

Imagination, Particular Reason, and Memory:¹ The Role of the Internal Senses in Human Cognition

DEBORAH L. BLACK, UNIVERSITY OF TORONTO
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INTRODUCTION

The practice, which originated in the writings of Avicenna, of positing a series of “internal” sense powers localized in the brain, became a mainstay of medieval cognitive psychology for both Arabic and Latin philosophers. The internal senses were meant to systematize Aristotle’s account of *phantasia* and related forms of sensory cognition in the *De anima* and *Parva naturalia*, and thus they played an explanatory role in the account of animal as well as human cognition.² In this presentation I want to focus on the function assigned to the internal senses in *human* cognition by three authors—Albert the Great, Thomas Aquinas, and John Buridan (though in my chapter for the *Companion* I will also consider their role in the explanation of animal behaviour in a wider variety of authors.) I will consider three closely related themes: (1) the status of *intentions* (*ma‘ānī/intentiones*) as quasi-immaterial sensible objects distinct from both the common and proper sensibles and from pure intelligibles; (2) the role assigned to the special human internal sense power of particular reason or the *vis cogitativa* (*al-quwwah al-mutafakkirah*) in human cognition;³ and (3) the degree to which the internal senses are assigned specific tasks in human cognition go beyond the general appeal to our dependence upon phantasms to think. In particular, to what extent are elements unique to the internal sense tradition—such as the appeal to *intentiones* or to the cogitative and estimative faculties—invoked to

explain the abstraction of universals, the cognition of singulars, or our capacity to remember past events and to conceive of time? The general picture that seems to emerge from this investigation is that while many Western authors seemed eager to embrace the idea of the internal senses, especially as they pertain to *animals*, they made little real use of the internal senses in their cognitive psychology. This initial benign neglect seems to evolve into a more active opposition to the proliferation of faculties evident in the acceptance of the internal senses, with some later authors—of whom Buridan is one example—appealing to principles of economy to justify returning to a sparse Aristotelianism in which only the common sense is required.⁴

AVICENNA AND AVERROES: THE INTERNAL SENSES IN HUMANS

While Avicenna's name is most often associated with discussions of the *animal* internal senses in virtue of the sheep-wolf example that so enchanted Western authors, his proliferation of internal sense powers, and the positing of estimative intentions on which it depends, is primarily aimed at resolving problems in the account of human cognition. Appeals to the capacity of animals to perceive intentions are used primarily as evidence that intentions and the faculties needed to explain their perception are truly *sensible* rather than intelligible objects.

Avicenna defines the *intentiones* that are the objects of the estimative faculty as properties that are “not in their essences material,”⁵ although they accompany sensible, material forms and are always perceived in conjunction with them.⁶ This rather loose and largely negative characterization of intentions allows Avicenna call on intentions to

explain a wide variety of cognitive activities that do not fit neatly into either the sensible or the intelligible realm. Thus intentions play a role in the account of incidental perception, since this mode of perception requires the formation of quasi-empirical judgements in which sensible forms and non-sensible intentions are joined together to form an integral perception of the whole individual.⁷ And while Avicenna does not explicitly assign estimation the perception of the singular as such, in several places he mentions a mysterious item which he calls an “individual intention” (*ma ‘nā shakṣī*), a label that may suggest a relation to the estimative faculty.⁸

The implicit link between the estimative faculty and the grasp of singulars is also employed by Avicenna to explain how it is that the internal senses can prepare the rational soul to receive abstract intelligibles:

We will not find priority and posteriority among designated individuals in the intellect, unless the five internal [sense] faculties cooperate with it. But individuals are better known to us [in the internal senses] than are universals, for individuals are imprinted in the internal sense power, and then the intellect extracts from it the similarities and differences, and so abstracts the natures of the specific universals.⁹

Avicenna doesn’t explicitly mention the estimative faculty in this passage, but he tells the same story in the chapter of his *Demonstration* corresponding to *Posterior Analytics* 2.19 (not available to the West), where he argues that “what senses the particulars in some respect senses the universal as well.” If that were not the case, then the senses could not prepare the soul for intellectual abstraction, nor could the senses themselves differentiate between *individuals* of different species. In this text, it is the *estimative* faculty in particular that is assigned these tasks:

Knowledge and the intelligible universal form are impressed in the soul bit by bit from a sensible singular (*an āḥād maḥsūṣah*): whenever they are gathered up, the soul acquires the universal forms from them and then sends them forth. And this is also because that which senses the particulars in some respect senses the universal, for what senses ‘Socrates’ also senses ‘human,’ and likewise whatever it conveys. And if it were the case that sensation did not perceive ‘human’ in some way, then estimation in us and in the animals would not [be able to] distinguish between the individuals of one species and [those of] another species, so long as there was no intellect. So neither does sense distinguish these, but rather, estimation, even if the estimation only distinguishes one thing, and the intellect something else.¹⁰

Finally, the internal senses in Avicenna are essential for explaining the the basic capacities that human beings have for ratiocination and discursive understanding. Because Avicenna holds that intellects, as such, have purely simple, non-discursive cognitive operations, he is forced to attribute not only the cognition of singulars, but all discursive operations of understanding, to the intellect’s association with corporeal cognitive powers.¹¹ This is the point of his identification of the cogitative faculty as the human power of compositive imagination insofar as it is placed under the control of the intellect in inferential reasoning and deliberation.¹² For Avicenna, then, “thinking” (*fikr*) itself—in the normal, everyday sense of discursive reasoning—is essentially a hybrid activity equally dependent on the capacities of the intellect and the sensitive soul.

Despite the differences between Avicenna and Averroes on many points of cognitive psychology, Averroes too accords the internal senses a central role in accounting for human cognition.¹³ The major changes he makes in the Avicennian account revolve around his reinterpretation of the nature of intentions and their explicit identification with the individual “core” or “fruit” of the sensible object that allows us to designate this individual as “Zayd” or “Socrates.”¹⁴ The capacity to abstract and perceive such

individual intentions is restricted by Averroes to humans, in virtue of their possession of the cogitative and memorative powers, the former of which “separates” (*distinguit*) and “abstracts” (*expoliat*) the individual intentions from the common and proper sensibles, and “deposits” (*reponit*) them in the memory.¹⁵ And like Avicenna, Averroes too claims that *all* of the internal senses, including the cogitative faculty and memory, must be involved in the explanation of how abstract universals are acquired and applied to concrete objects in the world around us. This is evident from his description of the cogitative power as a form of “reason” and his identification of Aristotle’s “passive intellect” with the cogitative faculty in the *Long Commentary on De anima*:

And there are three powers which are discussed in the *De sensu et sensato*, namely the imaginative, cogitative, and memorative; for these three powers are in a human being in order to present the form of an imagined thing when the sense is absent. And he intended here by the “passive intellect,” the forms of the imagination according as the cogitative power proper to humans acts in them. For that power [i.e., the cogitative] is a sort of reason, and its activity is nothing other than to posit the intention of the imagined form along with its individual [intention] in memory, or to distinguish it from it in the formative or imaginative faculty. And it is clear that the intellect which is called material receives the imagined intentions after this distinguishing. Therefore that passive intellect is necessary for conceptualization (*formatio*).¹⁶

Despite the many differences in their accounts of the internal senses, then, both Avicenna and Averroes highlight the functions of these powers in human understanding, to such a degree that it would be safe to claim that the internal sense powers do most of the heaving lifting in human knowledge of the natural world. Cognition for them really does take place primarily in the brain—though it is only through the association between the internal senses and an immaterial intellect—whether personal or common—that the

acts of the internal senses become distinctively human and contribute to abstract understanding.

ALBERTUS MAGNUS AND THOMAS AQUINAS: KEEPING THE FAITH

In the mid-13th century Albert and Aquinas, to varying degrees, seem to be faithful adherents to the Arabic legacy of the internal senses.¹⁷ Both assign some role to the internal senses in human cognition, albeit one that is considerably more restricted than the role they play in either Arabic author.

Albert the Great on the Nature of Intentions¹⁸

Albert the Great's most important contribution to the philosophical discussion of the internal senses is a (surprisingly) ingenious account of the nature of intentions that permits him to maintain a central role for estimation and phantasy not only in the cognition of individuals, but also in the process of acquiring abstract universals.¹⁹

Albert takes as his starting point the simple assumption that the term "intention," when applied to the objects of the estimative faculty, is meant to indicate the grasp of an object inasmuch as it has *intentional existence* in the sensible faculties of the soul.²⁰

Albert retains Avicenna's identification of intentions as objects that are "not imprinted on the senses but are never known without the sensibles," and he classifies both the familiar sheep-wolf example, and cases of incidental perception (e.g., Dion's son) as instances of perceiving intentions. What is new in Albert is the further claim that these perceptions involve the grasping of "substantial forms" through the mediation of the senses, something that in turn depends upon "estimation and collation."²¹

In order to explain how the senses can mediate the grasping of substantial forms, Albert appeals to the fact that the intentions perceived by the estimative faculty are the sensible *species* that signify the *whole* cognized object, and not just the part of the object that is actually cognized by the recipient faculty:

And therefore the intention is not a part of the thing like the form, but rather it is the species of the whole knowledge of the thing. Hence the intention, because it is abstracted from the whole and is the signification of the whole, is predicated of the thing; for the intention of the colored, which is in the eye, makes known the whole thing, just as the intention which is in the imagination makes known the particular which is not present.²²

Albert in turn traces the capacity of the estimative faculty to grasp the substantial forms of sensible objects via their species or intentions back to its status as the apperceptive power for the sensitive soul. The estimative faculty apprehends the cognitive operations of the other sense faculties, which enables it to extract some conception of the individual substance from the sensible species representing the colour or shape, for example, of that individual.²³ That is, inasmuch as it is the entire perceived individual—including its substantial form—affects the percipient in every act of cognition, any intention that the soul receives from it will permit the estimative faculty to extract some understanding of it as an *individual* of a certain kind:

But that power which is called the estimative differs from imagination in the very species that it apprehends, because ... it extracts the intentions which are not described in sense. Nor can it be said that this is the function of sense ... because it never happens that there is knowledge that “this is the son of Dion” unless one has knowledge of the [property of] “being-a-son” according to which it is in “this.”²⁴

To the extent that the estimative faculty is supposed to have some access to representations of substantial forms, this passage suggests that it grasps not only the

individual, but even its essential nature. In his *De anima* Albert seems willing to attribute at least an inchoate grasp of the common nature to the sensitive soul.²⁵ Elsewhere, however, Albert is not so confident of this possibility, at least not for human estimation. In humans the capacity to grasp “the nature of the thing” to which the proper and common sensibles belong is attributed to the “reception of *reason* mixed with the senses,” whereas estimation gives brute animals a similar capacity.²⁶ Since human beings, unlike animals, can actually perceive the nature as a *universal*, then in humans the intellect substitutes for the estimative faculty in this task.²⁷

Thomas Aquinas: Faculties in Search of Job?

Aquinas embraces what is often seen as the standard medieval view of the internal senses in treating the cogitative power or particular reason as the *substitute* in humans for the estimative faculty.²⁸ Thus for Aquinas the explanatory value of the internal senses for human cognition largely turns on the role he assigns to the cogitative power in his cognitive psychology. What I wish to argue in this section is that despite first impressions to the contrary, Aquinas’s account of this faculty is woefully underdetermined, and that as a consequence the role that it plays in human knowledge is ultimately a very minor one.

In his two “official” accounts of the internal senses, Aquinas assigns the cogitative and estimative powers their traditional function of perceiving non-sensible intentions. In the case of animal estimation intentions are conceived along Avicennian lines as exemplified by the proverbial sheep and wolf.²⁹ But human beings, unlike animals, do not

merely grasp such intentions by means of a natural instinct; instead, the cogitative faculty, in contrast to the estimative power, “by some sort of comparison *discovers* these intentions.”³⁰ Moreover, Aquinas explicitly restricts cogitation to the comparison of *individual* intentions in contrast to universal ones, and when he adopts the label of *ratio particularis* for this power—which he explicitly localizes in the brain—it’s clear that the *ratio* in question pertains to the discursive, collative activity of the power, not to any implicit grasp of universals that it possesses, as was the case for Albert.³¹

Aquinas’s Aristotelian commentaries offer some further indications of how he conceives of the intentions grasped by internal senses. The most significant passages are found in Aquinas’s appeals to the cogitative faculty in his account of incidental perception in *De anima* 2.6. There Aquinas argues that since anything cognized *per accidens* by the senses must be cognized *per se* by some other faculty, *human* incidental perception must belong to the intellect insofar as it involves a grasp of universals, and to the cogitative power insofar as it requires the grasp of some *individual*, such as “this person.” To justify this claim Aquinas simply refers to the status of the cogitative power as *ratio particularis*, “inasmuch as it compares individual intentions” (*eo quod est collativa intentionum individualium*).³² But even this capacity does not seem to belong to the cogitative faculty in its own right. For Aquinas notes that the cogitative power is collative only in virtue of its status as a sensitive power within an *intellective* soul, a position that permits it to “participate in something of the intellective power.” The cogitative power, in and of itself, grasps the individual as its object; “insofar as it is

united to the intellect in the same subject,” it is able to subsume that individual under the universal nature that it instantiates, so that “it cognizes this human being insofar as it is this *human*, and this stick insofar as it is this *stick*” (emphasis mine).³³

So far, then, Aquinas has identified two basic functions of the cogitative faculty: it is the power that grasps *individual* intentions; and it is a sort of *ratio* because it possesses some sort of collative or comparative ability. Yet in contrast to Albert, Aquinas says very little about the nature of individual intentions as cognitive objects; nor does he offer any explanation of the link between perceiving intentions and making comparisons. Rather, on those few occasions where Aquinas appeals to the cogitative power to explain some particular feature of human understanding, he picks whichever of the two functions seems best suited to the job at hand.

Let me consider first Aquinas’s identification of the cogitative power as perceptive of individual intentions. This function seems to hearken back to Averroes’ identification of the cogitative power as an abstractive, discriminative capacity with a proper object of its own. Such a picture of the cogitative faculty would suggest—as it did for Averroes—that the cogitative faculty should be involved in explaining how the sensitive soul prepares the way for intellectual abstraction. But the places where Aquinas makes such a claim are few and far between, and most of them occur in the polemical parts of the *Summa contra gentiles*.³⁴

More promising are Aquinas’s appeals to the second function of the cogitative power, namely, its collative operations within the realm of singulars, signified by its label as

ratio particularis. As has long been noted by Thomist scholars, Aquinas seems most inclined to appeal to the cogitative power in order to explain how the intellect can apply its general reasoning to the particulars that are the ultimate objects of *practical* reasoning.³⁵ The best examples of this occur in Aquinas's discussions of the practical syllogism, where *ratio particularis* is usually singled out as the power responsible for grasping the minor premise identifying the individual agent and her present action as falling under the universal rule of conduct expressed in the major:

And as for practical reason, it is either universal or particular. By the universal practical reason we judge that such and such ought to be done, e.g., that children ought to honour their parents. By the particular practical reason we judge that this particular subject is such and such, e.g., that I am a son and I ought here and now to honour my parents.³⁶

But does the role played by the cogitative power in the practical syllogism really explain how the cogitative power is *collativa*? The practical syllogism does not seem to illustrate the process whereby an internal sense power *compares* individual intentions with one another—any comparison that occurs seems to be on the part of the intellect *applying* a universal *to* the individual in the associated internal sense power. And that in turn seems to reduce the cogitative power's role to its basic capacity for cognizing singulars.

This is something that Aquinas seems to recognize in his account of the cognition of singulars in the *De veritate*, where he offers an explanation of how the comparative function of the cogitative power accounts for its ability to contribute to practical reasoning. In this text Aquinas identifies *two* distinct ways in which the mind is able to cognize singulars—one in which the motions of the sensitive soul *terminate* in the mind, and the other in which the motions of the mind *terminate* in singulars. This two-fold

analysis of the knowledge of singulars is meant to map onto knowledge of the singular by reflection on phantasms on the one hand, and onto knowledge of an act to be done through particular reason's grasping the minor premise in a syllogism on the other:

Nevertheless, the mind has contact with singulars by reason of something else in so far as it has continuity with the sensitive powers which have particulars for their object. This conjunction comes about in two ways. First, the movement of the sensitive part terminates in the mind, as happens in the movement that goes from things to the soul. Thus, the mind knows singulars through a certain kind of reflection, as when the mind, in knowing its object, which is some universal nature, returns to knowledge of its own act, then to the species which is the principle of its act, and, finally, to the phantasm from which it has abstracted the species. In this way, it attains to some knowledge about singulars. In the other way, this conjunction is found in the movement from the soul to things, which begins from the mind and moves forward to the sensitive part in the mind's control over the lower powers. Here, the mind has contact with singulars through the mediation of *particular reason*, a power of the sensitive part, which joins and divides individual intentional likenesses, which is also known as the *cogitative* power. ... The mind's universal judgment about things to be done cannot be applied to a particular act except through the mediation of some intermediate power which perceives the singular. In this way, there is framed a kind of syllogism whose major premise is universal, the decision of the mind, and whose minor premise is singular, a perception of the *particular reason*.³⁷

In the case of "theoretical" knowledge of the singular as such, the necessary ingredients are the mind's reflection on its own activity and species, and on the phantasm from which the species was acquired. No mention is made of any comparative or collative activity by the cogitative power. Conversely, in the case of the practical syllogism, Aquinas assigns the knowledge of the singular explicitly to the cogitative power, inasmuch as it "composes and divides individual intentions."

This, then, seems to represent Aquinas's clearest and most thorough attempt to fit the cogitative power into the broader account of how human beings know singulars. The exact sense in which composition and division of *individual* intentions is involved in their

application to practical syllogisms remains underdetermined still, though presumably this has something to do with the use of a syllogistic model as the explanatory framework. In the end, then, when Aquinas attempts to spell out how the *specific* operations of the internal senses contribute to human knowledge in general, and even to knowledge of singulars, he seems hard pressed to find any real explanatory function for the particular functions and operations assigned to the cogitative faculty in either his own or the traditional account. Apart from the general need to appeal to their organic basis and the fact that they represent objects as material particulars, there is no obvious function served by the reference to abstracting or comparing *individual intentions*, and no real effort to articulate how an individual intention differs from—or is even implied by—the basic notion of a phantasm. One gets the impression of a theory looking for an explanatory job.

BACK TO THE BASICS: JOHN BURIDAN

Whereas Aquinas seems to reduce the cogitative power to a casual laborer doing odd jobs when necessary, John Buridan relegates this power, and virtually all of the internal senses, to a state of permanent unemployment! Over the course of writing the various redactions of his *Questions on the De anima*, in Buridan moves from indecision in the *prima lectura* to a reduction of all the internal senses to the common sense in the third redaction. A comparison of his answers in the two versions to the question of “whether four internal powers ought to be posited in humans: common sense; fantasy, the cogitative power, and the memorative,” provides some important insights into the

possible motivations for the diminished role of the internal senses in later medieval cognitive psychology.³⁸

In the first version of his commentary, Buridan begins his response with the simple declaration that “this question is very difficult; therefore it is sufficient for me to recite the plausible views given by others.”³⁹ Buridan in fact presents two distinct responses: the first is a version of the standard Avicennian-Averroist synthesis, which includes a power for perceiving intentions (the cogitative or estimative), and two preservative powers, (fantasy or imagination, and memory). The second differs from the first in assigning the preservative functions of imagination and memory to a single power, yielding a total of three internal senses: the common sense; a power for grasping intentions (called fantasy, estimation, or cogitation); and a single conservative power. Both responses, however, view the internal sense powers as performing a vital role in human cognition.

The first indication of this is Buridan’s account of the nature of intentions. While he begins by identifying them as non-sensible properties that give rise to emotional responses (the sheep-wolf example), he adds that estimation and cogitation have the unique capacity to “apprehend through the mode of past or future,” that is, to recognize that some perceptual object is the very same thing that one previously heard or saw.⁴⁰ Buridan even refers the capacity for problem-solving through syllogistic reasoning to the cogitative power, “which immediately serves the intellect,” and is therefore able to have access to universal intelligibles.⁴¹ In the second part of his response (which differs from

the first only in its account of the retentive faculties), Buridan again affirms the need for a “superior cognitive power beyond the common sense,” by appealing to our ability to extract intentions not sensed by the common sense itself. In support of its superior status, Buridan adds that the cogitative faculty allows for a more sophisticated, tensed form of apperception that is not within the purview of the common sense, for while the common sense can judge the activities of the external senses *while* they are occurring, it does not “judge that it sees or hears.”⁴²

Along these same lines, Buridan’s fourfold schema of internal senses distinguishes between the identification of memory and imagination as *preservative* powers on the one hand, and the cogitative faculty’s capacity for grasping *time* as a perceptual object. Buridan argues that imagination and memory differ because imagination *preserves* sensible images or species “through the mode of *presence*, as if they were under our gaze.”⁴³ By contrast, memory proper, through its association with cogitative perception, is able to preserve not only images or species, but “the intentions of the acts of knowing, and as accompanied by the differences of time.” He continues:

Hence through the cogitative faculty you can judge not only that this is white or running, and not only that you have seen or heard this, but also that at such a time you saw it, and at another time you heard it, and this comes about not only through the intellect, because brute animals remember the past distinctly in this way, and for this reason they return to places where they had been determinately at another time.⁴⁴

That the perception of temporal modalities is a key component in Buridan’s account of the internal senses is made especially evident from his defence of the alternative, threefold classification of internal senses, in which the retentive faculty is treated as a

single power. Even when a single sense power is assigned both acts of retention, Buridan differentiates between two types of stored objects, one which simply retains *images*, “that is, the species of sensible things” and the other which preserves “the *intentions* of sensations along with the differences of times.”⁴⁵ In defending this pared-down threefold scheme Buridan also provides an additional argument for the positing of a cogitative or imaginative faculty in *humans*, and for viewing the *cogitative* power as authentically Aristotelian. Buridan argues that Aristotelian *phantasia* is not a mere animal faculty, but rather, that it should be *identified* with the cogitative power. For Aristotle, imagination is necessary solely in order to explain how *human* thinking is possible. For that reason, the imagination cannot be simply preservative, since Aristotle seems to attribute to it acts of composition and division, as is required for the thinking of intelligibles in images. Thus,

Aristotle seems to intend for [phantasy] to serve the intellect immediately, since he said that anyone understanding needs phantasms to contemplate. Therefore, he does not seem to understand by fantasy anything other than the cogitative power.⁴⁶

In sharp contrast to the *prima lectura*, in the third redaction of Buridan’s *De anima* parsimony rules the day, and Buridan opts for a minimalist account which attributes *all* of the perceptual, collative, and retentive abilities of the internal senses to the common sense. With respect to its perceptual capacities, Buridan argues that since the common sense is a power superior to the external senses, it is able to perceive the non-sensible, individual intentions which elude the grasp of the external senses and are traditionally assigned to the cogitative and estimative faculties. Similar reasoning applies to the memorative and imaginative faculties: Buridan cites Aristotle’s claim in the *De memoria*

that only animals that can perceive *time* have memory; he then reduces the perception of time to the perception of the common sensibles of magnitude and motion, thereby undercutting the need to make memory, insofar as it involves the perception of the past as past, the function of yet another cognitive power.⁴⁷ As for imagination, Buridan continues to maintain that its primary Aristotelian function is in service to the intellect; but he now denies (on textual grounds) that Aristotelian *phantasia* is equivalent to the cogitative faculty. Instead, following up on the links that Aristotle forges between memory, imagination, and the common sense in the *De memoria*, Buridan simply assigns the task of providing the images that accompany thinking to the common sense.⁴⁸ Insofar as Aristotelian *phantasia* is a “motion produced by sensation” that involves the perception of a species or intention preserved in some bodily organ, its contribution to intellectual thinking can be traced back to the *actual* perceptual activity of the common sense.⁴⁹ In essence, then, the plurality of internal sense powers traditionally posited by the Arabic Aristotelians represent nothing but different labels applied to the diverse activities in which the common sense engages. This common sense:

is called “fantasy” insofar as the act of cognizing is moved to such acts of cognition by preserved intentions when its motion caused by the external senses has ceased. And it is called “estimation” because, beyond this, it is naturally disposed to elicit the intentions and apprehensions which have not been sensed...upon which the sensitive appetitive motion naturally follows.⁵⁰

With this conclusion, then, Buridan has pared the internal senses down to the basics. Sense perception *does* require more than external sensation; it even involves more than the perception of the proper and common sensibles. Internal sense theories that posited distinctions between reception and retention, and between forms and intentions, were

correct in their basic analysis of the operations of sensation; the mistake is in multiplying faculties unnecessarily on the basis of these analyses.

Still, it's not clear to me what Buridan's *philosophical* (as opposed to exegetical) basis for faculty differentiation is within this final commentary, and what the implications of his position are for the role of the internal senses—and in particular the cogitative faculty—in human cognition. Part of the problem is that Buridan says little about what he understands “intentions” to be, nor of how he conceives of them as objects of the common sense. And while the earlier redaction of his commentary addressed the explicit issue of the contribution of the cogitative faculty—understood as Aristotelian *phantasia*—to intellectual understanding, the final version says very little about the internal senses as human powers, except to suggest that whatever the common sense can't do can be assigned to the intellect.⁵¹

CONCLUSION

While all the authors whom I've considered seem to accept that a complete account of the contribution of sense perception to human knowledge requires the positing of some internal sense faculties, there seems to have been little consensus as to exactly what features of our cognitive processes require such supplementation and why. Nor is the rationale behind positing distinctively human sense powers—or distinctively human operations of those powers—entirely clear. While even the most parsimonious authors whom I've considered seem to be attracted to at least some aspects of the core idea behind the Arabic accounts of the internal senses—the positing of “intentions” as sensible

objects distinct from both *per se* sensibles and full-blown intelligibles—they seldom articulated a clear, consistent account of what an intention actually is. And without such an account, the entire edifice of the internal senses loses any cohesion.

This ambiguity is, of course, ultimately a part of the Arabic legacy itself: despite some similarities between their two accounts, Avicennian and Averroist intentions are quite different from one another, and it's not clear whether their Latin readers fully grasped this fact. Nor is it clear that they reflected on the ramifications of the very different conceptions of human nature upheld by Avicenna and Averroes for their respective accounts of the human *sensitive* soul. Focusing on the Avicennian identification of intentions as non-sensible properties conveyed with or by sensible forms, and in particular emphasizing their role in explaining animal behaviour, provides the best rationale for treating intentions *as* sensible objects. But Avicenna himself leaves the core nature of intentions as perceptual objects vague. And in the absence of Avicenna's specific understanding of the human rational soul and its relation to its own body as well as to the separate intellects above it, the explanatory value of the internal senses for human cognition is greatly diminished. It seems much simpler to go back to the Aristotelian basics, as Buridan did.

By contrast, Averroes' identification of sensible intentions as in some way *individual* rather than *universal* carves out a niche for the internal senses within human cognition, and indeed Averroes himself seems to have gone back to the basics where animals were concerned. But Latin authors like Aquinas, who accorded Averroes' version of the

cogitative power a fairly prominent role in human cognition, did not seem to view individual intentions the way Averroes described them, as representations of the *individual*, the *fruit* or *core* concealed beneath the sensible forms. And there is good reason for this—for neither Averroes nor those who followed him on this point, like Aquinas, could point to any feature of individual substances *qua* individual that constituted their core. So the idea of distinguishing and comparing individual as opposed to universal intentions ultimately could have little more force than the standard Aristotelian truism that sense is of particulars, intellect of universals. And once the possibility of the intellectual cognition of singulars became a topic of serious discussion, the motivation for positing a special form of sensible cognition directed at the individual as such lost much of its force.

Notes

¹ In this paper I will not be addressing the topic of memory insofar as it involves Avicenna's denial of intellectual memory (*De anima* 5.6) and the reactions to it in the West, at least not insofar as this issue relates to medieval accounts of intelligible species and the habitual intellect. For a discussion of this topic in Scotus, see King 2004.

² The fact that medieval authors often seem to limit the function of the internal senses to the explanation of *animal* behaviour—as evidenced by their fondness for citing Avicenna's sheep-wolf example to illustrate the nature of the estimative faculty—may explain some of the trends I observe in this paper regarding appeals to the internal senses in the explanation of human cognition. The focus on animals may have made the topic seem marginal to theologians with little interest in the zoological realm. The same is true of the focus on heart versus brain localization, and issues regarding localization within the brain itself, which may have turned off those not interested in the medical side of the doctrine.

³ In the Arabic tradition Averroes also seems to limit memory to humans, since cogitation is a precondition for memory; but most medieval Latin authors did not follow him on this point.

⁴ For Buridan, see the discussion below, as well as Sobol 2001. Olivi also argues forcefully against the need to posit any internal sense powers apart from the *sensus communis*; on this see Toivanen 2007. There is a tendency to focus almost exclusively on the common sense evident in many of the question commentaries on the *De anima* from the 13th century, such as those of Siger of Brabant and the various anonymous commentators on the *De anima*. One finds the same thing in Scotus's early question commentary on the *De anima*, which considers only the need for positing a common sense (q. 9, pp. 70 ff.); some of the objections and replies here mention other internal senses such as the cogitative, and Scotus seems to accept their existence as distinct power, but he says very little about their cognitive functions. So this may simply indicate that the standard topics of discussion in later *De anima* commentaries tended to focus on issues whose Aristotelian *bona fides* are most apparent in the *De anima*, and this tradition in turn may have produced skepticism regarding the need to supplement Aristotle at all, as in Olivi and Buridan.

In this regard it is important to recall that Arabic philosophers developed their most sophisticated accounts of the compositive imagination, cogitative, and estimative powers in their writings corresponding to Aristotle's *De insomniis*, *De divinatione*, and *De memoria*, i.e., Bk. 4 of Avicenna's *De anima*, and Averroes' *Epitome of the Parva naturalia*. So further research into Latin commentaries on the *Parva naturalia* may reveal countervailing trends to those evidenced in *De anima* commentaries.

⁵ *Shifā'*: *De anima*, 2.2, 60: *laysat hiya fī dhāti-hā bi-māddiyyatin*; the Latin text here mistranslates this as *intentiones materiales quae non sunt in suis materiis, quamvis accidat illis esse in materia*. The mistake is corrected on the next page (AL 119), which says of intentions that *constat ergo quod hae in se sunt non materiales, sed accidit eis esse materiatas*, and Latin readers seem to have understood that intentions are supposed to be immaterial, or at least, neutral with reference to materiality.

⁶ *Shifā'*: *De anima* 1.5, 43, 45.

⁷ Avicenna does not mention explicitly incidental perceptions such as “the son of Diars.” But something along these lines is implied in his account of the role of estimation in remembering and forming empirical judgements in *De anima* 4.3; cf. 4.1, pp. 167-68.

⁸ For an overview of the various other cognitive functions that Avicenna assigns to estimation in the human soul, see Black 1993.

⁹ Avicenna, *Physics* 1.1, A9; L9-10.

¹⁰ Avicenna, *Demonstration* 4.10, p. 332: The full passage is as follows: “Likewise knowledge and the intelligible universal form is impressed in the soul bit by bit from sensible unit (*‘an āḥād maḥsūṣah*): whenever they are gathered up, the soul acquires the universal forms from them and then emits them. And this is also because that which senses the particulars in some respect may sense the universal, for what senses ‘Socrates’ may also sense ‘human,’ and likewise whatever it conveys. For it conveys to the soul ‘Socrates’ and ‘human,’ except that it is a vague human mixed with accidents, not pure human. Then if the intellect peels and removes from it the accidents, there remains of it the abstract human from which Socrates and Plato are not distinct. And if it were the case that sensation did not perceive human being in some way, then estimation in us and in the animals would not [be able to] distinguish between the individuals of one species and [those of] another species, so long as there was no intellect. So neither does sense distinguish these, but rather, estimation, even if the estimation only distinguishes one thing, and the intellect something else.”

¹¹ For Avicenna’s account of the operations of pure versus “psychological intellects,” see *De anima* 5.6. This point is of particular importance to Avicenna’s account of the cogitative faculty. This view also has ramifications for his cosmology: in *Metaphysics* 9 Avicenna argues that separate soul-movers must be posited for the spheres, in addition to their associated intellects, since only souls have the necessary imaginative faculties to account for knowledge of particulars and hence, motion.

¹² Thus the description of cogitation as human estimation—common to many interpreters of Avicenna in both contemporary and medieval circles—is highly misleading.

¹³ Averroes appears to have considered the basic system of internal senses to be authentically Aristotelian, to judge from his comments in both the *Epitome of the Parva naturalia* and the *Long commentary on the De anima*, a fact that may be explained by the version of the *PN* (possibly a paraphrase rather than a translation) available to the Arabic world. But Averroes rejects Avicenna’s positing of an estimative faculty in animals explicitly in the *Tahāfut*, arguing that it’s a superfluous addition to Aristotle. While this text was not known in the West until after 1328, but his position can be gleaned from the *Long Commentary on De anima* and the *Epitome of the Parva naturalia*.

¹⁴ Averroes, *Epitome of the Parva naturalia*, p. 33, Latin p. 42: “And this is because in the human being the differences of things and their proper intentions are perceived. And these are the things which hold the rank, in the sensible thing, of the core of the fruit, whereas in the animal, only things which are external are perceived, these being that whose relation to the things is the relation of the rind to the core of the fruit.”

¹⁵ *LC on De anima* 2.63, pp. 225–226; cf. 3.6, pp. 415-16; and *Epitome of Parva naturalia*, pp. 41–42; Latin 56–57. The full passage reads: “But [Aristotle] intends that the senses, along with the fact that they comprehend their proper sensibles, comprehend individual intentions diverse in genus and species; therefore they comprehend the intention of this individual human being, and the intention of this individual horse, and in general the intention of each of the ten individual predicaments. And this seems to be proper to the senses of human beings; whence Aristotle says, in the *De sensu et sensato*, that the senses of the other animals are not like the senses of human beings, or something like this. And this individual intention is that which the cogitative power

separates (*distinguit*) from the imagined form, and denudes it of those things which have been adjoined to it from this common and proper sensibles, and deposits it in the memory. And this is the very same things which the imaginative power comprehends, but the imaginative power comprehends it conjoined to those sensibles, although its comprehension is more spiritual [than that of the senses], as has been determined elsewhere.”

¹⁶ *LC on De anima*, 3.20, pp. 449-50. The full passage reads:

And there are three powers which are discussed in the *De sensu et sensato*, namely the imaginative, cogitative, and memorative; for these three powers are in a human being in order to present the form of an imagined thing when the sense is absent. And therefore it was said there that when these three powers cooperate with one another, they may be able to represent the individual [intention] of the thing according as it is in its being, although we do not sense it. And he intended here by the “passive intellect,” the forms of the imagination according as the cogitative power proper to humans acts in them. For that power [i.e., the cogitative] is a sort of reason, and its activity is nothing other than to posit the intention of the imagined form along with its individual [intention] in memory, or to distinguish it from it in the formative or imaginative faculty. And it is clear that the intellect which is called material receives the imagined intentions after this distinguishing. Therefore that passive intellect is necessary for conceptualization (*formatio*). Therefore he says correctly: “And we do not remember, because it is not passible, whereas the passive intellect is corruptible, and without this nothing thinks.” That is, and without the imaginative and cogitative powers the material intellect understands nothing; for these powers are like things which prepare the matter of the artifact to receive the action of the artisan.

¹⁷ As I’ve discussed elsewhere (Black 2000), as far as I can tell almost all Latin authors, if they accepted the need to posit an estimative faculty, confined it to animals. So even if they accepted some version of Avicenna’s schema of internal senses, the functions he assigned to estimation, both in cognizing individuals and in the abstractive process, were usually reassigned to the cogitative faculty following the lead of Averroes. As we see below, however, Albert seems to be a transitional figure in this regard.

¹⁸ My general impression of Albert’s account of the internal senses—especially in his *De anima* paraphrase—is that it is essentially Avicennian, with some adjustments being made to accommodate Aristotle’s *De anima*. Examples are Albert’s reversal of the ranks of estimation and compositive imagination (*phantasy*) both from his own account in the *De homine* and from Avicenna, which allows him to treat *phantasy* rather than estimation as the power that embraces all the other internal senses (as Aristotle’s *phantasia* does); and the close association of *imaginatio* and *phantasia*, which likewise allows the internal senses to be read into *De anima* 3.3. In his account of the grades of sensible abstraction in *De anima* 2.3.4, p. 101, Albert appears to be using Averroes’ account of the second grade of abstraction, whereby the “rinds” of the sensible object are perceived, to explicate the Avicennian version of the scale.

¹⁹ Albert shifts his labels for the various internal sense faculties from one work to the next, but in the texts I’m discussing here, Albert uses “*phantasy*” for the power of compositive as opposed to merely retentive imagination, and is a distinctively human power. Estimation extracts intentions from sensible forms, and seems to be common to humans and non-rational animals. The status of cogitation is unclear in Albert; part of the reason for this is textual, as one suspects that in many cases (see n. 21 below) that *cognitio* has been read where *cogitatio* was intended.

²⁰ There is no indication that this was Avicenna’s view, though the confusion between intentionality in general and estimative intentions is widespread in contemporary literature on

medieval accounts of intentionality. Elsewhere (Parma paper), I've attempted to give an explanation for Avicenna's choice of this term, but I think it's safe to say he did not explicitly intend us to identify estimative intentions with intentions in the more generic sense. Note, however, that Albert's claim is the converse of the common confusion: he identifies estimative intentions with intentional objects; contemporary readings, by contrast, *reduce* intentional being in Avicenna to estimative intentions.

²¹ Albert, *De anima* 2.3.4, pp. 101-2. Here and in many other places in Albert's discussion of the internal senses, the critical editions have *cognitio* in places where one wonders if *cogitatio* is not in fact the intended meaning.

²² *Ibid.*, 102. The full passage reads: "But that through which a thing is signified individually or universally according to the diverse grades of abstraction is called an "intention". And this does not give being to anything nor to the sense when it is in it, but rather, gives a sign and knowledge of the thing. And therefore the intention is not a part of the thing like the form, but rather it is the species of the whole knowledge of the thing. And therefore the intention, because it is abstracted from the whole and is the signification of the whole, is predicated of the thing; for the intention of the colored, which is in the eye, makes known the whole thing, just as the intention which is in the imagination makes known the particular which is not present. And this is what Aristotle says brilliantly in Book 2 of the *De anima*, that the senses are of particulars; he does not say that they are of some forms only, but of the whole particular, just as intellect too is of universals, not that it is the knowledge and species of the part, but of the whole. And therefore it gives knowledge of the whole. For knowledge of color alone is not received through sight, but of the colored, and its species in vision is the species of the colored, and it makes a judgment of the colored, inasmuch as it is colored. And so too is the case with the other intentions, in whatever grade of abstraction they are received."

²³ *Ibid.*, 2.4.7, p. 157: "But since we experience that there is in us a cognition of the intentions extracted from the sensible forms, it is necessary for there to be something which extracts and produces (*agat*) those intentions; and it will be like an active power (*potentia activa*) producing those intentions from the sensible, whose perfection in the complexion of its organ will be a very spiritual and formal heat. Therefore the Peripatetics called the storehouse of the sensed forms 'imagination'—and it pleases some to call it the formal power, in that it conserves the forms in us; but they called the active power that extracts the intentions 'estimation'."

²⁴ *Ibid.*, 3.1.2, p. 167. Albert extends this capacity to animals as well: "Nor would the wolf ever have pity over its offspring unless it had knowledge both of this individual and of the fact that this individual is its offspring. Therefore it is necessary for there to be a power of the soul which extracts intentions of this kind."

²⁵ *Ibid.*, 2.4.7, p. 156: "For the matter [from which the senses abstract] is the first subject for form, and through it the particular underlies both the common nature, which is abstracted universally by the intellect, and the individuating forms, whose intentions are abstracted by the other grades of apprehension. Just as it is said in the beginning of the *Physics*, that the common nature is sometimes received as confused in the particulars and not separated from them. And then such knowledge is of singulars and requires the singular just as sensation does, as we said in the previous chapter."

²⁶ *Physics* 1.1.6, p. 11. Albert links Aristotle's example of the baby calling human males (rather than male asses) "father" to Avicenna's example of the lamb recognizing ewes (rather than she-wolves) as its mother.

Note that *Physics* 1.1.6 is a text in which it seems probable that Albert is evoking the notion of the cogitative faculty as human estimation. At two points in the discussion the edition reads *cognitio* when one might expect *cogitatio*: “et aliquam cognitionem confusae rationis in sensu vel **cognitionis**, quae loco rationis est, quae a quibusdam dicitur aestimativa, quae est pars animae sensibilis” (p. 11); and pp. 11-12: “quod **cognitio**, quae est perceptio sensus cum permixtione aliqua rationis vel aestimationis, est accipiens sensibile per accidens.” References to the cogitative faculty are generally absent from the *De anima*, where Albert treats it as a vulgar or colloquial term for human compositive imagination/phantasy, on the grounds that “thinking (*cogitare*) properly belongs to reason.” (*De anima* 2.4.7, p. 157).

²⁷ *Physics* 1.1.6, pp. 11-12: “This having been noted, it should be known that cogitation, which is the perception of sensation when it is mixed together with something of reason or of estimation, is a sensible reception accidentally, and its occasion (*casus eius*) is on a common nature in a diffuse supposit; for this common nature is a universal received into the thing according to being (*acceptum in re secundum esse*).”

This perspective is not entirely absent from the *De anima*; see 3.1.3, p. 168: “opinion is concerned with what is common insofar as it is in many, but estimation, inasmuch as it is like this, does not recede from this individual, inasmuch as it is a this, and therefore in humans with the aid of reason, [reason] is only aided inasmuch as it is concerned with this or that, and then it is properly called by the name of estimation. But if a similar conception of many particulars is received according to one intention found in them, this does not now belong to estimation, but to experimental knowledge, which belongs to reason, but nonetheless sense and estimation are subservient to it in this [type of knowledge].”

²⁸ See *ST* 1.78.4, where Aquinas also explicitly argues against positing a distinct faculty of compositive imagination in the animal soul, on the grounds that only humans have the capacity for creative imagination, a point on which he cites Averroes as an ally.

²⁹ By “official accounts” I mean the basic overview provided in *ST* 1.78.4 and *QD De anima* 13.

³⁰ *ST* 1.78.4, trans. in Hibbs 118. Aquinas does add *etiam* here, suggesting that he recognizes an instinctive component to the human grasp of intentions. The description of cogitation as a form of *ratio* and as collative is probably an echo of Averroes’ remarks in the *Long Commentary*. On this cf. Taylor 2000.

³¹ The same basic points are made in *QD De anima*, q. 13, where the further Averroist label of “passive intellect is also used.”

³² *Sent. de anima* 2.13, n. 13.

³³ *Ibid.*, n. 16.

³⁴ See *SCG* 2.73, nn. 14, 16, 28, where Aquinas repeats the characterization of the cogitative power as one that judges “particular intentions,” while also describing its object as a phantasm, and its operation as that of “preparing the phantasms for the operation of the agent intellect.” Similarly, in his polemic against a separate Agent Intellect (2.76, nn. 8-9, 12), Aquinas argues that all possible accounts of how the *cogitative* power might prepare the phantasms for the influence of the Agent Intellect are flawed. But it’s hard to tell whether this language simply reflects the language used by the theories of Avicenna and Averroes that are under attack. The most suggestive passage occurs in *SCG* 2.80, n.6: “Indiget etiam anima ad intelligendum virtutibus praeparantibus phantasmata ad hoc quod fiant intelligibilia actu, scilicet virtute cogitativa et memorativa: de quibus constat quod, cum sint actus quorundam organorum corporis per quae operantur, quod non possunt remanere post corpus. Unde et Aristoteles dicit quod

nequaquam sine phantasmate intelligit anima; et quod nihil intelligit sine intellectu passivo, quem vocat virtutem cogitativam, qui est corruptibilis. Et propter hoc dicit, in I de anima, quod intelligere hominis corrumpitur quodam interius corrupto, scilicet phantasmate vel passivo intellectu.” This text is also ambiguous, however, since it represents the equivalent of an objection arguing in favour of the soul’s corruption through the body’s corruption. Still, Aquinas does not deny the basic picture this paints of the function of the internal senses, he simply denies that it entails the soul’s mortality.

In the same vein are Aquinas’s explanations of how all three internal sense powers play a role in explaining variations in the cognitive abilities of individual knowers. See, for example, *ST* 1.85.7 and *SCG* 2.79, n. 11. The same triad of powers is also mentioned in the polemics against Avicenna’s Agent Intellect in *SCG* 2.74, n. 6, and in the polemics against those who claim that cognitive habits reside in the internal senses and not in the intellect itself, e.g., *ST* 1.89.5; *SCG* 2.73, n. 26. Despite the polemical thrust of these latter texts, however, Aquinas seems to be acknowledging the role these powers play in preserving knowledge; he simply denies that they are the *only* sources of intellectual memory or that they themselves are the principal seat of intellectual habits and virtues.

³⁵ This was the focus of Klubertanz 1952, although Klubertanz’s stronger thesis that Aquinas *restricted* the cogitative faculty to practical reasoning is not borne out by the texts. See also White 2005.

³⁶ *Comm. on De anima*, Bk. 3, lect. 16, n. 845: “Ratio autem particularis dicit quod hoc quidem est tale, et ego talis, puta quod ego filius, et hunc honorem debeo nunc exhibere parenti.” See also *Comm. on NE*, 6.1, n. 1123; 6.7, n. 1249; 6.9, n. 15, which discuss more generally the function of *ratio particularis* with reference to the various “parts of prudence.”

It is noteworthy, however, that even in the context of explaining how practical reason grasps the particular, Aquinas does not always invoke the cogitative power explicitly. Thus, in his most well-known account of how singulars are known by reflection (*ST* 1.86.1), the cogitative power is not mentioned at all in the reply to the second objection, which deals with the grasping of the singular proposition in a practical syllogism.

³⁷ *De veritate* 10.5 (trans. McGlynn).

³⁸ This is q. 27, p. 646 of the *prima lectura* (ed. Patar), and q. 23 of the third version (ed. Sobol). Note that the question is explicitly focused on human knowers.

³⁹ *Ibid.*

⁴⁰ *Ibid.*, pp. 648-49. Cf. p. 650, ad 3m. Aquinas too identifies “time” as an intention in *ST* 1.78.4 in order to explain the specific association of memory with estimation.

⁴¹ This occurs as an exception to the “persuasive” evidence that Buridan cites to support his claim that imagination treats all appearances “as if present and existing under our gaze,” as, for example, in dreaming. Buridan says that because sleep frees up the common sense from reacting to the actual input of the senses, the imaginative power is active in sleep, whereas normally the cogitative power remains dormant. But he adds a qualification to this, which clearly refers to a discussion in Averroes’s *Epitome of the PN* (chapter on *De divinatione*). Buridan allows for unusual circumstances in which the cogitative power is active during sleep, thus allowing us to reason while dreaming and wake up with the solution to a problem.

On the ratiocinative capacity of cogitation, cf. q. 27 ad 7m, p. 650, where the cogitative power is identified as discursive.

⁴² Ibid., p. 652. This evokes Avicenna's assigning of overall apperceptive activities in the sensitive soul to the estimative faculty in *De anima* 4.3, and his general identification of the estimative faculty as the highest judgmental power in the animal soul.

⁴³ Compare Avicenna's description of retentive imagination as treating an absent object *as if* present.

⁴⁴ Buridan, ed. Patar, q. 27, p. 649. Note that as with his Arabic predecessors, the appeal to animal behaviour serves to show that the judgements in question are sensible rather than intellectual.

⁴⁵ Ibid., q. 27, p. 652-53. No argument is given to support the collapsing of these two faculties into one on this view: Buridan simply locates the preservative capacity in the posterior ventricle of the brain." He seems to suggest that the principle of economy is the main motivation: reasons can be given for the other distinctions; moreover, if we posit only one imaginative power, phantasy or cogitation, then it is not really a preservative power, but a cognitive one.

A bit later Buridan offers a counterargument to the first position he defended, which required two distinct preservative powers. Buridan argues that in sleep all the internal senses are "bound" in some way, that is, their natural perceptual abilities are curtailed. The upshot of this is that in our dreams we perceive only the most intense sensibles that we've preserved. Since the "species of the sensibles" are stronger than "the intentions of acts and the difference of times," and since in general "the sensitive nature is more intense with respect to the present," dreaming usually occurs under the mode of the present. It's not that intentions and temporality are stored in a different place, but that they recede farther from our consciousness in sleep than do the images of common and proper sensibles.

⁴⁶ Ibid., pp. 652-3. In the light of this identification, Buridan also addresses the argument for a distinction between memory and simple imagination based on the fact that lesions to one part of the brain may affect the capacity for remembering, but not simple imaging. If imagination is identified with cogitation—i.e., the ability to manipulate images—the difference effects of brain lesions can be explained by the same arguments that show why quick learners often have slow memories, that is, because different physiological dispositions are required for reception and retention. If by imagination one means a preservative power, Buridan simply denies the empirical fact that our ability to recall past perceptions can remain intact when our memory of times and intentions is destroyed.

⁴⁷ Ibid., pp. 377-78.

⁴⁸ Buridan recognizes that the upholders of a plurality of internal sense faculties did not just proliferate powers for the fun of it. Doubts remain as to how the common sense can explain how we conserve species and intentions when no object is present to us and all cognitive activity has ceased, and Buridan also admits that it is not entirely far-fetched to read Aristotle as treating the imagination, memory, and reminiscence as powers distinct from the common sense. On the retention question, Buridan admits that one needs to posit *some* purely preservative power, but *only* to the extent that it needs a distinct organ and activity of its own. That is, Buridan argues that such a power is "not distinct on the part of the soul." On the retention question, Buridan admits that one needs to posit some purely preservative power, but *only* to the extent that it needs a distinct organ and activity of its own. That is, Buridan argues that such a power is "not distinct on the part of the soul." (pp. 379-80). But he argues that only one such treasury is needed, on the grounds that if the common sense is able to perceive both species and intentions, there is no reason why they need to be preserved separately (p. 382; cf. p. 386).

⁴⁹ Ibid., p. 383.

⁵⁰ Ibid., p. 388. Again, despite its being directed against Arabic theories of the internal senses, Buridan's account of the common sense as the sole internal sense power is clearly modeled after Avicenna's own account of the estimative faculty in *De anima* 4.1, p. 168: "And it seems that the estimative power is itself cogitative, imaginative, and memorative, for it is itself the judge. For through itself it is a judge, whereas its activities and its motions are imaginative and memorative. For it is imaginative through what it effects in the forms and intentions, and memorative through what its activity terminates in."

⁵¹ The same holds for the nuanced account of the perception of temporality in the *prima lectura*: little is said in the third redaction about how the perception of magnitude and motion are sufficient to give a specific temporal aspect to a sensible object.

Perhaps a partial solution to these puzzles might be provided by some account of how the presence of the senses in a rational, human soul transforms the senses themselves, something that seems to be implicit in the Arabic accounts of the internal senses. Such questions are analogous to those addressed by Jack Zupko in "Horse Sense and Human Sense: The Heterogeneity of Sense Perception in Buridan's Philosophical Psychology," in H. Lagerlund, S. Knuutila and P. Kärkkäinen, eds., *Theories of Perception in Medieval and Early Modern Philosophy* (Dordrecht: Springer, 2008), pp. 171-86. If that is the solution to these questions in Buridan, however, then one is led back to the basic question of whether animal behaviour itself requires the positing of powers like the *vis aestimativa*, and thus to the underlying point of disagreement between Avicenna and Averroes.

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