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## Vision, knowledge, and assertion



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### ABSTRACT

I report two experiments studying the relationship among explicit judgments about what people see, know, and should assert. When an object of interest was surrounded by visibly similar items, it diminished people's willingness to judge that an agent sees, knows, and should tell others that it is present. This supports the claim, made by many philosophers, that inhabiting a misleading environment intuitively decreases our willingness to attribute perception and knowledge. However, contrary to stronger claims made by some philosophers, inhabiting a misleading environment does not lead to the opposite pattern whereby people deny perception and knowledge. Causal modeling suggests a specific psychological model of how explicit judgments about perception, knowledge, and assertability are made: knowledge attributions cause perception attributions, which in turn cause assertability attributions. These findings advance understanding of how these three important judgments are made, provide new evidence that knowledge is the norm of assertion, and highlight some important subtleties in folk epistemology.

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### 1. Introduction

Members of many species are sensitive to another individual's gaze, which can provide useful information, such as whether the individual will approach. This has been documented in mammals, birds, reptiles, and fish (Emery, 2000). Many of these animals do more than exhibit gaze sensitivity; they also follow another's gaze by looking in the same direction, which can provide useful information about food, mates, or predators. This is true of humans beginning in infancy, all the great apes, numerous other primate species, corvids, cetaceans, some domesticated mammals, and perhaps others (Shepherd, 2010).

Many animals do more than just follow gaze; they also have at least some appreciation for what others can and cannot see (Caron, Kiel, Dayton, & Butler, 2002; Senju & Csibra, 2008; Hare, Call, Agnetta, & Tomasello, 2000; Amici, Aureli, Visalberghi, & Call, 2009; Bugnyar, Schwab, Schloegl, & Kotrschal, 2007; Burkart & Heschl, 2006; Cheney & Seyfarth, 2007; Okamoto-Barth, Call, & Tomasello, 2007; Pack & Herman, 2006; Ruiz, Gómez, Roeder, & Byrne, 2008; Tomasello, Call, & Hare, 1998). At least in corvids and primates, appreciating another's line of sight and visual access to information is connected to prediction and decision-making (Bray, Krupenye, & Hare, 2014; Bugnyar & Heinrich, 2005; Flombaum & Santos, 2005; MacLean & Hare, 2012). This richer form of gaze-following is thought to be critical to the development of more sophisticated social-cognitive skills, such as joint attention, language acquisition, and mental state attribution (Baron-Cohen, 1995; Flavell, 1988; Frischen, Bayliss, & Tipper, 2007; Okamoto & Tanaka, 2004; Senju & Csibra, 2008; Tomasello, 1995).

Humans automatically calculate what others see. From at least six years of age, we rapidly and implicitly compute what another person sees even when that information is irrelevant to the task at hand and can be ignored (Samson, Apperly,

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Braithwaite, Andrews, & Bodley Scott, 2010; Surtees, Apperly, & Samson, 2013; see also Apperly, 2010; Apperly & Butterfill, 2009). This reflexive computation appears to be dissociable from more explicit and effortful mental-state attributions. Given the importance of attending to another's line of sight, it is unsurprising that it occurs rapidly and automatically and may be associated with specialized neural circuitry shared by all primates (for a review of relevant findings, see Shepherd, 2010, pp. 5–6).

It is obvious that what individuals see affects what they know. This obvious truth is reflected in classic philosophical theories of knowledge (Aristotle 350 BCE/1941; Locke 1690/1975) and in the commonsense epistemology of children and adults (O'Neill, Astington & Flavell, 1992; Pillow, 1989; Robinson, Thomas, Parton, & Nye, 1997; Turri, 2014a; Wang, Miletich, Ramsey, & Samson, 2014;). Moreover, explicit knowledge judgments have important social consequences, suggesting that judgments about what someone sees might have similar consequences. Research has shown that knowledge attributions affect several kinds of social evaluation, including moral judgments, decisions about whom to trust, and decisions about when others are pretending (Furrow & Moore, 1990; Moore, Pure, & Furrow, 1990; Schroeder & Linder, 1976; Sobel, 2009; Yuill & Perner, 1988). Indeed, recent results show that knowledge attributions play a uniquely powerful role in normative social cognition, influencing normative evaluations of other people more reliably than attributions of belief, evidence, or certainty (Turri, 2016a; Turri, Friedman, & Keefner, 2016). Moreover, recent results suggest knowledge judgments mediate important effects on how people evaluate decisions based on statistical evidence, including legal and medical decisions (Turri et al., 2016; see also Dawes, Faust, & Meehl, 1989; Wells, 1992).

Although prior research has studied explicit judgments about what others perceive, know, and how they should behave, these judgments have not been studied in relation to one another. For example, two recent studies compared the rate of knowledge attribution to agents who either “look carefully” or “think carefully” in response to a question (Turri, 2014a, 2015b). Whereas looking and thinking were viewed as equally effective in producing knowledge of affirmative propositions (i.e. that something is present or happening), looking was viewed as more effective in producing knowledge of negative propositions (i.e. that something is not present or not happening). Another recent study investigated adults' attitudes about the relative effectiveness of different perceptual modalities to produce knowledge (Wang et al., 2014). Reaction time data suggested that adults think that *looking* is more informative than either *touching* or *lifting*, even when controlling for the appropriateness of sensory modality for acquiring information. In neither of these lines of research did researchers collect judgments about perception or how the agent should act.

In this paper, I report two experiments investigating the relationship among explicit judgments about what others see, know, and should do. As far as I am aware, this is the first research to investigate these three important judgments together. This research will help address at least two connected theoretical questions.

First, some have argued that knowledge functions as the norm of our social practice of assertion (e.g. Turri, 2013, 2014b; Williamson, 2000; see also Craig, 1990). On this view, you should assert something only if you know it is true, and knowledge explains why you should make the assertion. This hypothesis about assertion is supported by observational data connecting assertion to knowledge (Turri, 2011a). We can prompt an assertion by asking whether someone has knowledge (e.g. “Do you know what time it is?”) (Turri, 2010a); when questioned, we can abstain from making an assertion by citing lack of knowledge (e.g. “Sorry, I don't know”) (Reynolds, 2002). And we can challenge an assertion by referencing knowledge (e.g. “Do you really know that?” or “You don't know what you're talking about”) (Unger, 1975).

The hypothesis about assertion is also supported by experimental results. For example, in one study researchers told participants that an agent either believed a true proposition, was certain of a fact, or knew that a proposition was true. Participants who were told that the agent knew were significantly more likely to judge that the agent should make an assertion (Turri et al., 2016; see also Turri, 2016a, 2016b). Another study manipulated whether participants were told that an agent either knows or does not know a proposition. The manipulation dramatically affected whether people judged that the agent should assert the proposition: people strongly judged that the agent should make the assertion when she knew, but they strongly judged that she should not make the assertion when she did not know (Turri, 2015a).

Although these and other findings support the hypothesis that knowledge is the norm of assertion, an important alternative hypothesis has not been ruled out. The alternative is that assertability and knowledge have a *common cause*. On this view, there is no single norm of assertion. Instead, there is a variety of norms which license assertion based on information from approved sources, such as vision and other sensory modalities, memory, testimony, and competent inference. Moreover, the alternative continues, knowledge is an additional consequence of information acquired in these ways. For example, suppose an agent looks at a scene and sees that there is a vervet monkey in the tree. In virtue of this, the agent knows that there is a vervet monkey in the tree, and the agent should tell others who are interested in this fact. If this alternative is correct, then knowledge would be a reliable sign of assertability, but it would not be the source of assertability.

Second, cases involving perception in misleading environments are often considered relevant to investigating the norm of assertion. In particular, several theorists have argued that such cases show that knowledge is not the norm of assertion (Brown, 2008; Coffman, 2014; Hill & Schechter, 2007; Lackey, 2007; Smith, 2012; Smithies, 2012). According to this objection, someone who sees that there is a house is fully entitled to assert that there is a house, regardless of whether she happens to be in a highly misleading environment where most things that look like houses are not actually houses (due to, say, recent activity by a film crew constructing an elaborate outdoor set). Nevertheless, the objection continues, being in such an environment prevents the agent from knowing. If this objection is correct, then we should expect competent speakers evaluating such cases to attribute perception and assertability but deny knowledge.

### 1.1. Preview of the experiments

In the following experiments, participants read a short story and made judgments about what the agent sees, knows, and should say. Experiment 1 is a preliminary test of whether an object's having an atypical appearance affects attributions of perception, knowledge, or assertability. The typical/atypical difference, on its own, does not affect these judgments. This is important because the next experiment tests these judgments in a case that builds on the difference between typical and atypical appearances. Experiment 2 tests whether attributions of perception, knowledge, or assertability are affected by surrounding the object of interest with visibly similar items. It affects all three judgments but the central tendency is still to attribute all three qualities. In order to gain insight into the underlying psychological processes involved in making these judgments, I also use causal modeling in Experiment 2. On the best fitting causal model, knowledge attributions cause perception attributions, which in turn cause assertability attributions.

## 2. Experiment 1

The purpose of this first experiment is to determine whether people think an atypical appearance, on its own, leads to lower attributions of perception, knowledge, and assertability. This is an important preliminary step before proceeding to test a slightly more complicated case building on the difference between typical and atypical appearances.

### 2.1. Method

#### 2.1.1. Participants

One hundred participants were tested (aged 18–62 years, mean age = 33 years; 36 female; 96% reporting English as a native language). Participants were U.S. residents, recruited and tested online using Amazon Mechanical Turk and Qualtrics, and compensated \$0.40 for approximately 2 min of their time. Repeat participation was prevented. The same recruitment and compensation procedures were used for the subsequent experiment.

#### 2.1.2. Material and procedure

Participants were randomly assigned to one of two conditions, typical and atypical. All participants read a simple story, responded to three test statements, answered a comprehension check, then completed a brief demographic questionnaire. Here is the text of the story (manipulation in brackets):

(Typical/atypical) The vast majority of vervet monkeys have grey hair. It's rare, but a small percentage of vervet monkeys are born with white hair all over. This condition is known as "albinism."<sup>1</sup> ¶ Agnes is helping a team collect data on primates in a forest habitat to help with conservation efforts. Part of this involves developing a map of how different types of monkeys are distributed throughout the forest, including which trees they tend to feed in. ¶ While Agnes is backpacking through the forest, a vervet monkey is feeding in the tree above her. Agnes looks up and sees the vervet monkey with [grey/white] hair in the tree.

After reading the story, participants rated their agreement with three test statements presented in a matrix table:

1. Agnes knows that there is a vervet monkey in this tree.
2. Agnes sees that there is a vervet monkey in this tree.
3. Agnes should tell the team that there is a vervet monkey in this tree.

The order of statements was randomized. Responses were collected on a standard 7-point Likert scale, "strongly disagree" (=1) through "strongly agree" (=7), left-to-right on the participant's screen. Participants then advanced to a new screen and answered the same comprehension check. It was not possible to return to a previous screen.

### 2.2. Results

One hundred percent of participants passed the comprehension check. There was no effect of condition on the attribution of knowledge, perception, or assertability. (See Table 1.) Mean knowledge, perception, and assertability attributions were significantly above the midpoint (=4) in both conditions. (See Table 2.) Overall, mean perception attribution ( $M = 6.55$ ,  $SD = 0.67$ ) exceeded mean knowledge attribution ( $M = 6.20$ ,  $SD = 1.26$ ), paired samples  $t$ -test,  $t(99) = 3.54$ ,  $p < .001$ ,  $MD = 0.35$ ,  $d = 0.42$  (all reported tests two-tailed).

### 2.3. Discussion

The results indicate that, on its own, an atypical appearance does not affect people's willingness to attribute knowledge, perception, or assertability.

<sup>1</sup> Denotes a paragraph break on the participant's screen.

**Table 1**  
Experiment 1. Independent samples *t*-tests.

Measure	Mean (SD)		<i>t</i>	<i>df</i>	<i>p</i>	MD	<i>d</i>
	Typical	Atypical					
Know	6.27 (1.29)	6.14 (1.32)	0.51	98	.613	0.13	0.10
See	6.57 (0.74)	6.53 (0.61)	0.31	98	.756	0.04	0.06
Should	5.98 (1.18)	6.25 (0.82)	−1.36	98	.178	−0.28	0.27

**Table 2**  
Experiment 1. One sample samples *t*-tests. Test value = 4.

Measure	Typical					Atypical				
	<i>t</i>	<i>df</i>	<i>p</i>	MD	<i>d</i>	<i>t</i>	<i>df</i>	<i>p</i>	MD	<i>d</i>
Know	12.32	48	<.001	2.27	1.76	12.38	50	<.001	2.14	1.62
See	24.46	48	<.001	2.57	3.47	29.53	50	<.001	2.53	4.18
Should	11.73	48	<.001	1.98	1.68	19.62	50	<.001	2.26	2.76

### 3. Experiment 2

This experiment tests whether knowledge, perception, and assertability attributions are affected when the object of interest is surrounding highly visibly similar items. I also use causal modeling to gain insight into the psychological process involved in making these attributions.

#### 3.1. Method

##### 3.1.1. Participants

Two hundred and one new participants were tested (aged 19–70 years, mean age = 32 years; 79 female; 95% reporting English as a native language). I tested more participants this time to ensure enough data for a causal search.

##### 3.1.2. Materials and procedure

The materials and procedure were exactly the same as in Experiment 1, except that this time the story included an extra sentence at the very beginning, “The only visible difference between vervet monkeys and inland snow monkeys is the color of their hair,” and at the end, “It is surrounded by several white snow monkeys.”

#### 3.2. Results

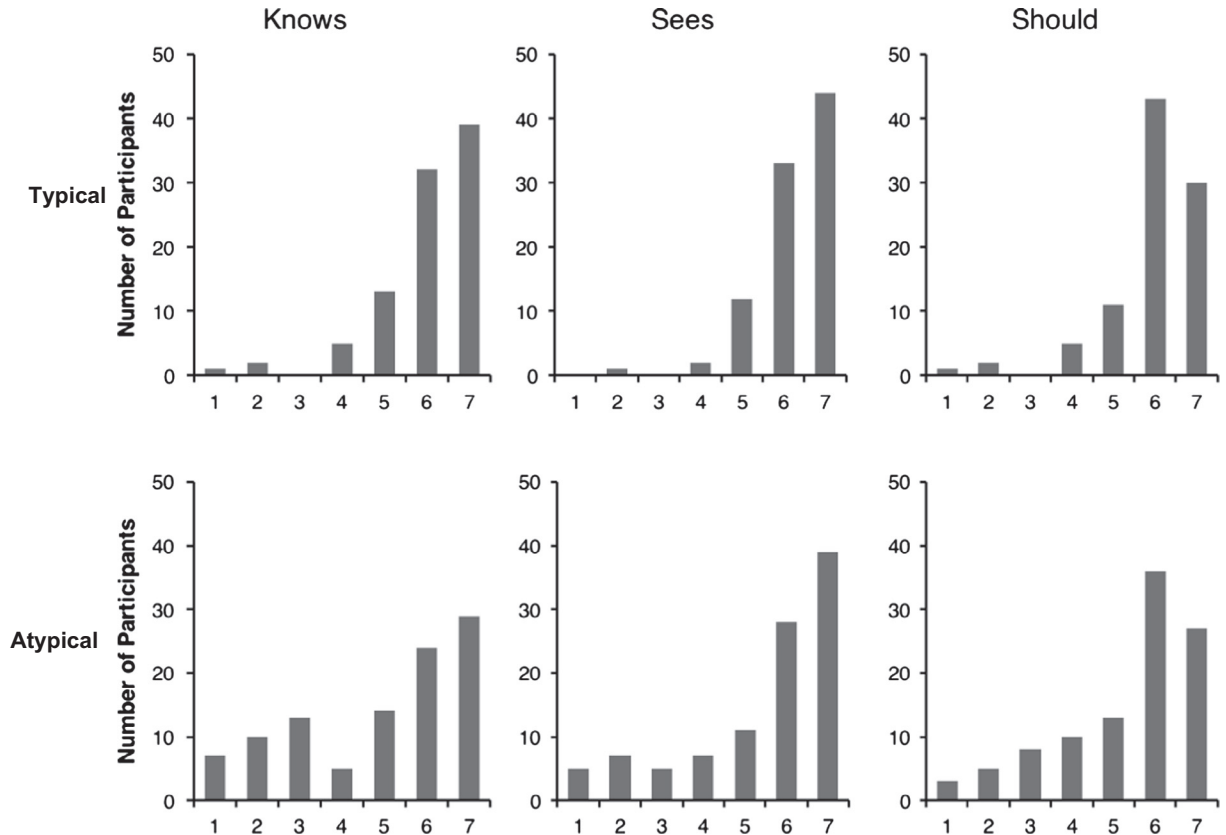
Ninety-seven percent of participants (194 of 201) passed the comprehension check. Assignment to condition affected response to the knowledge, perception, and assertability attributions. (See Table 3 and Fig. 1.) Mean knowledge, perception, and assertability attributions were significantly above the midpoint (=4) in both conditions. (See Table 4.) Overall, mean perception attribution ( $M = 5.85$ ,  $SD = 1.50$ ) exceeded mean knowledge attribution ( $M = 5.45$ ,  $SD = 1.74$ ), paired samples *t*-test,  $t(193) = 5.88$ ,  $p < .001$ ,  $MD = 0.39$ ,  $d = 0.45$ .

In order to gain insight into the underlying psychological processes involved in making these judgments, I conducted a causal search with the Greedy Equivalence Search (GES) algorithm to identify the model that best fits the data. (For more on the general theory behind causal search, see Pearl, 2000; Spirtes, Glymour, & Scheines, 2000.) Similar to regression-based mediation analysis and structural equation modeling, GES is used to make causal inferences from correlations and independence relations in a dataset. However, GES has certain advantages. Whereas mediation analysis and structural equation modeling assume a causal direction, GES does not. GES provides an overall measure of model fit and, given enough data, will return the true causal model (Chickering, 2002). And GES is not limited to considering a single pre-specified model, which typically depends on theoretical assumptions. GES considers all possible models available given the different variables. Each variable is treated as a node. GES assigns an information score to the model in which all the nodes are disconnected – the “null model.” GES then evaluates adding causal arrows – “edges” – between the nodes (Meek, 1997 provides the edge orientation rules). GES adds edges that best improve the model’s information score, if such edges exist, until adding more edges does not improve the information score. At this point, GES evaluates whether deleting any edges will further improve the information score, and it deletes any such edges until deleting more edges does not improve the information score.

The causal search was conducted with Tetrad 5 (<http://www.phil.cmu.edu/projects/tetrad/>). I entered assignment to condition and response to the three dependent measures (know, see, should) into a causal search using GES. The model was constrained so that assignment to condition could not be caused by any other variable in the model. Fig. 2 depicts the best fitting model, which fit the data well,  $\chi^2(3) = 2.79$ ,  $p = .425$ ,  $BIC = -13.01$ . In the model, knowledge attributions cause perception attributions.

**Table 3**  
Experiment 2. Independent samples *t*-tests.

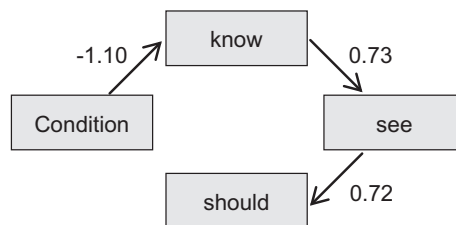
Measure	Mean (SD)		<i>t</i>	<i>df</i>	<i>p</i>	MD	<i>d</i>
	Typical	Atypical					
Know	6.03 (1.19)	4.93 (1.97)	4.74	167.9	<.001	1.10	0.73
See	6.26 (0.90)	5.47 (1.81)	3.90	151.3	<.001	0.79	0.63
Should	5.96 (1.14)	5.36 (1.62)	2.97	181.4	.003	0.59	0.44



**Fig. 1.** Experiment 2. Distribution of responses to the knowledge and perception attributions, 1 (SD) – 7 (SA).

**Table 4**  
Experiment 2. One sample *t*-tests. Test value = 4.

Measure	Typical					Atypical				
	<i>t</i>	<i>df</i>	<i>p</i>	MD	<i>d</i>	<i>t</i>	<i>df</i>	<i>p</i>	MD	<i>d</i>
Know	16.38	91	<.001	2.03	1.71	4.74	101	<.001	0.93	0.47
See	24.09	91	<.001	2.26	2.51	8.12	101	<.001	1.47	0.81
Should	16.49	91	<.001	1.96	1.72	8.49	101	<.001	1.36	0.84



**Fig. 2.** Experiment 2. Causal search results. Arrows represent directional causal relations; path coefficients represent the strength of the causal relation. Reference class for condition: typical.

As a point of comparison, I constructed a structural equation model that was exactly the same as the model generated by the causal search, except with the positions of knowledge attributions and perception attributions reversed. This model was a very poor fit for the data,  $\chi^2(3) = 49.28$ ,  $p < .000000001$ , BIC = 33.48.

As a further point of comparison, I constructed a structural equation model to test a version of the common cause hypothesis, whereby assignment to condition causes perception attributions, which in turn causes attributions of both knowledge and assertability. This model did not fit the data well,  $\chi^2(3) = 9.27$ ,  $p = .026$ , BIC = -6.54.

### 3.3. Follow-up

One might raise two concerns about knowledge attributions in the present study. (Both concerns were raised by an anonymous referee.) First, one might ask whether participants attributed knowledge in the atypical case because they inferred that Agnes used other information to judge that it was a vervet monkey. For instance, the text mentioned information about how monkeys were distributed in the forest, and that the vervet monkey was feeding when Agnes looked at it. Perhaps participants assumed that Agnes was able to discriminate vervet monkeys from snow monkeys based on this other information. Second, one might ask whether participants mistakenly assumed that the final sentence, “It is surrounded by several white snow monkeys,” characterized the content of Agnes’s visual experience. To address these concerns, I ran a follow-up study that did not mention population distributions, did not mention feeding, and relocated the erstwhile final sentence to where it could not be read as characterizing the content of Agnes’s visual experience.

Fifty-nine new participants were tested (aged 20–60 years, mean age = 33 years; 20 female; 93% reporting English as a native language). They were assigned to one of two conditions (typical, atypical) in a between-subjects design. Each participant read a single story then responded to the same knowledge attribution from previous experiments. Here is the story:

(Typical/atypical) The vast majority of vervet monkeys have grey hair. It’s rare, but a small percentage of vervet monkeys are born with white hair all over. This condition is known as “albinism.” ¶ Agnes is helping a team collect data on primates in a forest habitat to help with conservation efforts. Part of this involves developing a map of where monkeys congregate. ¶ While Agnes is backpacking through the forest, a vervet monkey, surrounded by several white snow monkeys, is in the tree above her. Agnes looks up and sees the vervet monkey with [grey/white] hair in the tree.

The results for the knowledge attribution replicated those reported above. Mean knowledge attribution was higher in the typical case ( $M = 6.00$ ,  $SD = 1.37$ ) than in the atypical case ( $M = 5.10$ ,  $SD = 1.76$ ), independent samples  $t$ -test,  $t(57) = 2.19$ ,  $p = .033$ ,  $MD = 0.90$ ,  $d = 0.58$ . Mean knowledge attribution exceeded the neutral midpoint (=4) in both conditions: typical,  $t(29) = 8.03$ ,  $p < .001$ ,  $MD = 2.00$ ,  $d = 1.46$ ; atypical,  $t(28) = 3.38$ ,  $p = .002$ ,  $MD = 1.10$ ,  $d = 0.63$ . These results rule out both concerns about Experiment 2.

### 3.4. Discussion

When an object was described as visibly indistinguishable from nearby objects, it decreased the extent to which people judged that the agent, sees, knows, and should tell others that the object is present. Nevertheless, people still tended to agree that the agent sees, knows, and should tell others that the object is present. Results from causal modeling also suggest a specific model for the cognitive processes involved in making judgments: people first make a knowledge attribution, which then informs a perception attribution, which then informs an assertability attribution. (Note that this is a model of the cognitive process involved in making these attributions explicitly; see the General Discussion for further discussion.) As in Experiment 1, perception attributions tended to be higher than knowledge attributions.

## 4. General discussion

Two experiments investigated the relationship among explicit judgments about what people see, know, and should say. The mere fact that an object presents an atypical appearance affected neither perception attributions (the agent sees that something is the case), knowledge attributions (the agent knows that it is the case), nor assertability attributions (the agent should tell others that it is the case) (Experiment 1). When the object of interest was surrounded by visibly similar items, it diminished people’s willingness to attribute perception, knowledge, and assertability; however, the clear central tendency was still to attribute all three qualities (Experiment 2). Causal modeling suggested a specific psychological model of how these three judgments are made: knowledge attributions cause perception attributions, which in turn cause assertability attributions (Experiment 2). Taken together, these findings contribute to knowledge of how these three important judgments are made.

The findings also shed light on other important questions. An impressive case has recently been built that knowledge is the norm of assertion (for a state-of-the-art presentation, see Turri, 2016b). According to this view, you should assert something only if you know it is true, and knowledge explains why you should make the assertion. However, prior research has not ruled out an alternative explanation of the evidence. On this alternative, knowledge does not explain assertability; instead, knowledge and assertability have a common cause. For example, in cases where you acquire information visually, perhaps this explains both why you know the information and why you should provide it to interested parties. The present

results provide some evidence against this alternative account. In particular, the causal modeling results suggest that the alternative does not fit the way we actually make these normative judgments. Judgments about knowledge and assertability did not have a common cause in judgments about perception.

One striking fact about the causal modeling results is that, if they are accurate, knowledge attributions cause perception attributions. This reverses the order explanation of how cognition actually occurs – the explanation for why the agent knows is that she sees, not vice versa. However, the causal modeling results do not conflict with this view of how cognition actually occurs. For the model in question pertains to the psychological process leading to explicit judgments about knowledge and perception. It is not a model of how knowledge and perception are in fact related. Nor does the model rule out that explicit knowledge attributions are caused by *implicit* representations of the agent's perceptions or access to visual information, which occur rapidly and automatically (Apperly, 2010; Apperly & Butterfill, 2009).

One possibility for explaining the causal modeling results is that people think through the scenario dialectically with the agent's practical situation in mind. The agent is tasked with gathering information and sharing it with others and asserting it is the typical way to share it. Because knowledge is the norm of assertion, people are initially concerned with whether she knows that the information is true, and they form an explicit judgment about this first. Then people form an explicit judgment about how she knows, in anticipation of the familiar conversational challenge to an assertion, "How do you know that?" Finally, once it is clear whether the agent passes the typical conversational heuristic for assertability, people form an explicit judgment about assertability.

The present findings conflict with some influential philosophical theories of knowledge. These theories are based on the assumption that in situations where an agent looks at an object surrounded by visibly similar items, the obvious verdict is that the agent does not know that the object is present (e.g. Chisholm, 1989, p. 93; Goldman, 1976; Sosa, 1991, pp. 238–9; Pritchard, 2005, pp. 161–2; Pritchard, 2014, chap. 6; Greco, 2010, pp. 76–80; Littlejohn, 2014; for dissenting views, see Lycan, 2006 and Turri, 2011b). For example, Goldman's influential "relevant alternatives" theory of knowledge is motivated by the claim that people are "strongly inclined" to not attribute knowledge to such agents (Goldman, 1976, p. 772–3). Goldman supports his theory by arguing that it explains this behavioral tendency. Similarly, Pritchard defends an "anti-luck" theory of knowledge on the grounds that it explains the intuition that knowledge is lacking in such cases (Pritchard, 2012). However, in Experiment 2 the clear central tendency was to attribute knowledge in such a case. This agrees with results from other recent studies, which also found that people tend to attribute knowledge in similar cases (Colaço, Buckwalter, Stich, & Machery, 2014; Turri, Buckwalter, & Blouw, 2014). The present findings add to our understanding of these issues by demonstrating that this pattern persists when knowledge attributions occur in a more complex set of tasks, and by demonstrating that people are strongly inclined to attribute perception and assertability in the same context. Moreover, the present findings go beyond previous findings in an interesting way. Previous studies described the object of interest as inhabiting a general environment where many visibly similar items were present. But previous studies did not describe the object of interest as being "surrounded by" visibly similar items at the time of inspection. By contrast, in Experiment 2, the object of interest was described as being "surrounded by" visibly similar items, thus further demonstrating the robustness of this pattern of knowledge attribution.

Finally, the present findings suggest an interesting subtlety in commonsense epistemology. In all of the scenarios tested, the agent "looks up into a tree and sees a vervet monkey." (Participants who failed a comprehension question related to this were excluded from the analysis.) Participants always tended to judge that the agent *sees that there is a vervet monkey in the tree*. Nevertheless, subtle details of the case affected how confidently and consistently people make this judgment. In particular, the presence of visibly similar items decreased this judgment. Thus, in commonsense epistemology, it might not be an automatic inference from *seeing the object that is there to seeing that the object is there*. This corresponds to a distinction made in the philosophical literature between "simple seeing" and "propositional seeing," according to which the former is not sufficient for the latter (Turri, 2010b, p. 200; for earlier statements of the same basic idea, see Audi, 1998, p. 15; Dretske, 1969; see French, 2013 for discussion of further views). Of course, we would expect this inference to fail when it comes to unfamiliar objects that the agent is unable to categorize, or if the agent is dazed and confused. But neither of these things is plausibly true of the scenarios tested here, nor could they explain the differences across conditions, because they do not change across conditions.

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