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Intuition and its proper uses

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“Intuition and its Proper Uses”

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What is intuition? Is it nothing but a nagging conviction in certain beliefs? Is it the same thing as common sense? When, if ever, is intuition a legitimate epistemological tool? Is the use of intuition in philosophical inquiry not just legitimate, but also inevitable? The aim of the present research project is to answer these and related questions. This research project will prove important due to the regularity with which intuitions are evoked in philosophical discourse, and the judgment errors that can result from a misunderstanding of the proper scope of these intuitions.

In section (1), I define and explain intuition. In section (2), I demonstrate that intuition is relevantly similar to perception, thereby offering the defense that intuition is epistemologically adequate to the same extant that perception is epistemologically adequate. In section (3), I attempt to determine specifically when intuition tends to be untrustworthy and when it should be avoided in philosophical argumentation.

(1) What is intuition?

I begin by examining how intuition is defined in contemporary philosophical work. Anand Vaidya's "Philosophical methodology: The current debate" is helpful here. According to Vaidya, there are two major accounts of intuition. The first account, which accepts the doxastic assumption (DA), is that "Intuitions either are beliefs, dispositions to believe, or attractions to believe" (397). The DA contrasts with the non-doxastic (NA) account of intuition, namely, of intuition as "a kind of contentful mental state that is metaphysically distinct from belief" (397).

The DA defines intuition as a pre-theoretical belief motivated by prima facie considerations. The having of DA intuitions will happen automatically or rapidly. A belief does not count as DA intuition when it is brought about by, for instance, careful consideration of explicit premises, deduction, or scientific experimentation. An example of a classic DA intuition

is the belief that *like cases should be treated similarly*; this proposition may be difficult to prove or even ruminate, and yet it is widely accepted as an obviously legitimate basis for analogy-based arguments. That this proposition is widespread indicates simply that most people consider it intuitive.

The NA defines intuition as a pre-theoretical disposition toward a view. Vaidya recounts the following example of NA intuition from Bealer (1998): a mathematician does not believe in a particular mathematical axiom because its truth would yield a paradox, although the mathematician has the intuition that the axiom is true because it *seems* like it ought to be true. To use the terminology of NA, we would say that the mathematician holds the counter-intuitive belief that the axiom is false, yet has the intuition that the axiom is true. Now, if this mathematical axiom were true, we would say that the mathematician both believed the axiom and had the intuition that the axiom was true, though the belief and the intuition would be distinct mental states (just as a belief in x and a fear of x have the same content but are distinct).

The two major arguments of this research project—that intuition is similar to perception and that intuition is predictably misleading in particular contexts—do not depend on designating intuition as falling under the DA or NA. This is because the DA and NA share the property of being pre-theoretical, and it is the property of being pre-theoretical that gives intuition its unique merits and weaknesses. For convenience's sake, I will henceforth have the DA in mind when referencing *intuition* unqualifiedly.

Despite having provided accounts for intuition, I suspect that, due to the difficulty of internalizing information in the process of reading, a reader might continue to interpret the term intuition by appealing to the pre-theoretical notion held before reading my account. The unique worry might thereby materialize here that some kind of circularity will plague my arguments

about intuition by virtue of depending on intuition. To combat this worry, I will provide an example of a famous and archetypal intuition to ensure that a reader's intuition of *intuition* is compatible with the above account.

Take Edmund Gettier's famous "Is Justified True Belief Knowledge?" paper. In the paper, Gettier argues against the definition of knowledge as (i) true, (ii) justified, (iii) belief. His method is to provide examples whereby (i)-(iii) hold, yet in which knowledge does not obtain, thereby demonstrating that (i)-(iii) are insufficient conditions for knowledge. One of his examples follows (paraphrased):

> Suppose Smith and Jones have applied for job. Smith has strong evidence that Jones will get the job (the president of the company assured Smith that Jones would), and Smith knows that Jones has ten coins in his pocket. Smith is consequently justified in believing that the man who will get the job has ten coins in his pocket. What Smith does not realize is that he is the one who will actually get the job. Furthermore, Smith happens to have ten coins in his pocket. Thus, Smith's belief that the man who will get the job has ten coins in his pocket turns out both true and justified. Yet it is clearly not knowledge. (2)

The intuition in this example is that Smith's belief is not knowledge. And the impact of Gettier's paper on the field of epistemology indicates that this intuition is widely shared. But notice why it is an intuition rather than some other type of belief: it is simply asserted as true because it seems, so 'clearly,' to be true. The word 'clearly' rhetorically signifies that Gettier expects readers to merely intuit that Smith's belief is not knowledge. It is not as if Gettier begins his paper by supplying an alternative definition of knowledge only to show that the Smith example does not fit that definition. In fact, if we were to set our intuitions aside in reading the Gettier paper, we

might conclude that Gettier has shown nothing at all—that the Smith example *is* an instance of knowledge because knowledge just is true justified belief. It is the intuition that motivates doubt over the legitimacy of the initial definition. Alvin Goldman has commented that the only reason Gettier's paper is considered monumental is the widespread intuitive agreement among readers that Gettier examples are genuine counterexamples (2). If, instead, Gettier had non-intuitively assaulted the initial definition of knowledge, he would have done something such as shown how the current definition generates contradictions, or shown how scientific research on mental states suggests against a simple three-part account of knowledge. The force of his argument would have derived from elsewhere than a spontaneous belief.

Before I continue to section (2), I must acknowledge that this research project is made relevant largely because of the extent to which intuitions are used as evidence by philosophers. I ought to therefore briefly counter the claim of Earlenbaugh and Molyneux's that intuition is in fact *not* used as evidence, regardless of whether it should be.

Earlenbaugh and Molyneux argue that intuitions are a subclass of inclinations to believe (a type of NA). They define intuition in such a way that *finding something to be intuitive* counts as having an intuition. First they distinguish, with Lycan (1988), *intuitings* from *intuiteds*. Intuitings are attitudinal mental states, and intuiteds are contents of intuitings. The intuited that *it is raining*, for example, could act as the content of either an intuiting that it is raining or the belief that it is raining, without entailing that intuitings are equivalent to beliefs. To Earlenbaugh and Molyneux, the signal that a community treats a mental state ψ as an evidential mental state is that it accepts inferences of the form (98):

S ψ's that P.

Therefore P.

Belief is the mental state archetypically treated as evidential because when S believes that P, S asserts that P. This is opposed to mental states such as doubts, desires, hopes, etc.; when S doubts/desires/hopes that P, S does not necessarily thereby assert that P. The following inference also holds of an evidential mental state:

T ψ's that P.

Therefore S places credence in P.

This just says that people are sometimes convinced by others' beliefs.

Next, Earlenbaugh and Molyneux claim that the evidential value of intuitions is subject-sensitive in a way that other evidential states are not:

> *[O]ne is often willing to believe P when one finds P intuitive. So it might seem, on this basis, that one is willing to infer P from the intuition that P. Curiously, however, one is not typically inclined to believe P on the basis of someone else intuiting that P. In this way, intuitions come apart from the standard basic evidential states, for no standard basic evidential state is subject sensitive in this way. One is willing to treat what other people seemed to see, what they seemed to hear, and what they seem to remember, as evidence, in the sense that one will base one's beliefs upon it. But one is not willing to base one's philosophical beliefs on the intuitions of another. (99)*

Intuiteds, unlike propositions believed, are not treated as evidentially valuable.

Furthermore, Earlenbaugh and Molyneux claim that intuition is not credence-entailing, or weakly evidential (as is *suspecting that*), because the statement "I find it intuitive that P even though I place no credence in it" is a coherent statement (101).

Their arguments have two flaws. First, the claim that people are unwilling to accept propositions on the basis of other people's intuitions is unsubstantiated and implausible. Consider what type of evidence is necessary to confirm that others' intuitions are not treated as evidential: a survey revealing that people largely answer in the negative to the question "does the fact that this expert holds the intuition that P make you any more likely to believe that P?" Not only have Earlenbaugh and Molyneux failed to supply this survey, but it is highly improbable that the survey would yield such a lopsided result if it were conducted. For suppose the following question were asked of a pool of philosophers: "Do you trust the intuitions of your favorite philosopher more than the intuitions of you least favorite philosopher?" If the answer is affirmative (and how could it not be?), then evidently philosophers believe that others' intuitions hold at least some credence. I personally place a good deal of trust in the intuitions of philosophers I admire. Furthermore, suppose it were revealed that you held an intuition that no one else held. Would you not come to suspect your own intuitions and perhaps attempt to change them (to the extent it is possible to consciously change a spontaneously held non-belief).

Second, suppose Earlenbaugh and Molyneux managed to compile the lopsided survey data necessary to confirm their thesis. They still would lack the warrant to claim that philosophers do not use intuition as evidence, for philosophers do in fact use *their own* intuitions as evidence, as well as those of philosophers who have the same intuitions. Intuitions are thus minimally evidential in this vein, even if they are not fully evidential the way beliefs are. Furthermore, there is no guarantee that the philosophers who hypothetically admit that they find no credence in others' intuitions would also recognize that others' intuition-based evidence (i.e. thought experiments) are the type of evidence they are supposed to reject. They might simply (and erroneously) regard thought experiments as explicit arguments independent of intuition.

What Earlenbaugh and Molyneux should say is that if philosophers disavowed the credence of others' intuitions and fully recognized the implications of doing so, then they would not treat intuitions as evidence. But we do not know, and we can safely doubt, that these philosophers are fully aware of the implications of attributing evidential value to intuitions as specifically outlined by Earlenbaugh and Molyneux. The conclusion to draw is just that intuitions tend to be treated as less powerful than beliefs. But this is no surprise.

(2) Similarities between intuition and perception

I will sidestep epistemological debates concerning the evidential value of perception, and merely assume that perception is a legitimate but fallible source of knowledge. I argue that if intuition is relevantly similar to perception, then it is likewise appropriate to treat intuition as a legitimate but fallible source of knowledge.

I will rely heavily on Steven Hales's (2012) detailed account of intuition. Here is Hales's extensive list of the similarities between intuition and perception.

i) The common position on both is that they deliver *prima facia* justified but fallible beliefs.
ii) Neither comes about in a vacuum—intuition occurs in response to an example, and perception in response to external stimuli.
iii) Both may seem to arise instantaneously, but are in fact the result of rapid subconscious processes.
iv) Neither need be belief entailing—one can doubt his intuitions as well as his senses.
v) Both intuitional and perceptual skills can be trained—a philosopher can become better at ignoring irrelevant factors in forming an intuition, while the artist can learn

to 'see through' optical illusions when rendering a scene. In fact, some people claim that to develop philosophical expertise is simply to hone one's intuitions.

vi) To claim that intuition does not reliably connect to truth at all is analogous to claiming, with the skeptics, that perception does not reliably connect one to truth at all. This claim is difficult to rally against, but widely rejected nevertheless on account of perception's immediacy and apparent regularity. (186-96).

The theoretical interplay between perception and intuition is also commensurate. For instance, because we generally believe that "our philosophical beliefs should fit together with our best scientific and social scientific theories," we justifiably reject intuitions which are wildly incompatible with those theories, which theories are themselves based on perception (all science is) (182). In the same way, we justifiably abandon the belief that perception delivers reliable information in the cases in which we would be forced to make enormous modifications to our theories just to accommodate that perceptual information. This is partly why we are keener to believe that a radically anomalous observation is a hallucination rather than a disconfirmation of the reigning laws of physics. And intuition-based beliefs serve to ground and recommend modifications to philosophical theories that bring intuition and theory into better alignment.

These similarities recommend the following conclusion: to deny the epistemic value of intuition, as many experimental philosophers do, is as rash as to deny the epistemic value of perception.

One popular argument against the analogy between intuition and perception is that perception grants access to the external world—experiential content is isomorphic or correlative to the physical situation—whereas intuition is nothing more than introspection. Hales's response to this common charge is:

> *[w]hatever 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*. (183)

In rich detail, Hales explains how perceptions we take as immediate and simple, such as timbre (the distinctive sound quality of particular objects), are diachronic and constructive, as demonstrated by the enormously multivariate operations that contribute to detection and recognition of sound. I will bank on the assumption that Hale's full account is at thorough enough to convince a reader it is naïve to believe perception is strictly correlative, and thus I will write no further about it here.

And intuition, as is universally admitted, is also psychologically constructed. So while perception may be more obviously correlative with external affairs than intuition is, experimental philosophers are mistaken to say that this stronger correlation reveals a fundamental or even large difference between perception and intuition.

Another popular argument to resist the analogy comes from experimentalist philosophers. Weinberg et al. exemplify this spirit of resistance. They attack the evidential value of intuition thoroughly and directly. (They do not also attack the evidential value of perception. They are experimentalist philosophers, after all, who believe that science, based on perception, should inform philosophy.)

Weinberg et al. frame their discussion of intuition around the idea of Intuition Driven Romanticism (IDR), the common but misguided philosophical strategy that seeks to establish normative epistemological claims by probing intuitions. One rule salient to IDR is, for example,

that one ought to reject any epistemic claim that yields a conclusion inconsistent with an intuition. Another IDR rule is that, all else equal, the more intuitive view is the better view.

According to Weinberg et al, the major problem with the IDR strategy is the degree to which intuitions vary across people of different cultures, of different socioeconomic statuses, and with different levels of exposure to formal philosophy. Similarly, intuitions vary in response to differently framed thought experiments, i.e., thought experiments that use substantively similar situations but express them with different phrasing, context, and emphasis. In short, intuitions are highly variable. To Weinberg et al., to recognize the value of intuition is to endorse one set of epistemic principles for wealthy people, one for poor people, one for Canadians, one for teenagers, one for geniuses, and so forth. As this variability is far greater than that of perception, Weinberg et al consider the conclusion that intuition is trustworthy to be absurd.

Two avenues of response to Weinberg et al. come from Ernest Sosa. Sosa believes that intuition is legitimate if it is rational, i.e. if it derives from learned philosophical competence. His goal is to show that intuitions can derive from this competence. He employs two arguments to achieve this goal.

First, he argues that experimentalists have not demonstrated that supposed divergences in intuition represent substantive disagreements; and, in fact, that some experimentalists have shown that divergences can be explained by mere verbal ambiguity. He appeals to a study by Joshua Knobe and Shaun Nichol, which runs as follows. Subjects are first asked whether an agent is morally responsible in a deterministic universe, whereupon 86% of the time they answer in the negative. Subjects are then exposed to a detailed account of the agent's heinous actions in that same deterministic universe, whereupon 72% answer in the affirmative. Sosa's way of accounting for the divergence is by appeal to subjects' tendency to alternate between (implicitly)

using the attributability and the accountability sense of moral responsibility depending on the phrasing of the question. On the attributability view, an agent is responsible for an action if it is attributable to his own doing as an action that reveals something about his character (104). On the accountability view, an agent is responsible for an action if he is properly held accountable for that action and may be legitimately reciprocated for that action. By answering first in the negative, second in the affirmative, subjects may have been expressing the belief that the agent is not freely causally responsible for an action, but that he is morally and punishably responsible. Subjects respond to the abstract question of responsibility in the first case, but the specific description of a heinous action in the second case.

Second, he reports Weinberg et al.'s claim that subjects report different intuitions depending on whether or what other thought experiments are first presented. His response is that perception is likewise affected by "priming, framing, and other such contextual factors," such that any assault on the inconsistency of intuition can be met with an analogous assault on perception.

The primary difference between intuition and perception is simply that the former is a relatively new topic of investigation in philosophy, whereas the latter is an age-old topic of investigation. But their similarities suggest that intuition will follow the same path as perception, namely, it will survive repeated assaults by skeptics even if these skeptics' arguments cannot be definitively overturned. As with perception, I suspect that intuition is just too darned useful and immediate to be abandoned on the basis of its lacking a perfect epistemological justification.

The conclusion of Section 2 is that the similarities between intuition and perception should compel us to regard them as similarly epistemologically valuable. Thus far I have used this conclusion to defend the value of intuition, just because perception is a valuable epistemic

tool indeed. But just as perception suffers from many epistemological weaknesses—and not merely skeptical weaknesses—so too does intuition suffer from weaknesses. It is profitable to investigate when and where intuition proves more untrustworthy or more likely to be untrustworthy.

(3) When is intuition an illegitimate epistemic tool?

The task of discovering when intuition is systematically flawed is as difficult as the task of discovering when perception is systematically flawed. This difficulty may derive from the sheer complexity and breadth of intuition as a tool for knowing, from the fact that intuition is used to varying degrees of success by different professionals, or from some underlying metaphysical incongruity. Because of this difficulty, I will not even attempt to demonstrate systematically when intuition fails and when it succeeds. Instead, I will choose two particular philosophical tools or topics—thought experiments and concepts—and demonstrate how they tend to promote the misapplication of intuition.

Thought Experiments

I first deal with thought experiments. Thought experiments are intimately connected with intuition. All of the psychological experiments noted thus far have featured thought experiments as the means of eliciting intuition. The regularity of the use of thought experiments to elicit intuitions has even led Daniel Dennett to coin the phrase ‘intuition pump’ as a synonym for a thought experiment. Thought experiments are just hypothetical stories or situations designed to elicit intuitions. In general, I claim, thought experiments are implicit arguments: they feature disguised premises and roundabout deductions, and they either urge toward or specifically endorse certain conclusions. Thought experiments are not rendered straightforwardly as are syllogisms. That thought experiments are implicit arguments rather than explicit explains why

we ought to regard responses elicited by them as intuitive, pre-theoretical, rapid, or automatic, as opposed to deductive, inductive, logical, introspective, or whatnot.

Let's take the famous zombie thought experiment (from Chambers 1996, as summarized in Daly 2010):

Imagine an atom-for-atom replica of you that lacked any conscious experiences. This would be a physical replica of you that physically resembled you through and through and that behaved like you (a Doppelganger), although it had no mental life. Such a replica would be a "zombie." Physicalism, however, says that you are nothing but a physical object. Since you differ psychologically from your zombie twin…physicalism is false. (105)

Allow me to simulate and examine what I suspect to be the ordinary intuitive response to this thought experiment, and then examine why such a response is problematic.

The first action I take in reviewing the thought experiment is to follow the prompt by actually imagining a non-conscious atom-for-atom replica of me. It is not incumbent upon me to object that the thought experiment is merely hypothetical—that it doesn't represent *my* world—because I recognize the purpose of the thought experiment is to highlight a principle. I would be a spoilsport to refuse to 'play by the author's rules.' The second and third sentences of the thought experiment are designed to clarify the nature of the doppelganger I am envisioning. So here I tap my intuitions concerning the fact that a non-conscious replica would share none of the experiences I do, thereby agreeing that it is a "zombie." The fourth sentence reminds me that whatever principle is under review in this thought experiment will conflict (note the conjunction *however*) with physicalism. The elucidation of physicalism is purposefully brief; the brevity is

designed to illuminate the broad level at which physicalism works at odds with the thought experiment. The final sentence is a statement of the conclusion the author hopes I will have already mentally formulated in the process of reading the thought experiment. Had the conclusion not been explicitly stated, I nevertheless would have inferred it.

Now, I recognize my simulation might sound naïve. I have no delusions that philosophers abide arguments so easily. Willingness to assent depends on all sorts of theoretical dispositions and contexts. Philosophers loyal to physicalism, for instance, will likely regard this thought experiment suspiciously, with half a mind on actually reading the passage and the other half on preempting the conclusion.

But consider the explication of the implicit argument in the thought experiment:

1) (It is physically possible that) there is a physical replica of you
2) (It is physically possible that) this replica lacks a mental life
3) Physicalism says that you are nothing but a physical object
4) You would differ psychologically from a replica that lacks a mental life
5) Therefore, you depend on more than just your physical composition
6) Therefore, physicalism is false

The flaw of the argument is better illuminated by this explicit argument, as I will show.

My (simulated) response to this explicit argument does involve at least some intuitions. The first premise, for example, relies on an intuition about the compossibility of identical physical substances. And premise two requires the intuition that a mental life depends on more than physical composition.

But there is a key difference in my response to the explicit argument that highlights the dangers of the thought experiment. My response to the first premise, unlike my response to the

thought experiment, is not guided by the desire to 'play by the author's rules.' I do not regard the first premise as establishing a large hypothetical *if-then* where the *if* is 'zombie replicas' and the *then* is 'physicalism is false.' Rather, I consider the first premise as a categorical assertion, subject to the same conditions of truth that any old assertion is subject to. So while I might grant that premise one (a physical replica is physically possible), I do not readily grant premise two (a replica can lack a mental life), even if I intuitively accept it. After all, whether a replica can lack a mental life *depends* on the truth of physicalism, which truth appears in the conclusion of the explicit argument.

One value of considering a thought experiment in its explicit rather than implicit form, then, lies in the ability to avoid begging the question. It is easier to treat a premise as a dubitable proposition than it is to treat a story as a dubious tool for illustrating a principle. The automatic assent that can accompany a thought experiment does not also accompany its explicit formulation. It is thus apparent that the mode of presentation of a thought experiment can prompt one to circumvent careful consideration by appealing to intuition.

Furthermore, it turns out that applying intuitions to thought experiments obscures the realm of modality under consideration. In the thought experiment, it was assumed that that the mere logical possibility of zombies sufficed for the proof of the thought experiment—for once the existence of zombies was merely posited, not as a *specifically physical possibility*, but simply as *a possibility*, it was established that physicalism is false. Not until the explicit argument was it revealed that the zombies needed to be physically possible in order that the thought experiment fulfill its purpose. Recognizing the proper mode of modality is a good way to avoid question begging as it occurs above.

In short, we are advised to introspect on our intuitions before conferring epistemic value on them, so as to avoid assenting to propositions suffering from the type of hidden defects made clear only through explication. But what final conclusion should be drawn from the fact that a thought experiment and its explication represent one and the same argument, yet intuition is misleading when applied to the former but not necessarily to the latter? The conclusion is that intuition is at least partially tactical—that humans are not somehow nomologically incapable of using intuition, it's just that intuition as a mental state tends to invite unreliable conclusions when applied hastily to thought experiments. In the same way, our perceptual apparatuses tend to invite unreliable conclusions when applied to illusions.

Concepts

I have shown that serious errors can occur when intuitions are applied to thought experiments. I now submit that even more serious errors can occur when intuitions are used in conceptual analysis. And given the ubiquity of concepts in philosophy (personhood, objecthood, knowledge, truth, intrinsicality, happiness, morality, normativity, observation, etc.), these already serious errors become even more important to avoid. I ultimately identify three reasons that intuitions are often misapplied to concepts: (1) some concepts are pre-theoretical and therefore ill-defined, (2) some concepts do not track natural categories, and (3) concepts might be incongruous with the psychological faculty of intuition itself.

Let's first examine pre-theoretical concepts. A pre-theoretical concept is a concept that is used before it is defined or properly understood by its user. Such concepts count therefore as the content of intuitions rather than beliefs because they are immediate and ill-formed.

Take the concept of *intrinsicality*. *Intrinsicality* is a notoriously illusive concept in philosophy that also appears in colloquial conversation, bearing meanings such as 'by virtue of

itself' or 'essential.' It might appear in a statement such as '*being brave* is an intrinsic property of a firefighter.' What interpretations might such a statement prompt? One reader might interpret the statement in the same way the author intends, for instance by interpreting it as 'what makes *being brave* a property of a firefighter is nothing but the firefighter himself.' Another reader might interpret it in a different way, for instance as '*being brave* is an essential property of a firefighter.' A philosophically inclined reader might interpret it as 'the bravery of a firefighter does not depend on the existence of a wholly distinct contingent object or property.' We should hesitate to designate any of these interpretations as the *correct* interpretation. But we can determine this: that these interpretations most likely depend on the particular intuition that the interpreter has concerning the definition of *intrinsicality,* and that the resulting variation in interpretation will generate problems.

One who interprets *intrinsicality* as 'by virtue of itself' might deny that '*being brave* is an intrinsic property of a firefighter' on the grounds that the characteristic of bravery is a relative property given meaning only relative to the characteristic of cowardice. And one who interprets *intrinsicality* as 'essential' in the robustly modal sense might deny that '*being brave* is an intrinsic property of a firefighter' on the grounds that it is logically and physically possible to be a cowardly firefighter. Use of the pre-theoretical concept of *intrinsicality* seems to generate confusion.

But confusion is commonplace in philosophy. The mere presence of confusion does not tell against the value of intuition. To show that intuitions are particularly problematic when applied to pre-theoretical concepts, I claim the source of the confusion runs deeper than the mere tendency to use the same terms for different concepts, or the insistence that a term ought to be used in one way. I claim that many philosophers and laypeople believe they are actually tracking

ontology in attempting to establish conditions of term usage; and because they believe in the ontological significance of their verbal disagreements they are apt to conflate what they care about with what exists. Suppose Smith insists that *intrinsicality* follows Jaegwon Kim's (1982) account, namely, that a property is intrinsic iff it is rooted outside neither the time nor the object that has it, i.e. iff the property does not depend on a wholly distinct contingent object or on a temporally separated object. Jane, unlike Smith, insists that an intrinsic property is simply a non-relational property. Smith argues Jane can't be correct: a water molecule has an intrinsic shape that depends on the distance relation between its hydrogen and oxygen atoms. Smith has the intuition that Jane's definition is incorrect, which intuition is based on the apparent failure of Jane's account to accommodate a counterexample. Jane, on the other hand, levels David Lewis's (1983) objection at Smith, namely, that the property of *being lonely* (being the only thing in the universe), which is rooted outside neither the times nor the object that has it, is an extrinsic property according to her intuition, and yet classified as intrinsic according to Smith, and so Smith's definition also admits of a counterexample. Neither Smith nor Jane, you will notice, concedes that the other is simply establishing a different definition. If either Smith or Jane did concede as much, s/he would have admitted that per the other's definition, intuitive counterexamples do not count as legitimate counterexamples. Smith would have recognized that Jane's account rules out by definition the internal relation objection, and he would not have leveled it at all. Jane would have recognized that Smith's account rules out by definition Lewis's *being lonely* objection. Given that they did raise their objections, they must have believed some ontological claim was at stake.

A simple altering of terms in the Smith-Jane disagreement will make clear how to avoid the error of reading ontology into terminology. Let's designate Smith's notion of intrinsicality as

S-intrinsicality and Jane's as J-intrinsicality. As these terms are new to all parties, there will be little temptation to impose one's own notions onto the terms. Whereas Smith had the urge to correct Jane's original notion of intrinsicality, he has little difficulty accepting that under J-intrinsicality some internal relationships represent extrinsic properties. What Smith can then do is argue that J-intrinsicality is not a natural kind of property or a kind of property that is taxonomically useful. It may not be taxonomically useful precisely because it does not intuitively organize a class of properties in an agreeable fashion, but this does not entitle Smith to claim that J-intrinsicality is *false* for admitting of intuitive counterexamples. Indeed, such a claim makes no sense, because the intuitions by which J-intrinsicality is countered are intuitions corresponding not to J-intrinsicality, but to some other concept. And whereas Jane had the urge to correct Smith's notion, she now accepts that S-intrinsicality has the result that *being lonely* is S-intrinsic. She can then deny that S-intrinsicality is a natural kind of property or a kind of property that is taxonomically useful.

Let's more closely examine the conditions under which philosophers consider themselves to have established correct definitions. According to William Ramsey (1992), the way philosophers establish definitions is by "propos[ing] and reject[ing] definitions for a given abstract concept by thinking hard about intuitive instances of the concept and trying to determine what their essential properties might be" (163). If Ramsey is correct, then it is evident that philosophers place much stake in intuitions indeed. They had better hope their intuitions are genuinely worthwhile—are somehow *better* or *correct* or in some way salient to the task of formulating definitions. Ramsey argues that the classic expectation for definitions to express "simple conjunctions of essential properties and allow no intuitive counterexamples" reveals the widespread belief that intuitions coincide with the necessary and sufficient conditions that

comprise abstract concepts (164). If intuitions did not track necessary and sufficient conditions, philosophers would not treat the divergence of intuition and categorization judgments (judgments concerning whether to admit an entity under a definition) as marking the incorrectness of those categorization judgments. If intuitions did track concepts, then philosophers would (rightly) treat them as marking the correctness of categorization judgments, and it would be evident that humans have some tacit representational capacity for necessary and sufficient conditions.

Unfortunately, psychology research suggests that intuitions do not track necessarily and sufficiently bound concepts. According to the work Ramsey cites, intuitions instead track concepts with "graded membership" that are not "all-or nothing" matters (166). Call this tendency (to judge concepts as graded) the 'prototype effect.' The prototype effect encourages people to regard common members of a concept as better examples of that concept than uncommon members. Thus, for example, in the study that Ramsey evaluates, it was found that subjects report robins to be more prototypical of the concept of *birds* than are owls or ostriches.

One theory that accommodates the prototype effect is the probabilistic approach to conceptualization. On this approach, an object is intuited as instantiating a concept when the object appears to share a sufficient number of relevant similarities with the prototype. Ramsey's example is of someone who attempts to classify an animal as a bird by attaching 'importance weights' to its features—something like 30 points for 'feathered,' 25 for 'winged,' 15 for 'flies,' and so on—and determining whether the animal has enough points to meet the threshold for Bird (168). The probabilistic approach also explains why some instances of a concept are intuitively unclear, namely, because the sum of their points is near the threshold. A concern arises here that the probabilistic approach is not about intuitions, because the point system is theoretical and

intuitions are supposed to be pre-theoretical. My response is that the point system is pre-theoretical in the same way that much perception is, namely, that advanced neural processes are indeed taking place, but they do so rapidly and subconsciously.

The most striking consequence of the prototype effect is that no proposed definition of a concept will satisfy the classic criterion of a definition as 'admitting of no counterexamples.' This is because we philosophers have almost free reign to modify certain features of a candidate instance of a concept such that it meets or fails any given intuitive threshold. Per Ramsey, "since on the prototype account any number of different sets of properties will suffice to generate a judgment of instantiation, we should always be able to discover intuitive instances of the concept that do not possess all of the alleged necessary properties of a simple conjunctive definition" (171). To discover intuitive counterexamples of a concept we can appeal to rare instances of a concept, we can appeal to imaginary examples, and we can construct them in a way that guarantees they fall outside the definition even as they meet the intuitive threshold; we can even embed our examples in particular contexts, which research shows to affect intuitive classifications (171).

Two possible conclusions are recommended by the prototype effect. The first is that we have to broaden the qualifications of a definition to something closer to a family resemblance conception of the way objects are related. I will merely assume against the family resemblance notion of concepts to sidestep this conclusion. The second conclusion is that our intuitions are faulty, as evinced by their inability to track definitions that are correctly bound by necessary and sufficient conditions. This is the conclusion I will evaluate.

How does the Smith-Jane intrinsicality debate, a debate tailored to mimic actual contemporary debate on intrinsicality, exemplify the problem of the prototype effect? The

answer is that the prototype effect explains why people have such a difficult time recognizing the fact that concepts have necessary and sufficient parameters. When leveling an intuitive objection to Jane's notion of intrinsicality, Smith obviously must have had in mind that Jane's notion was susceptible to such an objection. And we can also presume Smith is a careful enough thinker to have the capacity to understand how and when necessary and sufficient conditions are violated. It must therefore have been his intuitive schema that was doing the talking as he objected: he intuited that a water molecule was prototypically intrinsic—that a water molecule had enough 'points' to instantiate intrinsicality—and therefore that Jane's notion was defective. Smith might have had in mind the prototype intrinsic property of *any property instantiated by a lonely object*, just because if anything has intrinsic properties then a lonely object does. Thus Smith awarded high intrinsicality points to the shape of the water molecule, because the water molecule strongly exemplifies the features 'lonely,' 'simple,' 'non-relative,' and so forth. No matter how Jane had defined intrinsicality to exclude the relationships among a water molecule, Smith's intuitive point allocation would have prevented him from assenting to Jane's definition. And Jane would have awarded very low intrinsicality points to *being lonely* because it exemplifies the overwhelmingly extrinsic-indicative feature 'dependent on external objects.'

Alvin Goldman offers the hypothesis that intuitions are not even designed to address natural categories. If he is correct, he bolsters the argument that philosophers talk past one another when leveling intuitive counterexamples. Goldman's reasoning is this: natural categories (or natural kinds) are 'in the world phenomena' rather than products of our own minds (8). Consequently, natural categories are 'this world' phenomena, or phenomena that a scientist of our world would be interested in examining—whether these phenomena have counterparts or modal analogues is unimportant to the natural scientist. Yet when philosophers consult intuitions

they often do so by evoking imaginary and bizarre examples, and they treat these examples with the same degree of respect as they treat real world examples. Since philosophers, in contrast to scientists using expensive lab equipment and concrete experiments, place equal value on real and imaginary examples, they must not be using their intuition to target natural categories at all. Goldman does not explicitly state whether philosophers realize they are not targeting natural categories, but I contend that indeed philosophers are unaware of their targeting natural categories, and are therefore prone to misapplication of intuition. And it is easy to see—actually, it is easy to *intuit*—how questions about natural categories are not easily addressed by intuition. Consider the historical fact that whales were once widely considered fish by biologists. The prospect of overturning the classification of whales as fish never would have been undertaken on intuitive grounds. No taxonomist ever seriously considered consulting the board of taxonomy to change the classification of whales from fish to mammals on the basis of a pre-theoretical urge. And no taxonomist appealed the eventual change on the basis of anything but hard data on the physiological properties of whales (assuming it was just new information about whales, and not a general overhaul of the classification scheme, that prompted taxonomists to reclassify whales).

(4) When is intuition a legitimate epistemic tool?

Intuition is similar to perception in another way: it is nearly ubiquitous, and therefore the attempt to eradicate it from our epistemic toolkit is futile. The legitimate uses of intuition seem to vastly outnumber the illegitimate uses, and for that reason I have structured my project by assuming that intuition is roughly legitimate except for the cases I specifically analyze.

One reason that intuition is ubiquitous is that its use in language is inevitable. As noted by Alison Gopnik and Eric Schwitzgebel (1998), our understanding of many theoretical terms, such as ‘supervenience’ or ‘nominalist,’ derives partly from intuition, partly from stipulation and

historical usage (82). The way we understand terms through stipulation is by positing a synonym or definitional relation to other, less controversial terms or phrases. But since it is unlikely that our terms could be stipulated "to the ground floor," it is also unlikely that we can ultimately avoid appeal to intuition in understanding these terms (82). Gopnik and Schwitzgebel argue that even highly mathematical and precise theories eventually require intuition—consider the intellectual gymnastics that would be required to understand a claim such as *like cases should be treated similarly* by a method other than intuition. There are innumerable such bare-bone claims that one has mere intuitive inclinations to accept: *true propositions are privileged over false propositions*; *the law of non-contradiction is legitimate*; *facts of the matter correspond to states of affairs*; and so forth.

There are further worries about intuition. What if, for instance, a person has conflicting intuitions? And what do we say about the fact that intuitions are sometimes wrong and are therefore the kinds of things that require justification, but are by their nature seemingly incapable of justification? To address these worries and other unstated worries, one is advised to ask how such worries would be resolved if we were talking about perception rather than intuition.

Thus, when I have conflicting perceptions I don't merely look to those perceptions to determine their legitimacy. Rather, I appeal to yet other perceptions I have, I ask whether either perception is consistent with perceptions I have had in the past, whether either perception would yield a physical impossibility or an empirical unlikelihood, whether my perceptual apparatuses are askew for some reason, and so forth. Basically, I adopt a coherentist mindset and subject my perceptions to a gamut of tests to determine the plausibility that either perception would be compatible with other available data. So too would I ask myself whether either of two intuitions were more plausible given other data. And if I have no means of running coherentist tests—let's

say I witness a UFO and I truly have no way of gauging whether a UFO sighting is a plausible occurrence—then unfortunately I am left in epistemological darkness. It is certainly possible that intuition sometimes leaves one in darkness.

Further, the task of justifying intuitions is similar to the task of justifying perceptions. It's not that anyone need justify every single perception (even though any one perception may be faulty), but rather that one should examine perception in its entirety to determine the situations in which it tends to lead astray and the tactics that would help ascertain the truth when one is led astray (such as performing coherentist tests). Likewise, it's not that every intuition need be justified as it surfaces, for once the whole of intuition has been redeemed in certain cases it becomes justified to rely (with caution) on intuition in those cases.

The parallel between intuition and perception means that ultimately intuition will win out as an epistemic tool, even if it has to undergo some small alterations here and there. I have shown how intuition must be corrected or outright abandoned at least in the cases of thought experiments, pre-theoretical concepts, and natural concepts, and that the source of the error with regards to these tools may well be psychologically founded. I suspect there are many further illegitimate uses of intuition, some not yet even imagined. And I suspect that neuroscience will eventually have much to say—if not everything there is to say—about when a mental state is an intuitive state and when this mental state is epistemically valuable. But I will conclude with the observation that a great many philosophical problems could be much more profitably dealt with by those who keep the limitations of intuition in mind.

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