

Chapter 4

Assimilation and Aboutness: Crossing the Mind-World Gap (or not) with Aquinas's Intelligible Species

Work in progress!

In the last three chapters, we have been considering a dimension of knowing as simply *consisting in* a kind of being that is intrinsically self-manifesting (“knowing as being”). But this picture seems to leave out something crucial: intentionality (“knowing as being-about”). When I read a book about ferns, it seems to me that I have become newly related to something *outside* myself: There are ferns out there, and I am *thinking about them*. But nothing we have seen in Aquinas's theory so far would account for a relationship between the knower, perfected by self-manifesting fernness, and ferns in the extramental world. In other words, we have not seen anything yet to address the mind-world gap with which Chapter 1 began.

Now there is no requirement that Aquinas must address the relationship of mind and world relationship in his theory of *intellect*, precisely. Other thinkers in this tradition, such as Plotinus, were content to restrict intentional relationships to lower kinds of cognition, keeping intellect free of the displacement implied in “tending toward” something “outside.”¹ Aquinas, however, thinks that any theory of knowing worth its salt ought to accommodate the basic intuition that *what we intellectually understand*, and hence *what our sciences have as their subject*, are realities in the extramental world. When the botanist explains what distinguishes ferns from mosses, she takes herself to be talking about realities that exist “out there” independently of minds.² If this intuition is right, then her knowing the essence ‘fern’ cannot be merely a matter of acquiring a kind of internal perfection. Knowing ‘fern’ must also involve the botanist in some sort of relation to the extramental world capable of grounding the claim that her knowledge is *about* real ferns. In other words, knowing ‘fern’, for Aquinas, cannot be merely a

¹ Plotinus, *Enneads* V.3.7, Armstrong 93-95, modified: “For what else should we give it? Peace and quiet, of course. But peace and quiet for Intellect is not going out of Intellect, but the peace and quiet of Intellect is an activity taking its rest from all other activities, since for other beings also, which are left in peace and quiet by other things, there remains their own proper activity, above all for those whose being is not potential but actual. The Being of Intellect, therefore, is activity, and there is nothing toward which the activity is; so it is with itself.” I’m currently working on an article on early versions of the knowing-as-being model in Aristotle, Alexander of Aphrodisias, and Plotinus.

² As famously stipulated in *ST* Ia.85.2; see also *SCG* 2.75: “Species enim recepta in intellectu possibili non habet se ut quod intelligitur. Cum enim de his quae intelliguntur sint omnes artes et scientiae, sequeretur quod omnes scientiae essent de speciebus existentibus in intellectu possibili. Quod patet esse falsum: nulla enim scientia de eis aliquid considerat nisi rationalis et metaphysica. Sed tamen per eas quaecumque sunt in omnibus scientiis cognoscuntur. Habet se igitur species intelligibilis recepta in intellectu possibili in intelligendo sicut id quo intelligitur, non sicut id quod intelligitur: sicut et species coloris in oculo non est id quod videtur, sed id quo videmus. Id vero quod intelligitur, est ipsa ratio rerum existentium extra animam: sicut et res extra animam existentes visu corporali videntur. Ad hoc enim inventae sunt artes et scientiae ut res in suis naturis existentes cognoscantur.”

kind of *being* for the botanist, but must also be a *being about*. Over the course of the next few chapters, I will make a series of proposals about how Aquinas injects the desired element of intentionality into his theory of knowing, and what it means, for him, that knowing is about something.³

In discussing the relation between knower and extramental object, the obvious place to start is with Aquinas's doctrine of "intelligible species"—one of the most consistently controversial features of his theory of human knowing. As I already hinted in Chapter 1, an important role of Aquinas's doctrine of intelligible species is to establish the relationship between mind and world.⁴ Famously, he insists that we cannot perceive or imagine or know anything at all, unless the relevant cognitive power is informed by what he misleadingly calls a "species" (*species*),⁵ which is the "likeness" (*similitudo*) of the object known. This principle applies to all cognitive powers, from the senses to the imagination to the intellect, though here as usual we focus only on the intellect, which uses likenesses known as "intelligible species."

Why exactly did Aquinas think we cannot know anything without intelligible species? The answer is not obvious—indeed it was not even always clear to his contemporaries—but scholars have presumed that the answer lies in his designation of species as "likenesses" (*similitudines*) of extramental objects. The language of "likeness," connoting a relation to an original, suggests that the whole point of a species is to connect the knower with extramental objects, providing a bridge across the mind-world gap.

From there, the obvious next question is *how* exactly species put us in communication with extramental objects. That is the question that has been of special interest to students of Aquinas's cognition theory—or perhaps put more accurately: That is the question that served as the epicenter for several decades worth of scholarly battles, which have so thoroughly laid waste to the textual territory that it seems no stick is left upon a stone to analyze further. The feuding parties here sought to discover whether Aquinas really does offer (as is often claimed) an alternative to representationalist theories of cognition. Proponents of a representationalist reading can marshal the language of "likeness" and "representation," and Aquinas's insistence that nothing can be known without species. Their opponents have arrayed on their side Aquinas's famous remark that species are not "that which is cognized" (*id quod cognoscitur*) but rather "that by which we cognize" (*id quo cognoscitur*).

But by immediately framing the options in terms of representationalism vs. anti-representationalism, scholars have, I think, fundamentally missed the point of Aquinas's doctrine of species. The blame lies with an anachronistic framing of the issue, and an acceptance of certain parameters for determining successful "access to the world," which, I contend, are foreign to Aquinas. What I want to provide in this chapter is not another attempt to decide what Aquinas's intellect directly accesses, but a different approach to the problem altogether, which frames the problem of a mind-world relationship in terms of *metaphysical assimilation* rather

³ We will eventually see that his concept of intentionality requires us to distinguish further between "being about *x*" in the sense of a static relation of likeness to *x*, and "being about *x*" in the sense of attending dynamically to *x*. I will say more about this in the next chapter.

⁴ Which is why when Aquinas's identity doctrine is taken (wrongly) as an attempt to cross the gap, it typically ends up being reinterpreted as some sort of claim about the relation of intelligible species to extramental crocodiles or ferns; see ch. 1, §1. Notice, then, that I would not agree with the common neo-Thomist dictum that for Aquinas the mind-world gap does not arise at all.

⁵ His Latin predecessors, such as Roger Bacon, were already using the term *species*, which also appears in the Latin translation of some of their Arabic sources.

than *psychological representation*. The key to this alternate approach lies in a distinction that Aquinas makes, between two ways in which an intelligible species—let's say, the species 'fern'—can be considered: (1) as the form of the human "possible intellect"⁶; and (2) as the "likeness" of the nature of some extramental living fern. The attention of modern readers has focused on the latter role, in the belief that the language of likeness ascribes a uniquely *cognitive* function to the species. My view, instead, is that *both* roles of the species—as form and as likeness—must be understood in terms of Aquinas's broader metaphysics of form. In fact, I contend that it is only by recovering their metaphysical significance that we can make sense of the species's cognitive significance: e.g., the sense in which species are "that by which we know" (the topics of §2 below), and what Aquinas is asserting about the mind-world relationship by describing the species as a "likeness" (the topic of §3 below). *{In this chapter I will not, however, be giving a complete account of Aquinas's theory of intentionality, most of which will be discussed in the next chapter.}*

In what follows, then, I hope to make a case for getting rid of the notion, once and for all, that Aquinas's description of the species as "likeness" is meant to bestow on it some uniquely *cognitive-intentional role that other forms do not have*. The intelligible species in Aquinas does not *represent* extramental realities to the knower; rather, like other forms, it *assimilates* the knower to its cause. This theory of "mental assimilation" offers a metaphysical approach to the mind-world gap in line with what we have already seen of the rigorously metaphysical tone of Aquinas's theory of intellect.

1. Emissaries from a Foreign Land: Intelligible Species and their Interpreters

1.1. Representationalism and the contact model of the mind

Before unfolding this alternative approach to intelligible species, I want to spending some time considering the historical (post-Lockian) lens through which Aquinas's theory of intelligible species is typically read, in order to bring to light some assumptions about his theory that I will be attempting to undo.

Since the 19th century, Aquinas has been held up as offering an alternative to so-called "representationalist" theories of cognition. What is representationalism? Locke provides a classic formulation:

⁶ *DV* 3.1, ad 2: "Ad speciem quae est medium cognoscendi duo requiruntur: scilicet repraesentatio rei cognitae, quae competit ei secundum propinquitatem ad cognoscibile; et esse spirituale, vel immateriale, quod ei competit secundum quod habet esse in cognoscente. Unde per speciem quae est in intellectu, melius cognoscitur aliquid quam per speciem quae est in sensu, quia est immaterialior"; and ad 3: "In cognitione duo est considerare: scilicet ipsam naturam cognitionis; et haec sequitur speciem secundum comparisonem quam habet ad intellectum in quo est; et determinatio cognitionis ad cognitum, et haec sequitur relationem speciei ad rem ipsam: unde quanto est similior species rei cognitae per modum repraesentationis, tanto est cognitio determinatior; et quanto magis accedit ad immaterialitatem, quae est natura cognoscentis in quantum huiusmodi, tanto efficacius cognoscere facit."

Note that Aquinas distinguishes between two intellectual powers of the soul: The "agent intellect" (*intellectus agens*), which abstracts intelligible forms from the images of the imagination, and the unhelpfully-named "possible intellect" (*intellectus possibilis*), which receives intelligible forms as matter receives natural forms.

Since the mind, in all its thoughts and reasonings, hath no other immediate object but its own ideas, which it alone does or can contemplate, it is evident that our knowledge is only conversant about them.⁷

For, since the things the mind contemplates are none of them, besides itself, present to the understanding, it is necessary that something else, as a sign or representation of the thing it considers, should be present to it: and these are ideas.⁸

Since Locke, the view has been refined in many much more sophisticated ways. But the core ideas remain as follows: (1) The mind has no *direct* access to external objects; (2) The only realities to which the mind has any *direct* access are "representations" (whether we call them ideas, impressions, or concepts) produced within the mind.

It is important to keep in mind that representationalist theories are open to different characterizations of the mind's relation to the outside world. On one account (the one familiar from the medieval philosophy literature, which often equates it with "representationalism" *tout court*), mental representations *replace* extramental entities as "what I cognize": I may think that I am seeing a tree, but what I am seeing instead is an inner representation of a tree. (This makes sense on the view that x is "what is cognized" only if the mind directly accesses x .) But on other accounts, to be related to an mental representation of a tree is precisely *what it means* to see a tree.⁹ (This makes sense on the view that the mind's directly accessing x is not necessary for the mind's having x as an intentional object.)¹⁰

Now the conceptual problem to which representationalism responds, I argue, corresponds to an underlying model of the mind. After all, just as physicists need conceptual models of atoms or DNA, so too there are conceptual models of the mind operating in the background of philosophical discussions of the mind and its acts. Like scientific models, these philosophical models not only allow us to picture the relevant causal relationships, but also set the parameters determining what counts as a satisfactory explanation of the relevant phenomena.

So what model of the mind operates in the background of representationalist theories? The relevant imagery, it seems to me, tends to be drawn from notions of vision, spatial distance, and physical contact, and so I call it the "contact model of mind." I want to describe how it works in as rudimentary and vivid a way as possible, so as to highlight clearly its fundamental assumptions. (There are presumably much more refined ways of characterizing this model, but these refinements, I would argue, do not alter the basic structure of the model.)

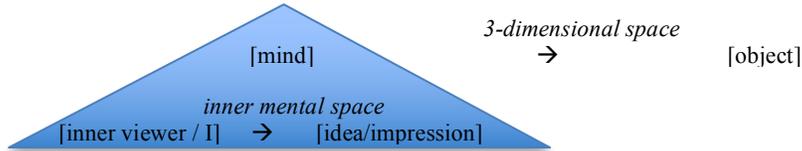
⁷ John Locke, *An Essay Concerning Human Understanding* (1689), Bk. 4, par. 1 (1).

⁸ Locke, *An Essay Concerning Human Understanding*, bk. 4, par. 21 (4).

⁹ By analogy: In the standard version of representationalism, the mind's negotiations are concluded exclusively with the emissary, who acts *in lieu of* an absent world. In the modified version, the emissary is construed as acting *in the person of* the world, as though the world itself took on a living presence in its emissary; in this way, negotiations with that emissary constitute negotiations with the world.

¹⁰ Without making any claims about Locke's own views, we can note language conducive to both versions of representationalism in each of the above excerpts from Locke: The mind seems to be contemplating ideas in the first excerpt, but things by means of ideas in the second excerpt. Similarly ambiguous formulations appears in Descartes, *Meditations* 3: "At the same time I have before received and admitted many things to be very certain and manifest, which yet I afterwards recognized as being dubious. What then were these things? They were the earth, sky, stars and all other objects which I apprehended by means of the senses. But what did I clearly [and distinctly] perceive in them? Nothing more than that the ideas or thoughts of these things were presented to my mind. And not even now do I deny that these ideas are met with in me."

The underlying picture seems to go something like this: Mind is mind and world is world. They stand across from each other, separated by a "distance" that prevents them from interacting, i.e., the so-called mind-world gap.



In order for them to begin interacting, the distance between them must be eliminated, allowing them to enter into contact with each other. After all, a bat can only send a baseball into the stands if the swinging bat makes contact with the ball. And a match can only set fire to wood if it is applied directly to the wood. Thus cognition, construed in a precisely analogous way, would appear to require (or even consist in) the bringing of subject and object into contact.

This "contact model of mind" thus sets parameters for what would count as direct access to the extramental world, modeling cognitive access on body-body contact. The mind-world gap is hence a kind of "contact" problem. And the appeal of representationalism here is obvious. If the distance is to be closed, either mind has to go out to world, or world has to come to mind. But this sort of freewheeling ontological travel seems impossible. Both mind and world remain what and where they are, no matter how much perceiving and knowing is going on. So the mind-world gap is crossed by the world's emissaries, representations brought "indoors" for the mind to contact in its own home, so to speak.¹¹

The same arrangements can be described in "visual" terms. For instance, one might imagine the problem of the mind-world gap as a problem about what falls into the mind's "field of vision." On this model, representationalism can be expressed as the claim that the extramental world lies outside the mind's "field of vision," and can only be accessed indirectly through representations which are seen in the "inner space" of the mind itself, where they are confronted by an inner viewer. Hence, the knower's relationship to her representations is framed as one of "seeing" or "beholding" or "contemplating." Even Hume, all the while denying that the mind is anything other than its perceptions, still finds it useful to invoke the image of the mind as a "theater" within which ideas "make their appearance" to me.¹² It seems to me, however, that the

¹¹ It is here that, depending on one's ontology, a related worry might arise, i.e., about causal interaction between an immaterial mind and a world of bodies such that emissaries can be produced at all. But we need not concern ourselves with this problem here.

¹² Hume, *Treatise on Human Nature*, Bk. 1, sect. VI (On Personal Identity): "But setting aside some metaphysicians of this kind, I may venture to affirm of the rest of mankind, that they are nothing but a bundle or collection of different perceptions, which succeed each other with an inconceivable rapidity, and are in a perpetual flux and movement. Our eyes cannot turn in their sockets without varying our perceptions. Our thought is still more variable than our sight; and all our other senses and faculties contribute to this change: nor is there any single power of the soul, which remains unalterably the same, perhaps for one moment. The mind is a kind of theatre, where several perceptions successively make their appearance; pass, repass, glide away, and mingle in an infinite variety of postures and situations. There is properly no simplicity in it at one time, nor identity in different, whatever natural propensity we may have to imagine that simplicity and identity. The comparison of the theatre must not mislead us. They are the successive perceptions only, that constitute the mind; nor have we the most distant notion of the place where these scenes are represented, or of the materials of which it is composed. . . . What then gives us so great a propensity to ascribe an identity to these successive perceptions, and to suppose ourselves possessed of an invariable and uninterrupted existence through the whole course of our lives? . . . When I view this table and that chimney, nothing is present to me but particular perceptions, which are of a like nature with all the other perceptions. This is the doctrine of philosophers. But this table, which is present to me, and the chimney, may and

attraction of this model comes from an common prephilosophical tendency to imagine sight as a kind of "visual contact," so it is simply another version of the contact model.¹³

Now there are two very interesting artifacts of setting up representationalism as a response to a mind-world "contact" problem. One is that the mind ends up playing a kind of dual role as (a) "that which contacts," a kind of inner sensor or viewer, *and* (b) as the space within which this inner sensor accesses mental representations. The other is that, curiously, as long as we remain *within the confines of this mental space*, the possibility of the mind's being in "direct contact" with its representations raises no concerns. No one {that I know of!}, for instance, seems to worry very seriously about whether there might be an intramental "mind-idea gap" or an "I-idea gap." Mind's direct contact with *x* is taken for granted as long as *x* is an intramental entity. So it is important to realize that this conceptual model not only here sets certain parameters for *what counts as successful "access" to x* (modeled on physical body-body contact), but also harbors certain implicit assumptions about *what kinds of objects can be in direct contact with minds at all*.

1.2. Reading Aquinas through a contact lens

The "contact model" I have just described is fully operative among contemporary readers of Aquinas, as becomes evident in considering how they have typically answered the question: "Why did Aquinas think that species are required for cognition?"

The standard way of telling the story goes as follows: An object must be present to a knower in order for it to be known, and the species is precisely what compensates for that missing presence. For example, the intellect is not *already by nature* a stone or a fern or green, so in order for it to cognize 'stone' or 'fern' or 'green', these extramental realities must be made present to it. But of course we cannot shove stones and ferns directly into an immaterial intellect! The species, it seems, provides the solution: Abstraction produces a *likeness* of stones and ferns that is immaterial and hence can be received into the intellect.¹⁴

do exist separately. This is the doctrine of the vulgar, and implies no contradiction. There is no contradiction, therefore, in extending the same doctrine to all the perceptions."

¹³ Vision itself, of course, can be reformulated as a literal physical contact. In fact, prephilosophical assumptions about vision typically have the eye establishing some kind of physical contact with the object (usually of an extromissive type). The "visual" imagery, then, does not properly constitute its own model that permits access "at a distance," but merely garnishes what should properly be considered a "contact" model of cognition.

¹⁴ Some texts that seem to suggest this approach: *ST Ia.84.2*: "Respondeo dicendum quod antiqui philosophi posuerunt quod anima per suam essentiam cognoscit corpora. Hoc enim animis omnium communiter inditum fuit, quod simile simili cognoscitur. Existimabant autem quod forma cogniti sit in cognoscente eo modo quo est in re cognita. E contrario tamen Platonici posuerunt. Plato enim, quia perspexit intellectualem animam immaterialem esse et immaterialiter cognoscere, posuit formas rerum cognitarum immaterialiter subsistere. Priores vero naturales, quia considerabant res cognitae esse corporeas et materiales, posuerunt oportere res cognitae etiam in anima cognoscente materialiter esse. Et ideo, ut animae attribuerent omnium cognitionem, posuerunt eam habere naturam communem cum omnibus. Et quia natura principiatorum ex principiis constituitur, attribuerunt animae naturam principii, ita quod qui dixit principium omnium esse ignem, posuit animam esse de natura ignis; et similiter de aere et aqua. Empedocles autem, qui posuit quatuor elementa materialia et duo moventia, ex his etiam dixit animam esse constitutam. Et ita, cum res materialiter in anima ponerent, posuerunt omnem cognitionem animae materialem esse, non discernentes inter intellectum et sensum"; *ST Ia.56.3*: "Ad cuius evidentiam, considerandum est quod aliquid tripliciter cognoscitur. Uno modo, per praesentiam suae essentiae in cognoscente, sicut si lux videatur in oculo, et sic dictum est quod Angelus intelligit seipsum. Alio modo, per praesentiam suae similitudinis in potentia cognoscitiva, sicut lapis videtur ab oculo per hoc quod similitudo eius resultat in oculo. Tertio modo, per hoc quod similitudo rei cognitae non accipitur immediate ab ipsa re cognita, sed a re alia, in qua resultat, sicut cum videmus hominem in speculo."

The story expresses two key assumptions about species that are driving the debate: First, the intelligible species functions *primarily* as a "link" that connects the intramental and the extramental. Second, the species does its "connecting" work by granting to the extramental reality an intramental presence it otherwise lacks: Indeed, the species on this construal *just is* the intramental presence of an extramental object.¹⁵

For modern readers, the real interest of this "story of the species," of course, comes from its "moral" for the mind-world gap. Should we conclude that the species links up intellect and world in such a way as to provide a *direct access* to extramental realities, making Aquinas a so-called "direct realist"? Or does the intellect have direct access only to species themselves, making Aquinas defend some version of representationalism? The Aquinas literature offers three competing readings.

First, a representationalist reading is in a way the most natural. If the intellect were capable of directly accessing reality, then it wouldn't need intelligible species in the first place. What we directly access, then, are species, not extramental objects.¹⁶ But this interpretation is also the least accepted, since it flies in the face of Aquinas's claim that species are "that by which" we cognize, not "that which" we cognize.

Second, consequently, a "direct realist" reading primarily concerned with avoiding making the species into an intermediate object, has been the most common. It proposes that species have a special relationship with extramental objects, such that the reception of the species 'stone' or 'fern' precisely *constitutes* direct intellectual access to real extramental stones and ferns.

What could this special relationship be? Obviously, the species and object cannot be *numerically* identical, since the species 'fern' is immaterial, and the extramental essence of a living fern is physical.¹⁷ The usual tactic here is say that they are *formally* identical, although there is no consensus in the scholarship as to what formal identity is supposed to be.¹⁸ One somewhat common solution is to say that the species 'fern' is the "same form" as the fern-form instantiated in that matter there, as that fern, in just the same way that Socrates and Plato have the "same human nature," instantiated here as this human Socrates and there as that human

¹⁵ Consider possibly distinguishing between "being the presence of x" and "presenting x." The latter seems more viciously "visual" than the former.

¹⁶ As Claude Panaccio, "Aquinas on Intellectual Representation," holds, under the assumption that any theory of knowledge that relies on species must be representationalist. The same view appears to be defended by Pasnau, "Identity of Knower and Known," APA talk published by SMLM <http://faculty.fordham.edu/klima/APAPasnau.htm>; also Pasnau 1997—but compare the more refined theory of weak representationalism that Pasnau subsequently attributes to Aquinas, below.

¹⁷ Also, Pasnau's objection: If Aquinas thought there was just one form, then cognizing the species would *just be the same as* cognizing treeness in the object; so there would be no point to his insisting that treeness is that which is understood (*id quod cognoscitur*) while the species is only that whereby one understands (*id quo cognoscitur*).

¹⁸ It should be noted that the existing scholarly positions do not seem well-defined. It is standard to characterize the scholarly dispute as a dispute between the proponents of numerical identity vs. merely formal identity, although in fact I don't know of anyone who explicitly defends numerical identity. The tendency instead is to deny explicitly that the forms are numerically identical, while making claims about them that seem to assume their numerical identity. Brower & Brower-Toland 2012 propose distinguishing formal-sameness and similarity, but other interpreters (e.g., Pasnau) don't clearly differentiate between the two—and yet even Brower & Brower-Toland describe formal-sameness in terms that come close to their description of numerical identity from the perspective of Thomistic metaphysics.

Plato.¹⁹ Critics of this approach object that the notion of "sameness" here is ill-defined, and that it threatens either to collapse into numerical identity on the one side, or a mere resemblance on the other.²⁰

In any case, formal identity does not seem to protect our direct access to the extramental world as aggressively as its proponents might hope—at least not if the goal is to *put the mind in direct contact with extramental ferns*.²¹ After all, the species 'fern' and the living nature of this fern are still *two distinct* instantiations of fern-form. So even if in receiving 'fern'-species, the intellect receives "the kind of form that is also instantiated in extramental ferns," that does not seem sufficient for direct access *to ferns and stones in their extramental existence*. Nor is it clear why receiving an *intramental* fern-form should result in knowing *extramentally instantiated fern-form*. An analogy can help to sharpen the problem: Assuming that humanity is the same in all humans, when I encounter Socrates's humanity, *what I encounter* is something that Plato and all other humans also have. But certainly I do not encounter that essence *as instantiated in Plato*,²² and certainly I would not be justified in exclaiming, "I just met Plato!" after encountering Socrates. So the 'direct-realist' reading still does not seem to account satisfactorily for Aquinas's claim that the extramental fern is "what is cognized."²³

To remedy the deficiencies of these first two interpretations, a third interpretation has been proposed by Pasnau, who reads Aquinas as a "representational realist." Pasnau suggests that it is possible to hold that we have direct access only to our mental representations, without committing oneself to the further claim that mental representations are the *objects of our thought*. Indeed, a representational realist might hold that accessing those representations is precisely what enables us to think about extramental objects. So Pasnau proposes that similarly, in Aquinas, the intelligible species is "that by which we know, not that which we know," in the sense that it is precisely by *apprehending the 'fern'-species*, that we are able to *think about extramentally instantiated fern-nature*.²⁴ (And notice that this interpretation requires us to introduce a distinction between some sort of "cognizing or accessing or apprehending" that describes our cognitive relationship with intelligible species, vs. an intentional "thinking about" that describes our cognitive relationship with extramental objects).

This interpretation has remained quite unpopular among Aquinas scholars, however, because it posits that the intellect's cognitive relation to its intramental species is *direct*, whereas its relation to extramental realities is *indirect*, a claim that seems at least aesthetically incongruous with Aquinas's insistence on the primacy of extramental reality in our cognition. More problematically to my mind, though, it seems to suffer from the same problem as the

¹⁹ Owens, Gilson, Kretzmann, O'Callaghan, Perler, Haldane. In this sense, intellect-object identity is more than merely formal—yet also less than fully numerical; see Brower & Brower-Toland.

²⁰ In fact, sometimes formal identity is treated as basically equivalent to numerical identity, e.g., Pasnau, "Identity of Knower and Known."

²¹ Also dissatisfying: Eleonore Stump has used the analogy of a "lens": the species is that "through which" one looks at the extramental world, and without which one cannot see anything "outside." The analogy does not really help to make sense of the view, however, insofar as lenses function precisely by sharpening and focusing the content of a preexisting visual field, whereas without species, we have nothing in our intellectual "field of vision" at all!

²² Keep in mind, too, that Aquinas frequently *denies* that our intellects cognize the quiddities of material things *as* those quiddities are in material things.

²³ *ST* Ia.85.2: "Sed id quod intelligitur primo, est res cuius species intelligibilis est similitudo."

²⁴ Pasnau, "Id Quod Cognoscimus, 146: "Species actualize a cognitive power in virtue of being somehow apprehended."

second (direct realist) interpretation: It has no story to tell regarding *why* apprehension of an intramental reality should automatically direct our thoughts to *extramental* realities!

Now it is telling, I think, that the direct realist and representational realist readings come down on different sides of the question of whether species are intermediate objects of cognition—and yet turn out to be problematic in exactly the same way. Why would that be the case? The reason is that they have fundamentally the same way of seeing the problem and deploy the same sort of strategy to solve it. For both, the problem here is one of explaining how the mind can come into contact with extramental objects, despite the fact that it is only *intramentally* in contact with the species. In answer, both look for some *special characteristic in the species*, such that the intellect's contact with the species *gives the intellect the desired kind of relation with extramental reality*.

Put this way, there is not as much difference between a direct realist and a representational realist interpretation as one might have at first thought. Indeed the differences, I submit, are only cosmetically different. For instance, the direct realist construes the intellect's relationship to the species in non-cognitive terms as a *reception*, whereas the representational realist construes it in cognitive terms as an *apprehension*. But since this apprehension does not make one conscious of the species, the disagreement here seems more semantic than substantive, concerning merely what one is willing to label as cognitive contact. Again, the direct realist construes the desired relation to extramental ferns as a kind of identity, where the representation realist construes it as an intentional relation (thinking about ferns). But here too, since direct realism as an interpretation of Aquinas is motivated by his claim that extramental realities as "what we understand" (i.e., intentional objects), the two claims are not so far apart after all.

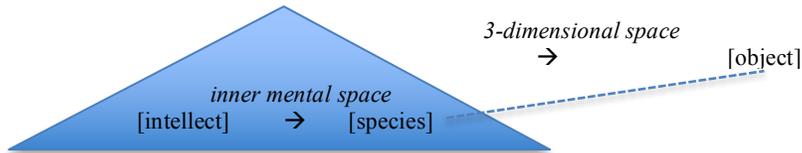
So does it really matter whether the species enables us to think about extramental ferns in virtue of being "formally identical" with the essence of real ferns (as the direct realist would argue) or in virtue of having some other special property such that contact with it constitutes intentional contact with extramental ferns (as the representational realist would argue)? In both options, what the intellect directly "touches" is the intelligible species 'fern'—and the species establishing the "right kind of contact" with real ferns, because of some sort of mysterious special property of intelligible species.

The surprising convergence of these two opposed interpretations points crucially to a deeper shared assumption at the root of *all* these diverging positions, which I would like to challenge. The three interpretations I have just described all assume that the point of the species' being a *likeness* is for it to serve as a "*link*" between an inner viewer and inaccessible extramental objects. They therefore tend to think of the species as a kind of psychological tool that extends a cognitive power's "reach" into the extramental world—a linking mechanism that stands "between" an inner viewer and extramental objects to "put them in contact."²⁵

They certainly have plenty of disagreements, i.e., (a) whether this link is "opaque" or "transparent" to the extramental world, (b) whether it fulfils its "linking" function by being apprehended or not, (c) what counts as a sufficient degree of "contact" with the extramental

²⁵ This imagery of contact appears explicitly in Porro, *Philosophical Profile*, 72-73, who appeals to it to argue that Aquinas is a "moderate representationalist" for a different reason than Pasnau's: namely, because the intellect can never have any "contact with individuals," except indirectly through the imagination. Consequently although I share his general sentiment that "the myth of an ultrarealist Thomas is a late nineteenth- and twentieth-century invention that was used to oppose realism to post-Kantian and idealist representationalism" (73), I cannot agree with his use of "contact with individuals" as the criterion for realism—a criterion that is in itself anachronistic, as will become clear later on.

world. But underneath the disagreements, the fundamental model of cognition is the same.²⁶ And it is the one that we saw in the previous section: the "contact model":



Crucially, on this model, readers of Aquinas expect him to be setting up a tripartite relationship: The intellect-onlooker + the 'fern'-species + the ferns themselves. In other words, the *species* is construed as a little psychological "entity" in its own right, something like a "proxy" for, or "inner representation" of, or "intramental presence" of, the object. It's also worth noticing that none of these interpretations accords any real explanatory value to Aquinas's claim that the species is also the form of the intellect. The language of "form" has been swept under the rug, as though it is just a bit of hylomorphic jargon referring to the fact that this mental likeness is "in" the intellect.

2. Species as form

2.1. A principle of actuality and operation

Now I want to set up an alternative to this whole picture, by taking seriously the *metaphysics* of the species—namely, the species's role as "form of the possible intellect." Let's briefly recapitulate the principles established in Chapter 1, concerning the explanatory role of an "ordinary" form in Aquinas's metaphysics.

First of all, for Aquinas, forms are responsible for the kinds of "actual being" that a substance has. Form is the reason that any substance is "in act" in various ways, substantially and accidentally. The reason that some substance is "water in act" or *actually water* is that it has as a metaphysical constituent, the substantial form 'water'. The reason this water is "hot in act" or *actually hot* is that it has acquired the accidental form 'heat'. We can think of form, crudely, as contributing specific kinds of ontological realities (= actual being) to their subjects, thus giving them membership in the relevant genera. In short, *x*-form is what makes some subject have *x*-type being, so that it actually belongs to the genus of *x*'s. It is important to stress that in Aquinas's metaphysics, forms are of *determinate kinds*, and hence they account for the *determinate kinds* of actualities that the subject has. To put it another way, they *specify* the kind of being that their subject shall have.

Second, for Aquinas, "every agent acts in virtue of some form." That is to say, in order to have the power to perform a certain operation, an agent must have the appropriate "form" structuring it in the correct action-producing way.²⁷ When the hot water heats an egg, it does so

²⁶ I think it is not at all surprising to find this model here, given that the whole discussion among contemporary interpreters arises in an attempt to situate Aquinas's view in relation to later theories, e.g., early modern representationalism or German idealism.

²⁷ In contemporary terms, this is a property that is the basis for a power (we need not worry here about whether the property *is* vs. *grounds* the power, on Aquinas's view). It is also interesting that, for Aquinas, all action always involves a likeness in some sense, but that is a topic for another time.

in virtue of its form of heat.²⁸ The relationship between form and operation is articulated in Aquinas's familiar maxim, "Whatever is acting, acts [i.e., performs an operation] insofar as it is in act [i.e., having a certain kind of being from its form]." An operation is, in fact, the exercise of the actualities that form provides.

So to summarize the relationship between form, being "in act," and operation: To acquire a form is to acquire *a new kind of being—to be actual or "in act" in a certain way, as specified by the form*. And some of these actualities are action-relevant: When a substance performs any operation, it is exercising an innate or acquired formal structure.

Should we understand Aquinas's intelligible species in the same metaphysical way? Absolutely! In fact, it is not even necessary to extrapolate from his comments about "ordinary" forms—he explicitly draws the connection himself.

Species contribute a determinate actuality to their subjects. First, Aquinas insists that the intelligible species, as a form acquired by the human knower,²⁹ accords a certain kind of *actuality* or *being* to the human knower, just as "ordinary" forms are responsible for the actualities that their subjects possess. As he writes in the *Summa contra gentiles*: "For our possible intellect only cognizes itself by the intelligible species, by which it is rendered in act in intelligible being (*qua fit actu in esse intelligibili*)."³⁰ And: "For the intellect comes to be in act by the intelligible form insofar as it is understanding, just as a natural thing is rendered in act in natural being by its own form."³¹ What *kind* of being we acquire "in act" from an intelligible species, is absolutely crucial for the whole theory—I will return to this a moment—but for now the key point is just that the intelligible species plays the same role as an form in Aquinas's hylomorphic³² theory. It *adds a new actuality or being*, to the human knower, in just exactly the same way that, e.g., the acquisition of the form of heat *adds a new actuality to water*, making it actually hot.

²⁸ Note that technically, fire is an agent of heating, but a pot is only a secondary agent (i.e., it heats in virtue of a form that it does not have in itself, but which it has acquired only temporarily from another). Aquinas's concept of "agents" and "action" is narrower than our own common English usage. For instance, we might speak of the car as acting when it goes into gear and begins to drive. But Aquinas would not describe a car as an agent. It is passive to the driver's action. It moves because it is set into motion when I turn on the engine, put it into drive, and take my foot off the brake.

²⁹ More precisely, its immediate subject of inherence is the soul, but that need not matter to us right now.

³⁰ SCG 2.98: "Intellectus igitur possibilis noster non cognoscit seipsum nisi per speciem intelligibilem, qua fit actu in esse intelligibili." See for instance *Sent* II.17.2.1; SCG 1.46, 1.53, 2.59, 3.42, 3.51; ST Ia.76.2, 85.2; QDSC 2; and for discussion see Leon Spruit, *Species intelligibilis: From Perception to Knowledge*, vol. 1, *Classical Roots and Medieval Discussions* (Leiden: Brill, 1994), ch. 2.3. And: SCG 2.76 [Leon. 13.480]: "Sicut materia prima perficitur per formas naturales, quae sunt extra animam, ita intellectus possibilis perficitur per formas intellectas in actu"; QDDA 18, ad 5 [Leon. 24/1.159:411–14]: "Comparatur igitur forma intellectiva ad intellectum possibilem sicut forma naturalis ad materiam primam, prout est intellecta in actu, non prout est habitualiter"; InDA III.1 [Leon. 45/1.206:323–25]: "[S]pecies igitur intelligibilis non est forma intellectus possibilis nisi secundum quod est intelligibilis actu"; ST Ia.14.2, ad 2 [Leon. 4.169]: "[P]er hoc quod [intellectus] est in potentia, differt ab intelligibili, et assimilatur ei per speciem intelligibilem, quae est similitudo rei intellectae; et perficitur per ipsam, sicut potentia per actum"; Ia.55.1, ad 2.

³¹ SCG 4.19: "Intellectus enim fit in actu per formam intelligibilem in quantum est intelligens, sicut res naturalis fit actu in esse naturali per propriam formam.

³² Hylomorphism in Aquinas: Physical substances are all analyzable into form and matter. He is happy to extend hylomorphic-type analyses into other arenas, though, e.g., famously speaking of the "form" and "matter" of a moral action, or, as here, of an immaterial form and the intellectual potency that is "like" its matter (see Ch. 3).

Just how seriously Aquinas takes this quasi-hylomorphic construal of the species, is clear from his early commentary on the *Sentences*, Aquinas draws a remarkable extended analogy between the soul as form of an actual human being, and the species as form of the actualized intellect:

The human intellect is sometimes in potency and sometimes in act. And when it is in potency, it is not the same as (*idem cum*) the intelligible in potency that is some thing existing outside the soul. But in order for it to be understanding in act, the intelligible in potency must become intelligible in act in the following way: Its species is bared of all material appendices by the power of the agent intellect. And this species, which is actually understood, perfects the intellect in potency: from which conjunction there comes to be something one and perfect (*unum perfectum*), which is the intellect in act—just as from the soul and body there is made something one, which is a man having human operations. Whence, just as the soul is not other than the man, so too that which is actually intellected (*intellectum in actu*) is not other than the intellect of the one actually understanding, but rather the same (*idem*)—not in such a way that the species becomes the very substance of intellect or a part of it, other than a formal part, just as the soul does not become the body.³³

We see here that Aquinas accords the species a quasi-hylomorphic role just like any other form inhering in a subject: It accords a new kind of being to the human person, formally constituting “something one” that is equally at once an intellectual and an intelligible actuality.

This hylomorphic construal of the species puts its relationship with the intellect into a different light. Earlier we saw that traditional interpretations of Aquinas’s theory of species, following the contact model of mind, assume that they have to articulate the relationship between *three* entities: the mind/viewer, the species ‘fern’, and the extramental fern. Now that the species has turned out to be a formal constituent that accounts for the actuality that the intellect has, however, it is clear that there are just *two* entities to be related here: the species-actualized intellect, and the extramental fern. We will see later why this adjustment is significant.

Species are the intrinsic formal principles of operation. Second, this new actuality provided by the intelligible species-form is precisely the actuality required for *understanding*, i.e., performing an intellectual operation. In *De veritate* 8.6, Aquinas writes: “Prime matter cannot perform any action unless it is perfected by its form, and its action then is more an emanation from the form than from the matter. In the same way, our possible intellect cannot understand anything before being perfected by an actually intelligible form.”³⁴ The operation of

³³ *Sent.* I.35.1.1, ad 3: “Sciendum est ergo, quod in omni intellectu aequaliter est idem intelligens et intellectum, et in quibusdam etiam aequaliter differt; in aliquibus vero sunt omnino idem. Intellectus enim humanus, qui aliquando est in potentia, et aliquando in actu, quando est in potentia intelligens, non est idem cum intelligibili in potentia, quod est aliqua res existens extra animam; sed ad hoc quod sit intelligens in actu, oportet quod intelligibile in potentia fiat intelligibile in actu per hoc quod species ejus denudatur ab omnibus appenditiis materiae per virtutem intellectus agentis; et oportet quod haec species, quae est intellecta in actu, perficiat intellectum in potentia: ex quorum conjunctione efficitur unum perfectum, quod est intellectus in actu, sicut ex anima et corpore efficitur unum, quod est homo habens operationes humanas. Unde sicut anima non est aliud ab homine, ita intellectum in actu non est aliud ab intellectu intelligente actu, sed idem: non tamen ita quod species illa fiat substantia intellectus, vel pars ejus, nisi formalis, sicut nec anima fit corpus.”

³⁴ *DV* 8.6: “Sicut igitur materia prima non potest agere aliquam actionem nisi perficiatur per formam; et tunc actio illa est quaedam emanatio ipsius formae magis quam materiae; res autem existentes actu possunt agere actiones, secundum quod sunt actu; ita intellectus possibilis noster nihil potest intelligere antequam perficiatur forma intelligibili in actu. Tunc enim intelligit rem cuius est illa forma; nec potest se intelligere nisi per formam intelligibilem actu in se existentem.” See also *DV* 3.2: “[S]icut etiam in intellectu speculativo videmus quod species, qua intellectus informatur ut intelligat actu, est primum quo intelligitur; ex hoc autem quod est effectus in

understanding is, so to speak, the *exercise* of the form that is the intelligible species. Similarly, in the text just above from the *Sentences* commentary, we saw Aquinas emphasize that body and soul constitute a human being "having human operations," just as the intelligible species and the soul's intellectual potency together constitute an "intellect in the act [of understanding]." ³⁵

By taking seriously the notion of species as form, we have now stumbled across something quite remarkable: namely, a perfectly straightforward way of construing Aquinas's much-discussed claim that the species are "that by which (*quo*) we know." I propose that the famous tagline "by which we know" here has nothing to do with how the species is situated in the intervening space "between" mind and world. It does not communicate anything about whether the species are "transparent" to extramental objects, or whether we access species without thinking about them. Indeed, the "by which we know" is not meant to express a claim about how directly or indirectly we access the extramental world—really it does not say *anything about the mind-world relation at all*.

Simply, "that by which" is ordinary language that Aquinas uses to refer to action-relevant forms, i.e., forms that ground a power to act or be acted upon. ³⁶ Heat is "that by which" boiling water cooks an egg. Lightness is "that by which" a flame is drawn upwards. The habit of mercy is "that by which" I decide to forgive a debt. The intelligible species is "that by which" I perform an operation of knowing.

Aquinas makes this clear right in the middle of *Summa theologiae* Ia.85.2, the very text that has been the epicenter of the scholarly disputes on his theory of species. There, he explains that the species to be "that by which we know" *in precisely the same sense that a knife cuts by its sharpness or that fire heats by its warmth*:

Therefore it must be said that the intelligible species is related to the intellect as that by which it understands: which is made clear as follows. There are two [kinds of] action, as is said in *Metaphysics* IX, one that remains in the agent (e.g., seeing and understanding), and another that passes into an external object (e.g., heating and cutting). Both of them proceed in virtue of some form.

The comparison could hardly make be clearer, but it has gotten almost no traction in the secondary literature, ³⁷ presumably because readers now expect the "that by which we know" to express Aquinas's manifesto about the species' non-interference in the mind's access to the world. With that expectation in mind, the comparison to cutting seems quite out of place.

In any case, when Aquinas says that the species is "that by which" we know, not "that which we know," he is not saying that as psychological intermediary, the species has some special transparency, such that it does not "get in the way" of our direct access to extramental objects. Rather, he is making a *metaphysical* claim: The species is *a form that makes the human knower be "in act" in a certain way, granting her a new being or actuality in virtue of which she*

actu, per talem formam operari iam potest formando quidditates rerum et componendo et dividendo; unde ipsa quidditas formata in intellectu, vel etiam compositio et divisio, est quoddam operatum."

³⁵ This is one of the few cases where *intellectus in actu* apparently refers to the intellect's operation of understanding, not to the state of having "actualized intellectual being"; see ch. 1.

³⁶ These might be acquired forms, or natural powers rooted in the substantial form; strictly speaking Aquinas denies that substantial forms are ever directly the "that by which" of an operation. So a robin's affective power, not its robin-soul, is "that by which" it feels amorous in the springtime.

³⁷ One exception: Dewan.

performs the operation of understanding. It would not, I think, be incorrect to consider Aquinas's intelligible species as an acquired power (though he never puts it that way).³⁸

2.2. *What kind of being?*

But now one might object: Great, we've described the "metaphysical structure" of a knowing intellect more precisely, but does any of this help us understand the specifically *cognitive* dimensions of knowing *as a psychological phenomenon*?

The answer is yes—if we look more closely at the *kind of being or actuality* that the intelligible species, as form, actualizes in the human knower.

Here's how I read Aquinas's view about the kind of being in question.³⁹ The "being in act" or actuality that the human individual acquires from the intelligible species is what I call intellectual-intelligible being. {{For Aquinas, the category of substance is divided into two "orders" or genera: The corporeal order (sometimes called "natural" or "sensible" being), and another order that he interchangeably calls "the order of intellects" or the "order of intelligibles"—which is why I call it the order of "intellectual-intelligible being."}}

Now every reader of Aquinas knows that he defends the "identity of intellect and intelligible" (the "identity doctrine" for short). His identity doctrine is usually thought to express some sort of identity relation between *my intellect* and *extramental objects*, e.g., *trees and spiders*, which are thought to be "the intelligibles." I contend, however, that this common interpretation is mistaken: Aquinas's identity doctrine does not attempt to spell out the relationship between my mind and the extramental world. Rather, his identity doctrine articulates a fundamentally *metaphysical* claim about *the curiously twofold character of the kind of being in virtue of which we know*.

What the identity doctrine asserts, on my reading, is that intellectual being *just is* intelligible being; that the *knowing* kind of actuality is also the *being-known* kind of actuality. Intellectuality and intelligibility are merely two sides of the same coin, two dimensions of a single kind of being.⁴⁰ Aquinas offers a quirky thought-experiment of the immaterial box, in which he equates "self-understanding" with being intellectual *and then further with being intelligible*: "If a box were to subsist by itself without matter, it would be self-understanding, for freedom from matter implies intellectuality. And hence an immaterial box would be the same as an intelligible box." Similarly, elsewhere he stresses that actual intelligibility is an *immaterial and intellectual* kind of being. "The intelligible is within the intellect (*intra intellectum*) with respect to what is understood."⁴¹ "The actual intelligible is the actual intellect . . . But according as intelligible and intellect are distinct from each other, both are in potency."⁴² So we should not

³⁸ This formulation was suggested to me by Chris Hauser.

³⁹ [In curly brackets, I summarize the account of "intellectual-intelligible being" that I defended recently in "Knowing as Being? A Metaphysical Reading of the Identity of Intellect and Intelligible in Aquinas," *American Catholic Philosophical Quarterly* 91 (2017): 333–351; and which is developed at length in chs. 1-2 of this book. In the final version I'll probably be referring back to those chapters rather than including a summary.]

⁴⁰ SCG 2.55: "Intelligibile est propria perfectio intellectus: unde intellectus in actu et intelligibile in actu sunt unum. Quod igitur convenit intelligibili in quantum est intelligibile, oportet convenire intellectui in quantum huiusmodi: quia perfectio et perfectibile sunt unius generis."

⁴¹ SCG 2.98: "Intelligibile est intra intellectum quantum ad id quod intelligitur."

⁴² SCG 1.51: "Intelligibile in actu est intellectus in actu: sicut et sensibile in actu est sensus in actu. Secundum vero quod intelligibile ab intellectu distinguitur, est utrumque in potentia, sicut et in sensu patet: nam neque visus est videns actu, neque visibile videtur actu, nisi cum visus informatur visibilis specie, ut sic ex visu et visibili unum fiat. Si igitur intelligibilia Dei sunt extra intellectum ipsius, sequetur quod intellectus suus sit in

think of x 's intelligibility in terms of *the possibility of x 's becoming the object of an act of knowing*. Rather, intelligibility in Aquinas is a kind of being or reality—in fact it *just is* intellectual being. “The actually-understood forms are one with the actually understanding intellect. Hence, if forms are actually-understood on account of being matterless, something must be understanding on account of being matterless.”⁴³}}

So now a clearer picture is emerging of the kind of actuality that the human knower acquires when she is formed by the intelligible species: It is a *kind of being that is both intellectual and intelligible, knowing and being-known at once*. Whatever is immaterial has this character of being known to itself, being lit up to itself, which is why I like to characterize this kind of being as essentially “self-manifesting.”

If I am right about all this, then it turns out, for Aquinas, that the metaphysical “form-role” of the intelligible species is not a mere *precursor* to examining the specifically cognitive elements of knowing. Rather, the metaphysical story *is* the cognitive story: The kind of being that we acquire from the species is *an essentially cognitive, self-manifesting reality*.

2.3. *The species specifying...*

Now what about the fact that this intelligible species is the species ‘fern’? Does its being ‘fern’-species finally take us to the role of the species as likeness of an extramental object?

Not yet.

Let’s not forget that forms in Aquinas determine the *specific kind* of being that their subjects have. The substantial form of Socrates is specifically human, and its character *as human* need not in itself imply a relationship to anything other than himself. We can make sense of Mouton’s being *determinately sheep* (and not, e.g., leonine or human or stellar) even if he is the only sheep in the universe. Now as we’ll see in a moment, on Aquinas’s theory of causation, *it so happens* that the forms of caused things are always to some degree like their causes. Nonetheless, for Aquinas, *being this specific kind of thing* (sheep, lion, human, star) is still distinct the thing’s *relation of likeness to a cause*. In other words, the determinate reality “being sheep” is not reducible to “being caused by a sheep,” even if it is in fact the case that all sheep are caused by sheep.

The same, I argue, can be said of the intelligible species ‘fern’: It is a *determinately fernish form*, giving the actualized intellect a *determinately fernish character*. In other words, the composite of intellect+form is not merely a generic “self-manifesting” perfection of me, but specifically a self-manifesting *fern*. In other words, when I am perfected by self-manifesting being, the species is responsible for the specific character of that ontological perfection in me: i.e., that I have acquired a fernish perfection, not a stoney perfection.

The crucial point here is this: When I am studying botany, and my intellect receives an intelligible species ‘fern’, I acquire intellectual-intelligible fernishness as a *real feature of me* that is not reducible to some relation to ferns. To say that this intelligible species is a ‘fern’-species is to say something about the determinate character of the species *in itself*, like saying

potentia, et similiter intelligibilia ipsius. Et sic indigebit aliquo reducente in actu. Quod est impossibile: nam hoc esset eo prius.”

⁴³ *SCG* 1.44: “Ex hoc aliqua res est intelligens quod est sine materia: cuius signum est quod formae fiunt intellectae in actu per abstractionem a materia. Unde et intellectus est universalium et non singularium: quia materia est individuationis principium. Formae autem intellectae in actu fiunt unum cum intellectu actu intelligente. Unde, si ex hoc sunt formae intellectae in actu quod sunt sine materia, oportet rem aliquam ex hoc esse intelligentem quod est sine materia. Ostensum est autem supra Deum esse omnino immaterialem. Est igitur intelligens.”

that Mouton has a sheep form. Claims about the determinate character of the species are, then, not reducible to claims about likeness, i.e., about its relation to real real ferns. For Aquinas, we can make sense of fernishness as a *kind of mental perfection*, regardless of whether or not ferns exists anywhere outside the mind.

Consequently (and this is as far as we can go with the species's role as form, before introducing its role as likeness), the species also specifies the determinate character of the operation that is performed in virtue of it. A fernish intellect performs a fernish act of knowing: "That thing alone is first and per se cognized by the intellect, by whose species the intellect understands; for the operation is proportionate to the form which is the principle of the operation."⁴⁴ In other words, it is because the species is determinately a *fern-species* that the resulting operation of knowing is determinately a *fern-knowing*.

Now as we'll see in a moment, Aquinas also links the specification of the operation to the fact that the species is a "likeness" and hence grounds a relation between the intellect and extramental reality. But now, I want to emphasize that *even without introducing a relation to something extramental*, we can make sense of the notion that the intelligible species formally determines the operation. The same is true, on Aquinas's view, of any action-relevant form. Consider again, for instance, the substantial form (soul) that makes Mouton be a sheep. As a substantial form, generally speaking, it grants to Mouton all its substantial being and the powers to perform various operations. But because this being and its powers come from *sheep-form*, the being and operations of Mouton are determinately *sheep-actualities* and *sheep-operations*. This determinacy obviously has nothing to do with the sheep's likeness to sheep other than itself. Its being and operations would still have a determinately "sheep" character even if it were the only sheep in the universe. Similarly, 'fern'-species enables the human being to perform an act of "fernish knowing," whether or not that fernish determinacy is the likeness of any real extramental thing.

Notice, then, that everything we have seen of Aquinas's theory of species so far takes its point of departure from a construal of the intelligible species as a *form like other forms*. So far, we have seen nothing to suggest that the species is a psychological item like a "mental representation" or "concept" or "inner presentation." It is not "contained in" the intellect, or "looked at," or "looked through," or "contacted" in any way—indeed there would be nothing there *to* contact it, since it is only as formed by the species that our intellects have any actual being at all). Simply, the species formally structures the intellect and gives it a certain kind of being, and hence the ability to operate in a certain way.

Nonetheless, taking this entirely metaphysical approach, Aquinas is still able to account for the cognitive dimensions of knowing, because on his view, the species as precisely the kind of form that provides us with an essentially cognitive (or more precisely, self-manifesting) kind of being. It is due to the intelligible species 'fern' that a fern-ish kind of being takes up residence in me—more specifically, a fern-ish kind of being that is "intelligible being" (known-fern-being), which is just the same as intellectual being (knowing-fern-being). What I acquire from the species in other words, like water acquiring heat, is a self-manifesting fernishness. From this fern-ish self-luminous actuality, there immediately proceeds an act of fernish understanding, as a final, internal, completing perfection of the human knower—an internal perfection of

⁴⁴ SCG 1.48.

fernification.⁴⁵ (We will have to consider in the next section, though, whether "having fernish knowing" is fully equivalent to "knowing ferns.")

3. Mind-World Assimilation

3.1. Likenesses all the way down...

With this in place, it may now seem that all the cognitive work has been done, and that there is nothing at all left for the species as *likeness* to do! If it seems so, then we have now finally attained the right frame of mind to consider what is added to Aquinas's cognition theory by the claim that the fernified intellect's form is a "likeness" of extramental ferns.

As we noticed earlier, nothing about the species's role as *a determinate kind of form* implies, in itself, any sort of relation to the extramental world. For Aquinas, the point of highlighting the species's role as *likeness* is precisely to ground a mind-world relation. For instance, in *Summa contra gentiles* 1.53, he writes:

The exterior thing that we understand does not exist in our intellect according to its proper nature, but rather its species must be in our intellect. Thereby is the intellect rendered into act, and existing in act by that species as though by its own form, the intellect understands the thing itself. But it is not as though the act of understanding were an act that goes forth into the thing understood, as when heat goes forth into the thing heated. Rather, the act remains in the one who understands; but it has a relation to the thing that is understood, because the aforementioned species that—as form—is the principle of the intellectual operation, is the likeness of that [thing].⁴⁶

⁴⁵ *Sententia Metaphysicae* 12.8, n. 4: "Et dicit, quod hoc est de ratione intellectus, quod intelligat seipsum in quantum transmittit vel concipit in se aliquid intelligibile; fit enim intellectus intelligibilis per hoc quod attingit aliquid intelligibile. Et ideo, cum ipse intellectus fiat intelligibilis concipiendo aliquid intelligibile, sequitur quod idem sit intellectus et intelligibile. Quomodo autem intellectus attingat intelligibile exponit. Intellectus enim comparatur ad intelligibile sicut potentia ad actum, et perfectibile ad perfectionem: et sicut perfectibile est susceptivum perfectionis, ita intellectus est susceptivus sui intelligibilis. Intelligibile autem proprie est substantia; nam obiectum intellectus est quod quid est; et propter hoc dicit, quod intellectus est susceptivus intelligibilis et substantiae. Et quia unumquodque fit actu in quantum recipit intelligibile: hoc autem est esse actu in genere intelligibilium, quod est esse intelligibile. Et, quia unumquodque in quantum est actu, est agens, sequitur quod intellectus in quantum attingit intelligibile, fiat agens et operans, id est intelligens. Intelligibile autem proprie est substantia; nam obiectum intellectus est quod quid est; et propter hoc dicit, quod intellectus est susceptivus intelligibilis et substantiae. Et quia unumquodque fit actu in quantum recipit intelligibile: hoc autem est esse actu in genere intelligibilium, quod est esse intelligibile. Et, quia unumquodque in quantum est actu, est agens, sequitur quod intellectus in quantum attingit intelligibile, fiat agens et operans, id est intelligens." // "And [Aristotle] says that it belongs to the nature (*ratio*) of the intellect that it should understand itself insofar as it takes on or conceives in itself something intelligible; for the intellect becomes intelligible by its attaining something intelligible. And therefore, because the intellect becomes intelligible in conceiving something intelligible, it follows that intellect and intelligible are the same. And he explains how the intellect attains the intelligible. The intellect is related to the intelligible as potency to act, and the perfectible to its perfection: and just as the perfectible is receptive of its perfection, so too the intellect is receptive of its intelligible. . . . And thus each [intellect] is rendered into act insofar as it receives the intelligible: for to be in act in the genus of intelligibles is to be intelligible. And because each is acting insofar as it is in act, it follows that insofar as the intellect attains the intelligible, it becomes acting and operating—that is to say, understanding."

⁴⁶ *SCG* 1.53: "Res exterior intellecta a nobis in intellectu nostro non existit secundum propriam naturam, sed oportet quod species eius sit in intellectu nostro, per quam fit intellectus in actu. Existens autem in actu per huiusmodi speciem sicut per propriam formam, intelligit rem ipsam. Non autem ita quod ipsum intelligere sit actio transiens in intellectum, sicut calefactio transit in calefactum, sed manet in intelligente: sed habet relationem ad rem quae intelligitur, ex eo quod species praedicta, quae est principium intellectualis operationis ut forma, est similitudo illius."

The claim here is that the intellect's act of knowing has a relation to some extramental x because the form of the knowing intellect is a likeness of x .

To be a likeness, however, is not something unique to cognitive forms. Likenesses come cheap in Aquinas's metaphysics of form. It is in fact a fundamental premise of his theory of causation that "every agent makes its patient like itself": *Every* effect is like its efficient cause. Indeed, what agency *is, fundamentally*, is the agent's assimilation of the patient to itself, the cause's activating in the effect a form like its own. A human father generates a human child; a hot oven makes a casserole hot; fire generates fire in a pile of sticks, etc. In each of these cases, the agent has some form (human, hot, fire) that it produces in something else. The form produced is therefore said to be "like" or "a likeness of" some form in the agent. (Note that his concept of agency is very broad; he calls any efficient cause an *agens*, i.e., agent or actor.⁴⁷)

Why would Aquinas think that agency consists in the causing of one's *likeness* in a patient? The point, I think, is to have some unified account of why efficient causes have the effects that they do. For Aquinas, the pairing of a given cause with a given effect is not arbitrary. The reason is that (as we just saw), form is the principle of operation: The kinds of activities that I can perform are specified by the forms (substantial and accidental) that I have. To act, for Aquinas, is to express one's being, and so a cause can only express in its effects the being that it has. As a result, whatever it does to them has to be, in some way, the extension of its own being to them, making them like itself. In this way, Aquinas's theory of causation is committed to the principle that form tends towards the production of its likeness in another, echoing the older Neoplatonic principle that the good is self-diffusive.⁴⁸

Aquinas's notion of likeness therefore tracks causal dependence, and hence is asymmetrical: The patient has a likeness to the agent (e.g., *qua* human, the son has a likeness to his father), but not the other way around. It is important to note, too, that Aquinas's notion of likeness is broad enough not to require that the agent make the patient be the *same sort of thing* as itself. In the case of what he calls "univocal agency" (as when hot water makes spaghetti hot, or when a human father generates a human child), the patient is made to belong to the same genus as the agent. But in the case of "equivocal agency," the agent's likeness is not fully realized in the patient; in these cases, the likeness will be in the patient either to a quantitatively less degree, or in a lower mode of being. For example—for reasons too complicated to discuss here—he does not think that the sun is hot in the sense in which fire or boiling soup is hot; rather, it has some property that he calls "heat in a more eminent mode," whereby it causes in terrestrial bodies the lesser kind of heat with which we are familiar.⁴⁹ This provision also allows him to say that creatures have a "likeness" to the Creator, even though whatever it is that we are "like" in God, exists in him in a mode of infinite perfection and simplicity.⁵⁰

⁴⁷ We are talking about *per se* causation here, not *per accidens* causation in which the cause is only accidentally related to the effect. Instrumental causation is also excluded; see below.

⁴⁸ I'm grateful to Gloria Frost for pointing this out.

⁴⁹ Summa Theologiae I, q. 4 a. 2: "Primo quidem, per hoc quod quidquid perfectionis est in effectu, oportet inveniri in causa effectiva, vel secundum eandem rationem, si sit agens univocum, ut homo generat hominem; vel eminentiori modo, si sit, agens aequivocum, sicut in sole est similitudo eorum quae generantur per virtutem solis."

⁵⁰ Note that by insisting that only agents act in virtue of their form, Aquinas can block some obvious counterexamples to the principle that "every agent makes its patient like itself." For instance Michelangelo's chisel does not make its patient sharp; when I eat bread, it does not make me doughy. For Aquinas, a sculptor's chisel, or a food, are examples of instruments, and they are precisely instruments rather than agents, because they make their contribution to the effect in virtue of their matter, *not* their form. ST Ia.119, ad 2: "[A]ssimilatio generantis ad

With all this in mind, by claiming that the intelligible species is a *likeness* of the living fern, Aquinas is not saying anything different from the sort of claim he would make by saying that human child's form is a likeness of the father's. The patient that receives the 'fern'-species is the human knower; the agent is the fern, which induces its likeness (species) in the possible intellect through sense and imagination with the help of the agent intellect. The agency, however, is equivocal. Whatever 'fern' is, it exists in this shade-thriving, dampness-loving plant, in a different (mode of?) being, than it does in the intelligibly fernified intellect⁵¹: more on this in a moment.

3.2. *Where have all the intentional objects gone?*⁵²

From what we have seen so far, the likeness-role of the species has not introduced any intentionality in Aquinas's account—or if we construe likeness as intentionality, this is an intentionality that is broad enough to accommodate any effect-to-cause likeness, whether cognitive (mind-world) or non-cognitive (sapling-tree). But taking matters one step farther, Aquinas does seem to want to make the species's likeness-role at least partly responsible for determining the object of intellectual acts.

Let us return to *ST* Ia.85.2, and see how he develops his position after explaining the species' role as the form in virtue of which an operation proceeds:

Action is twofold, as is said in *Metaphysics* 9: one that remains in the agent (e.g., seeing and understanding), and another that goes forth into an exterior thing (e.g., heating and drying). Both comes to be according to some form. Moreover, just as the act tending to something external proceeds from a form that is the likeness of the object of the action, as heat in the heater is a likeness of the thing heated; so too the action remaining in the agent [proceeds from a form that is] the likeness of the object. Whence the likeness of the visible thing is that according to which sight sees and the likeness of the understood thing—that is, the intelligible species—is the form according to which the intellect understands.⁵³

What he seems to be saying here is that in general, the form in virtue of which an action proceeds, and the action's object, are always linked by a likeness relation. In the case of transitive actions such as heating, the object is the end-state at which the action aims (i.e., the water's being hot). In the case of immanent actions such as knowing, the object is simply "what is known"—i.e., the subject. The object is set by the requirement of agent-object likeness: What

genitum non fit propter materiam, sed propter formam agentis, quod generat sibi simile. Unde non oportet ad hoc quod aliquis assimiletur avo, quod materia corporalis seminis fuerit in avo; sed quod sit in semine aliqua virtus derivata ab anima avi, mediante patre." See also *SCG* 2.88: "Homo generat sibi simile secundum speciem per virtutem quae est in semine deciso. Omne autem agens univocum generat sibi simile in specie per hoc quod causat formam generati, a qua est eius species. Anima igitur humana, a qua est species hominis, producitur ex virtute quae est in semine."

⁵¹ See *SLDC* 12.

⁵² {section needs considerable development}

⁵³ *ST* Ia.85.2: "Cum enim sit duplex actio, sicut dicitur IX *Metaphys.*, una quae manet in agente, ut videre et intelligere, altera quae transit in rem exteriorem, ut calefacere et secare; utraque fit secundum aliquam formam. Et sicut forma secundum quam provenit actio tendens in rem exteriorem, est similitudo obiecti actionis, ut calor calefacientis est similitudo calefacti; similiter forma secundum quam provenit actio manens in agente, est similitudo obiecti. Unde similitudo rei visibilis est secundum quam visus videt; et similitudo rei intellectae, quae est species intelligibilis, est forma secundum quam intellectus intelligit."

a hot thing aims at in heating is *more heat*. What a fern-actualized intellect aims at in operation is *fern*. This is as close as Aquinas gets to saying that the species gives the act its intentional orientation: The fact that fern-species is a likeness of *ferns* is what determines that in the subsequent operation, I am thinking about something to do with ferns.⁵⁴ Even here, however, the analysis sets up the case of the species as merely an instance of a broader principle that the object of action must have the same sort of determinacy as the form in virtue of which one acts. (In any case, as we will see in ch. 5, this is not the complete story of intentionality for Aquinas, who thinks that the object of thought is only ultimately determined by attention.⁵⁵)

At this point, I think we have a complete answer to the question: Why did Aquinas think that we need intelligible species in order to cognize anything? The answer is the same as it would have been if we had been asking: "Why do substances need forms?": namely, "In order to be actualized in real being and do the things that they do." For Aquinas, the necessity of the species is entirely a matter of mental metaphysics. Species exemplify the general principle that agents must be formed in a particular way in order to perform a certain operation. In order to produce an operation of knowing, the human knower has to acquire the appropriate kind of being (intellectual-intelligible being), and in order to produce a determinate operation of *fern-knowing*, its intelligible form must also be determinately fern.

Moreover, even in its role as *likeness*, the species has a straightforwardly metaphysical function: When extramental realities act on the intellect, they produce their *likeness* in the intellect, in line with the broader principle that agents produce their own likeness in their patients. As a result, the new reality that results (the intellectual-intelligible-fern-actualization of me, or my episode of fern-self-manifestation) is *like* the essence that makes living ferns be what they are. Likeness is a kind of relation, so it is precisely here that we find the ground of a relation between the mind and the extramental world. From the causal action of ferns acting on my intellect through sense and imagination (with the power of the agent intellect), I acquire a new intellectual-intelligible being that is determinately *fernish*. Actualized in this way, I am related to living ferns, and perform an act of *fern-knowing*.

This *metaphysical* approach to cognitive likeness—in which the intellect's relation to extramental ferns is construed in becoming *like* them—is what we could describe as an "assimilation theory." In this episode of fern-self-manifestation, I have become "assimilated to" real ferns and perform an operation of fern-knowing. But this assimilation is no different from the assimilation that occurs when a flaming torch makes a pile of wood like itself. The fire in the wood is *like* the fire in the flame. And likewise the episode of self-manifesting fern that actualizes me is *like* a living fern. The difference is only in that in the intellectual case, the likeness is instantiated in a cognitive (intellectual-intelligible, self-manifesting) mode of being.

3.2. Assimilation without representation

⁵⁴ See also *DV* 8.11, ad 3: "Inter cognoscens et cognitum non exigitur similitudo quae est secundum convenientiam in natura, sed secundum repraesentationem tantum. Constat enim quod forma lapidis in anima est longe alterius naturae quam forma lapidis in materia; sed in quantum repraesentat eam, sic est principium ducens in cognitionem eius. Unde, quamvis formae quae sunt in intellectu Angeli, sint immateriales secundum sui naturam, nihil tamen prohibet quin per eas assimiletur rebus non solum secundum formam, sed etiam secundum materiam."

⁵⁵ To be discussed in ch. 5. I rather think that this is precisely where the splice occurs, between the Aristotelian knowing-as-being tradition, and some sort of possibly more Augustinian / Neoplatonist account of "thinking about."

This more metaphysical, less psychological, construal of intelligible species, I submit, significantly changes how we should think about the mind-world relation in Aquinas.

On Aquinas's assimilation theory, knowing is not a matter of *accessing* or *contacting* extramental realities, but of achieving a *degree of likeness* with them. This likeness is a kind of unity, which I call "assimilative unity." Assimilative unity is the unity brought about by an agent acting on a patient. It is the unity that a son has with his father, or that the student has to the teacher, or that the marshmallow's heat has to the campfire's heat. We achieve this kind of unity with ferns, stones, and alligators, by acquiring an intellectual-intelligible perfection that makes us *like* them, i.e., provides in us the same sort of formal determinacy as they have in their own natures.

What kind of unity is this, exactly? Aquinas is perfectly happy to admit that assimilative unity is not the most perfect unity there is:

Assimilation is only required for cognition so that the cognizer may be united in some way to the cognized; but the union by which the thing itself is united by its essence to an intellect is more perfect than if it were united by its likeness, and therefore because the divine essence [itself] is united to the angelic intellect as a form, [the angel's intellect] does not need to be informed by a likeness of [the divine essence] in order to cognize it.⁵⁶

Assimilative unity, then, falls significantly short of numerical identity. It even falls short of the unity of matter and form. Indeed, as Aquinas admits here, mind and world would be more perfectly united if the things were themselves *in their own being* received by the intellect as a form. No substance can become the form for another substance, though⁵⁷ (for him, only God can intellectually inhere in his own being in this way). So we can only know extramental things by becoming *like* them intellectually.

Moreover, assimilation as we saw can be imperfect in many ways. Imagine a superlative crème brûlée replicated with widely-varying success by ten chefs of differing talents: Each knock-off version is assimilatively unified with the original in different respects and degrees. Assimilation, for Aquinas, need not even preserve the original's mode of being. Similarly, our intellectual assimilation to extramental realities is deficient in many ways. For one thing, ferns and crocodiles acting on our cognitive powers cannot assimilate us to their individual here-and-now existence. So our intellectual unity with them can only extend as far as the *kind* of being they have, which they have in common with other entities of the same kind (their fern-being or alligator-being)—which is why Aquinas holds that we can intellectually know only the essences of material things. Again, for Aquinas, whatever we fern-knowers are *like* in ferns, exists there in a dramatically different mode of being. A fern is fernish in an extended, time-bound, way; the fernishly-actualized intellect is immaterial and self-manifesting. Finally, human knowers with varying cognitive abilities and levels of experience may also vary in their degree of assimilation to a given object. For instance, Aquinas holds that often we are only unified with an extramental reality at a highly general level⁵⁸: e.g., the amateur may be intellectually unified with ferns only

⁵⁶ *DV* 8.1, ad 6.

⁵⁷ *ST* Ia.85.2, ad 1; and compare Aristotle *De anima* 3.8, 31b29: "[Knowledge and sensation] must be the things themselves or their forms. The former alternative is of course impossible: it is not the stone which is present in the soul but its form."

⁵⁸ *ST* Ia.85.3.

to the extent of their being 'elegant green plants', or with crocodiles to the extent of their being 'some dangerous sort of crawling animal.'

Nevertheless, one should not write off assimilative unity too lightly. When we think of likeness, what comes to mind is visual resemblance: A reminds us of B or "looks like" B, even if A and B in fact have nothing in common. For instance, it would not be surprising to hear someone say that Abraham Lincoln's son, Lincoln's portrait, and a random outcropping of rock all "just like Lincoln"—whereas for Aquinas, only the first two cases are really instances of "likeness." Indeed, in our ordinary usage, A's likeness to B tends to be closely associated with A's ability to evoke in a human onlooker a subjective "reminder" of B.

Instead—and this point is crucial—for Aquinas, I argue, likeness implies some kind of ontological commonality engendered by the effect's causal relation to its cause, whether in the same mode of being (two humans) or a different mode (human and picture). But what kind of commonality? As I mentioned at the beginning of the chapter, some scholars—proponents of Aquinas's direct realism—have proposed that the relation between intelligible species and extramental things is the same sort of relation that two individuals of a kind have.⁵⁹ This proposal is in my view quite close to the mark (though on my reading the relationship in question is not between *species* and real ferns, but between the "intellectually fernified knower" and real ferns).

Aquinas does seem to subscribe to an Avicennian view of the common nature as something that can exist in two modes of being, i.e., intelligibilized and materialized.⁶⁰ Wherever a nature such as 'fern' *does* exist, it acquires numerical unity (the fernishness of this fern is numerically distinct from that of that fern, and both are numerically distinct from the intelligibly fernified intellect understanding 'fern'). But considered in itself, the nature is indifferent to numerical unity:

According to Avicenna in his *Metaphysics*, there is a threefold consideration for any nature. One, insofar as it is considered according to the being it has in singulars, e.g., the nature of stone in this stone and in that stone. Another is the consideration of some nature according to its intelligible being; e.g., the nature of the stone is considered insofar as it is in intellect. But the third is the absolute consideration of the nature, insofar as it abstracts from the being of both; according to which consideration the nature of stone (or any nature) is considered merely with respect to things that pertain to the nature *per se*.⁶¹

⁵⁹ Called "formal identity" or "formal sameness"; I prefer to avoid this terminology since it carries so many misleading connotations.

⁶⁰ {{The "seem to" is provisional, pending further study, in case his view on this point changes over time.}}

⁶¹ *Quodl.* 8.1.1: "Dicendum, quod, secundum Avicennam in sua metaphysica, triplex est alicuius naturae consideratio. Una, prout consideratur secundum esse quod habet in singularibus; sicut natura lapidis in hoc lapide et in illo lapide. Alia vero est consideratio alicuius naturae secundum esse suum intelligibile; sicut natura lapidis consideratur prout est in intellectu. Tertia vero est consideratio naturae absoluta, prout abstrahit ab utroque esse; secundum quam considerationem consideratur natura lapidis, vel cuiuscumque alterius, quantum ad ea tantum quae per se competunt tali naturae. Harum quidem trium considerationum duae semper uniformiter eundem ordinem servant: prior enim est consideratio alicuius naturae absoluta quam consideratio eius secundum esse quod habet in singularibus; sed tertia consideratio naturae, quae est secundum esse quod habet in intellectu, non semper habet eundem ordinem ad alias considerationes. Consideratio enim naturae secundum esse quod habet in intellectu qui accipit a rebus, sequitur utramque aliarum considerationum. Hoc enim ordine scibile praecedit scientiam, et sensibile sensum, sicut et movens motum, et causa causatum. Sed consideratio naturae secundum esse quod habet in intellectu causante rem, praecedit alias duas considerationes. Cum enim intellectus artificis adinvenit aliquam formam artificiatam, ipsa natura seu forma artificiatam in se considerata, est posterior intellectui artificis; et per consequens etiam arca sensibilis, quae talem formam vel speciem habet. Sicut autem se habet intellectus artificis ad artificiatam, ita se habet intellectus divinus ad omnes creaturas. Unde uniuscuiusque naturae causatae prima consideratio est secundum

One {quick and tentative} way to express what is going here is that Aquinas (following Avicenna) is setting up a nature as *a kind of unity that two entities can have*, which is in itself (a) indifferent to modes of being (material vs. intellectual-intelligible) and (b) indifferent to numerical unity and distinctness. The nature only ever exists *as instantiated*, however, and each instance is numerically one and either material or intellectual-intelligible. Nevertheless, 'fern' considered in itself prescinds from numerical unity and distinctness.

A good deal more can, and ought, to be said about Aquinas's common nature and its relevance for cognition. Importantly, on Aquinas's account of the "nature absolutely considered," two ferns have *more* in common than the fernified intellect and a fern, since fern-nature has the same mode of being in the two ferns. In the mind-world case, the nature exists in both only according to the same specificity (*ratio*),⁶² and not according to the same mode of being. "In order for the intellect to understand some quiddity, there must come to be in it a likeness that has the same specific *ratio* (*eiusdem rationis secundum speciem*), even if not in the same mode of being."⁶³ Nevertheless, it seems to hold true that Aquinas's metaphysics makes room for a kind of unity that obtains between two individuals of the same kind (prescinding from mode of being and numerical distinctness), and that broadly this is the kind of unity that the mind can have with the world—indeed, that it is exactly the kind of unity that he has in mind when he describes intellect as unable to know *x* unless it has acquired a likeness to *x*.

At this point, one might ask, "Fine, but let's cut to the chase here: Does Aquinas think intellectual assimilation to extramental ferns enables us to access them directly, or not?" I think that given what we have seen, the question itself has to be discarded. As Aquinas construes it, assimilation is not a kind of *access*—it is a kind of *connaturality*. Certainly some features of Aquinas's account might be congenial to one side or the other. A representationalist or representational realist might applaud the notion that the intellect's fern-knowing is limited by its degree of assimilated unity to ferns, that we cannot bypass that limitation to get some special access to a world of bare "things in themselves." A direct realist might endorse the idea that there is something the fernified intellect has in common with ferns. In the end, though, these traditional alternatives—the mind reaching out to and grasping extramental realities, or being blocked from ever touching them—are framed by the contact model of knowing, which dictate how the problem is set up, and what counts as a good answer.

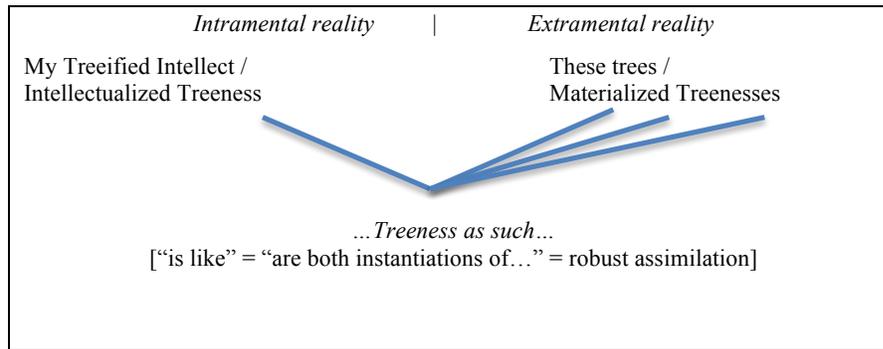
Consequently, the framework supporting the representationalist vs. direct realist alternatives simply does not apply here. Whereas the contact model had Aquinas negotiating three entities (intellect as inner viewer + fern-species + fern), the "assimilated unity" approach

quod est in intellectu divino; secunda vero consideratio est ipsius naturae absolute; tertia secundum quod habet esse in rebus ipsis, vel in mente angelica; quarta secundum esse quod habet in intellectu nostro." Notice that Aquinas goes on to distinguish two ways of understanding the nature's intellectual being; if this refers to God's intellect, then the nature *qua* intellectualized is prior to the *natura absolute considerata*; but if to our intellects, then the *natura absolute considerata* is prior. "Similiter etiam intellectus divinus est ratio naturae absolute consideratae, et in singularibus; et ipsa natura absolute considerata et in singularibus est ratio intellectus humani, et quodammodo mensura ipsius."

⁶² {Need to do a lot more work on this.}

⁶³ *Sent.* 4.49.2.1: "Ad hoc autem quod visus cognoscat albedinem, oportet quod recipiatur in eo similitudo albedinis secundum rationem suae speciei, quamvis non secundum eundem modum essendi: quia habet alterius modi esse forma in sensu, et in re extra animam. Si enim fuerit in oculo forma citrini, non dicitur videre albedinem; et similiter ad hoc quod intellectus intelligat aliquam quidditatem, oportet quod in eo fiat similitudo eiusdem rationis secundum speciem, quamvis forte non sit idem modus essendi utrobique."

operates only with two entities (fernified intellect + fern)—and this change dramatically alters the structure of the problem of the mind-world relation:



In the tripartite structure, the intellect inevitably took the stance of a kind of inner viewer, with the intelligible species as a psychological intermediary (the “that by which”) placed “between” that viewer and the real world. It seems to me that this arrangement inevitably generates anxiety about the intermediacy of the species and raises the specter of a mind locked-in, unable to see beyond its own boundaries. On the bipartite structure, though, it is difficult even to see what we would be asking about if we asked whether the knowing intellect directly accesses extramental things. Aquinas’s fernish intellect does not have any sort of relationship with extramental ferns that could even *be* meaningfully modeled as access, direct or indirect. Rather, the appropriate model seems to be one of *having something in common*, or *connaturality*. Knowing, for Aquinas, in short, is not a looking out at something: It is a kind of performance that is the perfection of an intellect that has acquired a specific kind of perfection. I fern-know because I have assimilated to the likeness of ferns.⁶⁴

⁶⁴ So I would agree with Pasnau that Aquinas is not committed to the notion that direct access to x is required in order for our thoughts to be about x .