

THE FACULTY OF INTUITION

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Introduction

The present paper is a defense of the view that there is a faculty of rational intuition that delivers prima facie justified beliefs about philosophical propositions. I have no high-church analysis of the concept of faculty, and only employ the word in the following innocuous sense. If anything is a faculty, then sense perception is. If intuition is sufficiently similar to perception, then it too counts as a faculty. Moreover, if perception produces prima facie justified beliefs about its target subject matter and thereby serves as a source of knowledge, then so does intuition.

Some philosophers, such as George Bealer (2008) and Ernest Sosa (2006), have argued that intuition has an essential connection to the truth and that because of this truth connection, intuition justifies beliefs that are formed on an intuitive basis. The present paper offers an analogical support for the use of rational intuition, namely, if we regard sense perception as a mental faculty that (in general) delivers justified beliefs, then we should treat intuition in the same manner. I will argue that both the cognitive marks of intuition and the role it traditionally plays in epistemology are strongly analogous to that of perception, and barring specific arguments to the contrary, we should treat rational intuition as a source of prima facie justified beliefs. There are two main arguments against the intuition–perception analogy that I will consider and find lacking. First is that while we do use perceptions as evidence to believe certain propositions, in fact no one ever does use intuition evidentially. The second argument, stemming from experimental philosophy, grants that philosophers do use intuitions evidentially, but this practice is fatally unlike that of perception, in that perception yields warranted beliefs and intuition does not. It will be made clear in section IV that while some experimentalists do not object to an evidential use of intuitions, many object to intuition as ever providing ultima facie or even prima facie justification.

Perception and Intuition

The idea that intuition is analogous to sense perception is not new. For example, Sosa writes, “the way intuition is supposed to function in epistemology and in philosophy more generally . . . is by analogy with the way observation is supposed to function in the natural sciences” (Sosa, 2007, p. 106). And again, in Sosa (2009) he writes that “direct intuition [is] a source of data for philosophical reflection.” Bealer concurs, writing, “it is our standard epistemic practice to count intuitions as evidence, or reasons, absent special

reason not to do so (much as we count ostensible sense perceptions as evidence absent special reasons not to do so)" (Bealer, 2008, p. 191). Finally, Robert Audi also confirms that "intuitions are analogous to visual beliefs grounded in seeing, which also provides non-inferential but defeasible justification for those beliefs" (Audi, 2008, p. 485). However, it is safe to say that no one, including Sosa, Bealer, or Audi, has truly developed the rational intuition/perception analogy beyond a statement of it.

There are two ways in which rational intuition and perception are analogous: the first is the epistemic role they play in theory construction, and the second is the cognitive or psychological qualities they possess. The epistemic role of intuitions has been widely discussed, and I will briefly recount the standard version.¹ The cognitive similarities between perception and intuition have been underexplored and merit a longer account.

It is a familiar view that perceptions are a source of basic, noninferential empirical knowledge, perhaps even *the* source. The beliefs grounded in perception must then be systematized and brought into reflective equilibrium. While the beliefs produced by perception have *prima facie* warrant, some perceptions will ultimately be judged as mistaken outliers, and discarded. In other cases, inferences based upon those perceptions cannot be coherently integrated, and the inferential procedure is undermined. The details of how beliefs are justified to start with, how our beliefs form a network of justified beliefs, how justification is transferred among them, and similar questions have been well investigated.

In the case of philosophical knowledge, the traditional view is that it too is grounded in basic beliefs, only ones that are arrived at by rational intuition instead of perception. As Kornblith puts it, "appeals to intuition play a foundational role in a good deal of philosophical theory construction" (Kornblith, 2007, p. 28). We may see the hungry with our eyes, but we see that we should feed them with the mind's eye. Rational intuition is supposed to bear upon propositions like these: intended harm is morally worse than foreseen but unintentional harm; psychological facts supervene on microphysical facts; all of the parts of a whole are essential to it; if S knows that *p* and S knows that *p* implies *q*, then S knows that *q*; if determinism is true, libertarian free will is impossible; multiple realizability arguments refute token identity theories of mind; and "the F is G" is equivalent to "there is an F, there is no more than one F, and anything that is an F is G." The intuitions that these propositions are true (or false) prompt the beliefs that they are true (or false). Those subsequent beliefs are noninferential and epistemically basic. The intuitive belief that nothing can be wholly in two places at once is not the result of inference any more than the perceptual belief that the apple is red is the result of inference. I have argued elsewhere that the correct model for intuition-based philosophical beliefs is a form of foundationalism.²

As in the case of our empirical beliefs, philosophical beliefs must be brought into reflective equilibrium to form a cohesive, comprehensive network. In part

1. Although I provide a much fuller discussion in Hales 2006, ch. 1.

2. In Hales (2000).

this means taking one's considered philosophical intuitions and developing general theories that explain and unify the intuitions and can provide guidance on future philosophical questions. For example, utilitarianism is supposed to capture prevalent intuitions about the importance of producing good consequences with our actions and also be capable of providing answers to moral questions that may not yet have been asked. For any question of the form "in situation X, ought agent A to do Y?" utilitarianism has, in principle, an answer based upon the outcome of action Y and the outcomes of other actions that A might perform instead. In this sense, the theory has predictive power. Reflective equilibrium not only requires that the theories we develop accommodate widespread intuitions but also that our intuitive beliefs themselves be subject to rejection in light of truly excellent theories. So if we have a moral theory that makes good sense of the vast majority of our moral intuitions and has predictive power of the sort just mentioned, then its results ought to trump the occasional wayward intuition. Intuitive beliefs are like data points: further philosophizing is an attempt to give the best account of how to draw a line through them; the data inform the line-drawing project while at the same time some data points are dismissed as outliers.

Moreover, in developing philosophical theories, we need to do more than consider only our abstract, a priori intuitions. We must also take into account the findings of other fields of inquiry in forming comprehensive worldview. Our philosophical beliefs should fit together with our best scientific and social scientific theories. Virtue ethics must address situationism in moral psychology; theories of social justice have to incorporate economic concepts of rationality, decision-making, and game theory; metaphysical theories of persistence must square with general relativity, and so on.

The overall picture is that intuition-based basic beliefs are the building blocks of philosophical theories that are adjusted and modified to attain wide reflective equilibrium. Analogously, sensory input is the source of noninferential empirical beliefs that in turn serve as the basis for scientific theories, which themselves must be made to fit with a broad understanding of the world.

Some skeptics of intuition grant that intuition has the same formal epistemological function as perception. Nevertheless, they hold that while perception is the means by which our minds have access to external reality, intuition is no more than omphaloscopy and has no promise of connecting us with objective truth. However, once we examine the cognitive marks of perception, we will see that there is a compelling case that intuition, as traditionally conceived, has those same marks. If there are no salient differences between intuition and perception in either the epistemic roles they play in theory-building, or in their psychological character, then we should conclude that if one is a source of knowledge, then so is the other. I will now turn, then, to the matter of cognitive qualities.

Epistemologists have a bad habit of constructing idealized examples of sense perception and then drawing substantive philosophical conclusions from such examples, without closely considering the empirical facts about perception. For example, in a well-known paper, Goldman offers cases such as seeing a dachshund in an open field, or seeing barns in the countryside from a car window. Goldman worries about relevantly alternative percepts, and the role

that one's distance from and relative orientation to the things perceived, and influence that environmental factors such as lighting or wind may play in assessing a perceiver's epistemic state. All fine concerns, but Goldman never discusses how perception actually works, as if all that epistemically matters are contingent factors outside the head (Goldman, 1976). Similarly, in arguing that nonpropositional experience can serve as a source of justified basic beliefs, Sosa suggests that "a belief that there is something red before one [can] be justified in part because it has its origin in one's visual experience of red when one looks at an apple in daylight." (Sosa, 1980, p. 7). To pick just one more example, Conee and Feldman present a case of Smith, who "has good vision and . . . looks out a house window one sunny afternoon and sees a plainly visible nearby maple tree. She forms a belief that there is a maple tree near the house. Assuming everything else in the example is normal, this belief is justified and Smith knows there is a maple tree near the house" (Conee and Feldman, 1998, p. 1).

The actual way in which the brain processes sensory information prior to belief formation is either glossed over or treated as irrelevant to epistemological concerns, as if seeing dachshunds, barns, red apples, and maples is an unmythical bit of common knowledge. There is also an unfortunate tendency to invariably give visual examples and generalize the results across all sensory modalities.

The slighting of cognitive processing may stem from a desire to embrace a form of naïve realism. For instance, Bonjour argues for foundationalism on the basis of his a priori assessment of the cognition of sensory experience. Like Chisholm and others before him, Bonjour holds that constitutive of our conscious sensory experience is the apperceptive and infallible awareness of the content of that experience. With regard to the relation between our sensations and the causes of those sensations, Bonjour writes, "it seems intuitively pretty clear that the experiential content is in itself somehow strongly suggestive of or in some interesting way isomorphic to the correlated physical situation."³ The hoped-for isomorphism thesis is part of Bonjour's antiskeptical strategy, although he concedes that he has no argument for it apart from its intuitive plausibility and that "I think (perhaps somewhat optimistically) that it is ultimately correct."⁴ Whatever the virtues and vices of his appeal to intuition, sense perception is *not* a matter of external reality sending data into our minds, which then construct some sort of pure, one-to-one mapping of that data. Our brains are constructive—they fill in gaps to achieve perceptual constancy, construct models, and find patterns in random information.

Color is the perceptual quality best examined by philosophers, and debates over color are ground well trampled. Here I will offer less common examples of perception that will hopefully illuminate how our experiences are automatically and subconsciously constructed from the input of the senses in such a manner that we are able to deliver spontaneous, "intuitive" judgments largely in agreement with other perceivers. I will examine sonic, particularly musical,

3. Bonjour (2000, end of pt. V).

4. Bonjour (2000). The last paragraph of the article.

perceptions that, like color, involve secondary qualities with no direct and obvious mapping to mind-independent properties. I will then argue that rational intuition operates in a strongly analogous manner.

Consider pitch.⁵ Pitch is robustly associated with the frequency of waves in the relevant media—ordinarily waves in air, but also in water if you are underwater, and so on. Whereas color perception is the direct result of the ratios of excitation among the retinal cones, neurons in auditory cortex fire at the wave frequency. For example, if a scientist plays a pure 310 Hz tone, neurons in the cortex will fire at that frequency; if electrodes had been placed in the auditory cortex, they would emit electrical activity at 310 Hz.⁶

While possible in controlled settings, the pure tone scenario is an idealization of ordinary experience. In the everyday world, objects both vibrate at several different frequencies simultaneously and have an inherent resonant frequency. The resonant frequency of a crystal wine glass is what you hear running a wet finger around its rim, the resonant frequency of a telephone pole guy wire can be heard when the wire is pulled and released. At the same time, saxophones, guy wires, drums, and crystal glasses all cause air molecules to move at several different rates. The slowest vibration rate, the one that is perceived as lowest in pitch, is referred to as the *fundamental frequency* and the others are *overtones*.⁷ Overtones that are integer multiples of the fundamental are perceived as harmonic sounds, and the brain responds to such frequencies with simultaneous neural firings. For example, if the A above middle C on a piano is sounded, it resonates at the fundamental frequency of 440 Hz and generates overtones of 880 Hz, 1320 Hz, 1760 Hz, 2200 Hz, 2640 Hz, 3080 Hz, etc. Objects such as percussion instruments tend to produce overtones that are not integer multiples of the fundamental (i.e., they produce partial or inharmonic overtones) and are perceived as having a less well-defined pitch. Music can be made with such instruments alone, but it is unusual.⁸

Our brains are so hardwired to perceive the fundamental that when one hears a sound that contains all of an overtone series except the fundamental, the brain automatically fills it in. Even a tone composed of 1200, 1300, and 1400 Hz will sound the same as a 100 Hz tone, a fact known to Helmholtz in 1877.⁹ Since this is a case of two indistinguishable sounds with different physical sources, it is analogous to color metamerism and makes life difficult for a sonic metaphysics that identifies pitch with wave frequency or with “sonic emission profile” (driving partisans of those theories to allow possibly infinitely disjunctive properties¹⁰). The phenomenon of the restoration of the missing fundamental is an instance of ordinary perception that is a wholly constructive mental process. It is why

5. My discussion of musical perception draws heavily on Levitin (2006, chapter 1).

6. Levitin (2006, p. 29); O’Callaghan (2007, p. 83).

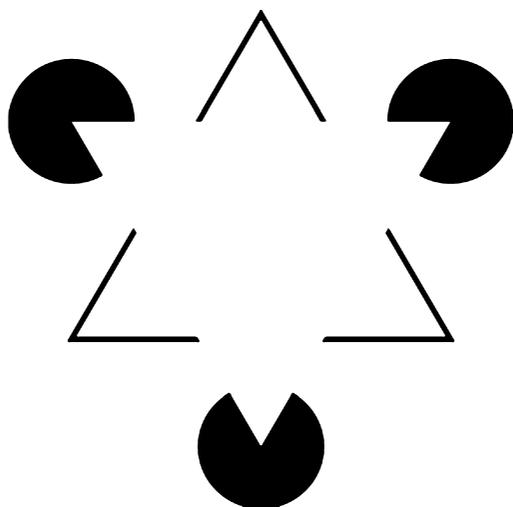
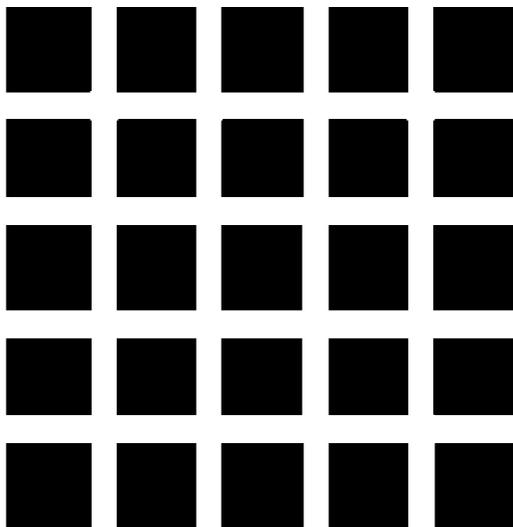
7. In O’Callaghan’s more exact formulation, “the fundamental frequency of a complex sound is the greatest common whole number factor of the sound’s constitutive frequencies.” (O’Callaghan, 2007, p. 79.)

8. See, for example, the industrial jazz group Savage Aural Hotbed. On their CD *The Unified Pounding Theory* they use electric saws, oil drums, lengths of industrial tubing, grinders, industrial pipes, drills, and auto parts to produce music.

9. O’Callaghan (2007, p. 81).

10. Thanks to Gerald Vision for pressing this point in conversation.

someone sounds the same over the telephone as they do in person, even though the phone has filtered out the low frequencies and is not reproducing the fundamental (O'Callaghan, 2007, p. 81). Of course, the idea that the brain automatically fills in missing data is a familiar one from visual illusions. Examples include the Hermann Grid Illusion and the Kanizsa Triangle.



In the former, the brain involuntarily generates gray dots in the interstices, and in the latter, the visual system identifies a white triangle on top of the black-framed one that is brighter than the background.

A striking example of musical perception that is wholly commonplace and yet completely produced by the brain is the perception of timbre. Timbre is the distinctive sound of particular instruments, objects, or animals, the difference between tympani and thunder, between a guitar and a trumpet, or between two different violins. One hears the difference automatically, without inference or reflection, even though—as we will see—the perception of timbre is a diachronic process.

There are three primary factors responsible for the perception of timbre, although O’Callaghan (2007, sec. 6.4) argues that a fully adequate account of timbre is yet to be developed. The primary factor responsible for timbre is amplitude variations in the overtone series; every instrument and object produces a unique pattern of loudnesses in the overtones. For example, clarinets have high energy in the odd harmonics (overtones at three times, five times, seven times the fundamental frequency), whereas trumpets are approximately balanced in the even and odd harmonics. The differences between types of instruments are considerable, but there are timbral differences between instruments of the same type as well, depending on the type of wood, varnish, shape, and so on. Not all acoustic guitars sound alike. The two other key factors that compose timbre are attack and flux.

When an instrument is initially caused to make sound—it is hammered, struck, strummed, blown, bowed, etc., that is the *attack phase*. Before the instrument settles into its resonant frequency (with attendant harmonic overtones), it sends out inharmonic, random-sounding frequencies. When a piano key hits the strings, for a split second there is this noise, and then the strings begin to vibrate at the expected musical tone. The sound of the attack phase is so brief that it does not consciously register; what we consciously hear is the steady state tone. However, if a recording of an instrument is altered so that the attack sound is removed, and only the steady state tone remains, most listeners are unable to identify the instrument that was playing. Pianos and bells sound indistinguishable, for instance. If the attack sound from one instrument is spliced onto the steady state tone of another, the resulting chimera can sound like a third kind of instrument altogether (see Levitin, 2006, pp. 53–54).

The third main component of timbre is *flux*. The sounds of instruments change as their emitted frequencies decay (consider gongs or cymbals). Timbral quality can change over the length of a note, from attack through decay. Moreover, the timbre of instruments varies across their range; even apart from pitch, the lowest notes and highest notes on a piano have a different sonic quality than those in the middle of the keyboard.

To sum up: both timbre perception and rational intuition according to the common view are:

Diachronic and Constructive

The sounds made in the attack phase are gone by the time the instrument resonates in its steady state tone, and the experience of flux also takes place over time, even if it is a very short amount of time. The experience of timbre

is a mental synthesis of a variety of elements, including ones that may no longer exist. The tempting but naïve view that perception is a (nearly) immediate reflection of reality is false. Any sort of reduction-minded realist who would want to dismiss timbre and pitch as sonic illusions and not as genuine perceptions of reality must also judge as false not only sentences like “I heard Mary’s voice on the phone,” but also nearly all sentences regarding musical experience.

Like perception, intuition too is not instantaneous. As Goldman (1992, p. 119) puts it, “The psychological process of ‘seeing’ or ‘intuiting’ a simple logical truth is very fast, and we cannot introspectively dissect it into constituent parts. Nonetheless, there are mental operations going on, just as there are mental operations that occur in *idiots savants*, who are unable to report the computational processes they in fact employ.”

One of the familiar complaints about rational intuition is that it is psychological, showing more about the inventions of philosophers than reality. The judgments of scientists are tested against the world, against what we perceive, goes the objection, whereas the judgments of philosophers are tested against what? Only against the intuitions of other philosophers.¹¹ Yet perceptions are not a pure extra-mental benchmark against which can compare our empirical judgments, as the case of timbre shows. A vast amount of everyday perception is a matter of psychological construction and is treated as genuine and reliable nonetheless.

Responsive

The mind does not invent timbre out of whole cloth; the hearing of timbre is causally associated with features of one’s auditory environment. In addition, the perception of timbre varies with changes in a variety of extra-mental properties. If one replaces a ringing oboe with a note on a harpsichord, then one hears a dramatic shift in timbre. On a less dramatic scale, if the attack frequencies of the oboe are artificially removed, then the perception of timbre likewise changes, although not to the same extent as changing instruments completely.

One’s intuitions and intuitive judgments about philosophical propositions are similarly responsive to external stimuli. Moral or epistemic intuitions are not free-floating or *sui generis*, but reactions to case examples. Considering a trolley problem prompts intuitions regarding killing and allowing to die, but considering a skeptical hypothesis yields intuitions about knowledge. Intuitions, like timbre perception, can also be malleable on a smaller scale. When one considers a counterexample to an intuitively appealing thesis, one’s attraction to the thesis may only be modified but not eliminated. For example, the Gettier cases led almost no one to completely jettison the JTB analysis of knowledge. Rather, the widespread reaction was that JTB was pretty close to the truth, and it just needed some patching up.

11. See Bishop and Trout 2005, p. 106 for a sample of this kind of criticism.

One may have to reflect in order to correctly identify a tenor saxophone versus an alto sax, but hearing the difference in their timbral qualities is not reflective. One hears the difference between the voice of one's wife and one's daughter immediately, the same as one does pitch or loudness. This is not to suggest that hearing timbral differences is instantaneous, or akin to a patellar reflex. There is rapid subconscious processing of auditory data that often gives rise to a judgment about timbre. I am not claiming that timbre (or any) perception immediately delivers a belief about the content of the perception. We may refuse to believe our own ears. Yet such perception does provide an inclination to believe, a motivation that can robustly survive skeptical doubts about the proffered belief.

According to Goldman and Pust (1998, p. 179), "we assume, at a minimum, that intuitions are some sort of spontaneous mental judgments. Each intuition, then, is a judgment 'that p ' for some suitable class of propositions p ." Devitt 2006 is in large agreement, writing that "my claim is that intuitions are empirical unreflective judgments at least." The preceding claims are mistaken. Intuitions may be spontaneous, but they are not a sort of mental judgment, as judgments are belief-entailing, and intuitions are not.¹² One might have an intuition that p that, upon reflection, one decides cannot be coherently integrated into one's wider network of beliefs and so one decides not to believe p after all. The intuition that p might well remain after the considered judgment that p is false. For example, I know that the Löwenheim–Skolem Theorem (if a sentence has a model, then it has a model over the natural numbers) is true. Suppose the Search for Extraterrestrial Intelligence project is successful, and we receive electromagnetic radiation from space that we are convinced came from intelligent extraterrestrials. We could be persuaded of this on purely syntactic grounds—the waveforms exhibit patterns and regularities otherwise not found in nature. I know that according to the Löwenheim–Skolem Theorem, it is logically impossible for us to know the meaning of the alien broadcast on the basis of the electromagnetic waves alone. It could be the alien TV show *Gliese 581d's Got Talent!*, or a cookbook, or the alien top 40 Pop Hits, or truths of number theory. Nevertheless, I find this result extremely unintuitive—my intuitions still tell me that we could in principle decipher an alien transmission.¹³

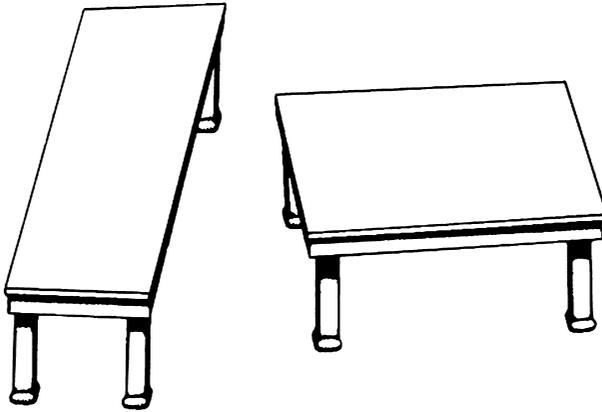
Similar arguments show that perceptions are not a type of mental judgment either, as one might have a perception of p yet judge that, all things considered, p is false and a state of affairs that p is not the cause of the perception. Moreover, even after one has decided that p is false, the perception of p may nevertheless persist. For example, consider the two table tops in Roger Shepard's "Turning the Tables" illusion.¹⁴ I continue to perceive that the table

12. Cf. Earlenbaugh and Molyneux, 2009.

13. Similarly, Williamson (2007, pp. 216–217) reports finding the Naïve Set Comprehension axiom intuitive, even while knowing that it is false (on pain of Russell's Paradox). Cf. Sosa (2006, p. 209).

14. Shepard, 1990, p. 48.

tops are different sizes and have different length–width ratios, even though I have measured them with a ruler and know that they are exactly the same. The perception persists despite the fact that I do not believe what that perception is telling me.



There is a spontaneous, involuntary aspect about viewing Turning the Tables. I cannot help but see the tables as having different length–width ratios. The same is true of intuition, whether it is veridical (like realizing that there is no barber who shaves all and only those who do not shave themselves) or mistaken (like intuiting that we could decode alien transmissions).

Sensitive to Training

Professional musicians have trained themselves (or been trained) to hear very subtle timbral differences between instruments of the same type. The classical violinist Joshua Bell considered the “Gibson” Stradivarius violin made in 1713 so superior in timbre to his 1732 “Tom Taylor” Stradivarius that he sold the Tom Taylor for \$2 million and paid nearly twice that in order to acquire the Gibson.¹⁵ For a professional, the difference in timbre between two otherwise world-class Stradivarius violins was worth \$2 million. The average listener would not be able to hear this difference, especially in an ensemble performance.

As Bertrand Russell notes in another context, for most practical purposes these subtle differences are unimportant, but to the artist, they are all-important: painters, for example, have to unlearn the habit of thinking that things seem to have the color which common sense says they ‘really’ have and to learn the habit of seeing things as they appear. (Russell, 1912, ch. 1). So too musicians have to learn to distinguish among minute discrepancies in the

15. See <http://www.joshuabell.com/biography>.

pitches of tuned instruments, or among delicate variations of timbre. These are not skills that will have been developed by nonprofessionals.

Professional philosophers have developed an expertise in intuition-based philosophical judgment. I mean “expertise” in an internalist sense, one that does not require any connection at all to gaining the truth. In this sense, Joshua Bell is an expert violinist, and physicians are experts about the human body, even if we are all brains in vats. Being judged an expert in a domain means that one has entered into a social convention surrounding an activity in which other experts determine that one’s judgments in that domain are highly justified, or reliably better justified, than nonexperts. An externalist notion of expert would demand that expert judgments are consistently more accurate than nonexperts, and so no one is an expert under skeptical conditions. Critics of intuition claim that the expertise of philosophers is no better than that of phrenologists or astrologists. That could possibly be true; the internalist notion of expertise does not require that expert judgments are factive. All I am arguing for at this point is that there is a compelling analog between the skill set of expert philosophers and that of expert musicians. Assuming an internalist notion of expertise avoids assuming that intuition connects us to the truth, or even that expert musicians hear timbral differences (which they would not under demon skepticism).

What is this philosophical expertise? It is partly manifested in the considerable agreement about philosophical cases that one does not find among nonprofessionals. Epistemologists uniformly agree that Gettier cases at least put considerable pressure on the JTB analysis of knowledge, if not refute it outright. Even metaphysicians who are willing to allow spatially coincident objects acknowledge that such things are counterintuitive and need powerful theoretical reasons to accept. Ethicists agree that Simpson’s Paradox results are a serious problem for consequentialist theories. Extraordinarily few philosophers of religion hold that the teleological argument proves the existence of a Christian God, despite the argument’s widespread popularity among the general public. The difference between the intuition-based beliefs of philosophers and the naïve reactions of nonphilosophers to cases and thought experiments is in fact one of the lynchpin results of experimental philosophy, which will be addressed more fully in section IV.

Assumed to be Reliable but Fallible

The thesis of the present paper is that perception and intuition are in the same epistemic boat together. Both intuition skeptics and intuition defenders tend to agree that intuition is widely *taken* as a reliable belief-forming method and a source of knowledge. The skeptics merely think that so taking intuition to be reliable is a common mistake. Perception, too, is commonly assumed to be a reliable means of gaining knowledge. Both perception skeptics and perception defenders agree that perception is widely assumed to be a reliable belief-forming method and a source of knowledge. Skeptics about perception—those enamored of demon skepticism, for example—just think that these

assumptions about the trustworthiness of perception are not justified and that until skeptical worries have been satisfactorily answered we should suspend judgment about the reliability of perception.

Defenders of perception admit that the method is fallible. Nondefective hearers can reliably tell that a piano does not make the same sound as an electric guitar, even when they are playing the same chord. Of course, the additional ability of identifying the source, which requires education about instruments and some reflection, is not a necessary condition for hearing the difference in timbre. However, reliability is not infallibility—sometimes two different instruments sound alike and a listener might get them confused. The way in which a violin is bowed can affect which overtones are especially strong, and one bowed in the center can sound like a clarinet (see Levitin, 2006, pp. 46–50). On Pink Floyd's song "The Gunner's Dream," Roger Waters' singing crossfades with a saxophone playing the same note. With the attack of the sax removed in the fade, a first-time listener to the song may not even realize that a new instrument has taken over—at least until the sax starts playing new notes.

In the case of intuition, it is chiefly unreconstructed Cartesians who continue to hold that its deliverances are certain. The majority position is that, as in the case of perception, intuition produces *prima facie* justified beliefs that are subject to rejection when those beliefs are brought into wide reflective equilibrium. There is no guarantee that rational intuitions will lead us to philosophical truths, any more than there can be a guarantee that sense perception will provide us with empirical knowledge. The serious skeptic is notoriously hard to defeat. To insist that a defender of intuition be able to convincingly defeat the skeptic is to set too high a bar for reasonably using intuitions as evidence. Similarly, science would have been badly impeded if Galileo had devoted his career to producing the definitive response to the evil genius argument instead of setting skepticism aside to pursue his work. Asking why one should accept that rational intuition provides any reliable connection to the truth will only prompt an analogous question about perception. There is no easy answer to either question.

In sum, perception is widely accepted as a fallible, but reliable, method of acquiring beliefs. Analogously, rational intuition is widely accepted as a fallible, but reliable, method of acquiring beliefs. Classic demon-style skepticism concludes that there are no good reasons to believe that perception reliably connects us with the truth at all. Therefore, it is a mistake to accept the claim that perception produces knowledge.

Analogously, the most prominent skeptics of intuition maintain that there are no good reasons to believe that intuition reliably connects us with the truth at all. Therefore, it is a mistake to accept the claim that intuition produces knowledge. Overcoming the skeptical argument is beside the point for establishing that intuition is strongly analogous with perception. It is extremely difficult to prove, to everyone's satisfaction, that perception hooks us up with the truth and traditional skeptical arguments are in error, even though philosophers have spent several centuries trying to do so. The fact that it may be similarly challenging to demonstrate that intuition is reliable only further serves to solidify the analogy between sense perception and rational intuition that I am defending.

An intuition skeptic might rejoin that there is a disanalogy between perception and intuition in that there is an extensive scientific literature on perceptual causal processes. We know why we hear a certain pitch when air molecules are moved in a certain way, for instance. There may be epistemological work to be done to show that perception connects us with the truth, but at least the idea that it does so ties in with a broader scientific understanding of the world. There is nothing similar for intuition, and because there is not, intuition is not to be trusted.

Unfortunately, such a rejoinder is both false and irrelevant. It is false because there is a substantial and growing literature on moral intuition (although perhaps not intuition more broadly) that offers an evolutionary psychological account of its origins and a neurological account of its operation.¹⁶ This literature may be fairly new and not as extensive as the scientific work on perception, but it false to deny that it exists. Second, the objection is irrelevant because perception reliably produced true beliefs and was a source of justification long before there was even science, much less sophisticated empirical work on perception. The objection amounts to a double standard for intuition, holding it to benchmark that perception was never held to.

An intuition skeptic might argue that perception and intuition are disanalogous in the following manner. There are various sensory modalities: hearing, vision, taste, etc. We frequently use our different senses to verify each other. If vision reports one thing, so that as a result one is inclined to believe that p , but p is disconfirmed by the other senses, one tends to refuse to believe that p , judging that the vision report was a misperception. Part of our trust in our senses is because we can use them to check up on each other; no one sensory modality carries the day. However, there are no alternative modalities in the case of rational intuition, and thus no way for different forms of intuition to confirm or disconfirm a proposed intuitive judgment. While one may always reject an intuition-supported belief because it cannot be reflectively integrated into one's set of beliefs, the same is true of perception-supported beliefs as well. The reflective equilibrium model does not quite capture the idea of diverse sensory modalities working together as an error-checking system.

It is true that there do not seem to be alternative intuitive modalities. That, however, is irrelevant to the issue of the epistemic status of beliefs grounded in intuition. In the first place, the fact that there are different types of sensation does nothing to show that *sensation* is a reliable source of knowledge. An analogy: suppose Independent Ike is wondering whether Republicans are source of knowledge. He asks five different Republicans for their views on a hot-button social issue and finds that they all say the same thing. While the Republicans that Ike consulted all agree with each other, that's no evidence that Republicans *tout court* are indicators of the truth. Republicans could be altogether misguided.¹⁷ Likewise, the "modalities checking up on each other" argument does nothing to show that sensation *tout court* is a source of knowledge. I have been arguing that intuition is a source of knowledge analogous to,

16. See de Waal (2006); Joyce (2006); Gazzaniga (2005); and Hales (2009).

17. Substitute "Democrats" if you like. It does not matter for the point being made.

and at the same level as, sensation. If I had been arguing that intuition was analogous to hearing alone, then one might reasonably object that hearing can be checked by vision, and there is nothing similar for intuition. But that is not my argument. The modality objection embodies a level confusion.

A second point is that *memory* is one of the traditional sources of noninferential knowledge, and there are no memory modalities. In fact, memory is also similar to intuition in many respects. Memory is poorly understood, and many previous theories of memory (e.g., the existence of flashbulb memories and repressed memories) have been severely undermined by recent work. Memory is known to be quite constructive, notoriously inaccurate (cf. the literature on eyewitness reports), and is a wholly mental process. Nevertheless, everyone is prepared to admit that much of our knowledge about the past is the result of memory. Memory is trusted with caution, and memory reports must fit in with the rest of our network of beliefs about the world to be accepted—just as I have been arguing in the case of intuition. If memory is accepted as a basic source of knowledge and does not fall to the “modalities checking up on each other” argument, then it is very hard to see why things should be different for rational intuition.¹⁸

I have tried to set out the reasons for thinking that the operations of ordinary perception and those of rational intuition as familiarly conceived are quite similar. This similarity is a good reason for believing that their epistemic properties are the same as well. While there is always a general skeptical worry that nothing guarantees that either perception or intuition will put us in touch with facts about an extra-mental reality, universal skepticism does not show a disanalogy between perception and intuition. I will now turn to the most substantive arguments that attempt to show that, in fact, perception and intuition are disanalogous.

Objection One: Intuitions Are Not Evidence

The usual skeptics of intuition acknowledge that intuitions are used as evidence, but regard this procedure as a flaw in philosophical methodology on the grounds that intuitions have no reliable connection to the truth. Earlenbaugh and Molyneux (2009) argue for the much more robust position that intuitions are not actually treated as evidence in philosophy. They maintain that intuitions are not a part of a flawed methodology since they are not used as evidence *at all*. In this respect, intuitions are disanalogous to perceptions. Earlenbaugh and Molyneux write that “The paradigm basic evidential state is the visual seeming, for seeming to see that P is *prima facie* evidence that P, but also on the list are auditory seemings, mnemonic seemings . . . and perhaps introspections” (§2.4). Perceptions count as basic evidence, but intuitions do not.

Their principal argument against intuitions being evidence is that “one is not typically inclined to believe P in the basis of *someone else* intuiting that P” (§3.1). We might be ready to form beliefs on the basis of our own intuitions, but not

18. Thanks to Paul O’Grady.

the intuitions of others. If this claim is right, then intuitions are quite different from perceptions, as we are generally willing to believe P on the basis of someone else's perceptions—if others report seeing rain through the window, then (in the absence of defeaters) we are ready to believe that it is raining, if others claim to hear a police siren, we are willing to believe that there is a siren. But, according to Earlenbaugh and Molyneux, “one is not willing to base one's philosophical beliefs on the intuitions of another.” Presumably they mean that no one will form a philosophical belief on the basis of an intuition held by another philosopher that they themselves do not share. Thus, if you do not find perdurantism intuitive, you will not change your mind merely because I do find it intuitive. You may change your mind on the basis of an argument that starts with premises you are willing to accept and validly implies perdurantism, but not on the basis of my brutally intuiting the truth of the conclusion.

What is the evidence that Earlenbaugh and Molyneux offer for their contention that philosophers are unwilling to believe P on the basis of the intuitions of others that P? None whatsoever—no citations of philosophers who agree with their claim, no empirical studies of belief-forming practices among philosophers, nothing other than a mere assertion about how philosophers form their beliefs. One might charitably treat their approach as nothing more than familiar and harmless armchair philosophizing about what “we all know” or appeals to the intuitive plausibility of the cases they offer. Yet this reading is not available to Earlenbaugh and Molyneux, since the very point of their article is to dismiss appeals to intuition as evidentiary. They write, “we deny that in this paper we use our intuitions as evidence. We are merely *inclined to believe* their contents. We hope these inclinations are common” (footnote 6, italics in original). In other words, they offer neither intuitive evidence for their premises about how philosophers form their beliefs (which they freely acknowledge) nor any other kind of evidence. They merely hope that readers will agree with their undefended assertions.

Unfortunately, Earlenbaugh and Molyneux's hopes that all will agree with them have already been dashed—others have previously registered their disagreement. Kornblith, a self-proclaimed naturalist not especially enamored of intuition, writes, “The intuitions of the majority are not definitive, but they do carry substantial epistemic weight, at least in comparison with the intuitions of any single individual, even oneself” (Kornblith, 1998, p. 133). So Kornblith, at least, *is* prepared to form philosophical beliefs on the basis of the intuitions of others, contrary to the insistence of Earlenbaugh and Molyneux that no one is. Well, Kornblith reports that he is so prepared; one might argue that he is self-deceived. But such an accusation would require substantial argument.

Nevertheless, there is a basis to supposing that we are resistant to accepting the intuitions of other people as evidence. Ordinarily, when one devises some clever philosophical case or example, one then offers it to other philosophers for consideration, in the expectation that they, too, will have the same intuitions as the author of the case. When Judith Thomson wrote her famous abortion paper, she presented her violinist analogy to the philosophical community, in the expectation that others would share her intuition that there was nothing immoral about disconnecting oneself from the violinist. When others

also had that intuition, they came to believe her conclusion that abortion in the case of rape is morally permissible, even if the fetus is a moral person. No one just accepted her word for it without also having the same intuition. It is similar to inviting someone to look out of the window to form their own perceptual belief that it is raining, instead of asking them to believe that it is raining on the basis of your report that you see it raining. The reason that no philosopher would have believed that abortion in the case of rape is morally permissible solely on the grounds of Thomson's report of her own intuitions about the matter is twofold: (i) abortion, like most other philosophical topics, is controversial, and (ii) we are experts on philosophical topics.

Similarly, we are all "experts" about simple perception. When it comes to looking out of the window and judging whether it is raining or sunny, you are no more expert than I. However, I am happy to appeal to your authority in forming my belief that it is raining, when you report your perception that it looks like it is raining to you. The weather is no particular source of consternation or controversy, and I have no expectation that adopting weather beliefs on the basis of your report will lead to troubling inconsistencies, or that I will be unable to coherently update my set of beliefs. Thus, even though I am just as much an authority as you are regarding direct weather observations, I am willing to accept your judgment on this minor matter.

If the issue at hand is controversial, experts want to form their own judgments on the basis of the empirical evidence, not accept the reports of other experts. An orthopedic surgeon will want to see the magnetic resonance image (MRI) herself before judging that surgery is necessary, not simply accept a diagnosis made by another surgeon. This does not mean that her diagnosis is definitely the correct one. To choose another example, at the frontiers of particle physics, new particle signatures can be ambiguous and very weak in the noise. So a good particle physicist would want to know how the statistics were used to extract a signature if the result were a new one. Experts may disagree among each other, but still want to draw their own conclusions from the evidence.

Likewise, philosophers prefer to consult their own intuitions regarding philosophical cases and reach their own conclusions about whether the generality problem undermines reliabilism, multiple realizability arguments refute token identity theories, color metamerism vitiates frequency theories of color, trolley cases pose a problem for utilitarianism, etc. Even so, there are cases in which philosophers (and experts generally) are willing to form beliefs on the basis of the judgments of others. For instance, I am not a logician, although I have an average professional philosopher's knowledge of symbolic logic. If a leading logician told me that he had not worked out the proof, but he had an intuition that von Neumann–Bernays–Gödel set theory was incompatible with Russell's Theory of Types, I would promptly believe that they were likely incompatible. I would not need to have the intuition myself. Nor would I need to have a proof of the thesis; I would accept the logician's intuition as evidential (barring defeaters, of course, like prior knowledge that the logician has philosophical axes to grind that may impair his judgment, or that the incompatibility thesis is already well discussed and widely rejected). A similar pattern holds in other fields. An internist will defer to the opinions of a neurologist when a neurology

consult is needed, even though both are MDs. A general contractor will accept the wiring advice of a licensed electrician, even if the views of the electrician are based on no more than an informed instinct about how the wiring should be done.

The underlying issue concerns the formation of beliefs on the basis of expert testimony—when we are psychologically prepared to do so, and when it is epistemically reasonable to do so. Earlenbaugh and Molyneux contend that “we are hardly affected by the intuitions of others, no matter how strongly they are professed and no matter how many others have the intuition” (§3.1). As a piece of descriptive empirical (albeit armchair) psychology such a claim is demonstrably false. Intuitions, like perceptions, are explicitly treated as basic evidential states by philosophers. I will now take up the further issue of whether they *ought* to be so treated.

Objection Two: Intuitions Are Not Good Evidence

Other critics acknowledge that intuitions are used evidentially, so in that respect they are similar to perceptions. The key difference is that perception gives rise to *prima facie* justified beliefs and rational intuition does not. This sort of criticism comes chiefly from the recent experimental philosophy movement. The primary sort of X-phi work has been to conduct social-scientific surveys of various populations. Most of these surveys have measured respondents’ spontaneous reports of their intuitions concerning philosophical cases. Thus, people have been polled on Gettier examples, Kripke’s Schmidt/Gödel example about reference, Lehrer’s truetemp case, trolley situations, and cases concerning incompatibilism vs. compatibilism. The X-phi findings have consistently been that intuitions about such matters systematically vary across the ethnic background, socioeconomic standing, and educational achievement of the subjects, the abstractness or concreteness of the examples used, and other parameters. Exactly what philosophical lesson is to be drawn from these empirical results bifurcate experimental philosophers into two groups: the *ecumenicals* and the *fundamentalists*.¹⁹

Knobe and Nichols (2008) lay out the ecumenical case. Experimental philosophy, in their view, is continuous with traditional philosophy (p. 4). The first major goal of the experimentalists “is to determine what leads us to have the intuitions we do about free will, moral responsibility, the afterlife. The ultimate hope is that we can use this information to help determine whether the psychological sources of the beliefs undercut the warrant for the beliefs” (p. 7). So at most the X-phi “cultural variance” argument does no more than show the fallibility of certain sources of knowledge. Experimental philosophy is merely a new tool in the philosopher’s toolbox, an updated cognitive science version of Nietzsche’s genealogical method. It is not revolutionary at all.

19. Joshua Alexander and Jonathan M. Weinberg make a distinction between kinds of experimental philosophy under the headings of “proper foundationalism” and “restrictionism,” which roughly correspond to my “ecumenicalism” and “fundamentalism,” respectively. Alexander and Weinberg (2007).

Intuition is still available, but the methods of the social and physical sciences are a new instrument for philosophers to employ, a newer *novum organum*.

In this sense, the ecumenical criticism of traditional philosophy echoes Bacon's own: "the Rational School of philosophers snatches from experience a variety of common instances, neither duly ascertained nor diligently examined and weighed, and leaves all the rest to meditation and agitation of wit" (*Novum Organum* [1620] sec. 17). Bacon goes on to chastise those (he mentions Aristotle) who take a few cases and proceed to build a system out of them. What we need, he argues, is a more comprehensive application of the scientific method, a method that he is more-or-less inventing. So too, ecumenicals like Knobe and Nichols call for a more inclusive, pluralistic approach to philosophy (p. 12).

The idea that philosophy has something to be gained by interacting with the empirical sciences is obviously not new. It goes back even to Aristotle with his nascent scientific studies, through Bacon, the British Empiricists, the Logical Empiricists, and to the present day. Philosophers of mind must have some knowledge of cognitive science and neuroscience, metaphysicians must know basic relativity theory and something about quantum physics, etc. What ecumenical X-phi has to contribute is the notion that philosophers themselves can engage in experimentation, and not merely report the findings of others. A fine plan for those so inclined—as stated, the ecumenical version of experimental philosophy is not a threat to treating rational intuition as a basic source of philosophical knowledge, just one tempered and informed by empirical results.

The second strain of experimental philosophy is what we might call *fundamentalism*. These are the debunkers, who insist that intuition is utterly bankrupt. The fundamentalists maintain that there is no neutral, *sub specie aeternitatis* stance from which we can say who has the right intuitions, and so take the cultural variation data to show that appeals to intuition have no value as a belief-acquiring method. It is the fundamentalists who reject the analogy I have drawn between perception and intuition. They admit that intuitions may be treated as evidence for philosophical propositions but insist that intuitions are not good evidence.

To demonstrate that I am not propping up a straw man, here are some sample quotations from the fundamentalist camp. Weinberg, Nichols, and Stich write, "epistemologists who rely heavily on epistemic intuitions have proceeded as though they could simply ignore the empirical hypotheses we will set out. We will be well satisfied if we succeed in making a plausible case for the claim that this approach is no longer acceptable." (Weinberg et al., 2008, p. 17). It is not just that intuition-using epistemologists must pay attention to their empirical data, but "we think that the entire tradition of [reliance on epistemic intuitions] has been a very bad idea." (p. 22). Finally, "it is hard to believe that any plausible case can be made for the claim that the normative pronouncements of Intuition-Driven Romanticism have real normative force—that they are norms that we (or anyone else) should take seriously" (p. 25). Stich, the pontifex maximus of fundamentalism, delivered a recent talk under the title "Experimental Philosophy and the Bankruptcy of 'The Great Tradition.'" In his abstract for the talk, Stich writes, "From Plato

to the present, appeal to intuition has played a central role in philosophy. However, recent work in experimental philosophy has shown that in many cases intuition cannot be a reliable source of evidence for philosophical theories. Without careful empirical work, there is no way of knowing which intuitions are unreliable. Thus the venerable tradition that views philosophy as a largely a priori discipline that can be pursued from the armchair is untenable.”²⁰ Weinberg characterizes Stich and Hintikka as holding that “intuitions can have no normative epistemic force, are ungrounded in any theory of their correct use, are unreliable, and generally speaking ought to be abandoned with the likes of palmistry and entrail reading” (Weinberg 2007, p. 318).

In another paper, Machery, Mallon, Nichols, and Stich write, “We find it *wildly* implausible that the semantic intuitions of the narrow cross-section of humanity who are Western academic philosophers are a more reliable indicator of the correct theory of reference . . . than the differing semantic intuitions of other cultural or linguistic groups . . . [their] project smacks of narcissism in the extreme . . . Our data indicate that philosophers must radically revise their methodology. Since the intuitions philosophers pronounce from their armchairs are likely to be a product of their own culture and their academic training . . . philosophers need to get out of their armchairs.” (Machery et al., 2008, p. 54). Only somewhat less biting is the recommendation of Nahmias, Morris, Nadelhoffer, and Turner that their experimental results regarding free will show that “philosophers [should] reexamine some of their own assumptions concerning the role of intuitions in philosophy” (Nahmias et al., 2008, p. 98). That is not merely the friendly offering of a new tool to supplement the use of intuition.

The X-phi fundamentalists are those who adopt a burning armchair as their standard. Witness their video and anthem at <http://www.youtube.com/watch?v=tt5Kxv8eCTA>. In 2008, there was a workshop at the University of Cologne under the title “Armchair in Flames? Experimental Philosophy and its Critics” that featured presentations from several of the leading figures in the X-phi debates. A recent conference promised a “Burning Armchair Medal” to the submission with the best experimental results.²¹ Now, one might contend that the idea of burning armchairs is just a harmless bit of prankster fun, but I think that would be rather disingenuous. One does not fly the Confederate battle flag and then insist that all that is meant by it is respect for traditional southern gentility. Many philosophers are suspicious of the ecumenicals because they worry that their kind and innocent gift of experimental techniques is really a Trojan horse in whose belly wait a platoon of fundamentalists and a trebuchet loaded with a napalmed recliner.²² Even Jesse Prinz, who clearly supports an ecumenical brand of experimental philosophy, charac-

20. Gottlob Frege Lectures in Theoretical Philosophy, University of Tartu (Estonia), June 28–30, 2010. This talk is a component of a monograph on intuitions that Stich is preparing (personal correspondence).

21. <http://tjohn.blogspot.com/2009/08/submissions-invited-philosophy-and.html>.

22. The fact that Nichols is a signatory to both ecumenical and fundamentalist articles furthers such suspicions.

terizes the situation as “a methodological revolution taking place in philosophy . . . [and] battles are still taking place” (Prinz, 2008, p. 189).

By its own lights, ecumenical experimental philosophy is not a threat to treating rational intuition as a faculty that is a source of philosophical knowledge. On the other hand, fundamentalist X-phi clearly is. However, fundamentalism is subject to a sort of self-refutation argument which, if successful, shows that intuition-compatible ecumenicalism is the variety of experimental philosophy worth pursuing. Here is the root fundamentalist argument:

- (1) Intuitions about philosophical cases systematically vary across ethnic, socioeconomic, and other parameters.
- (2) We have no way to tell which intuitions, if any, are the right ones to have.
- (3) Therefore, intuition is epistemically worthless as a basic belief-acquiring method.

The results of X-phi social-scientific data collection support the first premise. Some have criticized the second premise on the grounds that it is the expert intuitions of professionally trained philosophers that have epistemic merit, not the uninformed reactions of the unwashed masses.²³ Set that aside. As it stands, the argument is a bit enthymematic as well, but let us assume that any missing premises can be plausibly filled in so that the argument is explicitly valid. A much more serious problem is that a parallel argument can be constructed to the conclusion that sense perception is epistemically worthless. Ironically, the premises come from the work of Richard Nisbett, a psychologist well known in the X-phi community and who helped design some of their early questionnaire probes.

Nisbett argues that there is cultural variance with sense perception. More exactly, he provides empirical evidence, based on social-scientific methodology, that East Asians (EAs) (namely Chinese and those from countries heavily influenced by its culture) and Westerners (people of European culture) systematically perceive the world in different ways.

Here are some examples of this thesis for which he provides empirical support. The first involves figure/ground perception. EAs tend to see scenes more holistically and are more attentive to ground than the prominent foreground figures. Westerners perceive scenes more atomistically, with more attention to foreground figures. In a variety of recall tasks, EAs were able to accurately describe the environment surrounding a prominent foreground object, and Westerners were not. On the other hand, Westerners could more effectively track objects independently of their field than could EAs. A second example is that of objects and substances. Nisbett argues that, “Westerners and Asians literally see different worlds . . . Asians see a world of substances—continuous masses of *matter*. The Westerner sees an abstract statue where the Asian sees a piece of marble; the Westerner sees a wall where the Asian sees

23. I made this argument in Hales (2006). The experimentalists produced a comeback in Weinberg et al., 2010, which in turn has been rebutted by Williamson 2011.

concrete” (Nisbett, 2003, p. 82). EAs focus more on continuities in substances and relations among the components than on the components themselves.

A third example involves the perception of events. EAs tend to see events more holistically as well, describing recalled scenes from a third-person perspective. Westerners recall scenes from a first-person perspective. According to Nisbett, this difference in event perception also affects the kinds of causal explanations offered by EAs vs. Westerners. In fact, Nisbett devotes an entire chapter in his book to showing that not only do the holistic EAs and the individualistic Westerners systematically provide incompatible causal explanations of human behavior but Nisbett goes so far as to argue that “the differences between Easterners and Westerners go deeper still—to the perception of physical causality” (Nisbett, 2003, p. 116). He offers studies on the perceptions of motion and causation in abstract cartoons to support the claim that Easterners and Westerners have different causal ontologies. “Westerners,” he writes, “seem to engage in more causal attribution, period” (Nisbett, 2003, p. 127). Nisbett further claims that ontological differences arise in the theory of categories. Unlike Westerners, EAs do not treat shared attributes as establishing class membership (Nisbett, 2003, p. 138) and see natural kind divisions as grounded in relationships. For example, Nisbett argues that given three objects: chicken, grass, cow, that EAs would group together the cow and the grass (since cows eat grass), whereas Westerners would place the chicken and cow together in the same taxonomic branch (Nisbett, 2003, pp. 140–141). Nisbett considers examples of classificatory disagreement to be the result of differences in “perceptions of similarity” (Nisbett, 2003, pp. 141–142).

In some respects, the findings of Nisbett and his colleagues should not be too surprising. Cultural background uncontroversially plays an important role in music, and directly affects the understanding of scale and rhythm. For instance, certain kinds of pentatonic scales are common in Chinese music, and consequently “sound” Oriental to listeners with the right background, other pentatonic scales are components of American blues music and music played with those scales is perceived as bluesy. Or consider typographic education. Printers and typesetters are far more knowledgeable about, and sensitive to, different typefaces than masons or philosophers. A typesetter can just see, immediately, that a page has been laid out in *Arial*, *Century Schoolbook*, *Baskerville*, *Garamond*, etc. It is not simply a matter of getting the names right; they immediately perceive differences in the letters that the uninitiated do not. Ordinary observers could, with scrutiny, detect differences in serifs, descenders, ligatures, and kerning, just as Westerners could see background figures in the Nisbett examples with adequate study. But in neither case do they see the difference without direction or special attention.

As Nisbett and Miyamoto put it in a recent article,

One of the basic assumptions about human cognition and perception has been that information-processing machinery is fixed and universal. However, the evidence we have reviewed suggests that cognitive and perceptual processes are constructed in part through participation in cultural practices. The cultural environment, both social and physical, shapes per-

ceptual processes (Nisbett and Miyamoto, 2005, p. 472; also cf. Chua et al., 2005 and Miyamoto and Kitayama, 2002).

I am defending neither Nisbett's arguments nor his conclusions. My point is that an argument regarding perception can be constructed that is strictly analogous to that of the X-phi fundamentalists, namely:

- 1*. Perceptions systematically vary across ethnic, socioeconomic, and other parameters.
- 2*. We have no way to tell which perceptions, if any, are the right ones to have.
- 3*. Therefore, perception is epistemically worthless as a basic belief-acquiring method.

The fundamentalists are in no position to block the inference from (1*) and (2*) to (3*), since the reasoning is precisely their own. Nor can they criticize the first premise of this argument, as the evidence for it was gotten via precisely the same sort of social scientific methodology that they use, and by their own heroes.

What of the second premise? Is there some way to tell that the perceptions of Westerners more veridical than those of EAs (or vice versa)? To paraphrase the fundamentalists, *mutatis mutandis*, I find it *wildly* implausible that the perceptions of the narrow cross-section of humanity who are Westerners are a more reliable indicator of the truth than the differing perceptions of other cultural or linguistic groups; this project smacks of narcissism in the extreme. It is hard to believe that any plausible case can be made for the claim that the normative pronouncements of perception-driven science have real normative force—that they are norms that we (or anyone else) should take seriously. A bit tongue-in-cheek, but this is just the language they use against intuition.

More seriously, Weinberg (2007) has argued that perceptions are fallible, but that they enjoy a mitigated fallibility. Sense experience can be externally corroborated, demonstrates an internal coherence, we know the conditions under which our senses are not to be trusted, and (somewhat of a bonus) we have a rudimentary understanding of why perception generally delivers the truth (pp. 330–331). Weinberg tries to argue that “the bulk of philosophical intuitions” (p. 333) fail to satisfy those conditions, and so are unmitigatedly fallible. One of the key reasons that intuition does not measure up, according to Weinberg (pp. 337–338), is that the X-phi results demonstrate that there is little intersubjective agreement about intuitions, on the grounds that intuitions systematically vary across ethnic, socioeconomic, and other parameters. So one of the main ways that sense perception is supposedly superior to intuition, according to Weinberg, is that it can be externally corroborated and there are error-correcting procedures to resolve disagreement.

However, despite Weinberg's fine words about perception, his argument lacks the resources to deal with the problem posed by the Nisbett results. If X-phi shows that there is little intersubjective agreement about intuitions, then

Nisbett's experimental psychology does the same for perceptions. Moreover, EAs are just as capable as Westerners of detecting and correcting their perceptual errors and conversely. What are the error-correcting procedures that determine whether it is the Westerners or the EAs who got the world right? If there are none, then perception cannot really lord it over intuition. If there are such procedures, let us hear about them—perhaps they will resolve cultural disagreements about intuition as well. For example, one idea might be that we can adjudicate the dispute between the perceptual variations of Westerners and EAs by appealing to the systematizability of some perceptions over others, or to the various theoretical virtues of some networks of perceptual beliefs over others. Perhaps the EA way of seeing the world is more explanatorily cohesive, logically coherent, conceptually minimal, and so on than the Westerners' approach. If it were, that would provide a reason to reject the Westerners' way of seeing the world as erroneous. Of course, defenders of intuition can (and frequently do) make exactly the same argument—one intuition-based philosophical theory is better than another precisely because it possesses theoretical virtues like those above.

Alternatively, Weinberg and the fundamentalists might be tempted to rejoice that all the Nisbett results show is that perception is prone to certain kinds of cognitive bias. We have known this since Kahneman and Tversky, but Nisbett and his colleagues have shown that these biases can be culturally determined as well. The right response is not a radical dismissal of the scientific method, rather, it simply shows that we need to be aware of our propensity to perceptions that are systematically biased or subject to misleading psychological heuristics, and develop error-correcting routines to compensate.

That is a fine and reasonable response for X-phi ecumenicals. The fundamentalists, however, cannot employ such a defense. If they were to make that move, then defenders of intuition would follow suit; viz. sure intuitions demonstrate cross-cultural variation. That only shows we cannot take intuitions at face value any more than we can perceptions. Intuitions require close, careful scrutiny, and being subject to relentless critical investigation to uncover hidden errors. What we must do is subject our intuitions to all manner of cases, hypothetical and real, to determine which intuitions are stable and fundamental, and which erroneous, confused, or ambiguous. In short, we should do pretty much what we do now. Manifestly not a conclusion congenial to the fundamentalists!

Even worse is that the conclusion (3*) amounts to a *reductio ad absurdum* on fundamentalism. The heart of experimental philosophy is the scientific method and the use by philosophers of the lab-bench, data collection methods of the natural and social sciences. Those procedures in turn rest upon perception and observation as the bedrock method of gaining noninferential beliefs. Science is, of course, more than a mere attempt to predict and explain the deliverances of the senses, and there has been a good deal of discussion of the epistemic standing of unobservables, the theory-ladenness of observation, and the like. Nevertheless, no matter how we construe the scientific method, in some sense it is devoted to saving the phenomena, and as such is essentially grounded in perception. Even if what is being perceived is a functional magnetic resonance

image or a screen in a scanning electron microscope, so that there is a strained sense in which one sees a neural activity or an atom, there is still the perception of those images, and they are used (with a theoretical interpretation of their contents) as data. This is how working scientists see the matter. Compare Richard Dawkins: “[scientific] inference has to be ultimately based on observation by our sense organs. For example, we use our eyes to observe the printout from a DNA sequencing machine or from the Large Hadron Collider” (Dawkins, 2009, p. 15). Yet, if perception has *no* value as a means of gaining basic beliefs, then good-bye to science and experimental philosophy.

In the end, if the cultural-variance results do not debunk perception, then they do not debunk intuition either. The discovery, by experimental philosophers, of various ways in which rational intuitions are subject to cognitive biases is fascinating and certainly relevant to the study and use of traditional philosophical methodology. In the same way, the discovery of perceptual biases by Nisbett and others is interesting and important to our understanding of perceptual judgments. Taking a broader view, human beings are apparently hardwired for dispositions to make irrational decisions, perceptual errors, and have variable intuitions.²⁴ These facts do not show that rational decision-making is impossible, or that perception and intuition can never be counted on to produce true beliefs.

Analogously, when one hears an unfamiliar piece of music, one is often able to anticipate what will come next based upon the memory of what has already happened in the piece, coupled with prior knowledge of genre or style. Such prior knowledge will be heavily influenced by cultural determinants, and so we should expect people’s abilities to predict that a phrase will resolve to the tonic, or be surprised by a change in loudness or timbre, to exhibit cross-cultural variance. Yet systematic, culturally bound variance does not undermine the ability to anticipate what will happen next in a piece of music. Neither does it undermine intuition.

A far more compelling criticism of rational intuition would be if the deliverances of intuition were not systematic at all. If everyone’s intuitions about philosophical topics were as random as “guess what number I’m thinking of,” then we would have a real problem. If the variance were completely arbitrary, then that would kill intuition as any sort of faculty. Likewise, music would be impossible if each person’s brain employed such different sound grouping algorithms that everyone heard different rhythms or melodies from the same composition. If no sensible line could be drawn through the scatterplot of intuitions, that would be its death sentence. But that is not the situation we have by the X-phiers’ own arguments.

There are many questions about intuition that I leave unanswered. That fact does not undermine the analogy with perception. The test is whether some unclarity or theoretical lacuna regarding intuition is vitally unlike the situation with perception. For example, I have discussed the traditional view that intuition gives rise to *prima facie* justified beliefs, and hence is a source of

24. The nascent field of behavioral economics has generated interesting results on irrational decision-making. See Ariely (2009).

philosophical knowledge. I have not, however, addressed the matter of what the content, or target, of intuition is precisely. Is it Platonic forms? Natural kinds? Fregean concepts? Some other sort of concept? These options are all examined by Goldman (2007). Or maybe intuition aims directly at modal philosophical propositions (as Sosa, and perhaps Williamson, hold). It is fair to say that there is no received view. On the other hand, perception is no better off. What is the content or target of perceptions? Sense data? Mere sensory affectations? Objects? Some kind of adverbialism? Again, there is no commonly accepted view.²⁵ Yet only skeptics deny that perception is a source of knowledge. It is fallible, prone to biases, and in need of self-critical use but a fine epistemic method nonetheless. The take-away lesson is that a fully developed theory is not a requirement to take intuition on board as a basic source of knowledge as well.

Conclusion

In this paper, I have argued that rational intuition is considerably similar to ordinary sense perception, both epistemologically and psychologically. Just as sense perception is used to produce noninferential empirical beliefs that are taken to be fallible but *prima facie* justified and ultimately a source of knowledge, so too rational intuition is used to arrive at philosophical beliefs that are taken to be fallible but *prima facie* justified and ultimately a source of knowledge. Both perception-based empirical beliefs and intuition-based philosophical beliefs are used as data to build theories that can be held in wide reflective equilibrium, a procedure that sometimes requires outlier data to be discarded.

In addition to perception and intuition playing the same epistemic role, they are also quite analogous with respect to their cognitive properties. While I chose sonic perception as my working example, nothing vital to my arguments turns on that choice. As in the better-known case of color, our perceptions of sonic qualities like pitch and timbre are a diachronic mental process that is constructive, responsive to specific cases, spontaneous and unreflective, enhanced by training, and regarded as fallible yet still reliable. These properties are exhibited by intuition as well. In sum, it is widely accepted that there is a faculty of perception that reliably delivers *prima facie* justified beliefs and is thereby a source of knowledge. I have argued that intuition is analogous to perception in the psychologically and epistemically relevant ways. Therefore, we should believe that there is a faculty of intuition that reliably delivers *prima facie* justified beliefs and is thereby a source of knowledge. If one form of cognition is trusted as a source of knowledge, then the other one ought to be as well.

I cannot guarantee that rational intuition connects us up with the truth and yields knowledge of an extra-mental reality, any more than I can guarantee

25. These four options are listed by Siegel, Susanna, "The Contents of Perception," *The Stanford Encyclopedia of Philosophy (Winter 2008 Edition)*, Edward N. Zalta (ed.), URL = <<http://plato.stanford.edu/archives/win2008/entries/perception-contents/>>.

that perception ever generates knowledge. Both sense perception and rational intuition are prey to general skeptical arguments; however, intuition is no worse off in this respect. Specific arguments against the perception/intuition analogy I have defended fall into two categories. The first is those that deny that intuitions function as evidence in philosophy at all, like Earlenbaugh and Molyneux. Their thesis that philosophers are unwilling to accept the intuitions of others as evidentiary is both undefended and false, and I offered an alternative explanation of why and when philosophers would be hesitant to form beliefs merely on the basis of the intuitions of others. The second sort of argument concedes that intuitions are used as evidence, but maintains that, unlike perceptions, they are not good evidence. This is the position of the experimental philosophy fundamentalists. Their argument is that social science has shown systematic cultural variance in intuitive responses to cases and that the proper response is to dismiss intuition as a belief-acquiring method. I have argued that there is equivalently good social scientific evidence that perceptions demonstrate systematic cultural variance, and yet no one takes that as a reason to abandon perception as a source of knowledge. Indeed, it would be self-refuting for experimentalists to do so.

While certainly much work remains to be done to understand rational intuition, it is equivalent to perception in this regard, and it would be foolish in the extreme to discard it. Intuition and perception are both crooked timber out of which we build our house of knowledge, but Pythagorean pure lines and Platonic forms offer poor shelter. The most reasonable course of action is for philosophers to continue to trust—with caution, reflection, and self-criticism—the faculty of intuition.²⁶

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