

Cartesian Memory

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THE ROLE OF MEMORY in Descartes's work is nearly always discussed by philosophers in reference to the "method of doubt," the Cartesian Circle, and its employment in the *Meditations* and the *Discourse*.¹ When one casts a wider net over the Cartesian corpus, however, one finds an interesting distinction at work—Descartes believes in *two* forms of memory: the corporeal and the intellectual. The distinction is apparent early in his writings, even hinted at in the *Rules*;² it is, however, never explicitly mentioned in any work which he published, and one must look to his correspondence, mostly from the last decade of his life. In this paper I wish to address two entwined questions: "What is the nature of the intellectual memory?" and "Why, given the existence of another theory of memory operating in his work, does Descartes need the intellectual memory?" As a preliminary I should state that to some degree my pursuit of answers will be speculative; Descartes's statements on this topic are so brief and imprecise that if we eschewed conjecture altogether there would be little hope of progress. I intend to demonstrate, however, that his remarks do provide a sufficient basis to suggest how these questions should be answered. In section 2 I will examine a number of hypothetical answers, eliminating two of them in the course of discussion. Ultimately, I will argue that while Descartes does offer empirical reasons in favor of positing an intel-

¹ Outside the "Cartesian Circle literature" (see footnote 43), I have found that very little attention has been paid to Descartes's treatment of memory. For exceptions see P. Landormy's "La mémoire corporelle et la mémoire intellectuelle dans la philosophie de Descartes." *Bibliothèque du Congrès International de Philosophie. Vol. IV. Histoire de la Philosophie* (Paris: Librairie Armand Colin, 1902); L. J. Beck's *The Method of Descartes—A Study of the "Regulae"* (Oxford: Clarendon Press, 1952), 120–26; J. Morris's "Pattern Recognition in Descartes' Automata," *Isis* 60 (1969); and É. Gilson's *Index Scolastico-Cartésien* (Paris: J. Vrin, 1979), 175–79.

² Rule 12 (AT X 416, CSM I 43): "But memory is no different from imagination—at least the memory which is corporeal and similar to the one which animals possess" (implying that there is some noncorporeal faculty of memory as well). All Descartes-quotes are from the J. Cottingham, R. Stoothoff, D. Murdoch, A. Kenny volumes (Cambridge: Cambridge University Press, 1988). The three volumes are designated CSM I, CSM II, and CSMK, respectively. I also employ the C. Adam and P. Tannery numbering (*Oeuvres de Descartes* [Librairie Cerf, 1904]).

lectual memory in addition to the corporeal memory, it is his philosophical program—his rationalist epistemology—that is the true driving force. As a preparation to this inquiry I will outline Descartes's theory of corporeal memory; my objective is to establish that Descartes held that a purely mechanistic, soulless system is capable of having a memory faculty. It is in light of this conclusion that the question, "Why, then, do we need posit another type of memory?" comes naturally to our attention.

1. THE CORPOREAL MEMORY

Descartes gives a somewhat crude account of a purely corporeal, mechanistic memory. Sensory perception consists in movement being transmitted from the world onto sensory receptor sites, which "pull" nerve fibres in various ways, and thereby influence the brain. This pulling of nerve fibres stimulates the release of animal spirits from the reservoir in the brain, within which the pineal gland is suspended. The animal spirits (distilled from blood coming from the heart) pass into different parts of the brain in accordance with the way the brain has been tugged by nerves. The departure of spirits occurs in different configurations, and different patterns cause different thoughts in the conscious soul which interfaces with the gland. The animal spirits move from the brain into the efferent nervous system where they can affect movement of the muscles. When the brain particles³ are set in motion, they leave an impression of that motion. In the future, brain particles will be disposed to move in the same way as before, and the more often they do so, the greater will become the disposition. This is how images are stored in the brain as memory. Descartes's frequent metaphor for this is the lines left by a folded and unfolded piece of paper or cloth. Or we can picture water running across soft sand: where the water runs it leaves a small channel, encouraging future water to travel by the same route, etc.

The animal spirits in the brain are affected not only by sensory stimulation. The soul can directly prompt action in the pineal gland, causing the spirits to flow into the brain as they would if the brain were externally stimulated. A simple example allows us to distinguish between these two ways the corporeal memory can work. I see a black dog barking, and in perceiving this some spirits flow in a certain configuration in my brain. In the first way of remembering, recollection is prompted by an external stimulus: further down the street I see a white dog barking, and the spirits which then flow are disposed to flow as they did before, thereby reminding me of the black dog. Later, without any external stimulus, my soul can decide to recall the dog. Now the

³Descartes refers to "brain particles" in a letter to "Hyperaspistes," 1641, AT III 425, CSMK 190. Presumably, the term is synonymous with "animal spirits in the brain."

soul acts directly on the pineal gland, which sends spirits flowing into the brain, searching out the configuration. When it is found and the spirits flow in that pattern, the soul is aware of the spirits thus flowing, thereby recalling the image. Describing this latter process (which I'll call "volitional memory") Descartes writes:

... when we want to remember something, this volition makes the gland lean first to one side and then to the other, thus driving the spirits towards different regions of the brain until they come upon the one containing the traces left by the object we want to remember ... thereby producing in the gland that special movement which represents the same object to the soul, and makes it recognize the object as the one it wanted to remember.⁴

To these we might tentatively add a third type of corporeal memory, one where we remember something neither intentionally nor from external prompting—as in dreaming or day-dreaming. In *Passions of the Soul* he writes of such imaginings:

... they arise simply from the fact that the spirits, being agitated in various different ways and coming upon the traces of various impressions which have preceded them in the brain, make their way by chance through certain pores rather than the others. Such are the illusions of our dreams and also the day-dreams we often have when we are awake and our mind wanders idly without applying itself to anything of its own accord.⁵

Whether Descartes would assent to these "imaginings" being a genuine case of remembering is simply unclear.

In all of the above manners of remembering, the soul is involved in the same way: it is sensitive to the different ways in which animal spirits are released (which are dependent on the ease and difficulty with which these spirits flow into different parts of the brain). Imagine a sieve filled with water, with each tiny hole leading to a tiny tube. How wide the different tubes are, whether they are constricted, blocked or dilated, will determine a pattern of how the water leaves the sieve. In this metaphor, the soul is like an ethereal eye within the sieve, observing the patterns of release and forming ideas accordingly.⁶ Because each memory is equivalent to a configuration of spirit-

⁴ *The Passions of the Soul*, I, no. 42, AT XI 360, CSM I 343–44. Over a hundred years earlier Gregor Reisch had described memory as "the retention of past images in the form of eddies in the vapours that fill the posterior ventricle of the brain. Thus a man trying to remember something tilts his head back to encourage the flow of spirit towards that organ." (Quote from K. Park's "The Organic Soul" in *The Cambridge History of Renaissance Philosophy* [Cambridge: Cambridge University Press, 1988], 468.) The whole idea of the soul "running searches in a corporeal storage facility" is ultimately indebted to Aristotle's *On Memory and Reminiscence*, 453a15–30.

⁵ I, no. 21, AT XI 344, CSM I 336.

⁶ Of course, the soul doesn't form ideas *about* animal spirits. But, for Descartes, certain types of spirit movement in the brain cause the soul to form particular ideas, such that one never forms that idea without the spirits so flowing, and the spirits never so flow without one forming that

release from the pineal gland, and the soul is in intimate contact with the gland, memories can be conscious—the subject of thoughts. So this model is designed partially to explain the phenomenological aspect of memory.

But in the *Treatise on Man* Descartes also emphasizes that you can have a significant memory faculty without the soul being involved at all. The mechanical man there presented has impressions stamped in its memory in the way described above, without it being “necessary to conceive of this machine as having any vegetative or sensitive soul.”⁷ In a letter (from the same period) he says “I reckon that if you whipped a dog five or six times to the sound of a violin, it would begin to howl and run away as soon as it heard that music again.”⁸ And again: “when a dog sees a partridge, it is naturally disposed to run towards it; and when it hears a gun fired, the noise naturally impels it to run away. Nevertheless, setters are commonly trained so that the sight of a partridge makes them stop, and the noise they hear afterwards, when someone fires at the bird, makes them run towards it.”⁹ The physiology of bestial memory will be explained in exactly the same way as before, only without there being a soul observing the proceedings.¹⁰

Another place where Descartes might be taken to be indicating the existence of a completely unconscious faculty of memory is in a letter to Mersenne of 1640¹¹ where he writes that the memory impressions are in the brain only “for the most part.” He goes on to say (for the second time that year) that “a lute player, for instance, has a part of his memory in his hands: for the ease of bending and positioning his fingers in various ways, which he has acquired by

idea. In *Optics* (AT VI 130, CSM I 167) he says that “we must hold that [the impressions in the brain], acting directly upon our soul as it is united with our body, are *ordained by nature* to make it have such sensations” (my italics). See also *Treatise on Man*, AT XI 143, CSM I 102. Needless to say, explicating the exact nature of the causal connection is a problem.

⁷ AT XI 202, CSM I 108.

⁸ To Mersenne, March 18, 1630, AT I 134, CSMK 20.

⁹ *The Passions of the Soul*, I, no. 50, AT XI 370, CSM I 348. The thesis that animals lack souls but have a memory faculty was a longstanding tradition that Descartes was no doubt well aware of. In *On the Trinity*, XII 2, Augustine writes that animals “are able to both perceive things corporeal from without, through the senses of the body, and to fix them in the memory, and remember them, and in them to seek after things suitable, and shun things inconvenient” (*Basic Writings of Augustine*, trans. W. J. Oates [New York, Random house, 1948]).

¹⁰ That Descartes believes that what is true of the automaton of the *Treatise* is also true of animals is obvious from the overview of the treatise that he gives in the *Discourse on the Method* (see CSM I 139ff.). There he discusses what the automaton can and cannot do, and without hesitation draws conclusions about “the difference between man and beast.” Since the automaton is credited with a complete memory faculty, there is no reason to doubt that Descartes will so credit certain higher animals; and, given this, there seems no reason to doubt that these animals’ memory faculty will be appealed to when it comes to explaining their associative learning capacities. The comment on animals from Rule 12 of the *Rules* (see footnote 2) should also be recalled.

¹¹ AT III 48, CSMK 146.

practice, helps him to remember the passages which need these positions when they are played.” It’s important to note that the lute player has only *part* of his memory in his hands; what Descartes likely means is that certain patterns of movement and tactile impressions are stored, literally, in the nerve fibres of the hands. (After all, he does not recognize a difference in kind between the nerve fibres of the brain and the nerve fibres of the peripheral body—they are all just tiny tubes with animal spirits flowing through them.) But the full “memory faculty” of the lute player is no doubt intended to involve his brain and soul as well. The same point goes, I believe, for the very curious remark made by Descartes immediately following the above. He says: “when we have read a book, not all the impressions which can remind us of its contents are in our brain. Many of them are on the paper of the copy which we have read.” Although he clearly says of this “local memory” that it lies outside us, the smoothest way to read it is weakly: *impressions which the memory uses* can be stored outside us, but a brain and/or soul needs to be causally connected to these impressions before we can speak properly of a memory faculty. We may find it troubling to so associate two such different acts—making a mental note of something, and jotting something down in our diary—but there seems little doubt that this is what Descartes is doing. Because, however, in both cases all that is being asserted is that the impression (broadly construed) may be stored outside the brain, the passage does not support the hypothesis that Descartes allows for a fully unconscious, corporeal memory faculty. However, the lengthy argument from the *Treatise on Man* and numerous comments about animals’ learning abilities (which I am in little doubt that Descartes will explain with reference to a memory faculty, exactly mirroring the *Treatise* discussion) do suggest that a being with no soul whatsoever—without, that is, any phenomenological states—may still be fully credited with a memory faculty, a totally corporeal one.

These observations allow us to make an interesting point about Descartes’s use of the concept *memory*: he does not think of memories as necessarily a type of conscious mental event. Rather, a memory is an impression of the world which is laid down and is available for future recall. Let us say that if a system is able to lay down, store, and recollect information, then the system has a “faculty of memory.” This “recollection” is not necessarily a phenomenological mental event either; the automaton of the *Treatise on Man* has no consciousness, yet it remembers things (as do animals). It may be argued that Descartes’s intention in this treatise is merely to describe a corporeal “storage facility” (requiring a soul in order to *recall* the impressions, like the lute player’s fingers), and not a full memory faculty that is independent of the presence or absence of a soul. I disagree; I believe that Descartes intends that the automaton is also able to *recall* its impressions. Of course, the automaton has no conscious life, but it does

perform actions "which are so appropriate not only to the actions of objects presented to the senses, but also to the passions and the impressions found in the memory."¹² The main discussion concludes with the assertion "this is what *memory* consists in."¹³ Given that the automaton lacks any conscious thought, one may well wonder what its recollection would consist in. This, I believe, is a question which Descartes did not face up to; there is certainly nothing reliable in the extant texts. (The problem is not an isolated one; we may ask the same of the automaton's imagination and senses.) A behaviorist (or functionalist) analysis would certainly provide an obvious solution, though it would be futile to try to find any suggestion or awareness of such a theory in Descartes's thinking. It is worth noting, though, that it is difficult to imagine any other conclusion to be drawn from the claim that a system with no phenomenological mental states has the ability to remember (a claim that Descartes, I have argued, certainly endorses). It is evident, however, that the act of remembering something will *frequently* involve a conscious mental event—an event in the soul. (A plausible view, though not Descartes's, is that remembering necessarily involves the conscious.) But this alone will not provide Descartes with the need to place the memory faculty even partially in the soul. So long as the conscious soul is attached to the physical system, then the soul will be able to "access" the memories corporeally stored, thereby remembering phenomenologically that which the impression represents. But this is not "intellectual memory." In the case described, the recollection happens to be a conscious event, but we have noted that there may be ways for a system to recall that are entirely nonconscious. I suggest that Descartes takes the relationship between the corporeal memory and phenomenological events to be much the same as the relationship between actions (movements of the passions) and phenomenological events: concerning these movements he says, "even though in us they are accompanied by thought because we have the faculty of thinking, it is nevertheless very clear that they do not depend on thought."¹⁴

2. THE INTELLECTUAL MEMORY

The intellectual memory is explicitly mentioned by Descartes in correspondence frequently, though usually fleetingly.¹⁵ As with consciousness, volition,

¹² AT XI 202, CSM I 108.

¹³ AT XI 178, CSM I 107.

¹⁴ Letter of 1646, AT IV 573, CSMK 303.

¹⁵ Three times to Mersenne in 1640 (AT III 48, 84, 143; CSMK 146, 148, 151); once to "Hyperaspistes" the following year (AT III 425, CSMK 190); once to Huygens in 1642 (AT III 798, CSMK 216); to Mesland in 1644 (AT IV 114, CSMK 233); and then three times in 1648: once in the *Conversations with Burman* (AT V 150, CSMK 336–37), and twice to Arnauld (?) (AT V 192, 220; CSMK 354, 356).

and the nature of the soul in general, Descartes finds himself with little positive to say. The intellectual memory is contained entirely within the nonphysical soul, and requires no interaction with the body. As for the mechanism by which it works, Descartes expresses only ignorance; in a letter of 1644¹⁶ he says that the intellectual memory depends also on traces which remain, this time in the mind itself, but that these are of “a wholly different kind” from those physical traces involved in corporeal memory. He also says that he “cannot explain them by any illustration drawn from corporeal things without a great deal of qualification” (which is never provided). The remainder of this paper is concerned with addressing why this separate, nonphysical memory faculty is needed in Descartes’s philosophy—a question which is particularly pointed in light of the thorough and complex theory of memory which we have seen is already present in his work. I will proceed by offering a series of hypotheses concerning why he might have found it necessary to endorse the existence of an intellectual memory. How this question is answered will naturally inform further conclusions about exactly what Descartes takes the intellectual memory to be.

Hypothesis 1. Post-Mortem Continuation.

This is a good place to note that Descartes is not the author of the concept of the intellectual memory. The issue had been alive in Scholastic debates, and Descartes no doubt became aware of this when studying at La Flèche.¹⁷ Aquinas and Duns Scotus disagree about the nature of the intellectual memory, but their motivation for positing it, as with all Scholastics, is the same: to provide the soul in the afterlife with a memory of its previous existence. Aquinas even appeals directly to the Bible to make his argument: “memory remains in the disembodied soul, for the rich glutton whose soul is in hell was told, *Remember that during your life good things came your way.*”¹⁸ This theological

¹⁶ AT IV 111, CSMK 231.

¹⁷ For Scholastic treatments of memory, see Aquinas (*Summa Theologiae*, I, 78, art. 4; 79, especially art. 6; and *Contra Gentiles*, II, 74) and Duns Scotus (*Ordinatio*, IV, 45, 1 and 3). The latter is the primary medieval proponent of the intellectual memory, arguing for a much wider account of the faculty than Aquinas. See also Anthony Kenny, *Aquinas on Mind* (New York: Routledge, 1993) for a discussion of Aquinas which to some degree overlaps my later discussion on the place of universals and particulars in Descartes’s views on memory. Gilson, *Index Scolastico-Cartésien*, 176–78, also cites the Aristotelian *Commentarii Collegii Conimbricensis* (“De Memoria et Reminiscencia”) as a Scholastic source of “memoria intellectiva.” One trend in the Renaissance was toward placing more weight on physiology and an organic conception of the soul, and many naturalistic works were published in the spirit of the Alexandrian revival of the fifteenth century, more in line with the materialistic account of memory favored in Descartes’s published works. See, for example, Reisch’s *Margarita Philosophica*, 1517; Pomponazzi’s *De Immortalitate Animae*, 1516; Porzio’s *De Humana Mente Disputatio*, 1551; and Telesio’s *De Rerum Natura*, 1586.

¹⁸ *Summa Theologiae*, I, 77, art. 8; the bible passage is Luke 16: 25.

desideratum was still a factor in the seventeenth century: Frans Burman, interviewing Descartes, says "there still exists an intellectual memory, as is undoubtedly the case with angels or disembodied souls."¹⁹ Without memories, these souls would have no subjective continuity, and without this, perhaps, no personal identity.

However, I believe that it would be short-sighted to read Descartes merely as satisfying preexisting theological doctrines and with that consider our question answered. In presenting a cosmology at odds with religious orthodoxy and an ontology arguably in conflict with the doctrine of transubstantiation, Descartes revealed a willingness to defy the Church when his philosophical method led him clearly to contrary views.²⁰ Furthermore, on occasions he is forced to admit that we cannot, through reasoning or available observation alone, be completely sure of the soul's survival of death. When pressed by Mersenne on this point in the *Objections*, he replies: "Here I admit that I cannot refute what you say."²¹ Given the relatively minimalist nature of the Cartesian soul, I do not think it likely that he was motivated to posit in the soul a faculty simply in order to account for a desirable tenet that by his own admission is not provable.

It is for this reason that I do not believe it fruitful to investigate here in any detail the Scholastics' treatment of the intellectual memory for the light that it may cast on Descartes. Though Descartes's debt to his Scholastic forebears is enormous, it is also true that in dramatic ways the Cartesian program and its methodology depart from the dogmatic Scholastic climate. His public reproach of the Schools, in the beginning of the *Discourse*, should not be forgotten. In particular, I maintain, when it comes to supporting the orthodoxies of Catholic theology we see that Descartes's concerns are not those of his teachers. Given that the pre-Cartesian debate over intellectual memory was almost entirely a *theological* issue, I believe we should treat Descartes's handling of the topic independently of prior debates—that it would only obscure matters to read Scholastic theory and motivation into Descartes's borrowing of available terminology.²²

¹⁹ AT V 150, CSMK 336.

²⁰ Arnauld worried about the relationship between Cartesian ontology and the Eucharist in the *Fourth Objections*, AT VII 217–18, CSM II 152–53. Descartes responded in *Replies*, AT VII 248–56, CSM II 173–78, but Arnauld remained unsatisfied in letters of 1648 (*Oeuvres* 38, 67–83 [Paris: Sigismond D'Arnay, 1780]), to which Descartes did not respond. For good discussions see Steven Nadler's "Arnauld, Descartes, and Transubstantiation: Reconciling Cartesian Metaphysics and Real Presence," *Journal of the History of Ideas* 49 (1988); and Richard A. Watson's "Transubstantiation among the Cartesians" in *Problems of Cartesianism*, ed. T. M. Lennon, J. M. Nicholas and J. W. Davis (Kingston: McGill-Queen's University Press, 1982).

²¹ AT VII 153, CSM II 109.

²² See Roger Ariew's "Descartes and Scholasticism: The Intellectual Background to Descartes' Thought" in *The Cambridge Companion to Descartes*, ed. J. Cottingham (Cambridge: Cambridge University Press, 1992).

Hypothesis 2. Volitional Memory.

Earlier it was noted that the soul can purposely replay memories, by prompting a “search” in the corporeal realm. The soul, recall, was involved at both ends of an etiological sequence: it decides to replay an image from the past, the motion of the pineal gland causes the animal spirits to flow in various patterns until they “come upon” the correct one, and the soul recognizes that the correct one is found. But how does the soul know when the right image has been located? And what about the first step in the chain: How can the soul decide to replay an image, and send out a search in the physical brain, if it does not already have some conception of what it is seeking? I can see no way for Descartes to explain this, except to admit that images must be stored in the nonphysical soul as well as in the brain (something he does, of course, admit; see the first quoted letter of this section). The soul must have the ability to perform its own act of recollection from its own “storage space” in order for Descartes’s model of volitional memory to be feasible.²³

The question that immediately springs to mind is why, if the soul already has the memory contained within it, must it search the physical realm of the brain in order to recall the image. Doesn’t this just amount to remembering twice over? Doesn’t the corporeal mechanism of memory that Descartes has carefully explained become explanatorily redundant for all cases of volitional memory? By giving a charitable reading I think we can save Descartes here. What is required to avoid redundancy is that the memory is stored in different ways in the soul and brain. Say, for example, I decide to remember my eighth birthday. The soul decides this (somehow) of its own free will, and of course could not do it if the memory was not already there in some sense. But imagine that the memory is only there in an attenuated or abbreviated form; one might say as a linguistic entity, though perhaps that would be to speak metaphorically. The more robust and rich recollection, consisting of memories of images and sounds and faces, does not reside in the soul. In order to replay these memories of past sensory impressions the soul must run a search in the corporeal realm. On this (admittedly vague) account, the intellectual memory consists of something close to a set of bland propositional attitudes, and the soul, given this intellectual memory, can by an act of will decide to recall the memory in fuller sensory detail. In Descartes’s simplistic model this would require the departure of spirits into the brain to seek out the traces left by past sensations. When the traces are found the memory is experienced in a

²³ See Morris, “Pattern Recognition,” 458–59, for similar considerations. He adds that without a soul that knows in advance what it is searching for, the animal spirits would be forced to proceed piecemeal through each and every stored pattern. The time and effort that such a sequential search would require is clearly at odds with our observed abilities at recollection.

fuller sense, like a shadow of the real sensory experience. The intellectual memory alone could not have provided this phenomenological recollection (I am hypothesizing), but only an abbreviated sketch. This “two-tiered” account will rescue Descartes from the charge of redundancy regarding volitional memory, providing a model in which both intellectual and corporeal storage of information are needed. It is also, to my mind, somewhat intuitively upheld: when I decide to remember my eighth birthday the initial memory involved in the decision is indistinct and nonpictorial, followed by a richer and visually-oriented memory, requiring some effort to conjure, a moment later.

Is this supported anywhere in the text? The only place where Descartes might be taken as putting forward this motivation for the intellectual memory is in a letter of 1648, probably to Arnauld, though it is a confusing passage.²⁴ The truth is that Descartes says so little about intellectual memory that one is compelled to guess (plausibly, one hopes) in attempting to clarify his philosophical motivations. However, the motivation that I have suggested was not entirely unprecedented by Descartes’s time—one can find Augustine worrying over a similar issue. In *Confessions* (Book X, 19), he writes:

When, therefore, the memory loses something—and this is what happens when we forget something and try to remember it—where are we to look except in the memory itself? And if the memory offers us something else instead, as may happen, we reject what it offers until the one thing which we wanted is presented. When it is presented we say ‘This is it’, but we could not say this unless we recognized it, and we could not recognize it unless we remembered it.

Augustine’s vexation focuses on the fact that when we’ve forgotten something, if we can manage to bring the memory again to recollection (even if this requires prompting), then there must be a sense in which we remembered it all along. In making this point he concludes nothing concerning a “two-tiered” account of memory, but such a solution, as I sketched above, is a natural response. Descartes doubtlessly studied Augustine’s work while at La Flèche, yet on the few occasions when Augustine is mentioned in his letters, it is usually in the context of thanking a correspondent for pointing out some pertinent passage to him²⁵ (in particular, Descartes expresses mild surprise at the bishop’s precursive version of the *cogito*). One is tempted to conclude that Descartes’s knowledge of Augustine’s writings was less than erudite.

²⁴ AT V 220, CSMK 356. Descartes, it seems to me, is groping to make Aristotle’s point from *On Memory and Reminiscence* 450a19–21. Aristotle argues that only rational beings can “recollect” (though animals too can “remember”), because true recollection requires deliberation and inference about the passage of time—faculties unavailable to animals.

²⁵ Four times to Mersenne, once to Colvius and Mesland each. (Respectively: AT II 435, AT III 248, 283, 544, AT III 247f., AT IV 113; CSMK 129, 160, 168, 211, 159, 232.)

Hypothesis 3. Language Use.

Perhaps the most intriguing passage on the intellectual memory comes from *Conversation with Burman*. There Descartes says the following:

I do not refuse to admit intellectual memory: it does exist. When, for example, on hearing that the word 'K-I-N-G' signifies supreme power, I commit this to my memory and then subsequently recall the meaning by means of my memory, it must be the intellectual memory that makes this possible. For there is certainly no relationship between the four letters (K-I-N-G) and their meaning, which would enable me to derive the meaning from the letters. It is the intellectual memory that enables me to recall what the letters stand for.²⁶

In relation to much else that Descartes says, this is a strange argument. Frequently he has stressed that there need be no similarity between an object and the phenomenological experience it elicits. Properties in the world, like whiteness, heat, etc., bear no similarity to the thoughts they prompt,²⁷ nor do the physical processes in the brain bear any resemblance to the ideas which they stimulate in the soul. Moreover, he often referred to animals' ability to associate two dissimilar and arbitrarily linked things, and this he supposed explicable in purely corporeal terms. All this being so, why does he think that a certain syntactic form (K-I-N-G) prompting a specific semantic evaluation (supreme power), with which it has no similarity, is so noteworthy that a whole faculty of the soul must be posited to explain it?

The use of language is often appealed to by Descartes as evidence, not just of the intellectual memory, but of the soul in general. Whereas he is optimistic about the amount of human action that can be explained purely mechanistically, full language use is taken to be an exception. It is not conceivable, he says in the *Discourse*, that an automaton "should produce different arrangements of words so as to give an appropriately meaningful answer to whatever is said in its presence, as the dullest men can do."²⁸ His view seems to be that no physical machinery, giving linguistic responses to linguistic stimuli, can be adequately *counterfactual-supporting* in the way that human language capacity clearly is. But should we find this convincing, just because it seems impossible to adequately *imagine* a machine so complex?

Descartes has admitted associative learning into the automaton's reper-

²⁶ AT V 150, CSMK 336–37.

²⁷ See the *Sixth Meditation*, AT VII 82–83, CSM II 56–57; *Optics*, Discourse 4, AT VI 112–13, CSM I 165; letter to Mersenne of 1640, AT III 48, CSMK 145.

²⁸ AT VI 56–57, CSM I 140. See also his letter of 1646 to the Marquess of Newcastle, AT IV 574–75, CSMK 303. In this discussion I am indebted to J. Cottingham's examination of language in *Descartes' Conversation with Burman* (Oxford: Clarendon Press, 1976), 63–64; *Descartes* (Oxford: Blackwell, 1986), 109–10; and *A Descartes Dictionary* (Oxford: Blackwell, 1993), 103–105. See also Noam Chomsky's *Cartesian Linguistics* (New York: Harper and Row, 1966).

toire. Suppose the automaton comes to associate, via ostension, a sound with an object. Suppose this is repeated for many sounds and many objects. Building on extant associations, he can be introduced to increasingly complex associations: he associates sound *A* with the conjunction of sounds *B* and *C*, while sounds *B* and *C* are associated with objects *O*₁ and *O*₂. *A* is therefore associated with an object that conjoins *O*₁ and *O*₂, even though such a thing may not exist. Or by being shown pairs of objects, similarly related, he comes to associate a sound with a two-place relation (*mutatis mutandis*, *n*-place relation). Descartes seems to have overlooked that this kind of associative learning model can explain the relationship between “K-I-N-G” and *supreme power* within a corporeal framework. Perhaps he has also neglected to notice the combinatorial nature of language: with the basis of a finite number of words and a finite number of generative rules, a competent language user can produce and respond to an infinite number of well-formed novel sentences.

Descartes may lack an *a priori* demonstration that language use entails an intellectual memory, but perhaps he can still appeal to empirical confirmation. In the *Discourse* he says “organs need some particular disposition for each particular action,”²⁹ yet when he has looked (literally) within human brains he has not found enough organic complexity to account for the infinitely productive linguistic faculty with which humans are endowed. His conclusion is that “it is for all practical purposes impossible for a machine to have enough different organs to make it act in all the contingencies of life.”³⁰ The objection is not stated in metaphysical terms—the problem seems to be simply one of *size*. Needless to say, with the hindsight of an extra three hundred years of physiology, microscopy, neuroscience, and computer technology we may feel more confident about the vast amounts of information that can be stored in tiny, apparently simple, physical structures. But, lacking this information, Descartes found it impossible to credit a finite mechanical system with the internal causal complexity necessary for competent language use.

Hypothesis 4. Rationalist Epistemology.

Thus far, I have identified the intellectual memory with any memory faculty that is noncorporeal and confined to the soul. But there are some comments

²⁹ AT VI 57, CSM I 140. He writes in a letter of 1640 of the limits of the physical memory's storage capacity, AT III 84, CSMK 148.

³⁰ *Discourse*, AT VI 57, CSM I 140. A little further on, Descartes *denies* that the reason animals cannot speak is that “they lack the necessary organs”; but here he is countering the objection that the only reason animals do not speak is that they lack the organs needed for uttering spoken words (larynx, etc.). That he is so confining himself is demonstrated by the fact that he immediately produces a counter-example—an animal that *does* have “the necessary organs for speech” (i.e., magpies and parrots).

made by Descartes that suggest an additional condition: as well as being located in a different ontological sphere than the corporeal memory, the intellectual memory also differs with respect to subject matter. To Mesland in 1644 he writes: “the memory of intellectual things depends on some other traces which remain in the mind itself.”³¹ And in the *Conversation with Burman* Descartes notes that the intellectual memory “has universals rather than particulars as its objects, and so it cannot recall every single thing we have done.”³² For the moment, I will put aside the fact that “intellectual things” are not necessarily the same as “universals.” Let me proceed by rehearsing Descartes’s familiar rationalist epistemology while attending to the points where memory plays a crucial role.

The Cartesian soul is a thinking thing. It performs pieces of deductive reasoning, it apprehends *a priori* truths, it grasps, without recourse to empirical data, substantive pieces of knowledge. One’s exercising of these faculties is self-contained, and could continue, in the same indubitable, transparent manner, even if the skeptical hypothesis that one has no corporeal existence were true. The foundations of *a priori* knowledge, for Descartes, are certain self-evident, fundamental logical axioms (such as “Things that are the same as a third thing are the same as each other”³³ and “Nothing comes from nothing”³⁴), which are implanted in our minds and are present at birth.³⁵ At any later date, with reflection, we are able to perceive directly the veracity of these propositions so clearly and distinctly that they are beyond doubt. Should we call the process of bringing such axioms to mind *memory*? They are certainly stored in the mind (Descartes talks of them being brought from “the treasure house of the mind”), and are able to be recalled to consciousness. But we might insist that a memory faculty necessarily involves the “laying down” of information, as well as the storage and recollection, in which case items of innate knowledge are unlikely to count. For Plato, of course, our knowledge of the Forms counts as memory (in *Meno* and *Phaedo*), but the process still involves a “laying down” of the information at a time prior to birth. Augustine rejected Plato’s thesis of prenatal existence, but still held that it is proper to refer to eternal truths as being “remembered.” However, he was only able to maintain this problematic view by stretching the meaning of *memoria* to unnatural lengths. By the seventeenth century such theories of “*a priori* recollec-

³¹ AT IV 114, CSMK 233.

³² AT V 150, CSMK 337.

³³ *Rules for the Direction of the Mind*, AT X 419–20, CSM I 45.

³⁴ *Principles of Philosophy*, I, no. 49, AT VIIIA 23, CSM I 209.

³⁵ See letter to “Hyperaspistes” of August 1641, AT III 424, CSMK 190. Also, *Principles of Philosophy* (I, no. 48, AT VIIIA 22, CSM I 208) where he says that these common notions (eternal truths) “have no existence outside of our thought.”

tion" were out of favor, having been soundly rejected by Aquinas's Aristotelian empiricism. Descartes does not clearly state his opinion on this debate (and the only comment I can find where he suggests the soul has an independent existence prior to being joined to the body is where he uses the term *infusa* to describe their initial union³⁶). At one point in the *Meditations* he pays some respect to (at least the phenomenology of) the Platonic theory of recollection; he writes of geometrical axioms that "on first discovering them it seems that I am not so much learning something new as remembering what I knew before."³⁷ However, in the very same year that this remark was published we find him making a less half-hearted comment to "Hyperaspistes": "where purely intellectual things are concerned, memory in the strict sense is not involved."³⁸ We may conclude, somewhat tentatively, that Descartes did not hold that the eternal truths, when first beheld, are being remembered.

The reasoning that the soul performs does not merely consist in coming upon simple *a priori* propositions and directly recognizing their truth. Much of the rational activity of the soul consists in a reasoning *process*—deducing propositions from the simple intuitions. If the soul directly intuits two propositions, and deduces another therefrom (say, in a piece of *modus ponens* reasoning), then at some point in the process memory must play a role: when the soul is clearly and distinctly aware of the second proposition it is remembering the indubitability of the first, and it remembers both when it forms the conclusion. This becomes more apparent in more complicated deductive arguments, involving many interrelated premises. Of the role of memory in deduction he says this in the *Rules*: "[E]ven if we cannot take in at one glance all the intermediate links on which the connection depends, we can have knowledge of the connection provided we survey the links one after the other, and keep in mind that each link from the first to the last is attached to its neighbor. . . . [D]eduction in a sense *gets its certainty from memory*" (my italics).³⁹ To these two aspects of *a priori* reasoning we can add a third: the recollection of complete deductive proofs performed in the past. I can, for instance, remember that in the past I performed a *cogito*-style argument which indubitably demonstrated my own existence. I can continue to be sure of my own existence without having to recount the whole argument to myself now, because I can remember doing it adequately before. (Whether one's epistemological reliance on memory in this way genuinely withstands the Cartesian skeptical test is not my concern here. It would appear that Descartes believed that it does—at least, so long as one

³⁶ AT VII 246, CSM II 171.

³⁷ AT VII 64, CSM II 44.

³⁸ AT III 425, CSMK 190.

³⁹ AT X 370, CSM I 15. See also Rule 11 (AT X 408, CSM I 37).

has also in the past performed an *a priori* proof of the existence of a benevolent God.)

There has been much discussion concerning how these three building blocks of rationalist epistemology relate to Descartes's attempt to defeat radical skepticism. The purposes of the present paper do not require a solution to this problem one way rather than another, but it is interesting to sketch the apparent relationship. The fundamental *a priori* axioms are the perceptions that Descartes concludes are reliable even before the proof of God is performed. The textual evidence strongly suggests that the (other) two forms of intellectual memory do not become epistemologically safe until *after* the *Third Meditation*. We know that the reliability of memories of particular pieces of reasoning depends on God's good will, because the knowledge that remains dubitable before the proof of God explicitly includes "those conclusions which can be recalled when we are no longer attending to the arguments by means of which we deduced them,"⁴⁰ and the proof of God is said to vindicate knowledge of "all matters which I remember having demonstrated, in geometry and so on."⁴¹ That deductive reasoning (or, at least, *complicated* deduction) is legitimate only after the proof of God is supported by Descartes's concern to convince Burman that the proof can be grasped in its entirety in one cognitive instant.⁴² Deduction that requires time (and therefore memory) to perform mentally is evidently not considered sound until there is a nondeceiving God in the picture. I take these sequential relations to be relatively uncontroversial. What *are* controversial are certain questions concerning the logical connections among the relata: Is it the case that what is primarily in doubt before the proof of God is the reliability of memory? Is it the case that the primary objective of the proof of God is to vindicate the reliability of our memory faculty? At one time Doney argued "yes" to both these questions, but I hazard to suggest that the present accepted view—thanks largely to the arguments of Frankfurt—is that both questions should be answered in the negative.⁴³ What is at issue is whether, in the passages cited, it is being asserted that the proof of God vindicates memory itself, or whether it vindicates our reliance on certain propositions which are items contained in our memory. Here I make no pretense of adjudicating. I'm inclined to endorse the rather disappointing

⁴⁰ *Second Replies*, AT VII 140, CSM II 100.

⁴¹ *Fifth Meditation*, AT VII 70, CSM II 48.

⁴² *Conversation with Burman*, AT V 149, CSMK 335.

⁴³ W. Doney, "The Cartesian Circle," *Journal of the History of Ideas* 16 (1955); H. Frankfurt, "Memory and the Cartesian Circle," *Philosophical Review* 71 (1962). For further important discussion of the Cartesian Circle and memory see E. M. Curley, *Descartes against the Skeptics* (Cambridge: Harvard University Press, 1978), Chapter 5; G. Nakhnikian, "The Cartesian Circle Revisited," *American Philosophical Quarterly* 4 (1967); and many of the papers in W. Doney, ed., *Eternal Truths and the Cartesian Circle* (New York: Garland Publishing, Inc., 1987).

view that Descartes was somewhat confused on the topic, and quite possibly did, at times, commit himself to a circular argument. (I can therefore accept the soundness of Frankfurt's arguments to the conclusion that Doney burdens Descartes with fallacious reasoning, without this, in itself, demonstrating that Doney's interpretation must be mistaken.⁴⁴)

We have seen, then, three ways in which Cartesian *a priori* reasoning proceeds, and have established that memory is crucially involved in (at least) two of them. Would it be feasible for Descartes to appeal to his physiological theory of corporeal memory in order to answer where, ontologically, the memory faculty in question resides? I believe there are two reasons why the answer is no—why, that is, the memory faculty that pertains to these intellectual matters must be located within the soul. One might classify the first reason as scientific, and the second as philosophical.

First, Descartes's dualism, though of the interactive variety, does not include any account of how the soul can lay down patterns in the corporeal brain. The patterns are caused by physical sensory stimulation, and all the soul can do, as far as memory is concerned, is influence the pineal gland to deflect animal spirits in search of these patterns. One might complain that Descartes lacks a principled reason for denying the possibility of the soul laying down fresh patterns in the brain for the spirits to flow through. After all, if the soul can cause the pineal gland to "lean" from side to side, why can it not produce a more intricate effect directly on other parts of the brain? The former is hardly less metaphysically problematic than the latter for being simpler and more localized. This complaint is a just one. However, though Descartes lacks a philosophical argument here, he believes that he has an *a posteriori* one. It is empirical investigation that led Descartes to endorse the hypothesis that the only locus of soul/brain interaction is the pineal gland, and whatever evidence he took to confirm this hypothesis he will also take to disconfirm the possibility of the soul having the facility to imprint traces of its activity in the wider corporeal sphere.

Second, Descartes is highly motivated to make the human soul self-sufficient in its reasoning ability. If intellectual propositions stored in the soul can be (with attention) clearly and distinctly perceived, error in reasoning can be eliminated. By placing the storage of intellectual propositions within the

⁴⁴ Frankfurt goes further, of course, and attempts to show that Doney's interpretation is not supported adequately by the text. In the text, I believe, we find Descartes's basic confusion, and different pieces of the text suggest different arguments. The present paper cannot attempt to appraise this long-standing interpretative debate. Into Descartes's 1648 comment to Burman about memory (AT V 148, CSMK 334), which seems perplexingly flippant, I'm inclined to read a final evasiveness, perhaps after years of struggling with the relation of memory to the circularity objection, and the slow realization that perhaps his critics were right.

rational soul, he has, in a sense, closed the gap between the stored proposition and the perception of the proposition, permitting clear and distinct perception of intellectual memories. For the rational soul is internally transparent and indivisible, so what could possibly arise within it to interfere with the clear apprehension of memories stored therein? Were these memories to be stored in the corporeal realm, however, we can think of many contingencies which could interrupt the process—in the laying down of memories, their continued storage, and their retrieval. The faculty of reasoning, of performing deductive arguments, is to be located entirely within the soul, such that my *a priori* reasoning would be epistemologically assured even if, as a matter of fact, I did not have a body and all my empirical beliefs remained dubious. The capacity for pure reasoning is, for Descartes, both epistemologically and ontologically independent of the material world.⁴⁵ If the memory faculty involved in deductive reasoning were not located in the soul, then it would be impossible to maintain that it is the soul that performs the reasoning process; and challenging this latter thesis would undermine Descartes's very definition of the soul as *res cogitans*.

3. SOME CONCLUSIONS

I want now to discuss the relationship between my second and fourth hypotheses, and in doing so resolve a tension that was put aside at the beginning of the previous section—namely, that a memory faculty which is concerned only with “intellectual things” is not necessarily one concerned only with universals.

The basic axioms of Cartesian *a priori* reasoning do not concern particulars. Logical and geometrical axioms and (putatively) indubitable metaphysical propositions like “Nothing comes from nothing” are always universally quantified. However, when my intellect stores a memory concerning a past clear and distinct apprehension of such an axiom, then that memory concerns particulars. In other words, when I perform a logical proof in my mind, I apprehend only universals, but when I *recollect* that performance at some time in the future, then the content of my memory concerns particulars as well—something like, “I recall proving Gödel's incompleteness theorem in the past.” I have argued that Descartes needs to locate the faculty for remembering such

⁴⁵ Descartes notoriously makes some dubious connections between epistemology and ontology. For instance: I know that my mind exists; I do not know that my body exists; therefore, my body is not my mind. I am suggesting that the first premise warrants another: I know that I have a memory faculty; allowing a second ontological conclusion: therefore, my memory is not contained in my body. We may have serious doubts about the soundness of this argumentative form, but it certainly appears that Descartes (in the *Discourse*, at least) accepts it. My objective is to uncover what reasons motivated Descartes to locate some memory in the soul, not necessarily to establish that they are *good* reasons.

things in the soul; he has, after all, no model for how such a purely mental activity could leave a trace upon the corporeal brain. So in this respect the intellectual memory contains particulars (concerning "intellectual things") as well as universals. This consideration, I contend, outweighs the strong claim made in the *Conversation with Burman*, which is, furthermore, a text we may have some reservations about completely trusting.

Allowing particulars into the intellectual memory is necessary for another reason. Recall the sketch of volitional memory drawn in my second hypothesis. The intellectual memory had to contain particulars concerning ordinary things: facts about my eighth birthday, about what I had for dinner yesterday, etc. If my earlier arguments were sound, then Descartes is required to place in the soul's memory faculty some sort of attenuated remembrance of everything which one is able to volitionally recall to mind. This is a further reason for discounting the *Conversation with Burman* comment, but it also goes against the weaker reading of the fourth hypothesis, that the intellectual memory pertains only to "intellectual things." So there would appear to be a tension between my second and fourth hypotheses.

A solution rewards a careful and (possibly overly) charitable reading of the 1644 Mesland letter. Descartes thinks "that the memory of material things depends on the traces which remain in the brain after an image has been imprinted on it; and that the memory of intellectual things depends on some other traces which remain in the mind itself." On one reading of the logic of these propositions, Descartes has not excluded the possibility that some non-intellectual matters may be remembered by the intellectual memory as well as by the corporeal; nor does the passage exclude that some intellectual matters may be remembered by the corporeal memory as well as by the intellectual. However, as I have argued, the latter possibility may be rejected on other grounds (the hypothesis that the soul's causal influence on the brain is confined to the movement of the pineal gland). We are still left only with the assertion that all intellectual things are remembered by the soul, not that the soul only remembers intellectual things. The two hypotheses may therefore be rendered jointly coherent so long as we admit the possibility that a single memory may be impressed in both the corporeal and intellectual spheres at the same time.⁴⁶

Speaking generally, I believe we can read a lot of Descartes's frequent tone of pessimism about memory as being focused on the corporeal memory, and stemming naturally from a pessimism about the degree of trust which we can place in our sensory experiences (something which underlies his project of providing a purely *a priori* foundation for the natural sciences). At other times

⁴⁶ A thesis, incidentally, that Scotus argued for at some length (*Ordinatio*, IV, 45, 1 and 3).

he seems to realize that the validation of memory is important to his whole philosophical program, and that unless it is located within the domain of the intellect's clear and distinct perception the metaphysical foundations will crumble. This tension throughout his work is, I believe, adequately explained by realizing that two quite separate theories of memory are operating in Descartes's thought, but because they are never clearly explicated a degree of background conflict ensues. This is evidenced, for example, by the fact that through the early stages of the *Meditations*, and elsewhere, the faculty of memory often gets lumped together with imagination and sensory experience, but when it comes to the *Sixth Meditation* Descartes concludes that the latter two are not essential to his nature—he can conceive of himself “as a whole without these faculties.”⁴⁷ But memory is not mentioned here, suggesting that it *is* an essential element of a *res cogitans*. The reasons for this are clear: without memory there is no deduction, without deduction, little, if any, thinking. So it would appear that a faculty of memory residing entirely in the soul—something discussed only sketchily and obliquely by Descartes—is vital to his epistemological project.⁴⁸

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⁴⁷ AT VII 78, CSM II 54.

⁴⁸ I would like to thank Margaret Wilson for her very helpful and insightful comments on earlier drafts of this paper. I also acknowledge Harry Frankfurt's useful feedback.