

Opinions on the *Posterior Analytics*

By Richard Rufus

Translated by John Longeway from the transcription of Erfurt
Quarto 312, fol. 29va-32vb, by Rega Wood

[Rega Wood, along with a colleague of hers at Stanford, has gone through the translation carefully and made a large number of perceptive suggestions. In some cases I have taken liberties with the edition, and try to indicate where this has occurred.]

[Part I]

*“All teaching and all learning.”*¹

[I Division 1] This book is divided into two parts. The first part deals with its principal subject; the second part, beginning at “Concerning principles,”² deals with a certain question following from this. This second part, following on the principal subject, is about the flourishing of this teaching. The first part is further divided into two: the first considers a certain preliminary matter, the second the principal subject in itself, beginning at “We judge knowing to be. . .”³

[I Exposition 1] The intention of the first part is to make clear the existence of its subject by making it clear that there is knowing, first by dealing with what is clear and so arriving at knowledge, namely that knowledge through which knowing arises. And on the same basis he resolves an argument claiming that there is no knowing.

Note that in place of “knowing” (*scire*) or “knowledge” (*scientia*) he puts these names, “teaching” (*doctrina*) and “learning” (*disciplina*). We could understand that these three are all the same, but “knowledge” names something as a quality of the soul, “learning” (*disciplina*) names the same thing as it is received in the learner (*in discipulo*), and “teaching” (*doctrina*) as it proceeds from the teacher (*a doctore*). Or we could understand through the name “learning” the knowledge that arises in mathematics, and through the name “teaching” the knowledge that arises in other branches of learning, for truth is more obvious in mathematics, and on this account more quickly believed by the student. Hence the student does not contradict the master⁴ but remains in the position of a student. But in the other sciences, since the truth is not obvious, the student does not immediately believe, but contradicts and disputes with the master, and, as it were, becomes equal to the teacher and becomes teacher himself. These, then, from the position of each of the persons involved, can be called “teaching,” but the former, the mathematical branches of learning, can be called “learning,” because

¹*Posterior Analytics* I 1, 71a1.

²*Posterior Analytics* I 10, 76a32.

³*Posterior Analytics* I 2, 71b9–10.

⁴Perhaps Rufus is thinking of formal disputations, which are involved in learning other subjects, but not in learning mathematics, which proceeds by proofs from undisputed premises.

in them the student remains a student.⁵

[First Series]

[I Question 1.1] We ask here first, why this book lacks a proem, even though it clearly has an epilogue.

[I Question 1.2] Again, why does intellectual cognition have to arise from preexisting cognition any more than sensitive cognition does?

[I Question 1.3] Again, if something known always arises in the intellect from something known beforehand, then either there will be an infinite regress or there will be something known to the intellect which does not become known to it, but this is absurd. Indeed, the intellect is bare of every cognition, like a tablet bare of every picture. And I speak here of the intellect of a human being.⁶

[I Question 1.4] Again, since enthymeme and example are codividing opposites with syllogism and induction, why does he say that enthymemes are syllogisms and examples induction? [71a10-11]

[I Question 1.5] Again, why does he name “enthymeme” and “example” in the plural?

[I Question 1.6] Again, regarding the second species, we ask what the reason is for appropriating the term syllogism for dialectical syllogism.

[Reply to I Question 1.1] We should say to the first question that syllogism is said most of all of demonstrative syllogism. And for this reason it is, as it were, one and the same continuous treatise concerning syllogism without qualification and [then] demonstrative syllogism, just as we find elsewhere that the same treatise concerns something said both in general and primarily, for instance, concerning what can come to be and what can come to be primarily, as in the book *On Coming-to-be*, and concerning being and primary being in *First Philosophy*. And on this account this book and the book of the *Prior Analytics* have the same proem, namely that in the first book of the *Prior Analytics*, and a single epilogue, namely that at the end of the book at hand.

[Reply to I Question 1.2] To the other question we should say that the sensitive power differs from the intellectual in this, that the sensitive is complete, needing no further disposition through another in order to receive its sensible. Hence it can receive a sensible, even though it is not previously disposed to do so by another, and thus it does not arise from preexisting [knowledge] etc. But the intellect, since it is an incomplete power, first needs to be completed by principles disposing and informing it so that it might receive a conclusion, and thus it cognizes from a preexisting cognition.

[Reply to I Question 1.3] To the other, we reply that although the intellect is like a bare tablet

⁵The usage of *disciplina* here for the mathematical sciences, and *doctrina* for the rest was already established, and Rufus is trying to explain and justify it.

⁶The intellect of an angel does not depend on the senses to furnish it with concepts and first principles, and so, perhaps, is not in itself bare of every picture.

(*tabula nuda*),⁷ and lacks every cognition, it is simple with respect to each potential cognition.⁸ But we should understand that potentiality is twofold, essential and accidental. And we should understand, therefore, that what is potential in the first way is said to become (*fieri*) strictly speaking when it emerges (*exit*) into actuality, but whatever is potential in the second way is not said to become strictly speaking, but to be such. It is such unless it is prevented, and we say that it is essentially such even when it is accidentally not such, as a stone is essentially below [at the center, its natural place] even when it is accidentally high up [due to some violent movement].

We should understand, then, that the intellect is in accidental potentiality in respect of cognition of principles, but in respect of cognition of conclusions it is in essential potentiality. And thus, although it lacks from its creation every cognition of principles, and is potential in respect of these, and it emerges (*exit*) into the act of cognizing them, still it is not said strictly speaking here that cognition is produced (*fiat*)—that is only said of the cognition of the conclusion.⁹ It must be held, then, that there is no infinite regress, but it comes to a halt at the cognition of principles, which is not said to be produced within the soul, even though the soul [at first] lacks it.

But this might be falsely understood were it to be understood that the possible intellect in respect of principles is in accidental potentiality without qualification, for then it would not need the agent intellect, and this is false. We should know that in respect of the reception of the subject and the predicate it is in essential potentiality and does need the agent intellect. But once it has received the understanding of the subject and predicate it does not need the agent intellect to compose them [to form principles], but in this respect it is in accidental potentiality. But in respect of the cognition of the conclusion after the reception of the subject and the predicate it is in essential potentiality, for then it needs a disposition gained through the reception of principles.¹⁰

[Reply to I Question 1.4] To the other, we should answer that an enthymeme infers its conclusion

⁷ Rega Wood notes that Bacon uses *tabula rasa*, “erased tablet,” here, possibly with the import that the tablet is not just bare, but has been wiped off, that is, the agent intellect is somehow damaged when infused into the body. For most of his life Bacon thought we could know something without the senses. For Rufus the possible intellect is simply bare—it has not been damaged, but rather never had anything on it, and the agent intellect can’t write anything on it without the senses.

⁸ That’s a literal enough translation... and it means? Rufus does a lot with nouns that would be more clearly done with verbs and adverbs. Here he probably means that it is potential without qualification in respect to each potential cognition. He goes on immediately to specify two ways in which it can be potential with a certain qualification, and to say that it is potential in respect of some cognitions in one of those ways, and in respect of other cognitions in the other way. So the point here seems to be that it is potential in respect of each cognition in *one way or another*, without specifying which way.

⁹ To be something in accidental potentiality, then, is to be such that no outside cause is needed to realize the potentiality. It may be that the potentiality is not realized, but every external condition needed for its realization is present, and that in which the potentiality is to be realized need only act itself to bring about the realization. To be something in essential potentiality is to require some outside cause to be moved into place before the potentiality can be realized. In both cases the actuality emerges from what is potentially so, but only in the second case is it produced as by an outside cause. How does this compare with accidental and essential location in the case of the earthy body? Well, just as the earthy body is essentially at the center, even though it may not actually be so, but is only potentially so (if we can express it thus), so something that is in essential potentiality may be said to be something potentially even though it is not actually so potentially, but only potentially so. That is, the potentiality is two removes from realization—first the intellect, say, needs to be enabled to draw the conclusion by the presence of the principles, then it has to draw the conclusion. In the case of accidental potentiality, it is only one remove from realization, the principles are already present, and nothing stands between it and drawing the conclusion straightway if it will.

¹⁰ The intellect is disposed to draw the conclusion on its own once it has the principles. The editor refers us to Averroës, In *Physica* 8.32, Iunt. 4: 168, and Aristotle, *Physics* 8.4., 255a30-255b31.

with the same force as a syllogism. For it does not infer only in virtue of the proposition set forth, but also in virtue of another, implicitly understood proposition. These [, syllogism and enthymeme,] differ, then, but only in the force of what they make explicit, and thus they differ as arguments,¹¹ although they are the same in their inferential force.

[Reply to I Question 1.5] And we should understand the matter similarly concerning example and induction. Example does not infer its universal conclusion just in virtue of the singular proposition set forth as its premise, but also in virtue of other, implicitly understood (*per subintellectionem*), singular propositions. So, what a syllogism expresses completely¹² an enthymeme says in a diminished way, and so it is, also, in induction and example. The force of inference is the same, but they differ in how they explain this force in their [explicitly stated] premises.

And understand that several enthymemes are the same as a single syllogism, as can be made obvious. And in the same way, several examples are the same as a single induction, and because of this he puts it in the plural.

[Reply to I Question 1.6] As for the last, it must be held that there are two reasons for appropriation of a common term: One occurs when a common term is reserved for [*salvatur in*] something as its foremost example [*antonomastice*].¹³ The other occurs when one that falls under it adds little to the common term itself, for then, as it were, it would add nothing by reason of which it should assume a name of its own, and is left with the name of the common term itself. The first of these reasons comes from the term appropriated, the second from that to which it is appropriated, and the latter is what is found here. For dialectical syllogism adds little power to syllogism without qualification, since it only adds probability.

[Second Series]

One can ask as follows:

[I Question 2.1] It seems that a definition saying what-it-is is cognized beforehand (*praecognoscitur*) before demonstration, since we find definitions of this sort in geometry and in other sciences placed (*ordinatas*) among the principles, where only those are placed that belong to cognition beforehand (*praecognitiones*).

[Question 2.2] Again, it seems to belong to an axiom that it is not only cognized beforehand what-it-is, but also what-it-is-that-is-said (*quid est quod dicitur*), just as the subject [is cognized beforehand].

[Question 2.3] Again, it is asked why what-it-is cannot be cognized concerning the attribute as it is concerning the subject.

[Question 2.4] Again, before the cognition of the conclusion we cognize (*precognoscuntur*) that the premises are true, but the definition indicating what-it-is of the attribute is contained among the premises. Therefore we cognize beforehand what-it-is of the attribute.

¹¹ Given the next paragraph, they differ as arguments because they differ in their explicitly stated premises.

¹² This, it would seem, cannot be right, since no matter how many singular propositions we have, a universal proposition cannot be validly inferred. It must be assumed that the universal conclusion concerns only a finite number of particular cases (of species, say, falling under the genus of its subject), and so, with the understanding that every case is covered by one of the singular propositions, the conclusion can be validly drawn.

¹³ Here *antonomastice* is used for the sort of thing involved in referring to Aristotle as “the philosopher.” See Andrew F. West, “Lexicographical Gleanings from the Philobiblion of Richard de Bury,” *Transactions of the American Philological Association* 22 (1891) 99-100. (Thanks for this reference to Rega Wood.)

[Reply to I Question 2.1] To the first we should reply that in truth definitions saying what-it-is come first among the principles of the sciences, but not insofar as they say what-it-is, but rather as they say what-it-is-that-is-said.¹⁴

[Reply to I Question 2.2] To the other, we should say that it is true that it is necessary to cognize beforehand what-it-is-that-is-said concerning the axiom, just as it is concerning the subject.

But it is asked why Aristotle did not say this.

And we reply that he said this implicitly (*ex consequenti*) when he said that it is necessary to know concerning an axiom that-it-is.

But it seems, then, that he ought not have said this explicitly of the subject either.

But we must reply that knowing of a proposition that-it-is implicitly contains (*derelinquit*) knowing what-it-is-that-is-said,¹⁵ for in a proposition not only is the reality touched upon, but also the utterance¹⁶ signifying it; and so knowing of a proposition that-it-is is knowing that it is true. And thus knowing [that-it-is] signifies [knowing] the agreement of the utterance of the predicate with what is signified through the utterance of the subject, and thus, implicitly, [knowing that-it-is signifies] knowing what-it-is-that-is-said. But in the subject nothing is touched on except the reality itself, and therefore knowing that-it-is is not knowing what-it-is-that-is-said through its utterance.¹⁷

¹⁴The point is that the definition is placed first not because it indicates what the nature of the thing is, but because it shows us how the word is used. Now, of course, it might do this second task by performing the first, but it may be that Rufus thinks it does this task in some other way. Surely, if we are to *discover* the real definition indicating the nature of a thing, we must first be able to indicate what it is that we are investigating, and so can do this *without* knowing that real definition already. This is the core of the *Meno* problem, which occupies a place in the opening chapter of the *Posterior Analytics*.

¹⁵The point is that this is *not* true of knowing that-it-is of the subject, and so it has to be explicitly stated that one knows that-it-is of the subject.

¹⁶The correct translation of *vox* here and elsewhere is ‘utterance,’ not ‘term.’ The word was used in medieval logic to refer precisely to the sound uttered, without regard to its meaning. ‘Term’ suggests *terminus*, which would be something like ‘word,’ including a connotation of meaning. Thus the same utterance may have different meanings, say in different languages, but a given term is in part defined by its meaning, so that several terms may be signified by the same utterance on different occasions, or several utterances may signify the same term.

¹⁷Perhaps the point can be made clear by considering how this would work in different languages. Both a German and an English speaker may know that-it-is of cat, and they know the same thing. But the German speaker may know, in addition, what-it-is-that-is-said by “Katz,” while the English speaker does not. (It does not seem that we would have to grant here that to know what it is that is said by “cat” we must know the real definition of a cat. It is only that we must know the same thing that is known by the German speaker who does not know the English word, but can use the German work “katz” to pick out a cat. Ockham held that there was a mental word shared by the German and English speaker (what another might have called the concept of a cat), and it was in virtue of their possession of this common word, and knowing how to use it to form mental propositions, that the German and English speaker could both be said to know what it is that is said by “cat,” not in virtue of their possession of a common word in either German or English. In effect this is to explain how both know how to pick out cats to talk about without either referring to an *observable* common language, or to a common knowledge of what cats really are. Apparently Ockham thought that the explanation required a reference to *some* common language, and so postulated ‘Mental.’) What about knowing that-it-is of “cats are furry”? It seems that Rufus does not think there is a ‘proposition’ in a modern sense, something other than the sentence in English or German, that might be known here. If he did, the situation would be the same for the subject and an axiom. Rather, he must think that the only things out there to be referred to are such things as natures, individuals, relations, accidents, and the like, and that the only proposition that can be identified is the German or English sentence, for instance, which tells us something about these things, i.e. that the word which is the predicate agrees with or names what is signified by the subject. (Indeed, the word *propositio* in medieval Latin is used to speak of the meaningful utterance or sentence, and if a thinker is to speak of the ‘proposition’ corresponding to both the English and the German sentence, he must contrive a new expression to do so. There is no standard expression for such a thing available in medieval

[Reply to I Question 2.3] As to the other, it must be replied that since an attribute is an accident, its being is being-in, but its being-in is not grasped except through demonstration, and thus neither is its being.¹⁸

[Reply to I Question 2.4] As to the other, it must be replied that the definition of the attribute can be cognized beforehand concerning the subject and in the subject, and, indeed, the attribute can be cognized beforehand of its definition as a simple inherence, but it still cannot be cognized beforehand that this is its definition.¹⁹ This is the order: before the demonstration this is cognized of that, that is, the attribute is cognized of its definition without qualification. But in demonstration it is cognized that one is the cause of the other. After demonstration one is cognized as the definition of the other.

[Third Series]

[I Question 3.1] It can be asked what truth there is in the position mentioned in the text, since every philosophical position must indicate something of the truth, for otherwise it would not be reasonable to be moved by it.

[I Question 3.2] It might also seem to someone that knowing in the universal case is having knowledge without qualification, and whoever knows the premises without qualification knows the conclusion. For just as this follows, “if he sees every man run, he sees Socrates run,” so, similarly, “if he knows [every man runs, he knows that Socrates runs].”

[I Question 3.3] And again, the whole conclusion is in the premises. Therefore if the premises are known, the conclusion itself will be known. Hence it seems that to demonstrate is not to make known, but rather to make what was known in a concealed way something known manifestly. If the premises are known, as it seems, the conclusion is known; but this is concealed.

[Reply to I Question 3.1] We must reply to the first that Plato, who assumed knowing not to be [at first], did not assume that there is cognition last, but rather that there is cognition of all things [all along] and what truly is knowing arises last. Now he was able to assume this through this principal argument: The rational soul from its creation has every intelligible by which it will be able to grasp; when it is joined to the body it will

philosophical Latin. Ockham manages to speak of something like a proposition by speaking of sentences in the mental language shared by our German and English speaker, and by all human beings whatsoever.)

¹⁸Ockham would later hold that the attributes dealt with in demonstration have no real definitions at all, but only nominal definitions, expressing what it is for them to inhere in something. One has to know the definition to be able to speak of an attribute, but one makes use only of the attribute’s appearance and subject, not of the causal mechanism underlying it, to identify it. So thunder is “noise in a cloud.” One might then, speak of two different definition, say a strictly nominal definition and a causal definition. The causal definition of the attribute, “noise in a cloud caused by the extinction of fire,” is not known until the demonstration concerning the occurrence of such a thing in actuality is known, and that demonstration just is the causal definition rearranged. The demonstration indicates that whenever fire is extinguished in a cloud then a noise is produced (due to the nature of clouds), and such a noise is thunder. So thunder occurs whenever fire is extinguished in a cloud.

¹⁹Precognition of the definition of the attribute as it is related to the subject is presumably what I called in the previous note a strictly nominal definition, e.g. “thunder is noise in a cloud.” Rufus says that we might even know the causal definition, but not considered as a definition, that is, presumably, that a noise is in fact caused in the cloud by the extinction of fire (perhaps we are in a position to observe the process). But we might not make the connection, thinking only that here there is noise in a cloud with a certain cause, and not “Oh, that would be thunder!” If we make the connection, then we have the definition of thunder fully known as such, but we also have the demonstration that thunder occurs (on the hypothesis that extinction of fire occurs in a cloud). So he wants to allow only one definition of the attribute, and speak of its being known in different ways. Others, such as Averroës and Albert the Great, opted for speaking of several definitions of the attribute of different kinds.

retain these even though it will not consider them; but demonstration makes it consider that very thing which it held concealed within it (*latenter habet*). This argument, therefore, has truth in so far as it assumes the soul to understand everything from its creation, but is false in so far as it assumes understanding to be lost [to the soul] in so far as it is conjoined with the body. But however this may be, this stands in need of more explanation.²⁰

[Reply to I Question 3.2] To the other we must reply that it is not the same, because the act of seeing receives that contained in what crosses over under the formula of reality-that-lies-under-what-is-signified,²¹ and for this reason the conclusion is the same as the premises. But the act of knowing receives that contained in what crosses over under the formula of what-is-signified,²² and for this reason the conclusion and the premises are different.²³

[Reply to I Question 3.3] To the other, it must be replied that it is not what is signified in the conclusion that is itself in the premises, but a reality of the conclusion falling under what is signified in the conclusion falls under what is signified in the premise. On this account, cognition of the premise is not cognition of the conclusion, but rather something that leads to it.

Part II

“But we judge knowing to be.”²⁴

[II Division 1] This part deals with the principal matter proposed for consideration. And first it deals

²⁰ Rega Wood has suggested that the true reading of the ms. is *nullius* instead of *ulterius* in two places here. I’d like to keep *ulterius*. This makes much more sense of the argument. First, on the *nullius* reading, he seems to conclude in the principle argument that true knowing in fact *does* arise in the end, once one has recovered cognition of the principles and formed the demonstration, not that “true knowing does not arise of anything at all.” Second, the *ulterius* form of the argument would make a distinction between cognizing and true knowing, which would fit the principle argument, inasmuch as cognition could be latent, while true knowing cannot. And, of course, true knowing would arise in the end by this argument. As for more philological concerns, it does seem to me that the two abbreviations might easily enough be confused. So, “We must reply to the first that Plato, who assumed knowing not to be [at first], did not assume that there is cognition later, but rather that there is cognition of all things [all along] and what truly is knowing arises later.” instead of “We must reply to the first that Plato, who assumed knowing not to be, did not assume that there is no cognition of anything, but rather that there is cognition of all things and true knowing does not arise of anything at all.” Why does Rufus agree that the soul understands everything from its creation? Perhaps he has it in mind that it is of a nature to come to understand everything due to Gods creation of it with that ability. Perhaps he would even be willing to say that *essentially* it knows all things, even when it does not know them *accidentally*.

²¹ That is, vision receives the image of the particular reality that produces the image in the eye. One sees *this* cow. To be a visual image is to intend a particular reality, the one causing the image.

²² That is, reason receives the concept of the thing (which need not, perhaps, be universal) as signifying, but not necessarily caused by the thing signified, and not necessarily as signifying any particular actual reality. So one can have a concept of cow without having any particular cow in mind, and one can have a concept of something that does not in fact exist.

²³ That is, when one sees, one sees a particular, real cow, or else one does not see at all. So to see at all is to move all the way to the particular cow. To see that all the cows move involves seeing each particular cow, then. When one knows, however, one can know cow without knowing a particular cow. Then one can move one step further, and come to know the particular cow as a particular reality, not just as something signified in a concept common to many cows (or one can come to know ‘cow’ as an actual reality, not merely as something falling under the concept ‘animal’).

²⁴ *Posterior Analytics* I 2, 71b9–10.

with demonstration considered in its actuality with its form complete, by determining what the conditions of demonstration are. This part extends up to the beginning of the second book. Second, it deals with demonstration considered in its substance, and the whole substance of demonstration is the middle term itself, for in the second book the discussion concerns the middle term.

The first part²⁵ deals first with the conditions that must be satisfied by every demonstration. And it deals second with the conditions that must be satisfied in bringing several demonstrations together into one science.²⁶ This is at “**Now a science is one.**”²⁷

And the first part deals first with demonstration absolutely speaking. Then it compares one demonstration with another, at “**Now since demonstration is.**”²⁸

The first part is divided yet further into two, of which the first begins with a certain principle for demonstrating. The second part demonstrates what he intends. This is at “**Therefore if knowing is.**”²⁹ And the principle is the formal definition of demonstration, and this is given in terms of knowing since knowing is the end of demonstration.

And so this part is divided into two, of which the first gives the definition of what it is to know,³⁰ and comes before the main part. The second part, which is the main part, gives the definition of demonstration in itself. This is at “**Now demonstration.**”³¹ And the earlier part first gives one definition [of knowing], and then another. This [second definition of knowing] is at “**Now we say.**”³² And the earlier part first gives the definition by itself, and then verifies it.³³

²⁵*Posterior Analytics* I 2, 71b9–10.

²⁶The same word, *scientia*, is used for scientific knowledge, and for a collection of pieces of such knowledge in a deductive structure reflecting the causal structure of reality, that is, what we would call “a science.” So one might have *scientia* that the angles in a triangle compose two right angles, and this will be part of a *scientia*, namely geometry.

²⁷*Posterior Analytics* I 28, 87a38.

²⁸*Posterior Analytics* I 24, 85a13.

²⁹*Posterior Analytics* I 2, 71b20.

³⁰*Posterior Analytics* I 2, 71b9–12.

³¹*Posterior Analytics* I 2, 71b18.

³²*Posterior Analytics* I 2, 71b17.

³³Rufus’s understanding of the text seems to parallel closely that of Grosseteste. Grosseteste, writing about 1230, treats it as a construction of the science of demonstration, using demonstrations to construct the science. The definition of demonstration is the principle of this science, of course, and he treats the demonstrations in the science as a sort which argues from the “formal definition” of a thing to its “material definition,” where the formal definition indicates the end, and the material definition fills in the properties required to attain that end. This is a science concerning an artificial thing, which has an end, but Grosseteste did not see it as all that different from natural sciences. Natural things also, he thought, have a formal definition, the form specifying their ends (say, the kind of life to be led by an animal), and from a consideration of the matter available to construct such a thing one can argue to its properties ‘considered in themselves,’ as Rufus puts it. If Rufus’s text is indeed before Grosseteste, then it suggests that this understanding of the *Posterior Analytics* was inherited by Grosseteste within the Latin tradition, though his edition of the text also contained an Alexandrian gloss that had migrated into the text laying out this as one scheme of demonstration available for use. But Rega Wood suggests that Rufus’s work probably comes after Grosseteste’s, since his Parisian lectures began with lectures on the *Metaphysics*, which would probably have been delivered in 1231 or later.

[First Series]

[II Question 1.1] We ask what the difference is between the first and the second definition.

[II Question 1.2] Then, why does he not say “knowing is” instead of “we judge knowing to be”?³⁴

[II Question 1.3] Then, what is the force of that determination by which he verifies the aforesaid definition?

[II Question 1.4] Then, since knowing is defined through demonstration, it is asked how demonstration can be defined through knowing.

[Reply to II Question 1.1] We must reply that knowing is a certain effect, caused by demonstration, and so it must be defined in terms of demonstration. But this is done in two ways. It may be defined from demonstration considered in its root, and thus demonstration is nothing other than the middle term itself, or the cause, and from this we say that “the middle term and the cause are the same.”³⁵ This is how the first definition is given.³⁶ Or it may be defined in terms of demonstration considered as it is in actuality, and this is how the second definition is given. And there is another difference, because in the previous definition an indirect predication is intended, in the second, direct predication. For to know the conclusion is not itself to cognize the cause, if we speak directly,³⁷ but rather it occurs through this cognition.

[Reply to II Question 1.2] To the other, we must reply that he intends not only to define knowing,³⁸ but also to verify the definition, since in every case when we judge, that is, judge that we know, we judge that we cognize the cause. This is a sign that this one is the same as the other, or comes from it. And the force of this sign derives from the fact that what is found in everyone is not from the will, but from nature. Since this opinion is in everyone, it is from nature, and thus is not in vain.

[Reply to II Question 1.3] And thus [the reply to] the third question is clear.

[Reply to II Question 1.4] As to the last, we must reply that the special reason why the efficient cause is defined through the end and vice versa is that each is the cause of the other, but in different ways. For the end existing as habit and capacity³⁹ is the moving efficient cause, and so the end—namely, that there should be covering from intemperate weather—is the cause moving the architect. The efficient cause, however, is the cause of the actual existence of the end. And so each can be defined through the other. And there is another more general reason, because each correlative falls in the definition of its correlative, a point that has to be treated elsewhere.

³⁴*Posterior Analytics* I 2, 71b9.

³⁵*Posterior Analytics* II 2, 90a6-7.

³⁶*Posterior Analytics* I 2, 71b9–12.

³⁷Is it itself to cognize the cause if we speak *indirectly*? Yes, for to speak indirectly is to mention what is spoken of in some case other than the nominative or accusative, that is, in an oblique rather than a direct case. So we can say the knowledge of the conclusion is *from knowledge of its cause*, say, using the ablative.

³⁸This is a real definition, so it is of knowing, not the word ‘knowing.’ If he intended it to be of the word (a nominal definition) then he could have said “*li scire*.” So in the edition, one should drop the single quotes.

³⁹A habit is, as it were, a self-actualizing capacity. It is not merely the possibility of becoming such and such, but a tendency to become such and such.

“If then knowing is...”⁴⁰

[II Exposition 1] He begins to demonstrate, first showing a certain conclusion from a predicate composed from many conditions, by treating each of these conditions more fully.

[Second Series]

[II Question 2.1] We can ask here how one can obtain the number of these conditions, and in what they differ.

[II Question 2.2] Then it is asked how it follows from the definition of what it is to know that demonstration is from [premises] of this sort.

[II Question 2.3] Then, since it is necessary that we cognize the premises beforehand, the premises will be better known to us. But the premises are more universal than the conclusion. Therefore, the more universal is better known to us.

[Reply to II Question 2.1] We reply to the first that, on the one hand, some absolute condition in the premise itself belongs to the premises of a demonstration, and on the other hand, a certain condition belongs to the premises themselves related absolutely.⁴¹ And a certain condition belongs to the relation of an utterance to what it signifies, for instance, being true, and this condition is from the relation of essential parts of these premises to one another, as from the relation of utterance to what is signified. And a certain condition is from the relation of integral parts, that is, the subject and predicate, for instance, its being immediate. For it is said to be ‘immediate’ because there is no middle term between the subject and the predicate. Now premises can be considered in two ways, either as they are related to all the propositions of their order [that is, to other premises], or as each is related to a determinate conclusion.⁴² In the first way there is this condition ‘first,’ and in the second way, the other three, the first, in which the premises and conclusion are related to us,⁴³ and the second and third, in which they are related to one another. And it is suitable not only that a premise should obtain the prior degree in the order of prior and posterior, but also that the conclusion be caused and come into being from it. So there are these two conditions, one, that it is prior and the other that it is the cause of the conclusion.

Say someone were to ask why he attached this condition “from what is prior,” when he had already said “from what is first,” for it is superfluous to say that Socrates is whiter, if it is assumed that he is whitest. It would be replied that if these two conditions, first and prior, belonged to the premises of a demonstration entirely on the basis of the same consideration, the objection would be in order. But this is not so, for every premise has to be prior to its conclusion from its particular nature, but it does not always have to be first.

⁴⁰*Posterior Analytics* I 2, 71b20.

⁴¹That is, one condition belongs to the premises considered simply as premises, and the other belongs to the premises as they are the premises of a demonstration (as opposed to some other sort of argument). Considered simply as premises, the premises are true, and considered as premises of a demonstration, they are immediate.

⁴²Considered in the first way, premises are related to conclusion in general, of course, for unless they tended to a conclusion they should not be premises. The two conditions bearing on premises as they are related to other premises (premises considered absolutely) have already been given.

⁴³This condition is that they be better known than the conclusion.

For if a proven conclusion is called ‘first’ because it is a premise in another demonstration, this is not with regard to its particular matter, but insofar as it has the power of first propositions in it [in that other demonstration]. Similarly, fire is not the first cause of combustion from its particular nature, but insofar as it has the power of higher causes. Being first does not always belong to the premises of a demonstration, then, through their particular force, but being prior does. And thus it belongs to a [premise] to be related to a determinate conclusion from its particular nature.

[Reply to II Question 2.2] In response to the other, we must say that since knowing is cognizing premises that are causes, the premises must be true. For otherwise they would not be cognized or known. He mentions this in the text when he says “*therefore true*” etc.⁴⁴ Now since the premises are complete causes—I mean in their genus—it follows that they are immediate in the same [genus], because if they were mediated, they would have a middle term and a cause, and thus would not constitute a complete cause. And this is what he says, “*now from the premises*” etc.⁴⁵

And since it is necessary to cognize that premises are necessary causes and are not lacking, it follows that they are better known and prior. For these conditions, as was said, are in premises from their relation to a definite conclusion, which relation is touched upon when he says “*since it is the cause of this.*”⁴⁶

[Reply to II Question 2.3] As to the other, we must reply that if one compares all cognizable things in general to one another, sensibles are better known to us, for our every cognition begins from the senses. Still, without qualification they are less known, because they have less cognizability, as the author puts it.⁴⁷ But when universals themselves are compared to one another, the more universal is better known to us, because our intellect, since it is incomplete and possible, begins from the more universal, which is the more incomplete, and is better known without qualification to the receptive intellect. Because of this, among universals the same is better known both to us and without qualification, as the objection intends. Nevertheless, it will be clear below how we reply when the premises and conclusion are convertible.

[Third Series]

[II Question 3.1] It is asked why he takes more note of first and immediate than of any of the other conditions.

[II Question 3.2] It is asked also why first has such a definition.

[II Question 3.3] And again, it seems that principle does not fall under the formula of first, for ‘first’ does not indicate causality, but only order, while ‘principle’ indicates both. Therefore, first must fall in the definition of ‘principle,’ so that it is said “a principle is a first cause,” rather than the other way around.

[II Question 3.4] It is asked in what way enunciative (*enuntiatio*) falls under the definition of proposition, since they seem to be the same.

[II Question 3.5] Then it seems that just as there is no demonstrative premise that contains both parts of a contradiction, neither is there any dialectical premise like this. For every proposition because it is a proposition, receives only one part of a contradiction.

⁴⁴*Posterior Analytics* I 2, 71b26

⁴⁵*Posterior Analytics* I 2, 71b27

⁴⁶*Posterior Analytics* I 2, 71b31.

⁴⁷*Posterior Analytics* I 2, 72a1–4.

[II Question 3.6] Then it is asked how the definition of contradiction placed here⁴⁸ is to be understood.

[Reply to II Question 3.1] To the first, it must be replied that what I call true is a condition more common than first or immediate, and so better known. In the same way, prior is also better known, for to be first is prior, but they are not convertible. First, therefore, and immediate are conditions less known than these.

[Reply to II Question 3.2] To the other we must reply that over and above principle ‘first’ adds a formula of restriction (*appropriationis*). For an axiom has the formula of principle even in its generality, but not the formula of first, unless it be restricted to (*appropriata ad*) some genus. Because it is a superlative, what I call ‘first’ signifies as something put above the realities of its genus,⁴⁹ and he calls this restriction (*appropriationem*). Therefore it is rightly defined as follows: the first is a proper principle (*proprium principium*).⁵⁰

[Reply to II Question 3.3] To the other we must reply that ‘first,’ as it is intended here, not only indicates the formula of order, but also the formula of cause. The first from which knowledge arises is a cause.⁵¹

[Reply to II Question 3.4] To the other we must reply that the same thing is an enunciative (*enuntiatio*) considered in itself and a proposition in relation to a syllogism. And because of this it is of itself an enunciative, and can fall under the formula of enunciative within the formula of proposition. And we should understand that this formula from which ‘proposition’ is imposed is clearest in the kinds (*partes*) of enunciative, which are affirmation and denial. And because of this, proposition is defined through a kind (*partem*) of enunciative. For a proposition is a certain connection (*dimensio*) between subject and predicate, as is clear elsewhere, which I touch on when I say the predicate is affirmed or denied of the subject. And thus it is clear that this definition of proposition is the same as this, “a proposition is speech affirming something of something or denying something of something,” which is given in the *Prior Analytics*.⁵²

[Reply to II Question 3.5] To the other we reply that he does not wish to say that some mediated proposition receives both parts of the same contradiction, but one receives one and the other the other. And thus this argument, “A dialectical proposition falls under either part of the same contradiction,” is not demonstrative in that way. For if someone accepted the affirmation, he would accept no denial.

Or it can be said that although some dialectical proposition takes the affirmative part, still it takes it by asking the assent of the respondent to this or to its opposite. And thus in a way it touches on the negative part.⁵³

⁴⁸*Posterior Analytics* I 2, 72a12.

⁴⁹The edition has *communis* (line 159), but it looks like it needs to be *generis*.

⁵⁰A first principle is first for a specific kind. So there may be first principle concerning animals, which are not first principles for cows unless they are restricted to, made appropriate to, cows by an argument that depends on the fact that a cow is a species of animal. There will be some first principles concerning cows which are restricted to cows by their own nature, for they depend on the specificity of the nature of a cow. An axiom is appropriate on its own to no species at all, for axioms are cross-categorical principles which have to be made appropriate even to the highest general kind, such as substance, but of their own nature extend beyond it. An example is the axiom that states that two things identical to a third are identical to one another, which applies equally to substances and accidents.

⁵¹A first principle is a mental conception which causes knowledge through the way it shapes a demonstrative syllogism.

⁵²*Prior Analytics* I 1, 24a16.

⁵³The passage at issue is translated by Jonathan Barnes as follows: “A proposition [premise] is one part of a contradictory pair, one thing said of one. It is dialectical if it assumes either part indifferently and demonstrative if it determinately assumes one part because it is true.” [72a9-11] Rufus imagines a dialectical debate, in which one asks his respondent to accept a statement, or else deny

[Reply to II Question 3.6] To the other it must be replied that this determination, ‘in itself,’ indicates the inclusion of a denial, and signifies that this premise in itself, that is, through the nature of its extreme terms, lacks a middle term, and through this is separated from privatives, and contrary immediates.⁵⁴ Healthy and sick do not lack a middle term of themselves, but through the subject, for they lack a middle term in an animal. And in the same way, blind and sighted not in themselves, but in the eye.

[Fourth Series]

[II Question 4.1] We ask in the first place why “it is necessary that whoever is to be taught must have an axiom,”⁵⁵ but not a posit.

[II Question 4.2] It seems that an axiom is not a principle of demonstration. If it is a principle, then it is either the major or the minor [premise]; and thus, since an axiom is common, there will be a demonstrative [proposition] from common terms.⁵⁶ Or else the axiom will stand outside the demonstration, and this can happen in two ways: Either it confirms some proposition in the argument, and then that proposition can be proved through the axiom, and thus the axiom will still be a major or minor [premise], and then we have the same as before; or else it will stand outside as a principle confirming the argumentative or inferential force, and then, since the [axiom] is common, the force of the inference will be common.

[II Question 4.3] Then, as follows: An axiom is indemonstrable and wholly immediate. Therefore, either assume an accidental or an essential predicate. If accidental, then it is not wholly immediate, for every accident has a cause in its subject. If essential, then it is either part of the essence, and then it is not yet wholly immediate, or the whole essence, and then it is the definition. It seems, then, that every axiom is a definition and so a definition will not be a kind of posit.

[II Question 4.4] And then as follows: since every definition is a posit, and thus an immediate principle, therefore a definition will be a proposition, and thus it indicates being or non-being.

it.

⁵⁴The passage at issue is translated by Barnes as follows: “A statement is one part of a contradictory pair. A contradictory pair is a pair of opposites between which, in their own right, there is nothing.” [72a11-12] Contradictory opposites are opposites with nothing between them, due to the nature. Applying this to statements, contradictory statements would be such that one or the other must be true, and there is no middle ground one could take, denying both in favor of a third. Contrary statements, on the other hand, could both be false. Hence, in the example, blindness and sightedness are contraries because they have no middle ground, not due to their own nature, but in animals which have eyes. A stone is neither sighted nor blind. So the definition of contradictories does not apply to a positive and privative quality. But what about immediate statements? Don’t they lack a middle term by the very nature of their extreme terms? Here Rufus seems to be confused by the text. The definition applies to pairs of things, to contradictory statements or contradictory qualities. Rufus applies it to single statements when he talks about immediate statements. Perhaps his intention is to ask if the extreme terms in an immediate statement are contradictories. If so, the answer must be that they need not be so, though they might be in an immediate negative, such as “No sighted animal is a blind animal.” But usually, in an immediate negative, the terms will be contraries. But what he seems to be doing is not this, but understanding the definition of pair-of-contradictory-statements as a definition of single-contradictory-statement. Such a single statement would have to have contradictory extremes, I suppose, extremes which lack a middle term. And immediate statements would lack a middle term, though in a quite different sense, but their extremes would be compatible, or else merely contrary. Then “contradictory statement” and “immediate statement” would be contraries, for we could slide between them with “mediated statement.”

⁵⁵*Posterior Analytics* I 2, 72a17.

⁵⁶This is absurd, since Aristotle says every demonstration arises from principles proper to its subject matter in its science.

[Reply to II Question 4.1] To the first we reply that an axiom is given through common terms, and therefore axioms are the best known of all. Now a posit is given through terms proper to a science, and therefore they are less well known. Because, therefore, axioms necessarily are held through such common terms, they can be verified in two ways—namely, because their truth cannot lie hidden, or because the first demonstrations in the sciences either accept two axioms from which they are demonstrated, or at least one. One cannot proceed entirely from posits, because their truth is not entirely obvious, and so they do not suffice [by themselves] to produce knowledge of the conclusion.⁵⁷

[Reply to II Question 4.2] To the other we must reply that an axiom contracted [that is, limited to a subject matter]⁵⁸ enters into a demonstration. But in its commonness it stands outside, confirming itself as it is contracted. Nor is this confirmation through demonstration, since there is the same truth in both cases, as of this proposition “every whole is greater than its part” and of “every whole angle is greater than its part.” The truth is the same in both, but it is plainer in the first.

[Reply to II Question 4.3] To the other we must reply that every axiom is truly a definition,⁵⁹ but the converse is not true, and because of this, definition cannot in its whole generality be brought under posit, though some definitions can. We must know that some propositions, even though they are not truly axioms, can still be proved by the locus of axiom, and so it is accepted on this account that they are obvious.

[Reply to II Question 4.4] To the other, some say that ‘definition’ here names speech of this sort: ‘rational mortal animal.’ Definition, therefore, is not a proposition of itself, but one of those things said beforehand that are mentioned in the *Topics*.⁶⁰ Still, since every well-assigned definition must be assigned to that to which it belongs, it must also touch on subject and predicate, and consequently it is a proposition. But it might be better to say that we understand by the name of definition the sort of speech in ‘a man is a rational mortal animal.’ And although speech of this sort is intended to prove and to combine this and that, still the ultimate intention is that the first subject be cognized simply in itself. And thus, as to its first intention, he says that definition indicates being or non-being, but as to its ultimate intention, he does not say this.

[Fifth Series]

[II Question 5.1] We can ask if one understands this proposition thus: “everything because of which,

⁵⁷The argument, it might be noted, seems to be an uncharacteristically poor one. Is it that knowledge of the conclusion requires certainty, and so requires that the premisses be obviously true? If so, it requires that *all* the premisses be obviously true, and hence posits, which are apparently not obvious enough, cannot enter into demonstration *at all*. But if they *are* obvious enough, though not as obvious as axioms, then nothing more obvious is needed. All demonstration is of proper conclusions, that is, of conclusions that assert some proper attribute of its subject, and so requires something other than axioms for its premisses.

⁵⁸This is surely the intention of *coartata*, “contracted together.” The 13th-century texts I’ve worked with usually use *appropriata* here, i.e., “made proper to the subject matter of the demonstration.” Perhaps the use of the notion of contraction in metaphysical contexts is in the back of Rufus’s mind here.

⁵⁹How so? Is Rufus imagining that “every whole is greater than its part” is a definition of whole (or of whole and part)? Or is it just that it follows on the real definition of a whole, and so expresses the implicit content of the definition, or part of it? If the latter, then one could see why some definitions would not be axioms—they would not be definitions of common things, but rather of specific things, such as mouse or circle.

⁶⁰*Topics* ?? I could not find a plausible candidate for such a passage. VI 10 and V 5 mention admissions that should be obtained before making one or another argument, which seems like the right sort of thing, but Rufus apparently means that there are some things that are to be obtained beforehand that are not propositions, and in these places it looks like proposition are what are sought beforehand.

that more so.”⁶¹ For it seems to have a counterexample in drunkenness due to wine.⁶²

[II Question 5.2] Then, when he says that “it is necessary to know,” why does he say “either all or some”?⁶³ For it seems that it is necessary to know all.

[II Question 5.3] Then, it seems that the opposites of principles are nothing to demonstration, since these do not enter into demonstration, but they only pertain to fallacious syllogisms (*falsigraphum*).

[II Question 5.4] Then, concerning the following part,⁶⁴ as follows: it seems that one can traverse an infinite number of steps.⁶⁵ For let a sphere or angular body be moved above a plane, and touch the plane in a point, and it will then signify a point in actuality. Therefore it will traverse an infinite number of points not only potentially, but actually designated.

[II Question 5.5] Then it seems that there is circular demonstration.⁶⁶ For it is shown “that it is the case and why it is the case” as he has it in what follows. So A can show why B is the case, and B, that A is the case.

[Reply to II Question 5.1] The reply to the first, that “everything because of which” etc., is that this is only to be understood in a univocal process, and this is when something is in two things, but in one because of the other, as we love wine because we love the sweet, but it is not thus with wine and drunkenness.

But against this, I can still say that “human being generates a human being because of the sun,” and the predicate, as it seems, agrees with both, and yet it does not agree more so with the sun. And that it agrees with both appears because, as Aristotle says, “human being, and the sun also, generate a human being.”⁶⁷ Again, heat is in fire and in iron, and in iron because of fire, and still glowing iron is hotter.

It must be replied to the first that this remark, “human being, and the sun also, generates a human being,” has to be understood not in a divided sense, but conjunctively, so that the sense is, “the power of a human being conjoined with the power of the sun generates” etc. And because of this, generating a human being does not agree with the sun, for it does not agree with the sun to act with the generation of a human being as the outcome of the action, but the sun’s action occurs more by completing the power of the human being who causes generation than by completing the nature of the human being that is generated. Since therefore the action that is generation belongs to something that transmutes, we do not call the action of the sun generation.

Concerning iron it must be replied that hot is said in two ways, either in coming near to heat, which is not relevant here, or in possessing heat. And this is said in two ways, either in possessing heat to a greater extent, or in possessing a greater heat. In the first way the fire is hotter, for it more purely and more truly has heat than does iron. In the second way the iron is hotter. For since there is more matter in iron than in fire,

⁶¹ *Posterior Analytics* I 2, 72a29. Barnes translates this “For a thing always belongs better to that thing because of which it belongs.”

⁶² That is, one is drunk because of wine, but that does not mean that wine is even more drunk. Aristotle’s example is that if one loves one thing because of another, he loves that other more.

⁶³ *Posterior Analytics* I 2, 72a37.

⁶⁴ *Posterior Analytics* I 3.

⁶⁵ *Posterior Analytics* I 3, 72b11.

⁶⁶ *Posterior Analytics* I 3, 72b25.

⁶⁷ *Physics* II 2, 194b13.

there is more there of what is receptive of heat than in fire, and as there is more of what is receptive, more is received when there is a giver. Fire is hotter than iron because it has heat more purely and intensely. And thus the principle is better known, because knowledge of it is had more purely and intensely.

[Reply to II Question 5.2] We must reply to the other that the power of a demonstration is for the most part in the major premise. And therefore it is more obvious that it is necessary to know the major beforehand and to know it better. Therefore, so that his conclusion would be clearer, he said “or some,” understanding the major premise.

[Reply to II Question 5.3] We must reply to the other that it does not pertain to someone syllogizing demonstratively to consider the opposites of principles, but it pertains to one seeking a demonstrative⁶⁸ premise. For if such a one did not cognize the opposites of principles, he might take them for true.

[Reply to II Question 5.4] To the other we must reply that infinites can be passed through in this way. But, still, there are two causes why infinites sometimes cannot be passed through. One occurs when those things to be passed through constitute a quantity, for then the things signified as passed through correspond to a time, and thus all of them together correspond to an infinite time, which cannot be passed through.⁶⁹ That is not how it is in passing through the points [in the purported counter-example], for a point is passed through in an instant, and the infinite number of points in an infinite number of instants, which are all within one finite period of time. The other cause why infinites sometimes cannot be passed through occurs when the cause of one is always another, for then if there were an infinite number, there would be no first, and thus there would be nothing from which any other causality could arise, and thus an infinite causality is not passed through as it is ordered as prior and posterior.⁷⁰ This is the way things are here. For the knowledge of the premises is the cause of the knowledge of the conclusion. And on this account, an infinite number of premises cannot be known.

[Reply to II Question 5.5] To the other we must reply that it is so, as will be maintained later. Hence it happens that if they concern different things, A shows why-it-is-so of B, B that-it-is-so of A, but not if they concern the same thing.⁷¹ And therefore, since there are no such demonstrations concerning the same

⁶⁸Surely, *demonstrata* in the manuscript should be emended to *demonstrativa*. There seems to be no point to specifying that the premise be demonstrated here, particularly since he wants to apply his view to first principles, which are not demonstrated, but every reason to insist that it be a *propositio demonstrativa*, that is a demonstrative premise.

⁶⁹This is wrong, of course. It may be that the times associated with the items in the infinite set for a decreasing series whose infinite sum is finite, for example, $1/2, 1/4, 1/8, \dots$, an infinite sum that adds up to 1.

⁷⁰Note that whether the series can be passed through may depend on how it is ordered. The same items might conceivably be passed through ordered in one way, but not in another. This is somewhat reminiscent of the modern mathematical strategy for showing that a set is countable: one must find a way to order the set that allows us to place it in one-to-one correspondence with the set of natural numbers. This can be done for the set of Rational Numbers (quotients of natural numbers), but not, it turns out, for the set of Real Numbers. For Rufus’s concerns: an infinite countable set might be ordered in one way so as to have a first member (such an ordering always exists), but it might be ordered in another way so that there is no first member. So consider the set of all integers, both negative and positive. If one orders these strictly as greater or lesser, there is no first or last member. On the other hand, one might order them as follows: 0, -1, 1, -2, 2, . . . Every integer will find a place here, and there is a first member, namely zero.

⁷¹Aristotle’s example is clouds causing the ocean through rain, and the ocean causing clouds through evaporation. The clouds are not caused by the same water in the ocean that they produce through rain, but rather through other water that was produced by earlier clouds. *Posterior Analytics* II 12, 95a38 ff. There is no analysis like Rufus’s given here, but compare *On Coming-to-be and Passing-away* II 11, 338b16–18, which specifies that circular generation can happen as long as the rain and the vapor are always of the same kind, but different instances of the kind at different times.

thing at the same time, they will not make a circle.

[Sixth Series]

[II Question 6.1] A question might be raised since the matter of the “*dici de omni*”⁷² is dealt with (*determinetur*) in the *Prior Analytics*, and the author has to suppose here what he settled on (*determinavit*) there, since that teaching comes before this, it seems that the demonstration of the “*dici de omni*” here is superfluous. And supposing that this ought to be dealt with here, why is it not settled in a similar way in the *Topics*?

[II Question 6.2] Again, the “*dici de omni*” touches on the universality of the subject, as it seems. Therefore it is asked why the universality of time falls within its definition.

[II Question 6.3] Again, we ask about the example, for he introduces an example concerning that which is “*de omni*” [in every case] in this proposition, “every human being is an animal,” holding that this is said in every case.⁷³ But to the contrary, the most specific species is only divisible through matter, and therefore if there should be no individuals, it [the species] would not be further divisible. Therefore if there should be no individuals falling under what it is to be a human being, this [proposition] will be false, that “every human being is an animal.” But it is possible that there should be no individuals, therefore it is possible that this proposition is false, that “every human being is an animal.” Therefore this will not be “*dici de omni*.”

[Reply to II Question 6.1] To the first we reply that “*de omni*” in the *Prior Analytics* is not wholly the same as what is intended here. For universality in time is adjoined over and above the “*dici de omni*” as it is intended here. And this is because the demonstrator intends not just that this should belong to that in every case, but *always* and in every case, and thus without qualification and of necessity. Now the dialectician only intends that these should belong in every case, denying those conditions the demonstrator adds over and above the “*dici de omni*” and not adding any [other condition]. And therefore in the *Topics* Aristotle does not settle the matter of the “*dici de omni*.” For no condition is added over and above the “*dici de omni*” as it is discussed in the *Prior Analytics*, but only a distinction.

[Reply to II Question 6.2] And thus the resolution of the next question is clear.

[Reply to II Question 6.3] To the last question, we must reply that what I call ‘human being,’ and [indeed] every most specific species, can be divided into individuals in two ways, either through the individuals actually existing, or habitually.⁷⁴ Therefore it does not have to be divided always through individuals that actually exist, but is divided through individuals existing habitually, as [for instance] human being into Socrates and Plato. And by saying ‘in’ I touch on the habitual existence of individuals, or of human being in Socrates and in Plato.

⁷²The *dici de omni* (“said of every one”) is a principle supposedly lying behind affirmative syllogisms, which holds that whatever is truly said of the predicate of a universal affirmative statement is also said truly of its subject. The text has the phrase “*hoc quod dico*,” “this which I say,” preceding “*dici de omni*.” The point seems to be that the phrase is mentioned rather than used, and I try to capture this with the quotation convention. “*Dici de omni*” is a phrase taken from the principle in question used to designate the principle, so it is not used, but mentioned, though it is mentioned so that it can be put on display, as it were. We are *shown* what he wants to talk about, or at least some part of it. In a similar way, the *incipit* of a work may become its name.

⁷³The edition places the phrase *dici de omni* here in quotes, but here the phrase seems to be *used*, and there is no prefatory “*hoc quod dico*.” On the other hand, one might have expected “*dictum*” instead of “*dici*,” though assimilation to the working name of the principle employed here no doubt explains the grammatical solecism.

⁷⁴That is, potentially, but the capacity in question tends to become actual. It is not a mere possibility. A most specific species, of course, cannot be divided like a genus in further individual *species*.

[Seventh Series]

[II Question 7.1] It is asked about the number of ways of being *per se*, because, why are there four and no more?⁷⁵

[II Question 7.2] Again, it can be asked about the second way of being *per se* as follows: if the definition indicates the essence, whatever is in the definition must be something about the essence. But the subject is not something belonging to the essence of accident, because they are of different essences. Therefore it does not enter into its definition.

[II Question 7.3] It is asked as follows: when he introduced the first two ways, he said that “accidents behave in neither way,”⁷⁶ and hence I ask why the third and fourth seem to be superfluous.

[II Question 7.4] Again, it is asked as follows: next he will say in the book that this proposition, “the wood is white,” is *per se*, and this is accidental, “the white thing is wood.”⁷⁷ And it does not seem that that *per se* is contained under any of these ways. Hence these ways seem to be lacking.

[II Question 7.5] Again, it seems that the second way is contained under the fourth, because the subject is the proper cause of its accident and received in its definition.

[Reply to II Question 7.1] To the first, we must reply that the ways in which things are *per se* are some of them ways of predicating, and some of them ways of being. And there is predication *per se* when there is an essential composition of the predicate with the subject. But just as the composition of some concepts arises from their relation to one another in the understanding, in this way an essential composition also arises from an essential relation in the understanding; but there is an essential relation in the understanding because one is a principle for understanding the other, so, similarly, some have an essential relation in being, since one is a principle of being for the other. But one is a principle of understanding for another because it is in its concept and definition. Therefore we understand that there is a *per se* predication when one belongs to the definition of the other. And this can only occur in two ways—namely, so that the subject is in the concept of the predicate and vice versa, and accordingly there is the second way and the first.

Now the ways of being *per se* are two, because some entity is through its essence, and this is absolute entity, for instance, substance; and some entity is from another, and this is relational entity. And the first of these is called being *per se*, since it is through its essence. Now the other cannot be said to be *per se* in this way, but is *per se* not in respect to just anything, but in respect to that from which it is. Hence the *per se* according which something belongs to being is of absolute being, and thus it is the third way, or of being compared to its cause, and thus, the fourth way. And since there are not more ways of being, there will not be more ways of being *per se*.

[Reply to II Question 7.2] To the second, some reply that the subject is not included in the definition of the accident indicating what, but the one indicating why. But it is better to say that the subject

⁷⁵ *Posterior Analytics* I 4, 73a35–b16 gives four ways in which something might be said to be *per se*.

⁷⁶ *Posterior Analytics* I 4, 73b4.

⁷⁷ *Posterior Analytics* I 22, 83a1–25 seems clearly to be meant, but the passage is garbled. First, two examples are given, “the white thing is walking” / “the man is walking,” and “the large thing is a log” / “the log is large.” Rufus’s questioner runs the two together. Second, the distinction in Rufus is between claiming that the piece of wood is white and claiming that “*ly lignum*”, that is, the word “wood,” is white. In Aristotle no such distinction is imagined. Rather it is between a sentence in which the subject is identified through an accident, and a sentence in which it is identified “through itself,” or *per se*. To do Rufus credit, he gets this right in his reply to the question.

enters into the definition of the accident indicating what, but not as something that is of its essence, but as one term of a relation which is of its essence.⁷⁸ For some intention serves as genus in *per se* accidents, but the relation to the subject as the thing defined. For example, in snubness, concavity serves as its genus, but the relation to the nose serves as the thing defined. Therefore, concavity and a relation to the nose are of the essence of this accident. But this respect cannot be touched on in its definition, unless it is through its subject, taken into its definition obliquely.⁷⁹ And thus is it clear what I have said.

[Reply to II Question 7.3] To the third we must reply that the ways other than the first and second belong to predication accidentally. He means nothing other than this when he says “what holds in neither way [is accidental].”⁸⁰ Hence the third and fourth ways are not superfluous because they are ways of being *per se*.

[Reply to II Question 7.4] To the fourth we must reply that that way is *per se*. That this proposition “wood is white” is *per se* is traced back to the third way posited here. It is not said because of another that this is *per se*, except when the subject is such that it is suited for the other to inhere in it. For such a thing stands under (*substat*) *per se*, and this is a substance. So just as a proposition is said to be universal from the universality of the subject, so this sentence is said to be *per se* from the fact that the subject is *per se*.⁸¹

[Reply to Question 7.5] To the last we must reply that the proper subject is not so much a cause of the being of its accident, as of the cognition of it. And as was said, insofar as this is the case it is the second way. But it is the fourth way not insofar as this is the case, but insofar as the subject according to reality is the cause of the predicate, hence in the same example, it falls under both ways of *per se* for different reasons.⁸²

[Eighth Series]

[II Question 8.1] We ask whether the universal is defined and dealt with here⁸³ as it agrees with the proposition or as it agrees with the term.

That it is not as it agrees with the proposition, but as it agrees with the term, seems to be the case through this argument: What “is said of something” is in the form of the term, and not of the proposition, but the universal here dealt with and defined is defined through the phrase “of every,” therefore etc.

But that universal is not defined here in the way in which a term is said to be universal can be shown thus: Elsewhere the universal is defined as follows: “the universal is what is predicable of several,” or “the

⁷⁸ I.e., it is of the essence of an accident to inhere in a subject, for this is what it is for an accident to get into the world, to be, at all. But the subject it inheres in is not part of its essence (snubness is not a kind of nose), but only the relation to the subject. So, immediately below, Rufus says that the accident is “determined” by its subject, that is, its subject serves as one term of a relation which it is in.

⁷⁹ That is, the subject may be mentioned as such in the definition, but it will be placed in an oblique case, with “*respectus ad*” in the accusative, say, or with “*in*” in the ablative (concavity *in a nose*), but not in the nominative.

⁸⁰ *Posterior Analytics* I 4, 73b5. The reply seems to be right on.

⁸¹ This might be taken to imply that demonstration in the strict sense concerns only things that are *per se* in the third way, that is, only substances. This is the view defended by Simon of Faversham, *Quaestiones Veteres*, Question 35.

⁸² Here Rufus seems to accept the view of Thomas Aquinas and his followers that since the proper subject of an attribute causes that attribute in itself, the assertion of the attribute of the definition of the subject is *per se* in the fourth way. Grosseteste disagrees, holding that the third and the fourth ways are included in the list only for the sake of completeness, not because they pertain to demonstration in any way.

⁸³ At *Posterior Analytics* I 4, 73b25 ff.

universal is what is one in many or of many.” Now this is the definition of universal according to which a term is called universal. But there is only one definition of one term. Therefore the universal defined here does not agree with term. And if it did agree, then this would be in accord with another formula defined elsewhere.⁸⁴

Therefore it is asked how the universal is defined and dealt with in this place.⁸⁵

[II Question 8.2] It is asked thus: *per se* and as-such (*secundum quod ipsum est*)⁸⁶ are either the same, or they are not.⁸⁷ If they are the same, we ask, then, why both are placed in the definition of universal. If they are not the same, we asked, then, why the author does not discuss the as-such separately, as he does with in-every-case and *per se*.⁸⁸

[Reply to II Question 8.1] To the first we must reply that the term is defined as it is universal. But “universal” is taken more narrowly here than where it is defined before—there it is taken to fit any predication, but here only as it fits demonstrative predication.

And then we ask further how it is that such a definition agrees with universal.

We must reply that predicable in a broad sense requires nothing except that it be of many, but this does not suffice for a demonstrative predicable, because then a demonstrator could use a predicate that agrees only with several parts, but it is required of a demonstrative predicable that it be said of one thing containing many parts.⁸⁹ And this is touched on inasmuch as *de omni* (in every case) falls in the definition of the universal as it applies to a demonstrative predicable. To be said in every case is not to be said of many (*de multis*), but of one in its multitude [of parts], nor does that suffice, but it is required that the predicate agree with the universal primarily. And this is mentioned when he says “*per se* and as-such.” And in this that universality is touched on, namely as the predicate does not receive the subject only under its subjective parts but for its constituent parts.⁹⁰ For if it inheres as-such and primarily, then the whole predicate emerges from the whole subject.

⁸⁴That is, if it did happen to agree, it would be because of the definition given elsewhere, not because of the definition given here, which deals with universality in a sentence, not in a term.

⁸⁵In the edition the second question is marked as beginning with this sentence, but it begins with the next.

⁸⁶Barnes translates these two phrases (or rather, their Greek originals) as “in itself” and “as such,” or sometimes as “in what it is.” Rufus understands the distinction as Aristotle does.

⁸⁷That they are the same thing—*Posterior Analytics* I 4, 73b29. That they are not—*Topics* V 4, 132b2, 133a30, 133b5, and also the example at *Posterior Analytics* I 4, 73b31, it would seem. So the confusion is a natural one. Rufus resolves it correctly—see *Posterior Analytics* I 7 and I 10.

⁸⁸At 73b25 ff., in the definition of a demonstratively universal statement, Aristotle defines such a statement as one that holds in every case, and *per se*.

⁸⁹Rufus is probably thinking of the chief sort of demonstration (*demonstratio potissima*), demonstration in the strongest sense, which is identified by Ockham and others as mathematical, working from a definition of a figure which specifies how a figure is made up of parts and how those parts have to be related in such a figure. This sort of demonstration could also be used for natural entities, but it is not a “metaphysical” definition, that is one specifying the genus and difference of a thing. That sort of definition only specifies a things natural functions or operations, but does not tell us how those operations are performed. Only a definition through parts can do the latter job.

⁹⁰The subjective parts of the subject would be, not those parts in relation to the subject of experience, but those parts in relation to the subject itself considered as subject term. Thus those parts would be the individuals falling under the subject expression, perhaps the species falling under the subject genus, or, if it is a lowest species, the particular individuals falling in the species. The constitutive parts are the essential parts constituting a thing of the sort the subject is. So if the subject is “square,” the constitutive parts might be four straight line segments of equal length. So a definition through parts is through constitutive parts.

[Reply to II Question 8.2] To the other, we must reply that *per se* is said [both] in a broad and a strict sense: in a broad sense inasmuch as in giving an account of it (*in sua relatione*) one does not make the complete definition and formula according to which one can say that something agrees with something *per se*, but it agrees with it through something belonging to it—and thus it can be said that this proposition, “an isosceles has three [sides],” is *per se*.⁹¹ But it is called *per se* strictly speaking when in giving an account of it one makes a complete distribution, and thus something agrees with something *per se* according to the whole of it, and it does not agree with it only through some part of it.⁹² In the first way *per se* and as-such are not the same, and in the second way they are the same. So it is as they are diverse that they come into the definition. And since this is a small difference and is not founded on a difference in realities, but in speech, together with the determination of what is *per se*, the determination of what is as-such is also clear. For it is clear that just as *per se* occurs here in two ways, so also as-such.⁹³

[II Question 9.1] And it is asked why he posits this many errors and no more in [his discussion of] the signification of “what is universal,”⁹⁴ and whether he takes these three errors to be connected to the three fallacies posited in [the discussion of] the definition of universal, so that each error occurs through the lack of one particular, or not.⁹⁵

[Reply to II Question 9.1] We must reply that they are not taken to be connected to the three particulars posited in the definition of universal, but rather in such a way that in every error there is some truth moving the one who errs—otherwise one would not err. And there is something of falsehood, for otherwise it would not be an error. And there is an error here in three ways because in-every-case and *per se* are present there, but as-such is lacking [and this can occur in three ways]. And this can occur in this way: the subject in which some attribute inheres *per se* is either found in several significata, or not. If not, someone will believe that [what is in fact] the attribute of this common thing is not an attribute *per se* of the singular in which it is found,

⁹¹The sentence is *per se* in this more general sense because a part of the definition of isosceles, that it is a triangle, is that in virtue of which it has three sides.

⁹²So in this second way and isosceles would not have three sides *per se*, but it would have two equal sides *per se*.

⁹³I find this confusing. He seems to offer two different lines on the question in the course of the reply. There must be something wrong in here.

⁹⁴The definition of “it holds universally” is given at *Posterior Analytics* I 4, 73b34, followed immediately in I 5 by a discussion of the three ways in which we might mistakenly think we are proving something to hold primarily and universally even though it does not in I 5.

⁹⁵Aristotle says that something holds universally when we can prove it holds in an arbitrary case primarily. He then lists three ways the proof could go wrong: (1) one might prove of a figure that it has two right angles, say, but the figure is not arbitrary, (2) one might prove of an arbitrary figure that it has two right angles, but the proof will have to be mistaken, for quadrilaterals, for instance, don’t have two right angles, and (3) one might prove of an arbitrary isosceles that it has two right angles, but it does not have two right angles primarily, but only because it is a triangle. The question here is whether the discussion of error listed in *Posterior Analytics* I 5 is simply an extended discussion of these three errors. The three particulars in the definition are that one must (2) prove it, (1) of an arbitrary figure of a certain sort, (3) which has the property primarily. At least, I think this is what is going on. The situation is confused by the fact that Aristotle is really explaining here what one must do to establish that something holds universally. His definition what it is to hold universally is given in the previous paragraph, and has three particulars, namely, that it hold in every case, *per se*, and as-such. But I don’t think it is these three particulars that are meant in the objection, since it is case (2) above that is pressed by the objector after the Rufus gives his reply below (Question 13.1 and reply). So the objector must take the instructions how to show something holds universally as a second definition of “holds universally.”

and then it is the first error.⁹⁶ But if it is found in several things, it might be entirely univocal or it might not.⁹⁷ If it is not entirely univocal, someone will believe there is no one thing there the attribute agrees with primarily, and thus he will attribute the attribute to its parts.⁹⁸ And this is what he says, at “*if it is not named*” (74a9), if the subject does not have a single name—understand this as regarding the signification.⁹⁹ For the form signified is the name of the reality, just as the utterance is also the name of the form signified; and in this way, as was said, the third error occurs. Now if the subject is entirely univocal, either the difference between it and its singular will be obvious, or not. If the difference is not obvious, someone will believe that what is in fact the common attribute *per se* is the attribute *per se* of its part, and thus the second error occurs, as is clear from the text. Now if the difference is obvious, then no one will be deceived, and therefore he does not posit any error that occurs in this way.

[II Question 10.1] Here we ask as follows: in all the aforesaid errors there is this common failing, that the higher universal is believed to be a lower universal. We ask, then, why there is no error in believing that what is universal in respect of the lower is universal in respect of the higher.

[II Question 10.2] Again, concerning the last example¹⁰⁰ we ask as follows: he says that alternating proportionality is shown of every common thing, but that this has no name.¹⁰¹ This seems to be false, since it is shown of every one of the four continuously proportional quantities, and this seems to be a named subject, not merely named by an utterance, but with a signification.¹⁰²

⁹⁶That is, the attribute is *per se* in a species, but the person does not realize this because he does not realize there is a species, and thinks that the attribute is only to be found in this individual. Thus he will not realize that it belongs to the individual *per se*, that is, because the individual is a member of that species. I have moved “and then it is the first error” here from the end of the following sentence.

⁹⁷The point seems to be that, if all these things are called by the same name and they do not have individual names, so that they are *entirely* univocal, then they cannot be distinguished. In that case, the person still will not realize that they are members of a general kind.

⁹⁸The third error arises when the fellow gets it right about there being several items distinguishable from one another, but does not realize that they belong to a common general kind.

⁹⁹The name of the signification, that is, the general kind, is at issue, not the names of the significata. So the fellow does not realize that there is a single form shared by the various significata because they don’t have a single name for it applying to all of them.

¹⁰⁰*Posterior Analytics* I 5, 74a18–24.

¹⁰¹The theorem in question is that if $A:B::C:D$, then $A:C::B:D$. This is a central issue in Euclid’s geometry. The task is to show alternating proportionality applies to every sort of quantity (to give the name to it that Aristotle did not have), that is, to number, length, volume, time, etc. This might be seen as a deeper problem than the mere lack of a common name. A single science of number and length, for instance, might seem impossible because these do not share a common genus. If quantity is suggested as the common genus, it might be objected that it is an accident of lines and of sets, and some people, at least, had a problem with the notion that there could be a science whose subject was an accident. Again, can two different substances with no common genus have the same *proper* accidents, accidents demonstrable of them? Surely a proper accident, to be demonstrable of a nature, must be shown to belong to it as-such, and how can it belong to more than one nature in this way? Or else it could be shown to belong to it in virtue of another, as long as that other is part of its essence—that is, it could be shown to belong to several natures because they all belong to the same genus, but there is no common genus for the substances here, for time and length, for instance.

¹⁰²That is, the name is not a mere utterance applied to things utterly unlike one another, but has a signification, a common nature to which it can be referred and which is shared by the things it names.

[II Question 10.3] And again, suppose it is not named, and not entirely one, and we ask whether there can be demonstration of such a thing.

And it seems there cannot, because the subject of demonstration must be some one thing. Therefore, it is argued as follows: unity is greater in what is entirely univocal than in such [things], but entirely univocal unity does not suffice for the unity of the subject of demonstration; therefore neither does such unity. The minor premise is obvious, since quantity, even though it is entirely univocal, does not have the [kind of] unity whereby it can be the subject of demonstration or of a single science. For there are different sciences established concerning quantity, and not [just] one.

[II Question 10.4] And further, if alternating proportionality must be shown generally of all proportional quantities, how is this? We will show it either arithmetically or geometrically, but it seems that neither of these extends universally to all quantity.

[II Question 10.5] Then, it seems that he speaks falsely when he says this attribute is shown of numbers and lines,¹⁰³ even though it is proper to neither.

[II Question 10.6 and 7] Then it is asked concerning what he says next, that we cannot know that every isosceles and scalene¹⁰⁴ has three [angles equal to two right angles] except in number rather than according to species.¹⁰⁵ For it is not possible that the antecedent can be known if the consequent is not—if, that is, the relation of the antecedent to the consequent or to the genus is known.¹⁰⁶ But those are antecedent to what I indicate when I say that “every triangle” etc. Therefore it cannot be known, if this is not known, nor does Aristotle give any reason here why the relation of these to that [of the premises to the conclusion] is not known.

[II Question 10.8] Then we ask what the difference is between knowing in-every-case and according to number.¹⁰⁷ For when I say “every triangle” I say triangle multiplied, and so triangle numbered.

[Reply to Question 10.1] To the first, we must reply that a predicate of something lower lacks being in-every-case in respect of something higher, which is a primary condition of the universal, and therefore with respect to this it has nothing of the nature of the universal, and therefore there is no error.

But it seems that it could be *per se*, even though it is not in-every-case. Hence, because of this, it might be opined that it is universal, for example, that [every] figure has three angles [equal to two right angles].¹⁰⁸ Here the subject falls in the definition of the predicate, as is obvious. And still it seems it could be *per se*, even though the subject neither falls in the definition of the predicate, nor vice versa, as, for instance, when isosceles has three [angles equal to two right angles].

¹⁰³ *Posterior Analytics* I 5, 74a18–24.

¹⁰⁴ The word for “scalene” is “*gradatum*,” roughly “graduated” or “in degrees”. The idea is roughly that a triangle is graduated when its sides (or angles?) are stepwise, or in degrees, so that they can be arranged in three steps, the second larger than the first, the third larger than the second. If one or two of them were equal, then they would not be graduated, for the equal sides could not be arranged in one order or another.

¹⁰⁵ *Posterior Analytics* I 5, 74a25–32. What he says is that you don’t know that triangles have three angles equal to two right angles if you do not know that this belongs to triangle as such, as-such. So if you have proofs that this sort and that sort of triangle has the property, even if every triangle is covered in one of the proofs, that is not sufficient for scientific knowledge. One needs a single proof rooted in the nature of triangle.

¹⁰⁶ *Scita* in the edition needs to have the quotation marks removed from around it.

¹⁰⁷ *Posterior Analytics* I 5, 74a31–32.

¹⁰⁸ The point is that such an error could occur.

We must reply that the second way of saying *per se* is to be understood here so that the subject falls in the definition of the predicate, either *per se* or through something in the subject, that is, it falls in it as an accident is in something.¹⁰⁹ And it is obvious that figure is not such. It falls in the definition of the predicate neither *per se*, nor through something in it which is in it as an accident is in something. For triangle is not in figure as an accident is in something, but rather as what is lower is in what is higher, and so this is not *per se*, “the figure has three [angles equal to two right angles].” But this is *per se*, “isosceles has three angles,” since this does not fall *per se* under the definition of the predicate,¹¹⁰ but it does fall under the formula of something in it which is in it as an accident is in something, namely triangle.¹¹¹

[Reply to Question 10.2] To the other, we must reply that the subject, the four continuously proportional quantities, is not entirely one, since at least what I call “proportional” is found primarily in numbers, and only secondarily in the others, since proportion is definiteness of relation.¹¹² Now the definiteness of the relation is more in number, and in others through the nature of number, as when it is said “the line is double,” for this is to contain something twice.

[Reply to Question 10.3] To the other it must be replied that there are four ways of predicating in general: (1) When there is one intention found in several through the same nature, and then it is wholly univocal. (2) There is not one intention, nor the same nature, and then it is purely equivocal. And then there is an intermediate way, and this in two ways: (3) When the same intention is in several [things] through different natures, as for instance in this name, “quantity,” since every quantity shares in this intention, measure. But this intention is caused in number from the nature of unity, in magnitude from the nature of a point, in time from the nature of an instant. (4) Or, one could say in another way, that over the whole range of this term the same one nature is indicated, subsisting in different ways or diversified under the same [nature] as it is nearer or farther away from it. For example, healthy predicates health of an animal body insofar as it has health, of urine insofar as it indicates health, of diet insofar as it produces health, and thus everywhere there is one nature, under diverse intentions.

But in ‘proportional’ the same nature is always indicated, and the same intention, according to substance, but it is made different as it is nearer to or more remote from that nature. For it predicates everywhere definiteness of relation, which is possessed through the nature of number, and this definiteness is an intention of number. And when we indicate number, we mention that through the nature of which this is indicated and found in all things. But when I say “proportional” of numbers, I indicate this intention as nearer in number. And when I say “proportional” of lines, I indicate it as more remote from number. And since there are these four ways of speaking, the unity that is touched on in the first way and the last suffices for there to be one demonstration—for the nature remains one in both these ways, and upon this one nature the causality of

¹⁰⁹The intention is that triangle should be in isosceles as an accident is in something, that is, triangle is *in things other* than isosceles. It is not intended that the connection between isosceles and triangle should be contingent.

¹¹⁰I.e., isosceles is not *per se* something that has three angles equal to two right angles.

¹¹¹To round out the argument, since “every figure has three angles equal to two right angles” cannot be *per se*, even in the second way, one cannot make a mistake concerning it not already on the list of three mistakes discussed. One may, of course, think it true when it is false.

¹¹²The idea seems to be that a certain relation, say greater and less, is narrowed or defined by a proportion (twice its size, or one half, say), so proportion *defines* or specifies a relation more closely. It seems one would have to say more than this to define proportion, namely, one would have to specify the relation it defines. Perhaps Rufus thinks that most relations cannot be further defined at all. After all, nothing is more or less equal to something, or more or less someone’s mother. If it *can* be further defined, then it will have to admit of more or less, and be definable numerically.

the subject and of the attribute in the subject is founded. The response to the objection is clear, then, for it is clear that quantity is not wholly one in the way that the subject of a demonstration must be one.

But it can be asked why the logician says that quantity is one.

And it must be replied that this is because he does not extend his consideration to the true nature of a reality, but only to a mode or intention of a reality.

[Reply to Question 10.4] To the other we should say that whoever considers magnitude universally considers number in a way, for he considers sometimes a numbered magnitude, and similarly whenever from the diversity of magnitude there is a diversity and extension of time, it is clear that he considers in another way this whole that corresponds to that attribute. And on this account he can demonstrate this in general in a way. And this is the geometer, but not the arithmetician. For one does not descend from number to magnitude in the way that one descends from [the consideration of] magnitude to [the consideration of] number. And thus he who considers number does not consider magnitude.

[Reply to Question 10.5] To the other it must be replied that when the attribute is demonstrated of what is common, it is taken as common; and it is still taken contractedly of the more specific.

[Reply to Question 10.6] To the other we should say that, in a broad sense, having a strong opinion and not being wrong is called “knowing,” but more strictly, cognizing through the cause.¹¹³ ¹¹⁴The argument here holds taking “knowing” in the broad sense, but not according to “knowing” strictly speaking. And I speak here about the word “knowng” when it is mentioned that “the consequent is known” in saying “the antecedent is known, therefore the consequent is known.”

[Reply to Question 10.7] To the other we should say that I can cognize having three angles etc. of the species triangle without seeing the proper relation between triangle and this attribute, and thus I will not know that triangle has three angles etc.

[Reply to Question 10.8] As to the other, some people say that [the word] “every” does [not] indicate this multitude, and they confirm this by this argument: A universal is the same as an essence, therefore universally and essentially [are the same], but [the word] “essentially” does not indicate multiplication, therefore neither does “universally.”

But it is clear that this argument is a fallacy of accident, because although a universal and an essence are the same in reality, they differ in formula. For what is essential in itself receives universal being from its relation to individuals, and thus it is clear that it receives universal being from the multitude, and so it is clear why the argument fails.

Others say that “every” denotes multiplication, but multiplication of the genus through the species. But this is not a numerical multitude. Hence knowing every is not knowing number.

But what the author says here is contrary to this—namely, that knowing some predicate of [all] the species of triangle is not knowing in every case.¹¹⁵

And although there are many other ways of answering, we should say that a universal, being just what

¹¹³ In the edition, the quotation marks should be removed around *per causam cognoscere* on lines 599-600. I say this because the word indicates a thing, and this does not mean “it is synonymous with another phrase,” but that it stands in some relation to a *thing*.

¹¹⁴ *Posterior Analytics* I 2, 71b10-12.

¹¹⁵ *Posterior Analytics* I 5, 74a32.

it is, is in some way habitually a multiplicity¹¹⁶—namely, it is one multiplied.¹¹⁷To know, therefore, “every” according to species, is to know about one multiplied; but to know according to number, is to know about many which are under that one, and this exposition agrees with the letter.

“If then there is demonstrative science.”¹¹⁸ That part is finished which discusses these conditions, in every case, *per se*, and as-such, in themselves.¹¹⁹ These are all necessary for demonstration, and this part intends to show that demonstration does indeed arise from them. And first that there is demonstration from the *per se*, and also demonstrative science; second, that demonstration arises from the as-such.

[III Question 1.1] Here we can ask what the reason is for the truth of this proposition, “only the *per se* is necessary.”¹²⁰ For it seems to be false, since this is necessary, “What is able to laugh is colored.”

[III Question 1.2] We ask why what he says is true, that “no syllogism other than the demonstrative is from necessary [premises],”¹²¹ since Boëthius says that dialectical syllogism is from probable [premises], from those that are necessary as well as those that are not necessary.

[III Question 1.3] Again, it seems that the preservation of scientific knowledge requires the existence of knowers and the habit¹²² of the knowable, and that these suffice. For if these exist, scientific knowledge in general will remain,¹²³ just as imagination is in actuality from the presence of imaginable species in the imagination even if the thing imagined does not exist outside; and in the same way there is understanding from the presence of the intellectual species in the intellectual power. Thus, it appears there can be science from the presence of a knowable species in the power of knowing, and this can happen when the knowable does not exist.

[III Question 1.4] Again, we ask about the following incidental part, why from the necessary the necessary follows rather than the non-necessary.

[Reply to III Question 1.1] To the first, we should reply that necessity is nothing other than the

¹¹⁶“Habitually,” i.e. potentially, with the implication that the potentiality tends to realize itself.

¹¹⁷ “. . . universale, hoc ipsum quod est, habitualiter quoddammodo multum est -- unum, scilicet, multiplicatum.” There are two ways I can see to take this sentence. It might be suggesting that a universal, *given that it is in fact a universal (that it is what it is)*, will be multiplied in some way or other. The other is that a universal, *being a certain essence or a what it is*, that is, a certain kind of one or unity (a substantial unity, or whatever, depending on what kind of essence is involved), is multiplied in a manner appropriate to that sort of unity. Quite possibly, both are intended.

¹¹⁸*Posterior Analytics* I 6, 74b5.

¹¹⁹In the edition we need to do *secundum-quod-est-in-se* as *secundum-quod est in se*. The *est in se* phrase indicates that these conditions were considered in themselves, and now they will be considered as they relate to demonstration. Also, the idea is that demonstration is from *per-se* etc. *premisses*.

¹²⁰*Posterior Analytics* I 6, 74b6–12.

¹²¹*Posterior Analytics* I 6, 74b11–12.

¹²²A habit is a capacity which is strengthened, and made more likely to become actual, through its exercise. Knowledge is clearly a habit, a capacity to respond with the right answer, perhaps, which is strengthened through practice.

¹²³These will *not* suffice for the existence in actuality of a specific piece of scientific knowledge, the knowledge that the moon is eclipsed, say.

inseparable adherence of the predicate to the subject. Now this can happen by reason of something outside the formula of the subject, and then it will not be said strictly that a predicate inheres in the subject, but only in a broad sense, and so it is here, in [the proposition] “whatever can laugh is colored.” Or it can happen by reason of something belonging to the subject, for instance, in the [proposition], “a human being is colored,” for being colored adheres to human being by reason of something in it, namely body, which is its genus. And the predicate is said strictly to adhere to the subject. And in the same way, “isosceles has three angles etc.”¹²⁴ Or it can happen that the predicate adheres to the subject by reason of the whole of it, as for instance here, “triangle has three etc.” and then it will be said more strictly to inhere¹²⁵ in it. So, then, ‘necessary’ is said in a broad sense, strictly, and more strictly. It must be replied, therefore, that here it is taken strictly, and then what was asked becomes clear.

[Reply to III Question 1.2] To the other, we should say that even if the dialectician uses necessary premises, still, it is not insofar as they are necessary, but insofar as they are probable. And because of this only the demonstrator, not the dialectician, uses necessary premises *per se*.

[Reply to III Question 1.3] To the other, we should say that scientific knowledge does not arise merely through the presence of the knowable species in the power of knowing, as imagination does through the presence of the imaginable species in the imaginative power, but it arises through the presence of the species in the intellect insofar as it corresponds adequately to the knowable, and I mention this adequation when I say “truth is the adequation of realities and understandings to one another (*coadequatio rerum et intellectuum*).” And this happens when it is not otherwise in reality than the species in the intellect indicates. But this adequation cannot be preserved if the reality does not exist.

[Reply to III Question 1.4] To the other, we should say that when a necessary [conclusion] follows from what is not necessary, this occurs only where the consequent is in more [antecedents].¹²⁶ And it must be understood that the consequent in more is in this antecedent. And moreover, for this reason if the antecedent has necessary being, then the consequent does, and moreover the consequent in more does not have being only in this antecedent but also in some other. And on this account even though [the consequent] does not have necessary being in this antecedent, it does not follow that [it does not have necessary being] in a necessary [antecedent]. So, then, it does not follow, “if the antecedent is contingent, then the consequent is.”

[III Question 2] Concerning that part which shows that demonstrative knowledge is from the *per se*, first, we say that demonstrative knowledge does not arise from accidents, because accidents do not show the conclusion of necessity.¹²⁷ We ask, then, whether he intends to say that they infer without necessity, or that they do not infer a conclusion to be necessary. If in the first way, [the claim] is false. If in the second way, then he does not show in this way that there is no demonstration from accidents, for the demonstrator does not

¹²⁴ Here in line 38, p. 36, and perhaps elsewhere, the “etc.” is part of the phrase “habet tres angulos,” replacing “equal to two right angles,” so it should go inside the quotation marks.

¹²⁵ The distinctions made here on inherence and adherence may provide a clue to the provenance of some of the author’s views, but I don’t myself know where to trace them back to.

¹²⁶ The idea seems to be that the consequent is implicitly or potentially in any antecedent from which it follows, but a given consequent may be in several different antecedents, and its necessity may not be established by all of these antecedents. So one might take a necessary proposition P to be in a conjunction of P and Q, where Q is a true, contingent proposition. $((P \bullet Q) \supset P)$, of course, and so P, a necessary statement, is a consequent of a contingent statement. But P also follows, perhaps, from necessary premises that ground a demonstration of it, so it is contained in those premises, as well.

¹²⁷ *Posterior Analytics* I 6, 75a18–20.

demonstrate that the conclusion is necessary, but only that is true.

[Reply to III Question 2] In one way, we must say that he does not intend either the one or the other, but rather that an accident does not show or prove the conclusion necessarily, that is, it does not do this always. For let it always infer—even when it arrives at a false conclusion let it infer—still it does not prove, but the premises of a demonstration always prove.

In another way, we can say that we must believe that an accident does not show a conclusion to be necessary. And we should reply to the objection that it does not demonstrate this primarily, but it does show that the conclusion is necessary implicitly. For someone who knows a conclusion demonstratively sees it proven in the proper nature of the subject. And for such a knower it is impossible to doubt the necessity of the conclusion, and thus it does not arise from the contingent or from accidents.¹²⁸

[III Question 3.1] Then we ask about the next part, that part in which he shows that demonstration is from the as-such.¹²⁹ We must use this expression “necessary” in the minor premise in the same way as it is used in the major. But in the major premise we use it thus when we have demonstrated it: now there “necessary” was nothing other than not ceasing to be true, for it was concluded thus: it is not possible for what is known to be otherwise than as it is. Therefore in the premises too it means ‘not able to be false’—but if this is our opinion in the minor premise, the minor will certainly be false.

[III Question 3.2] Again, it is asked if any proposition concerning a universal subject taken universally and with exclusion¹³⁰ is true. If it is said: certainly a predicate of a lower subject will be false taken with exclusion, but per se is higher than as-such. Since, then, this is true, “all and only per se [premises] are necessary,” this will be false, “[every as-such and] only what is as-such is [necessary, and so a suitable premise for a demonstration].”¹³¹

¹²⁸This suggests Thomas’s view in the dispute over the nature of the highest sort of demonstration, arguing that the middle term in such a demonstration is the definition of the subject, which will be a substance. Thus it disagrees with Albert the Great and Giles of Rome, who take the middle term to be the definition of the attribute. The question put here raises an objection against Albert’s view that Albert found it necessary to reply to, arguing that even if attributes are shown to inhere in a subject through more immediate attributes, there is some sense in which the conclusion is necessary—see Longeway (2007) 74–79. The gist of Albert’s reply seems to be given below in the reply to Question 5.5, and Albert does describe Thomas’s view. So one might think the author here is using Albert’s commentary, but the arguments presented by Albert for his view and against the one Thomas adopted, which shaped the dispute over *demonstratio potissima* in the 13th century, do not appear here in Rufus. Albert’s arguments seem based in Averroës, and perhaps the present document, which does not seem aware of Averroës’s views, was written before Albert’s investigation of the Arabic sources. It is harder to find arguments placing it before Grosseteste’s commentary.

¹²⁹*Posterior Analytics* I 6, 75a28 ff., which repeats the argument and conclusion of the first paragraph in Chapter 6, 92a6 ff. The argument is that demonstrations are from necessary premises (this is the major premise), and what is not true as-such is not necessary (this is the minor premise), therefore demonstrations are from premises that are as such. The major premise, that demonstrations are from necessary premises, is proved from the assumption that a demonstration is of what is knowable, and what is knowable is necessary. The objection here is that what is knowable is held to be necessary on the ground that it cannot be false, but we need a stronger sense of ‘necessary’ than this for the principle argument, for it is simply false that what is not true as such can’t be necessary in this wide sense.

¹³⁰A statement about a universal subject taken with exclusion will state that something is true in every case of that subject, and in no case of what is not that subject.

¹³¹The point is that some premises of demonstrations might be *per se* and not as-such. In the same way, the predicate “eats” is true of every dog, but also of a higher subject, namely animal, and so “every dog eats” is true, but “every dog eats and only dogs eat” is not true, even though “every animal and only animals eat” is. So, “every and only per se predications are necessary” is true, but it would seem that “every and only as-such predications are necessary” must be false.

[III Question 3.3] Again, it is asked what the truth is of this proposition, “a non-inhering as-such predicate does not show why.”

[Reply to III Question 3.1] We should say to the first that “necessary” is said in a broad sense, strictly, and more strictly. Now necessity is nothing other than the unceasing adherence of the predicate to the subject. And this can happen either through what the subject is, or through what is in the subject, or through what is outside. In the last case “necessity” is taken in the broad sense, in which it can be said that this is necessary, “whatever can laugh is colored,” for in this subject, namely, in what can laugh, nothing is signified by reason of which this inherence occurs. Or this inherence might occur by reason of something in the subject, as here, “human being is colored,” for colored inheres in human being not by reason of the whole, but by reason of its genus, which is body. This is “necessity” in the strict sense, and is the second way of being *per se* in the broad sense. Or this inherence can be by reason of the entire subject, as for instance here, “triangle has three etc.” and this is “necessity” taken more strictly, and as-such.

We should say, then, that although this, “every demonstration is from necessary premises,” follows, as far as the literal meaning of the words goes, assuming the broad sense of “necessary,” still the demonstrator does not take it in its full generality, but as it suffices in the genus,¹³² and this either strictly or more strictly. Since, then, a demonstrator demonstrates “being from necessary premises” universally of demonstration, he uses “necessary” strictly speaking or more strictly speaking, and when he shows it of demonstration maximally so-called, he uses that expression more strictly. Since, then, the showing made here concerns demonstration maximally so-called, here “necessarily” must be used in the stricter sense. And thus it is clear that the minor premise will be true.

[Reply to III Question 3.2] To the other we should say, as is already clear, that when it is shown that only *per se* premises are necessary, we use “necessary” in the strict sense, and so the predicate there does not remain the same, and the objection comes to nothing.¹³³

[Reply to III Question 3.3] As to the other, we should say that what shows why it is the case indicates the cause. Now the cause strictly speaking is what is sufficient for such an effect, and that in which there is nothing is not cause. If I say “a figure has three” etc., I do not mention a sufficient cause. If someone says that an isosceles triangle has three etc., he mentions there something that is not cause, namely the difference added over and above triangle to constitute an isosceles triangle. But the cause in the subject indicates the complete cause, having nothing of what is not the cause in it. Then it is called a “cause” and [a demonstration] “why it is the case” strictly speaking. But this will occur when the whole predicate arises from some coordinate subject. And this is being as-such.

[III Question 4.1] One can ask, if those from which demonstration arises are common, is the

¹³²In general, whenever one demonstrates, one restricts the sense of the predicate to the subject-genus. So, when one demonstrates a proposition concerning proportionality in arithmetic, one restricts the sense of proportionality to the proportionality that can occur in numbers, since number is one’s subject, not, for instance, length or extent of time. Here the subject is demonstration, so the sort of necessity that can occur in demonstration is what the demonstrator will be talking about. So even if the statement is true in the broad sense of the predicate term, the demonstrator may not have that in mind, but rather some narrower sense appropriate to the subject term.

¹³³That is, in demonstration more in general the strict sense of necessity applicable to *per se* statements is sufficient in the premises, but in what is maximally demonstration (that is, *demonstratio potissima*, the highest sort of demonstration?) the stricter sense of necessity must hold of the premisses, and this stricter sense requires not merely *per se* premisses, but premisses that are as-such predications. As-such predications are necessary in this stricter way, and only as-such predications are, but in the looser way *per se* predications that are not as-such are necessary as well, and it is in this looser sense that all *per se* predications and only *per se* predications are necessary.

demonstrative [syllogism] itself also common?

[III Question 4.2] Again, if the middle term is proper, as well as the attribute and subject, as is certain, then the premises are proper. Therefore those from which there is a demonstration are proper.

[III Question 4.3] Again, it seems that he did not sufficiently enumerate the things in demonstration,¹³⁴ since he does not mention the middle term. And if one says that he mentions the middle term through this, that he says “axioms,” it can be objected that axioms are common, whereas the middle term is proper.

[III Question 4.4] Again, concerning what he implies, that geometry is subalternate to quantity,¹³⁵ this seems false. For number and magnitude are opposite species, and therefore neither is under the other.

[III Question 4.5] Again, if one must be subalternate to the other, why more thus than the other way around?

[III Question 4.6] Again, we ask about what he says next, when he introduces two examples of subalternation. For he says that music is subalternate to arithmetic, and this seems false, since number and sound, which these sciences are about, are of different categories, and therefore neither is under the other.

[Reply to III Question 4.1] To the first it we should say that axioms are common in themselves, and thus they receive the name “axiom,” but when they are included in demonstration they are restricted and taken as they suffice for the genus. Hence when he says those from which demonstration arises are common,¹³⁶ this is true, accidentally speaking. And from this it does not follow that demonstration is common.

[Reply to III Question 4.2] And now the answer to the other is clear. Those from which there is demonstrating, speaking *per se*, are common,¹³⁷ though considered as that from which there is demonstration (*secundum se*)¹³⁸ and insofar as they are included in demonstration, they are proper.

[Reply to III Question 4.3] It is clear also that a restricted axiom is the same as the middle term ordered between extremes; although in itself an axiom is common, it is also a proper middle term.

[Reply to III Question 4.4] To the other we should say that even though magnitude and number are opposite species, it does not follow from this that one does not share in any way the nature of the other, but rather that one is not the other. We should say, then, that magnitude in some way shares the nature of number, and scientific knowledge about magnitude according to this is subalternated to arithmetic, as will become clear.

That magnitude shares in a way the nature of number can be understood thus: magnitude consists in this, that one part of the substance is located outside the other part. It consists, then, in a certain numerosness

¹³⁴ *Posterior Analytics* I 7, 75a39.

¹³⁵ *Posterior Analytics* I 7, 75b3.

¹³⁶ *Posterior Analytics* I 9, 76a38.

¹³⁷ Rega Wood has pointed out that the words *propria* and *communia* must be switched around in the text, else Rufus is contradicting his earlier assertions.

¹³⁸ Rufus’s use of the infinitive for “demonstrating” suggests that he wants to put a little distance between the reader and the item he identifies as “that from which there is demonstrating,” and then, taking that item on its own, i.e. *per se*, he wants to assert that it is common. Then he wants to consider these things as they are that from which there is demonstrating. *Secundum se* indicates that they are to be taken as the phrase used to identify them characterizes them, not as they are in themselves—the phrase is to be taken *secundum se*, not the thing indicated by it. Then he puts the same point a little differently when he says “insofar as they are included in demonstration.” The “*et*” connecting the two, if I have it right, indicates that the second amplifies on the first, not that it adds an additional point.

of parts.

But according to this it seems that the whole science of magnitude is subalternate to arithmetic, since every magnitude consists in numerousness.

We should reply that if a magnitude is considered in an indefinite way in relation to its parts, this consideration will not be made under any numerousness. Since, then, arithmetic is founded on its number, this consideration does not fall under arithmetic. But if we consider magnitude in relation to its parts, as we do when we say “a line of ten feet,” or “a line containing another ten times” or something else of the sort, thus it is considered under a definite numerousness, and this consideration falls under arithmetic.

[Reply to III Question 4.5] To the other, we should reply that number, which is an accident, is caused in every case from the individuation of form. Magnitude is from the individuation of form in matter, not in just any matter, but in matter in a given place with extension. And thus number is caused by something prior in nature in the process of collecting together, and thus it is prior according to nature. This is not because it receives just any predicate beforehand, but for the reason already given, that it [the predicate received] is of a simpler nature. Since, then, the prior is preserved in the posterior, and not conversely, it is clear that magnitude shares the nature of number, and not conversely.

[Reply to III Question 4.6] To the other, we should say that one science is subalternate to another in two ways: when the higher receives some *per se* difference that makes it lower, or when the subject of the higher is the difference of the subject of the lower. He suggests the first way through an example, for he introduces [the example of] geometry which in some part is about line, and perspective which is about visual lines. The second way is suggested in another example, for just as a part of geometry is about numbered magnitude, so music is about numbered sound. For sound is constituted by a certain numerousness. And for this reason, if we consider one sound as it is numbered by another several times,¹³⁹ it is clear that in the sound as it is like this, many attributes are caused through the nature of number. And thus scientific knowledge about this considered in this way will be subalternate to arithmetic.¹⁴⁰

[III Question 5.1] It seems that some scientific knowledge is about things that can be destroyed.¹⁴¹ Natural science considers the moveable insofar as it is moveable, therefore insofar as it can be destroyed. And thus there is a science about what can be destroyed as such.

[III Question 5.2] Again, there is a science about universals, therefore about things that can be destroyed. Proof: universals are destroyed in the destruction of singulars, since when first things are destroyed etc.

[III Question 5.3] Again, every commonality proceeds from singularity.

[Question 18.4] Again, we ask how what he says ought to be understood, that every “definition is either a principle or a conclusion of a demonstration, or the demonstration itself differing in arrangement.”¹⁴²

[Question 18.5] Again, we ask how it is true to say that those which often are the case, as they are

¹³⁹The idea is that, in a musical scale, the note an octave higher than a given note, for example, will be ‘twice’ that note.

¹⁴⁰This account of subalternation seems to be that given by Grosseteste, and the account given in Thomas Aquinas and Albert the Great, which would hold that, not the subject of the subalternate science, but the accidents demonstrated of its subject, fall under number in these cases, is not mentioned.

¹⁴¹*Posterior Analytics* I 8, 75b24.

¹⁴²*Posterior Analytics* I 8, 75b32.

demonstrated, always are.¹⁴³

[Reply to III Question 5.1] To the first, some reply that a natural body, even though it can be destroyed in respect of some disposition, for instance, in respect of coldness or heat, still cannot be destroyed in respect of what-is-corruptible. For a natural body is [always] corruptible.

But if this were so, natural philosophy would show only predicates such as corruptible, changeable, and so on—which is false.

For this reason, we should say that there are causes so ordered to their effects that it is impossible to prevent them from producing them—such causes occur in mathematics, for it is impossible to prevent the form of a triangle in respect of the habit¹⁴⁴ of triangles. But there are also causes which, even though they are ordered to some effect, still it is possible to prevent them, and such are natural causes. For example, the olive tree is set to produce an olive tree, but it does not always do so, since it can be prevented through the disobedience of matter, as Aristotle states in his First Philosophy.¹⁴⁵

And on this account, natural philosophy does not concern the purely necessary, but rather natural contingencies, which are necessary nonetheless if nothing prevents them. Thus we should say that natural science is in a way about what can be destroyed, and in another way about what is necessary. For things of this sort, in themselves, are necessary.

[Reply to III Question 5.2] To the other some say that the universal, insofar as it is in this or that determinate individual, can be destroyed; but as it is indifferently in any [individual] at all, it cannot be destroyed. For nature so ordered [things] that in those that are destroyed, one is always generated after the destruction of another. Thus the universal can remain in one or another individual always.

But on the other hand, for the universal to be perpetual in this way is for the universal to be quite capable of destruction.

On this account, it must be said that a universal can be considered in two ways, either according to the being it has in individuals, or according to the being that belongs to it not insofar as it is in individuals, but in its essence. In the first way, it can be destroyed, in the second way it cannot. But this must be understood as follows: First, a form according to nature is a nature differing from matter. Next, according to nature it has the power of completing matter and producing an individual, and then it is an individual habitually. Third, it has the power that through it many individuals can be understood indifferently, and then it has the formula of a universal. And the form has all these in itself according to nature prior to its possession of them actually in matter. Therefore form does not have the being of a universal from this, that it is in the individual actually, but it has it prior to this.

And for this reason it is not destroyed through the destruction of individuals as far as the being it has in its essence is concerned, but it is destroyed upon the destruction of individuals only insofar as it has being actually in individuals.

[Reply to III Question 5.3] And what he says, “every commonality etc.,” is to be understood as follows: that habitually the singular is prior to the form’s universality, but still, according to nature the form’s universality is prior to actually being a singular.

[Reply to III Question 5.4] To the other we should reply, according to some people, that the definition that is the form or substance, indicating the principles of the subject and made from the genus and

¹⁴³ *Posterior Analytics* I 8, 75b33-35.

¹⁴⁴ I.e. the tendency of triangles to take on their properties.

¹⁴⁵ Rega Wood suggests Avicenna, *Liber de philosophia prima* 4.2 and 8.2, *Avicenna Latinus*, ed. S. Van Riet, Louvain: 1980, I: 211-213, II:388.

difference of the subject, this is the material [cause] of the attribute. Now the attribute has a definition from matter made from genus and difference, and this indicates the same essence as the attribute, but not its cause. But another definition indicates the cause of the attribute, and not the essence. The first, then, as it is only of the subject, is a principle of demonstration; the second which is not only of the subject, but also of the attribute, is thus the whole power of the demonstration and thus the demonstration itself, but differing in the arrangement of its parts. And thus insofar as it is the power of demonstration, it obtains the place of the subject as well as the predicate, but insofar as it is definition, only the place of the predicate. Now the definition of the attribute from its genus and difference—this is the conclusion of a demonstration. For this definition is concluded not of its defined, but of the subject to which the attribute belongs.¹⁴⁶

Others¹⁴⁷ say that the definition of something is twofold: namely the formal, and this is what arises through the final and efficient cause. And they say that the form or end of something, that is, the cause why, intends it to arise from such material or such an efficient cause. And for this reason the definition through the formal cause shows here that [definition] which is through the material cause. But the definition put together from these two is the middle [term] for showing the one thing defined to be in the other. Therefore the formal definition here is the principle of material demonstration; the definition put together from both is the demonstration itself differing in the arrangement of its parts.

[Reply to III Question 5.5] To the other we should say that eclipse is not demonstrated of the moon, but of the moon thus having [an eclipse]. Therefore, even though it is not in the moon always, but only for the most part, still it is always in the moon thus having it. And this is what he says, “as it is demonstrated it always is.”¹⁴⁸

[III Question 6.1] We ask, if an attribute indemonstrable in a subalternate science is convertible with its subject and emerges from its nature, how can it be shown through a middle term that belongs to a higher nature than its subject?

[III Question 6.2] Then we ask why we should not say that the particular sciences are¹⁴⁹ subalternate to first philosophy?

[III Question 6.3] Then, we ask whether logic [is related] in the same way to all [the sciences] as first philosophy is? And since it concerns all, why is it that it cannot show the principles of lower sciences as first philosophy does?

¹⁴⁶This seems to be the view defended by Albert the Great in his commentary (between 1245 and 1260). The middle term of a demonstration on this view would be the causal definition of the attribute. The second opinion is also reported in Albert, and defended in Grosseteste’s commentary (around 1230). It may be that the text of “Rufus” here actually postdates these works. Or, somewhat more likely in view of other considerations in connection with Question 15.1 above, these different opinions were around before (how long before?) Albert and Grosseteste did their commentaries.

¹⁴⁷This opinion is found in Grosseteste, and relies on an interpolation in the vulgate, James of Venice translation of the *Posterior Analytics*, Book II, Chapter 9, which seems to have migrated into the text from a gloss taken from Alexander of Aphrodisias’s commentary. There is no discussion of form and matter otherwise found in the text, and so it seems certain that Rufus must have known the James translation, ca. 1125–1150. The opinion was very probably been held by others before Grosseteste’s commentary was issued around 1230, of course.

¹⁴⁸*Posterior Analytics* I 8, 756b33-35. This would seem to refer to demonstration *ex suppositione*, as discussed in Albert the Great and Thomas Aquinas (Longeway (2007) 77-78). The whole of Question 18 does suggest that the author may have had Albert’s commentary at hand. On the other hand, Albert clearly makes an attempt to report everything to be found in prior treatments of the text, so it may be only that Albert and Rufus are looking at the same sources.

¹⁴⁹Emending line 301 of the edition, by omitting *non*.

[III Question 6.4] Then it is asked about the sign (*signum*),¹⁵⁰ namely whether it is by the same science that I know A and know myself to know A? And it seems not, since A and that I know A are different knowables. Therefore these are known by different sciences.

The contrary also seems to be the case, because by the same act by which I perceive color, I perceive myself to perceive color. For the visual power, since it is changed by color, perceives not only the color, but also its change. In the same way, the power of knowing, since it is changed or informed by the species of a knowable, perceives not only its knowable, but also its information by it.

[Reply to III Question 6.1] To the first we should reply that, as the subject of the subalternate science is put together from the nature of a higher¹⁵¹ subject and some other, thus also its attribute and principle. Therefore in such a science as I speak of, the lower indicates by its principles that it is so and the higher indicates why it is so, as long as that part of the attribute related to the nature of the subject of the lower science is demonstrated, and not something else. Now the objection proceeded as if the attribute as a whole was shown through the higher science. And this can serve as an example: two visual lines directed at the same existing reality that is of greater length¹⁵² makes a greater angle in the eye, so that this proposition is the principle. This proposition is immediate, not inasmuch as an angle is in the eye, but inasmuch as the minor premise is proved through a higher science.¹⁵³

[Reply to III Question 6.2] To the other we should say that the subject of the subalternate science indicates a being put together from the nature of the higher [science] and something else outside its nature. Since, then, outside being there is not any other nature, it is clear that being cannot be restricted in such a way that there might be a science about this restricted thing, subalternate to first philosophy, which is about being without qualification.

[Reply to III Question 6.3] To the other, we should say that first philosophy is about everything, since it is about substance and its principles, which are the principles of all things. Logic, however, is not this way, but is about all accidents of all things, of which kind are genus and species.¹⁵⁴ And from this it is clear that first philosophy, since it considers the causes of all things, has some power in the proof of the principles of

¹⁵⁰I think there is more going on here than simply a reference to observation. One form of demonstration according to the commentary tradition is an argument not from the cause, but from a sign, or symptom, which is in fact an effect of what it indicates. So I want to keep the term and leave its interpretation to further work.

¹⁵¹Emending “lower.” Given the account he has already given of subalternation, and the account of this in Grosseteste, the subject of the lower science, say, visual lines, is the subject of the higher (lines) with some accidental modification (they are visual). Aquinas and Albert and later authors will hold that the subject of the lower science here is the visual, and that it is from the nature of the visual that it has such accidents that the higher science throws light on them. This passage, by the way, is a parallel to Grosseteste.

¹⁵²Couldn’t “longius” be read to mean the thing is longer rather than farther away? I would think so, given the entry in Lewis and Short. If not, some emendation does seem necessary.

¹⁵³If subalternation was not involved, and the principle were immediate, it would be because the angle is immediately *in the eye*, so that the eye is its immediate subject. It is not in the eye because the eye has some characteristic other than being an eye which causes it to be in the eye. But here it is immediate despite the fact that it is proved to be the case, so that there is a middle term through which the proof proceeds. But the middle term is not a term of the science at hand, but of a higher science, and so the principle is immediate *in its own science*, even though it is provable in a higher science.

¹⁵⁴That is, genus (being a genus) and species (being a species) are accidents of some things. I think the punctuation of the edition needs to be adjusted, moving the comma before “*qualia sunt*.”

lower sciences, but logic does not.¹⁵⁵

[Reply to III Question 6.4] To the other we should say that if, as has been objected, the habit of A is not the same as the habit of my knowing A, nevertheless they both arise through the same thing, and he concluded this in the same way about knowledge. Now the same principles through which the soul receives that conclusion and its cognition or the cognizing of it are the same as those [in virtue of which] it perceives that it is itself informed; it is informed through the same thing when it reflects on itself.

[III Question 7.1] We can ask as follows: To ask whether it is to ask whether there is a middle term, therefore knowing what it is is knowing that there is a middle term; therefore what is known to be is known to be through a middle term. Therefore it is shown. Therefore the subject is shown to be.

[III Question 7.2] Again, we ask whether he means to say that number is more manifest, or heat.¹⁵⁶

[Reply to III Question 7.1] To the first we should say that subject is two-fold, namely common or proper. In no science is it asked or shown about the common what-it-is—this is shown about the proper. But still we must understand that it is not the subject in the proof in which it is shown to be, nor is it shown to be from what comes first, but from what follows. Hence where something is the subject it is not shown, but presupposed. For example: it is shown that a triangular or circular body is from what follows. For it is shown that some body is circular, and thus it is shown [implicitly] that this subject, body, is a singular. But this [body] is not the subject in this showing. It must be granted therefore that accidentally speaking the subject is shown to be, but not per se.

[Reply to III Question 7.2] To the other we should say that if we understand it concerning manifestation to the senses, heat is more manifest, because it is shown by a particular and determinate sense. But number [is shown] to the common sense, less directly and determinately.

But it can be understood better concerning intellectual manifestation. For mathematical things exist in the senses, and in changeable matter, but they are not as they are there. And since they are things existing in the senses, they are more manifest than those about which there is real science,¹⁵⁷ and because they are

¹⁵⁵The point seems to be that genus and species are not themselves causal concepts, so that one does not explain a fact concerning a reality by reference to them, even if the causal concepts one uses do fall under genera and species. One might ask here if the other sciences are somehow subalternate to the science of demonstration, which *does* consider causes. Giles of Rome and Simon of Faversham, who make a distinction between the art of demonstration as a theoretical science (*scientia docens*) and as an applied science (*scientia utens*) (Faversham, Question 1 in the first set of questions on the *Posterior Analytics*, Giles of Rome's commentary on the *Posterior Analytics* (1488 edition) 2L). One might suggest here that as a theoretical science it does not include the subjects of the special sciences under itself, though it does include the special sciences as subjects. As a practical science, likewise, it concerns not the subjects of the special sciences, but demonstration, which is part of the activity constituting those sciences.

¹⁵⁶*Posterior Analytics* I 10, 76b18.

¹⁵⁷That is, since they are abstracted directly from sensory experience, they are better known than things known through knowledge of the reality, that are less directly accessible through the senses, things such as substantial forms of particulars, for instance. This may suggest that Rufus does not think that substantial forms are abstracted from sensory experience, as Aquinas does, but rather adopts some form of illuminationism, like Grosseteste. Perhaps, though, he thought that there are two forms of abstraction, one directly of sensible qualities, which only need to be conceived universally, and the other of substantial forms and the like, which need to be posited to explain sensible experience causally. In that case, would he have thought that heat is known through the first or the second sort of abstraction? If he takes the line of most Aristotelians, it would be through the first sort, heat being a sensible quality. Nonetheless, he might have considered that the concept of heat is a causal one, unlike the concept, say, of a triplet.

abstracted from changeable matter, they are better known than those about which there is natural science,¹⁵⁸ and thus number is better known than heat.

[III Question 8.1] We can ask as follows: Above, it is said that a supposition is a species of posit, but a posit is indemonstrable, therefore a supposition is. Here he says the opposite.¹⁵⁹

[III Question 8.2] Again, why did he not enumerate question and petition, as he does here?¹⁶⁰

[III Question 8.3] Again, he calls definition in this book an immediate principle, therefore it is a proposition [premise], therefore it indicates being or non-being.

[III Question 8.4] Again, he says elsewhere in this book that every definition is universal, therefore it is as a whole, which is contrary to the text.

[III Question 8.5] It seems that it is necessary to posit a separated universal, since to suppose it is one is to suppose it is not in many, and is therefore separated from many—for the form that is universal to be in many is for it to be multiplied and many.

[The text breaks off abruptly here.]

¹⁵⁸That is, since they are known as they are abstracted, and natural things are known as they occur in reality, we know necessary truths concerning mathematical things, whereas natural objects of knowledge are known only through truths for the most part, or truths necessary given a hypothesis. It is natural knowledge that we have of heat, of course. See the reply to Question 18.1 above.

¹⁵⁹*Posterior Analytics* I 10, 76b31.

¹⁶⁰*Posterior Analytics* I 10, 76b31–32.