

## TRUTH AND EXCLUDED MIDDLE IN METAPHYSICS Γ 7

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A large part of book Γ of Aristotle's *Metaphysics* is dedicated to the defence of two principles: one is often called 'the Principle of Non-Contradiction' (henceforth 'PNC'), the other is normally referred to as 'the Principle of Excluded Middle' (henceforth 'PEM'). Chapters 4, 5, and 6 of *Metaphysics* Γ are dedicated to PNC whereas chapter 7 focuses on PEM (chapter 8, the last of the book, puts forward considerations that bear on both principles).

Aristotle offers several arguments in defence of PEM. The purpose of this study is to understand and assess this defence. Specifically, section I argues that at least one version of PEM is an 'ontological' principle, i.e. a claim about what reality is like. Section II addresses the first and most important of Aristotle's arguments in support of PEM, an argument based on a definition of truth and falsehood. It examines and evaluates earlier attempts to understand this argument and offers a novel reconstruction of it.<sup>1</sup>

### I. What principle is at stake?

*The formulations of PEM.* When in *Metaphysics* Γ he discusses PEM, Aristotle uses variants of two formulations:

[α] It is not possible for there to be anything in the middle of a contradiction<sup>2</sup> and

[β] It is necessary either to affirm or to negate one thing of one thing<sup>3</sup>.

Elsewhere in the *Metaphysics* and in other works, Aristotle uses mainly variants of [β].<sup>4</sup>

Only once, in the *Physics* (5.5, 235<sup>b</sup>15–16), does he employ the formulation which most modern philosophers and logicians associate with PEM, namely

[γ] Everything must either be or not be

Formulation [γ] probably involves an elliptical use of 'to be' and may therefore be regarded as a schema equivalent to 'Everything must either be so-and-so or not be so-and-so' (where 'so-and-so' is a schematic expression that may be replaced with any term).

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1 A draft of this study was presented in Paris. I am grateful to the audience for many useful questions and comments. The responsibility for the remaining deficiencies is only mine.

2 Cf. 1011<sup>b</sup>23–4; 1011<sup>b</sup>30; 1011<sup>b</sup>35; 1012<sup>a</sup>26.

3 Cf. 1011<sup>b</sup>24; 1012<sup>a</sup>2–3; 1012<sup>b</sup>11–12; 4, 1008<sup>a</sup>3–4.

4 Cf. *Int.* 13, 22b12–13; *APo.* 1.1, 71<sup>a</sup>14; 4, 73<sup>b</sup>23; 11, 77<sup>a</sup>22; 77<sup>a</sup>30; 32, 88<sup>b</sup>1; *Metaph.* B 2, 996<sup>b</sup>29; Frede D., "The Sea-Battle Reconsidered: A Defence of the Traditional Interpretation", *Oxford Studies in Ancient Philosophy* 3, 1985, pp. 79–80.

Is PEM a linguistic principle? Formulations [α] and [β] might induce one to believe that according to Aristotle PEM is a linguistic or ‘logical’ principle,<sup>5</sup> i.e. a thesis that concerns linguistic expressions or speech-acts. For, on the one hand, formulation [α] lends itself to being understood as articulating the claim that there is no linguistic expression ‘in the middle of’ a contradictory pair whose members are an affirmative declarative sentence and a contradictorily opposed negative declarative sentence.<sup>6</sup> On the other hand, formulation [β] cannot be taken to convey the claim that faced with a problem one must in all cases utter either an affirmative declarative sentence or a contradictorily opposed negative declarative sentence: for one seems to have no such obligation if, say, one is uncertain about the solution to the problem one is facing. Rather, formulation [β] must be taken to convey either the claim that if one is to say something truth-evaluable (i.e. either true or false) then one must utter either an affirmative declarative sentence or a contradictorily opposed negative declarative sentence, or else the claim that if one is to say something true then one must utter either an affirmative declarative sentence or a contradictorily opposed negative declarative sentence. Only this last claim is amenable to being considered as a version of PEM. The view that according to Aristotle PEM is a linguistic or ‘logical’ principle however sits uneasily with the fact that at several points of his discussion of PEM Aristotle appears to treat this principle as an ‘ontological’ claim, i.e. as a claim about what reality is like. (1) At the end of his first argument in support of PEM (1011<sup>b</sup>23–9), Aristotle describes (1011<sup>b</sup>28–9) the person denying it as committed to acknowledging something that neither is nor is not, i.e. something that neither is so-and-so nor is not so-and-so. This suggests that PEM is first and foremost a claim about what reality is like (rather than about how we speak). (2) In his second argument in support of PEM (1011<sup>b</sup>29–1012<sup>a</sup>1), Aristotle distinguishes two ways of understanding the position that there is something in the middle of a contradiction: either the thing in the middle of a contradiction is like something grey between something black and something white or it is like something that is between man and horse by being neither a man nor a horse. He goes on to argue that things in such a condition would be exempt from change and asserts that such a conception is untenable. Here, the thing that is supposed to be in the middle of a contradiction does not seem to be a linguistic expression in the middle of a contradictory pair whose members are an affirmative declarative sentence

5 Cf. Cavini W., *Principia contradictionis. Sui principii aristotelici della contraddizione (§§ 1–3)*, *Antiquorum philosophia* 1, 2007, p. 147.

6 Aristotle’s use of ‘contradiction’ (‘ἀντίφασις’) to denote contradictory pairs whose members are an affirmative declarative sentence and a contradictorily opposed negative declarative sentence is warranted by a definition in *de Interpretatione*: ‘Let a contradiction [ἀντίφασις] be this, an affirmation and a negation opposed’ (6, 17<sup>a</sup>33–4).

and a contradictorily opposed negative declarative sentence; rather, it seems to be an entity in a condition that somehow falls between those of being so-and-so and not-being so-and-so. (3) In his fourth argument in support of PEM (1012<sup>a</sup>5–9), Aristotle argues that one cannot assert that the principle that nothing falls in the middle of a contradiction fails only for a restricted area: if one takes this principle to fail, one must go for a universal failure. The person defending such a position is therefore committed to the claims that one will neither be right nor not be right and that ‘there will be something outside what is and what is not [παρὰ τὸ ὄν καὶ τὸ μὴ ὄν]’ (1012<sup>a</sup>7–8). Again, the things supposedly in the middle of a contradiction seem to be entities in a condition that in some sense falls between, or ‘outside’, those of being so-and-so and not being so-and-so. (4) In the chapters of *Metaphysics* Γ that precede those dealing with PEM, Aristotle examines PNC, which he expresses both by an ‘ontological’ formulation (‘It is impossible for the same thing to hold and not to hold of the same thing at the same time and in the same respect’)<sup>7</sup> and by a linguistic or ‘logical’ formulation (‘It is impossible to affirm and negate truly the same thing’).<sup>8</sup> It would be surprising if in his discussion of PEM Aristotle were to adopt exclusively linguistic or ‘logical’ formulations.<sup>9</sup> (5) If PEM is an ‘ontological’ claim that describes what reality is like, it is easier to understand why its examination is pertinent to a science that studies being *qua* being. Formulation [β], ‘It is necessary either to affirm or to negate any one thing of one thing’, undeniably concerns linguistic expressions or speech-acts. But the evidence reviewed in the last paragraph makes it reasonable to regard formulation [α], ‘It is not possible for there to be anything in the middle of a contradiction’, as articulating an ‘ontological’ principle. Thus, when he uses formulation [α], Aristotle probably does not mean that there is no linguistic expression falling in the middle of a contradictory pair whose members are an affirmative de-

7 Γ 3, 1005<sup>b</sup>19–20, cf. 4, 1006<sup>a</sup>3–4.

8 Γ 4, 1008<sup>a</sup>36–1008<sup>b</sup>1, cf. 1007<sup>b</sup>21–2; 1007<sup>b</sup>29–30; 1007<sup>b</sup>34; 6, 1011<sup>b</sup>20–1. On Aristotle’s formulations of PNC, cf. Łukasiewicz J., *Über den Satz des Widerspruchs bei Aristoteles* (1910), trans. by J. Barski, Hildesheim, Zürich, and New York, 1993, pp. 9–15 ; Gourinat J-B., ‘Principe de contradiction, principe du tiers exclu et principe de bivalence: philosophie première ou organon?’, in Bastit and Follon, *Logique et métaphysique dans l’Organon d’Aristote. Actes du colloque de Dijon*, Louvain-la-Neuve, Paris, and Sterling, VA, 2001, pp. 65–69.

9 Łukasiewicz, distinguishes also a psychological version of PNC, which amounts to the claim that one cannot both believe that a certain thing is so-and-so and believe that it is not so-and-so ( Łukasiewicz J., *Über den Satz des Widerspruchs bei Aristoteles* (1910), op. cit., pp. 11–13). The corresponding psychological version of PEM would be the claim that one must either believe that a thing is so-and-so or believe that it is not so-and-so. This is obviously false: I do not believe that Łukasiewicz visited Italy in 1910 nor that he did not visit it then (I simply have no view on the matter). Some commentators have found parallels between Aristotle’s treatment of quantification in the *Topics* and game semantics (cf. Marion M. and Rückert H., “Aristotle on Universal Quantification: A Study from the Point of View of Game Semantics”, *History and Philosophy of Logic* 37, 2016, pp. 201–229). Whatever the merits of this approach to explain Aristotle’s treatment of dialectical arguments in the *Topics*, I do not think that it is relevant to the discussion of PEM in the *Metaphysics*, which has a purely ontological character.

clarative sentence and the contradictorily opposed negative declarative sentence, but that there is nothing in the middle of a contradictory pair whose members are the situation that consists in something being so-and-so and the situation that consists in that thing not being so-and-so, or that there is nothing in the middle of a contradictory pair whose members are the condition of being so-and-so and the condition of not-being so-and-so. If this is right, by employing formulation [α] Aristotle commits himself to all instances of the schema ‘Everything either is so-and-so or is not so-and-so’, i.e. to all instances of formulation [γ].

The ‘ontological’ reading of formulation [α] is corroborated by a passage from *Metaphysics* I 4:

T1 ... ἀν- 1055<sup>b</sup>8  
 τιφάσεως μὲν οὐκ ἔστι μεταξύ, στερήσεως δὲ τινος ἔστιν· ἴσον  
 μὲν γὰρ ἢ οὐκ ἴσον πᾶν, ἴσον δ’ ἢ ἄνισον οὐ πᾶν, ἀλλ’ εἴπερ, <sup>b</sup>10  
 μόνον ἐν τῷ δεκτικῷ τοῦ ἴσου. 1055<sup>b</sup>11  
 ... there is nothing in the middle of a contradiction, but there is in the case of some privations: for everything is either equal or not equal, but not everything is either equal or unequal, but if it is, it is only in the sphere of what is receptive of the equal. (Arist. *Metaph.* I 4, 1055<sup>b</sup>8–11)

In this passage, a claim expressed by means of ‘There is nothing in the middle of a contradiction’, which is a variant of formulation [α], is justified by the claim expressed by ‘Everything is either equal or not equal’, which is an instance of ‘Everything is either so-and-so or not so-and-so’ and may be regarded as a mere stylistic variant of ‘Everything either is equal or is not equal’, an instance of ‘Everything either is so-and-so or is not so-and-so’.

An example of the use of ‘contradiction’ to denote a contradictory pair whose members are the condition of being so-and-so and the condition of not-being so-and-so seems to occur in *Metaphysics* I 7:

T2 ... τοῦτο γὰρ ἔστιν ἀντίφασις, 1057<sup>a</sup>34  
 ἀντίθεσις ἧς ὁτῶοῦν θάτερον μῦθον παρέστιν, οὐκ ἐχούσης οὐθὲν <sup>a</sup>35  
 μεταξύ. 1057<sup>a</sup>36  
 ... for this is what a contradiction is, an opposition one of the two parts of which is present in anything, one that has nothing in the middle. (Arist. *Metaph.* I 4, 1057<sup>a</sup>34–6)

The verb ‘to be present’ (‘παρεῖναι’, 1057<sup>a</sup>35) in passage T2 is more apt to express the belonging of conditions expressed by predicative expressions than that of predicative expressions themselves. Thus, the members of the contradictory pairs mentioned in T2 are likely to be (not predicative expressions, but) conditions expressed by predicative expressions. Note that in the *Categories* (10, 12<sup>b</sup>6–15) Aristotle holds that the relation of contradictoriness obtains not only between linguistic expressions like ‘... is sitting’ and ‘... is not sitting’ (or ‘He is sitting’ and ‘He is not sitting’), but also between what is ‘under [ὕπό]’ (12<sup>b</sup>6, 12<sup>b</sup>9, 12<sup>b</sup>14) these linguistic expressions.

Why does Aristotle adopt formulation [α]? After all, formulation [α] might be regarded as somewhat unhappy because it lends itself to being interpreted as introducing a ‘logical’ claim that concerns linguistic expressions or speech-acts, while in fact it is supposed to introduce an ‘ontological’ claim about what reality is like. One reason for the choice of formulation [α] is probably that it fosters generality: it covers in one go the claim that there is nothing between the condition of being large and the condition of not-being large, and the claim that there is nothing between the condition of being a cat and the condition of not-being a cat, and so on and so forth. Another reason for the choice of formulation [α] could be that it evokes the way of looking at PEM that is adopted by those who reject it, i.e. the idea that PEM is concerned with opposites (it is tempting to think that both opposites may fail to belong to the same thing).

## II. Aristotle’s defence of PEM

The first argument in support of PEM is based on a definition of truth and falsehood. It runs as follows:

T3                    ἀλλὰ μὴν οὐδὲ μεταξὺ ἀντιφάσεως ἐνδέχεται εἶναι                    1011<sup>b</sup>23  
 οὐθέν, ἀλλ’ ἀνάγκη ἢ φάναι ἢ ἀποφάναι ἐν καθ’ ἐνὸς ὅτιοῦν.  
 δῆλον δὲ πρῶτον μὲν ὀρισσαμένοις τί τὸ ἀληθὲς καὶ ψεῦδος.                    <sup>b</sup>25  
 τὸ μὲν γὰρ λέγειν τὸ ὄν μὴ εἶναι ἢ τὸ μὴ ὄν<sup>10</sup> εἶναι ψεῦ-  
 δος, τὸ δὲ τὸ<sup>11</sup> ὄν εἶναι καὶ τὸ<sup>12</sup> μὴ ὄν μὴ εἶναι ἀληθές, ὥστε  
 καὶ ὁ λέγων<sup>13</sup> εἶναι ἢ μὴ ἀληθεύσει ἢ ψεύσεται· ἀλλ’

10 The reading ‘ἢ τὸ μὴ ὄν’, attested in A<sup>b</sup>, is printed by most eds. I consulted; E and J have ‘ἢ τοῦτο’, printed by Hecquet-Devienne. Cf. Hecquet-Devienne M., Stevens A. (eds., trans., and comm.), *Aristote, Métaphysique Gamma – Édition, tradition, études*, Louvain-la-Neuve, Paris, and Dudley, MA. 2008.

11 E omits ‘τὸ’, which is present both in J and A<sup>b</sup>.

12 The reading ‘καὶ τὸ’ is attested in A<sup>b</sup> and is printed by most eds.; E and J have ‘τὸ δὲ’, the reading printed by Cassin and Nancy. Voir Cassin, B. and Nancy, M. (eds. and comm.), *La décision du sens. Le livre Gamma de la Métaphysique d’Aristote, introduction, texte, traduction et commentaire*, Paris, 1989, p. 152, p. 259.

οὔτε τὸ ὄν λέγεται<sup>14</sup> μὴ εἶναι ἢ εἶναι οὔτε τὸ μὴ ὄν. 1011<sup>b</sup>29

Nor is it possible for there to be anything in the middle of a contradiction, but it is necessary either to affirm or to negate any one thing of one thing. First, this is clear to whoever defines what truth and falsehood are. For, to say that what is is not or that what is not is is false, while to say that what is is and that what is not is not is true, so that he who says that something is or that it is not will be right or wrong: but neither what is nor what is not is said not to be or to be. (Arist. *Metaph.* Γ 7, 1011<sup>b</sup>23–9)

The difference between the ‘or’ in the part of the definition concerning falsehood (‘... to say that what is is not *or* that what is not is ...’, 1011<sup>b</sup>26) and the ‘and’ in the part concerning truth (‘... to say that what is is *and* that what is not is not ...’, 1011<sup>b</sup>27) is probably due to the stylistic need of avoiding exact symmetry.<sup>15</sup> The definition-status of the words I am referring to as a ‘definition of truth and falsehood’ is warranted by the occurrence of the verb ‘to define’ (‘ὀρίζομαι’) at 1011<sup>b</sup>25. It is also confirmed by two back-references, at 7, 1012<sup>a</sup>3 and 8, 1012<sup>b</sup>7–8 (< T5), where the noun ‘definition’ (‘ὀρισμός’) is employed. The second of these back-references presupposes that the definition in question is an account of what ‘false’ and ‘true’ signify. In the *Posterior Analytics* (2.10, 93<sup>b</sup>29–94<sup>a</sup>14) Aristotle distinguishes definitions that merely state the signification of the definiendum-expression from definitions that are somehow linked with an explanation of why the entity denoted by the definiendum-expression is. Moreover, the main argument in defence of PNC also was based on signification: the fact that the first and most important argument in defence of PEM is based on what ‘false’ and ‘true’ signify generates an analogy between the two arguments (Aristotle himself underscores the analogy at 1012<sup>b</sup>5–7).

The main question raised by T3 is how a definition, and in particular a definition of truth and falsehood, can serve the purpose of supporting a substantial thesis like PEM. This question has been variously answered by commentators.

13 The reading ‘καὶ ὁ λέγων’ is attested in E and J; A<sup>b</sup> has ‘ἐκεῖνο λέγων’ (the reading printed by Brandis (1823), 83 and favoured, but not printed, by Schwegler (Schwegler A., (ed., trans., and comm.) 1847–8, *Aristoteles, Die Metaphysik*, Tübingen, 1847-1848, III, p. 182); Alexander (*in Metaph.* 328, 25) seems to have read ‘καὶ ὁ λέγων τοῦτο’ (printed and defended by Bonitz (Cf. Bonitz H. (ed. and comm.), *Aristotelis Metaphysica*, Bonn, 1848-1849, I, p. 79, II, p. 212).

14 The reading ‘λέγεται’ is attested in A<sup>b</sup> and is printed by most eds.; E and J have ‘λέγει’, the reading printed by Cassin and Nancy, *La décision du sens*, op. cit., pp. 152, 259.

15 Cf. Bonitz H., *Index Aristotelicus*, Berlin, 1870, 357<sup>b</sup>20–4; W. Cavini, ‘Arguing from a Definition: Aristotle on Truth and the Excluded Middle’, op. cit., p. 12. Recall the variant recorded in n. 12 above.

An exegesis based on the Principle of Bivalence. Several commentators put forward an interpretation of T3 according to which its argument relies on a restricted version of the principle normally called ‘the Principle of Bivalence’ (henceforth ‘PB’).<sup>16</sup> PB states that every declarative sentence is either true or false.<sup>17</sup> The restricted version of PB on which the argument presented in T3 is taken to rely is the claim that ‘he who says that something is or that it is not will be right or wrong’ (1011<sup>b</sup>28), i.e. the claim that anyone who produces an affirmation by saying about something that it is so-and-so is either right or wrong and anyone who produces a negation by saying about something that it is not so-and-so is either right or wrong. Take an arbitrary object *x* and an arbitrary attribute *F*. Let someone utter an affirmative sentence to the effect that *x* enjoys *F*. The restricted version of PB on which Aristotle’s argument allegedly relies requires that the speaker be either right or wrong. But if the speaker is right, then *x* enjoys *F* (by the part of the definition of truth and falsehood that concerns the truth of affirmations); and if the speaker is wrong, then *x* does not enjoy *F* (by the part of the definition of truth and falsehood that concerns the falsehood of affirmations). Hence either *x* enjoys *F* or *x* does not enjoy *F*. Since the object *x* and the attribute *F* were arbitrarily chosen, one may generalize and infer the universal claim that amounts to an ‘ontological’ version of PEM.

This interpretation of Aristotle’s argument has the advantage of yielding as a conclusion an ‘ontological’ version of PEM. But it also faces some objections. Specifically, the interpretation under consideration crucially relies on a restricted version of PB, a fact which invites three objections. (1) Aristotle himself in chapter 9 of *de Interpretatione* denies PB while accepting PEM (at least according to the most widespread interpretation of this chapter).<sup>18</sup> It would be awkward on Aristotle’s part to argue for PEM on the basis of PB. (2) It is not clear that Aristotle’s argument would be effective against

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16 Cf. Alex. Aphr. in *Metaph.* 328, 19–329, 4; Schwegler A., (ed., trans., and comm.) 1847–8, *Aristoteles, Die Metaphysik*, Tübingen, 1847-1848, III, p. 182 ; Bonitz H. (ed. and comm.), *Aristotelis Metaphysica*, Bonn, 1848-1849, II, p. 212; Ross W.D. (ed. and comm.), *Aristotle, Metaphysics*, 1924, repr., Oxford 1975, I, pp. 284-285; Reale G. (trans. and comm.), *Aristotele, La metafisica*, Naples, 1968, I, 353 (quoting Aquinas *ad loc.*); Kirwan C. (trans. and comm.), *Aristotle, Metaphysics, Books Γ, Δ, and E*, 2nd edn, Oxford, 1993, pp. 117-118.

17 According to Aristotle’s characterization of declarative sentences, ‘not every sentence is declarative, but only that where being true or false is present’ (*Int.* 4, 17<sup>a</sup>2–3). This characterization may be taken to require merely that truth and falsehood hold *only* of declarative sentences; it need not be taken to require that either truth or falsehood holds of *every* declarative sentence (cf. Gourinat J-B., ‘Principe de contradiction, principe du tiers exclu et principe de bivalence: philosophie première ou organon?’, in Bastit and Folon (eds.), *Logique et métaphysique dans l’Organon d’Aristote. Actes du colloque de Dijon*, Louvain-la-Neuve, Paris, and Sterling, VA, 2001, pp. 72–73; Crivelli P., *Aristotle on Truth*, Cambridge, 2004, pp. 86–87; Ademollo F., ‘The Principle of Bivalence in *De Interpretatione* 4’, *Oxford Studies in Ancient Philosophy* 38, 2010, pp. 99–100). Thus, the version of PB in the main text above need not be regarded as a logical consequence of the characterization of declarative sentences.

18 I defended this interpretation of *de Interpretatione* 9. Voir Crivelli P., *Aristotle on Truth*, Cambridge, 2004, pp. 198–233.

someone who denies PEM: such a person might well have no qualms denying also PB.<sup>19</sup> Note that in his fourth argument in support of PEM (1012<sup>a</sup>5–9), Aristotle argues that those who take this principle to fail must endorse its universal failure and are therefore committed to the view that

T4 ... οὐτε ἀλη- 1012<sup>a</sup>6

θεύσει τις οὐτ' οὐκ ἀληθεύσει ... 1012<sup>a</sup>7

... one will neither be right nor not be right ... (Arist. *Metaph.* Γ 7, 1012<sup>a</sup>6–7)

which probably amounts to the claim that

[a] Everyone neither is right nor is not right

(the universal quantifier being justified by Aristotle's remark that the failure of PB must be universal). Under the uncontroversial assumption that

[b] Whoever is wrong is not right

the claim that

[c] Whoever makes a declaration either is right or is wrong

which is a version of PB, entails the claim that

[d] Whoever makes a declaration either is right or is not right

Under the further uncontroversial assumption that

[e] Someone makes a declaration

claim [a] then entails the claim that

[f] It is not the case that whoever makes a declaration either is right or is wrong

which is a denial of a version of PB. (3) The alleged reference to the restricted version of PB in T3 is formulated as if it were a consequence of the definition of truth and falsehood (cf. 'so that', translating 'ὥστε', at 1011<sup>b</sup>27). This sits uneasily with the present interpretation's assumption that Aristotle's argument in T3 relies on the restricted version of PB as a basic assumption.

Objection (1) may perhaps be dealt with by noting that in *Metaphysics* Γ there is no indication of an exception to PB such as the one usually found in *de Interpretatione* 9: this might be an indication that *de Interpretatione* 9 is a late piece and that at the time when he wrote *Metaphysics* Γ Aristotle endorsed PB.<sup>20</sup> As for objection (2), one might try to answer it by claiming that the effectiveness of a defence of PEM based on PB can only be evaluated by taking into account the motivation that one's antagonist might have for rejecting PEM. Aristotle mentions three reasons that

19 Cf. Kirwan C. (trans. and comm.) 1971/93, *Aristotle, Metaphysics, Books Γ, Δ, and E* (1971), 2nd edn, Oxford, 1993, pp. 117–118.

20 Cf. Crivelli P., *Aristotle on Truth*, Cambridge, 2004, pp. 230–231.

might induce someone to reject PEM (1012<sup>a</sup>17–28): giving in to eristic arguments, demanding a reason for everything, and a metaphysical view such as that of Anaxagoras (in a situation of complete mixture, things are allegedly neither good nor not good). In the case of the third type of motivation, one might expect that someone rejecting PEM might still want to endorse PB (because bearers of truth or falsehood might be deemed to be foreign to the condition of complete mixture envisaged by Anaxagoras). This reply is however not convincing because it leaves the other motivations mentioned by Aristotle unaccounted for. Moreover, passage T4 does suggest that according to Aristotle someone denying PEM is committed to denying PB. As for objection (3), one might argue that the restricted version of PB is presented not as consequence of the definition of truth and falsehood, but as a restriction on how that definition is to be understood: ‘In the case of affirmations and negations, to speak falsely is such-and-such while to speak truly is thus-and-so, so long as whoever makes an affirmation or a negation speaks truly or falsely’. This reply is not completely convincing because the reading of the text it suggests, although possible, is far-fetched. *An exegesis based on combinations of possible cases.* Some commentators take Aristotle’s argument in T3 to be based on a consideration of the possible combinations of the three alternatives being/not-being, to-say-that-it-is/to-say-that-it-is-not, and truth/falsehood contemplated by the definition of truth and falsehood. On the basis of the hypothesis that truth and falsehood are reciprocally incompatible, the definition of truth and falsehood requires both that an affirmation and a contradictorily opposed negation cannot both be true (because if the affirmation that ‘says that it is’ is true, then the thing spoken about is, so the negation that ‘says that it is not’ is false, and therefore not true) and that an affirmation and a contradictorily opposed negation cannot both be false (because if the negation that ‘says that it is not’ is false, then the thing it speaks about is, so the affirmation that ‘says that it is’ is true, and therefore not false). The claim that an affirmation and a contradictorily opposed negation cannot be both false amounts to PEM.<sup>21</sup> Much

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21 Cf. Cassin B., Narcy M. (eds. and comm.) *La décision du sens*, op. cit., pp. 260-261 ; Gourinat J-B., ‘Principe de contradiction, principe du tiers exclu et principe de bivalence: philosophie première ou organon?’, op. cit., p. 70, p. 74.

The argument in the main text above is my best attempt at understanding the interpretation offered by Cassin and Narcy, an interpretation which I find difficult to grasp. Cavini offers an exegesis that is close to that of Cassin and Narcy (Cf. Cavini W., ‘Arguing from a Definition: Aristotle on Truth and the Excluded Middle’, op. cit., pp. 12-14). The main difference is that according to Cavini the principle which Aristotle takes immediately to follow from the definition of truth and falsehood is the Rule of Contradictory Pairs (henceforth ‘RCP’), which states that in every contradictory pair whose members are an affirmation and a contradictorily opposed negation one member is true and the other is false. This suggestion faces the difficulty that RCP does not follow from the definition of truth and falsehood without the aid of PB (for RCP ob-

speaks in favour of this interpretation. First, it is corroborated by a passage in Γ 8 that appears to refer back to the argument in T3:

T5 ... ἐξ ὀρισμοῦ διαλεκτέον λα- 1012<sup>b</sup>7  
 βόντας τί σημαίνει τὸ ψεῦδος ἢ τὸ ἀληθές. εἰ δὲ μηθὲν  
 ἄλλο τὸ ἀληθές φάναι ἢ ἀποφάναι<sup>22</sup> ψεῦδός ἐστιν, ἀδύ-  
 νατον πάντα ψευδῆ εἶναι· ἀνάγκη γὰρ τῆς ἀντιφάσεως <sup>b</sup>10  
 θάτερον εἶναι μόνιον ἀληθές. 1012<sup>b</sup>11  
 ... one must argue from a definition by assuming what ‘false’ or ‘true’ signify. But if  
 to affirm a truth is nothing other than to negate a falsehood, it is impossible that  
 everything be false: for it is necessary that the other part of the contradiction be  
 true. (Arist. *Metaph.* Γ 8, 1012<sup>b</sup>7–11)

Passage T5 lends itself to being read as presenting an argument very close to the one attributed to Aristotle by the exegesis of T3 we are now considering. For, the words ‘to affirm a truth is nothing other than to negate a falsehood’ (1012<sup>b</sup>8–9) may be taken to convey the claim that an affirmation is true just if the contradictorily opposed negation is false. Secondly, at various points of his examination of PEM Aristotle associates its denial with the view that everything is false.<sup>23</sup> The interpretation of T3 we are presently considering faces however three objections. (1) The argument attributed to Aristotle by this exegesis could be used as a defence not only of PEM, but also of PNC. This is implausible in view of the fact that the argument is mentioned only in the part of *Metaphysics* Γ dedicated to PEM.<sup>24</sup> (2) The version of PEM which the interpretation at hand attributes to Aristotle is far from the ‘ontological’ version which there are reasons to attribute to him. Specifically, it is a ‘logical’ claim about the truth values of declarative sentences, not an ‘ontological’ claim about what reality is like. (3) Although Aristotle associates the denial of PEM with the view that everything is false, at one point (1012<sup>a</sup>26–8) he describes the view that everything is false as a *consequence* of the denial of PEM. This sug-

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viously fails if both members of a contradictory pair whose members are an affirmation and a contradictorily opposed negation are neither true nor false).

22 The reading ‘τὸ ἀληθές φάναι ἢ ἀποφάναι’ is reported by A<sup>b</sup>. E and J have ‘ἢ τὸ ἀληθές φάναι ἢ ἀποφάναι’ whereas Alexander (*in Metaph.* 339, 19–20) mentions the existence of the reading ‘τὸ ἀληθές ἢ φάναι ἢ ἀποφάναι καὶ τὸ’. The passage has been variously emended. The most widespread emendation is Ross’s: ‘τὸ ἀληθές φάναι ἢ <δ> ἀποφάναι’. This emendation is perhaps supported by Asclepius (*in Metaph.* 299, 30–300, 1), but faces a grammatical difficulty in that a relative article is missing for the intended translation of ‘τὸ ἀληθές φάναι’ by ‘that which it is true to affirm’ to be possible.

23 Cf. 7, 1012<sup>a</sup>26–8; 8, 1012<sup>a</sup>29–33.

24 Cf. Cavini W., ‘Arguing from a Definition: Aristotle on Truth and the Excluded Middle’, in Avgelis N. and Peonidis F. (eds.), *Aristotle on Logic, Language and Science*, Thessaloniki, 1998, p. 11.

gests that the view that everything is false cannot be identified with the denial of PEM and therefore weakens the evidence that speaks in favour of the interpretation we are now considering. *A new exegesis.* We have considered two interpretations of T3. The first saddles Aristotle with an argument that relies on PB, a principle at least as controversial as PEM; the second gives Aristotle an argument that does not fit in well in the context of *Metaphysics* Γ. In such circumstances, it is reasonable to search for a new exegesis that does not depend on PB and suits the context of *Metaphysics* Γ. In this subsection I float an interpretation that satisfies these desiderata, an interpretation that appeals to the presuppositions of definitions. In outline, it runs as follows:

[1] If there were a condition intermediate between that of being so-and-so and that of not-being so-and-so, then there would also be predicative expressions intermediate between affirmative and negative ones.

[2] But there are no predicative expressions intermediate between affirmative and negative ones.

[3] Hence, there is no condition intermediate between that of being so-and-so and that of not-being so-and-so.

Premiss [1] is not explicitly stated in T3 but is intuitively plausible and may therefore be understood. Premiss [2] is presupposed by the definition of truth and falsehood. The conclusion [3] follows by modus tollens. I shall now go through the argument in slow motion.

Suppose that there were a condition, call it 'M', which is 'in the middle of a contradiction' (1011<sup>b</sup>23), i.e. intermediate between the condition of being so-and-so and the contradictorily opposite one of not-being so-and-so. The opposition between the condition of being so-and-so and that of not-being so-and-so does not have to do with the attribute so-and-so: both conditions are ways of being related to the attribute so-and-so. The opposition between the two conditions depends on the fact that their constitutive relations to the attribute so-and-so are themselves opposed. For things in these conditions are related to the attribute so-and-so in opposite ways. Specifically, they are related to the attribute so-and-so by the relation of being and by the contradictorily opposed relation of not-being. For this reason, condition M, which is supposed to be intermediate between the two opposed conditions, consists in being related to the attribute so-and-so in a way that is different both from that involved in being so-and-so and from that involved in not-being so-and-so.

Given that condition M exists, there must also be a predicative expression, say ‘... neither-is-nor-is-not so-and-so’, that corresponds to condition M in that it is used to say of things that they are in condition M (the choice of the words ‘... neither-is-nor-is-not ...’ for the formulation of this predicative expression is inessential: other words could have done the job just as well). This predicative expression, ‘... neither-is-nor-is-not so-and-so’, would then be truly applicable to any entity in condition M. We thus have three different conditions, namely being so-and-so, not-being so-and-so, and M, and three corresponding predicative expressions, namely the affirmative predicative expression ‘... is so-and-so’, the negative predicative expression ‘... is-not so-and-so’, and the ‘intermediate’ predicative expression ‘... neither-is-nor-is-not so-and-so’. Just as the difference between the three conditions is determined (not by the attribute so-and-so, but) by their different constitutive relations that combine with the attribute so-and-so, so the difference between the three predicative expressions is determined (not by the term ‘so-and-so’, but) by the predicative links that combine with the term ‘so-and-so’, namely the affirmative predicative link ‘... is ...’, the negative predicative link ‘... is-not ...’, and the ‘intermediate’ predicative link ‘... neither-is-nor-is-not ...’. Being constructed around the ‘intermediate’ predicative link ‘... neither-is-nor-is-not ...’, which is different both from the affirmative ‘... is ...’ and from the negative ‘... is-not ...’, the intermediate predicative expression ‘... neither-is-nor-is-not so-and-so’ is neither affirmative nor negative. Thus, the ‘intermediate’ predicative expression ‘... neither-is-nor-is-not so-and-so’ is different both from the affirmative predicative expression ‘... is so-and-so’ and from the contradictorily opposed negative predicative expression ‘... is-not so-and-so’.

An indication of this difference is given by the fact that if something were in condition M, it could be truly described by ‘... neither-is-nor-is-not so-and-so’, but would neither be so-and-so nor not-be so-and-so, and therefore could not be truly described by means of the affirmative predicative expression ‘... is so-and-so’ nor by means of the negative predicative expression ‘... is-not so-and-so’. This is what Aristotle perhaps means when he says that ‘neither what is nor what is not is said not to be or to be’ (1011<sup>b</sup>28–9): if the thing spoken about is in condition M, it is not a case where what is so-and-so is said to be so-and-so, so an application of the affirmative predicative expression ‘... is so-and-so’ does not result in a truth, nor is it a case where what is-not so-and-so is said not to be so-and-so, so an application of the negative predicative expression ‘... is-not so-and-so’ also fails to result in a truth. An application of the predicative expression ‘... neither-is-nor-is-not so-and-so’ could then be described as an exception to the claim that in order

to say something true, 'it is necessary either to affirm or to negate any one thing of one thing' (1011<sup>b</sup>24).

Now, the only cases contemplated by the definition of truth and falsehood are those of affirmation and negation. Since the definition presupposes that all relevant cases are contemplated (for a definition that says nothing about some relevant cases would be faulty), it also presupposes that affirmations and negations are the only sentences to be considered when issues of truth and falsehood come up: the definition presupposes that 'he who says that something is [*sc.* affirms] or that it is not [*sc.* negates] will be right or wrong' (1011<sup>b</sup>28).<sup>25</sup> The definition therefore leaves no place for an 'intermediate' predicative expression that is neither affirmative nor negative. Hence the definition of truth and falsehood tells against the existence of a condition M 'in the middle of a contradiction' (1011<sup>b</sup>23), i.e. intermediate between the condition of being so-and-so and the contradictorily opposite one of not-being so-and-so.

## Evaluation

The interpretation just outlined has the advantage of fitting the whole formulation of the argument and assigning a role to each of its clauses. It also must however face some objections.

One objection focuses on the role which the reconstruction of the argument under consideration attributes to the definition of truth and falsehood. In particular, according to the reconstruction of the argument under consideration, the definition of truth and falsehood presupposes that affirmations and negations are the only sentences to be considered when issues of truth and falsehood come up because the definition specifies truth conditions and falsehood conditions only for affirmations and negations. One might object that there is no such presupposition. An objector might say: 'The definition of truth and falsehood states (1) that an affirmation is true just if certain conditions obtain, false otherwise, and (2) that a negation is true just if certain other conditions obtain, false otherwise; the definition implicitly indicates that whatever sentences there are that are neither affirmations nor negations are neither true nor false; the definition does not therefore presuppose that affirmations and negations are the only sentences to be considered when issues of truth and falsehood come up.' Such a line of thought seems

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<sup>25</sup> The occurrence of 'καί' at 1011<sup>b</sup>28 is emphatic: it indicates that it is just the person who is making an affirmation or a negation who speaks truly or falsely. For the emphatic use of 'καί' (whereby it may also be rendered by 'just'), see LSJ s.v. 'καί' B 6; Denniston J. B., *The Greek Particles*, 2nd edn, Oxford, 1954, pp. 320–321. The sentence should be read by stressing 'he who says that something is or that it is not'. It could also be rendered by '... it's he who says that something is or that it is not who will be right or wrong'.

however rather far-fetched. If the definition of truth and falsehood were to allow the possibility of sentences that are neither affirmations nor negations and are neither true nor false, its silence about these further sentences would be rather awkward (after all, sentences that are neither true nor false are not an obvious option). Consider, by analogy, a parallel situation in propositional logic. Suppose that the connectives of the language had not been specified at the outset but that truth conditions and falsehood conditions were given that concern only negations and conjunctions. In such a situation, one would be hard-put to infer that other types of propositional compounds are allowed and that they are supposed to be neither true nor false. In order to make such an inference, one would expect an additional clause to the effect that ‘... whatever other propositional compounds there are are neither true nor false’. In the absence of such a clause, one would assume that negations and conjunctions are the language’s only propositional compounds. So, contrary to the first objection, the definition of truth and falsehood mentioned by Aristotle does appear to presuppose that the only sentences that come up for the question of truth and falsehood are affirmations and negations.

A second, more substantive objection is that according to the interpretation under examination, the argument in T3 relies on a premiss that does not appear in the text, i.e. on the assumption that if there were a condition M which is different both from the condition of being so-and-so and from that of not-being so-and-so, then there would be a preood). In the case of the third type of motivation, one might expect that someone rejecting PEM might still want to endorse PB (because bearers of truth or falsehood might be deemed to be foreign to the condition of complete mixture envisaged by Anaxagoras). This reply is however not convincing because it leaves the other motivations mentioned by Aristotle unaccounted for. Moreover, passage T4 does suggest that according to Aristotle someone denying PEM is committed to denying PB. As for objection (3), one might argue that the restricted version of PB is presented not as consequence of the definition of truth and falsehood, but as a restriction on how that definition is to be understood: ‘In the case of affirmations and negations, to speak falsely is such-and-such while to speak truly is thus-and-so, *so long as* whoever makes an affirmation or a negation speaks truly or falsely’. This reply is not completely convincing because the reading of the text it suggests, although possible, is far-fetched. *An exegesis based on combinations of possible cases.* Some commentators take Aristotle’s argument in T3 to be based on a consideration of the possible combinations of the three alternatives being/not-being, to-say-that-it-is/to-say-that-it-is-not, and truth/falsehood contemplated by the definition of truth

and falsehood. On the basis of the hypothesis that truth and falsehood are reciprocally incommensurable expressions, e.g. ‘... neither-is-nor-is-not so-and-so’, which could be used to say of things that they are in condition M. The absence of this assumption from the argument is disturbing in view of its crucial importance. It does not however suffice to justify the abandonment of the interpretation under consideration: one can easily imagine Aristotle leaving such a premiss ‘to the reader’ because he regards it as obvious that for any trait or condition of reality, there is, or at least there could be, a corresponding linguistic expression that signifies it and may be used to say of things that they enjoy that trait or condition.

### **Conclusion**

Although the third exegesis faces some objections, these seem answerable. The third exegesis is superior to the first two in that it avoids their pitfalls. For, on the one hand it does not saddle Aristotle with an argument for PEM that depends on PB (which, as we have seen, was the major stumbling block of the first exegesis); on the other, it yields as its conclusion an ‘ontological’ version of PEM (something not achieved by the second exegesis, which credits Aristotle with a defence of a claim about the truth values of declarative sentences). A further strength of the third exegesis is that it recognizes a role for each of the clauses of T3. The third interpretation therefore probably deserves being regarded as the most likely candidate as a reconstruction of what Aristotle actually meant in passage T3.