

Certainty and Phenomenal States

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Introduction

The sort of knowledge we have with regard to the nature and kind of our own phenomenal states has enjoyed considerable prestige in the history of philosophy. Hume claims that 'The only existences, of which we are certain, are perceptions, which being immediately present to us by consciousness, command our strongest assent, and are the first foundation of all our conclusions' (*A Treatise of Human Nature*, I 4.2). In the *New Essays* (II 27.238), Leibniz remarks that 'if the immediate inner experience is not certain, we cannot be sure of any truth of fact.' Similar endorsements may be found in St. Augustine (*Contra Academicos*, §26), Duns Scotus (*Concerning Human Knowledge*, 112), Descartes (*Meditations*, III 34), Arnauld (*The Port-Royal Logic* IV 1), and Brentano ('The Distinction Between Mental and Physical Phenomena,' VI).¹ In a classic formu-

1 David Hume, *A Treatise of Human Nature*, L.A. Selby-Bigge, ed. (Oxford: Oxford University Press 1978 [1739]); G.W. Leibniz, *New Essays on Human Understanding*, P. Remnant and J. Bennett, ed. and trans. (Cambridge: Cambridge University Press 1981 [1765]); St. Augustine, *Contra Academicos*, Mary Garvey, ed. and trans. (Milwaukee, WI: Marquette University Press 1942); John Duns Scotus, *Philosophical Writings*, A. Wolter, ed. and trans. (Indianapolis: Hackett 1987 [c.1304]); René Descartes, *The Philosophical Writings of Descartes* vol. 2, J. Cottingham, R. Stoothoff, and D. Murdoch, trans. (Cambridge: Cambridge University Press 1984 [1641]); Antoine Arnauld, *The Art of Thinking (The Port-Royal Logic)*, J. Dickoff and P. James, trans. (Indianapolis: Bobbs-Merrill 1964 [1662]); Franz Brentano, 'The Distinction Between Mental and Physical Phenomena,' in R.M. Chisholm, ed., *Realism and the*

lation, Bishop Berkeley declares that 'colour, figure, motion, sensation, and the like, considered only as so many sensations in the mind, are perfectly known; there being nothing in them which is not perceived' (*Of the Principles of Human Knowledge*, §87). Let us call this claim Berkeley's thesis.

If we assume, along with Berkeley, that phenomenal states do serve as sources of certainty for thinkers, we are still wanting some explanation of this fact.² I believe that there are at least two explanations of how we come to have certain knowledge regarding the content of our phenomenal states.

(I) The most prominent explanation asserts that there is something special about the properties involved in phenomenal states that enables someone who exemplifies one of these properties to know with certainty that he exemplifies it. Such certainty is available to all knowers with the proper phenomenal states. There is just something about *having a tickle* that enables a thinker who has this property to know with certainty that he has it. The same is true of *sensing redly*, *having an afterimage*, and *having a headache*. These phenomenal properties all share a second-order property (or properties) that provides for certainty. A candidate certainty-making second-order property is that of *being self-presenting*. It is self-presenting first-order properties that are sources of certainty. I think that a majority of thinkers in the Cartesian tradition are receptive to this strategy, even though they may not all advocate *being self-presenting* as the correct second-order property. Meinong, Heidelberger, Alston, and Chisholm are especially to be

Background of Phenomenology (Atascadero, CA: Ridgeview 1960) 39-61; George Berkeley, *Principles, Dialogues, Correspondence*, C.M. Turbayne, ed. (Indianapolis: Bobbs-Merrill 1965 [1710]). See also Roderick Firth, 'The Anatomy of Certainty,' *The Philosophical Review* 76 (1967) 3-27.

- 2 There are many different kinds of certainty that have been discussed in the relevant literature, and there are numerous things that have been cited as belonging to the class of things known with certainty. In this paper I am unable to discuss the nature of certainty in any detail, and am interested only in a tiny portion of the possible range of the certain. I am well aware, however, that opinions about the range of the certain have varied considerably. For some liberal views about the range of certainty, see Richard W. Miller, 'Absolute Certainty,' *Mind* 87 (1978) 46-65; Norman Malcolm, *Knowledge and Certainty* (Englewood Cliffs, NJ: Prentice Hall 1963); G.E. Moore, 'A Defense of Common Sense' and 'Certainty,' both in his *Philosophical Papers* (London: George Allen and Unwin 1959); and Peter Klein, *Certainty* (Minneapolis: University of Minnesota Press 1981).

noted in connection with this view.³ The most sophisticated account, Chisholm's, will be discussed in detail below.

(II) The second strategy is to maintain that there is something special about *us* as believers or thinkers that enables us to know with certainty whether we are in this or that phenomenal state. The only writer I am aware of who clearly endorses strategy (II) is Ernest Sosa, in his most recent work.⁴ But Sosa does not develop the approach for phenomenal states, nor does he explicitly contrast it with the self-presenting view. In this paper I will show the failings of strategy (I), and develop strategy (II) in such a way that it avoids the errors of (I). That is, I plan to argue that there are no second-order properties that determine the range of the certain, rather, I will argue that it is *we thinkers* who set the boundaries of what we can know with certainty. I do *not* plan to enumerate the elements of the class of things that we know with certainty, nor am I able to provide a full discussion of the nature of the certain. The former project is unpromising at best, and the latter is properly the subject of a different essay. For our purposes here let us understand certainty as maximally justified knowledge, knowledge such that nothing else could be both known and more highly justified.⁵ The task at hand is to explain how it is possible that our phenomenal states could serve as sources of certainty, and thereby defend a version of Berkeley's thesis.

One might think that there is logical space for a third approach instead of certainty resulting from the kind of thing known, or the kind of knower, perhaps due to some relation between the knower and the known. When this (yet unspecified) relation holds, the knower knows with certainty. Of course, the relation between the knower and the known can't be simply that of *knowing with certainty*, since this latter is the very relation wanting explanation. Nor is any epistemic relation likely to do the job, since circularity, like a lump under the rug, will

3 See Alexius Meinong, *On Emotional Presentation*, M.-L. Schubert Kalsi, trans. (Evanston, IL: Northwestern University Press 1972 [1917]), esp. ch. 1; Herbert Heidelberger, 'The Self-Presenting,' *Grazer Philosophische Studien* 7, 8 (1979) 59-76, esp. 68 (it should be noted that Heidelberger offers no positive account of the self-presenting, but is sympathetic to the project, and seems to think that one could ultimately be provided); William Alston, *Epistemic Justification: Essays in the Theory of Knowledge* (Ithaca: Cornell University Press 1989), 14; and Roderick M. Chisholm, *Theory of Knowledge*, 3rd ed. (Englewood Cliffs, NJ: Prentice Hall 1989), ch. 3.

4 See Ernest Sosa, *Knowledge in Perspective: Selected Essays in Epistemology* (Cambridge: Cambridge University Press 1991). See especially p. 9 in his introduction.

5 See James Van Cleve, 'Foundationalism, Epistemic Principles, and the Cartesian Circle,' *The Philosophical Review* 88 (1979) 55-91, esp. 61, for a similar analysis.

probably just crop up elsewhere. Perhaps the third alternative amounts to the plausible view that certainty supervenes upon some non-epistemic relation holding between the knower and the known. However, if this is the case, then our task is to find out what conditions must be met for this subvenient relation to hold. Presumably these conditions have primarily to do with either facts about the knower (his or her cognitive abilities, doxastic methods, or evidence base, say), or facts about the known (it is self-presenting in some technical sense, or has other crucial first or second-order properties). But now the third strategy seems to have dissolved into one of the first two. If a non-epistemic relation that supports knowing with certainty can obtain between a knower and the known primarily due to the properties of the known (in this paper, restricted to phenomenal states), then we are back with strategy (I). If a non-epistemic relation that supports knowing with certainty can obtain between a knower and the known primarily due to the properties of the knower, then we have returned to strategy (II).

Let us return, then, to the second strategy. An analogue with knowledge will help illuminate this approach. Consider the question 'what can we know?' There are several interesting ways of understanding this question. It may be asking 'what kinds of things are the objects of knowledge?' a question to which the traditional answer is 'propositions.' Sometimes 'what can we know?' is taken as asking 'what is it logically possible to know?' or 'what is the range of things that any possible knower could know?' This is a very different question, and is most often raised in discussions of skepticism, or the problem of omniscience in natural theology. Another interpretation of 'what can we know?' is 'what can a given thinker know?' We generally have no qualms about answering this question with 'it depends.' It depends on the faculties of the knower under consideration. A weak intellect will never know complex logical truths, for example, either because he lacks the ability to grasp the proposition at hand, or something about the knower prevents him from justifiably believing it. A powerful mind, on the other hand, is capable of knowing many varied and complicated things. Without the requisite mental capacities and cognitive faculties, he could not enjoy the sophisticated knowledge that he does. There is something interesting about us (that mud, for example, lacks) that enables us to have knowledge.

'What can we know with certainty?' has similar interpretations. An answer to 'what kinds of things are the objects of certainty?' strongly supervenes on answering the parallel question about knowledge. If we ask 'what could any possible knower know with certainty?' again the answer seems to depend on how the question for knowledge is answered. If the knowledge skeptic is right, the answer is 'nothing.' If omniscience is possible, the answer may be 'everything the omniscient knower knows.' All of the knowledge of an omniscient being would

be maximally justified. If we rule out omniscience as a possibility, then the answer seems to be 'it depends,' the very same answer that we get when we ask 'what can a given thinker know with certainty?' Those who favor strategy (I) above hold that it depends on which things exemplify a second-order property such as *being self-presenting*. On the other hand, if the range of the certain is like the range of the merely known, then what a given thinker can know with certainty will vary from knower to knower depending on the capacities and abilities of each. This is the second avenue of explanation. The objects of certainty must be of a particular kind, just as the objects of knowledge are, but no intrinsic second-order property defines the class of the certain. Phenomenal states are sources of certainty for persons because of the cognitive faculties and capacities that persons ordinarily enjoy.⁶

One of the prime exponents of strategy (I) is Roderick Chisholm. His recent work offers a sophisticated defense of the claim that the certainty Berkeley's thesis promotes on behalf of our own phenomenal states is best explained by some of their properties being self-presenting. While a promising attempt, I will argue that Chisholm's account fails for two reasons. The first reason it fails is because it cannot incorporate so-called 'negative' properties that seem to be epistemically on all fours with the positive properties that Chisholm wants to be self-presenting. This, however, is a peculiarity specific to Chisholm's analysis, and does not serve as an indictment of strategy (I) generally. The second, and far more interesting, failing stems from a flaw intrinsic to strategy (I) theories. This flaw is highlighted by a challenge proposed by Russell, Sosa, and Chisholm himself. I will argue that Chisholm's analysis cannot adequately meet this challenge. I will then argue that reflection on the challenge will promote strategy (II) over (I) as a way of saving, if not Berkeley's thesis in its heady glory, at least the possibility of a modified version of Berkeley's thesis being true.

6 I do not plan to delve into the analysis of faculties, abilities, dispositions, etc. For such discussion, see Ernest Sosa's articles 'Knowledge and Intellectual Virtue,' reprinted in his collection *Knowledge in Perspective*, 225-44, and 'Abilities, Concepts, and Externalism,' in J. Heil and A. Mele, eds., *Mental Causation* (Oxford: Oxford University Press 1992).

Chisholm defines the self-presenting in this way:

P is self-presenting =_{df.} Every property that P entails includes the property of thinking.⁷

His technical locutions 'includes' and 'entails' are in turn defined as follows. A property F includes a property G iff F is necessarily such that anything which exemplifies it also exemplifies G. A property F entails a property G iff believing something to be F includes believing something to be G.

Now, Chisholm wants to say that the property of *having a splitting headache* is a paradigm case of a phenomenal property which is such that anyone who has it and believes they have it, knows with certainty that they have it. In other words, *having a splitting headache* is a self-presenting property. Similarly I urge that our epistemic standing towards headaches is the same as our standing towards lacking them. When I lack a headache, this fact as well seems to present itself to me. My belief that I lack a headache (when I do) seems just as justified as my belief that I have a headache (when I do). Let us say then that the property of *not having a splitting headache* is self-presenting, and a source of certainty. Thus Chisholm's definition of the self-presenting should be able to account for it. But observe that *not having a splitting headache* entails a property that does not include the property of thinking. What is this property? Why, itself. Every property entails itself, even on Chisholm's peculiar sense of 'entails.' *Not having a splitting headache* is not a property which includes thinking. Rocks have this property, as do tables, chairs, and other mindless objects. By Chisholm's definition, then, *not having a splitting headache* is not a self-presenting property. This contradicts our assumption that it is, and so Chisholm's definition dies by reductio.

Chisholm could respond to this argument by denying that *not having a splitting headache* is a legitimate self-presenting property. He might claim that negative properties are parasitical upon or derivative from positive ones. That is, positive properties are epistemically prior to negative ones, and so I come to believe that I do not have a splitting headache when I don't as a result of antecedently believing certain positive properties about myself. Furthermore, these positive properties are legitimate self-presenting ones. I have the intuition that *not having a*

7 Chisholm, *Theory of Knowledge*, 3rd ed., 19

splitting headache is a self-presenting property only because I quickly infer it from the positive properties just invoked.

While this is a consistent move for Chisholm to make, I do not think that it is a good one. First of all, some (reasonably non ad hoc) story must be told about why positive properties are epistemically prior to negative ones. Chisholm has suggested in conversation this story: *not having a splitting headache* cannot be self-presenting to someone who has never had a headache. That is, until one has a headache, one cannot be said to have the concept of a headache. If one does not have the concept of a headache, then one cannot have the concept of lacking a headache.⁸ But if one lacks *this* concept, then one cannot attribute to oneself the property of *not having a splitting headache*; one just doesn't have the conceptual tools. Thus *having a splitting headache* is a self-presenting property in a way that *not having a splitting headache* is not.

The problem I find with this response, structurally lovely though it is, is that an analogous argument can be given against the positive property of *having a splitting headache*. Consider the case of the unfortunate soul who was born having a headache, and has had one all of his life. This seems no less possible than the case of a person who has never had a headache. By parity of reasoning with the earlier case, we must say that since he has never known life headache-free, he lacks the concept of not having a headache. Without this concept in hand, he cannot have the concept of having a headache. Why? It would never (in fact couldn't) occur to him that he had a headache, until the momentous day when the pain at last disappears and he goes about telling his friends what a remarkable thing has happened. And, of course, if he lacks the concept of a headache, he cannot attribute to himself the property of *having a splitting headache*; he just doesn't have the conceptual tools. The upshot is that Chisholm's conclusion that *having a splitting headache* is a self-presenting property in a way that *not having a splitting headache* is not, does not follow. The concepts of having a headache and not having a headache seem to be in the same epistemic boat. Acquiring them is a package deal.

Even if Chisholm were to offer some new and improved story about why positive properties are epistemically prior to negative ones, it still faces two grave difficulties. The first is that his story must account for the strong intuition that I encounter no such positive properties during

8 Compare Jean-Paul Sartre's account of negativity in *Being and Nothingness*, Hazel E. Barnes, trans. (New York: Simon and Schuster 1956) ch. 1, §2. For Sartre, the only events and properties legitimate in our ontology are positive ones. We become aware of negative events and properties when our expectations are not met. Sartre, as well as Chisholm, fails to anticipate the problems I raise against this account.

introspection (or whatever the belief-acquiring method is regarding phenomenal states), but do discover directly that I do not have a headache. That is, introspection seems to inform me directly that I do not have a splitting headache when I don't. My knowledge that I do not have a headache does not seem to be the result of my quickly deducing the fact from my introspective awareness that I am in a state of mental serenity. Or at least, this knowledge needn't, and generally doesn't, come from such a deduction. The second problem for his account is this: Chisholm supposes that *not having a splitting headache* fails to be self-presenting because this property is quickly inferred from certain self-presenting positive properties. The problem is that these positive properties may entail the negative one. Recall that one property entails another iff the believing that something has the former property includes believing that something has the latter property. Grant Chisholm that positive properties are epistemically prior to negative ones. Given the datum that when I lack a headache and I indulge in introspection I always encounter the negative property of *not having a splitting headache*, it follows that I must always quickly infer this property from various positive ones. But since I invariably make the inference, perhaps I *cannot* believe myself to have these positive properties without also believing myself to have the negative property. If this is right, then the positive properties Chisholm might posit entail a property that does not include thinking, viz., the property of *not having a splitting headache*. Thus the positive properties fail to be self-presenting, contradicting the supposition that they are, and once again we have a reductio against the definition of the self-presenting.

To see this latter point, consider my counterexample in reverse. Surely Chisholm would say that the positive property of *being in a state of mental serenity* is self-presenting. Observe that the negative property of *not being in a state of mental anguish* does not include thinking. Now Chisholm has three options: (1) he must defend the claim that *being in a state of mental serenity* does not entail *not being in a state of mental anguish*; or (2) he must give up the claim that *being in a state of mental serenity* is self-presenting; or (3) he must give up his definition of the self-presenting. I presume that Chisholm would opt for (1). The possibility of a way out of the counterexamples by way of (1) does not constitute a way out, of course. Escaping my counterexamples, then, requires Chisholm to explain why positive properties are epistemically prior to negative properties, and to show why no self-presenting positive property entails a negative property. These are tasks which demand substantial theorizing.

Russell's Worry

There is another, more powerful, difficulty looming. Berkeley claims that there is *nothing* in the 'sensations in the mind' which is not perceived, and perfectly known. Not merely some aspects of color, figure, motion, sensation, and the other phenomenal states may be known with maximal justification, but *all* aspects.⁹ It is the 'all' which gives Russell pause.¹⁰ Russell writes,

Whether it is possible to be aware of a complex [sense-datum] without being aware of its constituents is not an easy question, but on the whole it would seem that there is no reason why it should not be possible.¹¹

It seems possible, Russell opines, that there could be a sense-datum sufficiently complex that acquaintance with the sense-datum as a whole would not provide for acquaintance with all of its features. Russell's worry is quite legitimate; Chisholm formulates just such a case. He writes,

Consider the visual sensation that is yielded by a single glance at a speckled hen. The sensation may be said to contain many speckles. One may ask therefore, 'How many speckles are there?' If we judge, say, that the sensation contains 48 speckles, we may very well be mistaken; perhaps there are a few more speckles or a few less. Yet our judgment is a judgment about the nature of the sense-datum or about the nature of the way we sense. The fact that such a judgment may be mistaken would seem to be in conflict with our view according to which the nature of what we sense is self-presenting and therefore a source of certainty.¹²

It is easy to come up with other examples. Sosa, for example, puts the challenge in terms of perceiving polygons and being able to state the number of sides.¹³ Chisholm supposes these things: (1) the visual sensation caused by the perception of a speckled hen contains a definite

9 The properties under discussion here and following are intrinsic properties only, and not relational, or 'Cambridge' ones. Of course I could not know with certainty that my tickle occurred simultaneously with and 3529 miles away from Prince Charles's scratching of his left foot.

10 Although it should be mentioned that Russell does not cite Berkeley in this context, and I do not know if Russell ever gave much consideration to the passage from Berkeley at hand.

11 Bertrand Russell, 'Knowledge By Acquaintance and Knowledge By Description,' reprinted in his *Mysticism and Logic* (London: Longmans, Green 1917), 211

12 Chisholm, *Theory of Knowledge*, 3rd ed., 25

13 Sosa, *Knowledge in Perspective*, 2

number of speckles, as does the hen's side; and (2) there is no motivation for thinking that the number of speckles involved, an aspect of the perceiver's own occurrent phenomenal state, can be known with certainty. And so Berkeley's thesis lies in ruins.

Chisholm's proposed solution to Russell's worry amounts to a modification of Berkeley's thesis: no longer shall we say that all features of our phenomenal states may be known with certainty, but instead only some of them are self-presenting and are sources of certainty. The property of *containing 48 speckles* is an example of a property of a phenomenal state that is not a self-presenting one. Notwithstanding what seems to be an obvious error in the text, the theoretical support Chisholm provides for his claim is this: *containing n number of speckles* entails a property, viz. the property of *being a speckle*, that does not include thinking.¹⁴ Thus there is no difficulty in admitting that we don't know how many speckles are in our sense-datum of the hen, and Russell's worry is assuaged.

I agree with Chisholm that Berkeley's thesis claims too much on behalf of certainty. However, the story that Chisholm tells may claim too little. On his story, the properties that are self-presenting are necessarily so, and the ones that are not are necessarily not. *Being self-presenting* is an essential property of certain first-order properties. The 'sensations in the mind' that can be 'perfectly known' are so in all possible worlds. The extremism of this view is not revealed as long as we confine ourselves to properties such as *containing 48 speckles*. But there are other examples that point up its weaknesses. Consider the case of a triangle when someone perceives a triangle (in good lighting, etc.) it seems plausible to think that he could know with certainty that the phenomenal state sponsored by his perception involves a triangle. This is not to say, of course, that he is certain that he perceives a triangle, only that he can be certain that triangularity pertains to his occurrent phenomenal state. Dodecagons may be importantly different from triangles here. As we increase the number of sides on the polygon, it becomes decreasingly plausible to think that the perceiver can know with certainty what kind of polygon is involved in his mental state. However, none of this should lead us to rule out the possibility of triangularity being known with certainty. There is the standard philosophical problem of 'drawing a line,' but the equally standard escape is at hand too — the escape of appeal to paradigm cases. Lack of certainty regarding dodecagonity does not imply lack of certainty

14 Chisholm, *Theory of Knowledge*, 3rd ed., 25

regarding triangularity, just as certainty regarding triangularity does not imply certainty regarding dodecagonity.

Now consider the sensation yielded by a glance at a speckled hen with only two, rather prominent, speckles. Chisholm's analysis forbids even the possibility of anyone knowing with certainty that there are two speckles in their sense-datum of the hen. This is too heavy handed. I believe that Chisholm was closer to the truth in 1942 when he wrote, 'Where the hen presents only two or three speckles ... we can know with certainty that there are (or that there are not) two speckles.... When we apply the terms *one*, *two*, or *three*, to the items within a sense-datum, it would seem obvious that we could not be mistaken.'¹⁵

One move that might be made at this juncture is to back off the strong claim. Although Chisholm's theory of the self-presenting can distinguish between phenomenal properties that are self-presenting and those that are not, it makes the cut at the wrong place. What we seem to need is a theory that allows the possibility that *containing two speckles*, or *being triangular* can be known with certainty, and yet forbids *containing 48 speckles* and *being dodecagonal* from being self-presenting. In other words, the project awaiting us is that of redrawing the line. All of this might be done while still maintaining the view that *being self-presenting* is a second-order property that is held essentially, or not at all. For example, an adverbial theorist might argue that someone could be appeared to two speckledly, but could not be appeared to 48 speckledly, on the grounds that no genuine adverb is formed by conjoining the 'ly' to 48 speckled. Thus we could know with certainty about two speckles, but not about 48. When faced with a phenomenal state involving 48 (and other large numbers of) speckles, we are merely appeared to many speckledly, and can be certain of this. All line drawing projects are difficult ones, and this one seems particularly fraught with peril, yet it still looks like an option that could be pursued.

In what follows, I will argue that this approach is doomed to failure. The relevant literature is replete with examples of exceptional cognitive abilities which suggest that epistemologies which attempt to provide the strict boundaries of human cognition through metaphysical decree are liable to run afoul of the actual empirical evidence. Moreover, some of these cases promote the possibility of persons knowing with certainty things that are forbidden by the second-order properties recommended by Alston, Meinong, Chisholm, et al. Let us consider a few examples.

15 Chisholm, 'The Problem of the Speckled Hen,' *Mind* 51 (1942) 368-73, at 369 and 372

The extent of one kind of cognitive talent, mathematical intuition, varies widely. G.H. Hardy declares that someone might directly intuit that 5 or 17 is prime, but it is impossible for someone to intuit directly that $2^{127} - 1$ is prime.¹⁶ This is a rather intriguing statement, considering Hardy's own anecdotes about the abilities of the Indian mathematician Ramanujan. One such story relates that Ramanujan was once visited by a friend, who commented that the taxicab in which he had just ridden was number 1729. The visiting friend joked with Ramanujan that the cab number was a rather dull one. Ramanujan instantly replied that on the contrary, the number was quite interesting: it is the smallest number expressible as a sum of two cubes in two different ways.¹⁷

The Russian psychologist A.R. Luria writes of the remarkable memory of his patient S.¹⁸ Luria found himself unable to test either the capacity of S's memory, or the duration of S's memory traces. Luria characterizes the extent of S's memory as 'unlimited' and the information stored there as 'indelible.' S had the ability to memorize (on first reading or hearing) any series of words, numbers, words in unknown languages, or even nonsense syllables. Moreover, the series could be of any length, and could be flawlessly recalled fifteen or sixteen years later. Similar cases of eidetic memory are documented.¹⁹

One obviously interesting project regarding mathematical intuition, or eidetic memory, is that of discovering the methods these thinkers use to produce such remarkable output. Another area of exploration is the topography and functioning of their brains. But these issues are best dealt with by psychologists and neurologists, not philosophers. However, there is a project awaiting us, too: namely an epistemological inquiry into the degree of justification these unusual cognitive processes confer. While I am not eager to plunge headlong into these waters here, I believe that we might easily agree that, e.g., S's justification was such that he *knew* the elements of the series he had been called upon to

16 G.H. Hardy, *Ramanujan* (Cambridge: Cambridge University Press 1940), 16

17 $1729 = 12^3 + 1^3 = 10^3 + 9^3$ (*Ramanujan*, 12). The text implies that this was a spontaneous, intuitive discovery by Ramanujan, not just the recollection of an earlier finding.

18 A.R. Luria, *The Mind of a Mnemonist*, L. Solotaroff, trans. (New York: Basic 1968)

19 Luria mentions the Japanese mnemonist Ishihara. Cf. Oliver Sacks's patient Martin A. in *The Man Who Mistook His Wife For a Hat and Other Clinical Tales* (New York: Harper and Row 1987), ch. 22. Also see A. Lewis Hill, 'Idiot Savants: A Categorization of Abilities,' *Mental Retardation* 12 (1974) 12-13, and the extensive bibliography there appended.

memorize. Not only could S employ a method of acquiring beliefs that most of us cannot, but he was capable of *knowing* something that most of us are not. However, accepting this fact alone is not enough to motivate us to think that S was able to know something with certainty that others cannot. An uncommon ability may yield knowledge but not maximally justified knowledge.

Consider the case of perfect pitch. Those select few with perfect pitch are able to correctly identify musical notes upon hearing them. 'Perfect' pitch is somewhat of a misnomer, though, since the ability comes in degrees. Someone may be able to infallibly identify a tone resonating at 440 hertz as an A, and yet mistakenly label a tone resonating at 440.000001 hertz as an A. We need the right qualifiers here, of course. A person with so-called perfect pitch might have an auditory ailment that causes her to perceive notes a whole step higher than they actually are. 'On the inside' she hears an A, and correctly identifies it as an A. When she says 'that's an A,' however, she uniformly is in error: the note is actually a G. Setting aside the 440 hz vs. 440.000001 hz issue, we can ask: are people with perfect pitch at least certain about what the notes are that they seem to hear? My inclination is to say no. The operant faculty is not concerned solely with an occurrent phenomenal state, but with an unusual memory. The person with perfect pitch has the rare ability to remember the name of a note when she hears the note.

A more common form of this kind of faculty is the ability to remember the names of colors. When someone has a paradigmatically blue sensation, he is not merely certain about the nature of his sensation (let us assume), but he can almost invariably recall the name of the color. 'It is blue,' he says. It is relatively uncontroversial that memory is not a source of certainty. A person might have maximally justified knowledge that he is in a phenomenal state of such-and-such a sort, and yet be unable to recall the name of the pertinent property. Likewise, an ordinary person who lacks perfect pitch may be certain about the nature of the phenomenal state engendered by hearing an A440, and be able to say plenty of true things about it (e.g. 'it is a sound,' 'it is higher in pitch than the last sound,' 'it is loud,' etc.) and yet be unable to name it. A person with perfect pitch does have a special faculty, an especially reliable memory regarding note names. While this faculty confers unusual epistemic benefits, it does not confer certainty concerning aspects of one's occurrent phenomenal state that persons lacking the faculty do not also have.²⁰

20 This account has benefited from a discussion with James Dreier, who has perfect pitch.

While things like perfect pitch and eidetic memory do not produce certain knowledge, there are documented cases of rare cognitive abilities that do seem to generate certainty. At the very least these cases encourage us not to reject out of court (as strategy [I] does) the possibility that a person could know with certainty that a particular visual sensation is of a dodecagon, or that a sense-datum of a speckled hen contains 48 speckles. The case I shall concentrate on is one described by the neurologist Oliver Sacks. Sacks's case lends support to the view that the class of the certain is not determined by an essential, intrinsic second-order property, but by contingent abilities that vary across knowers.

Sacks writes about two identical twins named John and Michael. Each of the twins is an idiot savant, with a measured IQ of 60. Sacks describes his first encounter with the twins:

A box of matches on their table fell, and discharged its contents on the floor: "111" they both cried simultaneously; and then, in a murmur, John said "37." Michael repeated this, John said it a third time and stopped. I counted the matches — it took me some time — and there were 111.

"How could you count the matches so quickly?" I asked. "We didn't count," they said. "We saw the 111...."

"And why did you murmur '37,' and repeat it three times?" I asked the twins. They said in unison "37, 37, 37, 111...."

"How did you work that out?" I said, rather hotly. They indicated, as best they could, in poor, insufficient terms — but perhaps there are no words to correspond to such things — that they did not "work it out," but just "saw" it, in a flash. John made a gesture with two outstretched fingers and his thumb, which seemed to suggest that they had spontaneously *trisected* the number, or that it "came apart" of its own accord, by a sort of spontaneous, numerical "fission." They seemed surprised at my surprise — as if I were somehow blind; and John's gesture conveyed an extraordinary sense of immediate, *felt* reality. (199-200)

Another encounter that Sacks had with the twins is also instructive. Sacks had accidentally encountered the twins saying six digit numbers back and forth to each other, as if it were some sort of game. He wrote down the numbers they were saying, and discovered later that all the numbers in the twins's game were prime. Sacks procured a book that listed prime numbers, and the next day, upon seeing the twins playing the prime number game, joined them. He describes it this way:

I decided to join in, and ventured a number, an eight figure prime. They both turned towards me, and then suddenly became still, with a look of intense concentration, and perhaps wonder on their faces. There was a long pause — the longest I had ever known them to make, it must have lasted a half-minute or more — and then suddenly, simultaneously, they both broke into smiles.... Then John, who always took the lead, thought for a very long time — it must have been five minutes, though I dared not move, and scarcely breathed — and brought out a nine figure number; and after a similar time his twin Michael responded with a similar one. (203)

Within an hour the twins were swapping twenty digit numbers. Sacks writes that he assumes that these figures were prime, but he had no way to check because his book listed primes no higher than ten digits.²¹

Sacks several times characterizes the numerical ability of the twins as a kind of seeing, or a fundamental grasping. He writes,

If you ask them how they can hold so much in their minds — a three hundred figure digit, or the trillion events of four decades — they say, very simply, “we see it.” And “seeing” — “visualizing” — of extraordinary intensity, limitless range, and perfect fidelity, seems to be the key to this. (199)

There is no need to show that it is uncontroversial that the twins knew with certainty the number of matches in their perception, or that 37 is prime. I only seek admission that it is *possible* that their knowledge was maximally justified. Just as ordinary thinkers might know with certainty that the phenomenal state engendered by two matches falling on the floor is of two matches, exceptional thinkers like the twins might know with certainty that their phenomenal state contains 111 matches. What do the twins have that ordinary thinkers lack? It is not that their mental states exemplify phenomenal properties that our mental states do not when all parties see 111 matches on the floor. Rather, the twins have an ability, a cognitive ability, that ordinary thinkers do not. This ability enables them to grasp, or access, or immediately apprehend a property presumably common to the phenomenal states of all witnesses to the matches — *containing 111 matches*. Moreover, this cognitive ability provides them with knowledge that is much more highly justified than is minimally necessary for knowing. I claim that it is possible that this justification is maximal.

It is sheer hubris to claim that only small numbers of matches, or speckles, or polygon sides, can be known with certainty. This fails to do justice to the range and power of human faculties as seen in Ramanujan, S, or the twins. Thus I urge that we reject the assumption that there is no motivation for thinking that the number of speckles involved in a perceiver’s own occurrent phenomenal state can be known with certainty. Insofar as we are prepared to grant that ordinary thinkers might know with certainty that their occurrent phenomenal state contains two speckles, we should also grant the possibility that unusual, remarkable thinkers like the twins could be certain about 48 speckles. The number of speckles one can know with certainty varies on the continuum from lesser minds to great ones. *Being self-presenting* is best viewed not as an

21 I wonder what their reaction would have been to $2^{127} - 1$.

intrinsic essential property (as defenders of strategy [I] would have it), but as a contingent, extrinsic, converse intentional property. It is we as thinkers and knowers that bestow upon the properties of our phenomenal states the lofty title 'known with certainty to be exemplified.' There are no gilded properties that deign to allow us, by virtue of their magical nature, certainty regarding their appearance in our phenomenal states.

So where does all this leave Berkeley's thesis? A modification of it *is* needed, but we should not weaken its claim about all sensations in the mind to a claim about merely some. Quantification is not at fault here; the difficulty lies rather in modality. Berkeley's thesis needs to be prefixed with 'possibly.' *Possibly* color, figure, motion, sensation, and the like, considered only as so many sensations in the mind, are perfectly known. When we ask 'what aspects of a thinker's phenomenal states may be known with certainty by that thinker?' the answer is 'it depends on the cognitive faculties and capacities endemic to that particular thinker.' None of this is to say that any thinker knows anything with certainty. It is just a defense of the possibility that some knowledge is held with certainty. The possibility turns on the scope and power of human cognitive abilities.²²

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