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# LOGIC AND THE WORKINGS OF THE MIND:

## The Logic of Ideas and Faculty Psychology in Early Modern Philosophy

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### The Workings of the Intellect: Mind and Psychology\*

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The narrative structures within which we describe the origin and development of early modern philosophy at the same time reveal something about what we find interesting and valuable in that philosophy. In recent decades, the older trend of characterizing early modern philosophy as a triumphant "Age of Reason" has given way to the organizing theme of a skeptical crisis and the responses to it. According to the earlier story, in the seventeenth century Reason cast off the yoke of Church authority and Aristotelian orthodoxy; newly-freed thinkers revitalized philosophy, created the "new science," and pushed on toward Enlightenment.<sup>1</sup> Now, however, it is more popular to speak of a skeptical crisis in the sixteenth and seventeenth centuries, which set the philosophical task of "refuting the skeptic" for subsequent generations. Lacking a compelling response to skepticism, philosophers were forced to retreat, and they proposed ever narrower "limits to knowledge" until Kant took a last stand on the redoubt of transcendental idealism.<sup>2</sup> Both descriptive stories portray "epistemology" or theory of knowledge—often allied with a concern for method—as the defining preoccupation of early modern philosophers from Descartes through Kant. In describing this "epistemological turn," story tellers from Thomas Reid through Richard Rorty have given pride of place to the "theory of ideas,"<sup>3</sup> though others have properly recognized the role of metaphysical concepts, including the concepts of "substance" and of "necessary connections" between properties or events.<sup>4</sup>

There can be no doubt that these elements—anti-Aristotelianism, skepticism, method, knowledge, substance, and necessity—must all be found in any account of early modern "metaphysics and epistemology," as we often, but anachronistically, label the theoretical (as opposed to practical) philosophy of the seventeenth century. I wish to show that they can be combined into yet a third narrative, one that begins by taking seriously seventeenth-century conceptions of the topics and methods central to the rise of a "new" philosophy. In this revisionist story, differing approaches to the central subject matter of early modern metaphysics—knowledge of substances through their essences and causal powers—arise as a result of disagreements about the powers of the human cognitive faculties.<sup>5</sup> Methodological writings are seen as attempts to direct readers in the proper use of their cognitive faculties. The early modern rejection of the Aristotelian theory of cognition ranks equally in importance with rejection of Aristotelian doctrines about nature. Skepticism is more often than not a tool to be used in teaching the reader the proper use of the cognitive faculties, or indeed in convincing the reader of the existence or inexistence of certain cognitive faculties or powers. Instead of early modern "epistemology" or "theory of knowledge," one speaks, along with seventeenth-century writers, of

theories of the cognitive faculties or knowing power. The early modern rejection of Aristotelian logic can then be seen as reflecting a negative assessment of the fit between the syllogism and logic considered as an art of reasoning that refines the use of the cognitive faculties. References to "reason" and "the senses," which, in the traditional historiography, are typically understood as shorthand for "a priori propositions" and "empirical evidence," can now be seen as references to cognitive faculties.

When described in its own terms, the development of philosophy from Descartes to Kant may be seen as a series of claims about the power of the intellect to know the essences of things, with resulting consequences for ontology and for the role of sensory cognition in natural philosophy. Thus, Descartes employed skepticism as an artifice in order to bring his readers to an awareness that (as he claimed) the faculty of the intellect, contrary to Aristotelian doctrine, can be exercised independently of sensory images and their content. Having revealed the power of the intellect to operate independently of the senses in grasping the "*cogito*" reasoning, he next exercises this power in contemplating God—without, of course, the aid of sensory content—and then in discerning the foundations for a new natural philosophy; only subsequently do the senses play an essential role in the investigation of nature. Spinoza and Leibniz each looked to pure intellect to achieve his own revised metaphysical picture. When Locke tried to follow, he became convinced that the power of the intellect or understanding is more restricted than either the Aristotelians or Descartes had claimed: in particular, he found that the understanding cannot discover real essences within sensory experience, and also that it cannot achieve any content independently of sensory experience (or reflection thereupon). Berkeley mounted a direct attack on the use of the intellect to know matter, denying the very intelligibility of material substance as understood in Cartesian metaphysics, but he affirmed the power of the intellect to know spiritual or immaterial substances. Hume continued Locke's inquiry into limits on the powers of the human understanding, arriving at the conclusion that it is unable to know the substances and causal powers of traditional metaphysics. Hume held that the operation of the understanding is limited to two separate domains: reasoning about relations of ideas, where intuitive and demonstrative knowledge can be obtained, but without thereby achieving any knowledge of facts, or reasoning about facts known through the senses, which provides no rational insight into the substances and causal connections of traditional metaphysics, with the consequence that the understanding is here limited to charting successions of sensory perceptions. Kant entered his critical period when he realized that human cognizers do not have available the "real use" of the intellect or understanding to know an intelligible world of substances; at the center of his critical (theoretical) philosophy was his new theory of the human understanding as a faculty limited to synthesizing the materials of sensory representation but unable to penetrate to things in themselves, with the

consequence that knowledge of necessary connections could be attained only within the bounds of transcendental idealism.<sup>6</sup>

It is not my intention to put forward this revised narrative as a single master story for early modern philosophy. Indeed, beyond the three narrative themes sketched so far, others might be suggested in which differing subsets of philosophers would play greater or lesser roles; these include the story of the changing relations among metaphysics, theology, religion, and science (here Malebranche would enter prominently), and the relation of metaphysics and theory of mind to moral and political philosophy. My aim is to illustrate the force of one particular revised narrative by using it in a comparison of three conceptions of the intellect, conceptions respectively held by some scholastic Aristotelians, Descartes, and Locke. These three examples are not intended to yield an exhaustive taxonomy of early modern theories of the intellect, nor have they been chosen for what they might contribute directly to a present-day theory of the intellect. Rather, discussion of these conceptions will demonstrate the central role played by the theory of the intellect (and other cognitive faculties) in three prominent theoretical philosophies of the early modern period, and it will clarify the point of some early modern disputes. It will also offer an opportunity to locate early modern discussions of the cognitive faculties with respect to recent understandings of psychology, epistemology, logic, mind, and their relations. The early modern discussions are not easily fit into the modern categories of epistemology and psychology. Reflection on this fact may help us see some problems in recent conceptions of naturalism as applied to philosophy and psychology. In this way, contextually sensitive historical reflection contributes directly to contemporary understanding.

### 1. Three Conceptions of Intellect

Theories or conceptions of the intellect are indicators or even determiners of the scope and limits ascribed to theoretical philosophy by their holders. If one thinks that the intellect has access to eternal Forms or that it can discern the essences of things, one might well have great hopes for the discipline of metaphysics and related theoretical pursuits in natural philosophy. Conversely, if one holds that the power of the intellect is limited, that essences are hidden and unknowable, then one will, by traditional standards, have a modest conception of what can be done in metaphysics and natural philosophy, though one might also be led to revise the aims of those disciplines or to propose a new vision of the proper content of natural philosophy, as did Locke, Hume, and Kant.

As the early modern period began, Aristotle's theory of intellect was predominant. His *De anima* analyzed the powers of psyche or soul, understood as an animating principle possessed of vegetative, sensitive, and (in humans) rational powers. It devoted greatest attention to the cognitive powers of the

soul, especially the senses and intellect. Aristotle's doctrine of the intellect had taken on a particular fascination for late antique and Arabic commentators, and parts of Book III, chs. 4-5—especially where he said that there is an element of thought that is capable of "making all things" and another capable of "becoming all things"<sup>7</sup>—were extensively elaborated. Interpreters dubbed the first power the "active intellect" and the second the "patient" or "passive" intellect. They offered diverse theories of the natures of these intellectual powers, including the theory that there is one active intellect for all human beings. Although the latter position did have some adherents in the Latin West, the orthodox view attributed individual active and patient intellects to individual human beings.<sup>8</sup> As a background to early modern philosophy, my interest here is in late scholastic Aristotelian theories of cognition, rather than in the interpretation of Aristotle *per se*.

Much of the *De anima* is organized as a theory of cognitive faculties. Late scholastic Aristotelian theories (following Aristotle) strictly separated the sensitive and intellectual powers of the soul. According to such theories, the sensory power always relies on corporeal organs, but the intellect (it was usually held) does not, it being an immaterial power of the form of the human body. The primary function of the Aristotelian intellect is to abstract essences or common natures from the images received by the senses. In accordance with the dictum that "there is nothing in the intellect that was not first in the senses," this act of abstraction depends on sensory images or "phantasms" for its operation. Central interpreters of Aristotle—from Thomas Aquinas to such late scholastics as Suárez, the Coimbra Commentators, Rubio, and the textbook author Eustace of St. Paul—all held that there is "no thought without an image," that is, that each act of intellection requires a material image drawn from the senses and actually present in the imagination or "phantasia."<sup>9</sup> Aristotelian theories of cognition describe a chain of events starting from external objects and ultimately resulting in the reception of an "intelligible species" in the patient intellect. External objects produce "intentional species" in the medium between them and the cognizer; an oak tree thus produces species of brown bark and green leaves. These species are received by the senses and conveyed to the imagination. Then the intellect, perhaps operating over several species received across time, abstracts the essence or common nature of the oak tree. Systematic knowledge, or *scientia*, is of the common nature or the universal, not of the particular.<sup>10</sup>

Beyond this general description, a further and misleading tenet is often ascribed to late scholastic Aristotelian theories of cognition: viz., that the process by which the common nature is "abstracted" amounts to an "absorption" of the species from the senses and imagination into the intellect. On this interpretation, it is as if, as the term "abstraction" itself might suggest, the intellect simply received the "form" in the species separated from all material conditions.<sup>11</sup> Intellection would simply be a kind of dematerialization,

or an extraction of a form from the still-material representations of the senses and its transferral to the patient intellect as an intelligible species (a conception that is indeed suggested by the common turn of phrase that the active intellect "illuminates" the phantasm). There would be no need to explain how intelligible species are "created" by the active intellect; the latter's agency would simply be that of preparing the form in the material phantasm for transfer to the patient intellect.

None of the interpreters of Aristotle cited above held that the intellect absorbs a form from the imagination or phantasia. Consonant with the principle that a "lower being" such as matter cannot act on a "higher being" such as the immaterial intellect,<sup>12</sup> these authors all affirmed that intelligible species are produced in the patient intellect by the causal power of the active intellect, which can "make all things"; the material phantasm serves as a "material," "instrumental," or "partial" causal factor. "Abstraction," therefore, should not be equated with "extraction." Aquinas put the point as follows:

Phantasms, since they are likenesses of individuals, and exist in corporeal organs, do not have the same mode of existence as does the human intellect (as is obvious from what has been said), and therefore are not able to make an impression on the patient intellect by their own power. This is done by the power of the active intellect, which, by turning toward the phantasms, produces in the patient intellect a certain likeness that represents, as regards specific nature only, that of which the phantasms are phantasms. And it is in this way that the intelligible species is said to be abstracted from the phantasms; not as though a form, numerically the same as the one that existed before in the phantasms, should subsequently come to be in the patient intellect, in the way a body is taken up from one place and transferred to another.<sup>13</sup>

The position that the corporeal phantasm, being material, cannot of itself be received into or affect the immaterial intellect was accepted by each of the other authors.<sup>14</sup> More generally, these authors saw the active intellect's ability to "make all things" as playing an important explanatory role: it explains how the intellect can abstract common natures from imperfect sensory images. Without adopting a doctrine of innate ideas, and while affirming that the patient intellect is a *tabula rasa*, these authors could hold that the active intellect brings something to the creation of intelligible species.<sup>15</sup> As Aquinas put it, the light of the human intellect is a "participating likeness" of the "uncreated" (divine) light that contains the eternal types.<sup>16</sup> Far from simply absorbing its content from "phantasms," the intellect has a dispositional capacity to create intelligible species that reflect the eternal types; but (so they argued, appealing to introspection, among other considerations), it cannot do so without the presence of an appropriate phantasm.

The essential role assigned to corporeal phantasms in the operation of the intellect placed limits on the cognition of immaterial entities such as God and

the soul. There are no sensible species, and hence no phantasms, of such entities. Consequently, those who accepted this account of the intellect held that in this life human beings can at best achieve a confused intellectual cognition of God or the soul, by reasoning from creation to creator or from the soul's bodily operations to its nature and powers. Francisco Toledo, whom Descartes would later remember from his school days, contended that an embodied intellect "cannot naturally possess clear and distinct cognition of immaterial substance": Aquinas, the Coimbrans, Rubio, and Eustace said similar things.<sup>17</sup> Authors in this tradition developed elaborate analyses of how God and the immaterial soul can be known, given that their theory of intellection precluded clear and evident cognition of them. The doctrine of analogy is one instance of such analysis.

According to a prominent form of Aristotelianism, then, systematic knowledge or *scientia* is of universals or common natures, cognized by means of intelligible species which themselves can be formed only with the aid of sensory images. The ability of the intellect to form representations of the essences of things cannot be explained by its simply "taking up" the content provided by the senses, or even by its sifting through and comparing sensory images. The intellect is an immaterial power that cannot be affected by the inherently corporeal activity of the senses, but which is able to make intelligible species with the cooperation of sensory images. This ability was taken to reflect a similarity between the human active intellect and the divine intellect, containing the eternal types. The things best known by the human intellect are the substantial forms or common natures of corporeal things. Immaterial entities are cognized only confusedly in this life.

Descartes, who was well-schooled in this tradition, turned nearly every tenet of this theory of cognition on its head. In particular, he held that the intellect can operate independently of the senses and imagination, and that in so doing it can achieve "clear and distinct" cognition of God, the soul, and matter. Whereas sense and intellect were markedly distinct faculties for the Aristotelians, with the intellect depending on sense, for Descartes intellect was the only essential cognitive faculty, sense and imagination being "modes" of intellection, arising from mind-body union.<sup>18</sup> Intellect can operate independently of the senses—when it is known as "pure intellect"—but sense perception (in humans) is an operation of the intellect (broadly construed).

Thus, beyond his notorious rejection of Aristotelian physics, Descartes also rejected the Aristotelian theory of cognition, including especially the view that intellectual cognition requires sensory images. I believe that this rejection was first consolidated in 1629 or 1630, simultaneous with Descartes's discovery of his mature metaphysics.<sup>19</sup> His new theory of cognition became an essential bridge to his metaphysics, in that he appealed to the deliverances of the intellect, given independently of the senses, to convince his readers of important new metaphysical doctrines, including his assertion that the essence of

matter is extension.<sup>20</sup> Descartes's concern with method, which has often been linked to "epistemology," in fact reflects his efforts to train his audience in the proper use of their cognitive faculties.

Descartes crafted the primary statement of his metaphysics, in the *Meditations on First Philosophy*, as a tool for bringing his readers to a discovery that the pure intellect is a faculty best exercised independently of sensory content. In adopting the meditational structure, Descartes chose to pattern his work after devotional literature or spiritual exercises, a literary genre that paradigmatically employed a theory of the faculties to order the meditator's search for God.<sup>21</sup> In Descartes's hands, the structure of this devotional genre was turned toward a cognitive end: that of attaining knowledge of first principles through proper use of the intellect.<sup>22</sup> In order to reach the cognitive states toward which Descartes was leading them, Aristotelians such as those canvassed earlier would have needed to be convinced that there can be thought without a phantasm, or at least they would have needed to be induced to have such thoughts. To this end, Descartes begins his meditations with a skeptical purging of the senses (and even the evident cognitions of arithmetic and geometry), resulting in the discovery that only the thinking "I" itself cannot be doubted. He then explores the nature of this "I," finding that it consists in thinking alone. In the midst of this exploration, Descartes has the meditator reflect on the prospect of using the faculty of imagination—a faculty essential to all human intellectual cognition according to the Aristotelians—to know the soul. Part way through the Second Meditation, while still contemplating the "I," the meditator has the following insight:

It would indeed be a case of fictitious invention if I used my imagination to establish that I was something or other, for imagining is simply contemplating the shape or image of a corporeal thing. Yet now I know for certain both that I exist and at the same time that all such images and, in general, everything relating to the nature of body, could be mere dreams. Once this point has been grasped, to say "I will use my imagination to get to know more distinctly what I am" would seem to be as silly as saying "I am now awake, and see some truth; but since my vision is not yet clear enough, I will deliberately fall asleep so that my dreams may provide a truer and clearer representation." I thus realize that none of the things that the imagination enables me to grasp is at all relevant to this knowledge of myself which I possess, and that the mind must therefore be most carefully diverted from such things if it is to perceive its own nature as distinctly as possible. (CSM II: 19, AT VII: 28)

He then proceeds to list the activities of thought that belong to himself as a thing that thinks: doubting, understanding, affirming, denying, willing, and seeming to imagine and to sense. Notoriously, the meditator then notices that corporeal things still seem better known than "this puzzling 'I' which cannot be pictured in the imagination." (CSM II: 20, AT VII: 29) So he begins to contemplate wax as an instance of body, thereby discovering in himself a

faculty distinct from the imagination and able to grasp the infinity of shapes that melted wax can take. The meditator then reflects that this faculty is implicated in every act of cognition, even those that are described as simple acts of seeing. In the Second Meditation he simply characterizes this faculty as "the mind alone," and its operation as a "purely mental scrutiny." (CSM II: 21, AT VII: 31) At the beginning of the Sixth Meditation he again distinguishes the faculty that can grasp many geometrical figures from the faculty of imagination. Here he puts a name to this faculty: it is "intellectio pura," i. e., the "pure intellect" (or "pure understanding," in the words of Cottingham *et al.*). (CSM II: 50-51, AT VII: 72-73) Pure intellect is, by Descartes's lights, one of two faculties essential to mind (the other being will), and it is the faculty by which the essences of mind and matter are discerned, and by which God is known.<sup>23</sup>

Descartes's conception of the intellect, then, is absolutely central to his philosophy. Just as in the Aristotelian framework, the question arises of how Descartes could account for the intellect's ability to grasp the essences of things, and for him the question seems all the more pressing, since he alleged that the intellect can do so independently of sensory contact. This question is a correlate to one later posed by Kant, who asked how the understanding could ever cognize objects, as regards their substance and causal connections, independently of the senses (which, by themselves, he considered inadequate for the task). (CPR A85-94/B118-127) Platonist philosophers had maintained that the human intellect attains knowledge of the essences of things via cognitive access to eternal Forms, or to archetypes in the mind God, or else to copies of those archetypes implanted in human minds. They posited a "preformation-system of pure reason," in Kant's words, among eternal Forms or essences, the things in the world that participate in them, and the objects of human intellection.<sup>24</sup> Descartes, however, rejected this conception of the link between mind and world. In connection with his doctrine of the creation of the eternal truths, he forsook the claim that the so-called "eternal truths" pertaining to created things reflect the basic structure of the divine understanding. Rather, these truths are created, just as are the things.<sup>25</sup> The access that the human mind has to these created essences is still explained by a "pre-established harmony," enacted by God's will, between created substances and their essences as known by pure intellect. Descartes retains a divine role in explaining the functioning of pure intellect, without needing to claim that the human intellect, and the knowledge of natural things gained by it, reflect the divine understanding.<sup>26</sup> In this doctrine the relations among essences, minds, and things become tightly bound, and hence the theory of intellectual cognition itself becomes a part of metaphysics.

In comparison with the Aristotelian and Cartesian conceptions, Locke attributed to the human mind a weak intellectual candle. Although showing signs of nostalgia for knowledge of real essences, Locke grudgingly admitted

that such knowledge is beyond our ken. He came to this conclusion in a work entitled *An Essay Concerning Human Understanding*, a title in which the word "understanding" is not a gerund referring to the activity of understanding, but a count noun referring to the faculty of understanding.<sup>27</sup> Yet curiously, despite this fact, and unlike our Aristotelians and Descartes, Locke does not lay out in a systematic fashion his conception of this faculty and its relation to the other faculties. He uses the word "understanding" in Descartes's broad sense, to denote the "perceptive power" of the mind, as distinct from will. (E II.xxi.5-6) He does no more than list a number of faculties exhibiting this power, including perception, contemplation, memory, discerning, comparing, composition, enlarging, and abstraction (but no separate faculty of pure understanding, in Descartes's narrow sense). (E II.ix-xi) This lack of a systematic theory of the metaphysics of the faculties and their powers is perhaps consonant with Locke's belief that the power of the understanding itself is limited and so is not able to determine its own nature—any more than it can, more generally, determine the natures of mind or matter. (E II.xxiii) Thus, Locke's restriction of his inquiry to the "plain, Historical method," a method of observation based in experience, even though coming at the beginning of his *Essay*, reflects an important conclusion of that work: that human knowledge can be based only on experience, not on purely intellectual cognition of the sort claimed by Descartes. To that extent, his "empiricism" reflects a direct and substantive disagreement with both Descartes and the Aristotelians concerning the power of the human intellect.

A principal aim of Locke's *Essay* was to discern the bounds of the understanding's power, to learn the "Extent of its Tether." (E I.i.4) Some of his most vigorously argued conclusions pertain to what the understanding can't do, or doesn't possess. Thus, he argues, contra Descartes and others, that the understanding possesses no innate ideas and knows no principles innately. (E I.ii) The content of thought must come from the senses or from reflection on the operation of the mind in connection with sensory materials: from either "external" or "internal" sensation. (E II.i.2-4) Human cognition is limited to sensory ideas, or images.<sup>28</sup> But, contrary to the Aristotelians, Locke does not find that the understanding, in operating upon sensory images, has the power to extract the "common natures" or essences of things. (Locke was in any case strongly dubious of the existence of Aristotelian "substantial forms," a notion that he found unintelligible—E III.vi.10.) In the end, he decided that knowledge of real essences of substances is beyond us. (E III.vi.6, 9) In his view, "abstraction" yields general ideas that can denote many particulars, but we achieve general ideas only of what he termed simple or mixed modes, or nominal essences—general ideas either of a single type of simple sensory idea such as a color, or such as are produced through a combination of such simple ideas (E III.iii-vi)—but not of the real essences of substances.<sup>29</sup> Further, "intuitive" and "demonstrative" knowledge, to which Locke attributed the

highest degree of certainty, are found only in clearly perceived relations among ideas. (E IV.iii.1-5) Since we have no idea of the real essences of substances, we are unable to achieve intuitive knowledge of the relation between property and essence—the best we can do is to achieve intuitive certainty with respect to “visible connections” among some of the primary qualities of things, such as the connection according to which figure presupposes extension. (E IV.iii.14)

Locke's *Essay* is an intricate web of argument and assertion, comprising other factors besides the theory of the faculties, including ordinary appeals to cognitive virtues such as clarity (appeals that can be assessed for themselves without the need to draw upon a theory of the faculties). Still, appeals to the powers and limits of human cognitive faculties play an important role, even in those parts of the work that are not specifically directed toward an analysis of cognition itself. In particular, Locke repeatedly invokes limitations on “Our Faculties” in explaining the failure to know real essences. (E III.vi.9) There are at least three aspects of this failure. First, there is a failure to know the corpuscular constitution of things (on the assumption that the “real essences” of bodies are corpuscular),<sup>30</sup> which may in part be due to remediable causes, such as lack of experiments, but in other cases is due to a lack of sensory acuity for perceiving the minute constitution of bodies, or (Locke speculates) perhaps even a lack of the appropriate kind of sense organ. (E IV.iii.23-25) Second, even if we could perceive the “real essence,” we are very limited in our cognitive ability to grasp any connection between that essence and the properties that flow from it (E III.vi.19), as regards both primary and secondary qualities. (E IV.iii.12, 29) Third, “we may be convinced that the *Ideas*, we can attain to by our Faculties, are very disproportionate to Things themselves, when a positive clear distinct one of Substance it self, which is the Foundation of all the rest, is concealed from us.” (E IV.iii.23)

Having limited the contents of cognition to simple sensory ideas and their combination, and having restricted the cognitive powers to those that perceive, store, compare, and combine such ideas, Locke found that the human mind is incapable of grasping real essences, either of minds or of bodies. He did make one seemingly metaphysically ambitious claim, to demonstrate the existence of a supreme intelligence, creator of the world; but in this demonstration all cognitive access to God comes via inference from created things, reasoning by analogy with the actions and attributes of human minds. (E IV.x) Locke in effect held that the human intellect lacks the cognitive resources to succeed at the tasks of traditional metaphysics. This being the case, he, by contrast with the Aristotelians and Descartes, had no need to explain how the understanding can grasp the essences of things.

Long before Kant, then, the Lockean intellect had already forsaken any bid to know the “things in themselves” (substances as they are in themselves). Kant presented a fuller range of arguments for a more definitive version of this conclusion, and he constructed an account of knowledge in which our

knowledge of nature meets the criterion of *scientia* as an organized body of necessary and universal propositions. Locke, by contrast, has the knower still trying to grasp the real essences of mind-independent objects, and simply coming up short. Although Kant admired Locke's analysis of the faculties of cognition, he felt that Locke had misunderstood the role of the faculties in metaphysical cognition, and had pursued the investigation incorrectly, by making it empirical. (CPR A86-87/B119) Kant also limited the materials upon which the understanding can operate to the representations of sensibility, but he attributed a set of categories to the understanding that rendered such representations into cognition of a law-governed world of nature, ordered in space and time. He gave up claims to know the intelligible world of things in themselves, in order to gain title to knowing an ideal but comprehensible world of nature.<sup>31</sup>

## 2. Mind and Psychology

Philosophers of the early modern period, whether conceiving of themselves as metaphysicians or as inquirers into the grounds and limits of human knowledge, proffered theories of the cognitive faculties. These were theories of the senses, imagination, and intellect, among others. Viewed from the standpoint of the twentieth century—and especially that of our middle decades—this penchant for investigating the mind has seemed like an embarrassment to philosophy, like an early version of the fallacy of “psychologism.”<sup>32</sup> Consequently, many recent philosophers have deemed it best to ignore or minimize the allegedly outdated “faculty psychology” of the early moderns.

This charge of psychologism provides an interesting lesson in the ironies of anachronism. The indictment of “psychologism” relies on an assimilation of early modern theories of cognition to recent conceptions of mind, psychology, epistemology, and their relations. It thereby misreads the substantive positions of the early modern authors, and then, on the grounds of this misreading, charges those same authors with errors they did not commit, while at the same time failing to detect their real mistakes, or at least our real differences with them. Psychologism is a species of the naturalistic fallacy. The alleged “fallacy” lies in the move from fact to norm, from descriptions of how things are—for example, with patterns of human behavior, or with habits of human thought—to conclusions about how things ought to be. Thus, even if most people lie, that doesn't make lying morally correct. Moral philosophy and epistemology respectively speak to how we ought to behave or what constitutes good warrant for belief, in spite of what empirical study may show about actual behavior or belief formation.

The contention that the psychologistic inference from actual pattern of thought to norm for thought is a “fallacy” assumes a particular philosophical position. It assumes that our innate patterns of thought do not in fact reflect and

thereby manifest norms for good thinking. By the late nineteenth century this assumption may have possessed good philosophical warrant. Of interest here is the fact that the early modern authors discussed herein, including the Aristotelians, Descartes, and Locke, all rejected this assumption. According to the Aristotelians, the natural human faculties by themselves tend toward true cognition. Logic, in their view, was an artificial system for aiding and improving cognition. It systematized the norms implicit in actual human reasoning, and provided aids for avoiding error.<sup>33</sup> Similarly, Descartes considered the deliverances of pure intellect to directly present the truth. He took the "impulses" of the will to affirm clear and distinct intellectual perceptions as the sure sign of the truth of those perceptions. He held that the "natural" intellect—the intellect we have by nature—sets a norm for good thinking, because its proper use cannot fail but to achieve truth.<sup>34</sup> Within such a framework, the move from mental fact to cognitive norm is warranted. Locke, too, accepted the workings of the "discerning faculties" as constitutive of right thinking, (E IV.i.2) though he made the weakest claims for the scope of the truth-discerning power of the human intellect. Perhaps because the Aristotelians and Descartes each made such strong claims for the power of the intellect, they both attempted to explain why the deliverances of the intellect could be trusted: Aquinas appealed to the "participation" of the human intellect in the "uncreated light" of the divine intellect, and Descartes to God-installed innate ideas and faculties of judgment.

Given that early modern authors investigated mental faculties in connection with method, metaphysics, and the theory of soul, shall we conclude that they were engaged in psychology? Was their investigation naturalistic, and if not, what was it? Supernaturalistic? And if we reject Descartes's claims for the intellect, is that because we think he was a bad psychologist, or is it because we have more substantive disagreements with him over the powers of human cognition, and the existence of substances constituted with intelligible essences? These questions, like the charge of psychologism, invite us to reflect on the fit between (on the one hand) our conceptions of the natural, the psychological, and the mental, and (on the other) the corresponding early modern conceptions.

Let us begin with psychology. The name derives from the account of the soul, "logon peri tes psyches," as pursued by Aristotle; in the Middle Ages this discipline was most known under the latinized label "de anima," but from the sixteenth century on it was sometimes latinized as "psychologia."<sup>35</sup> The subject matter of "de anima" psychology, determined as it was by the Aristotelian conception of soul, included the nutritive, motive, sensory, and rational faculties of animate or ensouled beings. Nonetheless, in the textbooks and *De anima* commentaries of the early modern period, as in Aristotle's own text, greater attention was given to the cognitive faculties, sensitive and rational, than to the others. The material conditions of the operations of the senses were charted,

cerebral anatomy was discussed, and some mention was made of the cognitive division of labor among the external and internal senses, the estimative power, and the active and patient intellects.<sup>36</sup> Within the Aristotelian curriculum, the theory of the soul fell under the rubric of physics, or natural philosophy. The soul was considered part of nature.<sup>37</sup> Only in the discussion of the immaterial intellect was there a tendency to consider supranatural explanatory agencies, as in the doctrine of the unity of the active intellect. The Aristotelians discussed above rejected this doctrine, affirming that the active intellect is a natural, if immaterial, power of the human soul, where the latter is regarded as the form of a corporeal substance, the human being.

Already we can tell that our categories "natural," "physical," and "psychological" do not easily map the Aristotelian position, in which an immaterial power is considered to be part of nature, and indeed, to form a portion of the subject matter of physics, understood as the science of all natural things. Perhaps even more seemingly odd, Antoine Le Grand, a dualist follower of Descartes, ranged the theory of mind or soul under the heading of physics. And, looking further ahead, the eighteenth-century systematist Christian Wolff placed the soul, considered as an immaterial substance, within the natural world, and Kant put the discipline of psychology under the discipline of physics, or, in his terms, under "physiologia" (the *logos of physis*).<sup>38</sup> If naturalism as applied to the mind is the doctrine that we should explain mental activity by appeal only to natural agencies, then by their own lights these Aristotelians and substance dualists both count as naturalists. Yet these same groups also regarded the "natural" mind as an instrument for discerning truth; hence, "naturalistic" description of that mind could at the same time serve as the basis for an analysis of the conditions for knowledge.

Kant developed a sharp distinction between empirical psychology (part of *physiologia*) and the transcendental philosophical investigation of the knowing faculties. By the middle decades of our own century, it was usual to relegate psychology to the "logical space of causes," by contrast with that of "reasons." Scientific psychology, insofar as it concerned itself with the mental at all, came to be viewed as descriptive of the causal mechanisms of cognition, not of its norms. Yet the "common wisdom" that septic boundaries must be observed between epistemology and psychology on pain of psychologistic fallacy is now being challenged by some attempts to "naturalize" epistemology. Is naturalized epistemology a return to the early modern project of charting the cognitive faculties? The answer must be "yes and no." Both base the investigation of the faculties on experience, though the early moderns gave greater weight to ordinary first-person reports of cognitive experience than do today's experimentalists. Both consider the actual operating characteristics of the mind to be relevant to determining the limits of human knowledge, as in a recent philosophical attempt to argue that with our cognitive resources it may be impossible for us to solve the mind-body problem.<sup>39</sup> But there is divergence



over the central question of defining epistemic norms. As we have seen, early modern theorists held that well-functioning natural mental faculties exhibit norms for good thinking. Recent naturalists are split on this question. Some see our natural faculties as shaped by natural selection to track the truth, much as, in the earlier theories, God forged a harmony between the faculties and their objects.<sup>40</sup> The operation of our faculties can thus be expected to exhibit epistemic norms (though these are, of course, open to refinement). But others see a different, and more limited role for naturalistic explanation in epistemology. They take epistemic norms or standards as given by acknowledged cognitive achievements—say, those of the sciences—and endeavor to understand naturalistically the processes by which such achievements occur.<sup>41</sup>

There is, then, an analogy between recent investigations of the role of cognitive faculties in human knowledge and the early modern investigations. Both look to the natural capacities of the mind for insight into human knowledge, which seems a reasonable strategy if it is not pursued with a predetermined conclusion (e. g., one of the reductionisms). But the commonalities between now and then turn out to be quite limited, and these limitations can help us to see the need to consider again the framework within which we now discuss mind, cognition, and psychology.

Our seventeenth-century authors placed great weight on the investigation of the cognitive faculties because they believed that the human mind has a fixed cognitive structure, and that study of the noetic powers manifested within this structure reveals, in the case of metaphysical optimists such as the Aristotelians and Descartes, the possibility of the cognition of natural essences, or, in the case of pessimists such as Locke, the limits to our cognitive domain. In either event, the early moderns held that the very mechanisms of belief fixation are given with the architecture of the mind.

The plausible boundaries of a “fixed cognitive architecture” are not as extensive today. Some cognitive capacities, especially sensory capacities, are relatively fixed: visual acuity, stereoscopic depth perception, perhaps even color similarity metrics. But this is not so for belief fixation. Even those who give great weight to evolution in shaping the mind must admit that a principal biological fact about human beings is that they possess general learning mechanisms capable of acquiring markedly distinct theoretical concepts and general conceptual schemes. The range of this diversity must be at least as broad as the historically actual diversity of human thought. Thus, whereas Descartes could hope to discover the fundamental concepts of physics through proper reflection on innate ideas, scientists today have no such hope. Belief fixation is highly sensitive to conceptual structure and background beliefs. Conceptual structure and background beliefs depend on culturally transmitted learning. A physicist today who is seeking to determine the basic categories of physics brings to bear his or her understanding of post-Newtonian physics. Many of these concepts had not been envisioned during the time of Descartes.

But if belief formation is deeply culturally conditioned, then basic cognition is deeply culturally conditioned. As post-Kantian developments in geometry reveal, what can at one time seem so patently manifest that one is tempted to say that it is constitutive of our cognitive faculties and hence must permanently limit the range of scientific theories, can later be recognized as a contingent and falsifiable hypothesis that has become deeply entrenched in a cultural tradition.

If belief fixation is a central feature of human mentality, and if it is, to a significant extent, culturally constituted, then the human mind is a culturally constituted thing. Should it therefore be seen as at least partly standing outside nature? That depends on whether one posits a nature/culture demarcation. If culture is held to be naturally conditioned but itself not part of “human nature” (except for the necessity of having a culture!), then the culturally constituted part of mind stands outside nature. (“Natural” as applied to human beings is here narrowly construed to extend no further than to what is “biologically fixed.”) By contrast, if “the natural” is given broad boundaries so as to include all that might be contrasted with “the supernatural,” then nature includes human culture, and the mind is wholly part of nature. But if the mind as culturally constituted is part of nature, and if cognitive frameworks vary significantly across cultures, then naturalism cannot promise to achieve the same kind of generality that the seventeenth century wanted from its own “naturalism”: insight into the permanent structure of cognition. Thus, under either the broad or narrow conception of nature, naturalism ultimately undermines any hope for the kind of finality with respect to human cognitive structure that had been the goal for Descartes and Locke. Historical reflection might then suggest that we rethink the rhetoric of epistemology and cognitive theory, and move beyond the early modern project of seeking to dissect the faculties of higher cognition once and for all.

Reflection on the differences between our conception of psychology and Descartes’s understanding of his project reveals that our major differences with him do not pertain to the relevance of psychology to epistemology and metaphysics. Rather, we disagree with his metaphysics of intellect: we reject his attribution to the mind of “noetic powers” for grasping essences by pure intellect. The Aristotelian and Cartesian conceptions of intellect were laid to rest through the work of Locke, Hume, Kant, and others. As the *a priori* powers granted to the intellect were proscribed, the sharp distinction between empirical psychology as a descriptive discipline and epistemology as a normative discipline came into being, and with it first arose the framework for leveling the charge of “psychologism.” As a consequence of these developments, it can now seem that talk of cognitive faculties could not be anything but a misapplication of our kind of empirical psychology; by contrast, in Descartes’s time “psychology” or the study of mind might well have included investigation of the noetic powers. Philosophical progress is often reflected in changes in the

problem space, and those very same changes may in fact serve to mask the developments that brought them about.

### 3. Historiography, Philosophy, and Interpretation

The investigation of the cognitive faculties, their powers and limits, was a central focus of early modern theoretical philosophy. Not only Descartes and Locke, who are discussed here, but Hobbes, Berkeley, and Kant made the faculties central to their discussions of the possibility for and limits to human knowledge. In all of these discussions, the fortunes of metaphysics are directly linked to an investigation of the mind's powers. Descartes sought to open up a new metaphysics, whereas Locke and Kant were coming to grips with the failure to know the real essences of mind-independent substances. In either event, discussions of the mind's real capacities contributed to metaphysical work.

In highlighting the theme of the cognitive faculties I have sought to draw attention to an important but relatively neglected factor in the history early modern philosophy. This theme is intended to complement, not to replace, other themes. Indeed, with respect to the two themes mentioned at the beginning of this essay, attending to the role of the cognitive faculties can deepen our understanding of the ways in which early modern philosophy was part of an "Age of Reason," or rose to meet a skeptical challenge: reason was conceived as a faculty of mind (or as an activity of the faculty of intellect), and skeptical writings typically were organized as challenges to the faculties of sense and intellect. Reflection on the latter fact may help interpreters to see more clearly the uses to which skeptical arguments were put by Descartes and others. More broadly, attention to controversies about the cognitive faculties can sharpen our understanding of a core substantive disagreement between "rationalist" and "empiricist": a disagreement about the power of the intellect to know the essences of things.

If the cognitive faculties were so important, why have they been neglected in recent discussions? Curiously, much of what early modern writers took to be central to their work has been excised from it out of a "principle of charity." In the middle decades of this century, philosophical interpreters of past texts adopted the strategy of looking for what was "still of philosophical interest" in them, which meant what might still stand as a candidate solution to a philosophical problem of current interest. These same interpreters were well-steeped in the notion of the "psychologistic fallacy." Further, they were far removed from the notion that the mind might possess special powers or capacities for perceiving essences. Hence, when they read the work of a Descartes or Locke or Kant, the immediate response was either to ignore talk of faculties and cognitive powers, or to translate it into something that seemed more respectable. A striking instance of this may be found in Strawson's

*Bounds of Sense*, in which he sought to untangle "what remains fruitful and interesting" from "what no longer appears acceptable, or even promising," in Kant's work. He thus replaced the "imaginary subject of transcendental psychology"—including its reference to a "manifold of intuition" and its appeal to an activity of "synthesis" to explain the unity of consciousness—with philosophical analysis of "ordinary reports of what we see, feel, hear, etc." and of the "rules embodied in concepts of objects" as exemplified in "the general coherence and consistency of our ordinary descriptions of what we see, hear, feel, etc."<sup>42</sup> Here, talk in the "psychological idiom" is translated into the mid-twentieth century idiom of "philosophical analysis" in order to preserve what is "fruitful and interesting" in Kant. The spirit of this interpretive tack received an extreme expression in Donald Davidson's work on radical interpretation (though he cannot be held responsible for excesses in practice), in which Davidson concluded that our most effective strategy for making sense of others' utterances is that of interpreting them so that agreement is optimized.<sup>43</sup> In any event, under the principle of "charity," when Descartes and the others were talking about cognitive faculties, they either were talking isolated nonsense or were engaged in (allegedly bad) empirical psychology; either way, those parts of the text can be treated as philosophically irrelevant in themselves.

In contrast with the method of sifting through the detritus of past philosophy for salvage, in this paper I have adopted the strategy of starting from and working with the categories used by past authors, in order to achieve an understanding of their philosophical projects and of the (alleged) force of their philosophical arguments and conclusions as they saw it. This means taking their claims at face value and seeking to understand whence they expected the force of the claims to come. In pursuing this strategy, one is of course "charitable" in that one avoids easy attributions of silly mistakes or blunders to past authors—though such attributions are not ruled out. In Descartes's case, beginning with his claims and conceptions means taking seriously his injunctions to "meditate with" him, and his assertion that he could intellectually perceive the extension of the geometers, or the idea of an infinitely perfect being. In tenth-grade geometry I was told to imagine planes without thickness and lines without width. I thought I was doing it, but now I believe not. I certainly am unable to find in myself the pure intellectual cognition of a triangle of determinate shape, untinged by sensory qualities. Further, though I know what it is to be intuitively certain of something, I don't believe that such certainties can of themselves reveal the contours of mind-independent reality, the essences of substances. I thus reject both Descartes's conception of the intellect's power and some of his assertions about its consciously accessible deliverances. The fact that I think Descartes was wrong does not seem a good reason to allege that he was really saying something else.

In order to learn from—or even to learn about—the history of philosophy, we must come to understand the historical development of philosophy in its

own terms. For the early modern period, this means acknowledging the centrality of the theory of the cognitive faculties in the philosophical work of the time. Rather than ignoring talk of the faculties in classical texts, we should come to understand the role the faculties played. If the role is one that we now reject, then we should seek the philosophical reasons that led us to reject it. In the course of doing this, we may learn the answers to (or at least learn to ask) questions such as the following: How have the relations among logic, mind, and psychology changed in the past three hundred years? How did philosophers come to adopt the notion of a "psychologistic fallacy"? What is the origin of our current notions of the relations between the natural and the mental? What can we say now about our ability to discern the truth? Is it a simple biological capacity, or, at least for truths as complex as those of the natural sciences, does this ability depend on cultural processes that are underdetermined biologically?

If we interpret past authors so as to have them (as much as possible) say only things that we might consider saying now, we shall surely do little more than find our own reflection in their texts. We certainly won't gain the sort of understanding that comes from uncovering the formation of our current problem space and seeing its contingencies. Questions about the deep conceptual changes will go unasked, because the changes will be masked against the foreground of "charitable" renderings. But contextually guided study of early modern philosophy can help bring such questions to light. I am therefore suggesting that the philosophical works of the early modern period are of interest in their own right (*sans* a strong principle of charity) for what they can reveal to us about the structure of philosophy itself.

The "principle of charity" turns out to be a stultifying principle of interpretation for the history of philosophy. I propose that we reject it, or at the least supplement it with the practice of reading texts in the intellectual context of their time, using that context to make interpretive sense of conceptions that are *prima facie* foreign to us now. In this way, we may truly come to learn about other philosophies, which is a necessary condition for learning from them. At the same time, we will come to see that there is much to be learned about the implicit and explicit conceptions of mind, cognition, and logic in the philosophical texts of the early modern period, and about the heritage of those conceptions in the philosophical common sense of today.

## NOTES

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1. The emphasis on the free use of reason arose early: Johann Jakob Brucker, *Historia critica philosophiae*, 4 vols. (Leipzig: Breitkopf, 1742-44) vol. IV. It structured Friederich Ueberweg, *History of Philosophy, from Thales to the Present Time*, George S. Morris, trans., 2 vols. (London: Hodder and Stoughton, 1880) vol. II, though he

incorporated the skeptical theme, as well, dividing early modern philosophy into three periods described as (1) "transition to independent investigation," (2) "empiricism, dogmatism, and skepticism," and (3) "criticism and speculation." It is reflected in Ernst Cassirer, *Philosophy of the Enlightenment*, Fritz C. A. Koeln and James P. Pettegrove, trans. (Princeton: Princeton University Press, 1951) ch. 1, sec. 1, and Peter A. Schouls, *Descartes and the Enlightenment* (Kingston and Montreal: McGill-Queens University Press, 1989). Alfred North Whitehead, *Science and the Modern World* (New York: Macmillan, 1925) does not follow the theme of throwing off authority, but he characterizes the seventeenth century as a "Century of Genius" that yields eighteenth-century Enlightenment (chs. 3, 4).

2. Richard H. Popkin, *History of Scepticism from Erasmus to Spinoza* (Berkeley, Los Angeles, London: University of California Press, 1979) has made the skeptical theme prominent in recent years; Ueberweg's second period of modern philosophy ranked skepticism together with empiricism and dogmatism as "rival systems" to which "criticism" was a response (*History*, vol. II); Immanuel Kant, *Critique of Pure Reason*, Norman Kemp Smith, trans. (New York: St. Martin's, 1965) proposed a similar tripartite division (A761/B789) among other analyses of philosophy's history (A852-56/B880-84); "A" and "B" refer to the pagination of the first and second editions, respectively, of Kant's *Kritik der reinen Vernunft* (Riga: Hartnoch, 1781, 1787) hereafter cited as "CPR" plus page numbers. E. M. Curley, *Descartes against the Sceptics* (Cambridge, Mass.: Harvard University Press, 1978) endorses a portion of this picture by maintaining that Descartes's mature philosophy was directly motivated by the threat of pyrrhonian skepticism (p. 38).

3. Thomas Reid, *Inquiry into the Human Mind*, ch. 1, secs. 3-7, in his *Works*, William Hamilton, ed., 2 vols. (Edinburgh: James Thin, 1895) vol. I, pp. 99-103 (Reid of course did not use the term "epistemology," and his remarks on the theory of ideas were part of an analysis of knowledge of the human mind itself, and its cognitive capacities); Richard Rorty, *Philosophy and the Mirror of Nature* (Princeton: Princeton University Press, 1978) who cites Reid, among others. The historiography of an epistemological turn, with central emphasis on the theory of ideas, is found in recent general histories of philosophy, e. g., Roger Scruton, *From Descartes to Wittgenstein: A Short History of Modern Philosophy* (New York: Harper Colophon, 1982); John Cottingham, *The Rationalists* (Oxford: Oxford University Press, 1988) pp. 4-11; R. S. Woolhouse, *The Empiricists* (Oxford: Oxford University Press, 1988) ch. 1.

4. Louis E. Loeb, *From Descartes to Hume: Continental Metaphysics and the Development of Modern Philosophy* (Ithaca: Cornell University Press, 1981).

5. I have sketched this story-line for the history of modern philosophy in my *The Natural and the Normative: Theories of Spatial Perception from Kant to Helmholtz* (Cambridge, Mass.: The MIT Press, 1990) chs. 2, 6. John W. Yolton, *Perceptual Acquaintance from Descartes to Reid* (Minneapolis: University of Minnesota Press) appreciates the significance of the faculties in early modern philosophy, but assimilates concern with the faculties directly to a present-day conception of "psychology" (pp. 16, 39, 105).

6. Support for various descriptive claims made here may be found in my *Natural and Normative*, chs. 2-3.

7. Aristotle, *De anima*, in his *Complete Works*, Jonathan Barnes, ed., 2 vols. (Princeton: Princeton University Press, 1984) vol. I, 430a14-15.

8. Giacomo Zabarella, *Commentarii in III. Aristotelis libros De anima* (Frankfurt am Main: Zetner, 1606) "Liber de mente agente," ch. 13 (cols. 935-7) held that God performs the function of the active intellect for all humans. The orthodox view was held by Thomas Aquinas, *Summa theologiae* (Cambridge: Blackfriars, 1964-81) I.76.2; 79.4-5, hereafter "ST"; Aquinas, *Questions on the Soul*, J. H. Robb, trans. (Milwaukee: Marquette University Press, 1984) qus. 3-5; John Duns Scotus, *De anima*, qu. 13, in his *Opera omnia*, L. Wadding, ed., 26 vols. (Paris: Vives, 1891-95) vol. III, p. 546; Francisco Toledo, *Commentaria una cum quaestionibus in tres libros Aristotelis De anima* (Köln: Birckmann, 1594) II.1, qu. 2 (fol. 40vb-48vb); Francisco Suárez, *De anima* (hereafter, "DA") IV.8.4-8, in his *Opera omnia*, M. Andre, ed., 26 vols. (Paris: Vives, 1856-78) vol. III, pp. 741a-43b; Coimbra College, *Commentarii in tres libros De anima* (Köln: Zetner, n.d., ca. 1600) III.5, qu. 1, art. 1-2 (pp. 369-374); Antonio Rubio, *Commentarii in libros Aristotelis Stagyrtae philosophorum principis, De anima* (Lyon: Joannes Pillehotte, 1620) "Tractatus de natura, et ratione atque officio intellectus agens," qu. 4 (pp. 652-53); works entitled "commentaries" on *De anima* will subsequently be referred to as "CDA." On Avicenna, Averroes, and the late Greek and Arabic background to the view that human intellection depends upon a single active intellect, see Herbert A. Davidson, *Alfarabi, Avicenna, and Averroes, on Intellect* (New York, Oxford: Oxford University Press, 1992).

9. Aquinas, ST I.84.6-7, I.87.1; Suárez, DA IV.7.3 (p. 739); Coimbra College, CDA III.5, qu. 3, art. 2, (pp. 383-4) III.8, qu. 8, art. 2 (pp. 453-5); Rubio, CDA, "Tractatus de intellectu agente," qu. 2-3 (pp. 637-46) "Tractatus de natura, actu et obiecto intellectus possibilis," qu. 7 (pp. 692-3); and Eustace of St. Paul, *Summa philosophiae quadripartita*, 4 parts (Köln: Philip Albert, 1638) pt. III, "Physica" (hereafter, "SP-P") III.4, disp. 2, qus. 4-5, 7, 10 (pp. 287-9, 290-3, 298).

10. For a survey of late Aristotelian theories of sensory and intellectual cognition, see my "Cognitive Faculties," in the *Cambridge History of Seventeenth Century Philosophy*, Michael Ayers and Daniel Garber, eds. (Cambridge: Cambridge University Press, in press). Leen Spruit, *Species Intelligibilis: From Perception to Knowledge*, 2 vols. (Leiden, New York: E. J. Brill, 1994-95) vol. II, has just published a detailed study of intellectual cognition in later scholasticism.

11. Yolton, *Perceptual Acquaintance*, pp. 6-10, where "absorption" is used to characterize some scholastic accounts of sensory perception, but also fits his account of intellectual abstraction and the production of intelligible species. Also D. W. Hamlyn, *Sensation and Perception: A History of the Philosophy of Perception* (London: Routledge & Kegan Paul, 1961) p. 48; Brian E. O'Neil, *Epistemological Direct Realism in Descartes's Philosophy* (Albuquerque: University of New Mexico Press, 1974) pp. 48-49. But others have avoided this reading, at least of Aquinas's position: Sheldon M. Cohen, "St. Thomas Aquinas on the Immaterial Reception of Sensible Forms," *Philosophical Review* 91 (1982) pp. 193-209, on p. 199; Paul Hoffman, "St. Thomas Aquinas on the Halfway State of Sensible Being," *Philosophical Review* 99 (1990) pp. 73-82, on p. 75 n8.

12. Aquinas cites this principle, attributing it to Aristotle himself: "Aristotle held that the intellect does have an operation in which the body does not communicate. Now, nothing corporeal can make an impression on an incorporeal thing. And therefore in order to cause an intellectual operation, according to Aristotle, the mere impression caused by sensible bodies does not suffice, but something more noble is required, for

the active is superior to the passive, as he says himself." (ST I.84.6; my revisions to the translation)

The other authors cited in n. 9 also held this principle. Davidson, *Alfarabi, Avicenna, and Averroes, on Intellect*, discusses this and related principles in late Greek and Arabic commentators.

13. Aquinas, ST I.85.1, ad 3, in which the final quoted sentence reads: "Et per hunc modum dicitur abstrahi species intelligibilis a phantasmatibus; non quod aliqua eadem numero forma quae prius fuit in phantasmatibus, postmodum fiat in intellectu possibili, ad modum quo corpus accipitur ab uno loco, et transfertur ad alterum." (Translation altered from Blackfriars; see also Aquinas, *Summa Theologica*, English Dominican, trans., 19 vols., London: Thomas Baker/Burns, Oates & Washbourne, 1911-22.)

14. While agreeing that a species conjoined with matter—even if conjoined non-standardly, being a "form without matter"—cannot by itself affect the immaterial intellect, these authors characterized the causal role of corporeal phantasms in the production of intelligible species differently: Suárez maintained that the phantasm does not affect the possible intellect by "influx," but "materially" or by "exemplar," mediated by the fact that imagination and intellect are powers of the same soul (*De anima*, IV.2.10-12, vol. III, p. 719a-b); the Coimbra text discussed ways in which the active intellect might be taken as both a "partial" and an "instrumental" cause, and said that the phantasm "cooperates" to "excite" the active intellect to produce the species (CDA III.5, qu. 6, pp. 407-9); Rubio designated the phantasm an "instrumental" cause ("elevated" by another power) and the active intellect the "principal" or "primary" cause of the production of an immaterial intellectual species in the patient intellect (CDA III.4-5, "Tractatus de intellectu agente," qu. 3, pp. 646-52); Eustace described the phantasm as a "material" or "dispositive" as opposed to "efficient" cause (SP-P III.4, disp. 2, qu. 7, pp. 292-3).

15. Thomas Aquinas, ST I.79.2; 84.3-5; Suárez, DA IV.2.7-18; 7.3; 8.7-8; Coimbra College, CDA III.4-5, qu. 1, art. 2, "nuda tabula" (pp. 372, 374); Rubio, CDA III.4-5, "Tractatus de intellectu agente," qus. 1-3; Eustace of St. Paul, SP-P III.4, disp. 2, qu. 7, "tabula rasa" (p. 291); the active intellect "makes" (*fabricare*) intelligible species (pp. 291-2).

16. Thomas Aquinas, ST I.84.5: "Et sic necesse est dicere quod anima humana omnia cognoscat in rationibus aeternis, per quarum participationem omnia cognoscimus. Ipsum enim lumen intellectuale, quod est in nobis, nihil est aliud quam quaedam participata similitudo luminis increati, in quo continentur rationes aeternae"; he explicitly distinguishes this position from Platonism and other positions in which the eternal types are beheld by the human intellect independently of the senses, or are known innately. See also ST I.79.3-4; Aquinas, *Questions on the Soul*, qu. 5, resp. and ad 6; Aquinas, *Truth*, R. W. Mulligan, trans., 3 vols. (Chicago: Regnery, 1952-54) qu. 10, art. 6.

17. Toledo, CDA III.7, qu. 23, concl. 3: "Intellectus in corpore non potest habere naturaliter claram & distinctam cognitionem substantiae immaterialis" (fol. 168ra); also, concl. 4: "Substantiae immateriales a nobis confuse in hoc statu cognoscuntur" (fol. 168rb). Aquinas, ST I.87.3; I.88; Coimbra College, CDA III.5, qu. 5, art. 2 (pp. 402-3); III.8, qu. 7, art. 2 (p. 449); qu. 8, art. 2 (pp. 453-55); Rubio, CDA III.4-5, "Tractatus de intellectu possibili," qus. 5-6 (pp. 680-89); and Eustace of St. Paul, SP-P III.4, disp. 2, qus. 4-5, 7 (pp. 287-89, 290-93).

18. Descartes, *Meditations on First Philosophy*, in *The Philosophical Writings of Descartes*, John Cottingham, Robert Stoothoff, and Dugald Murdoch, trans., 2 vols. (Cambridge: Cambridge University Press, 1984-85) II:51, 54; *Principles of First Philosophy*, pt. 1, art. 32 (1:204) where Descartes lists pure understanding (or pure intellection) imagination, and sense perception as modes of "perception" or of the "operation of the intellect"; hereafter, vols. I and II of the Cottingham *et al.* translation is abbreviated "CSM" (plus volume and page number).

19. In 1630 Descartes wrote to Mersenne that he had worked on metaphysics intensely during his first nine months in the Netherlands (a period ending in 1629): to Mersenne, 16 April 1630, in his *Oeuvres*, Charles Adam and Paul Tannery, eds., rev. ed., 11 vols. (Paris: Vrin/CNRS, 1964-1976) vol. I, p. 144 (hereafter, the *Oeuvres* are referred to as "AT," followed by volume and page numbers); translation in *Philosophical Writings of Descartes*, vol. III, John Cottingham, Robert Stoothoff, Dugald Murdoch, and Anthony Kenny, trans. (Cambridge: Cambridge University Press, 1991) p. 22; hereafter, vol. III is abbreviated "CSMK." In 1637 he reported that "eight years ago" he had written "in Latin the beginnings of a treatise of metaphysics," in which, among other things, he argued for a soul-body distinction (to Mersenne, 27 February 1637, AT I: 350; CSMK, p. 53). On Descartes's "metaphysical turn," see my "Reason, Nature, and God in Descartes," *Essays on the Philosophy and Science of René Descartes*, Stephen Voss, ed. (New York: Oxford University Press, 1993) pp. 259-287, and the literature cited therein.

20. Descartes asserts that matter's essence is extension in the opening paragraphs of the Fifth Meditation; he draws a clear distinction between intellectual and imaginal cognition of extension at the start of the Sixth Meditation. (CSM II: pp. 44, 50-51, AT VII: pp. 63, 72-3)

21. Ignatius of Loyola, *The Spiritual Exercises*, with the *Directory to the Spiritual Exercises* of his followers, W. H. Longridge, trans., 4<sup>th</sup> ed. (London: Mowbray, 1950) First Week, First Exercise, pp. 52-57, and *Directory*, ch. 14, secs. 2-3; Francis de Sales, *An Introduction to a Devoute Life*, I. Yakesley, trans. (Douai: Heighman, 1613) pt. 2, pp. 138-143.

22. On Descartes's use of the meditative genre, see the first three essays in *Essays on Descartes' Meditations*, Amelie O. Rorty, ed. (Berkeley and Los Angeles: University of California Press, 1986) and Berel Lang, *Anatomy of Philosophical Style* (Oxford: Basil Blackwell, 1990) ch. 3.

23. In the Sixth Meditation, Descartes explains that the senses should not be used for making judgments "about the essential nature of the bodies located outside us"; rather, such judgments should be left to the "intellect," or the "mind alone," operating independently of the body (CSM II: pp. 57-58, AT VII: pp. 82-83). In *Meditations Three, Five, and Six* he uses the intellect (ostensibly) to know God and the essences of matter and mind.

24. Kant, CPR B167 (Kant here makes no mention of Platonism, but see also A313-14/B370). On Platonist theories of cognition in the early modern period, see my "Cognitive Faculties." The harmony is not "preformed" if it is established via the causal agency of the Forms themselves, being "seen" by the human intellect; it is preformed on a "reminiscence" reading of Plato.

25. Descartes, letters to Mersenne in the 1630s (CSMK, pp. 23-26, AT I: pp. 145, 149-53); Fifth and Sixth Sets of Replies (CSM II: pp. 261, 291, 293-4; AT VII: pp. 380, 432, 435-6).

26. For further discussion, see Emile Bréhier, "The Creation of the Eternal Truths in Descartes's System," *Descartes: A Collection of Critical Essays*, Willis Doney, ed. (Notre Dame: University of Notre Dame Press, 1968) pp. 192-208; and my "Reason, Nature, and God."

27. John Locke, *An Essay Concerning Human Understanding*, Peter H. Nidditch, ed. (Oxford: Oxford University Press, 1975) epistle, p. 6. Hereafter, the *Essay* will be cited as "E," followed by book, chapter, and section numbers.

28. On Locke as an "imagist," that is, as someone who took the content of thought to limited to sensory images and their combination (together with reflections on the mind's own operations) see Michael Ayers, *Locke, vol. I: Epistemology* (London and New York: Routledge, 1991) pt. I, ch. 5.

29. For a comparison of Locke's position to Aristotelian and Cartesian (among other) conceptions of substance and our cognitive grasp of it, see Ayers, *Locke, vol. II: Ontology*, pt. I, chs. 2, 6.

30. The relations among the concept of substance, that of real essence, and the corpuscular theory of matter in Locke's writing is a matter of some interpretive delicacy; for an overview, see Edwin McCann, "Locke's Philosophy of Body," *Cambridge Companion to Locke*, Vere Chappell, ed. (Cambridge: Cambridge University Press, 1994) pp. 56-88, especially sec. 4.

31. CPR, A256-57/B312-313; Kant, *Prolegomena to Any Future Metaphysics That Will Be Able to Come Forward as Science*, Gary Hatfield, ed. and trans. (Cambridge: Cambridge University Press, forthcoming) sec. 34.

32. Richard Rorty, in his *Philosophy and the Mirror*, reconstructs the history of modern philosophy as part of a narrative within which, from the time of Locke through Kant to the present day, philosophy's (alleged) claim to intellectual authority has rested on a confusion between epistemology and psychology, which he compares to the "naturalistic fallacy" in ethics (p. 141); hence, though he did not use the term "psychologism," his charge fits the classical meaning of that term, according to which psychologism is the attempt to base epistemology on psychology. J. E. Erdmann gave this meaning to the term in introducing it, *Grundriss der Geschichte der Philosophie*, 2d ed., 2 vols. (Berlin: Hertz, 1870) vol. II, p. 636; see also John Dewey, "Psychologism," *Dictionary of Philosophy and Psychology*, James Mark Baldwin, ed., 3 vols. (New York: Macmillan, 1901-05) vol. II, p. 382. Rorty reviews earlier instances of this charge against early modern philosophy by T. H. Green and Wilfrid Sellars, *Philosophy and the Mirror*, pp. 140-43.

33. Francisco Toledo, *Commentaria, una cum quaestionibus, in universam Aristotelis Logicam* (Köln: Birckmann, 1596) pref., qu. 1 (pp. 3-7); Coimbra College, *Commentarii collegii conimbricensis e societate iesu, in universam Dialecticam Aristotelis* (Lyon: Horation Cardon, 1607) proem, qu. 4, art. 2 (pp. 57-61); Antonio Rubio, *Logica mexicana, sive comentarii in universam Aristotelis Logicam*, 2 parts (Köln: Birckmann, 1605) proem, qu. 1, pt. I (cols. 1-11); Eustace of St. Paul, *Summa philosophiae*, pt. I, "Dialecticae sive logicae," proem, qu. 4 (pp. 10-11). It was common to describe the operations of the "natural light" of the human intellect as instantiating "natural logic," by contrast with the "artificial logic" developed by Aristotle and others; Toledo declines to adopt this terminology, refusing to call these natural operations in themselves a "logic." (p. 5)

34. Descartes, *Meditations*, IV: "since my understanding comes from God, everything that I understand I understand correctly, and any error here is impossible"

(CSM II: p. 40, AT VII: p. 58); clear and distinct perceptions of the intellect produce a "great inclination in the will," and as long as one assents only to such clear and distinct intellectual perceptions, one will not fall into error. (CSM II: p. 41, AT VII: p. 59) See also *Principles*, I. pp. 30-42.

35. The earliest free-standing work entitled "psychology" was by Rudolph Goclenius, *Psychologia: hoc est, de hominis perfectione, animo* (Marburg: Paul Egenolph, 1594) which focused more on problems concerning the infusion of the soul into the embryo at conception than on the discussions of the cognitive faculties that characterized the *De anima* literature; the latter sort of discussion occurred in Johann Conrad Dannhauer, *Collegium psychologicum, in quo maxime controversae quaestiones, circa libros tres Aristotelis De anima, proponuntur, ventilantur, explicantur*. (Argentoranti: Josias Staedel, 1630) On the origin of the terms "psychologia" and "psychology," Francois H. Lapointe, "Who Originated the Term 'Psychology'?", *Journal of the History of the Behavioral Sciences* 8 (1972) pp. 328-35; on early psychology, Paul Mengal, "Naissances de la psychologie: la Nature et l'Esprit," *Revue de Synthèse*, 115 (1994) pp. 355-373, and my "Psychology as a Natural Science in the Eighteenth Century," *Revue de Synthèse*, 115 (1994) pp. 375-391.

36. Toledo, CDA, devoted fol. 65rb-73vb to the vegetative soul, 73vb-129ra to the sensitive, 129ra-169ra to the intellect, and 169rb-179rb to appetite, will, and motion; Coimbra College, CDA, devoted pp. 148-61 to the vegetative soul, 160-361 to the sensitive, 360-469 to the intellect, 460-98 to appetite, will, and motion, with separate treatises on the separated soul (pp. 499-596) and on additional problems pertaining to the five senses (pp. 597-619); Rubio, CDA, devoted pp. 278-305 to the vegetative soul, 305-632 to the sensitive, 633-735 to the rational, and 735-57 to appetite, will, and motion, adding a treatise on the separated soul (758-94). The coverage was slightly more balanced in the textbooks: e. g., Eustace of St. Paul, SP-P ("Physica") devoted 197-228 to the vegetative soul, 228-77 to the sensitive, including motion, and 278-308 to the rational soul, including will.

37. Toledo, CDA, proem, qu. 2 (fol. 4) subsumed the soul in all of its operations under physics; Coimbra College, CDA, proem, qu. 1, art. 2 (pp. 7-8) and Rubio, CDA, proem, qu. 1 (pp. 10-11) subsumed the study of embodied souls under physics, and separated souls under metaphysics. Eustace of St. Paul, SP-P, treated "de anima" topics in the part entitled "Physica," per the norm.

38. Antoine Le Grand, *Institutio philosophiae secundum principia de Renati Descartes* (London: J. Martyn, 1678) praecognoscenda, art. 7, 15, 16. Christian Wolff, *Psychologia rationalis* (Frankfurt am Main and Leipzig: Libraria Rengeriana, 1640) sec. 69; *Cosmologia generalis* (Frankfurt am Main and Leipzig: Libraria Rengeriana, 1637) sec. 509; Wolff's follower Alexander Baumgarten, *Metaphysica*, 7<sup>th</sup> ed. (Halle: Hemmerde, 1779) sec. 351, 402, explicitly placed monads or simple substances, including spirits, within cosmology. Kant, CPR A846-47/B874-75; in the *Prolegomena*, sec. 15, Kant places psychology under "universal natural science."

39. Colin McGinn, "Can We Solve the Mind-Body Problem?" *Mind* 98 (1989) pp. 349-366.

40. W. V. O. Quine, "Natural Kinds," in his *Ontological Relativity and Other Essays* (New York: Columbia University Press, 1969) pp. 114-138, on pp. 125-28.

41. Miriam Solomon, "Scientific Rationality and Human Reasoning," *Philosophy of Science* 59 (1992) pp. 439-455, on pp. 442-43.

42. Strawson, *The Bounds of Sense: An Essay on Kant's Critique of Pure Reason* (London: Methuen, 1966) pp. 16, 32.

43. Donald Davidson, "On the Very Idea of a Conceptual Scheme," *Proceedings and Addresses of the American Philosophical Association* 47 (1974) pp. 5-20, on p. 19.