

THE IDEA OF INNATENESS

PHILOSOPHICAL CONTROVERSIES ARE notoriously long-lived. And in point of venerability the controversy around innate ideas and innate knowledge is equal to any. It differs, however, from many of its cousins of comparable ancestry. For in the last decade it has emerged anew as a lively debate whose participants include some of the most important philosophers in the English-speaking world. The debate is unique, too, in having been rekindled not by philosophers but by linguists who based their arguments on the findings of modern generative grammar.

It is not surprising that in a controversy extending over two millennia the strands of the argument have become knotted and intertwined. My aim in this essay is to untangle a few of the strands of the argument, with the hope of making it a little easier for readers new to the debate to find their bearings.

The controversy is easy enough to summarize: Some philosophers, as well as linguists, psychologists, and others, allege that human beings have innate knowledge or innate ideas. Others deny it. But what is it to have innate knowledge or an innate idea? There is a pattern running through much of the debate in this area. Advocates of the doctrines of innate ideas and innate knowledge commonly take the notion of innateness itself to be unproblematic. They explain it with a few near synonyms, “inborn” or “unlearned,” or with a metaphor or an allegory, and leave it at that. The doctrine’s opponents often begin by puzzling over just what the doctrine could possibly mean. They go on to construct a variety of accounts, arguing against each in turn. The advocate’s rejoinder, as often as not, is that he has been misunderstood. Thus, in approaching the debate over the innateness

doctrine, we would do well to ponder what we are saying of someone when we say that he knows something or has an idea innately.

In working toward an analysis of innateness there are two pitfalls we must avoid. First, we should unpack the concepts in such a way that there *might* be innate ideas or innate knowledge. An account of these notions which makes the claim that a person has innate ideas or knowledge either straightforwardly logically impossible or patently empirically false holds little promise as an explication of what those who advance the claim have in mind. Their view may be false but, if we are to interpret them sympathetically, it will not be trivially false. Second, our account should portray the innateness doctrine as an interesting view about human cognitive mechanisms. An analysis would be suspect in this quarter if it entailed that all knowledge or ideas are innate. Advocates of innateness usually took themselves to be advancing an exciting thesis about a special sort of knowledge or idea. But if, on a given analysis, all knowledge or ideas are innate, there is reason to be suspicious that this exciting thesis has been exchanged for the humdrum claim that, on a special sense of “innate,” all knowledge or ideas count as innate.

While counting all knowledge as innate is a symptom that an account is philosophically uninteresting, it is not a sufficient condition. In particular, we should note two historical caveats. In some of his writings Plato seems to endorse the view that all knowledge is innate. But on Plato’s view, only part of what we commonly think we know is known innately. The rest isn’t worthy of being called knowledge at all. Plato’s move is not to bloat the concept of innateness to encompass all knowledge, but rather to shrink the concept of knowledge until it coincides with what we know innately. Descartes, too, sometimes maintains that all ideas are innate. However, as Robert Adams has noted, there is both a narrow and a broad sense in which an idea might be innate for Descartes.¹ When Descartes claims that all ideas are innate he is using the broad sense. But the interesting hypothesis about our cognitive mechanisms is the claim that we have innate ideas in the narrow sense. While Descartes advocates this latter hypothesis, he abjures the stronger one that all ideas are innate in the narrow sense.

Innate Diseases

I observed . . . that there were in myself certain thoughts that did not proceed from external objects, nor from a determination of my will, but only from the thinking faculty that is in me; and therefore, in order to distinguish the ideas or notions that are the content of these thoughts from other ideas which are adventitious or manufactured, I called them innate. It is in the same sense of the word that we say generosity is innate in certain families; or again that in others certain diseases, e.g. gout and the stone, are innate; not that infants of these families suffer from these diseases in their mother’s womb, but because they are born with a certain disposition or liability to contract them. (Descartes, *Notes on a Certain Programme*)

1. Robert Merrihew Adams, “Where Do Our Ideas Come From? Descartes vs. Locke,” in S. P. Stich (ed.), *Innate Ideas* (Berkeley: University of California Press, 1975), pp. 71–87.

In calling ideas *innate*, Descartes tells us, he is using the same sense of the word we use when we say certain diseases are innate. So let us launch our analysis of innateness by pursuing Descartes' hint and asking what it is to be afflicted with an innate disease. Our strategy then will be to seek an analysis of the notion of an innate disease. Armed with our analysis we will return to tackle the thornier problem of innate knowledge.

To begin let us imagine a disease that at a certain stage, is always characterized by a unique and easily observable set of symptoms. (The lurid details are left to the reader.) In imagining a disease *always* characterized by a unique set of symptoms, we are making a simplifying assumption about the relation between a disease and its symptoms. But the prey we are stalking is *innateness*, not *disease*. A more realistic assumption would complicate the discussion while shedding no further light on the concept that interests us.

Now, under what conditions would we be willing to say that someone having such a disease has it innately? A natural first move is suggested by the parsing of "innate" as "congenital" or "inborn." Perhaps to have the disease innately is just to have the symptoms of the disease from birth. But, as Descartes notes, this will not do. For a person may well have an innate disease though none of its symptoms are evident at birth. It may be that the symptoms appear only at some specific stage later in life—during a certain age span, say, or accompanying some normal bodily change like puberty or menopause. In such a case we are prepared to say that the person has the disease even before the appearance of the symptoms. Of course, unless there is some way to predict the future occurrence of the symptoms, we may not know the person has the disease until he begins to exhibit the symptoms. Still, there is nothing unusual about the claim that he had the disease all along, though we didn't know it until the symptoms appeared. The parallel to the notion of innate knowledge is clear. Those who advocate the doctrine of innate knowledge are often willing to attribute such knowledge to a person even though he has not yet come to believe the proposition he is alleged to know. But here we are getting ahead of ourselves.

We have, then, what appear to be two sorts of innate infirmities, those whose symptoms are present at birth and those whose symptoms appear only later. Let us focus for a while on the second sort. Under what conditions can we properly say that a person is afflicted with such an innate malady? We have seen that the symptoms themselves need not yet have appeared. So perhaps what is called for is an analysis in the form of a conditional: To say that a person has a disease of this second sort innately is to say that if he is of the appropriate age (or at the appropriate stage of life) then he has the symptoms.

To be at all plausible, this proposal demands at least one modification. If the "if . . . then" locution it uses is understood as a material conditional, true if the consequent is true or the antecedent false, then the account as it stands has the consequence that everyone who has yet to attain the appropriate age has the disease innately. What is wanted, rather, is a subjunctive locution forming not a material conditional but a counterfactual conditional. With this modification, our analysis becomes: To say that a person has a disease of the second sort innately is to say that if he were of the appropriate age (or at the appropriate stage of life) then he would have the symptoms.

I think it could be argued that similar moves will be needed in the analysis of the first sort of innate disease, the cases where the symptoms are present at birth. This would, for example, enable us to make sense of talk of a fetus having an innate disease before showing any detectable abnormalities. But rather than pursue this line, let us keep our attention restricted to the second type of case. For ultimately the subjunctive analysis will prove inadequate.

Returning, then, to cases of the second sort, let us attend to a pair of further problems with the analysis as it stands. First, consider the case of an infectious disease caused, say, by a bacterial infection. Let us suppose that, while the disease can be acquired at any age, the symptoms appear during or after puberty. So a child may contract the infection while still an infant. This, it would seem, is a clear case of a person having a disease that is not innate. Yet our analysis, as it stands, implies that the child has the disease innately. From the time he contracts the infection onward, it is true of him that if he were at puberty then he would have the symptoms. Second, our analysis focuses on the period of latency when the symptoms have yet to appear. Thus it does not enable us to segregate innate from noninnate diseases once the symptoms are present. Both these difficulties can be patched if we swap a counterfactual locution for an “independent-of-factual” conditional which is true of the victim from the beginning of his life. We have, then: A person has a disease innately if and only if, from the beginning of his life it is true of him that if he is or were of the appropriate age (or at the appropriate stage of life) then he has or would have the disease’s symptoms.

This leaves us with the nice problem of saying just when a life begins. On the answer turns the distinction between innate diseases and diseases caused by abnormal pregnancy. Here I have no solutions to suggest. My suspicion is that the distinction is a fuzzy one, and that on this score the notion of innate disease is fuzzy. My only proposal is that for purposes of our investigation we take life to begin sometime before birth. This will collapse the distinction between the two sorts of innateness, leaving our analysis applicable equally to each.

Unhappily, our analysis is still not adequate. Its fault is excessive pessimism. In defining the notion of innate disease we have left no room for possible cures. Imagine an innate disease whose symptoms, in the normal course of events, appear at age ten. Imagine further that a cure has been developed and administered to one of the disease’s victims at age five. Intuitively, we want to say the young patient had the disease until he was five. But this is blocked by our account. For it is not true of him during his first five years that if he were ten years old then he would have the symptoms. Rather what is true of him during these years is a watered-down subjunctive that we might render: If he were ten years old, then, in the normal course of events, he would have the symptoms. So our account, full-blown at last, becomes:

A person has a disease innately at time t if, and only if, from the beginning of his life to t it has been true of him that if he is or were of the appropriate age (or at the

appropriate stage of life) then he has or in the normal course of events would have the disease's symptoms.

Timid conditionals, hedged with "in the normal course of events" and the like, are familiar to philosophers who have reflected on the relation between counterfactual and dispositional locutions. Dispositionals, like "x is soluble" or "x is flexible," are commonly weaker than unhedged counterfactuals.² For to attribute a dispositional property to an object is not to say what the object would do under certain conditions, but rather to say what it would do under these conditions if surrounding circumstances were normal or natural. So we can, with some justice, dub our final analysis the "dispositional account" of innateness. Descartes it seems had much the same idea. Those who suffer innate diseases, on his account, "are born with a certain disposition or liability to acquire them."

The notion of innate disease, if our dispositional account is correct, is tied essentially to concepts of naturalness or normalcy. The job of unpacking these concepts, of saying what is natural or normal (or when "other things are equal") is notoriously difficult. While clear cases of normal situations and of abnormal ones can be found, there is substantial vagueness in the middle. Our analysis would lead us to expect that this vagueness is reflected in the concept of innateness. The reflection is not hard to find.

Consider the distinction between an innate disease and a susceptibility. To suffer from an innate disease is to be disposed to acquire its symptoms at the characteristic time in the normal course of events. To be susceptible to a (noninnate) disease is to be disposed to acquire its symptoms under certain *special* circumstances. Certain toxic diseases, for example, can be acquired only by certain people. A susceptible person, when exposed to the toxic substance, will come down with the symptoms. At the extremes, the distinction seems clear enough. But notice how the two shade into each other. Suppose a person becomes ill after ingesting a certain amount of a particular chemical. (We can imagine the effects to be cumulative.) Suppose also that the chemical occurs naturally in the drinking water of the person's community. Is this a case of an illness caused by the substance, or of an innate disease whose onset can be prevented by avoiding the substance? Vary the example, now, so that the substance is nitrogen in the air, and ask the same question.

These examples illustrate a central feature of the notion of an innate disease. There are commonly a host of necessary environmental conditions for the appearance of the symptoms of a disease. If these conditions all occur naturally or in the normal course of events, the symptoms will be counted as those of an innate disease. But it is often unclear whether the occurrence of a certain necessary condition is in the normal course of events. So it will often be unclear whether a person is afflicted with an innate disease or is, rather, susceptible to a (noninnate) disease. There is much more that might be said on the topic of

2. Cf. Nelson Goodman, *Fact, Fiction and Forecast* (2d ed.), chap. II, sect. 2 (Indianapolis: Bobbs-Merrill, 1965).

innate infirmities. But it is time to take such conclusions as we have reached and see if they can be applied in our study of innate knowledge.

Innate Diseases, Innate Knowledge, and Innate Belief

Let us begin by trading one problem for another. Questions about the nature and varieties of knowledge are as controversial as any philosophers are wont to consider. But on one point, at least, there is fair agreement: At least one sort of knowledge is a species of belief. This is so-called propositional knowledge or knowledge that, commonly attributed by locutions like “Christopher knows that the earth is round.” Not every belief, of course, is an instance of knowledge. False beliefs are counted out; and even among true beliefs further discrimination is needed. Specifying the principles of discrimination is a problem of celebrated difficulty. Happily, it is a problem we can conveniently avoid. For innate knowledge, on the view of most of those who hold there is any, is innate propositional knowledge. And if there is innate propositional knowledge, there are innate beliefs. Let us see what sense we can make of the doctrine that people have innate beliefs. This will prove problem enough so that we need not feel guilty about leaving to others the question of whether innate beliefs are instances of innate knowledge.³

By taking innate belief in exchange for innate knowledge we have traded up to a more manageable problem. The notion of belief is not without its puzzles, of course. Still, every analysis must take something as clear. So let us presume that our workaday grasp of the concept of belief is sufficient for the task at hand. Before attending to innate belief, it is worth reminding ourselves that beliefs need not be objects of current reflection. We all now believe many propositions we are not presently thinking about, and some we have never consciously entertained. Thus, in all likelihood, you have long believed that your left thumb is smaller than the pyramid of Cheops, though you have never reflected on the belief until now. Following familiar terminology, we will call those of our beliefs that are currently being entertained “occurrent beliefs” and those we are not currently entertaining “dispositional beliefs.”

Enough said on the topic of belief. Let us ponder, now, what might be meant by “innate belief.” According to Descartes, “innate” in “innate idea” has the same sense it has in “innate disease.” Pursuing our strategy of following up this hint, let us see how well our analysis of “innate disease” can be adapted to “innate belief.” Making appropriate changes, our account emerges as follows:

3. For some discussion see R. Edgely, “Innate Ideas,” in *Knowledge and Necessity*, Royal Institute of Philosophy Lectures, vol. 3 (London: Macmillan, 1970) and the debate between W. D. Hart (“Innate Ideas and A Priori Knowledge”) and Alvin Goldman (“Innate Knowledge”) in S. P. Stich (ed.), *Innate Ideas* (Berkeley: University of California Press, 1975).

A person has a belief innately at time t if, and only if, from the beginning of his life to t it has been true of him that if he is or were of the appropriate age (or at the appropriate stage of life) then he has, or in the normal course of events would have, the belief occurrently or dispositionally.

This account is not without its virtues. As our introductory quote from Descartes suggests, we can use it to wind our way through some of the more obvious moves in the debate over the doctrine of innate knowledge. Infants, the doctrine's detractors argue, believe nothing; or if they have some beliefs they surely do not include the sophisticated propositions proposed by the doctrine's advocates. But what sense is there to the claim that one of a man's beliefs is innate if he did not have the belief at birth? Here our account has a ready answer. One can have a belief innately without believing it (occurrently or dispositionally) at birth much as one can have a disease innately without showing its symptoms at birth.

There are, however, other problems that our Cartesian (or dispositional) account dodges less successfully. Most critical are problems with the interpretation of the qualification "in the normal course of events." While on the topic of innate diseases we took note that the phrase was uncomfortably vague. Still, we had a passable intuitive feel for cases that were to be clearly counted in or clearly counted out. The trouble with the dispositional account when warped into an analysis of innate belief is that the *same* intuitions seem to swell the ranks of innate beliefs beyond all tolerable limits. For they seem to count in just about all banal truths about commonplace objects. In the normal course of events children are disposed to develop the belief that night follows day and day follows night, that things fall when dropped and that drinking water quenches thirst. Yet surely a notion of innateness distended enough to count these beliefs as innate is bereft of philosophical interest.

In the face of this difficulty we might consider a more liberal construal of "the normal course of events," allowing in those intuitively abnormal cases of children raised in a world of total darkness, without gravity or water.⁴ Following this strategy we would read "the normal course of events" as "any physically possible course of events." But this tack is in danger of running aground on the opposite shore. If we allow as "normal" circumstances that are sufficiently bizarre, it seems likely that our account will count no beliefs as innate. Although the issue is an empirical one, it would be surprising if it were shown that there are some beliefs people acquire no matter how bizarre their experiences may be. Beliefs, after all, involve concepts. One cannot believe that armadillos are animals without having the concept of armadillo. Nor can one believe that everything is identical with itself if one is without the concept of identity. And, I suspect, for any concept there

4. Note that each of these circumstances must be counted as abnormal by the account of normalcy required for innate diseases. Symptoms that appear in the absence of gravity are not symptoms of an innate disease.

is *some* course of (physically possible) experience which would leave a child without the concept.

Is there, perhaps, some middle course, some way to construe “the normal course of events” which will leave the dispositional concept of innate belief neither empty nor cluttered with unwelcome occupants? One possibility is suggested by our recent observation on the interdependence of beliefs and concepts. Let us allow that having sufficiently exotic experiences a person may find himself lacking any given concept. Still, there may be beliefs that innately accompany concepts; given that a person has had experience sufficient to acquire the concept, he will be disposed to develop the beliefs in the natural course of events. The beliefs, then, are conditionally innate. Here, of course, we must interpret the residual reference to the natural course of events liberally, allowing in any experience compatible with the person having the concept. A more restricted construal would have us again class many banal beliefs as innate.

There is also a new danger. Having a particular concept may *entail* having certain beliefs involving the concept. To take an extreme case, it would be absurd to say a person had the concept of an armadillo but held no true beliefs about armadillos.⁵ If it is the case that having a certain concept entails having certain specific beliefs, then the claim that these beliefs are conditionally innate is vacuous. A belief is conditionally innate if a person is disposed to acquire the belief on acquiring a given concept. But if acquiring a concept consists, in part, in acquiring the belief, then the claim that the belief is conditionally innate amounts to the tautology that if someone has a belief then he has it.

Despite this danger, the concept of conditional innateness remains a plausible candidate in our quest for a philosophically interesting unpacking of the dispositional notion of innate belief. While some beliefs may be conditionally innate only in the vacuous way lately considered, others may be conditionally innate for nontrivial reasons. These will be those conditionally innate beliefs the holding of which is not entailed by having the concept they embody. Whether there be such beliefs is open to dispute. But I see no straightforward argument that there are none.

Still, it would be nice to have some examples. Perhaps one of Kant’s examples of synthetic a priori knowledge can be bent into an illustration. Kant held that the truths of elementary arithmetic, like $7 + 5 = 12$, were known a priori. He also contended that the judgments these truths express are nowhere contained within the concepts they employ. They are synthetic not analytic truths. Now if we construe a priority as conditional innateness and if we take the claim that “ $7 + 5 = 12$ ” is synthetic to entail that having each of the concepts involved does not entail having the belief that $7 + 5 = 12$, then the belief that $7 + 5 = 12$ is a nonvacuous example of conditional innateness. But the example is not entirely a happy one. Quite apart from its dubious Kant scholarship, the claim that “ $7 + 5 = 12$ ” is synthetic is at best a matter of controversy. Frege and the logicians who followed

5. This is, of course, not sufficient to establish the stronger claim that there is some specific belief the holding of which is necessary for the possession of the concept.

him undertook to show that it was analytic. While in more recent times Quine and others have denied that there is any distinction to draw between analytic and synthetic truths. Here the course of our investigation into the dispositional notion of innate belief merges with the dispute over the nature and existence of the analytic-synthetic distinction. To pursue Descartes' suggestion any further along the path we have come would take us too far from the central concerns of this essay.

Our interest in conditional innateness was provoked by the quest for some plausible way to construe "the normal course of events" which would be more liberal than the construal invoked in our concept of innate disease but more restrictive than mere physical possibility. The proposal was that we relativize innate beliefs to specific concepts, and allow as normal any course of events sufficient for the person to have the concept. This move suggests a still more permissive account of normalcy within the boundaries we have staked out. Rather than demand normal experiences be sufficient for the acquisition of some specific concept, we can relax our requirement and demand of normal experience only that it be sufficient for the acquisition of some concept or other. Or better, we can drop the reference to concepts altogether and take as normal any course of experience that is sufficient for the acquisition of some belief or other. A belief is innate for a person, then, if he is disposed to acquire it under any circumstances sufficient for the acquisition of any belief. Here we have a second proposal on how the notion of dispositional innateness might be employed in an account of innate belief. As in the case of conditional innateness, it is not obvious that there are beliefs innate in this sense. Nor, so far as I can see, are there straightforward arguments that there could be none.

Before leaving the topic of dispositional innateness, let us pause to explore one proposal of considerable interest which is not directly in the line of our current reflections. We have lately observed that having a concept, in one plausible sense of this nebulous notion, may involve having certain beliefs. But there is another sense of this notion which is quite independent of belief. To illustrate, suppose an animal or an infant can discriminate red from nonred things; it can be conditioned to respond to red stimuli and can be taught simple tasks that presuppose the ability to discriminate between red and nonred things. We might, under these circumstances, say that the animal or the child has the concept of red even though it has *no* beliefs about red things. Concepts in this sense are prime candidates for *innate* concepts in the sense of innateness modeled after innate diseases. For if simple conditioned learning is to take place, the organism that does the learning must be able to discriminate stimuli that are being reinforced from those not reinforced. And since most organisms can, in fact, be conditioned to some stimuli from birth, some concepts must be innate.⁶

6. This theme has been developed by W. V. Quine in a number of places, including his essay, "Linguistics and Philosophy" in S. Hook (ed.), *Language and Philosophy* (New York: New York University Press, 1969), pp. 95–98. Though the argument seems straightforward enough, there is a problem buried here. Let me indicate it briefly. We have contended that conditionability requires a preexisting concept or, as Quine would have it,

It is time to take stock of our progress so far. Our strategy was to follow up Descartes' suggestion by seeking an account of innate belief on the analogy of our analysis of innate disease. We discovered that the analogy is not so straightforward as Descartes may have thought. For buried in the notion of innate disease is an appeal to the normal or natural course of events. And while our intuitions about what is normal or natural serve passably well when we attend to innate disease, the same intuitions yield an intolerably broad notion of innate belief. In casting about for a more restrictive account of what is to be allowed as "normal," we have come upon two possibilities. The first led to the concept of conditional innateness; the second counted a course of experience as "normal" if it led to the acquisition of any belief at all. These alternatives are at best tentative proposals. There is much work yet to be done on the dispositional account of innateness. But in this essay we must abandon the topic here and turn our attention to a quite different attempt at explicating the notion of innate belief.

The Input-Output Model: Another Approach to Innate Belief

The dispositional account of innateness was suggested by Descartes' analogy between innate ideas and innate diseases. The alternative account that is our current topic can be coaxed from the exchange between Socrates and the slave boy in Plato's *Meno*. Though Socrates succeeds in eliciting from the boy the solution to the problem he has posed, Socrates nonetheless insists that he has not *taught* the boy anything. Rather, he tells Meno, he has uncovered something that was in the boy all along. Thus Socrates claims that the boy has some sort of innate belief. But it is clear that it is not a dispositionally innate belief. For at the beginning of the interrogation the boy does not believe what he later "recollects," nor need he ever have come to believe it. The questioning played a crucial role. There is no suggestion that the belief would have arisen without the questioning as part of the normal course of events. Moreover, the questioning did not serve to supply the boy with new concepts. He seems to have all the requisite conceptual apparatus before the questioning begins. So the beliefs he comes to hold are not conditionally

a "quality space" or "qualitative spacing of stimulations." Now in the case of colors, tones, and other relatively elementary sensory qualities, our contention seems to have some rudimentary explanatory value. We would like to know much more about quality spaces. But still, to say an organism prior to conditioning must have a qualitative spacing of stimulations seems to add something to the bare observation that the organism is conditionable. Now contrast these cases with other instances of conditionability. Some organisms (some people, for example) can be conditioned to respond differently to paintings in the style of Rubens, as contrasted with paintings in the style of Monet. Other organisms (I presume) cannot be so conditioned. The case seems, for all we have said, quite analogous to the case of colors and tones. But here it seems perverse to postulate that the conditionable organisms have a preexisting quality space. Such a move appears explanatorily vacuous. It adds nothing to the bare observation that the organisms are conditionable. All this is impressionistic. But if my impressions are correct we are left with a problem: Why is the postulation of a preexisting quality space plausible in one sort of case and perverse in the other?

innate. How are we to understand this nondispositional sense of innateness Plato seems to be using?

One idea that takes its cue from Plato's remarks is to view the role of the Socratic interrogation as akin to the role of a trigger or a catalyst. It sets off a process that results in the acquisition of the belief. But, as a catalyst is not part of the end product of a chemical reaction, so the questioning process does not supply the content of the belief. The content of the belief was contained within the boy much as the content of a tape recorded message was contained upon the tape. The questioning experience, like the throwing of the tape recorder's switch, serves only to set off the appropriate mechanism. On this model we can begin to make sense of the claim that the beliefs contained within the boy are innate even though they require certain sorts of experiences to bring them out.

There is at best scant textual evidence for the hypothesis that Plato would have expanded his doctrine along the lines that we have taken. With later authors, however, it is quite clear that they flirted with the model we are considering. Leibniz, for example, contends "the mind has a disposition (as much active as passive) to draw [necessary truths] from its depths; although the senses are necessary to give it the occasion and attention for this and to carry it to some rather than others."⁷ He makes much the same point with his favorite metaphor. "It is a disposition, an aptitude, a preformation which determines our soul, and which brings it about that [necessary truths] may be derived from it. Just as there is a difference between the figures which are given to the stone or marble indifferently, and those which its veins already mark out, or are disposed to mark out, if the workman profits by them."⁸ A natural reading of the metaphor is that in acquiring knowledge of necessary truths the mind uses experience only as a catalyst providing the occasion or cause for the knowledge being uncovered, but providing little or none of the content of the knowledge, just as when an appropriately grained block of marble is transformed into a statue the workman need only tap and chip a bit to uncover the figure. In *Cartesian Linguistics*, Noam Chomsky finds evidence of this view of experience as a trigger for innate cognitive mechanisms in thinkers as diverse as Schlegel and Herbert of Cherbury.⁹

In several of his discussions of the catalyst or trigger metaphor, Chomsky suggests a variant on the figure. He proposes that we look on belief acquisition as an input-output process, with sensory experience as input and belief as output. If the beliefs that result from a particular pattern of sensory experience are richer or contain more information than the experience, then this added information must be the mind's contribution. If the total sensory input up to a given moment in time is poorer in information than the beliefs acquired to that moment, the excess information is innate. Where the disparity is

7. Leibniz, *New Essays* (1703–1705), I, i, 5.

8. *Ibid.*, 11.

9. N. Chomsky, *Cartesian Linguistics* (New York & London: Harper and Row, 1966), pp. 59–72.

particularly great, the sensory input contributes little or nothing to the belief acquired. It acts merely as a trigger, setting off the innate cognitive mechanisms.

It is important to see that though Chomsky's suggestion is couched in terms rather more modern than those used by Leibniz, it is nonetheless little more than a metaphor. Chomsky is proposing that belief acquisition be viewed as an input-output process and that the mind is interestingly similar to an input-output device. If we are to pursue this proposal seriously, trying to turn it into more than a suggestive metaphor, we should have to give some account of how we measure the comparative richness—or information content—of experiences and beliefs. Existing accounts of information content will not do. They treat of the information in a proposition or sentence, not the information in a belief or stretch of experience. Also, familiar accounts of information content count logical truths as containing minimal information. So adopting such an account for our present purposes would lead us to exclude belief in logical truths as innate beliefs, though such beliefs have often been taken as paradigms of what is known innately.

Even without any developed account of the appropriate notion of information content, we may note one quite fundamental difference between the input-output model of innateness and the pair of dispositional concepts developed previously. On either dispositional account the hypothesis that there are innate beliefs is moot. On the input-output model, however, there can hardly be any doubt that many beliefs are in part innate. Most any empirical belief, for example, will be richer in information content than the experience that led to its acquisition—and this on any plausible account of the appropriate information measures. This is a consequence of the philosophical commonplace that the evidence a person has for an empirical belief rarely entails the belief. While we may come to believe that all armadillos are omnivorous by observing the eating habits of a fair sample of armadillos, the generalization is not implied by any number of propositions attributing varied tastes to particular armadillos.¹⁰ In the case of mathematical or logical beliefs it is rather harder to specify the relevant experiential input. But again it seems that on any appropriate measure of information content the information contained within our mathematical and logical beliefs outruns that contained in our total sensory history.

The upshot of these observations is that when pursuing the input-output model of innate belief, the interesting question is no longer whether there are beliefs that are (in part) innate. Rather what is interesting is *to what degree* our various beliefs are innate. Also of interest is the detailed story about the cognitive mechanisms that lead from

10. As this observation indicates, the notion of innateness built on the input-output model is not inimical to empiricism. Hume's doctrine of "natural belief" required an inborn faculty or mental mechanism by which we acquire our beliefs about matters of fact. The beliefs acquired are not entailed by the sensory evidence we have for them. Thus, in the sense of innateness under consideration, they are in part innate. For more on this theme, see G. Harman, "Psychological Aspects of the Theory of Syntax," *Journal of Philosophy*, LXIV, 1967, pp. 75–87.

sensory input to belief. In developing his theory of the acquisition of language, Chomsky is making a tentative effort at sketching in some of these details.

A Priori Knowledge and Innate Ideas: Two More Threads to Untangle

The project with which we began this essay was to untangle some of the strands that run through the long history of the argument over innate ideas and innate knowledge. So far we have succeeded in separating out two basic concepts which historically have often been run together. The several related notions of innateness which flow from Descartes' analogy between innate ideas and innate diseases contrast sharply with innateness conceived on the input-output model. It would be tempting to see much of the historical debate over the innateness doctrine as a consequence of the failure to distinguish these two sorts of innateness. But, though tempting, it would be inaccurate. For, though some of the historical (and modern!) debates can no doubt be traced to the failure to distinguish these two concepts, problems were multiplied by still other confusions. In particular there is a pair of notions whose history is wound together with the history of the idea of innateness. One of them is the concept of a priori knowledge.

In the preceding two sections we retreated from tackling the notion of innate *knowledge*, and focused instead on innate belief. In so doing we avoided need to talk of *warrant* or *justification*—a property a true belief must have to be an instance of knowledge. We thus avoided confronting the issue of a priori knowledge, which is tied to the concept of justification.

For some of the propositions we know our justification is (at least in part) to be traced to sensory experience. But, on the view of many philosophers, we know some propositions whose justification is entirely independent of experience. These are the propositions we know a priori. Our belief in these propositions may have been (in part) *caused* by experience. But the *justification* we have that makes instances of a priori knowledge more than mere belief is not to be found in the experience that caused the beliefs, nor in any other experience. To say that a bit of knowledge is a priori, then, is to say something about its justification, while to say that a belief is innate is to say something about its cause or genesis.¹¹

Though the distinction between innateness and a priority seems passably clear, the two have not always been distinguished. Thus Leibniz writes: “. . . very often the consideration of the nature of things is nothing else than the knowledge of the nature of our mind and of those innate ideas which we do not need to seek outside. Thus I call innate those truths which need only this consideration *in order to be verified*.”¹² And

11. There is some precedent for a rather narrower notion of a priority. Kant, for example, made it a “criterion” for a “judgment” being a priori that it be “thought as necessary.” Following Kant’s lead we might say that a person has a priori knowledge of a proposition (in this narrower sense) when he knows the proposition and his justification is independent of experience and the proposition is necessarily true.

12. Leibniz, *New Essays*, I, i, 21; emphasis added.

elsewhere: “. . . it is always clear in all the states of the soul that necessary truths are innate and are proved by *what is internal*.”¹³ Here there is maddening tangle. If the truths are verified from within, proved by what is internal, then it is their justification that is independent of experience. So it is a priority, not innateness, that is at issue. Perhaps Leibniz thought that all and only innate knowledge was known a priori. But once the two have been distinguished the claim that they coincide in extension is itself in need of justification.

The second of the pair of concepts whose history is bound up with the history of the doctrine of innate knowledge is the notion of an innate *idea*. Talk of belief or knowledge slips easily into talk about ideas. Indeed, in previous pages I have occasionally slid back and forth from one to the other with a studied equivocation. But though sometimes talk about ideas is but a colloquial variant on talk about knowledge, it is not always so. For the Classical Rationalists, who have loomed large in our discussion of innateness, had quite a unique use for the term “innate idea.” Their doctrine of innate ideas is to be understood against the background of the Aristotelian scholasticism that flourished in the late Middle Ages, and it admits of no tidy summary. Happily we need not here attempt an explication of their views, since the job is done with great clarity by Robert Adams.¹⁴

While the controversy between Classical Rationalists and Classical Empiricists on the topic of innateness was focused as often on innate ideas as on innate knowledge, the modern “rationalists,” who defend their innateness doctrine by invoking modern theories of grammar, talk mostly of innate knowledge. So in the remaining section of this essay, I will attempt a brief sketch of the nature of modern grammar. I can then indicate where questions of knowledge—innate or otherwise—are likely to arise.

Grammar and Knowledge¹⁵

A grammar is a theory. The grammarian’s principal data are the judgments speakers make about expressions—judgments, for example, that expressions are or are not grammatical sentences, that sentences are ambiguous, that pairs of sentences are related as active and passive or as simple declarative and yes–no (or wh-) questions,¹⁶ and a host of others. Roughly speaking, the grammarian tries to build a theory which will entail that expressions have the properties speakers judge them to have. If a grammar is to be an adequate

13. *Ibid.*, p. 5; emphasis added.

14. Adams, op. cit.

15. This section is adapted from my essay, “What Every Speaker Knows,” *Philosophical Review*, Vol. LXXX, no. 4 (October, 1971).

16. E.g., “Max went to the store” and “Did Max go to the store?” are related as simple declarative and yes–no question; “Max went to the store” and “Who went to the store?” are related as simple declarative and wh-question, as are “Max went to the store” and “Where did Max go?”

theory of the language of a speaker, it must entail that an expression has a given grammatical property if the speaker would judge the expression to have the property.

This brief account must be modified in several directions. First, speakers' judgments are not the only data a grammarian may use. Data about what a speaker does and does not say in unreflective speech, data about pronunciation peculiarities and a host of other phenomena may also be taken into account. Also, a grammar is an *idealized* theory. The grammarian will systematically ignore certain discrepancies between what his theory says of some expressions and what the speaker says of the same expressions much as, in the theory of ideal gases, we systematically ignore deviations between predicted correlations of temperature, pressure and volume and observed correlations. In both cases the motive is much the same—the expectation that construction of a complete theory that *accurately* describes all the phenomena is best approached by breaking the job into several parts, first giving the idealized theory, then explaining the deviations.

Commonly a grammar will consist of a set of *rules* (phrase structure rules, transformational rules, and perhaps some others) and a set of *definitions*.¹⁷ The definitions and rules entail a variety of statements. They entail many of the form:

S is a grammatical sentence

where 'S' is replaced by the name of an expression; many of the form:

e is the subject of sentence S

many of the form:

Sentences S and S' are related as active and passive

etc. It is these consequences of the rules and definitions which must agree with speakers' judgments. The rules and definitions form an integrated empirical theory, and both rules and definitions may be modified in the face of recalcitrant data.

The grammarian's theory construction does not stop with a grammar. Having made some progress at grammars for several languages, he turns his attention to *linguistic theory* or the *theory of grammars*. Here the goal is to discover linguistic universals, general features of the grammars of human languages. These universals may be general constraints on the form of grammars—that all are divided into phrase structure and transformational components, say, or that all use rules only of a specified sort. The universals may also include particular rules or definitions which are the same in the grammar of every

17. The literature on modern or generative grammars is vast and growing. A good starting place for the reader new to the subject would be N. Chomsky, *Aspects of the Theory of Syntax* (Cambridge, Mass.: MIT Press, 1965).

natural language. If any rules or definitions are universal, they need no longer be specified along with the more idiosyncratic details of individual grammars.

The linguistic theory is also concerned with the acquisition of grammar—how a person comes to have the grammar he does. Here the strategy is to find a function ranking humanly possible grammars. The goal is to find a function that ranks highest among humanly possible grammars that grammar which the child actually acquires, when we first exclude from the class of humanly possible grammars all those that are incompatible with the observed utterances and other data available to the child. Specification of linguistic universals and a measure function of the sort described would provide a (low level) explanation of how the speakers of a language come to have the grammar they do.

These are the two sorts of theories the grammarian constructs. If the theories are correct, they will describe certain facts about speakers' linguistic intuitions (for grammars) and certain facts about all human grammars (for linguistic theory). About what aspects of these theories might speakers be thought to have knowledge? In the recent literature there are, I think, three distinct proposals. First, it might be thought that speakers know the linguistic universals, that they know (perhaps innately) that all human languages have phrase structure and transformational rules, or that the grammar of every language contains some specific rule or that in every natural language an expression is a noun phrase if and only if _____. In short, this first suggestion is that speakers know that *p*, where '*p*' may be replaced by any statement belonging to linguistic theory. Next it might be held speakers know that the particular rules of the grammar of their language are rules of the grammar of their language, or that they know the definitions that, along with the rules, constitute the grammar of their language. Third, and most plausibly, it might be thought that speakers have knowledge of the consequence of the rules and definitions of their grammar. If this suggestion is correct then speakers of English will know that "Mary had a little lamb" is grammatical, that "Mary" is its subject, and that it is several ways ambiguous.¹⁸

18. For some debate about the plausibility of these views, see Chomsky, *op. cit.*, Harman, *op. cit.*, H. Putnam, "The 'Innateness Hypothesis' and Explanatory Models in Linguistics," *Synthese*, 17, 1967, pp. 12–2, and J. Katz, *The Philosophy of Language* (New York & London: Harper and Row, 1966).