

The case for observational evidence of the divine

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Abstract:

Religious belief is often taken to be incompatible with scientific standards of evidence. One can find this sentiment expressed both in works published by academics and in the online musings of lay people. At the heart of this supposed incompatibility is the idea that scientific standards of evidence put a premium on observation; observations of the divine appear to be lacking. Drawing on the widely accepted phenomenon of the theory ladenness of observation, we will draw into question the putative sparsity of observations of the divine. Though our argument does not attempt to give scientific evidence for G-d's existence, it does defend the scientific rationality of some religious beliefs.

Since *The Origin of Species*, the relationship between science and religion has been strained. Following the publication of Eric Metaxas' "Science increasingly makes the case for G-d," in the *Wall Street Journal* the tension between the scientific worldview and religion is once again on display. Debates about the relationship between G-d and science are often accompanied with a sizeable dose of intolerance. A brief glance at the comments section of the *Wall Street Journal* article demonstrates that the current discussion is no exception:

“[T]he “magic fairy” nonsense he [Metaxas] is selling is childish, ridiculous, and has nothing to do with science.” (Robert Curry; Jan. 4th, 2015)

“I’d suggest that the reason most “creationists” of whatever stripe question science is that it doesn’t agree with their faith, not because they have valid or intelligent questions about the science or its methodologies.” (William Schulze; Jan. 3rd, 2015)

“[U]ltimately, you can’t win with true believers because they just shift the ground—if you rebut one assertion, they just move to another equally stupid one.” (Charles Edwards; Jan. 2nd, 2015)

Unfortunately, such intellectual disdain is not limited to online comments. One finds the New Atheists endorsing similar sentiments: “[I]t is difficult to imagine a set of beliefs more suggestive of mental illness than those that lie at the heart of many of our religious traditions,” (Harris, *End of Faith* 72); “[Religion] comes from the bawling and fearful infancy of our species, and is a babyish attempt to meet our inescapable demand for knowledge (as well as for comfort, reassurance and other infantile needs),” (Hitchens, *God is not Great* 64). Our goal is push back against such intolerance. In what follows we will argue that, even if the findings of contemporary science are incompatible with G-d, there may be good *scientific* evidence for G-d’s existence.

In order to make our case we must first offer a rough characterization of the methods of science. Consider the account offered by one of our opponents, "Science is science because it represents our most committed effort to verify that our statements about the world are true (or at least not false). We do this by observation and experiment within the context of a theory." (*End of Faith* 75-76). This is a familiar understanding of the scientific method: one first forms a hypothesis, makes a prediction based on this hypothesis, then rejects or retains the hypothesis based on observation. At the core of this view is the importance of observational evidence: knowledge is a consequence of "...making claims about the world that can be corroborated by further observation." (*End of Faith* 77)

Though this sketch of the scientific method is, broadly speaking, accurate the evidential rules governing scientific practice are significantly more nuanced. Of particular interest is a phenomenon known as the theory ladenness of observation. Put simply, it appears that our observations are structured by the theories we accept. An example can help illustrate.

The theory ladenness of observation is perhaps most on display when one watches a football game (or any sporting event) with someone who is unfamiliar with the rules. While both viewers see a pass caught beyond the yellow line superimposed on the 42-yard line, only one viewer can say she observed a first down. The difference between seeing a pass caught beyond a yellow line draw on the TV screen and observing a first down is grounded in the difference between the background theories the two viewers accept. Only once we are familiar with the rules of football and the

practice of displaying the first down marker with a yellow line does *seeing a pass caught beyond the yellow line* become *observing a first down*.

Once one sees the structure of the theory ladenness of observation its ubiquity becomes apparent. Consider another example: letting your dog out back and, after it barks, letting it back inside. When the dog comes back inside you observe the same creature you previously let out. Again, theory structures this observation. To observe your dog, as opposed to just a furry creature with various physical traits, you must believe that aliens are not flying around and replacing dogs with mechanic lookalikes, that the phenotype of your dog remains relatively constant across time, and that your dog did not split into two identical clones while digging in your flowerbed.

The broader point is that what we experience is not solely a consequence of the external stimuli we encounter. Rather, our experiences are structured by the background theories we accept. The result is that there is no direct observation. “Observation,” understood in the thick sense where sensory signals are converted into someone’s experiences and later used as evidence in theory confirmation, cannot be separated from how an observer already understands the world. (There is a broad literature exploring the theory ladenness of observation. We suggest that the reader interested in learning more start with the Stanford Encyclopedia of Philosophy’s (plato.stanford.edu) article “Theory and Observation in Science.”)

The theory ladenness of observation is a consequence of the purely logical fact that no hypothesis, by itself, makes observational predictions. Consider the hypothesis *Green Bay Packers will win the 2015 Superbowl*. By itself, this hypothesis tells us nothing about what observations would confirm the claim. In order to make

observational predictions, we need auxiliary hypotheses, e.g.: unlike golf, the goal in football is to have a higher score than one's opponent; various forms of media are reliable indicators of the score of a football game, etc. Because no hypothesis by itself ever makes an observational prediction, one's experience of any sensory stimuli will be structured by the background theories one accepts.

While the theory ladenness of observation is, at core, a consequence of the logical structure of prediction, it is also empirically well confirmed. Of particular note is an elegant paper by Winawer et al. (2007). Their study aims to test how conceptual schemes influence perception. Americans consider light blue and dark blue to be just shades of one color: blue. Russians, on the other hand, consider them to be different colors entirely (*siniy* and *goluboy* respectively). The study timed how long it took American and Russian participants to distinguish between similar shades of blue. The Russians were significantly faster at identifying the harder color distinctions. This is what we would expect. The background theory of color used by the Russians structures their observations, making it easy to distinguish nearby shades of blue. The comparatively coarse grained theory of color accepted by Americans makes it harder to observe these subtle distinctions. The authors conclude, "[C]ategories in language can affect performance of basic perceptual color discrimination tasks." (Winawer et al. par. 1). The theory ladenness of observation is evident not only in the comparatively abstract task of observing football games and experimental outcomes, but in the apparently basic process of seeing color.

We are now ready to apply these theoretical considerations to putatively irrational belief in G-d. Sometimes one will hear believers making claims like the

following: “The fact that every snowflake is unique is evidence that G-d exists,” or perhaps “The beauty of that sunset is evidence that G-d exists.” This kind of claim can be understood two ways. We might take the believer to be suggesting an explanatory argument: G-d is the explanation of the uniqueness of the snowflake or of the beauty of the sunset. This is rather uncharitable to the believer—she is likely aware that we have a scientific explanation of the crystalline structure of the snowflake and of light’s diffraction through the atmosphere to produce the sunset’s colors.

An alternative understanding suggests that the believer is not trying to explain anything. Rather, the believer *observes the divine* in the snowflake or in the sunset. Those who accept the scientific worldview largely agree that the content of our experiences offers the best available evidence regarding the nature of the external world. The theory ladenness of observation guarantees that the content of our visual experiences is, in part, determined by the theories we accept. Those who are religious accept certain kinds of background theories, including not just G-d and divinity but often miracles, angelic beings, demons, and the like.

Just as our understanding of football structures what we experience when we watch a football game, the background theory of the believer likely shapes what she experiences when she sees a snowflake or a sunset. Harris writes, “We do [science] by observation and experiment *within the context of a theory*” (*End of Faith* 76, emphasis added). Within the context of acceptance of certain religious theories, there may be observational evidence for G-d. One can only doubt the rationality of belief built on such foundations if one is ready to question the evidential status of perception itself.

The thoughtful reader may be worried that this argument requires the believer to assume the truth of what she wishes to show: that G-d exists. The believer only has evidence of G-d's exist in light of her acceptance of theories that assume G-d's existence. The reasoning appears circular.

By way of response, consider the recent discovery of the Higgs boson. The Higgs boson was discovered by colliding sub-atomic particles at (very) high speeds. When two sub-atomic particles collide, pieces fly off. The Higgs boson is one of these pieces but it is much too small to see with the naked eye. The Higgs boson was detected by an enormous array of sensors. These sensors are constructed based on what we know about sub-atomic particles—knowledge codified in the Standard Model. Scientists interpret the data produced by these sensors based, again, on our best theory of sub-atomic particles: the Standard Model. The wrinkle is that the discovery of the Higgs boson offered the final piece of evidence required to cement our faith in the Standard Model. Acceptance of the Standard Model is a prerequisite to gathering evidence taken to confirm the Standard Model. If the argument we have offered is circular, it is not only the beliefs of the religious that find themselves on the chopping block.

Even if the reader accepts everything we previously said, another problem arises: if modern science conflicts with God's existence but one can have scientific evidence that G-d exists, it seems that science is unreliable.

Thankfully, there are a number of ways to relieve the tension. The most obvious one is to recall that a believer may be unaware of the evidence *against* G-d. An undergraduate chemistry major may lack all the evidence she needs in order to make a

fully informed decision about G-d's existence. While she may have some evidence pointing towards the absence of the divine, she may also have a vast trove of observational evidence supporting G-d's existence. If she later decides to pursue a career in genetic engineering, she may discover more evidence and change her mind.

One can also attempt to solve the problem by identifying important differences between the evidence available to the believer and the evidence that supports our best scientific theories. This challenging and philosophically vexing task is known as the *demarcation problem*. (The reader interested in more may want to look here:

<http://plato.stanford.edu/entries/pseudo-science/>.)

It may be that G-d does not exist and that contemporary scientific findings are incompatible with G-d's existence. Neither of these shows that religious belief is irrational. While the believer's may fall short of guaranteeing the existence of the divine, it nonetheless vindicates the rationality of belief. The fact that we may lack evidence for G-d's existence does not entail that others are similarly positioned. One can doubt the truth of another's belief without doubting the believer's very rationality. The ugliness of intolerance does not disappear when it is dressed up in the guise of the scientific worldview.

In these troubled times any case for the rationality of religion must wrestle with horrors perpetrated in the name of the divine. Given what we have said above, are we committed to thinking that the torturous killing of the Jordanian pilot Moaz al-Kasasbeh was a rational act? What about the Charlie Hebdo shooting? This is a difficult topic and one which deserves significant exploration. For now, we will have to make due with a handful of comments. We do not think that atrocities carried out in the name of religion

are rational. This view is compatible with everything we have said so far. Not all knowledge comes from observation. No observational evidence could be sufficient to undermine our belief that $1+1=2$. Similarly, no observational evidence could be sufficient to undermine our belief that *there are no true contradictions*. Such necessary truths are grasped directly via reason. Sensory evidence is entirely beside the point. We have this kind of direct access to a subset of mathematical facts, logical facts, and moral facts. Thus, even if one can have good observational evidence for divinity, one *cannot* have good observational evidence for the claim that *it is morally acceptable to torture infidels*.

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