

Aristotle on pre-Platonic theories of sense-perception and knowledge¹

Aristóteles e as teorias pré-platônicas de percepção sensorial e conhecimento

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Abstract: This paper is an attempt to make sense of Aristotle's polemic –and, if taken at face value, quite evidently wrong– contention that the ancient thinkers globally failed to distinguish thought and knowledge from sensation. As I will try to show, what these thinkers missed, in Aristotle's view, was his own concept of intellect (*noûs*) as a distinct mental faculty correlative to forms (*eide*). Lacking a concept of "forms" (formal and final causes), pre-Platonic thinkers, as Aristotle understands them, could conceive cognitive processes only as "alterations," i.e. at a merely physical level of description, which made them unable to account for the difference between truth and error: by this failure, Aristotle argues in *Met.* Γ 5, they unwittingly prepared the way for Protagorean relativism. This reconstruction will permit us also to have a more coherent understanding of some of Aristotle's criticisms of Parmenides and Melissus; finally, I will shortly point out some analogies and differences between Aristotle's theory of cognition and functionalist theories in contemporary philosophy of mind.

Key words: Aristotle, Presocratics, theory of knowledge, sense-perception, relativism, Parmenides, philosophy of mind.

Resumo: Este artigo é uma tentativa de entender a polêmica afirmação – que, se entendida literalmente, está evidentemente errada – de Aristóteles de que os pensadores antigos deixaram globalmente de distinguir o pensamento e conhecimento da sensação. Como tentarei mostrar, o que esses pensadores não tinham, na opinião de Aristóteles, era seu próprio conceito de intelecto (*noûs*) como uma faculdade mental distinta e correlativa a formas (*eide*). Não tendo um conceito de "formas" (causas formais e finais), os pensadores pré-platônicos, na compreensão de Aristóteles, só podiam conceber processos cognitivos como "alterações", isto é, num nível meramente físico de descrição, o que os tornava incapazes de explicar a diferença entre a verdade e o erro: por causa disso, sustenta Aristóteles em *Met.* Γ 5, eles prepararam, sem querer, o caminho

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para o relativismo de Protágoras. Esta reconstrução também nos permitirá ter uma compreensão mais coerente de algumas das críticas feitas por Aristóteles a Parmênides e Melisso. Por fim, destacarei brevemente algumas analogias e diferenças entre a teoria da cognição de Aristóteles e teorias funcionalistas da filosofia da mente contemporânea.

Palavras-chave: Aristóteles, pré-socráticos, teoria do conhecimento, percepção sensorial, relativismo, Parmênides, filosofia da mente.

Did the Presocratics identify thought and sensation?

At two passages of his works Aristotle seems to hold that the “ancients”—Presocratic or, more exactly, as we shall see, pre-Platonic thinkers—globally identified thought and knowledge with sensation:

καὶ οἷ γε ἀρχαῖοι τὸ φρονεῖν καὶ τὸ αἰσθάνεσθαι ταὐτὸν εἶναί φασιν (“And the ancients say that thinking [or knowing] and perceiving are the same thing,” *De an.* 3.3, 427a21-22);

[...] τὸ ὑπολαμβάνειν μὲν φρόνησιν τὴν αἴσθησιν (“[...] [they] suppose sense-perception to be thought [or knowledge],” or “[...] suppose thought [or knowledge] to be sense-perception,” *Met.* Γ 5, 1009b12-13).

Aristotle supports the latter claim by quotations of Democritus, Empedocles, Parmenides, Anaxagoras, and even Homer; in *De anima* he cites the same verses of Empedocles, and Homer is evoked again, though with a different passage of his poems.

These assertions are surely disconcerting. Modern interpreters generally agree that none of these thinkers could be fairly considered a sensationalist or said to have explicitly identified thought with sense-perception; at most one might say they had not yet clearly distinguished the former from the latter (Zeller, 1876-1881, p. 530, n. 1; Ross, 1924, p. 275; Cherniss, 1935, p. 81). It seems likely anyway that this was all Aristotle meant to say; but it may still be doubted whether he was right. Although it is true that in archaic Greek – and in non-philosophical usage frequently even later – the semantic fields of φρονεῖν and αἰσθάνεσθαι were not clearly differentiated in the way of a neat opposition between intellectual and perceptual processes,³ it seems no less evident (even if many details of interpretation may be controversial) that at least some Presocratics actually distinguished intellectual from perceptual knowledge,⁴ and some such distinction is patent already in the Homeric poems.⁵

Moreover, it has been argued (Leshner, 1994, p. 12; Mansfeld, 1996, p. 165-166, 1999, p. 342) that Aristotle seems to contradict his own statements when he

³ Thus φρονεῖν could also mean “to be sensible,” “to be in possession of one’s senses” (see *LSJ* s. v. φρονέω, IV, with references), whereas αἰσθάνεσθαι could sometimes refer to mental perception or understanding (e.g. Hipp. *Off.* 1 τῆ γνώμη αἰσθέσθαι; cf. *LSJ*, s. v. αἰσθάνομαι, I.2). The fact that αἴσθησις as denoting the totality of the five senses is nowhere found in Presocratic writings was already emphasized by Langerbeck (1967, p. 44).

⁴ Leshner (1994, p. 11-37) discusses several instances of such distinction in Heraclitus, Xenophanes, and Parmenides; we might add that Theophrastus explicitly states that Alcmaeon distinguished φρονεῖν from αἰσθάνεσθαι (*De sens.* 25 = Alcmaeon 24 A 5 DK): this may be right, even if it seems not to be Alcmaeon’s own wording (see Cherniss, 1935, p. 299, n. 32).

⁵ Leshner states that “the attribution to Homer of a simple equivalence of knowledge with sense perception is untenable”: on several occasions, especially in the *Odyssey*, “someone is said to see, but *not* to notice, recognize or realize” (Leshner, 1981, p. 14), and inversely, there is a clear awareness of some kind of knowledge acquired through reflection as distinct from direct perception (cf. Leshner, 1994, p. 6-7).

speaks elsewhere of Parmenides and Melissus as “passing over sense-perception and disregarding it [...] on the ground that one ought to follow reason (τῷ λόγῳ),”⁶ or of Parmenides as “assuming that what is one according to reasoning is many according to sense-perception.”⁷ So it seems that Aristotle, when he claims that the “ancients” identified thought and sense-perception, either must have ignored what he had emphasized himself in other contexts⁸ or else meant his statements to be understood in a more limited sense, implying e.g. that these thinkers simply considered thought and sensation to be essentially the same kind of natural phenomenon,⁹ or that they did not yet have a full-blown *theory* of sense-perception or of reasoning.¹⁰

At any rate, this leads us to the crucial question. Before setting out to decide whether Aristotle’s view is in accordance with itself or with available evidence on Presocratic writings, we should first try to understand what exactly the point he wanted to make was. Now in order to find out in what sense Aristotle could blame the “ancients” for not distinguishing thought from sense-perception, the first question to ask should be in what sense he believed they *should* have distinguished them. I think the context of *De anima* suggests a quite plausible answer to this question.

The first two chapters of *De anima* 3 conclude the study of the senses and sense-perception initiated in Book 2. The summary remark on the ancients’ confusion of thinking and perceiving is found at the beginning of chapter 3, where Aristotle introduces a first and rather sketchy distinction between sense-perception and thought (427b6-14). But before going deeper into the matter, he deems it necessary to consider a third kind of mental activity, imagination (φαντασία), which is the main subject of this chapter. A detailed discussion of thought or intellect (νοῦς) and its relation to perception and imagination follows in chapters 4-8; the short remark on the difference between thinking and perceiving should hence be read as preparatory to this more complete and explicit treatment of the same topic.

Throughout these chapters, thought and sense-perception are consistently distinguished by virtue of their specific objects. Thought or intellect (νοῦς) is related to what is thinkable or intelligible (τὰ νοητά) just as the sensitive faculty is to what is sensible (429a17-18). By means of the sensitive faculty we discriminate the sensible qualities (hot and cold, etc.) which constitute e.g. flesh or water; but the fact that something *is* flesh or water, its essence or form, is apprehended either by a wholly different faculty or by the same faculty in a different state (429b10-18); the same goes for abstractions such as number or geometrical properties of objects (429b18-21). This distinct faculty – or different state of the same faculty – by which the soul thinks and judges (429a23) is what Aristotle calls thought or intellect, which can be defined as that which is capable of receiving the “form” of an object (δεκτικὸν τοῦ εἶδους, 429a15) or even, with a somewhat Platonic turn of phrase, as “the place of forms” (τόπος εἰδῶν, 429a27).¹¹

Thought, in a word, is conceived as what apprehends a specific kind of object, the forms (εἶδη) of things, as distinct from their sensible properties. The distinction

⁶ *De gen.* 325a13-15; see ns. 48 and 51.

⁷ *Met.* 986b31-33; see text corresponding to ns. 52-54.

⁸ Mansfeld (1996, p. 165): “[...] lui permet d’ignorer ce qu’il souligne dans d’autres contextes.”

⁹ Leshner (1994, p. 12): “the *same kind* of process” (Caston, 1996, p. 26). “What he means is that the early philosophers did not properly distinguish mind from perception, and so actually treated them on the same lines,” which “does not imply that they were not aware of certain differences” (Dilcher, 2006, p. 37).

¹⁰ Mansfeld (1999, p. 342): “La constatation qu’ils n’avaient pas séparé la perception de la pensée signifie qu’ils ne possédaient encore ni de théorie de la perception proprement dite, ni de théorie de la raison, ou du raisonnement.”

¹¹ Note that this definition of intellect is in strict accordance with the general principle – set out in *De an.* 2.4, 415a16-22 – that each psychic faculty is to be identified in terms of its function and its function in terms of its objects, i.e. what Wedin (1988, p. 13) calls the “FFO (faculty/function/object) condition.”

between νοεῖν and αἰσθάνεσθαι, as Aristotle understands it, is strictly correlative to the distinction between νοητά and αἰσθητά (429a17-18; cf. 431b21-23).¹² Therefore it would seem plausible that, in Aristotle's view, it was precisely this distinction that the ancient thinkers failed to make.

I suggest this interpretation, for the moment, as a hypothesis; but it will be confirmed by a closer consideration of *Met.* 1009b12ff., on which I will focus for the main part of this paper.

Aristotle on the prehistory of relativism (*Met.* Γ 5)

The passage occurs in the context of Aristotle's polemic against Protagorean relativism (*Met.* Γ, 5-6), understood as the view that "all beliefs and appearances are true" (1009a8), which Aristotle considers logically equivalent to the negation of the principle of non-contradiction (1009a6-16). Aristotle remarks that, when confronting proponents of this view, one should care to distinguish recalcitrant sophists who argue for the sake of argument from people who were led to this belief by genuine philosophical difficulties (ἐκ τοῦ ἀπορησαί) (1009a16-22), presumably the "beginners in philosophy" mentioned later on (1009a37); the discussion which follows is expressly concerned only with the latter.

Their opinion that contradictories can be simultaneously true – Aristotle says – springs from observation of sensible or perceptible things (ἐκ τῶν αἰσθητῶν), since contraries apparently come to be out of the same thing (1009a22-38). Likewise, some have inferred from observation of sensible things that all appearances are true (1009a38-b1).¹³ Truth, they argue, should not be judged by number: majorities are not always right (one might conceive a majority of ill or mad persons). Now it is plain that the same things are perceived in different and mutually contradictory ways by different persons (something may e.g. taste sweet to some and bitter to others), by animals of different species, or even by the senses of the same individual (1009b2-9). Therefore, "which of these [perceptions] are true and which false is unclear; for these ones are no more true than those, but equally" (1009b9-11). Aristotle adds that this is why Democritus said that either nothing is true or at least truth is not evident to us (1009b11-12).

The passage which concerns us here follows immediately after this statement of the relativists' argument (1009b12-18):

ὅλως δὲ διὰ τὸ ὑπολαμβάνειν φρόνησιν μὲν τὴν αἴσθησιν, ταύτην δ' εἶναι ἀλλοίωσιν, τὸ φαινόμενον κατὰ τὴν αἴσθησιν ἐξ ἀνάγκης ἀληθὲς εἶναι φασι· ἐκ τούτων γὰρ καὶ Ἐμπεδοκλῆς καὶ Δημόκριτος καὶ τῶν ἄλλων ὡς ἔπος εἰπεῖν ἕκαστος τοιαύταις δόξαις γεγέννηται ἔνοχοι. καὶ γὰρ Ἐμπεδοκλῆς μεταβάλλοντας τὴν ἔξιν μεταβάλλειν φησὶ τὴν φρόνησιν...

We may translate, rather tentatively:

In general it is because they suppose sense-perception to be understanding, and this to be alteration, that they say that what appears to sense-perception is necessarily true.

¹² This general correlation remains valid, even though Aristotle's view of the interaction of intellect and the senses is far more complex than it may seem at first sight; for some useful qualifications on this point, see Kahn (1992, p. 367-72).

¹³ For a detailed discussion of this argument and Aristotle's refutation, see Kenny (1967) and the commentaries *ad loc.* of Ross (1924, p. 273-278) and Kirwan (1971, p. 108-112).

For it is for these reasons that Empedocles, Democritus, and, one may almost say, all the others have become liable for this kind of opinions. For Empedocles actually says that a person's understanding changes as he changes his state [...].

Here follow the two quotations of Empedocles (31 B 106 and 108 DK) and one of Parmenides (28 B 16 DK); further testimonies invoked are Anaxagoras – recorded to have said once to his friends that things would really be for them however they supposed them to be – and Homer, who is blamed for having written that Hector, when unconscious from a blow, lay on the ground “understanding other things” (ἄλλοφρονέοντα),¹⁴ as if to be out of one's mind (παραφρονεῖν) were some kind of thought or understanding (φρονεῖν, φρόνησις) as well (1009b18-33). Aristotle concludes pointing out the fatal consequence: if first-rate thinkers, who came closer to possible truth than anyone else, nourished this kind of opinions about truth, then beginners in philosophy may well despair (1009b33-1010a1).

The entire passage is surely startling, although its general sense is quite plain: Protagorean relativism is presented, rather summarily, as the logical outcome of all pre-Platonic philosophy. How exactly this may be remains rather obscure. Democritus, Empedocles, Parmenides, Anaxagoras, and even Homer are invoked as forerunners of Protagoras¹⁵ and, as it might seem at first sight, as partisans of the view that “all appearances are true.” One feels that Aristotle cannot be all too serious about this. There is surely a somewhat playful and frivolous air about this fictitious genealogy; but this impression should not prevent us from attempting to make sense of it.

The reasoning Aristotle attributes to his opponents is far from transparent. The decisive statement (1009b12-15) is loaded with ambiguity. To begin with, φρόνησις might mean “knowledge” or simply “thought”. The context, as well as general Aristotelian usage, may suggest the former;¹⁶ but this is surely not the sense φρονεῖν and its cognates have in the quotations of Empedocles, Parmenides, and Homer, and it seems rather unlikely that Aristotle should have mistaken it in this sense.¹⁷ So I choose, for the moment, the more neutral term “understanding”. The syntax is somewhat ambiguous also: ὑπολαμβάνειν φρόνησιν τὴν αἴσθησιν could mean “suppose that sense-perception is understanding” or inversely, “[...] that understanding is sense-perception”;¹⁸ grammatically, however, the former seems the far more natural reading.¹⁹ And finally, the second clause, “and [they take] *this*

¹⁴ Cf. *Il.* 23,698; the verse, however, refers to Euryalus, not to Hector; cf. *De an.* 404a29, where the same phrase is said to have been quoted by Democritus.

¹⁵ A similar view is already found in Plato's *Theaetetus* (152e), where Heraclitus, Empedocles, and Homer are said to agree with Protagoras; Parmenides, however, is expressly excepted.

¹⁶ Ross (1924, p. 276) contends that the lines about Homer (1009b31-33) “bring out clearly the fact that Aristotle is taking φρόνησις as meaning knowledge, not merely thought,” although a few pages before (p. 273) he translated, at 1009b12, “They identified *thought* with sensation” (italics are mine). See also Leshner (1994, p. 11, n. 21). For Aristotelian use of φρόνησις, see *De an.* 427b8-10: τὸ νοεῖν... τὸ μὲν ὀρθῶς φρόνησις. The more specific definition in *Eth. Nic.* 1140b5, quoted by Kirwan (1971, p. 108) is hardly relevant here, as rightly stated by Hamlyn (1968, p. 129f.) and Caston (1996, p. 24, n. 11).

¹⁷ In fact, the second quotation of Empedocles (B 108) refers to dreams; cf. Ps.-Philoponus, *In De an.* 486,13-16; Simplicius, *In De an.* 202,30-34. To assume that Empedocles and the other authors quoted here spoke of φρονεῖν in the Aristotelian sense of “knowing,” or any other that implies ascertainment of truth (so already Alexander of Aphrodisias, *In Met.* 306,16: φρόνησιν τὰ ληθοῦς εἶναι γνωστικὴν), would indeed “make the argument turn on a very questionable point” (Caston, 1996, p. 34, n. 32).

¹⁸ Ross (*in Barnes*, 1984), Kenny (1967, p. 185) and Leshner (1994, p. 11) translate “because these thinkers suppose knowledge to be sensation”; the inverse reading is favoured by Kirwan (1971, p. 17): “because they believe that perception is wisdom”, Caston (1996, p. 34): “they suppose perception is thought”, and Mansfeld (1996, p. 160): “[...] auraient considéré ‘la perception comme un savoir’”.

¹⁹ See Kühner and Gerth (1963, 2.1, p. 590-593): in a subject-predicate phrase in which both terms are nouns, the article accompanies the subject rather than the predicate; if the subject lacks the article, so does the predicate, except when the predicate term can have the required meaning only with the article (e.g. ὁ αὐτός).

(ταύτην) to be alteration,” can be taken as referring to αἴσθησις – as most interpreters understand it – or to φρόνησις (Caston, 1996, p. 34; Hussey, 2006, p. 20); again, the former seems more natural from a grammatical point of view, but some legitimate doubt may still remain.

At any rate, since no explicit grammatical subject is given, we are to understand that the subject is still ἔνιοι (1009b1), those who infer the truth of appearances from the observation of sensible things, that is, some of the people perplexed by philosophical difficulties (1009a18) – possibly the “beginners in philosophy” mentioned at the end of the passage –, not Empedocles and the other philosophers, who are introduced only in the next sentence. Indeed, it seems unlikely that Aristotle wished to saddle Empedocles or Parmenides with the explicit view that all appearances are necessarily true. These are said instead to have “become *liable* (ἐνοχοί)²⁰ for this kind of opinions,” which is not quite the same as having explicitly defended them: rather we are to understand that these philosophers were held responsible for such opinions – perhaps by being frequently quoted by followers of Protagoras –,²¹ and in a certain way they actually were, at least insofar as they shared the basic assumptions underlying the relativists’ argument.

This distinction is further obscured by the fact that Democritus, one of these unwitting precursors of relativism, had been quoted also immediately before the crucial statement (at 1009b11-12), that time as saying that either nothing is true or truth is hidden to us. But this, at least if taken literally, would plainly contradict rather than confirm the opinion that all appearances are true.²² Aristotle, to be sure, seems to make no explicit difference here between what we might term relativism proper (“All beliefs and appearances are true”), skepticism or agnosticism (“Truth is hidden to us”), and epistemological nihilism (“Nothing is true”). Indeed, any of these positions can be justified largely by the same arguments; and in Aristotle’s view, relativism entails negation of the principle of non-contradiction anyway; so we may think he did not care all too much about the difference.²³ But I think we get a more coherent sense of the text on the assumption that what Democritus himself is reported to have actually said (“Nothing is true, or truth is hidden to us”) is to be distinguished from the conclusions *others* derived from his arguments (“All appearances are true”):²⁴ the preceding clause (1009b9) might indeed justify any of the three conclusions. Therefore I suggest the quotation of Democritus at b11-13 is best understood if read, as it were, in parenthesis, interrupting the argument of the relativists, which is resumed immediately after, as the return to the plural form (φασιν) makes sufficiently clear.

In this reading, Aristotle is careful enough to distinguish actual relativists – as it seems, mainly beginners in philosophy who, perplexed by theoretical difficulties,

²⁰ *LSJ*, s.v., take ἐνοχος here as = ἐνεχόμενος, “held in”, “bound by”; but I think the word can be more pertinently understood in the current juridical sense of “liable to the imputation of,” as in Plato, *Tht.* 148b ε. τοῖς ψευδομαρτυρίοις; Isocr. 8.7 ε. ἀνοίαις; Aeschin. 2.146 ε. ἀμαρτήμασι, etc.

²¹ Protagoras himself, as it seems, drew quite freely on the theories of Heraclitus, Anaxagoras, and Democritus (cf. Prot. 80 A 14 DK = Sext. *Pyrrh. h.* 1.217-219, with Democritus, 68 A 112, B 14, etc.); up to this point, Aristotle’s assessment of the origins of relativism seems not entirely devoid of historical truth.

²² Cf., however, *De an.* 1.2, 404a, where something similar to the latter opinion (ἀληθές εἶναι τὰ φαινόμενα) is explicitly attributed to Democritus.

²³ Aristotle, in fact, distinguishes later on the thesis that “nothing is true” and that “everything is true” (*Met.* Γ 8, 1012a31-33), remarking that both are self-refuting (1012b13-22).

²⁴ Indeed, Democritus rejected Protagorean relativism explicitly and with detailed argument (see Plut. *Adv. Col.* 1108f = 68 B 156 DK, and Sext. *Adv. math.* 7.389 = 68 A 114); Aristotle should have known that. For Democritus there is, of course, genuine knowledge of truth (i.e. of the reality of atoms and the void: see 68 B 11; cf. B 125); but he shares the same view concerning the relativity of sense-perception (cf. 68 B 6-10) that supplied the munitions for relativistic reasoning, and this is all Aristotle is concerned with here. In other words, Aristotle tells only half the truth about Democritus’ theory of knowledge; but he does not ascribe to him any view that he did not actually hold.

fall prey to Protagorean arguments— from those respectable philosophers who unwittingly fostered relativistic views without expressly espousing them.²⁵ The distinction, to be sure, is constantly –and, as it appears, intentionally– blurred, but never totally abandoned, as the exposition goes back and forth from the views of one group to those of the other.

Thus Empedocles, Parmenides, Democritus, and the others have become liable for Protagorean opinions, in Aristotle’s view, by confusing knowledge or thought with sense-perception and taking sense-perception (or understanding?) to be a kind of alteration. But why should it follow from these assumptions that “what appears to sense-perception is necessarily true”? One quite simple way of reconstructing the argument would run as follows: sense-perception is (an instance of) knowledge; therefore, if you *perceive* *x* as *F*, you *know* that *x* is *F*; hence (since you cannot *know* that *p* if *p* is not true) it is true that *x* is *F*.²⁶ This seems to fit quite well with the text, though the second premiss (“sense-perception is alteration”) would be redundant. In this interpretation, Protagoreans would have been misled –just as modern phenomenologists were in Gilbert Ryle’s view (Ryle, 1949, p. 238f.)– by the delusive infallibility suggested by “achievement verbs” such as “perceive,” “see,” “hear,” “detect,” and the like: just as you cannot win a race unsuccessfully, you cannot actually see or perceive a rabbit if there is none. However, Aristotle’s introducing remark makes sufficiently clear that he is not concerned here with sophistical snares of language (τοῦ ἐν τῇ φωνῇ λόγου καὶ τοῦ ἐν τοῖς ὀνόμασιν, 1009a21), but with genuine philosophical difficulties; so we should give his Protagorean opponents a somewhat better chance.²⁷

Anthony Kenny (1967, p. 184) observed that in the *Metaphysics* the arguments under discussion often become clearer in the refutation than in the presentation;

²⁵ This distinction was clearly perceived by Alexander of Aphrodisias (*In Met.* 307,18-23 Hayduck): “He tries to tell the origin of the error of those who, on the one hand, take understanding and perceiving to be the same thing and, on the other, believe that every opinion and imagination is true, which was the opinion of Protagoras; but he [Aristotle] has shown that also Empedocles, Parmenides, Democritus, and Anaxagoras were heading in that direction (ἐλθόντας ἐπὶ τοῦτο).”

²⁶ I give here a slightly simplified version of Kirwan’s reconstruction of the argument (Kirwan, 1971, p. 108). In a very similar way the argument was already construed by Alexander of Aphrodisias (*In Met.* 306, 5-17 Hayduck): “What is manifest to understanding is true; but understanding and sensation are the same thing: therefore, what appears to sensation is true” (306, 11-13: ἀληθὲς μὲν γὰρ εἶναι τὸ τῇ φρονήσει δοκοῦν, τὴν δὲ φρόνησιν τῇ αἰσθήσει ταῦτόν εἶναι· διὸ ἀληθὲς εἶναι τὸ τῇ αἰσθήσει φαινόμενον). But the assumption that understanding is always correct is not mentioned in Aristotle’s text; so Alexander indeed “ignores an explicit premise in favor of a tacit one,” since he (like most modern interpreters: see n. 36) “has almost no use for Aristotle’s emphasis on alteration” (Caston, 1996, p. 34, n. 32).

²⁷ A different reconstruction of the argument has been recently proposed by Hussey (2006): Parmenides and Empedocles held what Hussey calls an “inner model theory” of the mind, for which all mental states with a content “consist in having, *inside* the mind, a scale model of the situations that are perceived or imagined or planned” (Hussey, 2006, p. 26). For this kind of theory, it is claimed, “all *phronein* consists of direct inner awareness of an inner model” (it is unclear to me what this awareness should consist in: maybe in having a second-degree model of the model? Or is the model meant to imply its own awareness of itself?), and “therefore is generically without error; and sense-perception is just a particular case of *phronein*” (Hussey, 2006, p. 27). But this would be, in the first place, a rather awkward way of reaching the conclusion that all sense-perception is true: the supposed infallibility of mind’s “inner awareness” of its own states, as Hussey admits, “still leaves open the possibility that the inner model, for some reason, does not always correctly represent the outside realities” (Hussey, 2006, p. 27). Thus little is gained for relativism on that way, unless we add the further premiss that there is nothing for the mind to know or perceive – nothing to be right or wrong about – but its own inner states (“All perception, then, must be the mind’s own *self-awareness*, its direct and infallible awareness of its own inner states”, Hussey, 2006, p. 27): a rather strong brand of solipsism, of which I confess I cannot see any trace in Aristotle’s refutation nor in any of the thinkers he quotes. Moreover, the relativistic line of reasoning Aristotle attacks is clearly not meant to be understood as a *deduction* from the supposed general infallibility of φρονεῖν to sense-perception as “just a particular case of *phronein*,” as Hussey construes it, but on the contrary as an (erroneous) *induction* from sense-perception to understanding or knowledge in general: Aristotle makes this plain at the outset, stating that the opinion that all appearances are true was inferred from the observation of sensible things (1009a38-b1; cf. 1010a1-5).

but this resource, at least at first sight, seems to be of no great help in the present case. The relativistic reasoning of 1009b2-11 is rebutted at 1010b3-26: conflicting perceptions of different people are not on equal footing (nobody would actually grant equal confidence to the perceptions of those who see from a distance and those who see from near at hand, of the sick and the healthy, the dreaming and the waking, the expert and the layman), and something similar goes for the different senses (each sense is competent to perceive its specific objects: sight for colour, taste for flavour, etc.); and finally, the same person may have at different moments conflicting perceptions of the same *object*, but not of the same *quality*. A refutation of the general conclusion that all appearances are true is hinted at rather than developed in detail at the opening of the passage: “Even if perception of the specific object [of each sense] is not false, still imagination is not the same thing as sense-perception.”²⁸ But the premises of the argument – the crucial and problematic identification of understanding, sense-perception, and alteration – are not mentioned again, nor are we given any indication as to why these should be wrong.

The parallel argument in *De an.* 3.3.

More helpful is a comparison with the parallel argument in *De an.* 3.3, where Aristotle deals with the difference between thinking or understanding (νοεῖν, φρονεῖν) and perceiving. Thinking and understanding –he says– seem to be something similar to sense-perception, since in both cases the soul discriminates and knows something real. Indeed, the ancients said that thinking and perceiving are the same thing (427a21-22). As evidence for this claim, Aristotle quotes, with some minor variants, the same verses of Empedocles he used also in *Met.* Γ 5, followed by the well-known Homeric verse about the variability of the human mind (*Od.* 18,136); Parmenides and Democritus are not mentioned this time. Then he goes on (427 a26-b5):

πάντες γὰρ οὔτοι τὸ νοεῖν σωματικὸν ὥσπερ τὸ αἰσθάνεσθαι ὑπολαμβάνουσιν, καὶ αἰσθάνεσθαι τε καὶ φρονεῖν τῶ ὁμοίῳ τὸ ὅμοιον [...]. καίτοι ἔδει ἅμα καὶ περὶ τοῦ ἠπατηῆσθαι αὐτοὺς λέγειν, οἰκειότερον γὰρ τοῖς ζώοις, καὶ πλείω χρόνον ἐν τούτῳ διατελεῖ ἡ ψυχὴ· διὸ ἀνάγκη ἦτοι, ὥσπερ ἔνιοι λέγουσι, πάντα τὰ φαινόμενα εἶναι ἀληθῆ, ἢ τὴν τοῦ ἀνομοίου θίξιν ἀπάτην εἶναι, τοῦτο γὰρ ἐναντίον τῶ τὸ ὅμοιον τῶ ὁμοίῳ γνωρίζειν.

For they all suppose thinking to be something bodily, just like perceiving, and that the like is perceived and known by the like [...].

However, they ought to have talked at the same time about error as well, which is rather habitual in living beings, and the soul remains in it for a rather long time: therefore, it is necessary that either, as some say, all appearances are true, or else that contact with the unlike is error, since this is the contrary of the like being known by the like.

Here the identification of thought and sense-perception which Aristotle attributes to the ancient thinkers is given a precise meaning: they are “the same thing” insofar as both are bodily or physical processes. Moreover, these thinkers explain knowledge as well as sensation by contact of the like with the like. But in Aristotle’s opinion, these theories do not account for the difference between true knowledge

²⁸ *Met.* 1010b2-3: ὅτι οὐδ’ <εἰ> ἡ αἴσθησις <μὴ> ψευδῆς τοῦ γε ἰδίου ἐστίν, ἀλλ’ ἡ φαντασία οὐ ταῦτόν τῃ αἰσθήσει (with Bonitz’ and Ross’ corrections); cf. *De an.* 427b14-24; for a detailed discussion, see Kenny (1967, p. 190-193) and Schofield (1992, p. 257-258); on the latter, cf. the critical remarks of Everson (1997, p. 182, n. 99).

and error and hence lead to the conclusion that all appearances are true, unless they try to explain error by “contact with the unlike”; this solution is rejected on the ground that knowledge of (or error about) something and its contrary is one and the same (427b5-6).

This time the refutation of the opinion that thinking and perceiving are the same thing is somewhat more detailed. Aristotle begins with a – rather sketchy and provisional – account of the difference: thinking ($\nu\omicron\epsilon\acute{\iota}\nu$) can be right or wrong, while perception of the specific objects (of each sense) is always true;²⁹ perception is present in all living beings, thinking (and hence understanding, which is an instance of right thinking) only in rational beings (427b6-14). Furthermore, imagination ($\phi\alpha\nu\tau\alpha\sigma\acute{\iota}\alpha$) is to be distinguished both from thought and sensation (427b14ff.); later on, Aristotle distinguishes various levels of reliability within sense-perception itself (428b18-25).³⁰

However, the argument of those who said that all appearances are true is not mentioned again, nor are we told by what way of reasoning they came to that conclusion. At any rate, it should be plain that the assumption that thinking or understanding and perceiving are the same thing is not sufficient to establish this conclusion, even if joined with the additional premiss that one of the terms – understanding or sense-perception – is *per se* infallible: it would clearly not follow from this that the other also is, since both are supposed to be identical only *secundum quid*, insofar as both are bodily processes; and Aristotle is clearly not saying that his opponents obtained the conclusion that “all appearances are true” by faulty reasoning, but that this conclusion follows *necessarily* ($\acute{\alpha}\nu\acute{\alpha}\gamma\kappa\eta$ 427b2; cf. $\acute{\epsilon}\xi\ \acute{\alpha}\nu\acute{\alpha}\gamma\kappa\eta\varsigma$ *Met.* 1009b14) from the premises stated.

Therefore we should suspect that at least one decisive premiss for the relativistic argument would be that “the like is perceived and known by the like”. The fundamental flaw of like-by-like theories of cognition, as Aristotle sees it, has been pointed out already in the first book of *De anima* (409b26-410a13): even if one concedes that each element present in the soul perceives or knows its like when present in external objects – fire is perceived by fire, earth by earth, etc. (cf. Empedocles B 109)–, this will still not explain how we can perceive or know not only elements but actual *objects*, such as ‘man,’ ‘flesh,’ or ‘bone,’ which are not simply the same as the elements they are composed of, but those elements combined in a certain proportion and composition. If we confront this aporetic discussion of the problem (where Aristotle still avoids introducing his own terminology) with Aristotle’s own solution given in Book III, it seems obvious that what like-by-like theories fail in his view to account for is knowledge of *forms* ($\epsilon\acute{\iota}\delta\eta$), i.e. the specific function of $\nu\omicron\upsilon\varsigma$ as distinct from sense-perception. This would clearly confirm our hypothesis about what was, for Aristotle, the correct distinction between sense-perception and thought the ancients failed to make; but on how this failure should be relevant to the relativistic conclusion that “all appearances are true,” he is no more explicit in *De anima* than in *Metaphysics* Γ 5.

Indeed, the arguments in *Met.* and *De an.* are closely parallel, but not strictly identical. Discrepancies may be due to difference of context and purpose – in *De an.* Aristotle is not concerned with relativism, but with the difference between thinking and perceiving –, but should not be neglected. To begin with, we may doubt whether

²⁹ This statement is qualified soon after: perception of the specific sensibles is true, “or subject to the least amount of error possible” (428b19; on this startling qualification, cf. Block, 1961); on the other hand, there is also a form of *thinking* which is always true (430a26, b27-30): therefore, this criterion for distinguishing perception from thinking is indeed of very scarce value (as remarked by Hamlyn, 1968, p. 130).

³⁰ On Aristotle’s account of errors of perception, see Block (1961), Caston (1996), Bradshaw (1997) and Birondo (2001).

saying that sense-perception is understanding means exactly the same as identifying both: the former might simply mean that sense-perception is an *instance* of knowledge or understanding – or, as Mansfeld (1996, p. 165) puts it, a species of the genus knowledge –, without entailing that, inversely, *all* knowledge is sense-perception.³¹ More conspicuously, the second assumption – “Sense-perception (or understanding?) is alteration” – is replaced in *De anima* by the thesis that “the like is perceived and known by the like;” and finally, whereas the *Metaphysics* argument leads straight up to the conclusion that what appears to sense-perception is necessarily true, the *De anima* version seems to leave open the possibility that error might consist in contact with the unlike. Aristotle gives a good argument to reject this explanation (427b5-6); but how can he be sure that the like-by-like theorist must be *necessarily* unable to come up with any better account? What Aristotle means to convey is, as it seems, that this kind of theory is intrinsically unable to give any minimally convincing account of the difference between truth and error, so that attempts at explaining error within the frame of such theories can be dismissed as irrelevant without much discussion; indeed, in *Met.* Γ 5 such attempts are not even mentioned. But what could justify, in Aristotle’s view, this harsh judgment on his predecessors?

As far as the like-by-like theorists of *De anima* are concerned, it would surely suffice if one could show that the alternative pointed out by Aristotle is conceived as a genuine logical dilemma, i.e. that Aristotle views these theorists as committed to hold that either all appearances are true, or else contact with the unlike is error, with no further option left to them. Indeed, at least if the like-by-like thesis is taken at face value, as saying that knowledge and (true) perception of objects *is* (the same as) contact of like with like – which would entail that just *any* contact of like with like produces true perception or knowledge –, then it seems hard to conceive of any other explanation of error but by contact with the unlike.³² One might still object, of course, that error could spring from other factors alien to any interaction with the like or the unlike, v. gr. from the physical or mental state of the thinking or perceiving subject (a possibility Aristotle does not seem to take into account here); but then these other factors should be expected to intervene in some way or other in correct perception and knowledge as well, or it would have to be at least explained why they should not: at any rate, it would turn out that the like-by-like theory cannot be the whole story.

In the *Metaphysics* version of the argument, after all, the like-by-like theory is not mentioned; instead, Aristotle speaks of the assumption that sense-perception is a form of “alteration,” which seems to be, in his view, the more general form of the ancient thinkers’ conception of sense-perception.³³ Since the argument leads to the same conclusion that all sensible appearances are true, it seems likely that the ancients’ inability to account for error is rooted, in Aristotle’s view, in something deeper and more general than the premises stated in *De an.* 3.3; so we should better return to the *Metaphysics* argument once again.

³¹ Therefore Ross’ (1924, p. 273) paraphrase “They identify thought with sensation” is somewhat misleading.

³² A similar – though far more complex – dilemmatic reconstruction of the argument has been proposed by Caston (1996, p. 27-33).

³³ See *De an.* 2.5, 416b33-35: ἡ δ’ αἴσθησις [...] δοκεῖ γὰρ ἀλλοίωσις τις εἶναι. φασὶ δὲ τινες καὶ τὸ ὅμοιον ὑπὸ τοῦ ὁμοίου πάσχειν. The alteration theory of sensation and knowledge might have been meant to include also those ancient philosophers who – at least according to Theophrastus (*De sens.* 1 and 49) – did not endorse the like-by-like theory, such as Anaxagoras, Heraclitus, and perhaps Democritus (Caston, 1996, p. 35). It is not evident, however, that Aristotle and Theophrastus agreed on this point (indeed, Theophrastus might have been correcting Aristotle’s views: see Mansfeld, 1996, p. 169); but at least in the case of Anaxagoras – for whom the intellect has “nothing in common with anything” (*De an.* 1.2, 405b20-21; 3.4, 429b23-24) – it seems very unlikely that Aristotle should have taken him to defend a like-by-like theory of thought or knowledge.

What is wrong with alteration theories?

I think a decisive clue to the problem can be found in a passage of the *Meta-physics* following immediately after the one we have discussed (1010a1-5):

αἴτιον δὲ τῆς δόξης τούτοις ὅτι περὶ τῶν ὄντων μὲν τὴν ἀλήθειαν ἐσκόπουν, τὰ δ' ὄντα ὑπέλαβον εἶναι τὰ αἰσθητὰ μόνον· ἐν δὲ τούτοις πολλὴ ἢ τοῦ ἀορίστου φύσις ἐνυπάρχει καὶ ἢ τοῦ ὄντος οὕτως ὥσπερ εἴπομεν· διὸ εἰκότως μὲν λέγουσιν, οὐκ ἀληθῆ δὲ λέγουσιν.

The ground of this opinion of theirs was that, in searching for the truth about the things-that-are, they supposed to be things-that-are only the sensible things; and in these there is much of the nature of the indeterminate and of that which is such as we have said; therefore they argue reasonably, but do not tell the truth.

On this account, the basic mistake of the ancient thinkers was having started from a wrong premiss: they assumed that the only real things are sensible things, objects of sense-perception. This assumption would surely not exclude that there might be other forms of mental process different from direct sense-perception, such as reasoning, memory, or imagination, even if these were conceived as being essentially of the same nature as sense-perception: that is, as physical or bodily processes related to sensible things as their objects. But if there is no other reality but objects of sense-perception, this would at least make plausible the claim that, for knowledge of reality in general, sense-perception is to be regarded as the ultimate instance of verification (as indeed it is, even in Aristotle's own view, for the sensible qualities specific to each sense), or at least it would seem somewhat hard to justify why any other kind of mental process should be more competent to judge of objects of sense-perception than sense-perception itself.³⁴ Thus it would make quite exact sense to say that "sense-perception is knowledge."

Now Aristotle seems to concede that Protagoreans were right up to a certain point, at least insofar as objects of sense-perception are concerned; although this concession is qualified soon after: indeed we *can* discriminate between true and false perceptions of sensible things and qualities (1010b3-26). But why then the sensualist (as we may call, for brevity's sake, anyone who holds that sense-perception is knowledge) should be committed to the relativistic conclusion that all appearances are true? To be sure, commonplace instances of divergent sense-perceptions, such as differences of taste (1009b3ff.), give a better start for relativistic reasoning than, let us say, astronomy or mathematics; but the conclusion seems by no means fatal: why should the sensualist be *necessarily* unable to come up with some theory explaining the difference between right and wrong perceptions, more or less analogous to Aristotle's own? The conclusion that sensible appearances are necessarily true seems still to require some additional premiss, more or less equivalent to the number argument at 1009b2: some reason to believe that *all* perceptions are on

³⁴ This problem is patent in the fragments of Democritus, who actually *did* explicitly distinguish intellectual knowledge as distinct from – and superior to – sense-perception, when he said that genuine knowledge (γνησίη γνώμη) is separate from each of the senses and able to grasp things too tiny for them to perceive (68 B 11 DK); the senses cannot apprehend the true nature of things, i.e. the reality of atoms and the void (cf. B 9, 10, 117). But as Democritus himself acknowledges, one might easily object that, since reasoning or understanding depends on the information furnished to it by the senses, the dismissal of sense-perception would invalidate the insights of reason as well (see 68 B 125). So it seems that Democritus' strict materialism "leaves him nothing of which to construct the independent critical faculty which he wants to place in judgment over sensations" (Cherniss, 1935, p. 83).

equal footing with respect to truth and knowledge.

In the *Metaphysics* argument, this second assumption is that “sense-perception is alteration (ἀλλοίωσις).” Strangely enough, interpreters – both ancient³⁵ and modern – have rarely asked what, in Aristotle’s opinion, should be wrong with this assumption, and why it should be relevant to the conclusion;³⁶ nevertheless, if our interpretation is right up to this point, this must be a decisive step of the argument. So we should ask why Aristotle would reject this view, and why he would take it to entail, in conjunction with the thesis that “sense-perception is knowledge,” the consequence that all sensible appearances are true.

Indeed, an explicit rejection of the view that sense-perception is an “alteration” is found at two places of *De anima*. At 3.7, 431a4-6, Aristotle states that the sensible object makes the sensitive faculty to be actually what it already was potentially; indeed – he adds – the sensitive faculty “is not affected or altered” (οὐ γὰρ πάσχει οὐδ’ ἀλλοιοῦται) in the process of perceiving; therefore this must be a different kind of movement or change (ἄλλο εἶδος τοῦτο κινήσεως). A more detailed argument is given at 2.5, 417b2-19, where Aristotle deals with the different meanings of the term “to be acted upon” (πάσχειν); sense-perception is treated here in close connection with knowledge and learning. Aristotle argues that the actual exercise of a science by someone who possesses it, being a development towards the knower’s own nature and actuality,³⁷ either is not an alteration, or it is so in a quite different sense; hence it is not correct to say that someone who knows is altered when he makes use of his knowledge, just as a builder is not altered when he is building a house (417b5-9). Similarly, learning or acquisition of knowledge “either should not be termed ‘being acted upon,’ or else there are two forms of alteration: a change to conditions of privation, and another one toward a thing’s disposition and to its own nature (μεταβολὴν [...] ἐπὶ τὰς ἕξεις καὶ τὴν φύσιν)” (b12-16). As to sense-perception, the living being at birth possesses the faculty of sensation just like someone who possesses a science, whereas actual perception is analogous to the exercise of science (b16-19). The gist of the argument seems to be that a change that is indeed the actualization of a being’s own nature cannot be properly termed an “alteration”; this term should better be reserved for instances of “change to conditions of privation” (ἐπὶ τὰς στερητικὰς διαθέσεις μεταβολὴν, b15).³⁸

As to knowledge, Aristotle gives a somewhat different account in *Phys.* 7.3, 247b1-13. Just as all other states or dispositions of the body or of the soul, he argues, knowledge is a relative term (πρὸς τι), which as such does not admit any change (κίνησις) but accidentally:³⁹ someone who potentially knows comes to know actually not by changing himself, but by reason of the presence of the object. Moreover, acquisition of knowledge is not an alteration, for we are said to know (ἐπίστασθαι) and to understand because our intellect has reached a state of rest and come to a standstill (στυῆναι) (b9-12).⁴⁰

³⁵ On Alexander’s reconstruction of the argument, see n. 26.

³⁶ Caston (1996, p. 35) seems to be the only interpreter who has realized that the entire argument hinges on that assumption: “All that is required is that a theory make thinking and perceiving ‘alterations’; and if it does, Aristotle claims, it will be unable to explain error” (on Caston’s interpretation, cf. n. 45). Hussey asks at least the right question when he observes that what is unclear is the relevance of this second supposition – which is “strangely hard to understand” in the context (Hussey, 2006, p. 21) – to the conclusion that all opinions and appearances are true; but he concludes all too hastily that it is only the first supposition (“sense-perception is φρόνησις”) that is meant to require or support this opinion, whereas the alteration thesis “is not at all necessary for Aristotle’s purposes” in this chapter (Hussey, 2006, p. 22). This seems hardly convincing (on Hussey’s interpretation of the passage, see n. 27).

³⁷ 417b6-7: εἰς αὐτὸ γὰρ ἢ ἐπίδοσις καὶ εἰς ἐντελέχειαν; cf. Everson’s (1997, p. 91) pregnant – though somewhat modernizing – rendering “a development of its true self or actuality.”

³⁸ For a more extensive discussion of this passage, see Everson (1997, p. 89-96).

³⁹ For the thesis that for relative terms change can only be accidental, see *Phys.* 5.2, 225b11-13.

⁴⁰ For the etymological play, cf. Plat. *Crat.* 437a, where ἐπιστήμη is derived from ἴσθησις.

Both accounts are indeed not only different (the notion of relative terms, central to the argument in *Physics*, lacks in *De anima*), but strictly speaking incompatible with each other: at *De an.* 431a6, sense-perception is said to be not an alteration, but a different kind of κίνησις, whereas in the account of *Physics* 7.3, although sense-perception is not specifically mentioned here, we should infer that an act of perception, insofar as it is a relation between the perceiver and the perceived object, cannot be a case of κίνησις at all.⁴¹ The underlying assumption, however, is still the same: actualization of something's own nature is not an alteration; this is plain from the immediate context, which is well worth being taken shortly into account here, since it may afford us a somewhat deeper insight into the motives for Aristotle's aversion to alteration theories.

The chapter opens with the statement that everything that undergoes alteration is altered by sensible things, and that there is alteration only in things that are affected in their own right (καθ' αὐτά) by sensible things (*Phys.* 7.3, 245b3-5). States or dispositions (ἕξεις) of the body or of the soul, as well as their loss or acquisition, are not alterations; for such states are either virtues or defects: virtue is perfection (τελείωσις), the most natural state of something (μάλιστα τὸ κατὰ φύσιν), defect is a loss of this condition; these are not "alterations," just as a house when being tiled is not said to be altered, but completed or perfected (246a9-b3). In particular, bodily virtues, such as health, fitness, beauty, or strength, are *relative* to something: they consist in a blending of elements (hot and cold, etc.) in due proportion (συμμετρία), in relation either to one another within the body or to the surrounding. But since relatives are neither alterations nor subject to alteration or change (cf. 225b11), it is evident that neither bodily virtues nor their loss or acquisition are alterations; although it might be – Aristotle adds – that the becoming and perishing of these states *depend on the alteration of something else*, viz. the mixture of elements within the body: hot and cold, dry and wet, "or whatever it may be in which these states primarily reside" (246b3-20). Similarly, the states of the soul, as well as their loss or acquisition, are not alterations themselves, but are originated by alterations of the sensitive part of the soul – pleasures and pains – caused by sensible objects (247a1-18).

Alteration, on this account, takes place on the level of sensible things (the mixture of hot and cold, etc. in the body) and of those which are affected in their own right by sensible things (such as the sensitive part of the soul). But the notion of alteration is not adequate to account for mental and bodily states, even though these can be affected accidentally (225b13; 248a8) by alterations on the sensible or sensitive level: health, virtue, or knowledge may depend on physical or emotional conditions, but cannot be adequately defined in terms of such conditions only. The characterization of the bodily elements or qualities is significant: hot and cold, or wet and dry, "or whatever it may be in which these states primarily reside" (ἢ ἐν οἷς τυγχάνουσιν οὔσαι πρώτοις, 246b16). Aristotle is not concerned here with the merits or demerits of any specific theory of physical elements and their alterations,⁴² but with delimiting the explanatory scope of such theories in general.

In Aristotle's view, therefore, the notion of alteration is appropriate for describing physical and emotional processes, even for defining the physical conditions underlying bodily or mental states, but it is insufficient to explain why some such

⁴¹ This would be consistent with Morel's (2006, p. 136) contention that Aristotle conceived sensation as a case of πράξις (cf. *De part. an.* 1.5, 645b14-20); at least in the light of *Phys.* 7.3, the distinction between κίνησις and πράξις (*Met.* 6, 1048b18-36) would be no obstacle to this view.

⁴² See Ross' commentary *ad loc.*: "Aristotle does not wish to stop to consider whether these are, as he himself thinks, bodies characterized by one or other of the qualities hot and cold [...], or whether some other account should be given, as by Anaxagoras [...] or the Atomists [...]" (Ross, 1936, p. 675).

states are κατὰ φύσιν (virtuous, healthy, etc.) and others are not. We may infer that for the same reasons alteration theories are inadequate to account for sense-perception or knowledge: these may depend on adequate physical conditions – an appropriate state of the body and its relation to its surroundings –, but a description of such states in merely physical terms – in terms of “alterations” of elements – cannot explain why and in what sense these should be adequate or not.⁴³

In other words, alteration theories are unable to account for the difference between right and wrong perceptions – just as for those between health and sickness, beauty and ugliness, etc. – because they place themselves from the beginning on at a wrong level: a level of merely physical description; and at that level, the sensations of the healthy and the sick, the sane and the mad, the expert and the ignorant, can be equally described as “alterations” in the mixture of hot and cold, dry and wet, or whatever. To account for their difference would require a description at an entirely different level, which we might call functional or morphological; only at this level of description we will be able to tell which bodily or mental states of a living being are in accordance with its nature (κατὰ φύσιν, *Phys.* 246 a15), or which of the changes it undergoes are changes towards a better realization of its own nature (ἐπὶ τὴν φύσιν, *De an.* 417b16).

But in order to know what is, for a given living being and for each of its senses, κατὰ φύσιν or not, we need first to have a notion of what this being and its senses *ought to be*; that is, in Aristotelian terms, a notion of its *form* (εἶδος). Now a thing's εἶδος is surely not something we could grasp by sense-perception alone; it requires a different faculty, intellect (νοῦς). The pre-Platonic thinkers lacked this notion of νοῦς as a distinct faculty, correlative to a kind of object which is fundamentally different from sensible things; what they named νόος or νοεῖν was conceived just as a different way of grasping *sensible* objects, the only ones they accepted as real (*Met.* 1010a1-3): in this precise sense, Aristotle could say that they took thinking and perceiving to be “the same thing.” This surely does not mean that, in Aristotle's opinion, these thinkers were unable to make any conceptual distinction between processes of reasoning and processes of direct sense-perception; rather it means that they lacked the theoretical requisites which are needed to tell why this difference should matter, and in which way.

And what is worse, they were unable to account for the difference of true and false even within the domain of sense-perception itself, since such an account would require, on Aristotle's view, a notion of εἶδος, of a formal and final cause – unknown to pre-Platonic thinkers (*Met.* 1.7, 988a34-b1) –, which would permit to distinguish correct perception, as an actualization or realization (ἐπίδοσις εἰς ἐντελέχειαν, *De an.* 417b7) of a living being's natural faculties under adequate conditions, from mere random alterations in the material constituents of its body. In a word, pre-Platonic theories of nature were limited to a merely physical level of description (in terms of material and efficient causes only) and therefore, in Aristotle's view, radically unable to give a coherent account of knowledge or even of sense-perception, which requires an entirely different level of functional-morphological description (in terms of formal and final causes).

Now the sense of the argument at *Met.* 1009b12ff. becomes quite plain. The pre-Platonic thinkers remain at a level of merely physical description of natural processes, since they do not admit as real any other objects but those of sense-perception (1010a1-3); therefore they cannot conceive thought, understanding,

⁴³ Therefore, Aristotle's denial that sense-perception is an “alteration” should not be taken to imply – as Burnyeat (1992) understands it – that perception does not involve any physical change at all (for a critical discussion of Burnyeat's view, see Nussbaum and Putnam [1992], Cohen [1992] and Everson [1997]): it only means that what perception consists in cannot be adequately described in terms of physical change only.

or knowledge as something *essentially* different from sense-perception, nor sense-perception itself as anything else but an “alteration” of physical elements.

Aristotle supports this claim remarking that, for Empedocles and Parmenides, a person’s understanding changes as he changes the state of his body. This might seem incongruous at first sight: the assumption Aristotle attributes to his opponents is not that understanding – or sense-perception – *suffers* alterations, but that sense-perception in itself *is* an alteration.⁴⁴ But as the discussion at *Phys.* 7.3 makes sufficiently clear, Aristotle’s assumption is that alteration theories *cannot* account for this difference: if sense-perception is conceived simply as a physical “alteration,” we are left with no means to distinguish this kind of alteration which sense-perception supposedly *is* from any other alterations it merely *suffers* (by physical or mental illness, illusion, bad observation conditions, etc.). On the alteration theory, in a word, we cannot in principle distinguish true from false sense-perception.⁴⁵ Therefore, if sense-perception is the ultimate instance of knowledge, then *all* perceptions – of the healthy and the sick, the sane and the mad, maybe even those of an unconscious person (*Met.* 1009b29-33) – are equally entitled to count as “knowledge”; so one may legitimately conclude at the very least that “which of them are true and which false is unclear” (1009b9-10).

The alteration theorist, of course, may not wish to actually yield to the relativist’s ultimate conclusion that “all appearances are true;” but, in Aristotle’s view, he has already served to him on a plate all the premises he needs for his argument. At least if the thesis that all perception is knowledge is taken literally, it would be legitimate enough to conclude that things actually *are* just as they are perceived (cf. 1009b31-33) and hence that “anything that appears to sense-perception is necessarily true.” The alteration theorist may still dogmatically cling to some *ad hoc* distinction between truth and error, but, confined as he is to a level of merely physical description, he will not be able, in Aristotle’s view, to give a coherent meta-theoretical account of just why such a distinction should be valid. For the gist of Aristotle’s argument is that the lack of a terminological distinction between αἰσθησις and φρόνησις in the pre-Platonic thinkers reflects a deeper rooted conceptual confusion: not that these thinkers could not see *any* difference between thought and sense-perception; but they failed to recognize νοῦς as a distinct faculty with a distinct object, i.e. as δεκτικὸν τοῦ εἶδους (*De an.* 3.4, 429a15). By ignoring the distinct nature of both νοῦς and its specific objects, the forms or εἶδη, they were unable to

⁴⁴ This apparent incongruity has been accurately observed – though not explained – by Hussey (2006, p. 22): the “strange fact [...] is that none of these citations gives any support to Aristotle’s second thesis” that sense-perception and thinking were conceived of as “alterations”; Parmenides and Empedocles speak of change of thought-contents as being determined by change of bodily state, which is “a different thesis from the one, reported by Aristotle: that *thinking itself* is, or consists in, a change or process.”

⁴⁵ Therefore I agree with Caston’s (1996, p. 40) conclusion that Aristotle’s argument turns on the question “whether an account of [mental] *content* based solely on alteration has any basis for differentiating between veridical and nonveridical states”; but I cannot agree with his further contention that “Aristotle’s criticism of his predecessors has nothing to do with whether alteration is a change away from a thing’s nature.” This, I think, means to miss the teleological dimension of Aristotle’s theory of cognition (on which see Block, 1961, p. 6): in his view, as I take it, alteration theorists cannot differentiate between veridical and nonveridical mental states precisely *because*, to begin with, they cannot tell which of a living being’s mental states are a progress towards realization of its own nature (*De an.* 417b6-7) and which are not. Of course, a mental state’s being “according to nature” is no more than a *minimum condition* for its being veridical: it is not a sufficient condition in itself, since even sound senses and minds go often wrong (hence the need for φαντασία in order to explain error, well expounded in Caston’s paper); but alteration theories, in Aristotle’s view, cannot even account for this minimum condition, since they lack a notion of formal and final causes and hence of what a living being’s nature is. The essential point Aristotle wants to drive home at *Met.* Γ 5 is the philosopher’s need for “forms” (formal and final causes) in order to avoid relativism and skepticism; his own conviction that a coherent explanation of error requires not only a notion of “form,” but also the more technical concept of φαντασία, is shortly mentioned (1010b2-3) but not developed in detail in this context.

distinguish the cognitive acts of a living being from mere physical processes and hence to account for the success or failure of such acts.

It should be noted, however, that Aristotle explicitly acknowledges the logical consistency of his opponents' way of reasoning: "They argue reasonably, but do not tell the truth" (εἰκότως μὲν λέγουσιν, οὐκ ἀληθῆ δὲ λέγουσιν, *Met.* 1010a5). Their error sprang from the assumption that only sensible things are real; therefore – Aristotle continues –, observing that the sensible nature is always changing, they reflected that about what is changing in every way nothing true can be said (1010a7-9; the most extreme partisan of this view was Cratylus: a10-15). In a certain way, this was reasonable (ἔχει τιναῖς αὐτοῖς λόγον, a16-17); but they failed to see that a thing that changes changes from *being* something definite to being something else (a18-22); and after all, we know things by their *forms* (κατὰ τὸ εἶδος ἅπαντα γινώσκουμεν, a25). Moreover, even among the sensible things only the sublunar world is subject to destruction and coming to be (a25-32); and finally, one should try to convince these opponents that there *is* some unchanging reality (a34; cf. 1009a36-38).

The argument has shifted here from the knowing and perceiving subject to the object of knowledge, but both chains of reasoning are strictly symmetrical: the ancients' inability to recognize εἶδος as the proper object of knowledge corresponds to their incapacity to recognize νοῦς as a distinct faculty, whose specific object is the εἶδος; consequently, they could not see in sensible nature anything else but random change or Cratylean flux, just as they could not conceive sense-perception as anything different from mere random alterations of physical elements. Both failures are but two sides or aspects – subjective and objective, as it were – of the same error: their common root is the assumption that only sensible things are real (that is, in strictly Aristotelian terms, that nature is to be explained in terms of material and efficient causes only); and both lead up to the unavoidable conclusion that knowledge of truth is impossible. In Aristotle's view, as is well known from other passages of the *Metaphysics*, it was Plato who first showed the way out of this perplexity: assuming the Cratylean view that all sensible things are in a perpetual state of flux, he concluded that, if there is to be science or knowledge, there must be some permanent reality different from sensible things.⁴⁶

Did Aristotle say that Parmenides and Melissus opposed sense-perception and reason?

Within this general view of the pre-Platonic thinkers, however, Aristotle makes an important qualification for Parmenides and Melissus in *De cae.* 3.1, 298b14-25. These thinkers, as Aristotle understands them, maintained that none of the things that are comes to be or perishes; but this view – he remarks – cannot be considered a *physical* theory, "even if otherwise they argue correctly" (εἰ καὶ τᾶλλα λέγουσι

⁴⁶ *Met.* 13.4, 1078b14-16: [...] ὡς πάντων τῶν αἰσθητῶν αἰεὶ βρόντων, ὡστ' εἴπερ ἐπιστήμη τινὸς ἔσται καὶ φρόνησις, ἑτέρας δεῖν τινας φύσεις εἶναι παρὰ τὰς αἰσθητὰς μενούσας. There is surely, as Kirwan (1971, p. 109) rightly observes, a "disconcertingly Platonic air" about Aristotle's argument at *Met.* 1010a1ff., and one may even suspect, with Evans (1974, p. 195), that some of the arguments in *Met.* Γ 4-6 "seem to go too far in the Platonic direction." But it seems evident that his statement that pre-Platonic thinkers "supposed only sensible things to be real" is just a somewhat Platonizing way of saying that they failed to conceive *formal* causes: this discovery was, according to Aristotle, the great achievement of Plato and his school (cf. *Met.* A 7, 988a34-b1). Aristotle himself is convinced that "things that are" are divided into αἰσθητὰ and νοητὰ (*De an.* 431b21-22), only that the latter are "inherent to sensible forms" (ἐν τοῖς εἶδεσι τοῖς αἰσθητοῖς τὰ νοητὰ ἐστί, *De an.* 432a4-5). Anyway, we may remember that Aristotle on other occasions, when discussing relativistic arguments (*Top.* 6.8; *Eth. Nic.* 3.4), takes a far more critical stance towards Plato (as accurately worked out by Evans, 1974), but this is of little concern to our present discussion.

καλῶς), for the question if there are things not subject to generation or any other kind of change belongs to another and higher inquiry than physics. But since they supposed only sensible things to be real, Parmenides and Melissus, who were the first to understand that some such eternal and unchanging realities are needed if knowledge or wisdom is to be possible, consequently misapplied the arguments which are true of these to sensible things.⁴⁷

If we confront this passage with the statement about Plato at *Met.* 1078b14-16, it seems that, in Aristotle's view, Parmenides and Melissus got halfway towards Plato's discovery of forms: they realized that science requires invariable objects; hence they denied change in sensible things. This was logically consequent (λέγουσι καλῶς), since they shared the assumption – common to all pre-Platonic thinkers – that only sensible things are real; therefore they applied to these the arguments they had better referred to a different kind of objects. But this consequence would evidently bring them into conflict with the fact of change anyone can observe by simple perception. Thus they had to regard change as mere appearance (μόνον δοκεῖν ἡμῖν, *De cae.* 298b17), or, as Aristotle says in a different context, "passing over sense-perception and disregarding it, on the ground that one ought to stick to the argument, they declare that the universe is one and unchanging."⁴⁸ Aristotle remarks that "although according to the arguments all this may seem fairly consistent, according to the facts it would be next door to madness to believe it."⁴⁹ This is just a more rude way of saying what Aristotle has stated more politely elsewhere: "They argue reasonably, but do not tell the truth" (*Met.* 1010a5).⁵⁰ Since they started from false premises, strict logical consequence led these thinkers to deny facts anyone can grasp with his hands and see with his eyes: in this sense they were "disregarding sense-perception." Formally sound reasoning (λόγος, λόγοι), though vitiated by false premises, is opposed here, in Aristotle's own terms, to facts of observation (αἴσθησις). There is nothing to suggest that Aristotle attributed to Parmenides and Melissus the belief that λόγος is a distinct mental faculty,⁵¹ and therefore nothing that would conflict with his statement that the ancients took thinking and perceiving to be "the same thing," in the precise and limited sense it should be understood. Parmenides and Melissus, in Aristotle's view, surely distinguished argument from observation, and preferred the former to the latter; but precisely because they were unable to recognize νοῦς as a distinct mental faculty with a distinct kind of object, the εἶδη, they applied their arguments to the "sensible things" and hence had to deny the most elementary facts of observation.

Very much of the same applies to the passage at *Met. A*, where Parmenides is said to have taken a far more conciliatory stance towards sense-perception: "But being forced to follow the phenomena, and assuming that what is one κατὰ τὸν λόγον is many according to sense-perception, he poses two causes and two principles, hot

⁴⁷ *De cae.* 298b22-25: ἐκείνοι δὲ διὰ τὸ μὴ εἶναι ἄλλο παρὰ τὴν τῶν αἰσθητῶν οὐσίαν ὑπολαμβάνειν εἶναι, τοιαύτας δὲ τινὰς νοῆσαι πρῶτοι φύσεις, εἴπερ ἔσται τις γνῶσις ἢ φρόνησις, οὕτω μετήνεγκαν ἐπὶ ταῦτα τοὺς ἐκείθεν λόγους. For a well-argued defense of Aristotle's view on this point, see Kerferd (1991).

⁴⁸ *De gen.* 1.8, 325a13-15: ὑπερβάντες τὴν αἴσθησιν καὶ παριδόντες αὐτὴν ὡς τῷ λόγῳ δεῶν ἀκολουθεῖν, ἐν καὶ ἀκίνητον τὸ πᾶν εἶναι φασι κτλ.

⁴⁹ *De gen.* 325a17-19: ἐπὶ μὲν τῶν λόγων δοκεῖ ταῦτα συμβαίνειν, ἐπὶ δὲ τῶν πραγμάτων μανίᾳ παραπλήσιον εἶναι τὸ δοξάζειν οὕτως.

⁵⁰ At other moments, Aristotle's judgment on the formal correction of Eleatic reasoning is far less favourable: both Parmenides and Melissus "start from false premises and their conclusions do not follow" (ψευδῆ λαμβάνουσι καὶ ἀσυλλόγιστοί εἰσιν, *Phys.* 1.2, 185a9-10); Melissus' argument is "gross and offers no difficulty" (185a10-11), and the reasoning of Parmenides is equally inconsistent (186a22-24). But here Aristotle is not discussing the postulation of an unchanging reality – partially justified in his own view –, but specific arguments supporting the thesis that "all is one," which Aristotle is far less sympathetic to; this may explain the apparent difference of judgment.

⁵¹ Therefore it is misleading, I think, to translate *De gen.* 325a14 τῷ λόγῳ ἀκολουθεῖν "to follow reason" (so e.g. H.H. Joachim in Barnes, 1984).

and cold [...].”⁵² We may doubt whether κατὰ τὸν λόγον means here “according to the argument” – the famous (and surely apocryphal) “argument of Parmenides”⁵³ reported immediately before (986b28-30) – or rather “according to definition.” The latter interpretation is strongly supported by the preceding passage (986b19-20), where Aristotle says that Parmenides conceived the One κατὰ τὸν λόγον, Melissus κατὰ τὴν ὕλην: here the meaning “according to definition” is evident from comparison with the anti-Eleatic polemic in the first book of the *Physics*.⁵⁴ At any rate, there is nothing to suggest that κατὰ τὸν λόγον should mean, in either of these passages, “according to reason,” understood as a distinct mental faculty and as such opposed to sense-perception; though it is also quite evident that later readers, influenced by the philosophical terminology of the Hellenistic age, might easily misunderstand Aristotle’s statement in precisely this sense.

But what Aristotle means is something quite different: Parmenides was led by abstract reasoning to the conclusion that what-is is one; but since this thesis, if consequently applied, would not allow him to account for observable facts of nature, he had to base his theory of the physical world on entirely different premises, which were inconsistent with his own previous conclusions. In Aristotle’s view (which is, of course, rather questionable at this point), Parmenides’ physical principles were a forced concession to evidence, not a coherent development of his own theory of Being. His great metaphysical discovery – the need for invariable objects for science to be possible – remained sterile; for in the form he gave it, as directly referred to sensible things, it had no possible application to the study of nature. Hence Parmenides’ own theory of nature remained at the same level of merely physical description as all pre-Platonic thought: nature is a random mixture of elements, and sense-perception – conceived as a mere physical alteration – is still the ultimate instance of knowledge.

In other words, what Aristotle attributes to Parmenides is not a dualist world-view, with two neatly separated levels of reality and of knowledge (“according to reason” and “according to sense-perception”),⁵⁵ but plain incoherence: the two parts of his philosophy are disjointed, with no logical articulation leading from one to the other. But this incoherence, in Aristotle’s view, is due precisely to the fact that Parmenides referred his metaphysical arguments *directly* to the physical world, in overt contradiction with observable fact; in other words, it is due to the fact that he was not able to conceive a distinct level of application for these arguments – a level of eternal and unchanging *forms* underlying all sensible nature – nor a distinct mental faculty correlative to forms, essentially different from sense-perception and bodily processes.

Conclusion

We may finally ask up to which point Aristotle was right in his assessment of pre-Platonic thought. His general view that these thinkers supposed to be real only “sensible things” – i.e. that they did not conceive any “intelligible” objects in a Platonic or Aristotelian sense – seems fairly accurate: indeed, none of them seems to have thought of natural kinds or species as eternal and unchanging “forms” in-

⁵² *Met.* A 5, 986b31-34: ἀναγκαζόμενος δ’ ἀκολουθεῖν τοῖς φαινομένοις, καὶ τὸ ἐν μὲν κατὰ τὸν λόγον πλείω δὲ κατὰ τὴν αἴσθησιν ὑπολαμβάνειν εἶναι, δύο τὰς αἰτίας καὶ δύο τὰς ἀρχὰς πάλιν τίθησι, θερμὸν καὶ ψυχρὸν, κτλ.

⁵³ See Simplicius, *In Phys.* 115, 11 Diels (Parmenides 28 A 28 DK) τὸν Παρμενίδου λόγον, with detailed reference to the earlier commentators of Aristotle.

⁵⁴ See Ross’ commentary *ad loc.* (Ross, 1924, p. 153); cf. *Phys.* 1.2, 185b8-9: “one” can mean either “continuous” or “indivisible” or “having the same definition” (ὡν ὁ λόγος ὁ αὐτός; cf. 185b20 τῶν λόγων ἓν); Parmenides is taken to have understood the “One” in the third sense, arguing that ὅτι πάντα ἓν, εἰ τὸ ἓν σημαίνει (187a1-2).

⁵⁵ The first author to credit Parmenides with the Platonic division of a sensible and an intelligible realm seems to have been Plutarch, *Adv. Col.* 1114b-f.

herent to the nature of things, as both Plato and Aristotle did. Therefore Aristotle's claim that the "ancients" did not distinguish thought from sense-perception is quite trivially right if taken in the specific, and rather restricted, sense it was intended according to our interpretation: lacking a notion of "forms" or intelligible objects, the pre-Platonic thinkers obviously could not conceive thought or intellect as a distinct faculty whose specific objects are precisely the "forms." In other words, they could not make the precise conceptual distinction between thinking of thinkables and sensation of sensibles which is crucial to Aristotle's own conception of knowledge.

But this does not mean they could not conceive thought or reasoning as a distinct kind of mental activity at all, different from and even opposed to immediate sense-perception or simple empirical observation: in fact, Aristotle expressly acknowledges that Parmenides and Melissus recognized a distinctive status to logical argument, as opposed to the mere observation of facts. More or less explicit evidence for a similar distinction could be easily gathered from several other pre-Platonic thinkers – Heraclitus, Alcmaeon (24 A 5 DK), Democritus (68 B 11 DK) –, but Aristotle would hardly have seen this as conflicting with his general view that these thinkers lacked an adequate distinction between sense-perception and thought: in his view, they were unable to properly understand the specific function of thought, simply because they lacked an adequate notion of its specific sort of objects, the forms or species. As a judgment of value, this assessment obviously depends on Aristotle's own philosophical point of view; but as far as historical fact is concerned, its accuracy seems hardly objectionable.

Far more problematic is Aristotle's further contention that this general feature would have precluded pre-Platonic thinkers from accounting for the origin of error and the difference between true and false. To confront this question would require, of course, a thorough examination of all our extant evidence on pre-Platonic theories concerning sense-perception and thought, knowledge, truth, and error, which would largely exceed the limits of this paper. For my part, I think that Heraclitus and Parmenides have quite a lot to tell us about the origins of human error (though along lines of reasoning that would be hardly congenial to Aristotle), whereas Aristotle's criticism might probably be more aptly applied to Democritus and, perhaps, Anaxagoras (the Presocratic writers most influential in Aristotle's own time and therefore probably the main targets of his attack); but to work this out would go clearly beyond the scope of the present discussion. One general point, however, seems quite plausible: if we conceive living beings, as almost all Presocratic thinkers did, as the random outcome of a mixture or combination of elements, atoms, etc., then we cannot have a theory of the sort Aristotle wants to have: a theory for which knowledge is essentially knowledge of forms, on which ultimately depends even the discrimination between truth and error in sense-perception, insofar as true sense-perception is conditioned (apart from adequate external circumstances) by the functioning of the sense-organs "according to nature," and what is "according to nature" is in turn defined in terms of form.

Within this line of Aristotelian reasoning, as I have tentatively reconstructed it, the modern reader may easily discern two different claims which Aristotle himself, as it seems, did not explicitly distinguish from one another. The first claim is that cognitive processes (perception and knowledge) cannot be adequately described in terms of physical processes only (in terms of "alterations" of the mixture of elements in the body), but only at an essentially different level of formal or functional description (in terms of formal and final causes). Modern functionalist philosophers of mind will readily agree on that point: "Mental states cannot [...] be reduced to physical states. They are, rather, functional states of the physical systems that realize them" (Cohen, 1992, p. 58; Cf. Nussbaum and Putnam, 1992). Up to this point, Aristotle's criticism of pre-Platonic theories of sense-perception

and knowledge could be roughly compared to contemporary functionalist criticisms of reductionist materialism in the philosophy of mind (the “identity theory” of mind and brain).⁵⁶

But Aristotle makes the further claim that this kind of functional theory of cognition will provide us also with the foundations of a theory of knowledge, i.e. with a criterion for discriminating true from false cognition and, therefore, with an efficient remedy against relativism. As to sense-perception, he holds that when the senses are functioning in normal conditions and “according to nature,” they will perceive their specific sensibles just as they really are: as Irving Block aptly stated, “normal senses must perceive their proper sensibles accurately, else Nature would have made an imperfection in the case of a fully and completely developed organ” (Block, 1961, p. 6). Generally speaking, “normal” cognitive acts (perception, learning, and knowledge) are actualizations or realizations of the cognizing being’s own nature (*De an.* 2.5), defined by its “form,” which is apprehended by the intellect. Thus *true* cognition of reality is its apprehension under normal or “natural” conditions, and it is the human intellect that discerns, in the last analysis, what is normal and “natural” and what is not, since apprehension of forms is the natural function of the intellect, just as apprehension of sensibles is the natural function of the senses. It is this second claim that gives Aristotle’s argument in *Met.* Γ its anti-relativistic edge; but it is also far more difficult to agree with for the modern reader than the first, insofar as it hinges on the assumption that natural kinds are eternal and unchanging “forms” and, ultimately, on the belief in the quasi-divine character of the human intellect.⁵⁷

But I will not go any deeper into the philosophical implications of Aristotle’s argument. My aim in this paper has been a far more modest one: I wanted to show that some of Aristotle’s seemingly most outrageous statements on earlier philosophers, if read in their proper context and understood in the precise terminological sense in which they were intended, may turn out to be much less conflicting with historical evidence than they would appear when read in isolation and may even give us some new insight into Aristotle’s own train of thought and his understanding of the authors he was concerned with.

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⁵⁶ The comparison has been suggested, though with a polemical intention, by Burnyeat (1992, p. 16).

⁵⁷ See *De gen. an.* 736b27: τὸν νοῦν [...] θεῖον εἶναι μόνον; cf. *ib.* 737a10; *De part. an.* 656a7, 686a28; *De an.* 408b29; *Eth. Nic.* 1171a15, b31.

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