to find out how much participants observed other people. The instructions read, "We are interested in the extent to which people tend to notice and pay attention to the people around them in their everyday lives. We would like you to indicate the extent to which you paid attention to the other people in the dining hall (not the specific group you were eating with) during lunch today." Participants were asked to answer the following six questions by circling a number from 1 (*not at all*) to 7 (*very much/a lot*): (1) How much did you find yourself noticing or observing the people around you (e.g., their behavior, mannerisms, appearance)? (2) How curious were you about the people around you? (3) How much did you find yourself wondering what was going on in their head (e.g., what they were thinking about, feeling, what they were up to)? (4) How much attention did you pay to the details of the objects (e.g., furniture, food, lighting, decorations, etc.) in the dining hall today? (5) How much detail did you notice about the objects in the dining hall today? (6) How aware were you of what was going on around you in the dining hall, how much were you thinking about other things, experiencing feelings and so forth—that is, how actively were you thinking (about anything at all)?

How much do we believe others watch us? (other-self condition). The second condition was nearly identical to the first except, instead of asking participants how much attention they paid to other people, we asked participants how much they thought they were the objects of others' attention. The instructions read, "We would like you to indicate the extent to which you think the other people in the dining hall (not the specific group you were eating with) paid attention to you during lunch today." The six questions asked were identical to those of the first condition except for slight wording changes to match the condition. For example, question 1 was changed to "How much do you think they were noticing or observing you (e.g., your behavior, mannerisms, appearance)?", and the non-social and mindedness questions (i.e., questions 4–6) asked about other people's observations and minds instead of one's own (e.g., non-social: "How much detail do you think they noticed about the objects in the dining hall today?", mindedness: "How much do you think they were aware of what was going on around them in the dining hall, how much were they thinking about other things, experiencing feelings and so forth—that is, how actively do you think they were thinking (about anything at all)?").

How much do other people watch other people? (other-other condition). Similarly, the third condition was nearly identical to the other two except instead of asking about how much attention participants paid to others or how much attention others paid to them, participants were asked how much they thought other people tended to observe others in the dining hall. The instructions read, "We would like you to indicate the extent to which you think the people around you (not the specific group you were eating with) paid attention to the other people in the dining hall during lunch today." Again, the wording of the six questions was altered slightly to match the condition. For example, question 1 was changed to "How much do you think they were noticing or observing people in the dining hall (e.g., their behavior, mannerisms, appearance)?" and questions 4–6, measuring people's non-social observations

and mindedness, were identical to those described above in the other-self condition.

Last, participants answered a series of demographic questions and were debriefed and offered candy as compensation

Results

Responses to the survey questions were collapsed into three variables as planned a priori. Answers to questions 1–3 were combined into a "social" variable designed to measure the extent to which people notice and think about other people in their environment (Cronbach's $\alpha = .90$); answers to questions 4 and 5 were combined into a "non-social" variable to measure the extent to which people observe non-social aspects of their environment (Cronbach's $\alpha = .86$); and answers to question 6 measure the extent to which people think they and others have active minds, full of thoughts and feelings ("mindedness").

To test our primary hypothesis, we ran a 2 (within-subjects condition: social vs. non-social observation) × 3 (between-subjects condition: self-other, other-self, and other-other) repeated measures analysis of variance (ANOVA) to find out whether people tend to think that they are more attentive than others to all kinds of things in their environment (both social and non-social) or whether the bias is specific to social life. As predicted, the interaction was significant, $F(2, 173) = 12.69$, $p < .001$, partial $\eta^2 = .13$ (see Figure 2). The between-subjects factor was also significant, $F(2, 173) = 7.27$, $p = .00$, partial $\eta^2 = .08$, while the main effect of the within-subjects factor was not ($p = .57$). We next followed up with two one-way ANOVAs, one for the social variable and one for the non-social variable.

Social observations. First, we ran a one-way ANOVA to test the impact of condition (i.e., self-other, other-self, and other-other) on the social variable (i.e., attending to people in one's environment). As predicted, participants reported being more observant of other people ($M = 3.66$, $SD = 1.73$) than they thought others were either of them ($M = 2.18$, $SD = 1.01$) or of other people in the dining hall ($M = 3.07$, $SD = 1.15$), $F(2, 173) = 18.40$, $p < .001$, $\eta^2 = .18$. Post hoc least significant difference (LSD) tests revealed that all three conditions were significantly different from one another (all ps $< .02$).

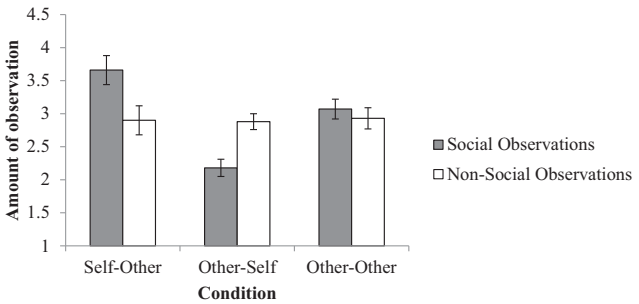

Figure 2. Mean ratings of the extent to which people in Study 2 observed others in the dining hall (self-other) versus how much they think other people in the dining hall observed them (other-self) or others (other-other), compared to mean ratings of the extent to which people make observations that are non-social. Scores could range from 1 (*not at all*) to 7 (*a lot*). Error bars represent 95% confidence intervals.

Non-social observations. Next, we ran a one-way ANOVA testing the impact of condition on the non-social variable (i.e., attending to nonanimate objects in one' environment). It revealed no significant difference between the three conditions ($p = .97$). Participants thought they observed the non-social aspects of their environment ($M = 2.90$, $SD = 1.72$) to the same extent as did others (other-self condition: $M = 2.88$, $SD = .96$; other-other condition: $M = 2.93$, $SD = 1.23$).

Finally, we followed up with three paired t tests comparing the social and non-social variables to one another separately for each condition. Results show that participants paid more attention to other people ($M = 3.66$, $SD = 1.73$) than they did to their non-social environs ($M = 2.90$, $SD = 1.72$), $t(58) = 2.95$, $p = .005$, 95% CI [−1.02, −.40], Cohen's $d = 0.44$, and that participants believed other people paid less attention to them ($M = 2.18$, $SD = 1.01$) than they did to their non-social environs ($M = 2.88$, $SD = .96$), $t(58) = -4.61$, $p < .001$, 95% CI [−1.00, −.40], Cohen's $d = 0.71$. However, participants believed other people paid equal attention to other people ($M = 3.07$, $SD = 1.15$) as to the non-social aspects of their environment ($M = 2.93$, $SD = 1.23$), $p = .465$.

Mindedness. A one-way ANOVA to test the impact of condition on the mindedness variable revealed no significant difference between the three conditions ($p = .18$). Participants thought their own mind ($M = 3.93$, $SD = 1.72$) was not significantly more active than were others' minds (Other-Self condition: $M = 3.70$, $SD = 1.42$; other-other condition: $M = 4.23$, $SD = 1.42$).

Discussion

Confirming our hypothesis, participants believed they were more observant of others than others were of them, and that they were more observant of other people than were others, in a real-life and very common social experience—eating in a public place. Further, this bias to feel more observant than others was limited to social life and was not just part of a more general belief that oneself is more observant of everything in one's environment (both social and non-social entities) than are other people. Indeed, we found no bias in people's judgments of how often they (relative to other people) notice things other than people in their environment. Because people did not report superiority compared with others in their non-social observations or in how active their (vs. others') minds are (e.g., brimming with thoughts and feelings), these data suggest that the invisibility cloak illusion is not simply caused by a general motivation to present oneself in an especially positive light compared to others, for example as in the better-than-average effect (Alicke, 1985; Kruger, 1999). Further, the specific pattern of results we observed strongly supports our proposed rationale for the invisibility cloak illusion. People reported observing other people to a greater extent than they observed inanimate objects (presumably because people are more salient to us than are objects; Heider, 1958; e.g., Graziano, Habashi, & Woodcock, 2011); people believed others observed other people and inanimate objects in equal amount (because we can see others attending to both); and people believed others observed them less than they observed inanimate objects (because despite seeing others looking at objects it can be difficult to catch

people watching us; Goffman, 1963; Laidlaw, Foulsham, Kuhn, & Kingstone, 2011).

Study 3: Observations Among Friends

Up to this point, our experiments have focused on people's beliefs about the extent to which they observe and think about strangers and their beliefs about the extent to which strangers think about them. It remains to be tested, then, whether the invisibility cloak illusion applies exclusively to beliefs about people observing unknown others or whether it also applies to known others—perhaps even friends with whom one is interacting. Whereas people generally have little reason to think that strangers would be paying attention to them (after all, strangers do not know one another nor do they expect to interact in the future), they do have reason to believe that the people who know them, such as their friends, are paying attention to them. After all, it is functional for a friend to notice when you are feeling sad, for example, so that they can comfort you (Clark, Ouellette, Powell, & Milberg, 1987), or what colors you tend to wear, so that friend can pick out a gift that will be well received. People therefore may not think their friends pay less attention to them than they pay to their friends.

Yet prior research suggests otherwise. Pronin and colleagues have provided evidence of an "illusion of asymmetric insight" among acquaintances such that people believe they know and understand their peers better than their peers know and understand them (Pronin, Kruger, Savitsky, & Ross, 2001). In one study, close friends, on average, claimed to know and understand their friend better than their friend knew them (Pronin et al., 2001, Study 1). Thus, self-other biases of this general kind seem to apply not only to a generalized other or to strangers, but to specific close others as well. Based on these findings and our own intuitions, we hypothesized that the invisibility cloak illusion would exist not only in comparisons of oneself to unknown others in the broader vicinity, but also in comparisons of oneself to friends.

At the same time, the nature of the illusion might be expected to change slightly in the context of people who know one another. That is, whereas we predicted that participants would rate themselves as more socially observant than their friends (as they did when asked about strangers in Study 2), we hypothesized that they would no longer feel as unobserved by others when those others are friends (with whom they are often directly interacting) as compared to strangers. Thus, our hypotheses for Study 3 were that participants would rate themselves as more socially observant than their friends, but they would likely think their friends were more observant of them (the participant) than of the other people around them.

Method

Participants. One hundred fifty-three participants (49% female, 48% male, five participants failed to report gender; M_{age} = 20.43 years, SD = 5.88 years, five participants failed to report age) were recruited outside of Yale University dining halls after lunch or dinner. Participants were asked to participate in a brief questionnaire study and were compensated with candy. We set out a priori to recruit at least 150 participants. No further data were collected after analyses began. The participant sample included 5.8% African or Caribbean American, 8.4% Hispanic/Latino, 23.4% Asian American, 1.9% Native American, 48.7% Caucasian/White, and 8.4% "other."

Procedure. When exiting the dining hall, participants were asked to fill out a brief questionnaire. Upon consent, participants were handed a one-page survey attached to a clipboard. The survey was similar to the one used in Study 2 except in Study 3 the questions centered on the specific group with whom the participants ate their meal and were adapted to suit this purpose. As before, participants were assigned randomly to one of three conditions (self-other, other-self, other-other) and experimenters were unaware of the experimental condition.

How much do we watch others? (self-other condition). The first condition was designed to measure how much participants observed the people with whom they were eating, and the instructions and social questions were adapted for asking about people's dining companions (as opposed to strangers in the dining hall).[2] The instructions read,

> We are interested in the extent to which people tend to notice and pay attention to the people around them in their everyday lives. We would like you to indicate the extent to which you observed and thought about the people you ate [lunch/dinner] with today.

These instructions were followed by seven questions the participant was asked to answer by circling a number from 1 to 7 with 1 indicating *not at all* and 7 indicating *very/a lot*. The questions were as follows: (1) How much did you feel like you were watching them and noticing details about them and the way they acted? (2) How much did you find yourself wondering what was going on in their mind (above and beyond what you talked about)? (3) How much did you find yourself observing their behavior, mannerisms, and appearance? (4) How well could you describe their behavior, mannerisms, and appearance based on your observations of them during lunch? (5) How much attention did you pay to the details of the objects (e.g., furniture, food, lighting, decorations, etc.) in the dining hall today? (6) How much detail did you notice about the objects in the dining hall today? (7) How aware were you of what was going on around you in the dining hall, how much were you thinking about other things, experiencing feelings and so forth—that is, how actively were you thinking (about anything at all)?

How much do we believe others watch us? (other-self condition) & How much do we believe others watch others? (other-other condition). The other two conditions were nearly identical to the first except instead of asking how much attention participants paid to the people with whom they ate, the social questions asked how much participants thought their dining companions were observing them (other-self) or how much their dining companions were observing others (other-other condition). The non-social and mindedness questions were identical to those of the (other-self and other-other conditions in Study 2).

Finally, participants answered a series of demographic questions, were debriefed, and were offered candy as compensation.

Results

As in Study 2, the survey questions were collapsed into three different variables, as planned a priori. Questions 1–4 were com-

[2] The non-social and mindedness questions were identical to those in Study 2.

bined into a "social" variable we used to measure the extent to which people notice and think about other people in their environment (Cronbach's $\alpha = .83$); questions 5 and 6 were combined into a "non-social" variable to measure the extent to which people observe non-social aspects of their environment (Cronbach's $\alpha = .87$); and question 7, "mindedness," measured the extent to which people think they and others have active minds, abounding with thoughts and feelings.

To test our primary hypothesis that people believe they are more socially (but not more non-socially) observant than are others, we first ran a 2 (within-subjects condition: social vs. non-social observation) × 3 (between-subjects condition: self-other, other-self, and other-other) repeated measures ANOVA to find out whether people tend to think that they are more attentive to all kinds of things in their environment (both social and non-social) or whether the bias is specific to social life. As predicted, the interaction was significant, $F(2, 150) = 6.95$, $p = .001$, partial $\eta^2 = .09$ (see Figure 3). In addition, the main effect of the target of observation (i.e., social vs. non-social) was significant, $F(1, 150) = 88.33$, $p < .001$, partial $\eta^2 = .37$, and the main effect of the between-subjects condition was significant, $F(2, 150) = 4.79$, $p = .01$, partial $\eta^2 = .06$. We next followed up with two one-way ANOVAs, one for the social variable and one for the non-social variable.

Social observations. A one-way ANOVA testing the impact of condition (i.e., self-other, other-self, other-other) on the social variable revealed that participants reported being more observant of the people with whom they ate ($M = 4.55$, $SD = 1.30$) than they thought their dining companions were either of them ($M = 4.02$, $SD = 1.30$) or of other people in the dining hall ($M = 3.36$, $SD = 1.16$), $F(2, 150) = 11.65$, $p < .001$, $\eta^2 = .13$. Post hoc LSD tests revealed that the mean ratings for all three condition differed significantly from one another (all ps $< .04$).

Non-social observations. Next, a one-way ANOVA testing the impact of condition on the non-social variable revealed that there was not a significant difference between the three conditions ($p = .54$). Participants believed they were equally observant of the non-social aspects of their environment ($M = 2.93$, $SD = 1.44$) as were others (other-self condition: $M = 2.62$, $SD = 1.45$; other-other condition: $M = 2.82$, $SD = 1.43$).

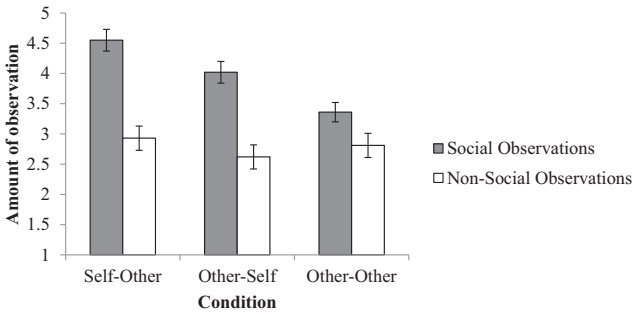

Figure 3. Mean ratings of the extent to which people in Study 3 observed their dining companions (self-other) versus how much they think their dining companions observed them (other-self) or others in the dining hall (other-other), compared with mean ratings of the extent to which people make observations that are non-social. Scores could range from 1 (*not at all*) to 7 (*a lot*). Error bars represent 95% confidence intervals.

Finally, we followed up with three paired t tests comparing the social and non-social variables to one another separately for each condition. Results show that participants paid more attention to other people ($M = 4.55$, $SD = 1.30$) than they did to their non-social environs ($M = 2.93$, $SD = 1.44$), $t(49) = 7.27$, $p < .001$, 95% CI [1.17, 2.07], Cohen's $d = 1.18$; that participants believed their dining companions paid more attention to them ($M = 4.02$, $SD = 1.30$) than they did to their non-social environs ($M = 2.62$, $SD = 1.45$), $t(50) = 6.44$, $p < .001$, 95% CI [1.00, 1.91], Cohen's $d = 1.02$; and that their dining companions paid more attention to other people ($M = 3.36$, $SD = 1.16$) than to the non-social aspects of their environment ($M = 2.82$, $SD = 1.43$), $p = .465$,), $t(50) = 2.48$, $p = .02$, 95% CI [.10, .97], Cohen's $d = 0.41$.

Mindedness. A one-way ANOVA testing the impact of condition on the mindedness variable revealed a significant difference between the three conditions, $F(2, 151) = 3.65$, $p = .03$. Post hoc LSD tests revealed that participants rated themselves (self-other condition: $M = 4.42$, $SD = 1.63$) as having approximately equally active minds as their dining companions in the other-self condition ($M = 4.37$, $SD = 1.61$), $p = .86$, but more active minds than their companions in the other-other condition ($M = 3.67$, $SD = 1.45$), $p = .02$. In addition, participants believed their dining companions' minds were significantly less active after considering how much those people were observing others in the dining hall than after considering how much they observed themselves, $p = .03$.

Discussion

The pattern of results in Study 3 corroborated our hypothesis that the invisibility cloak illusion applies not only to unknown others but also to known others with whom one is directly interacting. Participants believed both that they were more observant of other people than their dining companions and that they were more observant of their companions than their companions were of them. Yet the fact that they were friends eating together mattered somewhat; unsurprisingly, they rated their companions as being more observant of them than of others in the dining hall (after all, they were eating and conversing together). This result supports our proposal that seeing someone (e.g., a conversation partner) looking at oneself should increase the extent to which one believes one is being observed.

Studies 4a and 4b: Failing to Acquire Evidence of Being Watched

Having established the invisibility cloak illusion and its specificity to the social domain, Studies 4a and 4b were designed to provide evidence for one potential reason people believe that they are not being observed very much by others. Because people are adept at hiding their gaze from the people whom they are watching, it ought to be difficult to acquire evidence that one is being watched. Indeed, in Study 1b we obtained some initial evidence that people do in fact strive to avert their gaze so that they do not get caught watching others. In Studies 4a and 4b we sought additional evidence—obtained in a real-world, naturally occurring context—for this behavior, which contributes to the invisibility cloak illusion.

Because people know that they watch others, yet they rarely catch others watching them, the scale of evidence is unevenly weighted toward oneself watching others rather than others watching oneself. In Study 4a we sought to compare how often people look at others to the number of times people catch other people looking at them. We predicted that people would report looking at others more than they catch others looking at them because people try to hide the fact that they are watching the person whom they are observing (Goffman, 1963; Laidlaw, Foulsham, Kuhn, & Kingstone, 2011). In Study 4b, we investigated how people interpret the eye contact they make with others. We predicted that when people make eye contact they are more inclined to believe it happened because *they* were watching the person whose eyes they met, as opposed to because that person was watching *them* (Study 4b). Although we are aware of the times we are looking at other people, our default visual orientation largely edits us out of our own field of view, making it relatively difficult to picture oneself as an object of others' attention (Jones & Nisbett, 1972; Storms, 1973; Taylor & Fiske, 1975; Wicklund & Duval, 1971). Such results would build on those of Study 1b which revealed that people report disguising their gaze from the targets of their attention.

Study 4a

Method

Participants. Eighty-nine participants (42% female, 53% male, three participants failed to report gender; M_{age} = 23.12 years, SD = 8.39 years, three participants failed to report age) were recruited outside a Yale University dining hall after lunch and were compensated with candy. We a priori aimed to collect data from 100 participants for Study 4a and from 100 participants for Study 4b study, with the ultimate goal of completing both studies before the dining hall closed at the end of the semester. We got reasonably close to 100 participants for Study 4a, at which point we launched Study 4b to ensure both studies would be completed by the end of the semester. For both studies, no further data were collected after analyses began.

Procedure. Upon exiting the dining hall, participants were asked to fill out a brief questionnaire. Once they consented, participants were handed a one-page survey attached to a clipboard. Participants read the following instructions: "People often look around and notice other people when they're in public places. Answer the following questions about other people in the dining hall whom you do not know (write the numbers on the lines provided below)." They reported how many times they found themselves looking at or observing different people in the dining hall that day (question 1) and how many times they caught someone else looking at them in the dining hall that day (question 2) by writing a number in a blank space provided below each question. Finally, participants answered demographic questions before they were debriefed and offered candy for participating.

Results

One participant responded to question 1 (i.e., how many times one found oneself looking at or observing different people in the dining hall that day) with an unreasonably high number (86) and clearly failed to read the instructions, completing the survey in a few seconds. Including this participant's responses would have strengthened our results, but we excluded this participant's data from the analyses given. Because our data were nonparametric, we used a sign test (Siegel, 1956) to find out whether people believe they look at others more often than they catch others looking at them. Following standard sign test protocol (Siegel, 1956), we first eliminated the (eight) participants who exhibited no difference between their responses to question 1 and question 2. As predicted, participants were more likely to provide a higher number in response to question 1 than question 2 – indeed, 77 of the 80 remaining participants (i.e., 96%) responded to question 1 with a higher number than to question 2. By the sign test, we rejected the null hypothesis that question 2 responses would be just as likely to be higher than question 1 as question 1 responses would be higher than question 2 ($p < .001$).

Discussion

Participants reported watching other people in the dining hall rather frequently, but they did not report catching other people looking at them nearly as often. Because people are good at hiding their watchful eyes, people have a hard time catching others in the act of watching them. The result is a significant skew in the evidence available to people about how often they are being watched. The relative dearth of personal evidence that one is being watched likely contributes to the existence and maintenance of the invisibility cloak illusion.

It is worth noting, however, that participants sometimes did report catching other people watching them. In Study 4b, we wanted to find out how people construe the eye contact they do happen to make with others. Do people interpret this eye contact as indicating equally that they watch others and that other people watch them? If, when people make eye contact with someone else, they nevertheless more often tend to believe that it occurred because they were the ones engaging in social observation rather than because they were the object of others' observations, that would suggest a certain level of resistance to the evidence available to them that would suggest they are being observed by others. We thus conducted a survey to find out whether, when people make eye contact with one another, they tend to interpret this eye contact as indicative that they were being watched less often than they interpret this eye contact as indicative that they were the ones doing the watching.

Study 4b

Method

Participants. Ninety-seven participants (53% females; M_{age} = 21.92 years, SD = 5.89 years, one participant failed to report age) were recruited outside of a popular Yale University dining hall after lunch and were compensated with candy.

Procedure. When exiting the dining hall, participants were asked a one-item question. Following consent, participants were handed the survey and read,

> People often look around at others when they're in public places. When you happen to make eye contact with someone you don't know, do you usually think that you made eye contact with them: (a) because *you* were looking at them, or (b) because *they* were looking at you?

and then circled either "I was looking at them" or "They were looking at me." Last, participants answered a series of demographic questions before they were debriefed and offered candy for participating.

Results

Data from two participants were excluded from analysis because those participants failed to circle one of the two available response options (they instead scrawled their own response without answering the question asked). Seventy-six percent of our sample reported that when they happen to make eye contact with people they do not know, they believe it happened because they were watching those people. Only 24% reported believing that making eye contact is usually a result of being watched. A z test comparing our observed population of 76% to a null hypothesis value of 50% (i.e., chance) revealed that participants believed they made eye contact because they were watching others more than chance would predict ($z = 5.07$, $p < .001$). It also follows that participants believed they made eye contact because others were watching them less than chance would predict.

Discussion

We found that when participants make eye contact with people whom they do not know, they usually believe it happened because they were watching those others rather than because they were being watched. Together, the results of Study 4a and Study 4b suggest that people tend not to catch others looking at them, and that, even when they do happen to make eye contact with others, they rarely interpret this as evidence that others are watching them. Consistent with the results of Study 1b and the rationale we outlined in the introduction, these data indicate that the invisibility cloak illusion may occur in part because people fail to collect sufficient evidence that others are looking at them (i.e., noticing gazes directed at them), and that even when they do obtain evidence they fail to interpret it as such.

Study 5: Invisibility Cloak Illusion in a Waiting Room

Thus far we have established evidence for the invisibility cloak illusion in several contexts. Next, we wanted to conduct a laboratory study in which the invisibility cloak illusion would have an opportunity to reveal itself in circumstances that are well controlled experimentally. The primary goals of bringing participants into the laboratory in Study 5 were to (a) test our hypotheses in a setting in which we could control the setting in which two people spent time during which they might or might not be thinking about one another, (b) find out the actual contents of people's naturally occurring social thoughts, thus going beyond measuring the way people reflect upon their behavior when asked, and (c) compare people's beliefs about how much they are observed by someone else to the extent to which they actually are observed by that person. The controlled setting of the laboratory, where we recruited pairs of people to participate together, allowed us to gain a deeper understanding of the invisibility cloak illusion while testing it in a context with some ecological validity (a waiting room) and one that would provide a strong test of the illusion (two people sitting face-to-face). If someone sitting directly across from another person, such that she is clearly in that person's field of view and there are limited distractions available to serve as alternative foci of attention, *still* believes she is not being observed as much as the other person actually reports observing her, that would suggest a certain robustness of the illusion on which we are reporting.

Method

Participants. One hundred thirty Yale undergraduates (55% females, $M_{age} = 19.54$ years, $SD = 4.37$ years) were recruited on campus and compensated with cash or course credit. We a priori set out to run as many dyads as possible over the course of the semester. No further data were collected after analyses began. The participant sample included 12.3% African or Caribbean American, 12.3% Hispanic/Latino, 16.2% Asian American, .8% Native American, 48.5% Caucasian/White, and 9.2% "other."

Procedure. The experimenter scheduled two same-sex participants to come to the lab for each session. Upon arrival, the participants were greeted by an experimenter and escorted to a waiting room where they sat across from one other at a large conference table in a common area. Directly in front of each person was an informed consent form. The table contained a stack of daily newspapers and a basket filled with candies and office supplies—this array of objects was intended to make the laboratory room feel like a real waiting room and gave participants something to do while ostensibly waiting for the study to begin. A sign asking for quiet was propped on the table.

Once both participants had arrived, the experimenter guided them through the informed consent form and then told the participants that she was running a little behind schedule. She said she had a few more things to set up before they could start the study, but that they would nevertheless complete the study within their scheduled time slot. The experimenter then verbally requested that the participants remain quiet since other people were working in open cubicles nearby, and then left the participants together in the waiting room for 7 min, ostensibly in order to set up the rest of the study. The purpose of this wait time actually was to give participants time to observe one other.

After 7 min had passed, the experimenter returned to the participants and guided them to separate computer rooms. Unbeknownst to participants, each person in a pair was assigned randomly to a different role—one was assigned to be the 'observer' and one was assigned to be the 'target'—and each person filled out a survey corresponding to their assigned role.

Of primary interest was discovering the content of (a) the observer's observations of the target and (b) the target's beliefs about what the observer noticed and thought about them. We wanted to assess the spontaneous and natural content of the observer's and the target's thoughts in a way that did not prompt them to quantify the amount (as in Studies 1 – 3). In other words, when asked to quantify how much they had been observing and thinking about the other person, or had been observed and thought about by the other person, personal lay theories about how much this occurs have more of a chance to influence responses than when the respondents freely offer their thoughts without knowledge of the specific use the experimenter will make of them. The free response measure can therefore be considered a type of

implicit measure of beliefs according to what Campbell (1950) termed 'disguised-unstructured' (vs. 'disguised-structured') measures because, although participants are aware that they are participating in a study, they are unaware of what is actually being assessed. By the same token the free response data, if it replicates our previous findings in which participants were asked to quantify the thoughts they and others had, helps to establish the ecological validity of those findings because in everyday life people are not typically prompted to reflect on the extent to which they and others engage in social observation. Further, it helps to reduce the likelihood of experimental demand influences.

Accordingly, the participants assigned to the observer role were prompted to write down all of the observations and thoughts they had (if any) about the other person while they were in the waiting room together, and the participants assigned to the role of target were prompted to write down all of the observations and thoughts they believed the other person had about them (if any) while they were in the waiting room together. In addition, the observer answered the following question on a scale anchored at 1 (*not at all*) and 7 (*very much*) to find out the extent to which people were watching the other person: "While you were in the waiting room, how much did you find yourself noticing or observing the other participant (e.g., his/her behavior, mannerisms, appearance)?" Likewise, the target was asked, "While you were in the waiting room, how much do you think the other participant found himself/herself noticing or observing you (e.g., your behavior, mannerisms, appearance)?"

Participants additionally were asked some secondary measures to quantify the amount of time they spent observing/being observed as a percentage (from 0%–100%), and to explicitly report how curious about the other participant they were (or how curious they thought the other participant was about them) and how much they wondered what the other participant was thinking and feeling (or how much they thought the other participant wondered what they were thinking and feeling). The latter questions probed people's conscious motivations—curiosity and wonder—which they would be aware of having had and which could have prompted them to think about the complete stranger sitting directly across the table from them.

Finally, participants were asked to indicate whether they knew the other participant prior to arriving in the laboratory (so that we could exclude participants who knew their partner[3]) before answering demographic questions and being debriefed separately. Last, participants were compensated with cash or course credit.

Results

Data from 15 participants (seven pairs and one participant who was convinced she remembered the other person whereas that person claimed not to know her) were excluded for indicating that they knew one another prior to the study, leaving us with 115 participants. To test our primary hypothesis that the content of participants' free response entries would indicate that observers think more about targets than targets believe observers think about them, we had two independent coders, who were unaware of the hypothesis and study design, code: (a) observers' entries by estimating "approximately how much the individual seems to have been observing, noticing, or thinking about the other person" and (b) targets' entries by estimating "approximately how much it seems like the individual thinks the other person has been observing, noticing, or thinking about them, on a 7-point Likert scale anchored at 1 (*not at all*) and 7 (*very much*). Coders were presented with each entry in random order selected from the full set of observer and target entries. After we determined that our coders' intraclass correlation (ICC) was sufficiently robust, .83 with 95% CI [.77, .88], we tested our hypothesis that people observe others more than they think others observe them. For this and all other analyses, we ran a mixed model (i.e., each person served as member 1 and member 2) dyadic design (i.e., participants were nested within pairs) to account for the nonindependent nature of dyadic data (Kenny, 1995).

A test of the effect of condition (observer vs. target) on participants' coded free response entries revealed that observers observed, noticed, and thought about targets ($M = 4.36$, $SD = 1.32$) significantly more than targets believed they did ($M = 3.24$, $SD = 1.36$), $b = -1.13$, $SE = .22$, $t(55.45) = -5.05$, $p < .001$.[4] Counts of participants' coded responses revealed that for 66% of our dyads, the observer thought more about the target than the target believed.

A second mixed model on people's quantified self-reports revealed that participants assigned to the observer condition explicitly reported that they noticed and observed the other person ($M = 3.19$, $SD = 1.23$) to a greater extent than did participants assigned to the target condition explicitly believed the other person noticed and observed them ($M = 2.63$, $SD =. 96$; $b = -.54$, $SE = .18$), $t(52.46) = -3.05$, $p < .001$.

The results for our secondary measures of self-reported percentage of time, wonder, and curiosity did not reach significance ($ps > .23$). However all means were consistently in the expected direction (observer > target), and their direction and pattern replicates those of our previous studies.[5]

Discussion

Study 5 demonstrated that not only do people *believe* that they notice and observe others more than they themselves are noticed and observed, the contents of their thoughts also substantiate this belief. Despite the fact that pairs of people sat directly across from one another in the waiting room, exposed and in full view, people's free responses revealed that they felt that they were not being watched as much as they actually were. Indeed, observers

[3] We a priori decided to exclude any set of participants who knew one another because we anticipated they would have a variety of thoughts about one another that went beyond their time spent in the waiting room together. Thus they would be responding to our questions differently than would people who did not know one another prior to participating. We did not ensure that pairs were strangers to one another ahead of time because we did not want to tip them off that their time in the waiting room together was prearranged.

[4] Additional coding of the free responses revealed that the difference in the amount written by observers versus targets cannot be attributed to a difference in the construal level of participants' written responses. That is, it is not the case that observers interpreted the prompt as asking for lower-level details about everything they noticed but targets thought about higher level general details about themselves.

[5] As Tversky and Kahneman (1971) argued, replication of effects across studies, even when not every effect reaches conventional levels of statistical significance, is a more diagnostic indicator of effect reliability than the size of the significance level in a single study alone (see also Fabrigar & Wegener, 2016).

noticed targets' appearance, clothing, and demeanors, and made inferences about their personalities. Targets, on the other hand, were relatively oblivious to the extent to which they were under scrutiny.

Study 6: The Invisibility Cloak Illusion and the Spotlight Effect

In Study 5, participants in the target condition had no particular reason to think that they were being watched while they were in the waiting room, and indeed they underestimated the extent to which they were. However, people do not always feel quite so inconspicuous. There are situations in which people's attention is focused on themselves and on the way they appear to others. For instance, researchers investigating what is known as the "spotlight effect" found that people who were asked by an experimenter to put on a new shirt featuring a famous person's face while in the laboratory believed that a greater number of audience members could name the person on their shirt than was actually the case (Gilovich, Medvec, & Savitsky, 2000, Studies 1 and 2), and people in a group discussion overestimated how prominent their conversational contributions were to their fellow discussants (Gilovich et al., 2000, Study 3). When a person's appearance or behavior is made salient to her, she will overestimate the extent to which those features are noticed by others. But does a salient feature render a person, taken as a whole, salient? That is, when a person's shirt is made salient, does he think *he* is being noticed more by others or just that his *shirt* stands out?

This is the question Study 6 was designed to test. We predicted that although participants who are focused on a specific feature of themselves would believe others notice that feature more than those others actually do (i.e., the spotlight effect; Gilovich et al., 2000), they would nevertheless underestimate the extent to which they are being noticed and observed in general, continuing to exhibit the invisibility cloak illusion.

Method

Participants. One hundred fifty-eight Yale undergraduate students (79 dyads, 60% female, 40% male, $M_{age} = 19.66$ years, $SD = 1.79$ years) were recruited on campus and compensated with cash or course credit. We a priori set out to run as many dyads as possible over the course of the semester. No further data were collected after analyses began. The ethnic sample of the participants included 13% African or Caribbean American, 9% Hispanic/Latino, 28% Asian American, 1% Native American, 36% Caucasian/White, and 13% "other."

Procedure. We followed the original spotlight study procedure as closely as possible while also measuring the invisibility cloak illusion. The experimenter scheduled two same-sex participants who did not know one another to come to the lab for a 30-min study. The two participants in each session were scheduled to arrive in different rooms depending on the condition to which they were assigned randomly prior to their arrival. Unbeknownst to participants, each person within the pair was assigned to a different role—one was assigned to be the *observer* and one was assigned to be the *target*. Upon arrival, the observer was greeted by an experimenter and escorted to a waiting room where he or she sat at a large conference table in a common area. Directly in front of the observer was an informed consent form that he or she was instructed to read. In the center of the table there was a sign asking for quiet, a stack of current *Yale Daily News* newspapers, and two baskets filled with candies and office supplies. This set-up was intended to make the laboratory room feel like a real waiting room and to give participants something to do while they would ostensibly be waiting for the study to begin.

The target participant was greeted by an experimenter and completed a consent form in a private room. The reason for keeping the target and observer participants separated at the beginning of the session was so that the experimenter could give half of the target participants a long-sleeve shirt with a face prominently displayed on it to put on over their clothing, following the procedures of the original spotlight studies (Studies 1 and 2 in Gilovich et al., 2000). These participants, who were assigned randomly to the *provided shirt* condition, chose between a small and a large size gray long-sleeve shirt featuring a large (8.5 in. × 6.75 in.) monochrome graphic depicting the face of Pablo Escobar and were asked, "Please put this on." All participants in the *target/provided shirt* condition put on the shirt without objecting and wore it for the remainder of the study. Target participants in the *own shirt* condition were greeted and completed a consent form in the same room as those in the *provided shirt* condition, but they were not asked to put on a shirt. The target was then escorted to the waiting room where the observer was seated.

Once both participants were seated at the waiting room table, the experimenter told them that she was running a little behind schedule. After she assured the participants that they would still complete the study on time, the experimenter said they could help themselves to the newspapers and candy on the table and asked them to remain quiet while they were waiting for the study to begin. She then left the participants together in the waiting room for five minutes, ostensibly to set up the rest of the study, the purpose of which was to give participants time to observe and be observed by one another.

The experimenter set a timer for five minutes and set up the computer rooms. After five minutes had passed, the experimenter returned to the participants and led them to separate computer rooms. Each participant filled out a computer-based survey that corresponded to his or her assigned role (i.e., *target* or *observer*). Of primary interest was finding out the extent to which participants observed versus felt observed by one another *in general* and the extent to which they observed versus felt that their *shirt*, in particular, had been noticed. As in Study 5, we wanted to both assess the spontaneous and natural content of the observer's and the target's thoughts in a way that did not prompt them to quantify the amount of observation that had taken place and measure participants' quantified self-reports. Participants assigned to the observer role were first prompted to write down all of the observations and thoughts they had (if any) about the other person while they were in the waiting room together, and the participants assigned to the target role were prompted to write down all of the observations and thoughts they believed the other person had about them (if any) while they were in the waiting room together. Afterward, the observer was asked, "While you were in the waiting room, how much did you find yourself noticing or observing the other participant (e.g., his/her behavior, mannerisms, physical appearance?)" and the target was asked, "While you were in the

waiting room, how much do you think the other participant found himself/herself noticing or observing you (e.g., your behavior, mannerisms, physical appearance?)" They responded on scales anchored at 1 (*not at all*) and 7 (*very much*).

Next, to probe the extent to which targets believed that observers noticed and thought about the shirt they were wearing, we asked them to answer the following question on a scale from 1 (*not at all*) to 7 (*very much*): "While you were in the waiting room, how much do you think the other participant noticed or thought about your shirt?" Likewise, observers were asked, "While you were in the waiting room, how much did you notice or think about the other participant's shirt?" using the same 7-point scale.

Finally, as in Study 5, participants were asked to indicate whether they knew the other participant prior to arriving in the lab before answering a series of demographic questions and being debriefed separately. Last, participants were compensated with cash or course credit.

Results

We excluded data from four participants (two dyads) who, after completing the study, reported that they had known one another prior to participating, leaving us with data from 154 participants (77 dyads). To test our hypothesis that the content of participants' free response entries would indicate that observers thought more about targets than targets believed observers thought about them in general (i.e., "general" observations), we had two independent coders, who were unaware of the hypothesis and study design, code: (a) observers' entries by estimating how much they seemed to have been observing, noticing, or thinking about the other person and (b) targets' entries by estimating how much it seemed like the individual thought the other person had been observing, noticing, or thinking about them, on a 7-point Likert scale anchored at 1 (*not at all*) and 7 (*very much*). In a second wave of coding, the same two individuals coded the free response entries according to (a) how much the observer observed, noticed, or thought about the target's shirt and (b) how much the target thought the observer observed, noticed, or thought about his or her shirt (i.e., "shirt" observations) on the same 7-point scale. Coders were presented with each entry in random order. The ICC for coders' "general" observations ratings was sufficiently robust, .90, 95% CI [.86, .92]. Likewise the Intraclass Correlation for coders' "shirt" observations was also sufficiently robust, .90, 95% CI [.86, .93].

As planned a priori, we combined participants' coded free responses and their self-reports measuring general observations (Cronbach's $\alpha = .69$) to create a new variable, *general observation*, and likewise for the coded free responses and self-reports measuring shirt observations (Cronbach's $\alpha = .64$), which we called *shirt observation*.

General observations. To test our hypothesis that people observe others more than they think others observe them we ran a 2 (role: observer vs. target) × 2 (shirt: own shirt vs. provided shirt) mixed model (i.e., each person served as member 1 and member 2) dyadic design (i.e., participants were nested within pairs) to account for the nonindependent nature of dyadic data (Kenny, 1995). There was a significant main effect of the role condition, $F(1, 75) = 23.21$, $p < .001$; no main effect of the shirt condition ($p = .64$); and no Role × Shirt interaction ($p = .21$). Tests of simple effects revealed the same pattern of results in both the own shirt and provided shirt conditions: Observers in the own shirt condition observed, noticed, and thought about targets in general ($M = 3.72$, $SD = 1.19$) significantly more than targets believed they did ($M = 3.15$, $SD = 1.08$; $p = .007$), and observers in the provided shirt condition also observed, noticed, and thought about targets in general ($M = 4.02$, $SD = 1.26$) significantly more than targets believed they did ($M = 3.04$, $SD = .99$; $p < .001$; see Figure 4a).[6]

Shirt observations. To test our hypothesis that participants would believe their shirt was observed to a greater extent when it was provided to them by an experimenter (and therefore relatively novel and salient) compared to when they simply wore their own shirt, we ran a 2 (role: observer vs. target) × 2 (shirt: own shirt vs. provided shirt) mixed model. As predicted, there was a significant Role × Shirt interaction, $F(1, 75) = 4.02$, $p = .049$; a significant main effect of the shirt condition, $F(1, 75) = 9.30$, $p = .003$; and no main effect of the role condition ($p = .995$). Tests of simple effects revealed that targets felt the observer observed, noticed, and thought about their shirt significantly more when they were provided a shirt by the experimenter ($M = 3.03$, $SD = 1.67$) than when they were wearing their own shirt ($M = 1.93$, $SD = .79$; $p < .001$). However, in actuality, observers observed, noticed, and thought about targets' shirts equally across conditions, regardless of whether the target was wearing a provided shirt ($M = 2.64$, $SD = 1.34$) or their own shirt ($M = 2.33$, $SD = 1.40$; $p = .32$; see Figure 4b).

Discussion

Although people are often unaware of others watching them, sometimes people's attention is focused on themselves and on the way they appear to others. When the experimenter gave participants a shirt to wear, rendering their shirt salient to them, they believed the shirt drew more attention than it actually did, replicating previous research demonstrating the spotlight effect (Gilovich et al., 2000). We additionally found that participants wearing the provided shirt thought observers paid more attention to their shirt than did participants who simply wore their own shirt. Importantly, despite participants' belief that their shirt was drawing attention, participants did not believe this attention generalized to themselves on the whole. That is, participants wearing the provided shirt did not believe they were being observed more *in general* than did participants who wore their own shirt, and participants assigned to the observer role actually observed the target participant more than the target believed regardless of which shirt the target was wearing.

The invisibility cloak illusion thus appears to be sufficiently robust to occur even under the original spotlight effect conditions, showing that these two phenomena are not incompatible. Previous spotlight studies never tested whether believing the spotlight is on a specific feature of oneself generalizes to a broader belief that the spotlight is on oneself apart from (or including) that specific feature. Rather, the original studies demonstrating the spotlight effect showed that when people are focused on a specific aspect or feature of themselves they tend to overestimate the extent to which others are also focused on that aspect or feature (Gilovich et al.,

[6] See footnote 4.

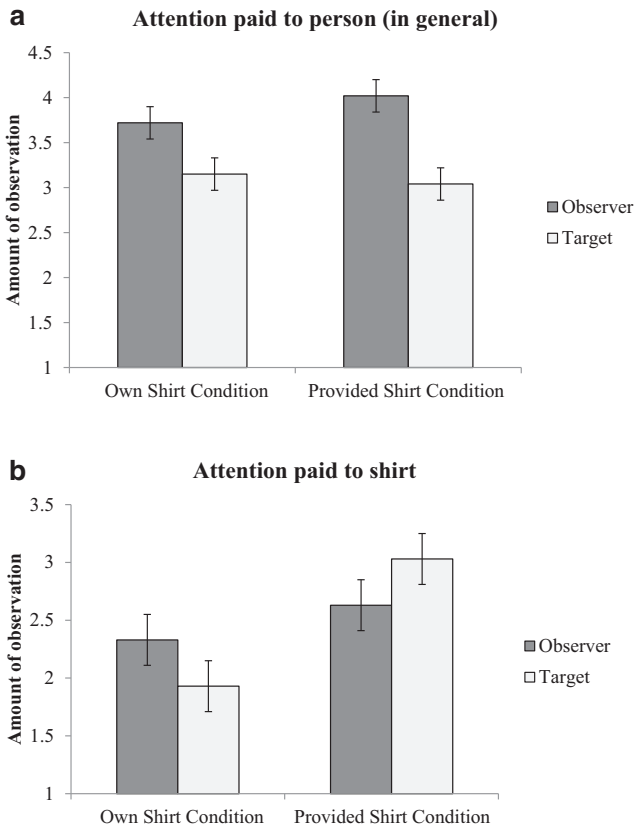

Figure 4. (a) Mean ratings of the extent to which observers observed, noticed, and thought about the targets and the extent to which targets believed they were being observed, noticed, and thought about by the other person when targets were wearing their own ("own shirt condition") versus when targets were wearing a shirt given to them by the experimenter ("provided shirt condition"). Scores could range from 1 (*not at all*) to 7 (*a lot*). Error bars represent 95% confidence intervals. (b) Mean ratings of the extent to which observers observed, noticed, and thought about targets' shirts and the extent to which targets believed the other person was observing, noticing, and thinking about their shirt when they were wearing their own shirt ("own shirt condition") versus when they were wearing a shirt given to them by the experimenter ("provided shirt condition"). Scores could range from 1 (*not at all*) to 7 (*a lot*). Error bars represent 95% confidence intervals.

2000). The present study therefore not only provides an important contribution to understanding the invisibility cloak illusion but also gains us a deeper and more nuanced understanding of the spotlight effect itself and its boundaries.

General Discussion

The present studies offer clear and strong support for the existence of an invisibility cloak illusion. With regularity across multiple studies in a variety of contexts, we found that people believe they observe others more than others observe them, that people believe they observe others more than they believe other people do, and that people tend to believe they are observed less than are other people.

Not only did we find abundant evidence that an invisibility cloak illusion exists, our studies yielded additional findings clarifying the nature of this illusion. Specifically, we found that the bias is specific to social observations and not the result of feeling more aware of non-social objects and events in one's environment in general, nor the result of believing that other people are simply thinking less than oneself in general (Studies 2 and 3). We found that the invisibility cloak illusion persists even among people who know one another well immediately following direct interaction (Study 3), while sitting face to face with a stranger in the laboratory (Study 5), and that people appear have a hard time acquiring the evidence necessary to dispel the illusion and are resistant to such evidence when exposed to it (Studies 4a and 4b). Further, we found that people's belief that they observe others more than they themselves are observed is not just an explicit lay theory; when people were asked to write down whatever they happened to notice and observe about someone in their vicinity, they provided ample content indicating they indeed had made substantive observations, whether about the other person's physical appearance or inferences about their personality. In contrast, people asked to write down what the other person likely noticed and observed about them by and large indicated that they did not believe the other person entertained many—if any—such thoughts.

Explaining the Illusion

We hypothesized the invisibility cloak illusion based upon several rationales. First, people have greater access to their own observations, thoughts, and knowledge about others than they have to others' observations, thoughts, and knowledge about them (or about others). That fact and the fact that people tend not to share many of their social observations with others, makes it difficult to understand just how abundant others' observations of one truly are. Even in the moment in which observations are occurring, people tend to conceal the fact they are looking at others, resulting in those around them being relatively unaware of this behavior. Because people take turns looking at one another, they rarely encounter each others' elusive gazes, despite the ubiquity of such gazes. Thoughts are even more covert than are gazes. Although some parts of the invisibility cloak may be rational—whenever I look at someone else, I get (a) confirmation that I watch other people, but typically (b) disconfirmation that those people are looking at me, while being oblivious to (c) the other people in the room who are watching me—its existence suggests an overarching inferential failure. People watch and think about others all the time, yet they do not realize the extent to which others are engaging in the very same behavior. We are each under the illusion that we are uniquely shrouded in a cloak of invisibility.

The basic finding of the illusion, consistent across all studies, not only supports our hypotheses per se but also, indirectly, our rationales. In addition, the fact that people do not believe others have generally less active minds than they do, and that the bias applies to social life in particular and not to observations of non-social objects, suggests that the illusion is not spuriously concrete (cf. Barber, 1976) and that it does not exist simply because people seek to paint themselves in a more positive light than others (Studies 2 and 3).

In addition to the mechanisms already proposed, it is likely comforting to think we watch and know about others more than

they watch and know about us. People almost certainly prefer to have more knowledge about others than vice versa. Having knowledge about others that can be used when interacting with them should give people a greater sense of control in those interactions—and we all have a strong need for actual control over our outcomes as well as to believe we have that control (e.g., Kay, Landau, & Sullivan, 2014; Langer, 1975). To the extent that knowledge is power we should feel more powerful if we believe we are observing others more, and so have more knowledge of them, than they do of us. Observing others can allow us to predict and even control others' behavior while being less subject to prediction and control by others who may or may not use that information benevolently. We suspect that a motivation to control one's social world—and to not be controlled by it—likely plays a role in the persistence of the illusion, and future research should explore this possibility.

Connections to Other Psychological Phenomena

The invisibility cloak illusion is likely linked to a host of other social biases. Moreover, we believe it is likely a precursor to some. For instance, we see it as consistent with and, likely, a contributing cause of the fundamental attribution error (tending to attribute one's own behavior to situations and others' behavior to their personal characteristics) (Jones & Nisbett, 1972; Ross, 1977). Both phenomena are likely driven both by people's privileged access to their own internal perceptions and thoughts and people's natural orientations toward one another as social observers. The invisibility cloak illusion additionally may be one antecedent of a phenomenon identified by Pronin et al. (2001) in which people believe that they have greater knowledge of their peers than their peers have of them. Those authors attributed this bias to people thinking that other people's observable behaviors reveal who *they* really are but knowing *you* instead requires access to your private thoughts and feelings. Without disagreeing with their analysis, we would suggest that the invisibility cloak illusion may also contribute to this bias. That is, perhaps people believe they know others better than others know them in part because they think they observe and think about others more than others observe and think about them. Attending to people is a way of acquiring knowledge about them and a precursor to forming judgments about whom they are. To the extent we are under the (misguided) impression that we observe people disproportionately more than do others, we are likely inclined to believe that we know more about them.

Furthermore, feeling that one understands others is one path toward establishing a sense of control over one's world (Landau, Sullivan, Keefer, Rothschild, & Osman, 2012), and thus one consequence of the invisibility cloak illusion may be an increased sense of control, which is positively associated with well-being (Alloy & Abramson, 1979; Deci & Ryan, 2000; Lewinsohn, Mischel, Chaplin, & Barton, 1980) and even biologically necessary for survival (Leotti, Iyengar, & Ochsner, 2010). This conclusion also is consistent with the fact that in Studies 2 and 3 of the present paper participants reported observing the *people* in their vicinity, who have the potential to dynamically affect one's outcomes, to a greater extent than they observed the inanimate objects in one's environment, which comprise the static ground and are thus comparatively less likely to dynamically affect oneself (Heider, 1958; Jones & Nisbett, 1972). In conjunction with feeling that one understands and can predict the behavior of others to a greater extent than do others, the belief that one is relatively less observed than are others may additionally contribute to a sense of control. It is no wonder that being invisible is a common fantasy and a popular superpower, for invisibility allows people to act of their own accord without social hindrance.

As a result of people not thinking they are being observed as much as they truly are, people may also not realize that their outward behavior impacts people to the extent it actually does. That may be why in crisis situations people can stand frozen in place thinking, "Why is no one doing anything?!" but part of the reason no one is taking action is because they are seeing *you* do nothing. When witnessing a potential emergency, bystanders often conceal their feelings of alarm while surreptitiously observing others for signs of alarm (who are themselves concealing their feelings of alarm and surreptitiously observing other bystanders; Darley & Latane, 1968). Likewise, if the students in a classroom are feigning interest in the professor's lecture, each student may conclude that the others are more deeply engaged with the material than they are and feel bad about themselves as a result (pluralistic ignorance, Prentice & Miller, 1993). People do not realize that their own behavior (staring at the professor) is exerting an influence on others, who are covertly watching them.

Although people are often unaware of others watching them, situations do exist in which people's attention is focused on themselves and on the way they appear to others. For instance, when people are made to feel self-conscious (i.e., especially salient to themselves and others) they can think they are more in the spotlight of others' attention, whether they truly are (e.g., Taylor & Fiske, 1978) or not (Gilovich & Savitsky, 1999; Gilovich et al., 2000). Although a superficial understanding of the spotlight effect might lead one to believe that people *always* think they are in the spotlight of others' attention, the spotlight effect as it was originally conceived and demonstrated actually obtains only in a limited set of conditions—when a person's attention is focused on a particular aspect of themselves (i.e., their behavior or appearance) and how they appear to others. In Study 6 of the present paper, when we drew people's attention to a specific feature of themselves (following the same procedures as the original studies demonstrating the spotlight effect; Gilovich et al., 2000) they believed others noticed that *feature* to a greater extent than was actually the case, but—importantly—this increased attention did not generalize to a belief that they were being observed more *in general*.

Conclusions

The invisibility cloak illusion consists in people believing they observe others more than others observe them. This belief appears to be pervasive and persistent, despite being logically impossible in the aggregate. It cannot be true that, on average, people are noticing and observing others more than they themselves are noticed and observed. Yet everyday people experience the compelling sensation that social observations flow predominantly in one direction. People peer out at the social world and yet they feel relatively unseen, as if they are inconspicuous consumers of their social surroundings. However irresistible this sensation may be, it is not to be trusted. The sensation of observing others while

remaining relatively unseen is a mirage, obscuring the reality that we are all equally exposed to one another.

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