

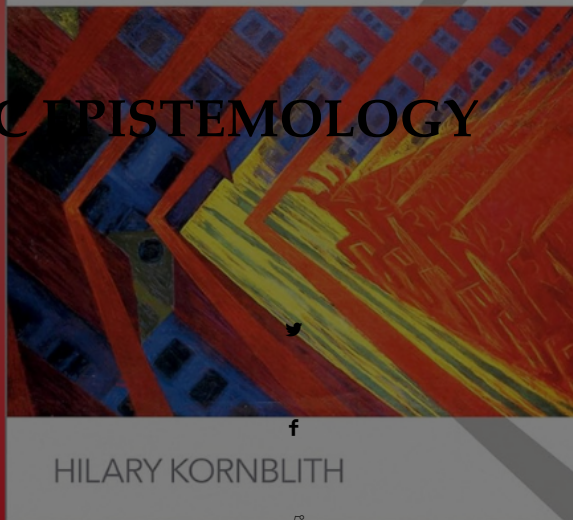
# Scientific Epistemology

*An Introduction*

Hilary Kornblith

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Reviewed by Michael Bishop



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Philosophers like to tell stories about knowledge that crackle with drama. We have wizards (who deceive), adventure (kidnapping neuroscientists), and surprise endings ('and it turns out that Brown was in Barcelona!'). A cynic might wonder whether all the whiz-bang is cover for weak material. Hilary Kornblith puts these cynical doubts to rest in this slim, elegant book about knowledge. Kornblith spins a yarn that is accessible enough for a general reader and theoretically compelling enough for epistemologists and philosophers of science. Kornblith's story is distinctive because he takes knowledge to be a scientific category—it's a concept that manages to do a lot of explanatory work without all the whiz-bang.

Suppose you know there's a green apple on a table because you see a green apple on a table. From a first-person perspective, this sort of perceptual knowledge seems easy and automatic. But from a third-person perspective, perceptual knowledge is an impressive feat. Our cognitive systems start with a pair of small, upside-down, two-dimensional images, and they manage to deliver quite a lot of knowledge about our environment. They do this by making a lot of assumptions. Our perceptual systems operate so that their outputs will tend to be accurate so long as those assumptions are true. For example, when a retinal image expands or contracts, our visual systems take this to be a sign of movement toward us or away from us. Our visual systems assume that objects move in three-dimensional space and don't typically expand or contract on their own. Because our visual systems make these assumptions, they can be fooled. But we don't need wizards to deceive us. We're tricked any time we 'see' a spaceship moving toward us or away from us in a movie. When we manage to get perceptual knowledge, it's because true assumptions about our environment are built into our perceptual systems.

Now suppose you see your first marine iguana. While admiring the fierce-looking creature, it sneezes and hits you in the leg with a salty snot rocket. After wiping yourself off, you infer that marine iguanas can launch nasal projectiles, and so you determine to stay out of range next time you see one. From a first-person perspective, your line of thought seems natural and intuitive. But from a third-person perspective, it's puzzling. You made a general inference from a single observation, but you don't make such inferences across the board. For example, just because you saw Obama the first time you walked through Heathrow, you don't infer you'll see him every time you walk through Heathrow. So how do we get inferential knowledge? Kornblith's answer is: for the same reason we get perceptual knowledge. Our cognitive mechanisms make assumptions about the world. They assume that certain parts of the world are invariant and so can be generalized about (marine iguanas) and others aren't (specific travellers in airports). How these assumptions work is an open and interesting psychological question. But as long as our inferential mechanisms make true assumptions about the world, they will tend to produce accurate beliefs.

About half-way through the book, Kornblith threatens to take an avant-garde turn. He abandons the third-person perspective in favour of a first-person perspective. The reader wonders: will we get a totally different interpretation of knowledge? From the 'outside', our cognitive mechanisms work by making defeasible assumptions about the world. But from the 'inside', we seem to direct our cognitive lives. We consciously sift through our evidence to figure out what to believe, and we reflect on the grounds of beliefs we've already come to. From our perspective as knowers, it seems that these sorts of conscious reflections must be an important part of the story of knowledge. And so Kornblith's change in point of

view raises the possibility that we'll end up with a stubbornly bifurcated narrative: two distinct perspectives on knowledge that cannot be unified into a single, coherent tale.

Kornblith eschews this postmodernist turn. He does this by using the 'outside' perspective to undermine the 'inside' perspective. Consider a familiar scenario. You're sifting evidence so you can come to a judgement. From your perspective, your reasoning seems epistemically impeccable. But from a third-person perspective, you're not doing as good a job as you think. Your deliberations are beset by biases. And in informationally complex situations, you simply don't have the cognitive wherewithal to consider all the relevant evidence. Now back to the first-person perspective: you've arrived at a judgement, and you're re-evaluating the evidence and the reasoning that led to your judgement. From your perspective, this sort of deliberation seems like the pinnacle of epistemic responsibility. But from a third-person perspective, your deliberations are problematic. As you reconstruct your reasoning, you have little introspective access to how your cognitive mechanisms work. What's more, there's evidence that you're at least sometimes confabulating. You reconstruct your reasoning by making up just-so stories. Kornblith concludes: 'The first-person perspective gives us a flattering but inaccurate view of our own reasoning, and it does not typically aid us in locating our errors' (p. 103).

At this point, Kornblith's narrative faces a challenge. We've managed to produce some pretty impressive scientific knowledge. And from a third-person perspective, it sure seems like a lot of scientific knowledge was the product of intense reflection. How can this be if reflection adds no significant epistemic value to our cognitive lives? Kornblith's story seems to make our most successful examples of knowledge a mystery.

Kornblith offers a bracing solution: Reflection does play a positive epistemic role in producing knowledge, but it doesn't make individuals better knowers; it makes groups of interacting individuals better knowers (Mercier and Sperber [2019]). We reflect on our evidence and beliefs to convince others, to defend ourselves against the challenges of others, and to cooperate and plan with others in epistemic projects. This can be epistemically valuable even when our reflections fail to accurately describe how we came to our judgements. The 'give and take' of evaluating our beliefs in public can cleanse our reasoning of certain types of bias and error. Of course, this is not inevitable. There are plenty of epistemically unhealthy social groups that shrink knowledge and boost confidence. Even so, some social groups promote knowledge—at least for certain sorts of reasoning problems. Reflection plays a positive role in scientific knowledge because science is a social product. It's the result of smart thinkers being in epistemically healthy (or healthy enough!) social groups.

Whether it's perceptual knowledge, inferential knowledge, or socially produced knowledge, it seems that knowledge is reliably produced true belief (that is, true belief that is produced in a way that tends to lead to accurate judgements). Many epistemologists will wonder why Kornblith has ignored what seem to be counterexamples to reliabilist theories of knowledge. For example, suppose Sam believes (correctly) that there's a one-in-a-million chance her lottery ticket is the big winner, she infers that her ticket will not be the big winner, and her ticket turns out not to be the big winner. Before her ticket lost, did Sam know her ticket was not the big winner? Kornblith's theory seems to say yes, whereas many

epistemologists would say no. (For what it's worth—and I doubt it's worth much—I don't share epistemologists' intuitions about this case.)

Why does Kornblith ignore counterexamples that seem to show that reliabilism fails to accord with our commonsense understanding of knowledge? It's because he takes knowledge to be a scientific category. It's like the categories time or function. While we have commonsense understandings of these categories, they earn their keep by doing explanatory work. And if they upend common sense in doing that work, then so much the worse for common sense. Kornblith argues that knowledge earns its keep by playing a central role in explanations of human and non-human behaviour. He gives multiple examples from ethology (see also Kornblith [2002]). But his point can be made with a familiar example: When the dinner bell rings, why do the children come to the dinner table? For the same reason Fido, tail wagging, runs to his dish. They know that the dinner bell signals that it's dinnertime.

I find Kornblith's story about knowledge compelling, but there are some points worth exploring in more detail. One is Kornblith's pessimism about the epistemic value of individual reflection. Kornblith is right about the flaws and challenges inherent in individual reflection. But just as social factors can add or subtract epistemic value depending on the circumstances, perhaps the same is true of individual reflection. Another point worth pausing over is Kornblith's tantalizing conclusion. On the book's last page, Kornblith wonders how reliable a belief-forming process must be for its true products to count as knowledge. He suggests that mechanisms 'must be reliable enough to allow the species to survive in that environment' (p. 148). But in long-surviving species, every true belief is the product of a mechanism that has been reliable enough to have allowed the species to survive. Presumably, however, not every true belief counts as knowledge. Kornblith does not address this issue, I'm not sure how to resolve it, and, in fact, I'm not sure it can be resolved. But it's appropriate that this book should end with a cliffhanger. After all, there are many chapters in the story of knowledge as a scientific category that are yet to be written.

*Michael Bishop*  
*Florida State University*  
*mbishop@fsu.edu*

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