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The First Meaning of "Rational Process" According to the *Expositio in Boethium de Trinitate*

In St. Thomas's *Expositio in Boethium de Trinitate*, q.6, a.1, there is a passage concerning one particular use of logic that is frequently disregarded. In it St. Thomas shows that there is a process of reasoning which is called rational because it starts from constructions of the reason which are the subject of logic, and that the adoption of such a process by any other science constitutes a certain use of logic. Here is the passage :

. . . Processus aliquis, quo proceditur in scientiis, dicitur rationabilis tripliciter : Uno modo ex parte principiorum, ex quibus proceditur, ut cum aliquis procedit ad aliquid probandum ex operibus rationis, cuiusmodi sunt genus et species et oppositum et huiusmodi intentiones, quas logici considerant. Et sic dicetur aliquis processus esse rationabilis, quando aliquis utitur in aliqua scientia propositionibus, quae traduntur in logica, prout scilicet utimur logica, prout est docens in aliis scientiis. Sed hic modus procedendi non potest proprie competere alicui particulari scientiae, in quibus peccatum accidit, nisi ex propriis procedatur. Convenit autem hoc proprie et convenienter fieri in logica et metaphysica eo quod utraque scientia communis est et circa idem subjectum quodammodo.

. . . A process, according to which we proceed in the sciences, is called rational in three ways : First, because of the principles from which we proceed, as when someone proceeds to prove something from the works of the reason, such as *genus*, *species*, *opposite* and such like intentions which the logicians consider. And thus a process is said to be rational whenever someone uses in any science propositions which are given in logic, as when we use logic according as it provides knowledge in other sciences. But this mode of proceeding cannot properly belong to any particular science, in which error occurs unless we proceed from its proper principles. This, however, is done properly and fittingly in logic and metaphysics because both sciences are common and, in a certain way, are concerned with the same subject.

The purpose of the present study is an explanation of this first type of rational process and the particular use of logic that it involves. But first we must prepare the way by a consideration of what logic is and what it deals with. This article, then, will be divided into three sections : [*i*] on the definition of logic ; [*ii*] a further development of the nature of its subject, the second intentions which are the works of the reason ; [*iii*] the first type of rational process and one use of logic.

I. WHAT IS LOGIC?

Although both Aristotle and St. Thomas plainly held that logic is a science as well as an art, St. Thomas, in his Commentary on Aristotle's *Posteriora Analytica*, defines it simply as an art : *the art which directs the act of reason itself and by which man in the very act of reason proceeds with order, ease and without error.*[1]

We shall probe the reason for this preference later on. Let us first of all try to understand what the definition means. For this purpose it will be of advantage to consider the necessity and the nature first of art in general and then of the type of art that is logic.

Art, as the ability to make certain things, is the kind of stable determination with which nature does not provide us but which we must acquire on our own, such as the shoemaker's craft. Man, we know, is not determined in his actions by instinct as are the other animals, for he can operate in diverse fashions. When, with regard to its operation, a faculty is left undetermined by nature, a special disposition is required to incline it to act rightly. Such determinations we call habits.[2] St. Thomas says in the *Summa Theologica :*

> . . . If the form is limited to one fixed operation, no further disposition, besides the form itself, is needed for the operation. But if the form be such that it can operate in diverse ways, as the soul, it needs to be disposed to its operations by means of habits.[3]

Now, for the various powers of operation there are corresponding dispositions, some of which are good and others wrong. Since art is the kind of disposition which enables one to make things as they should be made, we shall concern ourselves only with the division of good dispositions. In the appetitive faculties, we have the moral virtues, which dispose one to submit to the judgments of right reason. Perfecting the speculative intellect are the determinations of understanding, science and wisdom, which are also called virtues though not quite in the previous sense. Finally, the practical intellect, i.e. the

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1. " Ars... directiva ipsius actus rationis, per quam scilicet homo in ipso actu rationis ordinate, faciliter et sine errore procedat " [*In I Post. Anal.*, lect.1 (edit. Leon.), n.1].

2. Cf. WEBSTER'S *New International Dictionary of the English Language*, the word ' habit,' n.8.

3. " Et si quidem habeat forma determinate unam tantum operationem determinatam, nulla alia dispositio requiritur ad operationem praeter ipsam formam. Si autem sit talis forma quae possit diversimode operari, sicut est anima, oportet quod disponatur ad suas operationes per aliquos habitus " (*Ia II ae*, q. 49, a.4, ad 1). — . . . Potentia quandoque se habet ad multa : et ideo oportet quod aliquo alio determinetur. Si vero sit aliqua potentia quae non se habeat ad multa, non indiget habitu determinante, ut dictum est. Et propter hoc vires naturales non agunt operationes suas mediantibus aliquibus habitibus : quia secundum seipsas sunt determinatae ad unum (*Ia IIae*, q.49, a.4, ad 2). — For all passages from the *Summa Theologica*, we have used the English Dominican translation newly published by Benziger Brothers, Inc., 1947.

intellect that does and makes, is the subject of the right dispositions of prudence, which enables the reason to judge rightly concerning how one must act under given circumstances ; and of art, which determines the reason with regard to the production of a work, such as a shoe, a boat, or a statue.

Art, then, is the habit which disposes the practical reason to direct the making of things properly and with ease. Consequently, its specific object, which distinguishes it from the other habits, is the *thing to be made.* This can be more readily understood by a comparison with prudence. In the *Summa Theologica*, St. Thomas distinguishes the two habits as follows :

> The reason for this difference is that art is the right reason for things to be made ; whereas prudence is the right reason of things to be done. Now making and doing differ, as stated in *Metaph.* IX, text.16, in that making is an action passing into outward matter, e.g., to build, to saw, and so forth ; whereas doing is an action abiding in the agent, e.g., to see, to will, and the like. Accordingly prudence stands in the same relation to such like human actions, consisting in the use of powers and habits, as art does to outward makings : since each is the perfect reason about the things with which it is concerned.[1]

We have seen, then, that the reason requires certain habits to assist it in directing the other faculties in regard to both immanent and transitive actions. However, it must not be forgotten that among the actions that stand in need of direction there are the operations of the mind itself, for the mind, not being determined to one fixed operation, can operate in diverse fashions. But what faculty can direct the mind, other than the mind itself ? Since the intellect, being in itself wholly immaterial, is capable of reflexion, the possibility of examining and directing its own act presents no problem. For this particular task, however, a special disposition is required. This is the habit that we call *logic.* Logic, then, is the habit that directs the operations of the mind.

In our next step, which is to show that logic is a type of art, we are faced with a difficulty. If, on the one hand, art implies the transitive action of making, and if, on the other hand, logic must direct, not the fabrication of some exterior thing, but the immanent operations of the mind, how can logic possibly be an art ? Since it is the work or the thing to be made that constitutes the object of an art as art, the only way of establishing that logic is an art would be to show that its object

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1. " Cuius differentiae ratio est, quia ars est *recta ratio factibilium*, prudentia vero est *recta ratio agibilium.* Differt autem facere et agere quia, ut dicitur in IX *Metaph.*, factio est actus transiens in exteriorem materiam, sicut aedificare, secare, et huiusmodi ; agere autem est actus permanens in ipso agente, sicut videre, velle, et huiusmodi. Sic igitur hoc modo se habet prudentia ad huiusmodi actus humanos, qui sunt usus potentiarum et habituum, sicut se habet ars ad exteriores factiones : quia utraque est perfecta ratio respectu illorum ad quae comparatur " (*Ia IIae*, q.57, a.4).

is a *thing to be made.* And seeing that the difficulty lies in the fact that making has been specified as a transitive action, we can state the problem as follows : Can there be something whose making does not require a transitive action ?

The clue to the solution is to be found in the fact that there are different types of things capable of being made, from which it follows that there are different types of art. Indeed, the term *art* is analogous, and, as such, it signifies many things, not equally — that is, not in such a way that the complete notion is found equally in each signification, — but in a certain order, that according to which the things signified participate more or less fully in the common definition. The different types of art participate in the definition to the extent to which their respective objects approximate or coincide with the primary type of *thing to be made.* Our task, then, is to establish the order which exists among the various makeable objects with a view to discovering how logic fits into the scheme.

There can be no doubt but that the matter to which we apply the expression *makeable object* most appropriately is none other than exterior, physical, passive matter, which, because of its passivity, lends itself most readily to a certain *making* or formation, to the reception of an artificial form, as the wood from which one makes a table, and, because of its exterior and physical conditions, requires from the craftsman, for the accomplishment of this transformation, a transitive operation.

The art having such matter as its object is called servile, for it relates to that part of man which is least free, namely, his body — not that the work of servile art is intended uniquely for the good of the body, for often, as in the case of architecture, it involves a representation intended to please the mind, nevertheless, although it is conceived by man's mind, it is itself a material work and must be executed by means of corporeal activity.

Servile art, differing from prudence by its object — which is, not actions to be performed, but things to be made — is also entirely distinct, again from the point of view of its object, from the habits of the speculative intellect. Insofar as it considers the makeable as makeable, its field is limited to the strictly practical, for the appetite is the principle of the work and the end proposed by the artist or craftsman is its measure, the work is contingent, since it could be other than it is or not made at all, and its truth, consisting in its conformity with the right appetite, is practical truth.

The association of *making* with transitive action and of *doing* with immanent action seems to imply that only material, exterior things can be made and consequently that only these can be objects of art. But such is obviously not the case. Do we not say that, not only a statue or a house, but even a poem, a sonata or a syllogism are works of art? The question brings us face to face with our

problem. We must answer that in each of these examples, there is indeed *making*, and not simply *doing*, inasmuch as the agent is concerned with the perfection of a work ; for, in each instance, there is the formation of a work inasmuch as there is a composition or ordering of objects.[1] But since, in this case, the object is quite immaterial — for the exterior work of a poem only signifies the interior one, — the formation does not involve a transitive action, and hence there is no making in the first and most proper sense. Likewise, the art that directs this type of making is art only according to a secondary acceptation. This is liberal art, whose works pertain to the part of man that is most free — his mind.

It is important to note that the division of art into liberal and servile is based upon the differences that are to be found in the work. We recognize, however, that another classification can be had from the point of view of the end : [*i*] the arts of what is merely useful, whose purpose is the *bonum corporis*, and which include only servile arts, such as shoemaking ; and [*ii*] the fine arts, which are intended for the *bonum animae*, and which comprise both liberal and servile arts, such as poetry and architecture. Nevertheless, it is the former distinction that is the most radical because the work is the object and specifies the art.[2]

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1. " Ordo autem *quadrupliciter* ad rationem comparatur. Est enim *quidam ordo* quem ratio non facit, sed solum considerat, sicut est ordo rerum naturalium. *Alius* autem est *ordo*, quem ratio considerando facit in proprio actu, puta cum ordinat conceptus suos adinvicem, et signa conceptuum, quia sunt voces significativae. *Tertius* autem est *ordo* quem ratio considerando facit in operationibus voluntatis. *Quartus* autem est *ordo* quem ratio considerando facit in exterioribus rebus, quarum ipsa est causa, sicut in arca et domo. — Et quia consideratio rationis per habitum perficitur, secundum hos diversos ordines quos proprie ratio considerat, sunt diversae scientiae. Nam *ad philosophiam naturalem* pertinet considerare ordinem rerum quem ratio humana considerat sed non facit ; ita quod sub naturali philosophia comprehendamus et metaphysicam. Ordo autem quem ratio considerando facit in proprio actu, pertinet *ad rationalem philosophiam*, cuius est considerare ordinem partium orationis adinvicem, et ordinem principiorum adinvicem et ad conclusiones. Ordo autem actionum voluntariarum pertinet ad considerationem *moralis philosophiae*. Ordo autem quem ratio considerando facit in rebus exterioribus constitutis per rationem humanam, pertinet *ad artes mechanicas*. Sic ergo moralis philosophiae, circa quam versatur praesens intentio, proprium est considerare operationes humanas, secundum quod sunt ordinatae adinvicem et ad finem " [*In I Ethicor.*, lect.1 (edit. Pirotta), nn.1-2].

2. It is without apology that we use the word " art " in the Aristotelian and scholastic sense, which applies *per prius* to the servile arts, such as shoemaking and bricklaying. Nor are we impressed by the silly interpretation, now current, of the distinction between servile and liberal arts as one that was based upon, and passed away with the class-distinction between slaves and freemen. Driving tractors, connecting wires, or even making statues, still requires its share of bodily effort. The following passage from M. MARCEL AYMÉ'S *Le confort intellectuel* is very much to the point. « On n'a jamais autant parlé de l'art qu'au siècle dernier et en celui-ci ; on ne finit pas d'en discourir et d'en disserter ; il nous a valu d'innombrables traités et théories et on va jusqu'à le flanquer parfois d'une majuscule. Est-il seulement bien sûr que le mot, au sens où on l'entend aujourd'hui le

Consequently, even though an action is immanent, so long as it is considered as producing a work, it requires the direction of art, not of prudence. For whereas art is concerned with the perfection of a work, prudence regards the perfection of human action and hence of man himself as an agent. Furthermore, the formation of a work, be it material or spiritual, calls for determinate means of procedure, which are not given by prudence.

> Every application of right reason in the work of production belongs to art : but to prudence belongs only the application of right reason in matters of counsel, which are those wherein there is no fixed way of obtaining the end.[1]

If the production of a work is sufficient to distinguish art from prudence, why, we may ask, is the transitive action usually given as the principle of their distinction? The answer lies in the fact that, inasmuch as the first, most proper and most complete notion of *making* involves a transitive action, the most proper, most forceful and most easily understood distinction is to be had from the opposition between immanent and transitive actions.

In fact, although liberal art is art in a proper and not merely in a metaphorical sense, the difference that separates it from servile art must not be minimized. Servile art alone realizes perfectly the definition of the common term, whereas the other type is art only by participation. Furthermore, the extension of the term art to include liberal art entails the rejection of a fundamental element of

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plus ordinairement, corresponde à quelque chose de réel? Autrefois, l'art était tout bonnement une façon de faire. Il y a un peu plus de trois cents ans que le mot a commencé à se draper dans un brouillard majestueux et par la suite, il s'est tellement sublimé qu'il est devenu je ne sais quelle angoisse cosmique, quel infini indivisible dont le principe imprégnerait certaines créations de l'homme. Tout ça me paraît fleurer la mysticité et ressemble fort à une invention de cuistres laïques en mal de religion. L'Art majuscule, prétexte à combien de doctrines, théories, invocations, prédications, et qui a ses rites et ses augures, je lui trouve un air de famille avec le bon Dieu. Et quant à l'art sans majuscule, quant à ce participe divin dont les initiés éprouvent si vivement la présence dans un poème ou dans un tableau, ne vous semble-t-il pas qu'il est au chef-d'œuvre ce qu'est l'âme à la chair d'un chrétien? Je vous dis que ce ne sont pas là des façons claires de parler. Quand on parle de l'Art, tout le monde se comprend et personne ne sait au juste de quoi il s'agit. Voilà bien le pire danger. Se comprendre à demi-mot entre initiés tout en ne comprenant rien, c'est, je crois, le véritable mal du siècle — un mal qui n'est peut-être pas particulier à la bourgeoisie, mais dont elle est tout de même seule à crever. Et, il faut toujours en revenir là, hélas ! que de mots servent ainsi à échanger du néant, que de mots, en apparence si simples et si sûrs, brouillent les notions les plus immédiatement nécessaires dans les pauvres cervelles de notre bourgeoisie, qu'elle soit de gauche ou de droite » (Paris, Flammarion, 1949, pp.152-153).

1. " . . . Omnis applicatio rationis rectae ad aliquid factibile pertinet ad artem. Sed ad prudentiam non pertinet nisi applicatio rationis rectae ad ea de quibus est consilium. Et huiusmodi sunt in quibus non sunt viae determinatae perveniendi ad finem " (*IIa IIae*, q.47, a.2, ad 3).

the primary notion, and results in a diversity that is rooted in the distinction of the transitive and immanent operations which differ as ultimate genera, the former being a quality and the latter, an action. Considering this distinction of ultimate genera, it is not surprising that there is no common term to include both types of art as species of a same genus.

The initial difficulty concerning the apparent irreductibility of logic and art has been cleared away by the foregoing considerations on liberal art. In logic, as in poetry, although there is no longer question of transitive operation and of making in the strict sense, there still remains something which is in the nature of matter (i.e., something which receives some kind of determination), namely, the concepts of the intellect, into which may be introduced an artificial form or order, resulting in the production of a certain work, such as a proposition or a syllogism ; and there is, besides, an indetermination of the act itself, a possibility of error, and therefore a need for direction, which can be given by determinate rules of procedure. This is sufficient for the denomination *art*.

> Since, then, the speculative reason makes things such as syllogisms, propositions and the like, wherein the process follows certain and fixed rules, consequently in respect of such things it is possible to have the essentials of art, but not of prudence.[1]

That logic is a liberal art, there can be no doubt. But to infer that it is in every respect the same type of art as music and poetry would be too hasty a judgment. For there is a radical distinction — once more from the point of view of the work. In the case of such liberal arts as poetry and music, there is a marked distinction from the habits of the speculative intellect. Like the servile arts, they have certain characteristics repugnant to speculative knowledge, namely, the consideration of the end as measure and of the appetite as principle, the contingency of their object as well as its practical truth. With logic, however, it is entirely different. The work of this art is not contingent but necessary. Indeed, the matter, which is the concepts of the mind, does not permit of any order or form arising from the free choice of the logician. As we shall see in the next section of this study, our concepts, according to their very nature, are inter-related in a definite fashion, and it is in accordance with this relationship that they must be arranged if they are to be ordered correctly, that is, in such a way that truth will be attained. The logician, then, puts the right order among the concepts by

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1. " Quia ergo ratio speculativa quaedam facit, puta syllogismum, propositionem et alia huiusmodi, in quibus proceditur secundum certas et determinatas vias, inde est quod respectu horum potest salvari ratio artis, non autem ratio prudentiae " (*IIa IIae*, q.47, a.2, ad 3).

contemplating the relationship implied in their nature. Consequently, the principle of the work is no longer the appetite, the measure is no longer the end proposed by the artist, the truth is not practical but speculative. The marks that until now have distinguished art from the habits of the speculative intellect have disappeared, and we have a third type of art, one that proceeds not *sub lumine artis* but *sub lumine scientiae*,[1] a habit that is, indivisibly, science and art : science because it seeks the knowledge of the proper order of concepts through its cause, the nature of the concepts, by division, definition and demonstration ; art because, by setting the concepts in their proper order, it forms a certain work ; indivisibly both because it is precisely by considering the concepts that the mind establishes the logical order.

Logic, then, inasmuch as it is a science that also accomplishes the work of an art, is a *speculative*, liberal art. And, since it is a science in the strict sense but art only by participation, it differs from the other types of art in that it has for its subject the speculative, and not the practical, reason. Hence the words *speculative reason* of the previous quotation, and again in the following passage :

> Even in speculative matters there is something by way of work : e.g., the making of a syllogism or of a fitting speech, or the work of counting or measuring. Hence whatever habits are ordained to such like works of the speculative reason, are, by a kind of comparison, called arts indeed, but liberal arts.[2]

In view of this conclusion, it may now be asked why logic is usually defined as an art rather than as a science. We may presume that logic, when so defined, is better distinguished from philosophy of nature which also has to do with the operations of the mind. To

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1. JOHN OF ST. THOMAS seems to have disregarded this distinction. According to him all liberal arts participate equally in the notion of art.

2. " . . . Etiam in ipsis speculabilibus est aliquid per modum cuiusdam operis, puta constructio syllogismi aut orationis congruae, aut opus numerandi vel mensurandi. Et ideo quicumque ad huiusmodi opera rationis habitus speculativi ordinantur, dicuntur per quamdam similitudinem artes, scilicet liberales ; ad differentiam illarum artium quae ordinantur ad opera per corpus exercita, quae sunt quodammodo serviles, inquantum corpus serviliter subditur animae, et homo secundum animam est liber. Illae vero scientiae quae ad nullum huiusmodi opus ordinantur, simpliciter scientiae dicuntur, non autem artes. Nec oportet, si liberales artes sunt nobiliores, quod magis eis conveniat ratio artis " (*Ia IIae*, q.57, a.3, ad 3). — Speaking of the *trivium* and *quadrivium*, ST. THOMAS says that " haec inter ceteras *scientias artes* dicuntur, quia non solum habent cognitionem, sed opus aliquod, quod est immediate ipsius rationis, ut constructionem, syllogismum vel orationem formare, numerare, mensurare, melodias formare et cursus siderum computare. Aliae vero scientiae vel non habent opus, sed cognitionem tantum, sicut scientia divina et naturalis, unde nomen artis habere non possunt, cum ars dicatur ratio factiva, ut dicitur in VI *Metaphysicorum*, vel habent opus corporale, sicut medicina, alchimia et aliae huiusmodi, unde non possunt dici artes liberales, quia sunt hominis huiusmodi actus ex parte illa, qua non est liber, scilicet ex parte corporis " (*In de Trinitate*, q.5, a.1, ad 3).

show that logic accomplishes the role of an art by introducing the correct order among our intellectual acts in view of the obtention of truth, also makes clear from the beginning that we are dealing with something that is purely intentional and not with the natural act as such.

One further precision : Logic is an art in that it introduces into the natural operations of the intellect a form that is artificial, an order that comes from the reason and not from nature. To be exact, however, we must add that, in this case, the matter has an intrinsic active principle capable of producing the same effect as the art, for reason can attain to truth unaided by logic. Nevertheless, science cannot be had in a perfect state without recourse to the rational art which provides the mind with instruments of reasoning which it is incapable of acquiring on its own. In the case of logic, then, we must specify that it is an art which *co-operates* with nature.

We have seen, then, that logic is an art for the sole reason that it involves a certain making. It lacks all the other elements of the definition. Thus, we must distinguish it from the other acceptations of the term *art* which participate more fully in the definition. If we took logic to be art in the primary sense, we should imply that the operations of the mind were comparable to some sort of exterior physical matter, as stone. If we were to say that logic belongs to the same type of art as poetry, since both are concerned with forming a spiritual work, we should be guilty of disregarding the fact that logic is a science having as object the necessary and not the contingent.

Summing up, we might say that man, not determined by nature in respect to his operations, has need of habits and, in particular, of art which assures him ease and order in those of his actions by which he produces works ; that, since even the human intellect is undetermined with regard to its own operations, a special habit is required for their direction ; that because this habit has for its object a thing to be made, it is an art, but because its object does not involve transitive action and is a work of the speculative intellect, the habit in question merely participates in the notion of art and is called a speculative, liberal art ; finally, that this art *which directs the act of the reason itself, by which man in the very act of reason proceeds with order and ease and without error*, this art we call logic.

II. THE SUBJECT OF LOGIC : THE SECOND INTENTIONS OR THE ORDER OF THE CONCEPTS

1. The reason for this order

We have seen that logic, both as a speculative art and as a science, is concerned with the proper arrangement of the concepts and

the acts of the mind. Before examining more closely the subject of logic, let us consider for a moment the nature of the human concepts in an effort to grasp the reason for this order which they seem to require.

The human intelligence, pure potency in the intellectual order, must pass in its quest for truth from potency to act. It does not exhaust the intelligibility of an object by means of one concept alone, but must multiply, compare and compose its mental representations. In other words, it must carry on a discourse. This involves not only juxtaposition of concepts but composition, not merely succession of acts but an order of causality. Two concepts are put together, and in the light of their union we attain to a further act of knowledge. The fact that by considering the concept *man* we do not immediately grasp the notion *able to laugh*, means that enlightenment awaits a comparison of the two representations ; that, although *able to laugh* is potentially contained within our concept of man, another operation is required for the connexion to be actually known. The human intellect, then, because of its lack of conceptual intensity must follow a certain order in its operation if it is to attain its end which is the possession of truth.

This need for discourse is peculiar to the human mind. The separated intelligences or pure spirits are capable of grasping actually, and not just potentially, by a single operation, in one concept, not only many objects, but even the order which exists among them. There may be plurality on the part of the objects, but the act is always simple, and, although the consideration of one object may follow that of another, it is never the cause of this other. There can be a succession of acts, but never a passage from potency to act, for in the angel each intelligible species or concept is perfectly in act, sufficient and indivisible.

The order and multiplicity of acts peculiar to the human intellect is due, at bottom, to the nature of the object. The human intellectual species is one which has been abstracted from the sense images and, in the process, has left behind, because of their materiality, certain aspects of the thing which are not included in the definition of the object and which consequently are not essential to an understanding of it. Because the concept is not sufficiently comprehensive, it founds an order with other concepts and with reality. For instance, the concept *man* founds a relation of universality with respect to Socrates. If the species were prior to the things themselves, infused and not abstracted, it would not be susceptible to such an order, for, like the angelic species, it would represent not only the universal nature but even the individual properties as well.

The order of our concepts, and accordingly of our intellectual acts, therefore, must be founded on certain relations which are peculiar to objects as they exist in the human mind. Logic, whose task it

is to show how to order our concepts, has as formal subject these very relations.

2. *The nature of the order*

These conceptual relations, founded on the very nature of the human concept, are, of course, the work of the mind itself. Since the concepts as concepts can exist only in the mind, the relations which the mind forms between them can have no existence outside the intellect ; they cannot be real, and, consequently, they must belong to the class of beings known as *beings of reason.*

A being of reason, John of St. Thomas explains in his *Cursus Philosophicus,*[1] is that which depends in a certain way on the reason. Now, something can depend on the reason either as an effect (reason being either an efficient cause, or a material, i.e. a receptive cause), or as an object. In the first case, the effect is a real being, such as a shoe, or its concept considered in the entitative being which it has in the mind ; in the second, however, it sometimes happens that an object has no other existence than that which it has in the mind, for something can be conceived by the intellect even though it does not exist in reality. It is such a fictitious object that constitutes the being of reason. This latter, then, can be defined as follows : a being which has no existence in reality but only an objective existence in the reason.[2] Indeed, as we shall explain later on in this paper, the existence of such a being in reality would imply a contradiction.

This being of reason can be either a negation (which includes privation) or a relation. A negation which has, of course, no being in the world of reality, can yet be *considered* as a being, in which case it has a certain objective existence bestowed upon it by the reason. As for the relation, it sometimes happens that something is known as a relative when in reality it is not so ; in such a case, the relation in question, existing only in the mind, is therefore called a being of reason.

Since the ordering of concepts is the concern of logic, even though logic considers negations, it is the relations which constitute the subject of logic. For even when logic considers a negative term or proposition, it considers it only inasmuch as it involves a relation of concepts. Let us examine more closely this relation of reason.

When a concept is relative and the reality which it represents is not so, we say that the relation in question is consequent upon our mode of knowing. We have an example in *knowable object* (*scibile*). As the name implies, we conceive it as being relative with respect to knowledge, when, in reality, it is the reverse that is

1. Logica, Pars II, q.2, a.1.

2. Cf. JOHN OF ST. THOMAS, *ibid.* (Reiser edit.), p.285.

true. If a thing, in itself, were or had a real relation to the knowledge which a person has of it, to be knowable and to be known would be quite identical, i.e. to be in the mind and not in the mind, or in reality and not in reality, would be the same.[1] Again, there is the word *Lord*, which is a relative term attributed to God, who, although not really related to any other thing, is conceived nevertheless as being relative. An even more striking example of relation of reason is that of identity. We say that " Socrates is Socrates " in order to mark his identity with hinself, and in so doing we double our notion of Socrates — the mind posits two terms which it conceives as related, one being said of the other. Now if this relation were real, the terms themselves would have to be distinct realities. Thus, we should imply that in reality the same person is two persons, that to be Socrates is to be Socrates and still another Socrates, i.e. that to be identical with oneself means to be oneself and not oneself. In other words, the very assertion of identity would be the negation of identity. If such a relation were real, it would no longer refer to what it is intended to signify, but rather to the opposite, namely otherness. These are but three of the many examples which could be given to show that the human intellect cannot conceive certain things without introducing amongst them an order of which reason itself is the author.

It should be observed that in each of these examples, the relation, though not real, is, nevertheless, founded in reality. When we say that a thing is knowable, we mean that knowledge is related to it as to its object. The mind, indeed, cannot conceive of one thing being related to another without representing the opposite relation.[2] Likewise, the relative term *Lord* is attributed to God to signify his dominion over His creatures, which in reality involves a relation of creature to God rather than the reverse. Again, the relation of identity in " Socrates is Socrates " serves to express something very real though not at all relative, namely Socrates' identity with himself, his unity in substance, which, however, cannot be expressly conceived otherwise than by a relation.

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1. " Quaedam vero sunt ad quae quidem alia ordinantur, et non e converso, quia sunt omnino extrinseca ab illo genere actionum vel virtutum quas consequitur talis ordo ; sicut patet quod scientia refertur ad scibile, quia sciens, per actum intelligibilem, ordinem habet ad rem scitam quae est extra animam. Ipsa vero res quae est extra animam, omnino non attingitur a tali actu, quum actus intellectus non sit transiens in exteriorem materiam mutandam ; unde et ipsa res quae est extra animam, omnino est extra genus intelligibile. Et propter hoc relatio quae consequitur actum intellectus, non potest esse in ea. Et similis ratio est de sensu et sensibili " (*Q. D. de Potentia*, q.7, a.10, c.).

2. " Intellectus enim noster intelligit creaturam cum aliqua relatione et dependentia ad Creatorem : et ex hoc ipso quia non potest intelligere aliquid relatum alteri, nisi e contrario reintelligat relationem ex opposito, ideo intelligit in Deo quamdam relationem principii, quae consequitur modum intelligendi, et sic refertur ad rem mediate " (*Q. D. de Potentia*, q.1, a.1, ad 10).

Because such relations express something real (though not a relation), they can be *attributed* to the thing itself as it exists in reality and not merely to the object as it exists in the mind. We rightly say that God is the Lord. In saying this we do not mean that the Deity is relative, but we attribute to God an absolute reality which we conceive as being relative.

> . . . Just as someone is identical with himself in reality, and not merely according to reason — although the relation is only according to reason — in as much as the cause of the relation is real, namely the unity of the substance, which the intellect understands as the subject of a relation ; likewise, the power of coercing underlings is in God really, which [power] the intellect understands with relation to the underlings because of their order to Him ; and because of this, He is called Lord really, although the relation is something of reason only. And, in the same way, one sees that He would be Lord even if there were no intellect at all.[1]

Although these relations are wholly dependent on the reason, nevertheless, they serve to express something that is real. There is, however, another kind which is further removed from the world outside the mind. These are the relations that are found to exist between the different objects when they are considered not as they exist in reality but as they exist in the mind. Unlike the first type, they cannot be predicated of the real thing, but only of the object qua known, for, in this case, the intellect is responsible not only for the formation of the relation but even for the aptitude of the object to become subject of the relation. The nature *man*, for instance, as it is found individualized in reality, such as in Socrates, cannot be the subject of a relation of universality which makes it attribuable to many. For this, it must be abstracted from whatever is proper to this individual qua *this* individual, for instance, Socrates, a task which is accomplished by the intellect. This type of relation of reason is therefore even more purely rational than the former.

In view of this fact, it is not surprising to find that this second kind of relation of reason, also, could not exist in reality without involving a contradiction. That Socrates is a man does not mean that he is a species, although man is a species. If the universal species *man* could be identified with a *this thing*, Socrates would be identical with Plato, who is also a man ; hence Socrates would be both Socrates and not Socrates, and Plato would be both Plato and not Plato.[2]

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1. " . . . Sicut aliquis est idem sibi realiter, et non solum secundum rationem, licet relatio sit secundum rationem tantum, propter hoc quod relationis causa est realis, scilicet unitas substantiae quam intellectus sub relatione intelligit : ita potestas coercendi subditos est in Deo realiter, quam intellectus intelligit in ordine ad subditos propter ordinem subditorum ad ipsum : et propter hoc dicitur Dominus realiter, licet relatio sit rationis tantum. Et eodem modo apparet quod Dominus esset, nullo existente intellectu " (*Q. D. de Potentia*, q.7, a.11, ad 3).

2. Cf. *De Ente et Essentia* (edit. Mandonnet), c.3.

Because these relations of reason, unlike the former type (e.g. Socrates is Socrates), do not express something real, they have no proximate foundation in reality. However, we can say that they are *remotely* founded in reality, inasmuch as we can indicate in reality a reason for such relations, something which *remotely* corresponds to them. The universal *man*, for example, can be explained by the fact that, in the order of reality, human nature is alike in all men.

The differences that separate the two types of relations of reason are very clearly set forth in the following passage from St. Thomas :

> Just as the real relation consists in an order of one thing to another, so the relation of reason consists in an order of things known ; which can come about in two ways : First, according as that order is found by the intellect and attributed to that which is said relatively ; and such are the relations which are attributed by the intellect to things that are known, inasmuch as they are known, as the relation of genus and of species : for these relations the reason finds by considering the order of that which is in the intellect to the things which are outside it, or even the order of the things known amongst themselves.
>
> Secondly, according as such relations are consequent upon the mode of knowing, that is, according as the intellect understands something in an order to something else ; although the intellect does not actually discover that order, but rather it [the order] follows of necessity our mode of understanding. And this kind of relations the intellect does not attribute to that which is in the intellect itself, but to that which is in reality.[1]

It is to be remarked that the relations of reason described in the first paragraph also are consequent to the mode of knowing, for they are a result of abstraction. However, in this case, it is not a question of considering an absolute object as though it were relative but of finding certain relations between objects which in their status of being in the mind are truly related to one another. The relativity, therefore, does not consist uniquely in our manner of considering the thing, although it is a result of our particular mode of knowing inasmuch as abstraction makes relative the concepts of things which in themselves are not relative. Because of this, only the relations described in the second paragraph are characterized as *those which are consequent upon our mode of knowing*, while the

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1. " . . . Sicut realis relatio consistit in ordine rei ad rem, ita relatio rationis consistit in ordine intellectuum ; quod quidem dupliciter postest contingere. Uno modo secundum quod iste ordo est adinventus per intellectum, et attributus ei quod relative dicitur ; et hujusmodi sunt relationes quae attribuuntur ab intellectu rebus intellectis, prout sunt intellectae, sicut relatio generis et speciei ; has enim relationes ratio adinvenit considerando ordinem eius quod est in intellectu ad res quae sunt extra, vel etiam ordinem intellectuum ad invicem. Alio modo secundum quod huiusmodi relationes consequuntur modum intelligendi, videlicet quod intellectus intelligit aliquid in ordine ad aliud ; licet illum ordinem intellectus non adinveniat, sed magis ex quadam necessitate consequatur modum intelligendi. Et huiusmodi relationes intellectus non attribuit ei quod est in intellectu, sed ei quod est in re " (*Q. D. de Potentia*, q.7, a.11).

others are distinguished as *those which the intellect discovers* among its concepts.

Obviously, it is the relations of reason which the intellect finds amongst its concepts that constitute the subject of consideration in logic. These are the intentions of which St. Thomas speaks in the *De Trinitate.*[1] The term comes from " tendere in " and designates these relations of reason inasmuch as they are objects towards which the intellect tends in its act of knowledge. But since, as properties of concepts, they presuppose the presence in the mind of objects known, and since these latter can also be called intentions inasmuch as they are the terms of a previous intellection, because of this, the logical relations of reason often go by the name of second intentions.[2]

Before concluding, let us note that, although second intentions cannot *be* in reality, it does not follow that they are independent of reality. For instance, the intention of species is formed by comparing individuals as to what they have in common. *Second* intentions are of necessity based, though more or less determinately, on *first* intentions. That is why we cannot agree with Kant when he says that general logic " makes abstraction of all content and cognition, that is, of all relation of cognition to its object, and regards only the logical form in the relations of cognitions to each other, that is, the form of thought in general. " [3]

In conclusion, then, it is the relations of reason which the intellect finds among its concepts, and only these (contrary to the opinion of most contemporaries), that constitute the *intentions* which form the subject of the science of logic. For it is by the establishment of these relations that the concepts are ordered and the *rational work* formed by the art of logic.

III. THE FIRST TYPE OF RATIONAL PROCESS AND ONE WAY IN WHICH LOGIC CAN BE USED IN ANOTHER SCIENCE

We have seen that logic, by considering the second intentions, establishes the order that must exist among our concepts, and thus

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1. *Supra*, p.167.

2. " Prima enim intellecta sunt res extra animam, in quae primo intellectus intelligenda fertur. Secunda autem intellecta dicuntur intentiones consequentes modum intelligendi : hoc enim secundo intellectus intelligit in quantum reflectitur supra se ipsum, intelligens se intelligere et modum quo intelligit " (*Q. D. de Potentia*, q.7, a.9). — " Ex hoc enim quod intellectus in se ipsum reflectitur, sicut intelligit res existentes extra animam, ita intelligit eas esse intellectas : et sic, sicut est quaedam conceptio intellectus vel ratio — cui respondet res ipsa quae est extra animam — ita est quaedam conceptio vel ratio, cui respondet res intellecta secundum quod huiusmodi ; sicut rationi hominis vel conceptioni hominis respondet res extra animam ; rationi vero vel conceptioni generis aut speciei, respondet solum res intellecta " (*Ibid.*, q.7, a.6).

3. *Critique of Pure Reason*, Part II, sect.2 ; The World's Great Classics, New York, 1899, p.47.

teaches (hence *logica docens*) the general rules of reasoning which should be observed in all the sciences. Insomuch as the other sciences have recourse to these rules, they use logic. In this respect, since the object of logic is considered not for its own sake but for the purpose of the other sciences, logic is not so much a science as an instrument of science.

> . . . The speculative sciences, as it is clear in the beginning of the *Metaphysics*, are concerned with those things of which knowledge is sought for their own sake. We seek to know the things which concern logic not for their own sake, but as a certain aid for the other sciences. And thus logic is not contained under speculative philosophy as a principal part, but as something reduced to speculative philosophy, according as it provides speculation with its instruments, namely, syllogisms and definitions and other such things, which we need in speculative sciences. Hence, according to Boethius in his *Commentary on Porphyrius*, it is not so much a science as an instrument of science [1].

The use of logic as the general method of proceeding in a science is not, however, the use to which St. Thomas refers in the passage under consideration, where logic is described as giving not the mode of reasoning but propositions to serve as principles of argumentation. In this second case, logic is used as another science rather than as an instrument of science. Although logic is understood to be an instrument of science insomuch as its subject is sought not for its own sake but for the benefit of the sciences that concern reality, still, from another point of view, inasmuch as — though quite dependent upon reality and its differences — it has a subject *sui generis*, logic can be taken as a science in its own right. That logic can lend propositions to another science implies that it has propositions of its own ; this in turn indicates that it is understood as having its own formal subject by which the propositions are characterized as logical, which finally leads us to infer that in this context logic must be considered as a science *sui generis*. Therefore, when another science makes use of logical propositions, it uses logic considered as a science.

This second use consists in the appropriation of the mode that is proper to logic. Every science has, besides the general mode provided by logic, a particular mode determined by its own formal subject. In this respect, logic is no exception. Its proper mode

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1. " Dicendum quod scientiae speculativae, ut patet in principio *Metaphysicae*, sunt de illis, quorum cognitio quaeritur propter seipsa. Res autem de quibus est logica, non quaeruntur ad cognoscendum propter seipsas, sed ut adminiculum quoddam ad alias scientias. Et ideo logica non continetur sub speculativa philosophia quasi principalis pars, sed sicut quoddam reductum ad philosophiam speculativam, prout ministrat speculationi sua instrumenta, scilicet syllogismos et definitiones et alia huiusmodi, quibus in scientiis speculativis indigemus. Unde secundum BOETHIUM in *Comm. super Porphyrium* non tam est scientia, quam scientiae instrumentum " (*De Trinitate*, q.5, a.1, ad 2).

is called *rational* because of the intentional character of its formal subject. When a science turns its consideration to logical propositions, to the examination of the subject of logic, it adopts the particular mode that is proper to the science of logic. And the process of reasoning that results is termed *rational.*

This rational process, however, cannot belong properly to all sciences. In such a process, a science uses propositions that are proper to logic, not principally for the purpose of learning something further about second intentions, but in view of establishing something concerning its own subject. There must therefore exist between the second intention and the subject of the other science an affinity such that a consideration of the former could, first, in some way attain the latter and, secondly, lead to a better understanding of it. And if the process is to belong *properly* to a science, in fulfilling this purpose it must not include anything that is contrary to the rules of scientific argument.

These conditions are found to hold true for metaphysics. First of all, considerations proper to logic can be of interest in a metaphysical problem for the reason that, because both sciences are equally common, they have in a certain sense the same subject. That the span of logic is coextensive to that of metaphysics can be seen from the following passage :

> Such intelligible intentions equal the beings of nature, because all beings of nature fall under the consideration of reason. And thus the subject of logic extends to all things of which being of nature is predicated. Hence . . . the subject of logic is equal to the subject of philosophy, which is being of nature.[1]

At bottom, the equal universality of the two sciences is due to the fact that, on the one hand, logic directs the mind which extends to being in all its universality ; being, on the other, is the subject of metaphysics.

Since both sciences are common, they have in some respect the same subject. Being is the subject of metaphysics ; but being is also the object of the mind ; and the different modes of being account for the different ways in which the mind conceives its object, and they found the different second intentions. For example, metaphysics studies *substance,* the first analogate of being ; whereas logic is concerned with *substance as known* inasmuch as it founds the second intention of first subject of predication. The *formal* subject of such a logical consideration, then, would be *substance as known,* but the

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1. " Hujusmodi autem intentiones intelligibiles, entibus naturae aequiparantur, eo quod omnia entia naturae sub consideratione rationis cadunt. Et ideo subjectum logicae ad omnia se extendit, de quibus ens naturae praedicatur. Unde concludit, quod subjectum logicae aequiparatur subjecto philosophiae, quod est ens naturae " (*In IV Metaph.*, lect.4, n.574).

material subject would be *substance*, simply, which is that on which the second intention is *remotely* founded. Insofar as something which is included in the subject of metaphysics is the foundation of a second intention, it can be a material subject of logical speculation, and, in this precise respect, both sciences are said to have the same subject.

No such affinity can be found between logic and any of the particular sciences. For these latter are concerned with questions about what is proper to a particular type of being, such as quantified being as such, or mobile being qua mobile, or the living body as such. Such particularities lie beyond the range of a general consideration of what is common. And since logic treats of the second intentions which are common, based as they are upon the common differences of being, the conclusions of this science cannot reach the subject of a particular science as to what is proper to it. Mobile being, for instance, does not found the second intention of first subject inasmuch as it is mobile but inasmuch as it is a substance and then it falls under the consideration of metaphysics. Likewise, animal in relation to man is a genus. But a consideration of animal as a genus would not touch upon anything that is proper to the nature *animal* in itself. It would not even concern the intentional relationship of animal to man as to anything it might have that is proper to it. Such a consideration could instruct us only about the *common* relation of genus, and, in a certain respect, about the foundation that this second intention has in reality, namely a universal nature, which also is included within the sphere of the *communia*. In other words, it could tell us nothing about *this* universal nature, namely animal, as to what makes it such a nature and not another ; just as an examination of mobile being as first subject reveals nothing that is proper to mobile being as this kind of substance but only what it has in common with other substances.

Were we to use logical propositions in a particular science, then, we should most certainly be at fault. Instead of basing our proof on proper or appropriate principles as the rules of scientific argument require, we should be appealing to something that is merely a common, extrinsic condition of the subject. We could, however, use logical propositions in a particular science for the sake of probable argument, but then we would pass from the sphere of science into that of dialectic. This rational mode, therefore, cannot *properly* belong to the particular sciences, that is to say, it cannot belong to them inasmuch as they are sciences, but only insofar as any science can use dialectic.

We must remark that the use of logical propositions can be proper in metaphysics only because they can somehow attain the subject of first philosophy without a passage from one subject genus to another. The whole process remains within the sphere of the second intention, but inasmuch as the second intention, which is

common, is founded upon a common reality, the subject of metaphysics is concerned in the logical argument. If, however, in our argumentation, we should pass from the logical to the real considered as real, if, for instance, we were to conclude from the logical definition of substance that in reality substance must be that which is in itself and not in another, we should be using propositions that are extrinsic to the subject and the predicate of the conclusion. We should again have left the sphere of science for that of dialectic by engaging in a process that can be legitimately used by metaphysics but cannot properly belong to it.

It is because both sciences have in a certain respect the same subject that the teachings of logic can be used appropriately in metaphysics. Yet, a study of the second intention would still be of no advantage to first philosophy if it did not throw some light on the object of metaphysical research. And this brings us to the second condition : not only must logical propositions concern the subject of metaphysics, but they must lead to a better understanding of it. And this they can do precisely because the second intention is remotely founded upon and corresponds to something in reality. Hence it can serve as an indication of what that reality is. For example, the logical property that substance assumes when known, namely, that of being the subject of which everything is *predicated* and which cannot be predicated of anything but of itself, corresponds to the fact that in reality substance is that which *is* in itself and not in another as an accident is.

It may be objected that the knowledge of reality precedes that of the second intentions rather than the reverse — a thing must first be conceived before we can consider it qua conceived. To this we must reply, first, that the formation of a second intention requires merely a *confused* knowledge of reality. For example, in order to form the second intention of first subject of predication, it is not necessary to know what substance is in reality, it is enough to distinguish it even confusedly from accident, to know, for instance, that man is different from white. And, secondly, a *distinct* knowledge of what the second intention consists in can be had even when the thing upon which it is remotely founded is still known only in a *confused* fashion. Indeed, to reach a distinct knowledge of the " what it is " of a second intention, it is sufficient to examine the nature of the object qua known, which is the *proximate* foundation of the logical relation of reason ; it is not necessary to have a perfect understanding of the reality upon which it is *remotely* founded. Before we know, for example, what substance is in reality, we can understand that substance as known is that of which everything is predicated and which is predicated of nothing but of itself. Thus, when our knowledge of reality is still confused, the distinct notion of the second intention can serve to enlighten our understanding of the reality

upon which it is remotely founded. In this way logical knowledge can precede and prepare the way for metaphysical research.[1]

It is true, however, that a *distinct* notion of the reality to which the second intention remotely corresponds can provide a certain *explanation* of the subject of logic by exposing the foundation that it has in reality. For example, when we know that substance is that which exists in itself and not in another, we can see *why* we conceive substance as that of which everything is predicated and which is predicated of nothing but of itself. But this knowledge comes much later in the order of learning than does the use of logic in metaphysics. It is this latter use which concerns us here.

It must not be supposed that an examination of the second intention alone will give us the solution of the metaphysical problem.[2] It can serve only as a *preparation* or an *introduction* to a properly metaphysical consideration. The logical relation of reason is but a sort of common condition of the thing, a condition that remains totally extrinsic to it, that does not affect in any way its proper principles. The rational process which belongs properly to first philosophy touches upon the object of metaphysical study only as upon the remote foundation of the second intention. As we have said, it makes no affirmation concerning the thing as it is in reality. Should it do so, it would take on the characteristics of another type of rational process, the dialectic or probable argument, described in the paragraph following that which constitutes the object of this article.

There is one other point to be considered, so important that, if it were lacking, the logical approach would be in vain. Not only can the second intentions be distinctly known independently of a distinct knowledge of the reality upon which they are remotely founded, they can, besides, be known more easily than the objects of metaphysical enquiry. If this were not so, the logical introduction to a metaphysical study would be contrary to the order of learning. The second intentions can be more readily understood than the subject of metaphysics for two reasons : First, because they are formed by ourselves, by our own mind in the act of abstraction ; and, since scientific knowledge consists in the analysis of a thing

1. This process can, to a certain extent, be likened to that by which we go from a consideration of a word to the study of the reality that it signifies.

2. In his commentary on Book VII of the *Metaphysics*, St. Thomas explains : " Et quia posset alicui videri, quod ex quo Philosophus ponit omnes modos, quibus dicitur substantia, quod hoc sufficeret ad sciendum quid est substantia ; ideo subjungit dicens, quod nunc dictum est quid sit substantia 'solum typo,' idest dictum est solum in universali, quod substantia est illud, quod non dicitur de subjecto, sed de quo dicuntur alia ; sed oportet non solum ita cognoscere substantiam et alias res, scilicet per definitionem universalem et logicam : hoc enim non est sufficiens ad cognoscendum naturam rei, quia hoc ipsum quod assignatur pro definitione tali, est manifestum. Non enim hujusmodi definitione tanguntur principia rei, ex quibus cognitio rei dependet ; sed tangitur aliqua communis conditio rei per quam talis notificatio datur " (Lect.2, n.1280).

into its principles, it is easier for us to know what is composed by ourselves than what is composed by nature. Secondly, the nature of a second intention, though wholly immaterial, can be perfectly attained, albeit indirectly, through the sole knowledge of sensible things.

But there are certain invisible things of which the essence (' quidditas ' i.e. " what it is ") and nature is perfectly expressed through the essences known of sensible things, and of these intelligible things also we can know the " what it is ", (' quid est '), but mediately, as from the fact that we know what is man and what is animal, we come to know sufficiently the relation of one to the other, and from this we know what is a genus and what is a species. [1]

Not only, then, is it fitting to go from logical to metaphysical considerations, it is even indispensable, since we have no other alternative than to proceed from the better known to the less known. It is worthy of note that this method is followed by Aristotle, who devotes the seventh book of the *Metaphysics* to such logical speculations in preparation to Book VIII where he studies sensible substance according to its proper principles. [2] It is when we overlook the necessity of this logical introduction that we are likely to fall into the error of confusing the real with the logical, for we are likely to believe that we are engaged in metaphysics when actually, though unwittingly, we are carrying on a discussion on a logical plane — and a warped one at that, if not sophistical, for appearing to be what it is not.

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In résumé, then, our interpretation of the passage from the *De Trinitate* would be as follows : We have seen in the first two sections of this article that the science which performs the work of an art by establishing the order of our concepts, has as its subject this purely intentional or rational order otherwise known as the

1. " Sed quaedam invisibilia sunt, quorum quidditas et natura perfecte exprimitur ex quidditatibus rerum sensibilium notis, et de his etiam intelligibilibus possumus scire ' quid est ', sed mediate, sicut ex hoc quod scitur quid est homo et quid est animal, sufficienter innotescit habitudo unius ad alterum, et ex hoc scitur quid est genus et quid est species " (*De Trinitate*, q.6, a.3).

2. *In VIII Metaph.*, lect.1, n.1681. — In lesson 3 of Book VII (n.1308) he explains that the PHILOSOPHER here " dicit ergo primo, quod de substantiis sensibilibus primo dicendum est, et ostendendum est in eis quod quid erat esse : ideo primum dicemus de eo quod est quod quid erat esse quaedam logice. Sicut enim supra dictum est, haec scientia habet quamdam affinitatem cum logica propter utriusque communitatem. Et ideo modus logicus huic scientiae proprius est, et ab eo convenienter incipit. Magis autem logice dicit se de eo quod quid est dicturum, inquantum investigat quid sit quod quid erat esse ex modo praedicandi. Hoc enim ad logicum proprie pertinet. "

logical relations of reason or second intentions. When propositions that have been established in this rational science serve to elucidate the subject of another science, the process involved is called *rational*, and constitutes a particular use of logic. Inasmuch as this use consists in providing scientific knowledge, logic is said to be used according as it *teaches* in another science. However, although any particular science can use logical propositions in this way, since they are not *appropriate* to the more limited subject, they cannot provide the certitude of science, for what is logically common does not actually contain what is really distinct and particular. The process which starts from second intentions is of course proper to logic, but it is also appropriate to metaphysics, for metaphysics and logic are both common and deal with common things — the logical *communia* being founded on the real *communia* — and thus they somehow have the same subject.

As we shall see on another occasion, the use of common intentions of reason in a particular science — though not proper yet legitimate — brings this type of rational process under the wider heading of *logica utens*, where a process is called rational by reason of the unreached *term*. It is this latter *processus rationalis* which is called dialectical as opposed to demonstrative. It extends to all the sciences, including metaphysics, but in each case remains in the state of enquiry — *sed sistitur in ipsa inquisitione, quando scilicet inquirenti adhuc manet via ad utrumlibet.* [1] The method of this use is the subject of the *Topics*.

This second meaning of *rational process* we shall oppose to the third and final meaning, which is neither logical nor dialectical, but found mainly in the study of nature. As we shall see, it is called rational because of the affinity between the real processes of nature and the discursive character of the human reason. This meaning of rational process in no way excludes from the study of nature either the use of *logica prout est docens in aliis scientiis*, nor of *logica ut est utens*. [2]

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1. *De Trinitate*, q.6, a.1 : " Alio modo dicitur processus rationalis ex termino, in quo sistitur procedendo. "

2. *Ibid.* : " Tertio modo dicitur aliquis processus rationalis a potentia rationali . . . "