

## Rational Intuition and Understanding

Sometimes we understand a proposition in such a way as to just see that it is true, with no reliance on inference, perception, introspection, memory or testimony. This is rational intuition. It is a source of prima facie justified belief and, in the right circumstances, of justified belief and knowledge. What does it involve and how does it support these normative epistemic states? Various views have been proposed, and I'm particularly interested in Phenomenal Conservatism (Huemer; 2001, 2005), Proper Functionalism [Plantinga, 1993] and the Competency Theory [Sosa, 2007]. I shall present an objection to all three: they fail to explain the epistemic superiority of rational intuition. I'll end by very briefly indicating some strategies for addressing the problem behind the objection.

### 1. The Epistemic Superiority of Rational Intuition

My friend Elias can rationally intuit the truth:

P:  $237/148$  is greater than  $425/266$ .

I cannot. What is the difference between us? Part of the difference is that P seems true, indeed necessarily true, to Elias, while it neither seems true nor false to me. Elias also feels a strong inclination to believe P, while I have no inclination to believe or deny it. We also differ in our understanding. We both understand P well enough to believe it. He believes it on the basis of his rational intuition, and I believe it on the basis of his testimony. Elias, however, has a "deeper" or "fuller" understanding of fractions, and this difference in our understanding lies behind the difference in how things seem to us with regard to P and in our inclinations to believe P. P

doesn't seem true to me, and I have no inclination to believe it, because I don't understand fractions as well as Elias does. If I were to study them and gain Elias's deeper understanding of this part of mathematics, then I would join him in intuiting P. It would seem true to me. I would feel inclined to believe it.

If these initial observations are correct, then our rational intuition of a claim involves at least the following: we understand the claim and we understand it in such a way that it seems to us as if the claim is true and we have a felt inclination to believe it. Is this all there is to rational intuition? I don't think so.

Suppose that in an attempt to intuit P, I start to study fractions, but I don't have the smarts to ever attain Elias's level of understanding and, realizing this, he decides to help me out. One night, while I sleep, he hooks me up to the mathematics machine. He types in P and the machine makes a minor adjustment in my brain. From then on, when I consider P and understand it well enough to believe it, it seems to me as if it is (necessarily) true and I feel a strong inclination to believe it. My understanding of P or of fractions generally doesn't change. I don't understand it or fractions in general any better than I do now. All that changes is the connection between my current level of understanding, on the one hand, and P's seeming true to me and my feeling inclined to believe it, on the other. The understanding of P and fractions that I've had all along now, by virtue of the machine's adjustments, makes it seem to me as if P is true and makes me feel inclined to believe it. When I wake, I know nothing of what Elias has done. Some days later, when I again consider P, its truth just seems obvious to me. I proclaim,

“Now I see it!” and stand a bit taller for my sense of accomplishment. Elias never tells me about the machine.

Do I now rationally intuit P? No. My relation to P has changed, and in some ways is the same as Elias’—P now seems true to me and I feel an inclination to believe it—but these changes aren’t based in any change in my understanding. In this regard, I still don’t have what Elias has. My understanding after the machine treatment is the same as my understanding before. No one with such a limited understanding of fractions as mine can “rationally grasp” the truth of P.

That only Elias has a rational intuition of P may seem a minor point, though, for P still seems true to me just as it seems true to Elias, and I feel the same inclination to believe it as he does. Maybe I don’t rationally intuit P, but I surely have a “machine-based” intuition of it. There is though this question: Is Elias’s rational intuition of P epistemically superior to my machine-based intuition of it? It sure seems so. If the rational intuition of P isn’t epistemically superior to the machine-based intuition of it, then why is study epistemically preferable to plugging into the machine for those desiring to learn P?

Less rhetorically, consider an analogous case involving sense perception. An experienced birdwatcher makes immediate bird identifications after a quick look and his identifications are reliable. He has gained the ability to make these identifications by first discovering a correlation between certain visual experiences and the presence of a certain type of bird and using those justified correlation beliefs to infer the bird’s presence. Over time, he has developed the ability to make the identifications non-inferentially. His identifications are now basic beliefs for

him. Another birdwatcher makes the same immediate identifications on the basis of the same experiences. He hasn't learned to make these immediate identifications in the way the first birdwatcher has, however. He makes them as the result of having been plugged into the bird identification machine and having his brain modified so that these sorts of phenomenological experiences make it seem to him as if the birds are present and make him feel a strong attraction to believe that they are. A third birdwatcher is just like the second in having an unlearned identification ability, except that he gains his ability by a brain tumor rather than plugging into the machine. Due to the brain tumor, whenever he has the relevant sort of visual experience, he has a strong desire for a bird of the relevant type to be present and he wants this so badly that it just seems to him as if one is and he feels a strong attraction to believe according. One day, all three are together in the woods, have the same experience and on its basis form the same belief. Is the belief of the first birdwatcher epistemically superior in some way to those of the others? The first birdwatcher's belief is epistemically superior to that of the third. Beliefs based on learned identification skills are epistemically superior to those that result from tumor induced wishful thinking. The belief of the second birdwatcher is not, however, epistemically superior to that of the third. There's no relevant difference between being plugged into the bird identification machine, on the one hand, and having a brain tumor produce the same effect, on the other. The first birdwatcher's learned identification belief is, therefore, epistemically superior to the second birdwatcher's machine-based one. Moreover, just as the learned identification of the first birdwatcher is epistemically superior to the machine-based one of the

second, Elias' rational intuition of P is epistemically superior to my machine-based intuition. An intuition of P that results from a rich understanding of fractions is epistemically superior to one that results from a machine manipulation of the psychological effects of a meager understanding, just as an immediate identification belief that results from the discovery of certain correlations between our experiences and the world is epistemically superior to an immediate identification belief that results from a machine manipulation of the psychological effects of our experiences.

Let me forestall a misunderstanding and an objection. Some may respond along the following lines to my view that Elias' rational intuition is epistemically superior to my machine-based one. Suppose some creatures have more powerful visual perception than we do; they can see differences in surface texture that we cannot. One of these creatures sees that one jar has a rougher surface than the other, when I can't visually tell the difference. However, I then have my vision enhanced by a prosthetic device that enables one to see as the creatures do. I now see the difference between the two surfaces. In this case, my belief in the texture difference is on an epistemic par with the creatures, despite the fact that it was gained through the use of a prosthetic device. Analogously, my machine-based intuition belief that P is on an epistemic par with Elias' rational intuition based belief that P. My reliance there on the mathematics machine makes no more difference than my reliance here on the prosthetic device to enhance my vision. This objection misses an important point. The prosthetic device changes the phenomenology of my visual experience so that the two surfaces look different to

me where they previously looked the same. The mathematics machine makes no adjustment in my understanding of fractions or of P. It simply modifies the causal connection between my understanding, on the one hand, and how things seem to me and my felt inclinations, on the other.

What then makes a rational intuition of P epistemically superior to a machine-based intuition of it? Epistemic value lies in forms of knowledge and justified belief. If rational intuition is epistemically superior to machine-based intuition, it is because the beliefs it supports have a status as knowledge or as being justified that those supported by machine-based intuition lack. Perhaps, Elias knows P and I don't, or maybe he and I both know P, but his knowledge is in some way epistemically better than mine. Perhaps we are both justified in believing P, but his justified belief is still in some way better justified. It's not clear what this difference in knowledge or justification is, but, as we've seen, there is one.

It is appropriate to expect accounts of rational intuition to allow for and, better yet, explain the epistemic superiority of rational intuition. If they can't explain how rational intuition is epistemically superior to the alternative machine-based form, they haven't captured the role that understanding plays in rational intuition and how, in particular, it supports its epistemic value. Yet, this task is not easily accomplished. Three major theories of rational intuition—Phenomenal Conservatism, Proper Functionalism, and the Epistemic Competency View—fail to accomplish it.

## 2. Phenomenal Conservatism

Michael Huemer [2007] explains intuition as follows.

An initial, *intellectual* appearance is an ‘intuition.’ That is, an intuition that p is a state of its seeming true to one that p that is not dependent on inference from other beliefs and that results from thinking about p, as opposed to perceiving, remembering, or introspecting. [p. 102]<sup>i</sup>

To explain the epistemic force of intuitions, he adopts the Principle of Phenomenal Conservatism.

PC: If it seems to S as if p, then S is prima facie justified in believing that p.  
[p. 99]

Prima facie justification amounts to the following.

The intuitive propositions we’ve been discussing are prima facie justified. That is, we are justified in believing them unless countervailing evidence should arise that is strong enough to defeat the initial presumption in their favor. Such defeating evidence would consist either of evidence directly against the proposition that intuitively seemed true, or of evidence that our initial intuition was unreliable. [p. 105]

Huemer takes rational intuition to be one source of basic, prima facie justified beliefs, along with perception, memory and introspection. In each case, our belief is prima facie justified for us because it seems to us as if its content is true. The difference lies in the source of this seeming. In the case of intuition, it comes from intellection, from our “thinking about” the proposition, as he puts it, rather than from perception, memory or introspection.<sup>ii</sup>

At first pass, this treatment of intuition contains no provisions by which to distinguish between Elias's rational intuition of P and my machine-based intuition of it; let alone explain the fact that one is epistemically superior to the other. From the limited perspective afforded by Phenomenal Conservatism, each of us intuits P in the same way: it seems to each of us as if P is true, that seeming results from our considering P, and it doesn't depend on perception, memory or introspection. We are both prima facie justified in believing P. End of story.

We can, of course, modify Phenomenal Conservatism to distinguish rational intuitions from other intellectual seemings on the basis of their source. When the intellectual seeming results from a, say, "suitably full understanding," it's a case of rational intuition. When it results from a less than "suitably full" understanding, as by some modification through the mathematics machine, it is not a case of rational intuition. Adjusted in this way, the theory can distinguish Elias's rational intuition from my machine-based one, though we are left with the task of explaining when someone's understanding of a proposition is "suitably full."

The theory's prospects are more limited when it comes to explaining the epistemic superiority of rational intuition. It awards the same guaranteed epistemic status of prima facie justification to both rational and machine-based intuitions. According to the theory, Elias and I are prima facie justified in believing P on the same basis: it seems to us as if it's true. If the theory is to explain the epistemological superiority of Elias's intuition, it will have to do so in terms of the quality of his prima facie justification. It is hard to see what the quality difference could be. There's no difference in the rebutting defeaters that confront us with

regard to P, either now or in the future. Neither of us has any evidence against P at this point, and while that could change in the future, I'm at no greater risk than he is. My belief in P might be challenged, for example, by the misleading news that most experts reject it. Then again, so might his. There's no difference in the undercutting defeaters that we have at this point. Like Elias, I have no reason to think that my inclination to believe P stems from anything other than my grasp of it, and I've no reason to think that my grasp of it is anything other than reliable.

Perhaps, the prima facie justification of my belief in P is less stable than that of Elias's, as mine is open to some future undercutting defeaters that don't threaten his. After all, in the future I might learn that my inclination to believe P derives from the changes induced in my brain by the mathematics machine, changes that could have been made relative to a false proposition rather than a true one. I would then, perhaps, have an undercutting defeater for my justification. Elias is not, it might be suggested, subject to a comparable threat from potential undercutting defeaters. This won't do, however. Whether there's such a difference in our potential undercutting defeaters depends on the situation. Let's suppose that the teacher who taught Elias his fractions was highly incompetent, though he happened to teach Elias correctly. Elias might then gain a defeater for his belief by learning that his teacher was incompetent. He might then gain a defeater for that defeater by learning that the teacher's incompetence didn't infect his abilities at rational intuition. Similarly, I might gain a defeater by learning that my intuitions are machine-made but then gain a defeater for that defeater by learning that the machine is highly reliable. Elias and I are on a par in terms of potential threats to

our prima facie justification. Yet, he is still somehow in an epistemically superior position.

It might be suggested that the difference between us is simply this: We both believe, or would believe upon consideration, that P seems true to us because we have a suitably full understanding of fractions, but in Elias's case that belief is true and in my case it is false. This may well be so.<sup>iii</sup> The problem is that this difference between us doesn't explain how Elias's rational intuition is epistemically superior to my own. The fact that he potentially has a true belief about his understanding of P and I potentially have a false one doesn't, within Phenomenal Conservatism, imply that his current epistemic position relative to P is in any way superior to my own.<sup>iv</sup>

It should be clear why Phenomenal Conservatism cannot explain the epistemic superiority of rational intuition. Phenomenal Conservatism takes the epistemic value of rational intuition to rest in the seeming-state it involves. An intuited belief is prima facie justified because the proposition seems true to us. Phenomenal Conservatism ignores the understanding that gives rise to that seeming state. The epistemic difference between rational and machine-based intuition rests somewhere, somehow in that understanding.

## 2. Proper Functionalism

According to Plantinga, to intuit a proposition is to directly *see* that it is true [1993; pp. 106-7]. He explains this sort of intellectual apprehension as follows.

So what is it then to see that a proposition p is true? All I can say is this: it is (1) to form the belief that p is true and indeed necessarily true (when it is

necessarily true, of course), (2) to form this belief immediately, rather than as a conclusion from other beliefs, (3) to form it not merely on the basis of memory or testimony (although what someone tells you can certainly get you to see the truth of the belief in question), and (4) to form this belief with that peculiar sort of phenomenology with which we are well acquainted, but which I can't describe in any way other than as the phenomenology that goes with seeing that such a proposition is true. We must add one further qualification. . . . One sees that p only if the relevant cognitive module is functioning properly. [p. 106]

Plantinga's account is similar to Phenomenal Conservatism in some ways. Intuited beliefs are not formed by inference or through a reliance on such sources as memory or testimony; they involve a distinctive phenomenology, which, although Plantinga does not say so, appears to involve the proposition's seeming to be true to us and our feeling an inclination to believe it. Plantinga adds some additional elements. We believe the intuited proposition to be necessarily true, and when we form this belief, our relevant "cognitive module" is functioning properly.<sup>v</sup>

Plantinga's account enables us to distinguish between Elias's rational intuition of P and my machine-based one. Elias meets all the conditions for seeing that P is true, and the proper function condition, in particular. The cognitive module involved the formation of his belief is, presumably, some component of his understanding, and it is functioning properly. Elias, like the rest of us, is designed so that, once he understands fractions as he does, P just seems necessarily true to him and he believes it to be so. My machine-based intuition of P does not count as seeing

it to be true. I meet Plantinga's first four conditions (I non-inferentially believe that P is necessarily true, don't rely on memory or testimony and have the same phenomenology as Elias), but I don't meet the proper function condition.<sup>vi</sup> The mathematics machine modifies my understanding so that I believe P on the basis of less understanding than is required by my design plan.

This difference between Elias's rational intuition and my machine-based one is sufficient, within Plantinga's epistemology, to explain the epistemic superiority of the former. Knowledge requires warranted belief, and beliefs are warranted only if they are formed by properly functioning faculties successfully aimed at the truth. Elias's rational intuition puts him in a position to know P. My machine-based intuition does not. Even if my machine-based intuitions are reliable, the mathematics machine modifies my understanding so that it no longer functions properly. I believe P without the understanding required by my design plan.<sup>vii viii</sup>

Plantinga is mistaken, however. We don't take Elias's rational intuition to be epistemically superior to my machine-based one because it is sanctioned by his design plan and mine is not. We take Elias's rational intuition to be superior because it involves understanding that my machine-based intuition lacks. Our reluctance, on epistemic grounds, to plug into the mathematics machine isn't based on the fact that the procedure would be "unnatural" for us. It is based on the fact that the result of the procedure falls short of the kind of understanding we can gain by study, a kind of understanding that is required for rational intuition and supports an epistemically superior belief.

Suppose that some intelligent beings, Alpha Centaurians, have been designed to function just as I do, once my mind has been modified by the mathematics machine. The mathematics-machine modifications that constitute improper function in me constitute proper function in them. When they consider P, they don't understand it or fractions any better than I do, but their apprehension of P has all the same phenomenological features as Elias's and mine (post machine treatment) and they meet Plantinga's conditions for directly seeing that P is true. Their intuition of P is epistemically superior to mine and on a par with Elias's, according to Plantinga's view.<sup>ix</sup> Yet, this implausibly implies that they have nothing to gain epistemically relative to their belief in P by developing Elias's deeper understanding. They already have all the intuitive knowledge of P that his understanding provides him.<sup>x</sup>

It is important to note that rejecting Plantinga's position here does not preclude us from recognizing that variations in cognitive design across subjects can play an important role in determining variations in the limits of their rational intuition. Perhaps angels or Alpha Centaurians are such that if they understand P well enough to believe it (as even I do), then they also have the understanding required to rationally intuit it (as Elias does). Their position relative to P is like our position relative to the proposition that  $1 = 1$ . There is no gap for them, as there is for us, between having an understanding sufficient to grasp P and having an understanding sufficient to rationally intuit it. If they have the one, they have the other. We can recognize such possible variations in the range of rational intuition

and relate them to differences in cognitive design, even as we reject Plantinga's account of what it is to intellectually see a proposition's truth.<sup>xi</sup>

The proper function account of rational intuition is an improvement over Phenomenal Conservatism relative to the issue here. It at least offers an explanation of the epistemic superiority of rational intuitions. The problem is that its explanation depends on the false assumption that it's proper function that makes the difference.

#### 4. The Competency Based Theory

Sosa [2007] takes rational intuitions to be intuitive intellectual seemings, which, in turn, are attractions to assent.

An intellectual seeming is intuitive when it is an attraction to assent triggered simply by considering a proposition consciously with understanding. [p. 60]

For it to intellectually seem to us as if p is for us to experience an attraction to assent to <p>, and when this attraction is triggered just by our considering <p>, the attraction is an intuitive intellectual seeming. Rational intuitions are intuitive intellectual seemings that are explained by a certain sort of epistemic competence.

*S rationally* intuits that p if and only if S's intuitive attraction to assent to <p> is explained by a competence (an epistemic ability or virtue) on the part of S to discriminate, among contents that he understands well enough, the true from the false, in some subfield of the modally strong (the necessarily true or necessarily false), with no reliance on

introspection, perception, memory, testimony, or inference (no further reliance, anyhow, than any required for so much as understanding the given proposition.) [p. 61]

We rationally intuit that  $p$  just when the following conditions hold: (1) it intellectually seems to us as if  $p$  and this attraction to assent to  $\langle p \rangle$  is triggered by our considering and understanding  $\langle p \rangle$ ; (2) the explanation for the triggering of this intellectual seeming by our understanding of  $\langle p \rangle$  is that it is an instance of a general epistemic competence we have to distinguish, through having such intellectual seemings, between true and false members of a set of modally strong propositions that we understand well enough; and (3) our competence does not involve any significant reliance on introspection, perception, memory, testimony or inference.

An important aspect of Sosa's account needs clarification. He understands rational intuition in terms of an attraction to assent that is explained by a competency at distinguishing between true and false modally strong propositions that are understood well enough. There are three important elements here: the degree of understanding, the strength of the attraction to assent and the reliability of the competency. Each comes in degrees. How strong must the attraction to assent be? How well must the propositions be understood? How reliable must the competency be? One option is to answer two of these questions in terms of a third: The proposition intuited must be understood well enough to trigger a strong enough attraction to assent, and an attraction to assent is strong enough when it supports a suitably reliable ability to distinguish between true and false propositions. More simply, an attraction to assent is strong enough and a degree of understanding is full

enough when they support a belief-forming competency that is reliable enough. The only question then is how reliable the competency has to be. Another option is to answer the questions separately. The required degrees of attraction and understanding are not determined simply by what will make for a suitably reliable faculty. What instead determines each is then an open, and difficult, question.

The choice between these options is important for the issue at hand. If we develop the Competency Theory along the lines of the first option, it won't distinguish a rational intuition of P from a machine-based intuition of it. Suppose that Elias is able by rational intuition to distinguish between the true and false members of a set of mathematical propositions, including P, with 100% reliability. When he considers a claim that is true, he understands it well enough to have a felt attraction to believe it and the attraction is strong enough that he actually believes it. When he considers one that is false, he understands it well enough to have a felt attraction to believe its negation and the attraction is strong enough that he actually does so. According to the Competency Theory, he rationally intuits each proposition he believes, including P. I perform just as Elias does, except in the case of P, where my understanding of the proposition doesn't initially give rise to an attraction to assent to either it or its negation. Then, unbeknownst to me, I am hooked into the mathematics machine and my current level of understanding becomes sufficient to support an attraction to assent to P. The Competency Theory implies that I rationally intuit P, just as Elias does. The difference in our understandings of P and fractions is irrelevant, since my meager understanding, like Elias's fuller one, is able

to support a completely reliable ability to distinguish the true propositions in the set from the false ones.

The theory does better, if we develop it along the lines of the second option.<sup>xii</sup> Rational intuition requires that the attraction to assent be part of an epistemic competency that is reliable enough and in the exercise of which the propositions believed are understood well enough. The standard for a good enough understanding—whatever it may be—is not specified simply in terms of a strong enough attraction to assent and a reliable enough competency. Whether an understanding is good enough for rational intuition is not simply a matter of whether it leads to a reliable enough form of attraction. Within Sosa's theory, we can now distinguish my machine-based intuition of P from Elias's rational intuition of it. I don't understand P well enough to have a rational intuition, even if I do understand it well enough to have a reliable attraction to assent to it.

The theory still contains a serious problem, however. Even as it allows for a distinction between Elias's rational intuition and my machine-based one, it fails to account for the epistemic superiority of the former. Suppose again that Elias is able by rational intuition to distinguish with 100% reliability between the true and false members of some set of mathematical propositions including P. Suppose I am able by machine-based intuition to do the same. Each of us is exercising a competency in which we distinguish the true from the false through an intuitive attraction to assent that is not based in introspection, perception, memory, testimony or inference. Each of us is distinguishing the true from the false by intuitive intellectual seemings, as Sosa defines them. The only difference is that Elias's competency involves a greater

degree of understanding, one great enough to count as rational intuition. How then is Elias's position epistemically superior to mine? Sosa's theory doesn't provide an explanation.

It is not a matter of epistemically justified beliefs. Sosa distinguishes between basis-dependent justification and virtue justification.

*Basis-dependent foundational justification* is foundational justification that derives essentially from the justified belief's being based on a given state, a psychological state of the subject's, one that lies beyond justification and unjustification. [p. 50]

*Virtue foundational justification* is foundational justification that derives essentially from the justified propositional attitude's manifesting an epistemic competence. [p. 51]

He takes rational intuitions to be a source of virtue foundational justification. Yet, if they are, then so too are machine-based intuitions. I am exercising an epistemic competence just as much as Elias is, and my competence is just as reliable.

The difference between rational and machine-based intuitions is not a matter of knowledge on Sosa's account. One form of knowledge, within his theory, is apt belief or "animal knowledge." A belief is apt when it is accurate, adroit, in the sense of manifesting an epistemic competence, and accurate because adroit. [p. 22]

Elias's belief and mine in P are both apt. Our beliefs manifest different epistemic competencies (different forms of intuitive intellectual seeming involving different levels of understanding), but they manifest equal epistemic competencies nonetheless, and each belief is accurate because it is an exercise of the relevant

competency. Sosa's second form of knowledge is reflective knowledge, which is apt belief aptly noted. Here too, Elias and I are on a par. Insofar as Elias has the ability to aptly believe that he aptly believes P, so have I. Again, the only difference between us lies in the degree of understanding that is involved in the different epistemic competencies by which we gain animal knowledge of P. This difference is irrelevant to our ability to gain apt knowledge that our belief in P is accurate because formed by an epistemic competency.

## 5. Conclusion

A successful account of rational intuition must account for its epistemic superiority, and we've seen that three major theories do not do so. Phenomenal Conservatism entirely overlooks the understanding involved in rational intuition; it focuses on seeming states and ignores the understanding behind them. Proper Functionalism mistakenly takes the importance of the understanding involved in rational intuition to be a matter of proper function. Intuitive knowledge and justification require a certain level of understanding in our case simply because our design plan mandates it. The Competency Theory acknowledges the necessity of an adequate understanding for rational intuition, but it is unable to explain how that understanding makes rational intuition epistemically superior to other forms of intuition that require less understanding but constitute equally reliable competencies.

Let me end with some strategies for addressing the problem. We can seek to avoid the problem by, not only by mandating a particular level, or, perhaps, kind, of

understanding for rational intuition, as the Competency Theory does, but also taking that level or kind of understanding to be a necessary part of what gives rationally intuited beliefs their epistemic status. On this approach, the epistemic force of rational intuitions stems from more than their status as intellectual seemings; or as results of a properly functioning, reliable, truth-aimed faculty; or as instances of a reliable competency producing apt beliefs. Their epistemic force somehow stems from the quality of the understanding they involve. This new source of epistemic status will have to be explained and defended.

Fales [1996] has this sort of approach in mind, at least as I understand him.

We may begin with the familiar observation that grasping the truth-value of an a priori proposition does not require the possession of any information over and above that required for the very act of understanding the proposition itself. This is no doubt true and important, but it cannot account for the difference between basic and nonbasic a priori propositions.

Although determining the truth-value of an a priori proposition may not require, by way of "input," more material that can be supplied by the understood content of the proposition, it does require the act of grasping, the connection between this content and the truth-value. Ordinarily, this is a distinct and further act and may involve the employment of further a priori judgments, for example, of the validity of certain inferences. . . . We speak of agents having differing degrees of cognitive power or intelligence (in part) as a function of the complexity of those propositions (and inferences) that are transparent to them. [pp. 160],.

As I understand it, Fales's view implies that Elias's rational intuition that P is distinguished from my machine-based one by his grasping the connection between the content of his intuition and its truth-value. The connection is transparent to him but not to me. This may well be the best way to understand the case, but more work needs to be done. Transparency needs to be explained, as does how the transparency associated with of Elias' rational intuition makes it epistemically superior to my machine-based one..<sup>xiii</sup>

Another approach to the problem is to employ a distinction offered by Sosa. He distinguishes between the theory of knowledge and intellectual ethics.

[W]e do well to distinguish between two parts of epistemology: (a) theory of knowledge, and (b) intellectual ethics. The latter concerns evaluation and norms pertinent to intellectual matters generally, with sensitivity to the full span of intellectual values. It is therefore a much broader discipline than a theory of knowledge focused on the nature, conditions, and extent of human knowledge. [p. 89]

Perhaps, we should say that the value of Elias's rational intuition over my machine-based one lies, not along the traditional epistemic value dimensions of justification and knowledge that belong to the theory of knowledge, but along a different value dimension associated with intellectual ethics. Elias's position relative to P is intellectually better than mine, because it involves a deeper understanding of P and fractions. Such a deeper understanding is better in and of itself, independently of any tie to a justified belief in or knowledge of a particular proposition.

This approach to the problem leaves us facing the following question: Just what is this form of epistemic superiority that is independent of justification and knowledge? Why should we value Elias's understanding of P and fractions in general over mine, independently of his understanding giving him an edge with regard to knowledge or justification?<sup>xiv</sup>

Finally, we might try to avoid the problem by taking the contents of rational intuitions to be different from the contents of machine-based ones. The superiority of Elias' rational intuition over my machine-based intuition does not lie in the fact that it puts him in a better epistemic relation to the same content, P. It lies in the fact that it puts him in the same epistemic relation to a different, more informative content. Due to his fuller understanding of fractions, he actually intuits more than I do. We might thus shift from Sosa's talk of a greater or lesser understanding of a proposition to talk of an understanding of more or less informative contents. All three theories I've considered can accommodate this approach to the problem.

We face though the task of explaining these differences in content. What makes the content of Elias' intuition different from the content of my own? This option will also require us to say that when Elias rationally intuits P and I form my belief, first, on the basis of his testimony and, later, on the basis of a machine-based intuition, we are not believing/knowing and finally intuiting the same content. Indeed, so long as I lack the understanding required to rationally intuit what he rationally intuits, I simply cannot believe that content, and since I can't believe it, I can't have a machine-based intuition of it. Why can't I simply believe and then have

a machine-based intuition of just what Elias rationally intuits when he rationally intuits P?

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i Bealer [1995, p. 123] claims that, “to have an intuition that A is just for it to *seem* to you that A.”

ii See Huemer [2001] for an additional and quite helpful discussion of Phenomenal Conservatism in general and as it applies to perception in particular.

iii Note that if a “suitably full understanding” of fractions in this case is simply one that leads P to seem true to us, then Elias and I both have such an understanding of fractions. The proposal assumes that the concept of a suitably full understanding is to be understood in some other way.

iv We might modify PC for the case of rational intuition in particular:

PC': Where it intellectually seems to S as if p, S is prima facie justified in believing p on that basis only if S correctly believes that his/her understanding of relevant facts is suitably full.

Besides being ad hoc, the requirement is overly restrictive, as some who gain knowledge by rational intuition do not have, and may not even be capable of having, beliefs about the epistemic quality of their grasp of relevant information.

v Plantinga also requires that the proposition we see to be true is in fact true. Where Huemer allows for our intuiting a false proposition, Plantinga does not allow for our seeing a false proposition to be true. He does, however, introduce the concept of a priori belief, which he defines as follows: “So what is it to believe p a priori? Take the conditions severally necessary and jointly sufficient for seeing that p is true; to believe p a priori is to meet the set of those conditions minus the *truth* conditions—that is, the condition that p be true in the case of seeing directly that p is true) and the condition that p follows from q (in the case of seeing indirectly that p is true.)” [p. 106] I shall concentrate on Plantinga’s account of (directly) seeing a proposition to be true. My points are equally applicable to his account of a priori belief.

vi Plantinga may take the peculiar phenomenology of rational intuition to include more than a proposition’s seeming to be (necessarily) true to us and our feeling inclined to believe it, but whatever the nature of this peculiar phenomenology, there’s no reason to think that the mathematics machine cannot produce it in us.

vii Consider Plantinga’s discussion of a similar case: “Suppose my cognitive faculties are redesigned by an Alpha Centaurian superscientist in an experimental mood; he modifies them in such a way that when I consider any proposition of the sort n is prime (where n is any of the first 10,000 natural numbers), it has for me the very appearance of necessity enjoyed by even the most elementary of elementary

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truths of arithmetic. I form the belief that  $n$  is prime, for some fairly large number  $n$  less than 10,000; chances are I form a false belief; but even if it happens to be true, I don't know that it is. Here the problem is that this belief, though necessarily true, is not formed in me by virtue of faculties functioning properly and successfully aimed at truth." Even if my machine-modified faculties are successfully aimed at the truth, they still aren't functioning properly.

viii Consider too Michael Bergmann's account of doxastic justification:  $S$ 's belief  $B$  is justified iff (i)  $S$  does not take  $B$  to be defeated and (ii) the cognitive faculties producing  $B$  are (a) functioning properly, (b) truth-aimed and (c) reliable in the environment for which they were 'designed'. Bergmann develops the account with an eye to empirical justification, but if we extended it to cases of rational intuition, it offers a Plantinga-like account of the difference between Elias's rational intuition of  $P$  and my machine-based one. Elias's rational intuition that  $P$  supports a justified belief, as he meets all three of Bergmann's conditions; my machine-based intuition that  $P$  does not support a justified belief, as the cognitive faculties producing it are not functioning properly.

ix It seems that Plantinga would endorse this result. He tells us that, "a self-evident proposition is such that a properly functioning (mature) human being can't grasp it without believing it. This makes self-evidence a species-relative notion; there may be angels or Alpha Centaurians for whom quite different propositions are self-evident in this sense"[p. 109]. According to Plantinga's view,  $P$  is not self-evident for human beings. Elias is not such that his mere grasp of it requires him to believe it. He believes it, only after he has a much deeper understanding. I am such that my mere grasp of  $P$  leads me to believe it, after being modified by the mathematics machine, but I'm no longer functioning properly at that point, so  $P$  is not self-evident for me. It is, however, self-evident for the Alpha Centaurians. They are such that, when properly functioning, they believe  $P$  upon merely grasping it. They rationally intuit it.

x Plantinga's position gains some plausibility from an apparent analogy between perceptions and intuitions. Consider an example Michael Bergmann [2006] presents in a different context. Certain tactile sensations lead us to believe that there is a hard round object in our hand; certain "flowery" smells lead us to believe that flowers are nearby. Suppose that these connections are different in an Alpha Centaurian. The "flowery" (to us) smells are how she, equally reliably and naturally, identifies the presence of hard round object in her hand. Where tactile sensations are our basis for believing the proposition that there's such an object, olfactory sensations are hers. We have no basis to epistemically favor our cognitive design in this case. Our belief in a hard round object based on our tactile sensations is not epistemically superior to her belief in the same proposition based on olfactory experiences. Moreover, a plausible account of the common factor that accounts for our joint warranted beliefs/knowledge is proper function: We each form our belief

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as provided for by our truth-aimed cognitive design plan. By analogy, the same may seem to go for the intuitions of Elias and the Alpha Centaurian. Here again, there is no basis to epistemically favor Elias's cognitive design over the Alpha Centaurian's. They both rationally intuit and are warranted in believing/know P. The difference in their degree of understanding of P or fractions does not matter for their knowledge or warranted belief. It is neutralized by the fact that they are both forming their belief in accord with their truth-aimed cognitive design plan. I, however, don't intuit P. The difference between my understanding of fractions and Elias's understanding does matter. I am not following my truth-aimed cognitive design plan. Like a human who has been modified by a machine to believe that there's a hard round object in his hand on the basis of a flowery smell, I am not functioning properly and my belief is not warranted/knowledge.

The problem here is clear enough. It is plausible that our phenomenal experiences evidence our perceptual beliefs in such a way that which beliefs are evidenced by an experience for a subject is a contingent property of the experience. The "flowery" (for us) smell that evidences our belief that there are flowers nearby evidences for the Alpha Centaurian her belief that there is something hard and round in her hand. In contrast, insofar as our understanding of a proposition and various concepts is in some way the basis for a belief formed through rational intuition, the epistemic support relation is not contingent. What must be understood for a rational intuition of P does not vary across possible subjects. An understanding of some propositions detailing the main characteristics of French Neo-Classical painting, cannot be a proper basis for a rational intuition of P, no matter what the subject's design plan.

<sup>xi</sup> How should we define self-evident propositions, if we don't rely on the concept of proper function as Plantinga does? They are ones such that if a subject understands them well enough to consider them, then he or she has the understanding required to rationally intuit them. The understanding required for a subject to consider a proposition and the understanding required for one to rationally intuit it do not vary with design plans. What varies with design plans is whether having the former understanding relative to a particular proposition implies having the latter as well. What is self-evident for angels may, therefore, not be self-evident for us.

<sup>xii</sup> Sosa has indicated in correspondence that this is his preference and speculated that contextual factors may play a role in determined the required degree of each variable.

<sup>xiii</sup> For a fine discussion of some of the problems facing Fales' position, see Bergmann [2005, pp. 39-43]

<sup>xiv</sup> Sosa, in correspondence, has acknowledged this strategy as plausible, though he has not endorsed it.