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ALEXANDER AND THE ARISTOTELIAN FORMULA OF THE PRINCIPLE OF EXCLUDED MIDDLE IN *METAPHYSICS* Γ 7

ABSTRACT: Alexander of Aphrodisias' comment to the arguments on the principle known as of excluded middle, held by Aristotle in *Metaphysics* Γ 7-8, seems to interpret that text in a predominantly logical and philosophical perspective, and considers the subsequent research carried out in different fields. This perspective emerges from the particular importance that the exegete gives to not only the concepts of true and false with respect to the principle's formula ("For neither can there be anything intermediate of a contradiction, but of one thing we must either affirm or deny one thing, whatever it is" 1011b 23-24) and its first proof, but also to the axioms and the concept of contradiction. The attribution to the principle of a meaning closely related to those concepts can, moreover, be traced back to Alexander. The reason for Alexander's interpretative choice could be found in his own conception of first philosophy as a demonstrative science, which seems to discover a consistent criterion for truth in the principle, thus establishing the existence of something true and how to find it. However, such a requirement would be purely Alexandrian, because in Aristotle, as can be demonstrated by the texts, the truth is nothing more than the discourse which describes reality as it is. In fact, the truth expresses a relationship between terms, and this relationship may be said to subsist, in the case of the affirmative statement, or not subsist, in the case of denial.

RÉSUMÉ: Le commentaire d'Alexandre d'Aphrodise sur le principe dit du tiers exclu, tenu par Aristote dans la *Metaphysique* Γ 7-8, semble interpréter ce texte dans une perspective logique et philosophique et prend en compte les recherches ultérieures dans différents domaines. Cette perspective vient de l'importance particulière que l'exégète donne non seulement aux concepts de vrai et de faux en ce qui concerne la formule du principe ("Il n'y a pas d'intermédiaire d'une contradiction, mais pour une chose il faut ou bien affirmer ou bien nier une chose, quoi qu'il s'agisse" 1011b23-24) et sa première

preuve, mais aussi aux axiomes et au concept de contradiction. L'attribution du principe d'une signification étroitement liée à ces concepts peut, de plus, être retracée jusqu'à Alexandre. La raison du choix d'interprétation d'Alexander pourrait être trouvée dans sa propre conception de la première philosophie comme une science démonstrative, qui semble découvrir un critère cohérent pour la vérité dans le principe, établissant ainsi l'existence de quelque chose de vrai et comment le trouver. Cependant, une telle exigence serait purement alexandrienne, parce que pour Aristote, comme on peut le démontrer dans les textes, la vérité n'est rien de plus que le discours qui décrit la réalité comme elle est. En fait, la vérité exprime une relation entre des termes et on peut dire que cette relation subsiste, dans le cas de la déclaration affirmative, ou ne subsiste pas, dans le cas d'un démenti.

KEYWORDS: Aristotle; Alexander of Aphrodisias; Excluded Middle; *Metaphysics*; Principle; Axiom; Contradiction; True False; Affirmation Negation

The following considerations examine a specific passage in Alexander of Aphrodisias' commentary on Aristotle's *Metaphysics* Γ. In this passage the commentator explains the formulation of the principle known as of excluded middle, exposed by Aristotle at the beginning of *Metaphysics* Γ 7, and the first argument Aristotle added to prove this principle by way of refutation.

There are few studies on Alexander's comment of book Γ. The studies carried out by K. L. Flannery are eminent¹ among the general studies, critical editions and translations.² He is the author of a monograph dedicated to the logic of Alexander. This work, however, mainly refers to the comment of *Analytics* and illustrates how Alexander interprets the various syllogisms and their philosophical importance. Therefore, in relation to the problem analyzed here, Flannery's most

¹ K.L. Flannery, *Ways into the Logic of Alexander of Aphrodisias*, Leiden, Brill, 1995; K.L. Flannery, "Logic and Ontology in Alexander of Aphrodisias' Commentary on *Metaphysics* IV", in G. Movia (ed.), *Alessandro di Afrodisia e la Metafisica di Aristotele*, Milano, Vita e Pensiero, 2003, p. 117-134.

² See Alexandri Aphrodisiensis in *Aristotelis Metaphysica Commentaria*, edidit H. Bonitz, Berolini, Reimer, 1847; Alexandri Aphrodisiensis in *Aristotelis Metaphysica Commentaria*, edidit M. Hayduck, Berolini, Reimer, 1891; Alexander of Aphrodisias, *On Aristotle Metaphysics 4*, trans. A. Madigan SJ, London, Duckworth, 1993; Alessandro di Afrodisia, *Commentario alla Metafisica di Aristotele*, G. Movia (ed.), Milano, Bompiani, 2007; M. Casu, "Commento al libro Γ", in Alessandro di Afrodisia, *Commentario alla Metafisica di Aristotele*, p. 559-848.

relevant article is the one which examines in detail some parts of Alexander's comment on *Metaphysics* Γ. His study is part of the proceedings of a conference held in Cagliari in April 1999 entirely dedicated to the relationship between Alexander and Aristotle's *Metaphysics*.³ Flannery argues in this work that Alexander often tends to interpret as demonstrative the arguments in which Aristotle refers to the level of signification. Alexander does in fact believe that philosophy is a demonstrative science and so, influenced by that conception, occasionally deviates from Aristotle's text.⁴

M. Bonelli, however, in a monograph on Alexander's metaphysics, uses as her main source the comment of Alexander on *Metaphysics* Γ.⁵ The purpose of her work, chronologically situated after Flannery's monograph and before the conference in Cagliari, is to show how, in Alexander's opinion, philosophy must be intended as a demonstrative science with definite objects and features. In this context her research also addresses the issue of axioms, even if from a general point of view. M. Bonelli points out that, according to Alexander's interpretation, axioms are indemonstrable truths that are involved in demonstrative arguments. Indeed, philosophy is, for Alexander, a science whose argumentations originate from these improvable truths.⁶

Even at the conference of Cagliari, M. Mignucci dealt with Alexander's comment of a specific Aristotelian argument which proves the principle of non-contradiction.⁷ He looks for a more objective interpretation compared to Alexander of what Aristotle intended to add as a proof. Regarding this argument, he points out the features and underlines the expressions that can lead to different interpretations. Only

³ See Movia, *Alessandro di Afrodisia e la Metafisica di Aristotele*.

⁴ See Flannery, "Logic and Ontology in Alexander of Aphrodisias", p. 134.

⁵ See M. Bonelli, *Alessandro di Afrodisia e la metafisica come scienza dimostrativa*, Napoli, Bibliopolis, 2001.

⁶ See *ibid.*, p. 245.

⁷ See M. Mignucci, "Alessandro interprete di Aristotele: luci ed ombre del commento a *Metaph. Γ*", in Movia, *Alessandro di Afrodisia e la Metafisica di Aristotele*, p. 93-116.

later M. Mignucci clarifies what Alexander expresses in the exegesis of the argument. His explanation of both Alexander's and Aristotle's texts stands in a 'logical-philosophical' perspective, which tends to highlight the formal-logical characteristics of the two texts.

Even if these studies deal primarily with the commentary on *Metaphysics* Γ, they do not address the Alexandrian concept of the principle known as of excluded middle or of its proofs. Moreover, chapters 7 and 8 of *Metaphysics* Γ also have not often and specifically been studied.⁸ However it is important to analyze these passages because there are some relevant aspects in which Alexander departs from Aristotle and presents traits of originality.

For this reason it is necessary to refer to very specific texts. As anticipated, the Aristotelian lines that will be analyzed are *Metaphysica* Γ 7, 1011b 23-29, in which he formulates the principle known as of excluded middle and gives a first proof of it. I will then consider Alexander's commentary on the passage in *Metaphysica* 328, 5-329, 4. As the

⁸ Specifically regarding the principle known as excluded middle see: T.V. Upton, "The principle of excluded middle and causality: Aristotle's more complete replay to the determinist", *History of Philosophy Quarterly*, 4, 1987, p. 359-367; I. Didilescu, "Sur le tiers exclu chez Aristote", *Revue roumaine des sciences sociales. Série de philosophie et logique*, 16, 1972, p. 37-42, which both consider this principle referring to the problem of future statements and of determinism; G. Cenacchi, "I problemi intorno al principio del terzo-escluso secondo Aristotele. Tommaso d'Aquino in relazione al pensiero contemporaneo", *Aquinas*, 17, 1974, p. 240-263, who considers these passages, but he always agree with the interpretation of Tommaso and explains it in opposition with the intuitionism. Recently J.-B. Gourinat, "Principe de contradiction, principe du tiers-exclu et principe de bivalence: philosophie première ou organon?", in M. Bastit-J. Follon (eds), *Logique et métaphysique dans l'Organon d'Aristote. Actes du colloque de Dijon*, Louvain La Neuve-Paris-Sterling, Peeters, 2001, p. 63-91 and, W. Cavini, "Arguing from a Definition: Aristotle on truth and Excluded Middle", in N. Angelis-F. Peonidis (eds), *Aristotle on logic, language and science*, Thessaloniki, Sakkoulas, 1998, p. 3-15, Id., "Principia contradictionis. Sui principii aristotelici della contraddizione (§§ 1-3)", *Antiquorum philosophia. An international journal*, 1, 2008, p. 123-169, which both stand in a 'logical-philosophical' perspective, consider the meaning of the principle known as excluded middle compared to the demonstrative arguments and the meaning of the principle of non-contradiction. Some considerations on the principle known as excluded middle could also be found in more general studies, for example: C.A.Viano, *La logica di Aristotele*, Torino, Taylor, 1955; A. Stevens, *L'ontologie d'Aristote au carrefour du logique et du réel*, Paris, Vrin, 2000; J. Barnes, *Truth, etc. Six Lectures on Ancient Logic*, Oxford-New York, Oxford University Press, 2007.

methodology, at first I will present the Aristotelian conception and then I will show how Alexander's interpretation is original in its divergence from Aristotle.

The Aristotelian formula of the principle that is commonly known as of excluded middle is the following:

For neither can there be anything intermediate in a contradiction, but of one thing we must either affirm or deny one thing, whatever it is.⁹

Aristotle's formula asserts only that there is nothing intermediate between what is opposed in the contradictory way. Of one thing, in fact, it is only possible to affirm or deny one thing, whatever it is.

It is clear from the text that Aristotle does not explicitly state whether the principle should be reported to the opposition between 'things' (*πράγματα*), namely terms or states of affairs, or 'propositions' (*φάσεις*), namely sentences.¹⁰ The concepts of intermediate, contradiction, affirmation and negation, which Aristotle uses to formulate the principle, refer to both types of opposition. Indeed, not only contradictory statements, such as "Socrates is sitting" and "Socrates is not sitting", are opposed, but also the state of affairs described in those propositions, namely "the sitting of Socrates" and "the not sitting of Socrates". The

⁹ Aristot. *Metaph.* Γ 7, 1011b23-24: 'Ἀλλὰ μὴν οὐδὲ μετὰξὺ ἀντιφάσεως ἐνδέχεται εἶναι οὐθέν, ἀλλ' ἀνάγκη ἢ φάναι ἢ ἀποφάναι ἐν καθ' ἑνὸς ὁτιοῦν.

¹⁰ I agree with the translations of H.G. Apostle, in *Aristotle's Metaphysics*, trans. Hippocrates G. Apostle, Bloomington-London, Indiana University Press, 1966; C. Kirwan, in Aristotle, *Metaphysics. Books Γ, Δ and Ε*, Oxford, Clarendon Press, 1993² (1971¹); J. Barnes, in *The complete works of Aristotle. The Revised Oxford Translation*, Princeton, Princeton University Press, 1984, vol. II, p. 1597, which do not add a referring to terms as: P. Eusebiotti, in Aristotele, *La metafisica*, con una introduzione storica analitica e filosofica a cura di E. Oggioni, Padova, 1950, p. 496; G. Reale, in Aristotele, *Metafisica*, Milano, Bompiani, 2004, (Napoli, Loffredo, 1968¹), p. 179; T.M. Calvo Martínez, in Aristóteles, *Metafisica*, Madrid, Biblioteca Básica Gredos, 2000, p. 186; or a referring to propositions as: G. Colle, in Aristote, *La Métaphysique*, Louvain, Éditions de l'Institut supérieur de Philosophie, 1931, vol. III, p. 36; H. Tredennick, in Aristotle *in twenty-three volumes*, Cambridge-London, Harvard University Press-Heinemann, 1975 (1933¹), vol. XVII, p. 199; J. Tricot, in Aristote, *La Métaphysique*, Paris, Vrin, 1970 (1953¹), p. 235.

latter pair of opposites, as is known, is a case of opposition between terms.¹¹

According to the principle, the opposition as contradiction, between both propositions and terms, is characterized by the non-existence of an intermediate. Specifically, it is necessary that what is opposed in a contradictory way be only the affirmation or the negation of one thing about one thing. So it is possible to show how the principle known as of excluded middle establishes the ‘necessary duality’ of affirmation and negation.

When applied to propositions, ‘necessary duality’ means that one cannot express oneself differently from affirmation and negation, that is to say that there are not different ways of connecting a subject and a predicate from the attribution, expressed by the affirmation, or subtraction, expressed by the negation. However, if it refers to things, the principle asserts that a certain state of things either subsists or does not subsist, either it is or it is not. In other words, what is described in affirmative or negative speech is a connection between two objects that can be real or not, but there is nothing intermediate between the existence of this connection and its non-existence, between the subsistence of a certain state of affairs, described by affirmation, and the non-subsistence described by negation, or between being and not being of a particular subject.¹²

It is also important to note that the principle, in the Aristotelian formula, does not refer to the notions of true and false. Indeed, if we

¹¹ See Aristot. *Cat.* 10, 11b 17-23; 13b 12-33; *Top.* II 2, 109b 13-23. On the difference between the opposition of terms and the opposition of propositions, see C. Rossitto, “Opposizione e non contraddizione nella *Metafisica* di Aristotele”, in E. Berti *et alii*, *La contraddizione*, Roma, Città Nuova, 1977, p. 42-69; Ead., *Studi sulla dialettica in Aristotele*, Napoli, Bibliopolis, 2000, esp. p. 347-366; Ead., “Aristotele, *Categorie*, 10. Gli ‘opposti’ e la loro classificazione”, in M. Bonelli-F.G. Masi (eds), *Studi sulle Categorie di Aristotele*, Amsterdam, Adolf M. Hakkert, 2011, p. 249-264.

¹² As I tried to demonstrate in L. Dalla Valeria, “Il principio del ‘terzo escluso’ nella *Metafisica* di Aristotele”, *Dissertazione di Dottorato di Ricerca in Filosofia*, Padova, Università degli Studi di Padova, 2009, p. 31-63.

understand it as establishing the ‘necessary duality’ of affirmation and negation, the principle is independent from these concepts.

Alexander’s lemma in *Metaphysica* 328, 5-6 contains only the first part of the Aristotelian formula, “for neither can there be anything intermediate in a contradiction”, but his comment concerns the complete formula and the first proof. The subject of the following lemma is, in fact, the second proof.

The part of the exegesis, which seems to relate more closely to the formula of the principle, reads as follows:

Having shown that it is not possible for the contraries to simultaneously subsist, [Aristotle] shows then by many [arguments] that there is nothing intermediate of a contradiction. So it could be established by these that the contradiction is not simultaneously false. From this could follow that the [contradiction] itself divides in any case the true and the false. In fact, if both [the parts of a contradiction] are neither simultaneously true, as has been shown, nor simultaneously false (this could indeed be said an intermediate of a contradiction) it remains that in every case one of the two parts of the same [contradiction] is true and the other false. So he shows that nothing is intermediate of a contradiction. It is necessary to assume a single contradiction: this would be possible only if it were one thing of one single thing (ἐν καθ’ένός) that which could be both affirmed and denied. Indeed, if it were not one thing of one thing, there would not still be one and the same contradiction, but the assertions and denials would be several. This was discussed more extensively in *De Interpretatione* and in the writing *On Affirmation*. For this reason he added “one thing of one thing”.¹³

¹³ Alex. Aphrod. in *Metaph.* 328, 7-19 Hayduck: Δείξας ὅτι μὴ οἶόν τε ἅμα τὰναντία ὑπάρχειν, ἐφέξῃς δείκνυσι διὰ πλειόνων ὅτι μηδὲν ἐστὶ μεταξὺ τῆς ἀντιφάσεως. προσκατασκευάζοιτο δ’ ἂν διὰ τούτου τὸ μηδὲ ψεύδεσθαι ἅμα τὴν ἀντίφασιν· ὥ ἐποίτο ἂν τὸ διαιρεῖν ἐπὶ παντὸς αὐτὴν τὸ ἀληθὲς τε καὶ τὸ ψεῦδος, εἰ γὰρ μήτε ἀληθὲς ἅμα, ὡς δέδεικται, μήτε ἅμα ψευδές (δύναίτο γὰρ ἂν τοῦτο εἰρησθαι μεταξὺ τῆς ἀντιφάσεως), λείπεται τὸ ἐπὶ παντὸς τὸ ἕτερον αὐτῆς μόνον ἀληθὲς εἶναι, τὸ δὲ ἕτερον ψεῦδος. ὅτι οὖν μηδὲν τῆς ἀντιφάσεως μεταξὺ δείκνυσι. δεῖ δὲ μίαν λαμβάνειν ἀντίφασιν· τοῦτο δὲ εἴη ἂν, εἰ ἐν καθ’ένός εἴη καὶ τὸ καταφασκόμενον καὶ τὸ ἀποφασκόμενον· εἰ γὰρ μὴ ἐν καθ’ένός εἴη, οὐ μία ἔτι καὶ ἡ αὐτὴ ἀντίφασις, ἀλλὰ πλείους ἔσσονται αἱ τε καταφάσεις καὶ ἀποφάσεις, εἴρηται δὲ περὶ τούτων ἐπὶ πλέον ἐν τε τῷ Περὶ ἑρμηνείας καὶ ἐν τῷ Περὶ καταφάσεως. διὸ καὶ αὐτὸς προσέθηκε τὸ ἐν καθ’ένός. My translation of this passage diverges from Madigan, in Alexander of Aphrodisias, *On Aristotle Metaphysics 4*, p. 123 and Casu, “Commento al libro Γ”, p. 771-773. It intends to be as faithful as possible to the Alexandrian structure and expressions and tries to avoid the introduction of excessive interpretive elements. In

Alexander introduces his comment on *Metaphysics* Γ 7 by summarizing what Aristotle previously demonstrated. As is known, Aristotle in *Metaphysics* Γ 4-6 proves by refutation the validity of the principle of non-contradiction. Alexander refers to the meaning of this principle with the expression “it is not possible for the contraries to simultaneously exist”. In this way he summarizes the arguments preceding the examination of the principle known as of excluded middle. He then introduces this principle by stating that “there isn’t anything intermediate in a contradiction”, as written in the lemma he cites. However, from this statement he draws a conclusion that is not explicit in Aristotle. Indeed, according to Alexander, the fact that there is no intermediate of a contradiction demonstrates at once that the contradictory pairs cannot be both false. In other words, the principle also demonstrates the impossibility for a contradictory pair, the one consisting in an affirmation and the other in a negation, to be both false. So the commentator introduces a concept: the concept of falsehood, which was not implicated in the original text. This indicates Alexander’s greater interest in the possibility to establish what is true and what is false, even regarding the so-called principle of excluded middle. It is his own conception, which is not so evident in the *Metaphysics*.

This observation is confirmed by the subsequent exegesis in which Alexander deduces, from the observation that the principle of excluded middle means that the two sides of the contradiction cannot be simultaneously false, that the contradiction, which consists only and always of two opposites (the affirmation and the negation), always necessarily separates the true and the false. The reason why the contradiction is able to make that distinction goes back to the nature of the two principles discussed in book Γ. The principle of non-

particular, I do not agree with Madigan’s and Casu’s translations as they respectively translate γάρ with ‘for’ and ‘poiché’; but also as Casu translates ἀντιφασίς with ‘enunciati contraddittori’. In my opinion, in fact, even if Alexander refers to propositions, it could not be so clear from the simple use of the noun ἀντιφασίς. This way I prefer to save the ambiguity of the term, where it is possible.

contradiction, indeed, states, according to Alexander, that the two members of the contradiction cannot be simultaneously true, while the principle known as of excluded middle states that they cannot be simultaneously false. Therefore, if the members of a contradiction can be neither true nor false, they will necessarily always be one true and one false, although they may over time change their status and the true become false and the false true.¹⁴

It is also remarkable that, in the commentator's point of view, what may be considered intermediate of a contradiction is something that might be simultaneously false. This reveals the fact that Alexander considers as intermediate of contradiction an affirmation and a negation which are simultaneously false. He does not seem to consider the *Physics* of Aristotle, where instead the concept of intermediate is related to change. This concept, indeed, is defined by Aristotle as a point required within a process of change where there is a shift from an opposite to the other, for example, in the gradual change from white to black, all the different shades of gray are intermediate. But, precisely, it is the latter type of intermediate which Aristotle refers to not only in *Metaphysics* book Γ but also book I, of which unfortunately we do not have Alexander's commentary.¹⁵

The exegete, after the explanation of the principle's formula according to his original view, dedicates several lines to clarifying the expression "one thing of one thing (ἐν καθ' ἑνός)". Indeed, the argument presented must remain under this condition to be valid, meaning the affirmation and the negation must connect one same subject to one same

¹⁴ This interpretation of Alexander is precisely the one resumed in contemporary studies concerning the principle of excluded middle in Aristotle, almost taking for Aristotelian an exegesis which, as we have seen, was created by Alexander. See especially: Aristotle's *De Interpretatione. Contradiction and dialectic*, C.W.A Whitaker (ed.), Oxford, Clarendon Press, 1996, p. 79-82; Gourinat, "Principe de contradiction", p. 70; Cavini, "*Principia contradictionis*", in particular p. 125-135.

¹⁵ See Aristot. *Phys.* I 5, 188a 36-b 8; 188b 21-26; V 1, 224b 28-35; *Metaph.* I 7, 1057a 30-33; 1057b 2-4; 1057b 4-32; 1057a 21-22: "In fact, we say intermediate the things to which it is first necessary to change what change" (μεταξὺ μὲν γὰρ ταῦτα λέγομεν εἰς ὅσα μεταβάλλειν ἀνάγκη πρότερον τὸ μεταβάλλον).

predicate, whatever they are. Alexander rightly notes, consistently with Aristotle's doctrines, that if this condition is not satisfied, there is no longer a single contradiction, whose members must necessarily be the one true and the other false, but there are many affirmations and negations, which are not opposed in a contradictory way. So Alexander refers to *De Interpretatione*, the work which closely examines the contradiction as an opposition between propositions.

These two observations also reveal a further aspect of Alexander's exegesis, namely that he considers the principle of excluded middle as referring to the opposition between propositions, while Aristotle's text, as stated, uses a terminology which refers to both the opposition between propositions and between terms.

The same perspective characterizes also his subsequent analysis of the first proof of the principle, while in Aristotle's text we read:

This is evident for he who defines what is the true and the false; indeed, the false is the saying that what is is not and that what is not is; the true is the saying that what is is and what is not is not; hence, also he who say that something is or is not (ὥστε καὶ ὁ λέγων εἶναι ἢ μὴ) say the true or say the false, but neither what is is said not to be or to be [indifferently] nor what is not.¹⁶

As can be noted, Aristotle begins the argument by asserting that the evidence of the principle emerges through the definition of false and true.¹⁷ He defines the false as “the saying that what is is not and that what is not is”; namely, the false is a statement declaring the existence of something that does not exist or the non-existence of something that exists. The true, on the other hand, is defined as “the saying that what is is and what is not is not”. Consequently, even those who claim to say something intermediate between affirmation and negation when

¹⁶ Aristot. *Metaph.* Γ 7, 1011b 25-29: δῆλον δὲ πρῶτον μὲν ὀρισσαμένοις τί τὸ ἀληθὲς καὶ ψεῦδος. τὸ μὲν γὰρ λέγειν τὸ ὄν μὴ εἶναι ἢ τὸ μὴ ὄν εἶναι ψεῦδος, τὸ δὲ τὸ ὄν εἶναι καὶ τὸ μὴ ὄν μὴ εἶναι ἀληθές, ὥστε καὶ ὁ λέγων εἶναι ἢ μὴ ἀληθεύσει ἢ ψεύσεται. ἀλλ' οὔτε τὸ ὄν λέγεται μὴ εἶναι ἢ εἶναι οὔτε τὸ μὴ ὄν.

¹⁷ I consider the definition of true and false a part of the first proof and not a part of principle's formula, as I illustrated in Dalla Valeria, *Il principio del 'terzo escluso'*, p. 67-68.

declaring that something “is or is not” without distinction, as if the joint expression “is or is not” constituted a third opportunity for preaching in addition to affirmation and negation, say the true or the false. This is because, Aristotle explains, neither for what is, it is irrelevant to be or not to be, nor for what is not, it is irrelevant to be or not to be.¹⁸

The characteristic of the concepts of true and false is to show more effectively how the discourse is related to reality, namely to what is or to what is not. In other words, Aristotle begins his argumentation by showing how what is expressed in the discourse always refers to a reality that is determined in a certain way. So, when the affirmation (saying that it is) is referred to something that actually is, then it is true: when the affirmation is referred to something that is not, then it is false, and likewise the negation.

Aristotle refutes by this definition of true and false one who says that the indifferent preaching “is or is not” constitutes a kind of preaching intermediate between affirmation and negation. However, discourse is descriptive of reality, which is always determined or in the sense of the existence or of non existence referring to a certain state of affairs. So, even he who makes such a preaching is stating the true or the false. Indeed, if he refers to what is, it is false to say that what is “is or is not”, because it is. If he refers to what is not, it is false to say that what is not “is or is not”, because it is not. Only if one relates to a future event, it is true to say that it “is or is not”, because the event has not yet been determined, but, in this case, the expression must be understood as “will be or will not be”. Moreover, this expression also has its own contradictory expression that, referred to a future event, is false: saying that it will not “will be or not will be”.¹⁹

¹⁸ See *ibid.*, p. 67-87; in the same interpretative current: Eusebiotti, in Aristotele, *La metafisica*, p. 496; A. Russo, in Aristotele, *Opere*, G. Giannantoni (ed.), trans. A. Russo, Roma-Bari, Laterza, 1973, vol. VI: *Metafisica*, p. 115; Calvo Martínez, in Aristóteles, *Metafisica*, p. 186.

¹⁹ See Aristot. *De interpr.* 9, 19a23-32: “What is, necessarily is, when it is; and what is not, necessarily is not, when it is not. But not everything that is, necessarily is; and not everything that is not, necessarily is not. For to say that is, is of necessity, when it is,

Hence, from the Aristotelian argumentation, it is clear that reality in its determination, namely the being of what is and the not being of what is not, demonstrates that there can be nothing intermediate in a contradiction, as pointed out by the fact that the discourse describing a certain state of affairs either it is in accordance with reality, then it is true, or it is not in accordance with reality, then it is false. That is the only possible way, during the axiom's demonstration, to use the definition of true and false, because if the principle of excluded middle was deduced from this definition, its value as axiom would be denied.

Alexander's analysis is completely different, as we can infer from his comment:

1. To show that there is nothing intermediate of a contradiction [Aristotle] begins using at first this argument. He defines what is the true and the false and assumes (καὶ λαμβάνει) that the true is the saying that what is is and that what is not is not, the false is the saying that what is is not or that what is not is, among these some are affirmations others are negations.

2. One who says that this intermediate is or is not, if it is something in general (for this, indeed, [Aristotle states] "hence, also those who say that this is or is not", he means the intermediate), it is clear that he can say the truth or false. Indeed, anyone who makes a statement about something and says that the same thing is or is not, says the true or the false. In this case this is impossible; in fact, those who say that what is or what is not is or is not, were the ones telling the truth, namely

is not the same as saying unconditionally that it is of necessity. Similarly with what is not. And the same account holds for contradictories: everything necessarily is or is not, and will be or will not be; but one cannot divide and say that one or the other is necessarily. I mean, for example: it is necessary for there to be or not to be a sea-battle tomorrow; but it is not necessarily for a sea-battle to take place tomorrow, nor for one not to take place – though it is necessarily for one to take place or not to take place" (τὸ μὲν οὖν εἶναι τὸ ὄν ὅταν ᾗ, καὶ τὸ μὴ ὄν μὴ εἶναι ἀν μὴ ᾗ, ἀνάγκη· οὐ μέντοι οὔτε τὸ ὄν ἅπαν ἀνάγκη εἶναι οὔτε τὸ μὴ ὄν μὴ εἶναι – οὐ γὰρ ταύτῳ ἐστὶ τὸ ὄν ἅπαν εἶναι ἐξ ἀνάγκης ὅτε ἐστίν, καὶ τὸ ἅπλῳ εἶναι ἐξ ἀνάγκης· ὁμοίως δὲ καὶ ἐπὶ τοῦ μὴ ὄντος. – καὶ ἐπὶ τῆς ἀντιφάσεως ὁ αὐτὸς λόγος εἶναι μὲν ἢ μὴ εἶναι ἅπαν ἀνάγκη, καὶ ἔσεσθαι γέ ἢ μὴ· οὐ μέντοι διελόντα γέ εἰπεῖν θάτερον ἀναγκαῖον. Λέγω δὲ οἷον ἀνάγκη μὲν ἔσεσθαι ναυμαχίαν αὔριον ἢ μὴ ἔσεσθαι οὐ μέντοι γενέσθαι αὔριον ναυμαχίαν ἀναγκαῖον οὐδὲ μὴ γενέσθαι γενέσθαι μέντοι ἢ μὴ γενέσθαι ἀναγκαῖον), trans. by J.L. Ackrill, in Aristotle's *Categories and De Interpretatione*, Oxford, Clarendon Press, 1963, p. 52-53.

the ones saying either an affirmation or a negation, but what is intermediate in the contradiction is neither of these.

3. This is the meaning of the discourse, that the ones, who say that what is and what is not is or is not, tell the true and tell the false, as was defined, but the one who says that the intermediate of the contradiction is or is not neither says that what is is or is not nor that what is not [is or is not], since the intermediate between what is and what is not is neither what is nor what is not; therefore, the one who predicates the being of the same thing or the not being could neither say the true nor the false. Likewise, also if someone does not predicate the being or the not being of the same thing, but something else. In fact, even when he is predicating something else of the same thing he says the true or the false, since the same thing must be or not be, if he who predicates something of the same thing is going to say the true or the false, but the intermediate of what is and of what is not and of contradiction neither is something that is nor something that is not.²⁰

This long passage is divided into three steps, as has been shown. The first step is the definition of true and false. Alexander points out that Aristotle starts using this argument and quotes the famous definition of

²⁰ Alex. Aphrod. in *Metaph.* 328,19-329,4 Hayduck: πρὸς δὲ τὴν δεῖξιν τοῦ μηδὲν εἶναι τῆς ἀντιφάσεως μεταξὺ πρώτη ἐπιχειρήσει χρῆται τοιαύτη. ὀρίζεται τί ἐστὶ τὸ ἀληθὲς καὶ τί τὸ ψεῦδος, καὶ λαμβάνει ἀληθὲς μὲν εἶναι τὸ τὸ ὄν λέγειν εἶναι καὶ τὸ μὴ ὄν μὴ εἶναι, ψεῦδος δὲ τὸ τὸ ὄν λέγειν μὴ εἶναι ἢ τὸ μὴ ὄν εἶναι. ὦν τὰ μὲν καταφάσεις εἰσὶ, τὰ δὲ ἀποφάσεις. ὁ δὲ τὸ μεταξὺ τοῦτο λέγων εἶναι ἢ μὴ εἶναι, εἰ ὅλως ἔστι τι (διὰ γὰρ τοῦ ὥστε καὶ ὁ λέγων τοῦτο εἶναι ἢ μὴ περὶ τοῦ μεταξὺ εἴρηκε), δηλὸν μὲν ὅτι ἀληθεύει μὲν ἂν ἢ ψεύδοιτο. πᾶς γὰρ ὁ περὶ τίνος ἀποφαινόμενος καὶ ἢ εἶναι αὐτὸ λέγων ἢ μὴ εἶναι ἀληθεύει ἢ ψεύδεται. ἀδύνατον δὲ τοῦτο ἐπὶ τούτου οἱ γὰρ τὸ ὄν ἢ τὸ μὴ ὄν ἢ εἶναι ἢ μὴ εἶναι λέγοντες ἦσαν οἱ ἀληθεύοντες, τουτέστιν οἱ κατάφασιν ἢ ἀπόφασιν λέγοντες, τὸ δὲ μεταξὺ τῆς ἀντιφάσεως οὐδὲ τὸ ἕτερον τούτων. ὁ λέγει, τοιοῦτόν ἐστιν, ὅτι ἀληθεύουσι μὲν καὶ ψεύδονται οἱ τὸ ὄν καὶ μὴ ὄν εἶναι ἢ μὴ εἶναι λέγοντες, ὡς ὠρίσθη, ὁ δὲ τὸ μεταξὺ τῆς ἀντιφάσεως λέγων εἶναι ἢ μὴ εἶναι οὔτε τὸ ὄν εἶναι ἢ μὴ εἶναι λέγει οὔτε τὸ μὴ ὄν, τῷ τὸ μεταξὺ τοῦ τε ὄντος καὶ τοῦ μὴ ὄντος μήτε ὄν εἶναι μήτε μὴ ὄν. ὥστε οὔτ' ἂν ἀληθεύει οὔτε ψεύδοιτο ὁ τὸ εἶναι αὐτοῦ ἢ τὸ μὴ εἶναι κατηγορῶν. ὁμοίως δὲ καὶ εἰ μὴ τὸ εἶναι ἢ μὴ εἶναι αὐτοῦ κατηγορεῖ τις, ἄλλο δὲ τι. οὐδὲ γὰρ ἄλλο τι κατηγορῶν αὐτοῦ ἢ ἀληθεύσει ἢ ψεύσεται, τῷ δεῖν μὲν αὐτὸ εἶναι ἢ μὴ εἶναι, εἰ μέλλοι ὁ κατηγορῶν τι αὐτοῦ ἢ ἀληθεύειν ἢ ψεύδεσθαι. τὸ δὲ μεταξὺ τοῦ ὄντος καὶ μὴ ὄντος καὶ τῆς ἀντιφάσεως οὔτε ὄν ἐστὶν οὔτε μὴ ὄν (translation by the Author). In this case I diverge from Madigan's translation of τὸ ὄν with 'it is the case' and of τὸ μὴ ὄν with 'it is not the case', and also from Casu's one of the word ἀντιφάσις with 'enunciati contraddittori' and μεταξὺ with 'termine intermedio', because these are not so necessary. See Madigan, in Alexander of Aphrodisias, *On Aristotle Metaphysics 4*, p. 123; Casu, "Commento al libro Γ", p. 773.

these concepts given by Aristotle, explaining that some expressions in the definition are affirmations while others are negations.

The second step of the argument is the paraphrase of the Aristotelian text. From Alexander's point of view, Aristotle's argument regards someone saying that the intermediate is or is not something, if it is admitted, but not granted, that the intermediate is something. This person, who says something of the intermediate, will say the true or the false, as everyone who states something but, in this case, it is impossible because of the nature of intermediate.

The Alexandrian exegesis is found more properly in the third step. In his opinion, indeed, the Aristotelian argument consists in observing that the intermediate of the contradiction is neither what is nor what is not: so anyone who says something about the intermediate cannot say neither true nor false, because only what is and what is not may be the subject of a true or false sentence.

Now let us consider more in detail the Alexandrian reconstruction of the argument to grasp how it is different from the Aristotelian text. As mentioned, Alexander begins by noting that Aristotle, to demonstrate that there is nothing intermediate of contradiction, uses the following argument based on the definition of the true and the false, which Alexander reports in a way very close to the original.

Even if the texts of the two authors examined so far appear equivalent, there is a difference. While Aristotle says that the principle is evident for those who define the true and the false, laying out a definition of these concepts, Alexander points out that Aristotle defines these concepts and assumes (*λαμβάνει*) that the true is a certain thing and the false another one.

The difference is of some importance. As regards to the meaning which could be given to the verb *λαμβάνειν*, I propose to choose the more technical one, namely the meaning which indicates the 'assumption' of a syllogistic premise, as Aristotle theorized in the *Posterior*

Analytics.²¹ Firstly, this meaning is also in other passages of the same commentary of Alexander. Moreover the translations into modern languages point out precisely this sense of the verb, translating it with ‘to assume’²². Secondly, what is assumed is a premise and it is necessary to take a premise only during a deductive process of demonstration. The definition of truth and falsehood is not a simple discourse about these concepts, but a specifically one which clarifies what must be intended as truth and falsehood. So, if a definition is the starting point of an argumentation, as it seems to be, then this can only be a premise of a scientific syllogism, that is a demonstration in a strict sense. This seems to be the only possible role and therefore it is a real ‘assumption’. Thirdly, and consequently, it is even possible to understand the conjunction *καί*, that introduces the verb *λαμβάνει*, as explicative and translate it with ‘namely’. This reinforces the use of the definition of true and false as premise, because it introduces a statement that explains the specific meaning of those two concepts. In fact, definitions always act as

²¹ See Aristot. *An. Post.* I 2, 72a 18-30: “If it must be grasped by anyone who is going to learn anything whatever, I call it an axiom (there are items of this kind); for it is of this sort of item in particular that we normally use this name. A posit which assumes either of the parts of a contradictory pair – what I mean is that something is or that something is not – I call a supposition. A posit which does not I call a definition. Definitions are posits (arithmeticians posit that a unit is what is quantitatively indivisible), but they are not suppositions (for what a unit is and that a unit is are not the same). Given that you must be convinced about some object and know it in so far as you possess a deduction of the sort we call a demonstration, and given that there is such a deduction in so far as these items – the items from which it proceeds – are the case, then you must not only already know the primitives (either all or some of them) – you must actually know them better. For something always holds better of that because of which it holds: e.g. that because of which we love somethings is better loved” (θέσεως δ’ ἢ μὲν ὀποτερονοῦν τῶν μορίων τῆς ἀντιφάσεως λαμβάνουσα, οἷον λέγω τὸ εἶναι τι ἢ τὸ μὴ εἶναι τι, ὑπόθεσις, ἢ δ’ ἄνευ τούτου ὀρισμός. ὁ γὰρ ὀρισμός θέσις μὲν ἐστὶ τίθεται γὰρ ὁ ἀριθμητικὸς μονάδα τὸ ἀδιαίρετον εἶναι κατὰ τὸ ποσόν· ὑπόθεσις δ’ οὐκ ἐστὶ· τὸ γὰρ τί ἐστὶ μονὰς καὶ τὸ εἶναι μονάδα οὐ ταυτόν. Ἐπεὶ δὲ δεῖ πιστεῦναι τε καὶ εἰδέναι τὸ πρᾶγμα τῶ τοιοῦτον ἔχειν συλλογισμὸν ὃν καλοῦμεν ἀπόδειξιν, ἐστὶ δ’ οὗτος τῶ ταυτὶ εἶναι ἐξ ὧν ὁ συλλογισμὸς ἀνάγκη μὴ μόνον προγινώσκειν τὰ πρῶτα, ἢ πάντα ἢ ἓνια, ἀλλὰ καὶ μᾶλλον· αἰεὶ γὰρ δι’ ὃ ὑπάρχει ἕκαστον, ἐκείνῳ μᾶλλον ὑπάρχει, οἷον δι’ ὃ φιλοῦμεν, ἐκείνο φίλον μᾶλλον), trans. J. Barnes, in Aristotle, *Posterior Analytics*, Oxford, Clarendon Press, 1994² (1975¹).

²² See Alex. Aphrod. *in Metaph.* 238, 18; 239, 6; 34; 240, 21-22 Hayduck; see Madigan, in Alexander of Aphrodisias, *On Aristotle Metaphysics 4*, p. 123 and Casu, “Commento al libro Γ”, p. 773.

premises in demonstrations. However, the demonstration that Aristotle develops is a particular one, because it is a proof by refutation of an axiom, so subject to all the same requirements as the demonstration of the principle of non-contradiction. That is to say that you cannot state anything to demonstrate an axiom without making a *petitio principii*. So, if the interlocutor agrees to pronounce a name and to give it a specific meaning, he is responsible for the petition.²³ Similarly, in the case of the principle of excluded middle the interlocutor is in charge of the petition. In fact, when he admits that a noun has a specific meaning, he is attributing the meaning to the noun. So he believes that the noun has a certain meaning and does not have any other, but he is also assuming that it is not necessary to exclude the intermediate between meaning (affirmation) a certain thing and not meaning (negation) any other; indeed, this intermediate does not exist. This difference is, in my opinion, an early indicator of how Alexander interprets the argument – namely as a deductive argument – coherently with his conception of metaphysics as a demonstrative science. Therefore, we must read the Alexandrian exegesis from this perspective to properly understand his illustration.

To conclude this first step dedicated to the reconstruction of Aristotle's argument, Alexander notes that "among these" some are affirmations and some negations, probably meaning among the propositions which are used to define true and false. This way he states that the things which are true or false are affirmations or negations.

Regarding the second step, Alexander remarks that "one who says that this intermediate is or is not", namely one who attributes the being to the intermediate – if this is something in general – can only say the true or the false. So Alexander considers that the interlocutor is attributing a predicate to the intermediate, if we admit without granting the existence of an intermediate. This is confirmed, according to Alexander, by Aristotle's quotation reported. However, it is remarkable

²³ See Aristot. *Metaph.* Γ 4, 1006a 5-28.

that the quotation does not coincide entirely with the *Metaphysics* text as it has been transmitted and on which, in this case, the critical editions agree. In Aristotle we read “ὥστε καὶ ὁ λέγων εἶναι ἢ μὴ”, while in Alexander we have “ὥστε καὶ ὁ λέγων τοῦτο εἶναι ἢ μὴ”. As is easy to note, he adds the pronoun *τοῦτο*, addition that is only found in his text and that may be due to a difference in the actual copy that he had, but could also be due to quoting from memory. In any case, the presence of this pronoun, since it can be read as a subject of the verbs *εἶναι ἢ μὴ εἶναι*, supports Alexander’s interpretation.

If we consider that, as Alexander states, the pronoun *τοῦτο* replaces *μεταξύ*, then Aristotle, according to Alexander, derives from the definition of the true and the false the necessity for anyone who says that the intermediate is or is not, to say something true or false. However, Alexander explains, in the case of the intermediate that is impossible, because “everyone who makes a statement about something and says that the same thing is or is not, says the true or the false”. Referring indeed to the definition previously established and assumed, it was determined that those who say that what is is and who say that what is not is not, are telling the truth, because anyone who makes an affirmation or a negation says the true or the false, but the intermediate is none “of these”.

It is not clear which noun the pronoun ‘these’ replaces. Moreover, even though Alexander does put forth an interpretation within his paraphrase, it is not, to the eyes of a contemporary reader, less obscure than Aristotle’s text. However, Alexander himself realizes how difficult the argument is and, for that reason, goes on with the commentary to explain the meaning of what he has just said.

In fact, the third step of the text quoted is more properly dedicated to his exegesis. Alexander begins by setting a first point that emerges from the definition employed, namely anyone who is talking about what is or what is not and saying that it is or it is not, is also telling the truth or falsehood.

In the subsequent passage, he notes that the one who, however, says that the intermediate of the contradiction is or is not, expresses none of what above settled by the definition of the true and the false, in fact he says neither that what is is nor that what is not is not, because the intermediate of the contradiction can be neither what is nor what is not. The intermediate, indeed, is intermediate between affirmation and negation, so it is intermediate between a certain affirmation and its negation.

The refutation, in Alexander's opinion, is that anyone, who preaches that the intermediate is or is not can neither tell the true nor the false, because, as mentioned above, he neither says that what is is or is not, nor that what is not is or is not. So, the unacceptable consequence, in Alexander's opinion, is that the interlocutor is making a statement that is neither true nor false. Obviously there is the same result if the interlocutor does not say that the intermediate is or is not, but says something else. However, even with another predicate, he would not be able to say something true or false, because the same subject which is affirmed or negated must be or not be, and the intermediate between what is and what is not, namely the intermediate of a contradiction, is neither something that is nor something that is not.

According to the Alexandrian reconstruction of the argument, the fact that the intermediate neither is nor is not constitutes the error found in the thesis of the interlocutor, but Aristotle studies this possibility in depth only later. Instead, in this first issue, Alexander admits the existence of such an intermediate and shows that such an admission entails, as an unacceptable result, saying neither true nor false, so he drops this conclusion under an additional condition: "if he who predicates something of the same thing is going to say the true or the false".

This condition is very interesting because it reveals that the definition of true and false acts as premise and, at the same time, that the Alexandrian reconstruction of the argument is a deductive one. But,

from Aristotle's point of view, the argument added to prove an axiom cannot and must not be deductive. So Alexander seems to rely on what has emerged in a subsequent proof of the principle of excluded middle. In this proof, Aristotle considers how an intermediate in the contradiction could exist and, once admitted its existence, he defines the intermediate by the double negation of the contradictories.

The difference between the two authors must be traced back to Alexander's particular conception of metaphysics as a demonstrative science.²⁴ Aristotle would have understood the topic in the way that Alexander intends with difficulty, because of a methodological issue and content.

Regarding the methodological aspect, as pointed out earlier, the kind of proof that the principle of excluded middle as axiom requires is the same as the principle of non-contradiction, namely a particular application of the demonstration by refutation and not a deductive argument. Otherwise, as already noted, the meaning of the principle would be the definition of true and false, not the 'necessary duality' of affirmation and negation, as is clear in Aristotle's formula.

Regarding the doctrines of Aristotle, it is impossible to prove the non-existence of an intermediate between affirmation and negation, showing that about this intermediate one can say neither the true nor the false, because of the priority of what is over the discourse about it. As is clear in the following passage:

Concerning the facts this is about being united or divided; therefore, the one who believes that what is divided is divided and that what is united is united will say the true, however the one who has a contrary opinion to the facts, will say the false; so when is or is not a statement true or false? We must examine what we mean by this. Indeed, it is not for the fact that we really think that you are white that you are white, but because you are white we, who assert this, say the truth.²⁵

²⁴ See Bonelli, *Alessandro di Afrodisia*.

²⁵ Aristot. *Metaph.* Θ 10, 1051b 2-9: τοῦτο δ' ἐπὶ τῶν πραγμάτων ἐστὶ τῶ συγκείσθαι ἢ διηρηθῆσθαι, ὥστε ἀληθεύει μὲν ὁ τὸ διηρημένον οἰόμενος διηρηθῆσθαι καὶ τὸ συγκείμενον συγκείσθαι, ἔψευσται δὲ ὁ ἐναντίως ἔχων ἢ τὰ πράγματα, πότ' ἐστὶν ἢ οὐκ ἐστὶ τὸ ἀληθές

The passage is well known and shows how it is always the reality to determine the truth or the falsehood of a statement, not *vice versa*, as the criterion of accordance sentences.²⁶ For this reason, Aristotle would hardly refuse the thesis of the interlocutor just because, talking about the intermediate of the contradiction, he cannot say the true nor the false. In fact, if we admit that something, that is neither what is nor what is not, exists, we must also admit that it is possible to truly talk about it, namely saying that it neither is nor is not. We will therefore be refuted by those who we wanted to refute. Moreover, Aristotle himself, in one of the following arguments added to demonstrate the principle known as of excluded middle, shows how those who admit the existence of an intermediate between affirmation and negation are forced to admit that there is also an intermediate between true and false, between being and not being, between generation and corruption.²⁷

It is remarkable that the Alexandrian interpretation of the principle known as of excluded middle has become one of the most common interpretations of this Aristotelian doctrine. So, the meaning of the principle known as of excluded middle is currently considered the one given by Alexander, namely that the contradictory pairs cannot both be false. This meaning is accepted, in particular, by those who propose a logical-philosophical approach to the text.²⁸ However, the meaning of the principle formulated by Aristotle precedes the meaning established by Alexander. In fact, the impossibility that both the contradictories are false supposes that the contradictories are only two, as stated in the Aristotelian principle. This meaning is not obvious and cannot be inferred from the principle of non-contradiction.

λεγόμενον ἢ ψεῦδος; τοῦτο γὰρ σκεπτέον τί λέγομεν. οὐ γὰρ διὰ τὸ ἡμᾶς οἶεσθαι ἀληθῶς σε λευκὸν εἶναι εἰ σὺ λευκός, ἀλλὰ διὰ τὸ σὲ εἶναι λευκὸν ἡμεῖς οἱ φάντες τοῦτο ἀληθεύομεν.

²⁶ On contradiction see Aristot. *Cat.* 10, 13b 12-33; on being as true see Aristot. *Metaph.* Δ 7, 1017a 31-35; E 4, 1027b 20-23.

²⁷ See Aristot. *Metaph.* Γ 7, 1012a 5-9.

²⁸ See Whitaker, in Aristotle's *De Interpretatione. Contradiction and dialectic*, p. 79-82; Gourinat, "Principe de contradiction", p. 70; Cavini, "*Principia contradictionis*", p. 124.

Also, the two ideas that the first proof assumes as premise the definition of true and false and that the refutation consists in the impossibility of saying something “neither true nor false” have become part of the most famous commentaries on the *Metaphysics*,²⁹ and are often supported by the most recent logical-philosophical studies.³⁰ However, these ideas cannot be attributed to Aristotle in reason of both the methodological question and the inconsistency with other doctrines.

Alexander’s interpretation itself shows a distinct and original perspective, which is close to present-day logical-philosophical studies. The reason why must be traced back to his conception of philosophy as a demonstrative science. In his view, indeed, the first philosophy should avail of the syllogisms carefully described in the *Analytics*, but this is a philosophy original to Alexander, expressed in his own commentary *in Metaphysica*.

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²⁹ See W.D. Ross, in Aristotle’s *Metaphysics*, a Revised Text with Introduction and Commentary by W.D. Ross, Oxford, Clarendon Press, 1953³ (1924¹), vol. I, p. 284-285; Tricot, in Aristotele, *La Métaphysique*, p. 235 and note 3; Reale, in Aristotele, *Metafisica*, p. 179; 872-873 note 2.

³⁰ See Whitaker, in Aristotle’s *De Interpretatione*, p. 79-82; Gourinat, “Principe de contradiction”, p. 70; Cavini, “Arguing from a Definition”, p. 10-11; Id., “*Principia contradictionis*”, p. 124.

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