tuendo essentiam rei. Unde et in tertio de Anima dicitur, quod obiectum proprium intellectus est quod quid est. Et sic convenienter cognito principiorum quae statim innotescunt cognitio quod quid est, intellectus nominatur" (1).

It is in the light of the first principles, into which the object of demonstration is analysed by a necessary connexion of terms, that the mind judges the conformity of the conclusion with reality and thus attains certitude. The term to which any process of reasoning tends, therefore, is an intellection of the principles of the conclusion, for it is by resolving the object into its principles that we can judge of its truth. When this term is attained, the most perfect form of reasoning has been achieved — the demonstration :

"Ultimus enim terminus, ad quem rationis inquisitio perducere debet. est intellectus principiorum, in quae resolvendo judicamus; quod quidem quando fit, non dicitur processus vel probatio rationabilis, sed demonstratio" (2).

(1) - In VI Ethicorum, lect. V, n. 1179.
(2) - De Trin., q. 6, a. 1.

2. - A secondary sense of demonstration.

Before taking up the study of the dialectical argument, which is opposed radically to demonstration, let us briefly consider the type of argument that participates in, but does not fully realize. the complete definition of demonstration. The knowledge produced by this secondary type of demonstration is scientific in that it is certain and evident, but it is unscientific, and, in this measure, undemonstrative, in that it is not gained through the proper and immediate cause. With such a proof we have the certitude that something is, but we do not know the reason why it is or, in other words. we do not know its cause. This sort of demonstration is termed demonstration of the fact (demonstratio quia ita est) to oppose it to demonstration of the reasoned fact (demonstratio propter quid ita est) (1).

The demonstration of the fact, we have said, is opposed to demonstration in the proper sense, in that it is not based on the immediate cause. This can happen in two ways : either it reasons from an effect rather than from the cause. or from a mediate rather than from the immediate cause.

It often happens that an effect is better known to us than its immediate cause, although the latter is more intelligible in itself. In such a case, we can construct a syllogism using the effect

(1) - Aristotle, Post Anal., Bk I. ch. 13, 78a20 et sqq.; St. Thomas, lect. 23, 24.

as principle of the argument. Thus, the effect would be the cause or principle of the consequence but not of the consequent; of our knowledge of the conclusion but not of the conclusion itself. An example would be the argument which concludes that man is a reasoning animal because he can laugh. His ability to laugh is not the cause of the fact that he is a reasoning animal, but rather the reverse. However, the former property can be more easily observed and can lead to a knowledge of the other, without, however, giving us the cause of it.

In the above example, the middle term is convertible with each of the extremes, that is, one is not found without the other. However, we can still have a demonstration quia even though the terms are not all convertible. When the middle is convertible with the major and exceeds the minor, the argument holds; for example, the argument that Socrates is a reasoning animal because he can laugh. When the minor exceeds the middle, however, the argument, obviously, is not good, as would be the case if we tried to prove that the animal (universal) is a reasoning animal because it can laugh. As for the major, when it is more extensive than the middle, a demonstration quia is possible, as in the argument that something possesses an anima sensibilis because it moves according to a progressive motion. If it applies to less than the middle, a demonstrative syllogism cannot be formed; the argument that someone has a fever because he has a quick pulse would not be certain, for a quick pulse could have many other causes besides a fever.

The second type of demonstration has as middle term a remote cause, that is, a cause which is not convertible, according to what it is, with its effect, as a builder, according to what he is, builds (1). Such a syllogism demonstratos the fact of the conclusion but does not, properly speaking, give its cause. The following argument is an example : What is not an animal, does not see; the wall is not an animal; therefore, the wall does not see. Not being an animal is not the proper cause of not seeing; for, if it were, to be an animal would be the cause of seeing, which is not so, since some animals do not see. As long as we do not have the proper cause — which in this case is : to be without eyes, — we have not really grasped the reason.

The demonstration quia is not a demonstration in the strict sense for it does not give the proper cause nor resolve into principles that are immediately known through the sole notion of the terms, and, therefore, it does not produce scientific knowledge in its first and proper sense. However, it proceeds by necessary connexion of terms, although not always according to a per se necessity. The proposition What is not an animal does not see, for example, is necessary, but not per se. Moreover, although this type of demonstration does not resolve or analyse the object into first and proper principles, nevertheless, the process of enquiry

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(1) - "... Causa remota ... est illa, quae non convertitur cum suo effectu: causa enim remota non nisi remote influit in effectum, et sic excedit illum. Quando autem convertitur cum effectu formaliter loquendo et per se, dicitur causa proxima" (John of St. Thomas, Cursus Phil., Ars Logica, II, q. 25, a. 4). - For an explanation of the three cases in which a cause is not convertible with its effect, see ibid., following paragraph.

attains a term in a proposition which is immediately evident to us (e. g., man is able to laugh is evident through sense perception and induction) and which therefore permits us to judge the conformity of the object with reality. The demonstration quia, then, results in certain knowledge, and hence gives rise to science in the broad sense. It thus participates in the common definition of demonstration.

CHAPTER II.

DIALECTIC

1. - The nature of dialectic.

We have seen that demonstration is a resolution or analysis into principles that are immediately evident to us. At the extreme opposite in the line of acceptable reasoning is dialectic, whose probable principles, instead of giving the certitude of evidence, leave the mind in suspense. The effect of dialectic then is probable, not certain knowledge, and its object is the contingent rather than the necessary.

In the case of demonstration, the end, we have pointed out, is scientific knowledge in the most complete sense. To attain this end, the premisses have to fulfill certain conditions - they must be true, primary, immediate, prior to, better known than and cause of the conclusion. That the premisses satisfy these conditions, then, is necessary according to a conditional necessity, to a necessitas ex fine, somewhat as it is necessary that a saw, in order for it to cut, be made of a material that is hard, that can be sharpened, etc. Furthermore, such premisses being given, provided of course that the syllogistic form is correct, scientific knowledge is ascertained by an absolute necessity, much as a saw made of material which is hard, which can be sharpened, etc., and having the required form, is guaranteed to cut. In the case of dialectic, however, we cannot say that the end of the person who wishes to know is mere probable know-

ledge, for whoever seeks after knowledge aims at certitude. But when he cannot attain to the real and proper reason (or, at least, to an evident fact necessarily connected with the conclusion, though not its cause), probable knowledge must be the result. A probable conclusion, then, is a necessity which arises from a deficiency in the matter. As a rusty saw cannot cut, so, the premisses falling short with respect to the requirements of demonstration, the process of reasoning cannot achieve its aim which is certain knowledge. However, from the point of view of the dialectic syllogism itself, which is specified by its probability, rather than from that of the person using it, the end, as well as the effect, is probable knowledge.

The reason why the dialectical syllogism cannot attain a necessary conclusion is the simple fact that it proceeds from probable premisses. The probable proposition, as the term probable implies, is one that is susceptible of proof, one, therefore, that has not been definitely proved and which is not evident, either evidently false or evidently true (1). It is a proposition which seems to be true or in conformity with reality, but is not evidently so. A possi-

(1) - "For it is not every proposition nor yet every problem that is to be set down as dialectical : for no one in his senses would make a proposition of what no one holds, nor yet make a problem of what is obvious to everybody or to most people : for the latter admits of no doubt, while to the former no one would assent" (Aristotle, Topics, Bk I, ch. 10, 104a5. Translated by H. A. Pickard - Camoridge, The Basic Works of Aristotle, Random House, New York).
"Sed dialectica propositio est interrogatio consensus in probabile, nec consensus requireretur si probari non deberet : manifeste autem falsum probari non potest, et manifeste verum non indiget probari, sed ad alterius alicujus assumitur probationem" (St. Albert, In I Topicorum, tract. III, c. 1).

bility always remains that the opposite is true. The link between subject and predicate is not, or is not seen to be immediate and self-evident, nor based on a necessary cause and evident in the light of a first principle; it is,rather, supported by the incomplete evidence of a sign. In a dialectical proposition, then, the sign takes the place of the necessary cause in the necessary proposition (1). For example, the proposition All bodies are of a finite quantity would be probable, if we gave as a reason that all bodies, which we have ever known or considered are bounded by surfaces: this reason is not a necessary cause for some one may object that, precisely, an infinite body could not be contained by surfaces and that it is not essential for a body to be thus limited (2).

It must be emphasized that the probability which characterizes the dialectical syllogism refers to an indetermination of the

(1) - "Probabilia autem sunt verisimilia. Dupliciter autem verisimilia : aut enim in se sunt verisimilia, eo quod ipsa habitudo praedicati ad subjectum verisimilis est, eo quod nec praedicatum est in subjecto per se, nec subjectum in praedicato per se, nec utrumque in utroque, nec praedicatum necessariam et essentialem inhaerentiam habet cum subjecto, sed verisimile est in signis non in causis necessariis acceptum. Aut quia necessariam habet inhaerentiam, sed non accipitur nisi per signum : et hoc est probabile secundum modum acceptionis, quamvis in se sit necessarium : sicut solem esse majorem terra (eo quod ubique unius quantitatis apparet) probabiliter acceptum est. Solem autem esse majorem terra per quantitatem diametri acceptum est necessarium et non probabile, secundum quod probabile et necessarium opponuntur" (St. Albert, In I Topicorum, Tract. I, c. 2).
(2) - Cf. In III Physicorum, lect. 8, nos. 1, 2 and 4.

mind rather than to an indetermination in reality. It is the intellect that is not completely determined ad unum. that is, to one side of the contradictory, in such a way that the opposite is rejected as impossible. True, this lack of determination may sometimes result from the fact that the object is contingent(i. e. capable at the same time of being the opposite)in reality and not only when considered formally as object of knowledge, as in the assertion Man is white or It will rain tomorrow. But also it may be merely the effect of insufficient evidence. In which case, a probable proposition may represent something which in reality is necessary, but whose necessity is not seen by the intellect. In this second instance, the probability is obviously only in the mind. Thus, if we judged that man is probably an animal which is able to laugh, probably refers to the indetermination of the mind; it qualifies the ens ut verum and not the ens reale - indeed, in reality, man is not probably an animal capable of laughing (1).

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(1) - "Similiter igitur. sicut dictum est, et scientia et opinio ejusdem est subjecto, sed non ejusdem secundem esse. Cujus exemplum est : si enim dicatur de animali scientia esse et opinio : tunc haec quidem enim scientia, scilicet est animalis (hoc est, de animali) secundum ea quae non est contingere aliter se habere, sed in essentialibus et uno modo se habere animal : scientia enim animalis est de animali per essentialia non determinata per materiam sensibilem, in quibus animal semper est, et non contingit aliter se habere : sed illa quae est opinio, est conceptio de animali secundum quod est ad materiam sensibilem determinata per ea quae contingit aliter se habere, ut si haec quidem (scientia scilicet) consideret quod vere hominis per vera essentialia ut animal rationale : illa autem (opinio scilicet) consideret quod quidem hominis est, sed non vere, sed accidentaliter est hominis : idem est enim subjecto tunc circa quae sunt scientia

The sign which is given to support an assertion may be on the surface of things and, thus, easily accessible to sense knowledge; or deeper and nearer to the essence, which would necessitate the application of the reason as well as of sense perception: or even convertible with the essential and necessary cause. in which case, the reason would have the greatest, but not always the only part, for even this type of sign is sometimes perceptible to the senses. Accordingly, a proposition may be accepted as probable by every one or by the majority or by the learned only, and. among this latter group, it may be held by them all or by most of them or only by the most illustrious (1).

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et opinio, quia ipsum est idem homo. Hoc autem quod considerat scientia et opinio, tale est sicut non idem secundum esse : aliud enim est esse hominis secundum quod refertur ad essentialia vera, et aliud secundum quod refertur ad accidentalia et transmutabilia" (St. Albert, Post. Anal., I. Tract. V, c. 9)

(1) - "Probabile autem sic dictum verisimile est. quod per suiipsius veritatis figuram videtur omnibus aut pluribus aut sapientibus, et his sapientibus videtur omnibus aut pluribus aut maxime notis et probabilibus : ita quod sapientibus et his vel omnibus sapientibus vel pluribus vel maxime notis vel probabilibus, totum pro uno membro ponatur.

Signa vero verisimilitudinis, aut occurrunt statim in superficie et in exterioribus rei quae accipit sensitiva potentia comparans sensata ad invicem : et si talia sunt signa, probabile est quod videtur omnibus, sicut nivem esse albam per hoc quod nix est parvae partes perspicui in parva conjuncti, in cujus partibus undique lux diffunditur hoc enim signum sensui est medium. Si autem signa indicium facientia de verisimilitudine sunt non in superficie, sed aliqualiter profundata, non ad necessaria, sed nec in superficie extrinsecus manentia : tunc est id quod videtur pluribus : quia sensui aliquid miscent rationis, sicut quod stella in cauda minoris ursae sit polus, eo quod non deprehenditur ejus singularis motus : hoc enim rationis judicium sensui est permixtum. Si autem signum verisimilitu-

A probable proposition, we have said, is one that is based on the evidence of a sign. Not every sign, however, gives rise to merely probable knowledge. When an effect is convertible with its cause, it can lead to certain knowledge of the existence of this cause - as, for instance, the fact that Socrates has a fever is a certain sign that he is ill and the fact that man is able to laugh shows us with certainty that man is a reasoning animal. Such is an infallible sign: it is also called a complete proof (1), for, as we

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dinis profundatur in essentialium et convertibilium causas quae sunt convertibilia sicut causae : tunc est quod videtur sapientibus, sicut est, quod luna moveatur in epiciolo : quia profundius et altius transit per umbram terrae : hoc enim non est causa sed signum.

Ideo illud quod videtur sapientibus gradus habet, quia aut videtur omnibus, aut pluribus, aut maxime notis vel probabilibus. Quia signum convertibile cum causa, vel apparet mixtum sensui, et tunc videtur omnibus : vel in ipsis substantialibus profundatur, et tunc non videtur nisi probatis et probabilibus sapientibus : vel medio modo est acceptum, et hoc dupliciter. Si enim plus est inclinatum ad sensum : tunc videtur pluribus sapientibus. Si autem plus est profundatum ad necessaria essentialia et intellectualia : tunc est quod videtur maxime notis, qui ex potestate scientiae et artis hoc deprehendere noverunt. Hoc igitur est probabile, ex quo fit syllogismus dialecticus, quod tali et taliter diversificato deprehenditur signo. Haec est sententia commenti Arabici : et sic scientia demonstrativi et etiam dialectici syllogismorum determinata est" (St. Albert, In I Topicorum, Tract. I, c. 2).

(1) - "By infallible signs, I mean those on which syllogisms proper may be based : and this shows us why this kind of Sign is called "complete proof" : when people think that they are bringing forward a "complete proof", meaning that the matter has now been demonstrated and completed" (Aristotle, Rhetoric, Bk I, ch. 2, 1357b5).

have already seen, it can serve as the premisses for a demonstration (accepted in the broad sense of the term). The sign which supports a merely probable proposition is of the fallible sort, that is, one which does not provide sufficient grounds, or evidence, for a necessary inference; as, for example, the fact that all the bodies which we know are bounded by surfaces is a fallible sign that no body is infinite.

A syllogism whose premisses contain such a probable proposition is a dialectical argument. However since dialectic is essentially a third operation of the mind, dialectical knowledge is primarily probable knowledge that has been obtained syllogistically. And, therefore, what characterizes the principles of a dialectical argument is not the probability of propositions considered as simple enunciations, but rather their inadequacy when viewed in connexion with the inference. It is because of this insufficiency that the reason they present is merely probable. Therefore, even a proposition that is necessary in itself (e. g. nothing that is bounded by surfaces is infinite), when it is inacequate as a principle of the conclusion (e. g. no body is infinite), constitutes a probable reason.

It must be noted that the insufficiency that marks the dialectical syllogism is rooted in the matter and not in the form. The incertitude springs from the inadequacy of the premisses considered with respect to the inference and not from the faulty

arrangement of the terms as to their quality, quantity, etc. (1). If the form were not in conformity with the rules concerning the structure of the syllogism, it would be a question, not of mere probable reasoning, but of bad reasoning.

The insufficiency of the premisses would prevent all inference were it not for the consent of the opponent – or of the arguer himself when he is not engaged in a discussion with another. Indeed, probable premisses by themselves do not have the power of inference required by syllogistic principles; and this lack can be made up only by consent to the propositions. That is why the dialectical proposition is described by Aristotle as "consisting in asking something that is held by all men or by most men or by the philosophers" (2). For this reason, the dialectician, unlike

(1) – "Est syllogismus dialecticus, qui ex probabilibus est quantum ad materiam, et est syllogizatus quantum ad formam quae est ex terminorum numero et ordine in figura, et ex modo qui est combinatio propositionum secundum formam debitam in qualitate et quantitate et ordine qualitatis et quantitatis. Et quia licet ex affirmativa et negativa possit fieri syllogismus, tamen minor propositio in prima et tertia non potest esse negativa : et si fiat, non est syllogizatus talis syllogismus, quia formam combinationis utilis non habet" (St. Albert, In I Topicorum, Tract. I, c. 2).

(2) – Topics, Ex I, ch. 10, 104a10.

the demonstrator, must proceed by questioning (1).

When discussing demonstration, we brought out three points in particular, namely, that the principles must be necessary, proper and first. It is especially with respect to these three requirements that dialectic falls short.

First of all, the conclusion of a dialectical syllogism is inferred from probable principles and therefore it cannot be necessary, or, at least, it cannot be known as necessary. The probability of the premisses, of course, does not prevent one of the antecedents from being necessary (e. g. nothing that is bounded by surfaces is infinite), for, as long as the other proposition is probable (e. g. all bodies are bounded by surfaces), or accepted as probable, there still can be no necessary link between the three terms (e. g. body, bounded by surfaces, infinite) but only between two – the middle term and one of the others – in which case the conclusion cannot be

(1) – "In diffiniendo ergo propositionem dialecticam secundum potissimum suum statum dicimus, quod propositio dialectica est interrogatio probabilis, ita quod probabilis sit genitivi casus, hoc est, interrogatio de probabili, quod est materia propositionis dialecticae. In probabili enim (quia ponitur in judicio ejus cui proponitur, utrum sic videatur vel non) oportet quaerere respondentis judicium et consensum, antequam procedere possit opponens. Sic ergo dialectica propositio interrogatio est probabilis. Et hac ratione etiam Boetius in diffinitione syllogismi dicit, quod est oratio in qua quibusdam positis et concessis, respiciens ad propositiones syllogismi dialectici. Cujus causa est, quod probabile de se non habet sufficientem causam consequentiae vel inferentiae, et causam inferentiae sufficientem accepit a concessione respondentis. Haec igitur est tota diffinitio propositionis dialecticae" (St. Albert, In I Topicorum, Tract. III, c. 1).

necessary, or if it is, in fact, necessary, it cannot be seen as necessary. The premisses and the consequent are lacking not only the universal (i. e. convertible) and per se predicate, for even without that they could still be necessary and demonstrative as in the demonstration quia (e. g. a stone cannot see because it is not an animal), but they are without any necessary connexion of terms, essential or otherwise (1), or, if there is such a link, it is not accepted as necessary. There could be dici de omni predication; however, this universality would not hold good for time, since that would imply necessity, but only for the parts of the subject, for although in fact the predicate can now (ut nunc) be said of all the subject still, since there is no necessary connexion between them, it is not contradictory to conceive of one as being without the other (as, all swans are white), nor is it impossible that they be sometimes actually separate.

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(1) - "Advertendum autem est, quod ex necessitate inesse dicitur duobus modis. Uno quidem modo quando id quod inesse dicitur, non potest non inesse : propter hoc quod id quod inest, substantiale dat ei cui inest : ita etiam id cui inest, egreditur essentialiter ab essentia ejus quod inesse dicitur : et hoc modo quidquid ex necessitate inest, per se inest. Alio modo dicitur ex necessitate inesse quod semper inest ei cui inest, sed non dat ei esse per hoc quod inest ipsi : quinimo id cui inest (non obstante natura ejus cui inest) posset esse sine ipso, sicut multis subjectis multa insunt accidentia inseparabilia. Et sic patet, quod omne quod est de omni prout hic determinatur [i. e. secundum subjectum et secundum tempus], est de necessitate : non tamen omne tale est per se. Et sic patet quod hoc principium quod est per se, addit super id principium quod est de omni" (St. Albert, Post. Anal., lib. I, tract. II, c. 7).
- An example of an inseparable accident (in the sense in which it is used here) would be : omne coloratum est corpus (cf. St. Albert, ibid., c. 16), which, obviously, is necessary, but not per se.

That dialectic does not proceed from proper principles is evident from what has been said. For the dialectical syllogism does not argue from the proximate, essential and necessary cause, but from a sign which is common — and therefore extrinsic to the nature of the thing — and also fallible. That dialectic bases its argument on common principles is linked with the fact that it resorts to probable reasons. A probable reason cannot be proper, since it would then be demonstrative; nevertheless, it must have some bearing on the object, since, if it were wholly extrinsic and disparate, it would not even be probable. It must, therefore, be common, for then it would be applicable to this object and therefore not wholly extrinsic, yet not proper, either, since there would be nothing incongruous in its application to other objects. Such a common reason, for example, is used in the argument that a circle can equal a square because in any genus where there is a greater and a less there is also an equal. Hence dialectic reasons from common things.

Because they are common reasons, they are not of the nature of the subject for, if they were, they would be either the proper reason of the necessary object in question or no reason at all. For instance, animal is common with regard to man. however it is the proper reason for the attributes that accrue to man inasmuch as he is an animal, and it has no bearing at all on what is predicated of him inasmuch as he is a reasoning being, for the nature animal completely prescinds from its species. - When we proceed by negation of terms, of course, a more common cause can, not only establish an object, but do so with necessity, as in the demonstration quia

through the remote cause. For, although the affirmation of what is proper (e. g. man) cannot be inferred from the affirmation of the common (e. g. animal) which prescinds from the particular, still the negation of the common must entail the negation of what is proper. - The common things which form the principles of dialectic, then, are not of the nature of the subject.

Furthermore, they are not of the nature of any other subject and are not proper to any one science. Otherwise, they could not be common to many or to all. For example, if they were taken from the nature mobile being considered in general, they would, of course, constitute the proper reason for what can be said of the natural being inasmuch as it is mobile; but if we gave it as a reason for something which is attributed to living being inasmuch as it is living, we should be entirely beside the point, for mobile being completely prescinds from its inferiors : animate and inanimate mobile beings. It would be even more incongruous to call upon the nature of mobile being in support of an assertion concerning number in arithmetic. It is true that the metaphysical communia extend to all and are proper to none, but here again, although they can constitute the proper and essential reasons for what accrue to mobile things, for instance, inasmuch as they are beings, still, they are irrelevant with respect to what is proper to them inasmuch as they are mobile. There is, of course, the question of subalternation, which occurs when the principles proper to one science — arithmetic, for instance — can be applied to the subject of the subalternated science — physics — inasmuch as the subject of the subalternated science is

contained under the subject of the other. However, such principles are not common in the way dialectical principles are, for they are essential and proper to the subalternated subject considered as such — for instance, physical being considered as numbered. We can conclude, then, that the common reasons proper to dialectic are proper and essential to no one particular subject.

An exception, however, must be made for the second intentions, because of their particular condition of being extrinsic to the nature of all real beings and yet in a certain way connected with them all. Whatever concerns a second intention is, of course, proper to logic, but to no science of reality and to no entitative subject. Yet the second intention is common to all things, and not essentially and entitatively as a nature is common, but as a common extrinsic condition. What accrues to a being inasmuch as it is known, then, can be classed among the common things which form the basis of dialectical reasoning.

We must note that what characterizes the communia from which the dialectical syllogism proceeds is not that they are more common or universal than the subject or predicate of the conclusion but that they are not proper. And because they are not proper, it is not impossible that they be used to prove other things and thus they are often common also in this respect.

Because the common reasons are not derived from a nature, their universality is not necessary. In fact the principles of dialectic are characterized by the fact that they are not perfectly

reducible to the particular case in question. Dialectic is marked by the fallible sign, by the contingent link between premisses and conclusion. The common reason does not infer the conclusion of necessity, either because what is predicated of it as of a middle term is not necessarily found in it as a property in a nature, and thus the universality of the proposition is imperfect and permits of exceptions (e. g. in any genus where there is a greater and a less there is an equal or contraries concern the same subject); or because the common reason, though it necessarily implies the property (e. g. nothing wholly bounded by surfaces is infinite), is not necessarily contained in the nature of the subject, and forms with it a proposition which is contingent and does not exclude all possibility of exception (e.g. all bodies are bounded by surfaces).

Thus the common reasons of dialectic give rise to propositions whose universality is provided by the mind without the full evidence of reality. That is, they are the result of abstractions effected by the mind and not fully warranted by reality. This is obvious in the proposition All bodies are of a determinate surface, for we do not know for certain whether a body of an indeterminate surface is impossible. In the principle In any genus where there is a greater and a less there is also an equal, the term genus is left undetermined. If it is meant to signify a group of figures all having the same specific nature, as line or circle, the principle holds. However, if we are given to understand that genus may embrace figures of diverse natures, such as circle and square together, then the proposition remains open to doubt and the universality is not

exhaustive nor is it justified by reality. Similarly for the proposition Contraries concern the same subject. This could be maintained if we understood it as meaning Contraries concern 'a' same subject, but if we meant that whatever is the subject of one contrary is also the subject of the other, many exceptions could be brought forward in contradiction. For example, to wish you well is proper to a friend, but the contrary, evil wishes in your regard, would not also be found in a friend, the reason being that friend is specified by his good intentions toward the befriended. In the argument, then, concerning the subject of hate, one could object that hate must necessarily be in a same subject with love, but it does not follow that they must both be in the same proximate subject, that is, in the concupiscible appetite. The common propositions of dialectic, therefore, do not have the universality of a necessary proposition, fully founded in reality, and perfectly applicable to each of its inferiors, as a nature or genus (1); but rather a universality that is constructed by

(1) - "Quoniam autem sunt multa haec communia [dialecticae et tentativae] scilicet, et sunt determinata et propria in singulis scientiis, patet et quod non sunt illa communia talia quae sunt ut natura quaedam determinata, ut genus quoddam determinatum subjectum, de quo est determinata scientia : sed sunt communia non secundum rem, quae sit natura vel genus, sed sunt communia velut negationes sunt communes, quae non re, sed intentione et ratione communes sunt : quia negatio secundum rem nihil ponit determinatum in natura vel genere, sed intentione sola et ratione" (St. Albert, In I Elenchorum, Tract. V, c. 8).

the mind regardless of whether or not there are sufficient grounds in reality, and not necessarily attribuable (at least, not without qualification) to all its inferiors.

The fact that the dici de omni of a dialectical proposition is provided by the mind indicates that the mind sets it up as a syllogistic principle, for the first requirement of a principle of any syllogism is the dici de omni or dici de nullo. Therefore, in a dialectical argument, both the universality and the principle as such are constituted by the mind.

The common reasons of dialectic are therefore quite distinct from the common principles of metaphysics whose universality is founded in reality and which are the proper and essential causes of the common objects that they are meant to prove. The common term contraries, for example, could also be used as the middle in a metaphysical demonstration, but there it would represent a real universal nature; whereas in dialectic the same term, in Contraries concern the same subject, is universal according to a universality made by the mind, and is not essential nor causal but is merely a sign (1).

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(1) - "... Metaphysicus ex communibus hoc [stabilire principia prima] facit : sed communia metaphysici sunt essentialia et non signa tantum, et sunt communia reducibilia et determinabilia ad propria : sed communia quae considerat dialecticus sunt signa, non causae, et ad propria reducibilia" (St. Albert, In I Topicorum, Tract. I, c. 5).
"Ex communibus autem dico quae vel in pluribus vel in omnibus inveniuntur, non profundata in ipsis, sicut profundantur propria et essentialia, sed quae apparent in superficie statim, quamvis ex ipsis propria possint conjecturari, propter id quod vere probabilia aliqualiter pertingunt in profundum ad propria sicut signa propriorum" (St. Albert, In I Topicorum, Proemium, c. 1).

Because the dialectical reasons are common in this way, they are probable, and for the same reason, they are logical.

However, because dialectic proceeds from common reasons that are proper to no particular genus or science, it is appropriate for discussion about common things more than for enquiry concerning particular objects (1). For this reason, dialectic is used very appropriately in metaphysics as a disputatio preceding and preparatory to the scientific argumentation proper to first philosophy (2).

Incidentally, concerning such propositions as Contraries concern the same subject and In any genus where there is a greater and a less there is an equal, we may point out that it is not the task of dialectic to distinguish the different ways in which a proposition can be interpreted. To do so would be to accomplish the role of the teacher whose aim is to produce science in the listener. Besides, it is more to the purpose of the dialectician to remain in a certain indetermination the better to elicit the consent of the opponent (3).

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(1) - "... Ex communibus intentionibus procedit arguendo dialecticus ad ea quae sunt aliarum scientiarum, sive sint propria sive communia, maxime tamen ad communia" (In I Post. Anal., lect. 20, n. 5).
(2) - Cf. In III Metaph., lect. 1, n. 345.
(3) - "... Si opponens aliquis interroget dicens, rutasne contrariorum una est disciplina vel non ? Sunt autem contraria haec quidem nota, illa vero alia contraria sunt ignota : et sic respondens referendo ad nota, concedet hanc propositionem : opponens autem referendo intellectum ad ignota, disputat in contrarium : et quia non referunt intellectum ad idem : constat quod ad nomen disputatur oratio, cum tamen non sit multiplex : propter quod videtur ignorare ille qui dicit opponentem debere distinguere : et approbat hoc esse verum, quoniam aliud est docere quam disputare : distinguere enim actus est et opus docentis : disputare

Inasmuch as dialectic must find common reasons to support an assertion, it is called inventivum. It is true that the demonstrator also must find the middle term for his argument. However, he is restricted to the proper reason which, in demonstration of the most proper kind, is found in the nature of the subject. He therefore does not have a choice of reasons, nor does he offer more than one, since the proper reason perfectly accounts for the conclusion. The dialectician, on the other hand, never perfectly establishes his object, however many common probable reasons he brings forward. But the more he can find, the more convincing is his argument and the nearer he comes to certitude. The term inventivum, consequently, is more suitably applied to the task of the dialectician than to that of the demonstrator.

It is such common reasons and how to argue from them that constitute the subject of the Topics. Indesd, the word Topic comes

(hoc est, diversa a respondente putare) est actus et opus sophistae, ut paulo ante dictum est. Et videtur etiam ignorare, quod oportet docentem in disciplinalibus non disputare vel interrogare : quia si neget respondens, non habet per quid probet : et ideo suppositionibus utitur docens et per se notis. Sed docentem oportet manifestum facere quod supponit per distinctionem vel aliter, ut intelligat respondens. Illum autem (qui opponens vel disputans est) oportet interrogare et celare propositum : et ideo nihil facere per quod faciat manifestum quod interrogat. Et hoc est verum de opponente sophistice, et de opponente dialectice ad exercitationem vel obviationem : illum enim non oportet distinguere vel docere : sed si disputat ad inquisitionem veri, distinguere potest, et per consequens docere, ne inquisitio veri impediatur" (St. Albert, In I Elenchorum, Tract. V, c. 6).

from the Greek τοπικά, a derivative of τοπος, a place. And the purpose of the Topics is to point out where common principles of reasoning can be found. The Topics give the commonplaces of argument. It shows in which relations of things as in which places, we can find common bases for arguments (1).

Dialectical principles are opposed to proper principles not only because they are common but also because they are logical, for proper principles are principles of the thing itself. Just how dialectic proceeds from logical reasons or second intentions we shall now consider (2).

Let us proceed by way of example. The dialectician, faced with the problem Is any body infinite ? ignoring the nature of body, finds a reason for a negative answer in what could appear from general observation to be the definition of body, namely, that which is wholly bounded by surface. This argument is not based on the

(1) - "Oportet igitur ut in hoc negotio topice procedatur. ostendendo in quibus rerum habitudinibus, ut in quibusdam locis claudatur ignoti notitia, quod scire desideramus : propter quod etiam haec scientia liber Topicorum vocatur. ... Titulus qui est quasi radius illuminans ea de quibus agitur in scientia, est : Incipit liber Topicorum : eo quod τόπος Graece, est locus Latine : et id quod docetur in hoc libro, est qualiter ab habitudine locali trahatur consideratio ad problematis determinationem" (St. Albert, In Topicorum. Proemium, c. 2).

(2) - Cf. In I Metaph., lect. 4, n. 574 and In I Post. Anal., lect. 20, n. 5.

nature of body (or even on a convertible effect or on a remote cause which we know to be real and necessarily linked with the conclusion). Rather, we proceed from something which we consider as a definition. The attribution is not altogether arbitrary since there is some likely evidence for it, though insufficient to make it true. Nevertheless, as long as we do not have certitude of the mind's conformity with reality, we cannot consider the predicate as expressing the real nature or even the definition, but only a definition made by the mind; not a real cause or even a syllogistic middle, but only a syllogistic principle whose author is the mind. True, we can consider it as a probable cause, but this is equivalent to saying that we take it as something purely intentional, since no cause in reality is a probable cause, that is, no cause in reality is probably the cause of something. In other words, then, to the first intention that which is wholly bounded by surfaces, the mind has supplied a relation of syllogistic middle with respect to the extremes body and infinite; and therefore when we proceed from wholly bounded by surfaces to prove that no body is infinite, we reason not from a real cause but merely from a second intention supplied by the mind.

Similarly, the subject body, considered formally as subject of the predicate and definition that which is wholly bounded by surfaces, is a contribution of the mind, for it is founded neither in reality nor in the first intention which represents reality. Moreover, not only the probable proposition but even the necessary one Nothing wholly bounded by surface is infinite, both owe their status of principle solely to the intellect. The universality of

the definitive proposition is, of course, supplied by reason; but even the universality of the necessary proposition, when considered in connexion with the conclusion and as embracing the particular case of body, implies a relation that has been provided by the mind. This recalls what has already been said concerning the logical character of the common reasons of dialectic (1). Contraries, for example, in Contraries concern the same subject is not universal in reality as a nature is, but owes its status of universal to the mind. We see then that dialectic proceeds from second intentions that have been supplied by the mind.

Furthermore, not only are the dialectical principles, considered in their relation, to the conclusion, supplied by the mind; but even the formal subject (i. e., the subject considered formally in its relation to the predicate of the conclusion seen in the light of the principles) is itself a second intention provided by the intellect. And hence, dialectic, specified by its formal subject, is a branch of logic.

We may point out that the demonstrator also uses second intentions, since he must arrange his concepts in syllogistic order. However, there is this difference : The demonstrator always proceeds from the real principles of the things, although to reason correctly he must observe the right order. Even though the cause, once known, is related to the conclusion as a syllogistic principle; nonetheless, it is not this logical relation that is the basis of the argument, but rather the reality that it remotely represents.

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(1) - pp. 80, 81, 82.

The dialectician uses second intentions merely as instruments. The dialectician not only uses second intentions as instruments but even bases his arguments on them.

The second intentions from which dialectic proceeds are not, or are not known to be founded on reality. Therefore, when the dialectician considers that which is wholly bounded by surface as the definition of body, as long as he does not know for certain that it is the real nature of body, he does not even know whether it can be truly predicated of body as a definition (1). Indeed the logical relations are measured, though remotely, by reality and not the reverse. The second intentions which characterize the dialectical argument, then, are doubly constructions of the reason. For, not only are they products of the mind inasmuch as they are relations which the mind establishes among things known (as they are found in demonstration also), but, what is more, they are constructed by the mind on its own accord irrespective of whether they correspond to something in reality or not. We see, then, that dialectician not only uses the second intentions as instruments of reasoning, but, what is more, in establishing the order of the concepts, it anticipates reality and

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(1) - "Scientia autem quae est universalis theoria (quae vocatur metaphysica) de omnium principiis est secundum veritatem et entitatem et necessitatem. Dialectica vero ex probabilibus inquirit quid insit ut praedicatum universale, neque secundum quod intentio est, generale accipit ut genus, et accidentale ut accidens, et appropriabile ut proprium : et haec omnia ex probabilibus et probabiliter inquirit" (St. Albert, In I Elenchorum, Tract. V, c. 6).

demonstration

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provides a relationship that is not fully justified by either the things or the first intentions, so that the principles from which it proceeds are not real but merely intentional. Consequently. dialectic uses second intentions not only as instruments but as integral parts of its argument. — And, let us note, the logical nature of the matter of the dialectical syllogism must be taken into account when, using logic instrumentally, the mind orders the concepts. For, as we know, the rules of dialectical reasoning differ from those of demonstrative argument.

It is to be remarked that dialectic though proceeding and ending with second intentions, is nevertheless turned towards reality. For the simple concepts (first intentions) and some of the propositions represent something real (except, of course, when we are arguing about a problem in logic): it is the relations among the concepts and propositions that are the contribution of the reason. Hence we specify that dialectic proceeds from second intentions (i. e., from logical relations) and not from beings of reason in general, nor wholly from beings of reason, since the concepts and certain propositions, considered in themselves and not as terms of a logical relation, are not pure products of the mind. For example, in the proposition A body is that which is wholly bounded by surface. body represents something real, and so does What is wholly bounded by surface, although the relation between them is furnished by the reason and therefore body as subject and defined, and that which is wholly bounded by surface as predicate and definition. Also. Nothing wholly bounded by surface is infinite is certain and real, though it does not of itself imply

a relation of principle with respect to the conclusion, and therefore its status of principle is furnished by the reason. We can see, then, that a subject of dialectic, considered in itself, is real. Only when it is considered formally as the subject of a probable conclusion does it become a second intention provided by the mind. We can rightly say, therefore, that dialectic reasons about things (1).

Moreover, although the principles are constructed by the mind without the evidence of reality, nevertheless, the mind does not posit them arbitrarily, completely indifferent to reality. Though not the cause, they are at least a sign. There is evidence, but it is not sufficient for certitude.

It is because dialectic tries to attain to the real from the purely intentional which is extrinsic to the nature of the thing, and the proper through the common, as well as certitude through probabilities, that it is called tentativum (2).

We can now see how dialectic and the first rational process proceed from second intentions in different ways. The first rational

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(1) - "... Usus demonstrativae scientiae non est in procedendo ex his communibus, intentionibus ad aliquid ostendendum de rebus, quae sunt subiecta aliarum scientiarum. Sed hoc dialectica facit, quia ex communibus intentionibus procedit arguendo dialecticus ad ea quae sunt aliarum scientiarum" (In I Post. Anal., lect. 20, n. 5).

(2) - "Philosophus igitur ex principiis ipsius procedit ad probandum ea quae sunt consideranda circa huiusmodi communia accidentia entis. Dialecticus autem procedit ad ea consideranda ex intentionibus rationis. quae sunt extranea a natura rerum. Et ideo dicitur. quod dialectica est tentativa, quia tentare proprium est ex principiis extraneis procedere" (In IV Metaph., lect. 4, n. 574).

process starts from the second intentions inasmuch as it uses as a principle logic prout est docens in aliis scientiis; that is, inasmuch as it bases its argument on propositions concerning the second intention qua second intention, such as Subject is that of which something is predicated or Substance is that of which everything is predicated or A universal is that which is predicable of many. But it is known with certitude that the proposition is in accordance with what is (both with ens verum, proximately, and with ens reale, remotely), and so it is not a question of a subject, a predicate or a principle which is constructed by the mind on its own accord and therefore of a pure second intention. It is logical because it concerns the second intention which is the subject of logic. On the other hand, dialectic proceeds from second intentions inasmuch as the principles are in fact second intentions; such as the principle Contraries concern the same subject which owes its relation of principle with respect to the conclusion Hate is in the concupiscible appetite solely to the mind. Dialectic does not propose or conclude something about the second intention, but, inasmuch as its principles are not seen with certitude to express the real principles of the thing, or, at least, of our knowledge of the thing, their relation to the conclusion is nothing more than second intentions.

Attention may be called to the fact that, although we do not propose or conclude something about a second intention, still the subject of the conclusion is, in fact, a second intention. Body, for instance, is not known for certain to be the real and necessary subject of finite: it is only according to a purely logical relation

that it becomes subject; and hence body as subject is a pure second intention. And, what is more, we consider it as merely a second intention, for,so long as we regard the proposition as probable, we consider body as subject to be a product of the mind. Nevertheless, body does not stand for a second intention; indeed, finite is not predicated of it as of a second intention, as predicable of many is predicated of universal. The proposition tells us absolutely nothing about a second intention. The term body, considered in itself, is not a second intention; considered as related as subject with respect to finite, it is a second intention, and no more, since the relation is supplied by the mind and is not known to be founded in reality. Therefore, in the first process, the subject stands for, — i. e., its suppositio is — a second intention (or a first intention founding a second intention, as in the proposition Substance is that of which everything is predicated), but considered as a subject, it is not merely a second intention or a being of reason, since it is known to be truly the subject of the predicate in question; in the second, the opposite is true : the subject does not stand for a second intention, but,considered as subject, it is a purely logical being, since it is not known with certitude to be in reality the subject of the property expressed by the predicate.

While we are on the topic of second intentions, it would be of interest to note that it is because dialectic proceeds from those beings of reason that it can argue about all things. In fact, the mind for its object extends to all being, and it can form second intentions touching everything that it knows. Since logical relations

which are supplied by the mind are of the very essence of dialectic, and since they are common to all things, no object, therefore, is foreign to the sphere of dialectical discourse (1).

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(1) - "Sciendum tamen est quod alia ratione dialectica est de communibus et logica et philosophia prima. Philosophia enim prima est de communibus, quia eius consideratio est circa ipsas res communes, scilicet circa ens et partes et passiones entis. Et quia circa omnia quae in rebus sunt habet negotiari ratio, logica autem est de operationibus rationis: logica etiam erit de his, quae communia sunt omnibus, idest de intentionibus rationis, quae ad omnes res se habent. Non autem ita, quod logica sit de ipsis rebus communibus, sicut de subiectis. Considerat enim logica, sicut subiecta syllogismum, enunciationem, praedicatum, aut aliquid huiusmodi. Pars autem logicae, quae demonstrativa est, etsi circa communes intentiones versetur docendo, tamen usus demonstrativae scientiae non est in procedendo ex his communibus intentionibus ad aliquid ostendendum de rebus, quae sunt subiecta aliarum scientiarum. Sed hoc dialectica facit, quia ex communibus intentionibus procedit arguendo dialecticus ad ea quae sunt aliarum scientiarum, sive sint propria sive communia, maxime tamen ad communia. Sicut argumentatur quod odium est in concupiscibili, in qua est amor, ex hoc quod contraria sunt circa idem. Est ergo dialectica de communibus non solum quia pertractat intentiones communes rationis, quod est commune toti logicae, sed etiam quia circa communia rerum argumentatur. Quaecunque autem scientia argumentatur circa communia rerum, oportet quod argumentetur circa principia communia, quia veritas principiorum communium est manifesta ex cognitione terminorum communium, ut entis et non entis, totius et partis et similium" (In I Post. Anal., lect. 20, n. 5). — "... Ens est duplex : ens scilicet rationis et ens naturae. Ens autem rationis dicitur proprie de illis intentionibus, quas ratio adinvenit in rebus consideratis; sicut intentio generis, speciei et similium, quae quidem non inveniuntur in rerum natura, sed considerationem rationis consequuntur. Et huiusmodi, scilicet ens rationis est proprie subiectum logicae. Huiusmodi autem intentiones intelligibiles, entibus naturae aequiparantur, eo quod omnia entia naturae sub considerationo rationis cadunt. Et ideo subiectum logicae ad omnia se extendit, de quibus ens naturae praedicatur.

As for the third point, it is clear from what has already been said that dialectic cannot resolve to a first principle, that is, to a proposition which is evident from the sole notion of the terms. In fact, the propositions of a dialectical syllogism can none of them show the immediate necessity and self-evidence of a first principle. There are, of course, immediate and necessary propositions to be found in dialectic, such as nothing wholly bounded by surface is infinite, but, not being the necessary cause of the conclusion, such a proposition is not, in this sense, a principle at all, first or otherwise, but merely a sign. Moreover, there are also immediate probable propositions — that is, propositions that are probable by themselves and not by reason of another probable proposition — and to these dialectic can reduce its argument (1). They, however, because of their contingency, cannot take the place of a first principle, in whose necessity and evidence must lie the certitude of all scientific conclusions. To express it in more proper words : dialectic cannot resort to a middle term which is immediately and essentially connected to each of the extremes and which is,

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Unde concludit, quod subiectum logicae aequiparatur subiecto philosophiae, quod est ens naturae. Philosophus igitur ex principiis ipsius procedit ad probandum ea quae sunt consideranda circa huiusmodi communia accidentia entis. Dialecticus autem procedit ad ea consideranda ex intentionibus rationis, quae sunt extranea a natura rerum" (In IV Metaph., lect. 4, n. 574).

(1) - "Si autem aliquis procedat usque ad immediata per aliqua media vera, quae tamen vel non insint illis, de quibus dicuntur, per se, sicut definitiones quae praedicantur substantialiter et significant speciem rei, vel non accipiat ea ut quae sic insunt; tunc habebit opinionem, et non sciet vere quia et propter quid simul, si tamen procedat usque ad immediata; tunc

furthermore, the immediate cause of the connexion of subject and predicate in the conclusion, as reasoning animal with respect to man and able to laugh. Because of this, it cannot attain, by necessary connexion of terms, to such immediate principles as reasoning animal is able to laugh. The fundamental reason for the inability to attain to first principles is, of course, the fact that dialectic appeals to reasons that are common (i. e. not proper and essential — since they do not spring from the nature of the subject) and probable (i. e. contingent — since they have no necessary connexion with the conclusion).

We may remark incidentally that, although dialectic cannot resort to first principles as to the term of resolution, nevertheless, it must use the common first principles in much the same way as all the sciences do. We have already pointed out that, in the particular sciences, the common principles do not form an integral part of the reasoning, but that, nevertheless, in these sciences as well as in metaphysics, the necessity of the arguments is seen in the light of common principles. For example, if we based the assertion Man is able to laugh on the principle Man is a reasoning animal, the confirmation of the argument relies on the fact that something cannot be and not be at the same time and in the same respect. So too in dialectic. Once consent is granted with respect to the propositions,

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enim per immediata opinabitur, et non sciet. Si vero non procedat per immediata, sed per mediata, tunc non opinabitur propter quid, sed opinabitur solum quia. Nam etiam scientia, quae non est propter quid et immediata, non est scientia propter quid, sed quia" (In I Post. Anal., lect. 44, n. 9).

the conclusion must follow of necessity, because what has been granted (for example, All bodies are of limited surfaces), in virtue of this concession, cannot be and not be at the same time and in the same respect.

Thus, inasmuch as dialectic proposes only probable and logical reasons, it must remain in the state of enquiry. Not finding the first, proper, immediate and necessary reason, expressed in propositions that are immediate, necessary, self-evident and indemonstrable, the dialectical process cannot come to rest in the vision of the intellectus and in the judgment of the mind's conformity with reality. And so the enquiry can go on indefinitely, drawing nearer to, but never attaining, reality, forced to remain, as long as it is dialectical, within the confines of the mind. For this reason, the dialectical process is denominated rational.

2. - Opinion and Belief.

The result of dialectical reasoning is, we have seen, probable, as opposed to certain, knowledge. We can conclude, then, that dialectic produces opinion. In fact, although opinion resembles certitude and is distinct from doubt in that it is an adhesion to one side of a contradictory; it is opposed to certitude in that the adhesion is not fully determined; indeed, it involves an inclination but not a full assent, for there remains a fear that the other side may be true (1).

How dialectic produces belief is not so easily seen. Belief or faith is an adhesion to one side of the contradictory because of an authority : it does not involve the determination of the intellect, but rather the determination of the will, for which the assent would be a good. The determination is full or only partial according as the authority is more or less worthy of faith.
It would seem, then, that belief cannot be the object of dialectic, for dialectical reasoning does not involve the will — at least not essentially.

The solution to the difficulty probably lies in the simple fact that belief is taken here not in the strict sense of the term faith but in a broader sense to mean the same as opinion. Indeed, Aristotle sometimes uses the term in this way. Concerning the fact that in the Topics (2) "Philosophus dicit fidem esse opinionem

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(1) - Cf. De Ver., q. 14, a. 1.
(2) - C. 8, 103b5.

habitam per inductionem vel syllogismum probabilem", John of St. Thomas comments : "Philosophus autem accipit fidem lato modo, prout vulgari locutione, quidquid non videtur, dicitur fides vel opinio" (1).

However, at least one element of the definition of belief can sometimes be found in dialectical argument — that of authority. A probable argument is at times based on the opinion of those who are learned in a certain field. And it is accepted because of the authority of those who propose it. In this sense, it is believed and the conclusion drawn from it, likewise. However, essentially, such a proposition is the object, not of belief (in the strict sense), but of opinion. In fact, in a dialectical syllogism, the authority is accepted as a sign of the probability of the assertion in question, and moves the intellect to adhere to that side of the contradictory, always, nevertheless, with fear of the other. There is no interference of the will, except perhaps incidentally. Therefore, we could say that, in a certain limited sense, a dialectical syllogism can produce belief, but certainly not according to the proper sense of the word faith.

(1) - Cursus Philosophicus, Log. II, q. 26, a. 4.

3. - Dialectical Induction.

Until now we have discussed only the dialectical syllogism and have completely neglected dialectical induction. The reason is that the first and most proper type of dialectic is the syllogism, induction merely participating secondarily in the common notion. In fact, dialectic is a kind of reasoning which, in the strict sense, is syllogistic and, only in a loose sense, inductive. For induction is not limited to reason alone but involves the external and internal senses. Let us consider, then, this other type of dialectic.

Induction, in general, is defined as a progression from singulars to universals. It differs from the syllogism in that it is based on an enumeration of singulars rather than on universal natures. According as the argument takes into account all or only some of the singulars included in the universal, the induction is complete or incomplete. In the first case, certitude is attained; not, however, scientific certitude, for the universal is known merely according to the number of inferiors contained under it and not according to the species or nature. Species of course may refer either to a species specialissima whose inferiors are individuals or to a species which is also a genus and whose inferiors are themselves species. For example, if we inferred that every triangle has angles equal to two right-angles, from the fact that the angles of the isosceles triangle equal two right-angles, and likewise the angles of the equilateral and those of the scalene triangles,

we know with certitude that the angles of every triangle equal two right-angles, but we do not understand this property as belonging to triangle qua triangle, but as belonging to each of its inferiors. Because we have not based our proof on the definition of triangle qua triangle, we do not have a scientific knowledge of the universal proposition (1). In the second case, the enumeration, though incomplete, can still be sufficient to allow us to infer a universal.

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(1) - "... Quod eadem ratione, qua non demonstratur universale cum de singulis speciebus aliquid demonstratur quod est universale praedicatum communis innominati; nec etiam demonstratur universale modo praedicto, si sit commune nomen positum. Sicut si aliquis aut eadem demonstratione aut diversa demonstret de unaquaque specie trianguli, quod habet duos rectos, seorsum scilicet de isoscele et seorsum de gradate, idest de triangulo trium laterum inaequalium, non tamen propter hoc cognovit quod triangulus tres angulos habeat aequales duobus rectis, nisi sophitico modo, idest per accidens : quia non cognovit de triangulo secundum quod est triangulus, sed secundum quod est equilaterus, aut duorum aequalium laterum, aut trium inaequalium. Neque etiam demonstrans cognovit universale trianguli, idest habet cognitionem de triangulo in universali, etiamsi nullus alius triangulus esset praeter illos, de quibus cognovit. Et hoc ideo quia non cognovit de triangulo secundum quod est triangulus, sed sub ratione specierum eius. Unde neque cognovit, per se loquendo, omnem triangulum : quia et si secundum numerum cognovit omnem triangulum (si nullus est, quem non novit), tamen secundum speciem non cognovit omnem. Tunc enim cognoscitur aliquid universaliter secundum speciem, quando cognoscitur secundum rationem speciei. Secundum numerum autem et non universaliter, quando cognoscitur secundum multitudinem contentorum sub specie. Nec est differentia quantum ad hoc si comparemus species ad individua vel genera ad species. Nam triangulus est genus aequilateri et isoscelis" (Post Anal., I, lect. 12, n. 39).

Nevertheless, the conclusion cannot be other than probable. It is this second type of induction, then, that is dialectical. An example would be the argument which concludes that the skilled man in general is best at his particular work because the skilled pilot is most effective, and likewise the skilled ruler of a city, and the skilled blacksmith, etc....

Besides passing from singulars to universals, induction can also re-descend into singulars. For instance, having established through the enumeration of particular cases that the skilled man is best at his task, we could conclude that the skilled builder is, therefore, best at building. Such an argument could even be drawn up to ressemble a syllogism thus : the skilled man is best at his task : the pilot is a skilled man; therefore, the pilot is best at his task. However, as long as the universality of the middle term has not passed the state of induction, that is, as long as it is seen only in the light of an enumeration of the singulars, the argument is not syllogistic but inductive.

We may recall that, in the dialectical syllogism also, the universality is somehow defective. However, the imperfection of this universal must be distinguished from that of the inducted universal. In the syllogism, the universality is imperfect because it is established by the mind and is not seen to correspond with a nature that is universal in reality. The universal proposition, not known to be necessary, may not correspond to something that is really universal. Nevertheless, the universal is considered by the

mind as a true logical universal, prescinding from its inferiors — though by an abstraction not fully warranted by reality. It is, therefore, something different from a universal considered merely with respect to its enumerated singulars, as the universal inferred by induction.

Induction, though less perfect than the syllogism, can prove very useful in dialectical discussion. Because it is based on sense knowledge, it is more convincing. It is also clearer because of the uniformity of the propositions; indeed, one instance of the argument is not more extensive than and contracted by the following as the propositions of a syllogism, but, in every case of the enumeration, subject and predicate are related in the same way (1). In the Topics, Aristotle observes that "induction is the more convincing and clear : it is more readily learnt by the use of the senses, and is applicable generally to the mass of men, though reasoning is more forcible and effective against constradictious people" (2).

(1) - "Et quoad singularia quae sensibus offeruntur, dicitur quod inductio quoad nos est verisimilior quam syllogismus, et non dicitur verior. Ratione autem similitudinis quae est inter singularia partiendo praedicatum, dicitur planior, quia in aeque se habent quoad praedicatum singularia. et nullum alteri superiminet. Sicut diffiniens planum dixit Plato, quod planum est cujus partes partibus in aeque se habent. In syllogismo autem una propositio est ut major, et altera ut minor sub majori stans, et non aeque, sed coarctans eam. Secundo autem quia sensibus percipiuntur et objiciuntur singularia, dicitur inductio secundum sensum notior : propter quod etiam inductione ex singularibus collatis ad universale infertur universale, et sic principium sunt, et universale illatum vel principiatum. Quia autem plures sequuntur judicium sensus, ideo inductio in pluribus communis est syllogismus auten sapientibus" (St. Albert, In I Topicorum, tract. III, c. 4).

(2) - Ch. 3, 101b5-10.

4. - How probable argument can be used in a science.

Having considered the nature of dialectic, let us turn now to its use. Dialectic, though it can never go beyond the probable, can nevertheless, be of service in the obtention of scientific truth. — "For the study of the philosophical sciences it is useful, because the ability to raise searching difficulties on both sides of a subject will make us detect more easily the truth and error about the several points that arise" (1) By accumulating probable reasons in favour of one side of the contradictory statement and by thus ever drawing closer to certitude. dialectic can prepare the way to a truly scientific proof. Thus in the third book of the Metaphysics. Aristotle engages in dialectical discussion (disputativum) preparatory to determining the truth by scientific argumentation.(2). He follows the same method in the Physics.

We must not conclude, however, that the difference between dialectic and science is one of degree and not of nature. Dialectic can

(1) - Aristotle, Topics. Bk I, ch. 2, 101a35.

(2) - "Postquam Philosophus in secundo libro ostendit modum considerandae veritatis, hic procedit ad veritatis considerationem. - Et primo procedit modo disputativo, ostendens ea quae sunt dubitabilia circa rerum veritatem. Secundo incipit determinare veritatem. Et hoc in quarto libro" (In III Metaphysicorum, lect. 1, n. 338).
"In praecedenti libro Philosophus disputative processit de illis, quae debent in hac scientia considerari : hic incipit procedere demonstrative determinando veritatem quaestionum prius motarum et disputatarum" (In IV Metaphysicorum, lect. 1, n. 529).

lead to and terminate in science, but not on its own accord, for the two must remain essentially opposed.

Dialectic can prove useful to a science in another way - in the establishment of its principles. A science, we know, must base its proof on principles that are first and proper, such as the nature of a triangle. These principles it cannot prove but must accept, for, since they are first, there is nothing prior to them on which to construct a demonstration. True, there are common principles, but no particular science, as such can use them, for a science must proceed from what is proper to it. Dialectic, however, argues about all things from common, probable reasons, and thus it can offer probable arguments in defence of the first principles of any science. We may remark that metaphysics accomplishes a similar role, for it too uses common truths to manifest, confirm and defend the first principles of the sciences. But there is a difference. Whereas the communia from which dialectic proceeds are not causes but mere signs, the communia of metaphysics are essential and causal and, moreover, reducible to the propria (1). And furthermore, the metaphysical arguments are superior to the dialectical by their certitude.

(1) - "Hoc autem ex communibus et probabilibus persuasionem facere, vel proprium est dialectico, vel maxime conveniens. Proprium enim in quantum ex probabilibus est : maxime autem conveniens in quantum ex communibus est. Quia metaphysicus ex communibus hoc facit : sed communia metaphysici sunt essentialia et non signa tantum, et sunt communia reducibilia et determinabilia ad propria : sed communia quae considerat dialecticus sunt signa, non causae, et ad propria reducibilia. Ex talibus igitur persuadenter verificare principia scientiarum maxime proprium est dialecticae : quia cum sit inquisitiva est inventiva communium, et per talia convenientem viam habet ad omnium methodorum specialissima principia sic per probabilia stabilienda" (St. Albert, In I Topicorum, tract. I, c. 5).

Even the common principles proper to metaphysics (a. g. The whole is greater than its part) can in somewise be confirmed by probable arguments. Dialectic, we have seen, is concerned with all things, both as to what is proper to them and to what is common. But since it proceeds from common reasons, it is better suited to consider common things. It therefore discusses the reality represented by the common terms of the very first principles or dignitates, such as being, whole, part, etc., and the common principles themselves. Of course, dialectic cannot establish these principles with certitude, and the other side of the contradictory is, at the most, shown to be improbable, never impossible.

Concerning the use of dialectic for the establishment of first principles, Aristotle says : "It has a further use in relation to the ultimate bases of the principles used in the several sciences. For it is impossible to discuss them at all from the principles proper to the particular science in hand, seeing that the principles are the prius of everything else : it is through the opinions generally held on the particular points that these have to be discussed, and this task belongs properly, or most appropriately, to dialectic : for dialectic is a process of criticism wherein lies the path to the principles of all inquiries"(1).

(1) - Topics, Bk I, ch. 2, 101a37 - 101b5.

Let us note before concluding that the dialectical knowledge that serves as an introduction to scientific argument has the type of probable object that somehow is directed to the necessary : a universal as seen in phantasms and signs. It has, in a way, the same object as a science but it does not have scientific knowledge of it. The dialectic which considers what is really probable — that is, propositions in which there is no necessary link between subject and predicate — has no direct relation with science (1).

We have seen, then, how dialectical arguments can show the way to scientific knowledge. — "Et hoc modo rationabiliter procedi potest in qualibet scientia, ut ex probabilibus paretur via ad necessarias probationes" (2).

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(1) - "Adhuc notandum est quod est probabile quod secundum ipsum ordinatur ad necessarium. sicut est probabile quod est circa universale in phantasmatibus acceptum et signis : hoc enim deputandum est ipsum necessarium. Et probabilitas est circa ipsum prout est in phantasmatibus : et per hoc est via ad principia methodorum. Est autem probabile in contingentibus, quod secundum sui substantiam probabile est : et hoc nullum habet ordinem nisi valde remotum forte per modum adminiculantis" (St. Albert, In I Topicorum, Tract. I, c. 5).

(2) - In Boethium de Trinitate, q. 6, a. 1.

5. - The use of the second type of rational process in moral philosophy.

Until now we have been discussing the use of the second type of rational process in the speculative sciences. However, in a sense, this sort of inquiry is more appropriate to the practical science of moral philosophy. This process, we have said, is characterized and distinguished from demonstration by its unreached term. Now, the discourse of moral philosophy, when considered in relation to a particular act, is characterized by a certain incompleteness, and, because of this, it pertains to the second rational process (1).

In order to understand the unfinished character of moral discourse in general, let us first consider the deliberation of counsel and the type of process that it involves. There can be no doubt but that the discourse of counsel is compositive. It is a passage from the simple to the complex, from the part to the whole, from cause to effect. It consists in composing a form with matter, a universal principle with the individual circumstances of a particular agent. That one must be temperate, is a common principle; how in the circumstances in which he finds himself a certain person can achieve temperance, is the object of moral research. The reasoning of the practical intellect is thus ordered to operation, to the actual application of a principle of action, to putting an effect into existence outside of its cause.

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(1) - Cf. De Trinitate, q. 6, a. 1, ad 4.

Nevertheless, practical discourse is also resolutive, in the broad sense of the term. Not that it establishes the knowledge of a thing by showing it in its cause, but its aim is to find the means of attaining an end that are most suited to the agent in the particular circumstances in which he stands, and these means are the cause of the operation. In practical discourse, then, we proceed from a consideration of the end to a consideration of the means best suited to the particular agent. Moreover, this process of reasoning belongs, not to the order of intention where the end presents itself to the intellect under the formality of a final cause or a good, but, rather, it pertains to the order of execution, where the end is considered as an effect to be achieved by the agent. Practical discourse, therefore moves from effect to cause, from the complex to the simple, from the whole to the part. It is in this respect, a type of resolution (1). But it is in order to pursue its compositive aim that this type of discourse achieves a certain resolution, since it is for the sake of composing the end with the agent that it seeks to find the suitable means or cause.

However, we must note that, in the practical order, resolution into a cause means something very different from what it indicates in the speculative order. In the latter, the necessary connexion between subject and predicate of the conclusion is seen in the light of its cause, expressed in the middle term to which the extremes are necessarily joined. The premisses contain the prior and necessary cause of the conclusion. In the practical syllogism, the means or

(1) - Cf. In III Ethicor., lect. 8, nn. 475, 476.

cause figures in the conclusion and the middle term is the end taken not as a cause but as an effect, for example : Temperance (end) is achieved through abstinence (means); such a person in such circumstances (particular agent) must attain temperance (end); such a person in such circumstances (particular agent) must keep total abstinence (means). We do not resolve the conclusion into a necessary, prior cause. The effect is but a posterior conditional cause of the conclusion; for the end, though prior in knowledge, is posterior in existence : if such an effect is to be achieved, such means must be employed. Moreover, once the means have been accomplished, the end is not necessarily guaranteed, nor does it always follow of necessity that the end cannot be achieved without these particular means (1). The practical process, therefore, can be termed resolution, but only in a broad and secondary sense.

It is the contingency of its object that is responsible for the unfinished resolution. Because the practical order, contrary to the speculative process, is turned towards existence, to putting into actual existence a certain virtuous operation, it cannot abstract from but must take into account, as far as possible, all the circumstances that can affect this operation. Now the contingencies that can influence the agent and his operation are infinite and, therefore, cannot all be embraced by the consideration of the reason or, even if they could, they could not all be foreseen. The discourse of counsel must necessarily remain incomplete, and hence the conclusion itself will be contingent, for the given means may not bring about the effect.

(1) - Cf. Ia IIae, q. 13, a. 6, ad 2; q. 8, a. 3, ad 3.

As for moral philosophy, it too is directed toward action (1), although it does not consider the act as willed here and now but only as possible (2). Like counsel, it seeks the means by which an operation can be put into effect; however, unlike counsel, it aims to determine not the cause of any particular act, but the principles which will assure virtuous actions ut in pluribus. As a science, it must remain in the sphere of general considerations and leave to prudence, assisted by the cogitative (3), the final judgment of what a particular agent must do in the particular concrete circumstances in which he stands. The discourse of practical science, then, is even more incomplete with regard to putting the act into effect than is counsel, and, in this respect, its conclusions are even less certain (4).

(1) - Cf. In II Ethicor., lect. 2, n. 256.
(2) - Cf. Ibid., VI, lect. 7, n. 1200.
(3) - Cf. Ibid., lect. 9, n. 1255.
(4) - "Et cum sermo moralium etiam in universalibus sit incertus et variabilis, adhuc magis incertus est si quis velit ulterius descendere tradendo doctrinam de singulis in speciali. Hac enim non cadit neque sub arte, neque sub aliqua narratione. Quia causae singularium operabilium variantur infinitis modis. Unde judicium de singulis relinquitur prudentiae uniuscuiusque. Et hoc est, quod oportet ipsos operantes per suam prudentiam intendere ad considerandum ea quae convenit agere secundum praesens tempus, consideratis omnibus particularibus circumstantiis; sicut oportet medicum facere in medicando, et gubernatorem in regimine navis. Quamvis autem hic sermo sit talis, idest universaliter incertus, in particulari autem inenarrabilis, tamen attentare debemus, ut aliquod auxilium super hoc homini conferamus, per quod scilicet dirigatur in suis operibus" (Ibid., lect. 2, n. 259).

Although moral philosophy attains a lesser degree of certitude with respect to a particular act than does the judgment of prudence, nevertheless, the conclusions of moral philosophy considered in their commoness are more certain. Speaking generally, it is more certain that temperance will be achieved by abstinence than that it will be won by exercising patience or attaining a goal or whatever means are found to be most appropriate to the circumstances of a particular case. It is because of the certitude that it reaches when remaining on a certain level of generality that moral philosophy is truly a science.

Because, in moral discourse, the mind can never fully grasp reality with all its contingencies, the process is said to be ratiocinativum. For the same reason, it is opinativum (1), for, as long as reality is not reached, certitude cannot be had. The same terms may be applied to moral philosophy when it is considered in relation to a particular act. Inasmuch, then, as practical discourse does not reach its term but remains in the state of enquiry and inasmuch as it produces opinion which leaves the other side of the contradictory open to consideration, it complies with the description of the second type of rational process, as set forth in De Trinitate.

This rational process, then, is most appropriate to moral

(1) - "... Praedictarum partium animae rationalis, una quidem quae speculatur necessaria potest dici scientificum genus animae, quia de necessariis est scientia. Alia autem pars potest dici ratiocinativa, secundum quod ratiocinari et consiliari pro eodem sumitur. Nominat enim consilium quandam inquisitionem nondum determinatam, sicut et ratiocinatio, quae quidem indeterminatio maxime accidit circa contingentia, de quibus solis est consilium. Nullus enim consiliatur de his quae non contingunt aliter se habere. Sic ergo sequitur quod ratiocinativum sit una pars animae rationem habentis" (In VI Ethicorum, lect. 1, n. 1118).

philosophy, because of the contingency of human acts. Indeed, the indetermination of the intellect in moral discourse is caused by the indetermination of the object itself and not merely by a lack of evidence. In other words, the contingency, and hence the unfinished character of the process, is rooted in the very object which specifies the science, and is not due solely to the inefficacy of the mind, as in the speculative sciences. As to these latter sciences, which have objects that are necessary and must be shown to be necessary, this sort of reasoning cannot properly belong to them but can serve them only as an aid. "Philosophus ibi (Ethica Nicom., VI, c. 1, 1139a12) pro eodem ponit ratiocinativum et opinativum, unde patet quod pertinet ad secundum modum assignatum. Ratiocinativo autem vel opinativo attribuit Philosophus ibidem agibilia humana de quibus est scientia moralis ratione suae contingentiae. Unde potest ex dictis colligi quod primus modus rationabilitatis est maxime proprius scientiae rationali, secundus scientiae morali" (1).

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(1) - De Trinitate, q. 6, a. 1, ad 4.

6. - Logica docens and logica utens.

We have now seen two ways in which logic can be used in a science, other than its use as an instrument. St. Thomas distinguishes them as the use of logic ut est docens and the use of logic ut est utens. Let us enlarge upon this distinction.

We have already defined logic as the art which establishes the order that our concepts must assume for correct reasoning. And we have seen that logic accomplishes this task by discovering the order in its cause, which is the nature of the concepts, by dividing, defining and demonstrating, and that it is therefore a science in the proper sense. This science, inasmuch as it teaches the method of reasoning, is termed logica docens. And since it examines not only the method of demonstrative reasoning but also the modes of probable and sophistical argumentation. it comprises three parts : demonstrative, dialectic and sophistical.

The application of the rules of scientific reasoning in any other science, however, does not belong to logic, for demonstration must proceed from the principles of the thing and not from the second intentions. The application of the demonstrative method, therefore, pertains to the sciences of reality which use logic merely as an instrument.

The use of the rules of probable reasoning, to the contrary, belongs to logic itself. In fact, the probable argument, although it does not as such aim to reason about the second intention qua secon

intention, as does logica docens, nevertheless, inasmuch as it proceeds from the logical intentions and not from the principles of the things, it can never really go beyond the second intentions to attain the things in themselves, and therefore it is itself a branch of logic. Because it uses the second intentions to argue about things, it is called logica utens, and is thus distinguished from logica docens which teaches the second intentions. Moreover, because in arguing from second intentions it must apply the rules of probable reasoning established in dialectica docens. it is termed also dialectica utens.

Similarly, there is a sophistica docens and a sophistica utens. Logic, then, is divided into two branches : logica docens and logica utens of which the former comprises three parts (demonstrative, dialectic and sophistical) and the latter, two (dialectic and sophistical) (1).

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(1) - "Licet autem dicatur, quod Philosophia est scientia, non autem dialectica et sophistica, non tamen per hoc removetur quin dialectica et sophistica sint scientiae. Dialectica enim potest considerari secundum quod est docens, et secundum quod est utens. Secundum quidem quod est docens, habet considerationem de istis intentionibus. instituens modum. quo per eas procedi possit ad conclusiones in singulis scientiis probabiliter ostendendas; et hoc demonstrative facit, et secundum hoc est scientia. Utens vero est secundum quod modo adjuncto utitur ad concludendum aliquid probabiliter in singulis scientiis; et sic recedit a modo scientiae. - Et similiter dicendum est de sophistica; quia prout est docens tradit per necessarias et demonstrativas rationes modum arguendi apparenter. Secundum vero quod est utens, deficit a processu verae argumentationis.

Sed in parte logicae quae dicitur demonstrativa. solum doctrina pertinet ad logicam, usus vero ad philosophiam et ad alias particulares scientias quae sunt de rebus naturae. Et hoc ideo, quia usus demonstrativae consistit in utendo principiis rerum, de quibus fit demonstratio, quae ad scientias reales pertinet,non utendo intentionibus logicis. Et sic apparet, quod quaedam partes logicae habent ipsam scientiam et doctrinam et usum, sicut dialectica tentativa et sophistica: quaedam autem doctrinam et non usum, sicut demonstrativa" (In IV Metaph., lect. 4, nn. 576 and 577).

We must not fail to remark that logica utens, though it uses the second intention as a principle, does not constitute a use of logica prout est docens in aliis scientiis. Logica docens, we have seen, is the logic that teaches the method of reasoning: it has two uses : first, its use as an instrument : the application of the rules that it establishes; second, its use as a science : the adoption of logical propositions to serve as principles of arguments in another science. The latter constitutes the use of logica prout est docens in aliis scientiis. Now logica utens uses logica docens, but only according to the first use. We may be inclined to believe that it uses it also according to the second. Indeed, we have said that, on the one hand, logic is utens inasmuch as it uses the second intentions as principles to reason about things, and that, on the other, the first type of rational process which is constituted by the use of logica prout est docens in aliis scientiis is also characterized by the fact that it proceeds from the second intentions. This might lead one to conclude that logica utens is the use of logica prout est docens in aliis scientiis, and that the two processes are really one. Such, however, is not the case. Logica utens employs second intentions in so far as it bases its arguments on probabilities, as we have explained; whereas the process that uses logica docens in aliis scientiis resort to the second intentions insofar as it proceeds from the teachings

concerning the second intentions which are established in *logica docens*.

The use of *logica prout est docens in aliis scientiis* and that of *logica ut est utens* are sometimes found together. In fact, when logical propositions are used as principles in any particular science, the resulting argument cannot properly belong to the science qua science, for the common, logical principles are not appropriate to the particular subject. Such would be the argument that hate is in the concupiscible appetite where love is because contraries are predicated of the same subject. Even in metaphysics the use of propositions taken from logic as the basis of a conclusion concerning reality would be against the rules of scientific argument, since second intentions are extrinsic to the nature of the subject of metaphysics. This would be the case if we argued that substance is that which is in itself and not in another as in a subject of inherence, because it is that of which everything is predicated and which is predicated of nothing but of itself. Such arguments belong to the sphere of probable or dialectical reasoning and therefore to *logica utens*. However, although they are found together, these two different ways of using logic are quite distinct. The argument resorts to *logica prout est docens in aliis scientiis* inasmuch as it uses propositions from *logica docens*; it is a case of *logica utens* inasmuch as, proceeding from probable and, in this sense, logical reasons, it cannot attain its term. The probable, and therefore logical, reason happens, in this instance, to be taken from the science of logic. The connexion between the two uses, therefore, is merely accidental.

We have seen, then, the distinction between the use in demonstrative science of logic *ut est utens* and the use of logic *ut est docens* (i. e. *in aliis scientiis*). - "Et hic est alius modus, quo logica utimur in scientiis demonstrativis, non quidem ut est docens, sed ut est utens" (1).

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(1) - *De Trinitate*, q. 6, a. 1.

7. - The term "dialectic".

It would be interesting to note before concluding why probable argument is termed dialectic. Dialectic meaning discussion (from διάλεκτος which is derived from διά and λέγειν to speak), implies a certain interchange of thought between two or more people (hence, the English word dialogue). Strictly speaking, such a discussion is appropriate only when the participants are arguing from probable reasons. In fact, the announcing of scientific arguments calls for no verbal response from the listener, for, since we are dealing with necessary and evident premisses, he is not asked to concede a proposition; nor can he dispute the inference, since the conclusion follows of necessity. Once the proper reason has been seen in the light of first principles, nothing more can be added in defence of the conclusion, and no serious objection can be made. Should the principles be denied, they cannot be proved, for they are first and immediate. There is, of course, the argument ad hominem and the argument ad impossibile which are not scientific or demonstrative in the strict sense. But these too are conclusive and, therefore, leave no possibility for the truth of the contradictory. Because of this, they cannot belong to dialectical discussion (1).

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(1) - "Dico igitur quod non est interroganti et opponenti dialectice disputandum utendo syllogismo ad impossibile : nam cum ipse ostensive vel sine impossibili ad quod deducat syllogizat, tunc non est vel contingit dubitare respondentem de conclusione, sed oportet quod concedat eam : sed quando syllogizatur impossibile ad quod deducitur, nisi valde manifestum sit esse falsum ad quod deducitur, tunc respondentes non illud dicunt esse impossibile. Et hujus causa est, quia in probabilibus non est valde manifesto falsum : quia negativa probabilis in contingentibus sicut et affirmativa : et quod contingit esse, contingit non esse : et ideo dicunt respondentes illud non esse impossibile, quod conclusum est pro impossibili : et propter hoc non fit (sive non contingit) interrogantibus quod volunt de probatione propositi. Hoc igitur observandum est in forma argumentationis" (St. Albert, In VIII Topicorum, Tract. I, c. 5).

Science, indeed, is taught rather than discussed. There is a passage in St. Albert which shows this point very clearly :

> "Doctrinales quidem dicuntur quae ex propriis principiis sunt uniuscujusque disciplinae; quia si etiam sunt ex communibus, illa in qualibet scientia necesse est appropriare, et ex eis procedere sicut ex propriis, et non sunt ex his quae respondenti videntur, hoc est, quia respondenti videntur · quia cum ipsa sint nota, doctrinalis non interrogat nec expectat consensum respondentis : et ideo procedit, sive respondenti videantur, sive non : quae si etiam negaret respondens, probari non possent : cum sint prima et immediata. Unde in talibus oportet respondentem discentem sive disciplinaliter accipientem credere et probationem per syllogismum ab opponente non requirere" (1).

On the contrary, probabilities are not, strictly speaking, suited to become the object of doctrine; they are more appropriate to discussion. Indeed, the speaker must ask the consent of the other participant, otherwise what he proposes would not have the power of inference necessary for his argument. Moreover, the insufficiency of probable reasons leaves the way open both to objection and to corroborating arguments, from which discussion will arise.

> "Dialecticae autem disputationes sunt, quae sunt ex probabilibus collectivae contradictionum (hoc est, ad utramque partem contradictionis opponentes) non quidem ad redarguendum ut sophista facit ad metam ducens redargutionis, sed ut ad utramque partem contradictionis disputans eligat, quod verius est de utraque parte contradictionis" (2).

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(1) - In I Elenchorum, Tract. I, c. 4.
(2) - Ibid.

8. - Résumé.

A processus of reasoning, then, is called rational when it cannot reach its term, the evidence of reality. Every enquiry attempts to reach the vision of first principles, into which, as into the necessary cause, it resolves the object by a necessary connexion of terms, and in the light of whose self-evidence it judges of the conformity of the object, as known, with reality. Sometimes, however, a process of reasoning cannot attain this end but must remain in the state of enquiry, and this happens when it cannot establish with certitude the truth of an assertion in such a way that the contradictory statement is seen to be impossible. In such a case, we do not have the evidence of the conformity of the object with reality and therefore do not go beyond the sphere of second intentions. Such an unfinished process occurs when we proceed from probable reasons, that is, from mere signs, as opposed to necessary causes. These probable reasons are both logical and common : logical because they are not of themselves sufficient basis for an inference but owe their status of reason or principle to the mind and are therefore merely second intentions; and common, because they are taken from a common condition of the subject rather than from its nature. Such probable reasons can produce only opinion or belief, that is, they can move the mind to adhere to a statement but always with fear that the contradictory may be true. They can never produce science. or certain knowledge of a thing through its cause. Although this second rational process is thus opposed to demonstration, nevertheless, we can use it in any science, as a preparation to the attainment of truth through necessary demonstrations, and as a method of enquiry concerning the principles of a science. And in this way we use logic, not the science of logic that establishes the second intentions and teaches the rules of reasoning, but the logic that uses second intentions from which to argue about things, and in so doing applies the rules laid down in the science of logic.

CONCLUSION.

Thus we have considered the two types of rational processes that owe their denomination to logic, which — inasmuch as it has for its object those beings of reason, the second intentions — is called the rational science. The first process, we have seen, is rational because it is based on logical principles, that is, on propositions concerning the second intentions established in the science of logic. As for the second, inasmuch as it proceeds by probable reasons, it cannot attain to the full evidence of reality, and therefore, in its reasoning, it uses second intentions and thus remains in the logical sphere. The first, then, is denominated rational from the principle; the second, from the term. The first involves a use of logic ut est docens; the second, of logic ut est utens. Et his duobus modis denominatur processus rationalis a scientia rationali; his enim modis ucitatur logica, quae rationalis scientia dicitur, in scientiis domonstrativis.

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(1) - The text of every logical work of St. Albert has been transcribed from the Borgnet edition, long out of print, and made available in mimeograph by Michel Doyon, 1215, Chemin Ste-Foy, Québec, Canada, 1950-1955.
(EDITOR'S NOTE)