ΜΕΣΌΤΗΣ IN PLATO AND ARISTOTLE[1]

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Resumo: Neste artigo, proponho uma revisão da lexicografia comumemente aceita sobre o termo mesotēs, restrita ao uso da palavra por Platão e Aristóteles. Nas obras dos dois filósofos, mesotēs nunca indica simplesmente "algo que está no meio", e, em vez disso, sugere algo que medeia entre dois extremos com base em uma razão bem determinada, estabelecendo uma relação parecida com a de 'analogia' (ἀναλογία). Particular atenção é dada a algumas ocorrências controversas da palavra mesotēs em Aristóteles que estão ligadas às doutrinas éticas e perceptivas do médio, expostas no livro II da Ética Nicomachea e em De Anima II.12. Nessas passagens, a habitual suposição de que mesotēs deve indicar um estado intermediário faz com que os argumentos de Aristóteles sejam controversos, se não incoerentes. Ao destacar essas ocorrências problemáticas de 'mesotēs', o artigo pretende ser aporético: seu objetivo não consiste na elaboração de uma solução, mas sim na individuação das limitações da nossa atual compreensão dessa importante noção em Platão e Aristóteles. No entanto, no que diz respeito à Ética Nicomachea (1106b27-28) sugere-se que a conjectura de que mesotēs pode se referir à atividade de 'encontrar a média' pode, pelo menos, salvar o argumento da acusação de ser um non-sequitur.
Palavras-chave: Platão, Aristóteles, meio, ética, percepção.

Abstract: I propose a revision of the received lexicography of μεσότης with regard to Plato's and Aristotle's use of the word. In their works, μεσότης never indicates something that merely 'lies in the middle', and rather hints at what establishes a reason-grounded, ἀναλογία-like relationship between two extremes. Particularly controversial occurrences of the word μεσότης are connected to the introduction of Aristotle's ethical and perceptual doctrines of the mean, in *Nicomachean Ethics* II and *De Anima* II.12. In this regard, I shall briefly mention some promising directions of inquiry that seem worthy of further investigation.
Keywords: Plato, Aristotle, mean, ethics, perception.

Introduction

The word μεσότης has a considerably nuanced use in Plato – the first author to have certainly used it – and Aristotle, who exploits the term to express important aspects of his theories of time, perception and virtues. The diversified employment of μεσότης in the works of the two philosophers has shaped the current understanding of its meaning fixed by modern dictionaries of ancient Greek, starting from the common practice to refer to Plato's *Laws* 746a6-7 to propose 'central position' as its first sense, and its subsequent

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extension to time courtesy of a passage in Aristotle's *Physics* VIII[2]. Plato and Aristotle are omnipresent with regard to almost every other sense attributed to the word, too. Liddell-Scott-Jones (1996) (LSJ from now on) refers to Plato's *Timeaus* for the meaning of mathematical 'mean', to Aristotle's *Nicomachean Ethics* for that of 'mean, state between two extremes', and to his *De Anima* and *Meteorologica* for those of 'medium, communicating between two opposites' and 'standard' with regard to perception. The same occurrences are included with a different organization by Montanari (2015), whose entry starts with a comprehensive definition of 'that which lies in the middle between two extremes, hence mean, intermediate state or quality or quantity'. In fact, only the technical uses of μεσότης in relation to a rhetorical style or a verb voice are not supported by occurrences found in Plato's and Aristotle's works[3].

In this paper, I shall emphasize that the received understanding of the meaning of μεσότης is often misleading with regard to the employment of the word by Plato and Aristotle. In doing so, I shall not aim to provide a general lexicographical entry, but, more modestly, to show that a revised understanding of its meaning is necessary with regard to some important doctrines of the two philosophers. The investigation will accordingly be conducted through a logical analysis of the arguments in which the word μεσότης occurs, with particular attention to the contexts in which such arguments are placed and to the theoretical agenda of the authors.

In the last sections of the paper, I shall concentrate on the most controversial occurrences of the word μεσότης, connected to the arguments by which Aristotle's introduces his ethical and perceptual doctrines of the mean, in EN II and DA II.12 respectively. In this regard, I shall show that, due to various drawbacks and problems entailed by each of the available

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[2] LSJ and Montanari both quote Plato's passage as a source for the sense of 'central position', with the former adding two passages from *Mirabilium auscultationes* (846a18) and *De Mundo* (399b34), which will be discussed below. Bailly (2000) similarly offers 'position médiale, intermédiaire' as the first meaning, but the reference he offers points to Plato's *Timaeus* 43d and 36a. With regard to the latter occurrence, Montanari (2015) does instead propose the sense of 'space between'. LSJ suggests a temporal extension of the meaning of 'central position' for Aristotle's *Physics* 251b20, while Montanari (2015) has 'middle point or period' for the same occurrence.

[3] Dictionary definitions of μεσότης seem to exhaust the production modern scholars have made available with regard to the meaning of the word in the two philosophers. Translators of Plato's and Aristotle's works abide by the received definitions, and usually render μεσότης in different contexts as 'central position', 'mid-point', 'mean' or 'intermediacy'. No published study in the field of lexicography has expressed the need to amend or reform those entries either, even with regard to those offered by the often criticized LSJ (on the limits of the classic lexicon, cf. Chadwick 1994 and Glare 1997). The word is absent from classic studies by Renehan (1975), (1982), (2001), Chadwick (1996) and Bain (1999), and the entry for μεσότης in the bibliographical repertoire by Colera and Somolinos (1998) only lists a few studies and specialized dictionaries that do not add anything relevant to the received lexicography.

interpretations, we still lack a fully satisfactory understanding of Aristotle's reasoning on those matters. Trying not to conclude on a skeptical note, I shall finally mention some promising directions of inquiry that seem worthy of further investigation.

Μεσότης in Plato

The first author to have certainly used μεσότης is Plato. Four of the five occurrences of the word in his works are contained in the *Timaeus*, and refer to a 'mathematical mean' (32a8, b3, 36a 3, 43d 6). In the passage containing the first two occurrences, μεσότης seems to refer to the middle term of a 'geometric mean':

> Now the best bond is one that really and truly makes a unity of itself together with the things bonded by it, and this in the nature of things is best accomplished by proportion (ἀναλογία). For whenever of three numbers which are either solids or squares the middle term (τὸ μέσον) between any two of them is such that what the first term is to it, it is to the last, and, conversely, what the last term is to the middle (τὸ μέσον), it is to the first, then, since the middle term (τὸ μέσον) turns out to be both first and last, and likewise both the last and the first turn out to be middle terms (μέσα), they will all of necessity turn out to have the same relationship to each other, and, given this, will all be unified. So if the body of the universe were to have come to be as a two dimensional plane, a single μεσότης would have sufficed to bind together its conjoining terms with itself. As it was, however, the universe was to be a solid, and solids are never joined together by just one, but always by two μεσότητας. Hence the god set water and air between fire and earth, and made them as proportionate (ἀνὰ τὸν αὐτὸν λόγον) to one another as was possible, so that what fire is to air, air is to water, and what air is to water, water is to earth. He then bound them together and thus he constructed the visible and tangible heavens. This is the reason why these four particular constituents were used to beget the body of the world, making it a symphony of proportion (ἀναλογία) (31c1-32b7)[4].

The term μεσότης is used in the passage to describe that by which the god binds together material elements. The introductory explanation of geometric proportion as the best bond, together with the counterfactual about the body of the universe being plane rather than solid, reveal that the unification abides by a mathematical rationale that secures a perfectly symmetrical relationship between the elements.

With regard to the question of what type of entity these first instances of μεσότης might be denoting, it is clear that the two middle terms resulting from the operations of determining the mean (already described as μέσα in the same passage), are better candidates than some 'intermediate state' or 'central location'. Thus, the widely accepted practice of interpreting μεσότης as

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[4] All translations from *Timaeus* are from Zeyl (2000), with slight modifications.

'mathematical mean' is acceptable, even though some caution is still advisable: since the word is referring to that by which the god binds, we should be wary not to think of μεσότης as the abstract mathematical 'value' the English noun 'mean' (in its mathematical sense) might suggest – the implementation of that value obtained by structuring the matter in a certain way would perhaps be closer to what the passage suggests.

The second occurrence of μεσότης in the *Timaeus* is contained in a passage that alludes once again to some operations the god performs to determine mathematical means between some given 'extremes'.

> After this he went on to fill the double and triple intervals by cutting off still more portions from the mixture and placing these between them, in such a way that in each interval there were two μεσότητας, one exceeding the first extreme by the same fraction of the extremes by which it was exceeded by the second, and the other exceeding the first extreme by a number equal to that by which it was exceeded by the second (35c2-36a5).

Here, μεσότης appears to refer unambiguously to the middle terms of the harmonic and arithmetic progressions, according to the use similarly observable in the last occurrence of the word in the same work[5]:

> And they further shook the orbit of the Different right through, with the result that they twisted every which way the three intervals of the double and the three of the triple, as well as the μεσότητας and connections (συνδέσεις) of the ratios of 3/2, 4/3 and 9/8 (43d3-7).

The four occurrences in the *Timaeus* reported above clearly show that Plato uses μεσότης in relation to all mathematical means known in his age (the arithmetic, geometric, and harmonic), to refer to what is characterized by such mean values, as a virtual equivalent of τò μέσον. This suggests that the word might have been coined as a technical mathematical term in the Academy, possibly under the influence of Eudoxus' investigations on the subject of mathematical means mentioned by Iamblicus[6]. As a matter of fact, while it might be thought that the utterance of the word by a 'Pythagorean' character in the *Timaeus* is paying homage to earlier discussions of the same subject by thinkers like Hippasus, Philolaus and Archytas, there is no textual evidence that any of those thinkers did use the actual term μεσότης[7].

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[5] Bailly (2000) refers to the occurrences in 43d and 36a as evidence for the definition of μεσότης as 'position médiale, intermédiaire', while Montanari (2015) proposes the sense of 'space between' for 36a.

[6] In his Commentary on Nicomachus' *Introduction to Arithmetic* (cf. 100.19-101.11 [= Text A in Huffman 2005, 164], a passage probably based on the lost history of geometry by Aristotle's pupil Eudemus, (cf. HUFFMAN, 2005, p.170).

[7] Useful information about Pythagoreans' systematization is contained in Huffman (2005, p.170-177), who discusses a fragment by Archytas (reported by Porphyry) in relation to texts about the history of means found in the commentary on Nicomachus' *Introduction to Arithmetic* by Iamblichus. According to

In spite of the evident mathematical connotations μεσότης has in the *Timaeus*, it would be wrong to conclude that Plato only uses the word with such a narrow technical meaning. As anticipated in the introduction with regard to the received definition of μεσότης as 'central position', a last occurrence of the word in the fifth book of the *Laws* (746A6-7) appears to postulate a different sense. The passage considers a possible criticism of the description of the ideal city, which highlights its being unrealistically demanding. The Athenian visitor complains that citizens would likely not tolerate some of the prescriptions, such as a fixed level of wealth, regulations about the number of children and the size of the family and "houses, as we said, both all around in circle and as μεσότητας of both the countryside and the city"[8].

The unanimous agreement of modern translators and dictionaries in interpreting μεσότης as 'central position' is perplexing, since the context rather implies that the houses of the ideal city cannot simply be located in a certain position in the center[9]. In fact, the backward reference must be pointing to the earlier description of the creation of the city (745b3-e6), according to which paired portions of land should be allocated to citizens in order to secure for everyone, both in the city and in the countryside, one possession close to the center and another one close to the borders. It is true that the legislator must determine the center of the country and place the city therein (745b 3-4: πρῶτον μὲν τὴν πόλιν ἱδρῦσθαι δεῖ τῆς χώρας ὅτι μάλιστα ἐν μέσῳ), reserving this area for the acropolis; however, the whole territory (including the city and the countryside) must then be divided into twelve slices, equivalent with regard to their productivity, and each containing a total of 'five thousands and forty' holdings. The holdings must then be divided again into two parts and the halves distributed to give citizens a fair share of both the advantages and disadvantages due to living at different distances from the city center[10]. The same division described for the countryside must be repeated in the city, 'and each man should be allotted two houses, one near the center of the state, one

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Huffman's well-argued reconstruction, the three Pythagorean means were known before Archytas, who was possibly the first to systematize them, re-branding the third type of mean from 'sub-contrary' (a name arguably due to Philolaus) to 'harmonic'. The new name was surely accepted by Eudemus and possibly already by Theaetetus (cf. Eudemus' fragment reported by Pappus' *Comm. on Euclid* X.1.1; 2.17 [63,138 Jungé and Thomson]).

[8] 746a6-7: ἔτι δὲ χώρας τε καὶ ἄστεος, ὡς εἴρηκεν, μεσότητάς τε καὶ ἐν κύκλῳ οἰκήσεις πάντη. My translation.

[9] The translation 'central position' in nonetheless ubiquitous: cf. Jowett (1871/2010), Bury (1926), Saunders (1970) and Pangle (1980).

[10] 745c6-d2: τὸ πρὸς τῇ πόλει μέρος τῷ πρὸς τοῖς ἐσχάτοις εἷς κλῆρος δεύτερον ἀπὸ πόλεως τῷ ἀπ' ἐσχάτων δευτέρῳ, καὶ τἆλλα οὕτως πάντα.

near the boundary'[11]. The description to which the quoted occurrence of μεσότης (746a6-7) refers is obviously incompatible with the received understanding of the word: houses that are being described as μεσότητες are not located in a 'central position', and they are not 'mid-points' between the countryside and the city either. The idea here is rather that the households constitute a fair balance of opposite features determined by a calculation, in an idealization that makes the legislator sound 'almost as one who is relating a dream or modeling a state and its citizens out of wax' (745a7-8)[12].

It is worth emphasizing that the calculation involved in the determination of the houses in the *Laws* can hardly be deprived of qualitative considerations and thus be as purely mathematical as the use of μεσότης in the *Timaeus* would suggest. Houses must be constituted by two plots that are poles apart, in order to secure a fair distribution of the advantages and drawbacks implied by their different distances from the city center. Since the terms to be 'moderated' have a qualitative rather than purely quantitative connotation, it appears to be more appropriate to understand μεσότης as an intermediate term establishing a proportioned balance, rather than as a mathematical mean in a strict technical sense.

Despite the lack of a strictly mathematical connotation in the use of μεσότης in the *Laws*, the idea of an ἀναλογία-like symmetry between the mean and the extremes still appears to provide a common aspect linking Plato's use of the word in this work to that observed in the *Timaeus*. Two pairs of things constitute an ἀναλογία when the relation between the terms of the first pair is the same as the relation between the terms of the second pair; thus, an ἀναλογία in which the second term of the first pair is the same as the first term of the second pair expresses the relation between the terms of a geometric μεσότης (such as 2, 4, 8, since 2:4::4:8). Generally speaking, then, ἀναλογία refers to the recurrence of the λόγος connecting four terms organized as two pairs, while μεσότης captures the role of the intermediate term with regard to the two 'extremes' in a continuous (three term) ἀναλογία. Thus, the connection between the notions of μεσότης and ἀναλογία, explicitly made in the *Timaeus* at 31c1 and 32c2 (in the first passage quoted above), may be extended to the passage in the *Laws*: each house in the ideal city is constituted according to a continuous ἀναλογία, in virtue of its being as peripheral in comparison to the center as it is central in comparison to the

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[11] 745e2-5: τέμνειν δ' αὖ καὶ τὰ δώδεκα τῆς πόλεως τμήματα τὸν αὐτὸν τρόπον ὅνπερ καὶ τὴν ἄλλην χώραν διένεμον· καὶ δύο νέμεσθαι ἕκαστον οἰκήσεις, τήν τε ἐγγὺς τοῦ μέσου καὶ τὴν τῶν ἐσχάτων.
[12] For a detailed defense of this proposal, cf. GRASSO, R. "Μεσοτης in Plato's Laws, 746a6-7". In: *The Classical Quarterly*, (forthcoming).
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periphery.

To be sure, ancient mathematicians have used the word ἀναλογία in a narrow, technical sense to exclusively denote geometrical proportions, but there is plenty of evidence supporting the idea that the equality of λόγος at the core of the notion (cf. ARISTOTLE, EN V 6, 1131a31) was understood in a much broader sense. The historical report about some mathematicians' narrow, technical use of ἀναλογία is due to Aristotle (EN V 7, 1131b12-15), who, on the other hand, uses the word for other mathematical means (cf. for instance 1132a1-2) and, more generally, for any sort of conceptual analogical resemblance[13]. Plato himself recognizes a wider non-technical sense of the notion with regard to the connate term ἀνάλογον in Rep. VI, 508B 13, and the expression 'as proportionate to one another as was possible' (καὶ πρὸς ἄλληλα καθ' ὅσον ἦν δυνατὸν ἀνὰ τὸν αὐτὸν λόγον ἀπεργασάμενος) adopted in the quoted passage from the *Timaeus* (32b4-5) might be pointing at such a wider notion as well[14].

What emerges from the occurrence of μεσότης in the *Laws*, then, is that the word refers to what establishes a balance between two extremes, in virtue of a symmetrical ἀναλογία-like relationship. This use of the word may have stemmed from the mathematical one observed in the *Timaeus* but it remarkably extends the scope of its application beyond the domain of mathematics. The basic feature of a μεσότης is the institution of a symmetrical and recurrent λόγος between some extremes, in virtue of an intermediate term, but the peculiar relationship being established does not need to be mathematical *stricto sensu*.

Μεσότης in Aristotle's *Physics* and *Generation and Corruption*

Unlike Plato in his *Timaeus*, Aristotle does not seem to have endorsed the use of the word μεσότης to refer to mathematical means, which he rather describes by employing the word ἀναλογία. This inclination is evident in EN V, where the expressions ἀναλογία and τὸ μέσον, but not μεσότης, are repeatedly used to describe the calculations involved in the various forms of justice. Having geometrical proportions in mind, Aristotle defines ἀναλογία as equality of ratio (1131a31), but he also freely talks of arithmetical ἀναλογία in the same

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[13] *Metaph*. V 6,1016b31-1017a3; XII.4, 1070a32, b26; HA I.1, 486b19, cf. I.2, 488b32; I.6, 491a19; II.1, 497b11; PA I.5, 645b27; EN I.6, 1096b29; *Meteor*. IV.9, 387b3; GA I. 1, 715b20; *Topics* V.8, 138b24; *Phys*. I 7, 191a8. Before Aristotle, Archytas had already applied the term ἀναλογία to harmonic and geometric means (fr. 2 Huffman, lines 5 and 11); cf. Huffman (2005, p.180-181).
[14] The other three occurrences of ἀναλογία in Plato beside those in the *Timaeus* seem to be confined to the idea of a mathematical 'proportion'. Only one of these (*Republic* VII 534A 6) is somewhat ambiguous and might be hinting at a sense akin to 'analogy'.

context (1131b12-15; 1131b32-1132a2; 1132a30). As such, an ἀναλογία is even described as 'just' and therefore a 'μέσον' between what is not commensurate or equal by excess or defect (1131a10-15; b9-12; 1132a17-19). On the other hand, Aristotle never uses μεσότης in a purely and unambiguously mathematical sense here or elsewhere in his works (the only possible exception being Fragment 47 [Rose] as quoted by Plutarch). In fact, it is remarkable that in EN V, as soon as the talk about mathematical proportions connected to justice is over, Aristotle does not shy away from employing the word μεσότης again to formulate a general statement about justice in comparison to other virtues of character (1133b32: ἡ δὲ δικαιοσύνη μεσότης τίς ἐστιν). Aristotle's use of μεσότης, then, does not appear to have a technical mathematical connotation at all.

Aristotle does, instead, confirm the wider and not strictly mathematical meaning of μεσότης observed in Plato's *Laws* in *Generation and Corruption* II 7, where the word is deployed in relation to his doctrine of mixture. The theory abides by the idea that the elements are characterized by pairs of basic opposites (dry/moist and cold/hot) and that the original ingredients are not actually present *qua* themselves in a mixture. This modification takes place because of a re-identification the ingredients are subject to, which is, in turn, due to the form characterizing the new whole they are in (GC 327b23-25). On the other hand, in order to distinguish a mixture from the generation of a wholly new substance – and the corresponding corruption of old ones – ingredients must somewhat survive in a mixture, albeit not as they were before being mixed. What modifies the ingredients is nothing but their reciprocal interaction, which affects them to the extent that they do not preserve their identity in the resulting mixture, while still existing potentially in it.

Aristotle's treatment of mixtures supports the idea that the interaction between the ingredients determines a balance between the opposite causal powers originally belonging to them[15]. Such an outcome is described by the philosopher as being qualitatively 'intermediate' or 'in-between' (μεταξὺ):

> a drop of wine is not mixed with ten thousand pitchersful of water, for its form dissolves and it changes into the totality of the water. But when the two are more or less equal in strength, then each changes from its own nature in the direction of the dominant one, though it does not become the other but something in between and common to both (μεταξὺ καὶ κοινόν). (GC I 10, 328a25-31, transl. Williams).

In this context, it is perfectly fitting for Aristotle to subsequently

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[15] With regard to Aristotle's theory of mixtures, I am following the interpretation proposed by Scaltsas (2009).

employ the word μεσότης to describe how different elements can constitute mixtures:

> And properly speaking <it is> the elements <that> mutate in this way, whereas flesh and bones and similar things <come to be> out of these when, becoming the hot cold and the cold hot, they have been brought to the middle term (τὸ μέσον). For in such cases there is none of the two, and yet the middle term (τὸ μέσον) is many and not indivisible. Similarly, <it is> according to a μεσότης (κατὰ μεσότητα) <that> the dry and the moist and the things of this kind produce flesh and bones and the other things. (334b23-29 my translation).

The way elements transform into each other postulates the full substitution of one property: to get fire ('dry & hot') from earth ('dry & cold'), 'cold' must be wholly substituted by 'hot' (GC II 4, *Cael.* III 6, 305a14-35); on the other hand, mixtures of different elements are produced when each of the opposites becomes in a certain sense the other, without being replaced. The mechanism by which mixtures are obtained is described here as opposite qualities 'being brought to the μέσον' according to a μεσότης. In agreement with the theory of mixtures outlined above, μεσότης is likely hinting at the balance of opposite qualities, confirming the use of the word already observed in Plato's *Laws*. However, while such a balance might be said to abide by an ἀναλογία (one extreme quality relates to the resulting one in the same way as the resulting one relates to opposite extreme), Aristotle shows no interest in emphasizing this aspect here.

Aristotle's words in GC 334b23-29 also suggest a connection between the being 'multiple and not indivisible' of the intermediate term and the peculiar way in which the ingredients disappear (considered qua themselves and in actuality) while surviving (in an altered way and in potentiality) in the mixture. The claim about the middle term (τὸ μέσον) being 'many and not indivisible' (334b27, πολὺ καὶ οὐκ ἀδιαίρετον) is likely referring to its multiple ways of being, which is entailed by the inescapable logical relationship it entertains with the extremes[16]. The middle term of a geometric mean, for instance, is at the same time the major term of the fraction that expresses the λόγος with regard to the lesser extreme of the proportion (e.g., 4:2 =1/2), as well as the minor term of the fraction that expresses the same λόγος in relation to the greater term of the proportion (e.g., 8:4=1/2). In virtue of this role, the middle term of a μεσότης will necessarily entail a reference to the extreme terms, to the effect that it cannot exist as such (i.e., qua intermediate term) independently of and separately from them. Thus, since the mixture is like a

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[16] Similar expressions are used by Aristotle in DA III 7 as he talks of a single perceptual μεσότης that is one but also has 'different manners of being', explaining this as the analogical and numerical unity of a term (ὅρος) in a proportion (431a18-24).

middle term (τὸ μέσον) between the ingredients' elemental qualities structured κατὰ μεσότητα, it will also be 'many and not indivisible' in the same way and, accordingly, incapable of existing independently and separately from the ingredients[17].

While the production of a balance between opposites is, likewise, central in the *Laws* and *Generation and Corruption*, the application of the same notion seems unwarranted with regard to Aristotle's further use of μεσότης in the *Physics*. In the course of an argument for the eternity of time presented in VIII 1 (251b 19-28), Aristotle puts forth the claim that the 'now' (τὸ νῦν), without which he thinks we cannot conceive time, is a μεσότης of some kind (μεσότης τις). The relevant part of the argument (b19-23) states that

> If, then, it is impossible for time both to be and to be thought of apart from the now, and if the now is a μεσότης of some kind and, having simultaneously a beginning and an end, it is both a beginning of the time <which> followed <it> and an end of that <which> preceded <it>, then time must always exist (transl. by Graham, slightly modified).

The notion of balance obviously has no space here: the 'now', being described as a μεσότης of past and future instants, is not a well-proportioned 'balance' of them. However, in order for the argument to have any plausibility, the assumption that the 'now' is some sort of μεσότης of what comes after and before must still imply that any given instant in the present entails a future and a past one.

The required entailment of past and future times from the idea of a μεσότης-like 'now' can be satisfied by exploiting the conceptual dependency implicit in the notion of μεσότης, which demands that a mean term entails an ἀναλογία-like relationship between itself and some extremes. According to such dependency, it only makes sense to say that a particular number (or magnitude) is a mean if the latter is considered in relation to some extremes with which it entertains a certain relation: for instance, 4 is a (geometric) mean only by reference to some other terms (e.g., 2 and 8) and not independently and by itself. The description of the now as a μεσότης evokes the dependency between the mean and the extremes to argue for an entailment of future and past time-limits. On this view, the 'now' is not an independently existing time limit that happens to be located between two others but, rather, a time limit definitionally bound to some others that come before and after it. The ἀναλογία-like Aristotle has in mind with regard to time may consist in the fact

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[17] I am therefore in disagreement with the view proposed by Williams (1982, p. 178), who reads the expression as saying that τὸ μέσον is 'not an indivisible point', and rather 'large'. He translates κατὰ μεσότητα in b28 as 'in the middle range', which, on his view, is a state of equilibrium tolerating robust internal variation.

that a 'now' is future compared to the past time limit, and past compared to the future time limit. There is, accordingly, no reason to include a reference to our subjective mental experience for the determination of a 'now', or at least no reason that would not generally apply to the determination of any sort of mathematical mean or ἀναλογία-like relationship[18].

The proposed understanding of the meaning of μεσότης justifies the argument for the eternity of time from the assumed impossibility of time existing and being thought of apart from the 'now'. Aristotle's point is that it is definitionally impossible to have a now without first delimiting a span of time and thus choosing the future and past reference points in relation to which a certain instant is a 'now'. Quite obviously, the extremes in question were and will, in turn, be identifiable as 'nows' in the same way (i.e., in relation to further pairs of corresponding future and past limits) and so on, *ad infinitum*. On the other hand, if the point of using μεσότης in relation to time were that the 'now' lies in a 'central position' or is a 'middle point or period' (as LSJ's and Montanari's entries respectively believe), Aristotle would have offered no argument at all to support the conclusion that 'time must always exist'.

It is worth highlighting that, as a consequence of the proposed readings of the passages from the *Laws* and *Phys.* VIII analyzed above, there seems to be no remaining evidence for the claim that μεσότης is used by Plato or Aristotle in the sense of 'central position' or 'middle period'. As far as works from the two philosophers are concerned, the support dictionaries offer for interpreting μεσότης as a 'central' or 'intermediate' period of time is limited to *Physics* VIII 1 (251b 19-23)[19]. In fact, a further neglected candidate for a 'temporal' sense of μεσότης exists in Aristotle's GA II 4 (738 a 22) but the occurrence does not appear to contradict the use of the word observed so far. The passage connects the timing of women's periods with meteorological changes due to moon phases, with regard to which Aristotle distinguishes τὰς συνόδους and τὰς μεσότητας. Regardless of the precise identification of the days of the month to which Aristotle may be referring, it is worth noting that the original meaning of σύνοδος as 'hostile encounter of juxtaposed parts' may still fit well with the suggestion that μεσότης is not just any period of time in

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[18] A different interpretation is proposed by Graham (1999, p. 47-48). He recognizes that the now is a mean 'not merely in the sense of being a mid-point, but in the sense of being like a geometric mean', but thinks that is due to the idea that 'the past time is a beginning relative to the present, while the present is a beginning relative to the future', which is 'justified at this point merely by an appeal to present experience'. On his view, Aristotle would, accordingly, have no (objective) grounds to extend the idea to any arbitrary moment of time.

[19] Interestingly enough, sources retrieved from other authors appear to be echoing a Pythagorean dictum firstly attested by Aristotle using μέσον instead of μεσότης (*De Caelo*, 268a10 -13, cf. also Plato, *Laws*, IV, 715e7-716).

between but, rather, an intermediacy grounded on an ἀναλογία-like symmetrical relationship between the extremes, i.e., the crescent waxing and crescent waning moon[20].

Finally, with regard to the spatial definition of μεσότης as 'central position', the only proposed evidence left comes from LSJ and is limited to two passages from works of dubious authorship (*Mirabilium auscultationes*, 846a18, and *De Mundo*, 399b34) in which the reading μεσότης is actually unlikely (ἐν μεσότητι in 846a18 is at odds with ἐν μέσῃ τῇ at 399b 34). Once again, however, a relevant occurrence of μεσότης in Aristotle has been neglected, which may look *prima facie* promising for the meaning of 'central position':

> But though the part in the hard-shelled animals with authority over perception has the same character (τὸν αὐτὸν τρόπον), it is less manifest. However, in those that are sessile this origin should always be sought intermediate (δεῖ ζητεῖν ἀεὶ περὶ μεσότητα ταύτην τὴν ἀρχήν) between the part that receives nourishment and that through which the spermatic or residual secretion is produced; while among animals that are mobile, it should always be sought in the mid-point (ἐν τῷ μέσῳ) between the parts on the right and on the left (PA IV 5,681b33-682a2) (transl. by Lennox)[21].

Despite the superficial appearance, though, the passage does not actually support the definition of μεσότης as something generically 'in the middle'. In fact, Aristotle seems to be saying that the determination of the mean part of the animal is based on its function in relation to the 'extremes', which constitutes a further version of the ἀναλογία-like relation between the intermediate and the extremes. As Lennox (2002, p. 303) clarifies in his commentary, 'some bloodless animals are sessile; and since the right/left distinction is based on the origination and direction of motion, their midpoint can be established only by reference to the "top/bottom" dimension and in Aristotle's functional account of dimensionality, top=point of nutritional ingestion and bottom=location of residual expulsion'. Thus, the principle has to be sought as a μεσότης not qua being in a generically determinable 'central position' but in virtue of its analogous function of mean in relation to the 'extremes' in sessile animals' nutrition and in mobile animals' locomotion.

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[20] Peck (1942, p. 481), relying on Theophrastus (*De ventis* 17, 1-3 and *De signis tempestatum*, 5, 1-7) identifies τὰς συνόδους as the period between the fourth day of the waning moon and the fourth day of the new moon and translates τὰς μεσότητας as 'the middle of the month'.

[21] There are alternatives to τρόπον in b34 (Rackham reads τόπον) and ἐν τῷ μέσῳ in 682a1 (the reading τῷ μέσῳ is also attested).

Aristotle's Doctrine of the Mean

The vast majority of the occurrences of μεσότης in Aristotle are represented by assertions related to his ethical 'doctrine of the mean'. The thesis takes up 108 of the total 118 instances of the word in his works (not counting five dubious ones from *Fragments* and *Problemata*), mostly concentrated in the *Nicomachean Ethics* (47 occurrences) and other moral works (29 in *Eudemian Ethics* and 29 in *Magna Moralia*; the remaining two are contained in *Politics* and *Categories*).

In the context of Aristotle's doctrine of the mean, μεσότης normally describes virtue as a state of intermediacy relative to a pair of opposite 'vicious' states. Clear statements about the doctrine are repeatedly offered in a general way in EN II and EE II (EN II 6, 1107a2-8; 9, 1109a20-24; EE II 5, 1222a6-17), and in a more specific fashion in the treatment of the various virtues of character (EN II 7 and III-IV, EE II 3 and III)[22].

As interpreters have stressed, the narrow mathematical sense of μεσότης is not adequate to make sense of the doctrine of the mean. The mathematical sense of μεσότης would demand a strictly quantitative interpretation of the morally relevant parameters in relation to which, on Aristotle's view, the right 'mean' has to be hit in concrete, practical situations[23]. As soon as one considers the list of parameters, it becomes clear why such a reading has been deemed untenable by almost unanimous consent: the occasion on which, the people towards whom and the objects to which we respond are included, as well as the way in which, the reasons why and the goal for the sake of which we do this (1106b16-24)[24]. On the other hand, an interpretation of μεσότης abiding by a generic notion of 'intermediacy' would be as inadequate as the mathematical one to account for Aristotle's list of moral parameters and no helpful specification seems to be obtainable by

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[22] The doctrine exclusively applies to virtues of character, i.e., the virtues of the non-rational part of the human soul. While this attribution appears solidly grounded on Aristotle's text (cf. EN, I 13, 1103a3-5 and the more explicit EE II 1, 1220a10-11 and 4, 1221b27-34), doubts about it have been expressed by Irwin (2000, p. 576) and Lorenz (2009, p. 178 and 192-193). For a criticism of such revisionist accounts and a defense of the traditional attribution, see Moss (2011, p. 207-214).

[23] Cf. Urmson (1973, p. 161, 163); Curzer (1996, p. 130-131); Pakaluk (2005, p. 110-111); Broadie (1991, p. 100-101); Hursthouse (2006, p. 105-108), Gottlieb (2009, p. 22-23).

[24] Urmson (1973, p. 163-164) and Curzer (1996, p. 129-131) proposed a quantitative reading, according to which the virtuous state is a mean since it allows to react to no more and no less than the exact number of situations. With regard to the practical response of anger (an 'affection' or pathos), for instance, excellence of character enables the agent to react to just the right number of occasions, against just the right number of people, with just the right (quantitatively defined) intensity and so on. According to supporters of the metaphorical reading, the quantitative interpretation is intrinsically implausible. Hursthouse describes the view as 'not merely false but extremely silly' and 'nonsense' (1980, p. 60-61). A defense of the quantitative reading from Hursthouse's criticism is offered by Curzer (1996, p. 131-138).

invoking some of the features of the word observed so far. Virtue is not a 'balance' or a mixture of vices: its being equidistant and therefore neutral shows that it is not at all a combination of them (cf. 1108b11-26). The logical inseparability of the intermediate term from the extremes, which was central in the argument of *Phys*. VIII, seems to have no use with regard to the idea that virtue is a μεσότης, either.

Due to the difficulties related to a narrow mathematical interpretation and in consideration of the need to specify the notion according to the array of Aristotle's morally relevant parameters, the 'intermediacy' of virtue is normally thought to simply be a metaphor for what is morally right. The only features of μεσότης observed so far which appear relevant with regard to the doctrine of the mean, then, would be its 'righteousness' (somewhat implicit in Plato's *Laws*), and its being the result of demanding cognitive operations, analogous to those required to calculate means and proportions. Aristotle himself considers the ability required to establish the right mean as analogous to that of a mathematician performing a task most people would find extremely difficult (1109a24-1109b1). The idea of an exact and reasoned determination of the intermediate term, then, may have played a significant role in his decision to deploy the word in this context, in spite of some theoretical difficulties it appears to generate[25].

A First Problematic Use of Μεσότης: the argument for the 'Doctrine of the Mean' in EN

A first problematic use of μεσότης occurs in the introductory argument for the doctrine of the mean in EN. There is an important logical difficulty in the development of Aristotle's argument. The problem is clearly visible in 1106b27-28, where Aristotle is at pains to elaborate a justification for the introduction of the doctrine of the mean. In the original Greek, the sentence reads μεσότης τις ἄρα ἐστὶν ἡ ἀρετὴ στοχαστική γε οὖσα τοῦ μέσου. The traditional punctuation has a comma after ἡ ἀρετή, and the sentence is interpreted as a deduction of the claim that virtue is a mean state that moves from its ability to hit 'what is mean'. Such an inference is questionable, to say the least: even if the target being hit is taken to be in a certain sense 'intermediate', there is no reason why one should conclude that the

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[25] Hursthouse (1980, p.59-60, 68-69) supposes that Aristotle generalizes the (occasionally valid) observation that vices are accompanied by an excess or defect, so that he wrongly inverts the order of explanation and falsely claims that we are virtuous because of an intermediacy, rather than the other way round. In a later work (Hursthouse 2006, p.96-100), she describes the doctrine of the mean as 'a bit of a completely misguided science-cum-metaphysics that appears to have been generally accepted in his day', referring to the influence of similar ideas in medical and mathematical theories of the time.

corresponding ability is similarly intermediate.[26]

The section of text preceding 1106b27-28 offers no better evidence for the claim that virtue is a mean state, thus confirming that Aristotle is not entitled to draw such a conclusion yet. The argument contained in the section can be organized in the following three stages[27]:

(i) Aristotle shifts the focus of the discourse from the excellence of the subject to the excellence of the ἔργον, i.e., the work to be accomplished by the subject (1106a15-24)[28].

(ii) He then proposes the central claim that in the realm of what is 'continuous and divisible', the excellent work is a mean between excess and deficiency and what produces and preserves such a work is a μεσότης. Support for this claim is obtained by arguing that:

> - in every 'work to be accomplished' (ἔργον) which is continuous and divisible, it is possible to get what is more, what is less, and the mean (τὸ μέσον, 1106a26-29), and the latter can be relative to the thing itself
> or – and this is the case of virtue – 'relative to us' (1106a29-b7);
> - the good and the perfection of the work to be accomplished by arts and branches of knowledge which tend to a 'divisible and continuous' ἔργον is a mean (μέσον) between excess and deficiency (1106b8-9);
> - In such cases, the mean is produced and preserved by arts and branches of knowledge through a μεσότης, and destroyed by excess and deficiency (1106b9-14; the point echoes that made at 1104a11-27 while describing how virtue and vices are generated by habituation).

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[26] Recognizing the problem, Broadie (1991, p.95-96; p.101-102) attributes the ambiguity in Aristotle's argument to a confusion between the standpoint of the educator (the mean is the result to achieve with regard to pupils' character) and of the virtuous agent (whose character consists in a state of intermediacy). A simile with a bull's eye center is proposed by Hursthouse in an attempt to clarify in what sense the doctrine of the mean applies to the outcome of virtue (2006, p.107-109). Such a simile, however, cannot solve the problem of the non sequitur: even if the outcome of virtue is a mean by similarity to the bull's eye, namely in relation to all the possible multi-directional off-target locations, there is still no reason to grant that an archer's ability to hit the mean should be similarly described as being a 'mean' or an 'intermediate state'.

[27] Brown (2014) offers several valuable comments on the introductory argument for the doctrine of the mean, highlighting the necessity of distinguishing τὸ μέσον from μεσότης, which she keeps in Greek, and the 'Key Thesis' of 1106b27-28 from the 'Usual Thesis' introduced at 1107a2-8, and also clarifying the logical dependence of the latter on the former. However, she accepts that at 1106b27-28, Aristotle is already inferring that virtue is a μεσότης from its ability to hit the mean.

[28] Aristotle's examples are the eye (whose ἔργον is seeing) and the horse (whose ἔργον is transporting the rider and resisting to the enemy) but the Greek word ἔργον covers both 'activities' (seeing, in the case of the eye) or 'concrete products' (an artifact, in the case of a craftsman).

(iii) Aristotle finally includes the 'works' (ἔργα) that belong to excellence of character under the same analysis, saying that they fall in the domain of what is 'continuous and divisible' (1106b14-24).[29]

The blatant *non sequitur* from the thesis that virtue has to be able to 'hit the mean' (which is all the argument secures at 1106b27) to the claim that virtue is a mean state can be avoided if Aristotle is not yet trying to conclude that virtue is a mean state, but, rather, hinting at the forthcoming conclusion of the argument, which he will reach only in 1107a2-8. This interpretation only requires a simple modification of the traditional punctuation in the remark at 1106b27-28, to the effect of reading it as μεσότης τις ἄρα ἐστὶν, ἡ ἀρετή στοχαστική γε οὖσα τοῦ μέσου. The passage in which the conclusion is stated (1106b24-28) could then be rendered in the following way:

> Virtue concerns emotional affections and actions, in which deficiency is a mistake and excess is blamed, while the mean is praised and gets it right. Both these features belong to excellence, and there will therefore be some μεσότης, in so far as virtue is able to hit upon the mean (μέσον) (my translation).

The continuation of the argument contains a few other occurrences of μεσότης suggesting that Aristotle is not yet trying to claim that virtue is a state of intermediacy. After the remark that there are many ways of going astray and missing the mark but only one way of hitting it and getting things right (1106b28-34), Aristotle says that 'it is also for this reason that excess and deficiency *belong to* badness, while the μεσότης *belongs to* excellence' (καὶ διὰ ταῦτ' οὖν τῆς μὲν κακίας ἡ ὑπερβολὴ καὶ ἡ ἔλλειψις, τῆς δ' ἀρετῆς ἡ μεσότης, my emphasis). A similarly cautious expression is found in 1106b36, where Aristotle, in a further approximation to the definition of virtue as a mean state, carefully describes virtue as a state that '*depends upon*' a μεσότης[30]. Were μεσότης meant to indicate the intermediate state virtue consists in, there would be no reason to use the indirect expressions 'belongs to' and 'depends upon' instead of a simple 'is'; on the other hand, such phrases are by all means necessary on the assumption that – at this stage of the argument – it can only be argued that a μεσότης is what virtue does, rather than what virtue is.

It is undeniably true that Aristotle's final theoretical goal consists in

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[29] Cf. 1106a26-28 (according to which in each continuous and divisible ἔργον there is the more, the less and the equal, considered here as a mean between excess and deficiency) and the following passages about the presence of 'excess, deficiency and intermediacy' in actions and affections (1106b16-18, b23-26). It must be noted that in 1106a26 Aristotle speaks of 'each thing' (παντὶ) divisible and continuous, which seems to refer – in consideration of the context – to 'each ἔργον' (cf. 1106a24) continuous and divisible, rather than to 'each thing' in general.

[30] 1106b36-1107a2: Ἔστιν ἄρα ἡ ἀρετὴ ἕξις προαιρετική, ἐν μεσότητι οὖσα τῇ πρὸς ἡμᾶς, ὡρισμένῃ λόγῳ καὶ ᾧ ἂν ὁ φρόνιμος ὁρίσειεν. Irwin (2000) and Crisp (2000) render the relevant words as 'a state [...] consisting in a mean'; Rowe (2002) as 'a disposition [...] depending on intermediacy'.

claiming that virtue is itself a μεσότης qua being an 'intermediate' state but this conclusion is only reached in 1107a2-8. It is only at that point, and not before, that Aristotle will supply a reason for the intermediacy of the state virtue consists in. With the help of a reminder about the many ways of being wrong, Aristotle will stress that there are dispositional states that regularly miss the mark and a single virtuous one that is like a μεσότης between them. It is only by supplementing the latter reason that virtue can be said to be not only a ἕξις προαιρετική, ἐν μεσότητι οὖσα, but also itself a μεσότης 'in respect of its substance and the account which states its essence'.

Admittedly, this interpretation is not completely satisfactory, either. In fact, it seems we are forced to choose between reading 1106b24-28 as either a *non sequitur* (the traditional reading), or a tautology (if we take it to say that 'since a mean result is achieved, there is some intermediate state characterizing it'), or a promise for a conclusion for which we have no grounds yet (if we take it to anticipate the conclusion that the state responsible for 'hitting the mean' is also intermediate).

A Second Problematic Use of Μεσότης: Aristotle's Theorization of a Perceptual Mean

A remaining series of passages to be considered concerns Aristotle's thesis that αἴσθησις is some sort of μεσότης, introduced at the end of the discussion of touch in DA II 11 (424a2-5) and then briefly hinted at elsewhere in the same work (II 12, 424a26-28; a32-b1; III 7, 431a10-11, 431a15-20; 13, 435a10-b3) and in *Meteorologica* IV (4, 382a 16-382a21). The common way of translating the claim from the original Greek makes it a description of the sense or sense organ as a 'mean' or a 'mid-point', while LSJ exceptionally and rather obscurely proposes the sense of 'medium, communicating between two opposites'.

Important constraints for the interpretation of the thesis that αἴσθησις is a μεσότης come from its connection to the idea of a 'blind spot' for the αἴσθησις of touch, established in DA II 11. In 424a2-4, Aristotle reminds us that hot/cold and dry/moist are the fundamental properties of the four elements (cf. GC II 2-3), to the effect that no (sublunary) body deprived of such properties can exist. Since perception is an affection, and only a potentially-but-not-actually-F body (thus including any sense organ) can be affected by an F object, there must be some tangible F property (a certain temperature, for instance) which a sense organ, being corporeal, must be blind to[31].

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[31] The existence of a blind spot of touch is assumed by Aristotle as a common sense observation. On the

While the mentioned explanation of the blind spot is already secured by what has been said in 424a2-4, in 424a4-5 Aristotle sets up a further explanatory connection, stating that we cannot perceive what has the same degree of hotness and coldness (or hardness and softness) on the assumption that αἴσθησις is a μεσότης (expressed by ὡς with an absolute genitive)[32]. Such a connection, together with the following remark about the necessity for the organ that is going to perceive F to be potentially F (424a7-10), imposes a restriction with regard to the type of state to which μεσότης might refer. If Aristotle is, in fact, describing the sense or the sense organ's state as a μεσότης, such state must be (or at least ground) the organ's physical capacity to 'become like' the properties it perceives (cf. also 424a7-9). What the claim that 'αἴσθησις is a μεσότης' naturally suggests, then, is that the sense organs are characterized by some physical state of intermediacy in relation to the relevant range of perceptible properties (e.g. being lukewarm in the case of a sense perceiving hot and cold). Such a reading, however, clashes against the account of the sense organs Aristotle provides.

A simple survey of Aristotle's descriptions of the sense organs shows that his claim that αἴσθησις is a μεσότης cannot be hinting at a physical state of intermediacy. On his view, all senses but touch are embodied in organs that do not possess any property belonging to their own perceptual range. Eyes perceive colors ranging from black to white while being transparent, not grey or somewhat 'mid-colored'; similarly, the sensitive air in ears is soundless, rather than resounding by a mid-tone[33]. In spite of the impossibility of a body

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point, cf. Burnyeat (1992, p.21 with n.3), who quotes Theophrastus, *De Sensibus* 2 to support the idea that the blind spot phenomenon 'was a received *endoxon*'.

[32] διὸ τοῦ ὁμοίως θερμοῦ καὶ ψυχροῦ, ἢ σκληροῦ καὶ μαλακοῦ, οὐκ αἰσθανόμεθα, ἀλλὰ τῶν ὑπερβολῶν, ὡς τῆς αἰσθήσεως οἶον μεσότητός τινος οὔσης τῆς ἐν τοῖς αἰσθητοῖς ἐναντιώσεως. According to Sorabji (1992, p.214), the thesis that αἴσθησις is a μεσότης is an 'inference to the best explanation' with regard to the common experience that the range of perceptible items for each sense is distributed in two 'directions', with the sense being placed somewhat in the middle. This is an ingenious proposal, but it does not address the question of why Aristotle's establishes a parallel explanatory connection between the phenomenon of the tactile blind spot and the idea that αἴσθησις is a certain μεσότης.

[33] The organ of hearing is made of air housed inside the ears, that stands still and deprived of the 'movements' sounds consist in (DA II 8, 420a 3-11; 419b5-24). Similarly, the organ of sight inside the eye is transparent in potentiality (i.e., in a state of darkness) and thus receptive of light (DA II 7, 418b4-13, b27-31; *Sens.* 2, 438a13-24, b7-15 [especially b8-11]). By analogy with the other senses, the state that characterizes the sense organs of taste and smell with regard to their perceptible objects is one of 'lacking while being receptive', rather than the supposed 'intermediacy' predicted by the state reading of μεσότης in DA II 11. The sense organ of smell, located inside the nostrils (HA I 15, 494b12; DA II 9, 421b16, GA V 2, 781b7-10), is said to be potentially dry (DA II 9, 422a6-7) and fiery. It is further described as potentially like odors, which are themselves fiery 'smoke-like evaporations' (*Sens.* 2 439a20-25; cf. *Sens.* 5, 442b27-443b16, cf. DA II 7, 419a32-b1). The same idea of 'being potentially alike' is at work in

deprived of tangible properties (as already recalled, such properties define bodies qua bodies in Aristotle's world), no 'intermediacy' can be attributed to the organ of touch either. According to Aristotle, the sense organ of touch is located around the heart; for this reason, the idea of the sense organ of touch being a 'mean' would conflict with the characterization of the heart as hot and in need of refrigeration in *Parva Naturalia* (cf. *Juv.*, 469b6-20; *Resp.* 474a25-26; 478a11-25)[34]. The claim about αἴσθησις being a μεσότης must therefore be independent from the physical states of the sense organs, which are not at all 'intermediate'.

The contradiction between Aristotle's descriptions of the sense organs and the theorization of a state of 'intermediacy', supposedly characterizing each of them in relation to the corresponding range of perceptible properties, is not the only problem raised by the doctrine of the perceptual mean in DA II.11. The explanatory premises in 424a2-4 show that the sense organ for F does indeed need to have the potentiality to become physically F in order to perceive F. Along the same lines, the statement at 424a7-9 (δεῖ ὥσπερ τὸ μέλλον αἰσθήσεσθαι λευκοῦ καὶ μέλανος μηδέτερον αὐτῶν εἶναι ἐνεργείᾳ, δυνάμει δ' ἄμφω) 'cannot be brushed aside as if it were the merely negative point that the thing must not be actually black or white'[35]. Those requirements would make no sense if no physical process had to take place, or under the hypothesis of a physical process 'transducing' F – the former idea is the core of the 'Spiritualist' interpretation of Aristotle's theory of perception[36]; the latter, championed by several scholars, is sometimes labeled 'Structuralism'[37]. On the other hand, the required potentiality to become physically F cannot be taken to imply that sense organs actually become F as they perceive F – as the 'Literalist' interpretation proposes[38]. The reason is simple: if an F organ has a

the description of the organ of taste (cf. 422b15-16). The latter's objects are importantly connected with the same 'nutritive sapid dry' at the base of smells (DA III 12, 434b21-22, *Sens.* 4, 441b15-442a12) but in this case, moisture works as an ingredient of the actual taste and not as its transmitting 'medium' (DA II 10, 422a8- 17).

[34] The difficulty is recognized by Sorabji, who appears to be willing to attribute it to Aristotle's carelessness (SORABJI, 1992, p.222).

[35] As Sorabji (1992, p.215) rightly emphasized.

[36] Supported by Burnyeat (1992) and (1995) and Johansen (1997), who proposed an attempt at a 'spiritualist' explanation of tactile blind spots (1997, p.216-217). Johansen argued that the reason why the sense faculty cannot come to perceive F by an F-sense-organ is that it is already perceiving it. This proposal has been rightly criticized by Caston (2004, p.287-288), who notes that in Johansen's view it becomes, in fact, false that an F-sense-organ cannot perceive F, since such an organ does (must?) instead perceive F. In fact, Aristotle explicitly excludes sense organs' self-perception in ordinary cases of perception in DA II 5 (417a2-6).

[37] Cf. Scaltsas (1996), Miller (1999), Caston (2004), Polansky (2007).

[38] The literalist interpretation has been advanced in Sorabji (1971) and defended in Sorabji (1992), (2001) and Everson (1997).

blind spot with regard to F, the supposed necessity of becoming F in order to perceive F also implies the necessary acquisition of a blind spot with regard to F. On such an assumption, we should become blind to F as soon as we start perceiving it and the continuous perception of F should, accordingly, be impossible[39].

Further occurrences of μεσότης in connection to perception are not less problematic. In DA II 12 Aristotle states that plants do not to have a perceptual μεσότης and that they are literally affected by heat and cold (424a26-28; a32-b1). This time, Aristotle's words are congenial to spiritualism and structuralism – which cannot make sense, as we have seen, of the explanation of the blind spot phenomenon in DA II 11. On the other hand, Sorabji's literalism is forced to argue that Aristotle refers here to a special way in which plants are heated and cooled by incorporating hot and cold matter[40].

In DA III 13, Aristotle refers again to the thesis introduced in DA II.11, claiming that since αἴσθησις is a μεσότης, no simple sense organ can implement touch – an organ made of earth, for instance, would at best perceive the differences of earth, i.e. dry and cold (435a10-b3). The passage has troubled commentators, since Aristotle's requirements for causal interaction (described above with regard to the explanation of the blind spot) would normally suggest that an earthy organ should *not* perceive the differences of earth, but, rather, the opposites of those differences (i.e., hot and moist)[41].

Other two occurrences of the 'perceptual mean' thesis are contained in DA III 7, where Aristotle says that feelings of pleasure and pain result from the exercise of the perceptual μεσότης with regard to what is good or bad (DA III 7 431 a 10-11); and that a single yet manifold 'last term' and μεσότης are at the origin of several types of perception and images alike (DA III 7 431a15-20). Finally, in *Meteorologica* (IV 4,382a 16-382a21), Aristotle states that we use touch as a μεσότης in the discrimination of tangibles (LSJ even proposes to understand μεσότης as 'standard' in this passage).

The doctrine of the perceptual mean, then, poses serious difficulties that none of the rival interpretations seem capable to solve in a fully satisfactory way. While this is not the place to try to solve such question, it must be noted that a promising direction of inquiry may be represented by the possibility that the physiological aspect of perceiving was, according to

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[39] Cf. Freeland (1992, 232), Magee (2000, 318) and Bolton (2005, 227 with n.3).

[40] Sorabji (1992, p.215-217).

[41] Cf. Sorabji (1992, p.215-216), who resorts to attributing to Aristotle either carelessness of expression or a very peculiar way of using the notion of 'receiving' some properties to refer to the material composition of the organ.

Aristotle, some sort of 'homeostatic' reaction. Similar proposals have been suggested, but never fully explored in relation to the problems raised by Aristotle's theorization of a perceptual 'mean'[42].

Conclusion

The received understanding of the word μεσότης in Plato and Aristotle is marred by evident flaws and inadequacies. The first definition of μεσότης as 'mid-point, central position' is wrong in a crucial occurrence of the word contained in Plato's *Laws*, which instead postulates the notion of a fair 'intermediate' balance between opposite extreme qualities. Unsurprisingly, the attempted extension of the notion of 'central position' to time is equally mistaken and fails to make sense of the role of Aristotle's claim that the 'now' is a μεσότης in an argument for the eternity of time contained in his *Physics*.

The close examination of Plato's and Aristotle's uses of μεσότης indicates that the word, in its more fundamental meaning, refers to what establishes an ἀναλογία-like relationship between two 'extreme' terms through an intermediate one. It is for this reason, then, that the different types of mathematical means deployed in the *Timaeus* are paradigmatic cases of μεσότης. Due to the characteristic ἀναλογία-like relationship bonding it to the extremes, the same core notion of μεσότης also supports the logical dependence of the intermediate term, which becomes the prominent feature Aristotle exploits in his argument for the eternity of time in *Phys*. VIII. In other contexts, the relevant 'mean' term can instead be representing a 'balance' of opposite qualities (as in Plato's *Laws* and Aristotle's GC), or an 'optimal result' in the realm of what might be spoiled by excess or deficiency.
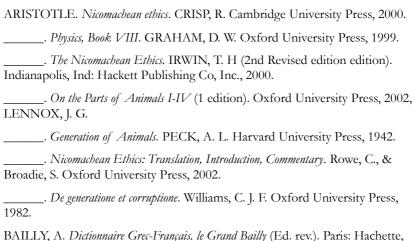
Some remarkable uses of μεσότης in Aristotle, however, remain problematic. The introductory argument for the doctrine of the mean in EN poses an unsatisfactory choice between a *non sequitur* and a somewhat tautological or ungrounded remark – the latter option being only partially

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[42] Tracy (1969, p.207 and 221-222) has argued that that for Aristotle a sense organ undergoes a 'literal' affection at first, but then homeostatically reinstates its original condition at a later time. Analogous hints at a homeostatic mechanism are made by Murphy (2005, 330-33, 336-38) and Ducharme (2014, p.300-303), who consider perception a particular case of the general thermal regulation involving the brain and respiratory apparatus, connected with the basic 'nutritive' functions of the living beings. Magee (2000, p.318-319), entertains and reject similar hypotheses by arguing that such a mechanism would entail a 'stroboscopic' effect, which cannot secure the continuity of perceptual awareness. I propose a different variety of homeostatic interpretation based on DA II.11's doctrine of the perceptual mean in "Blind-spots in Aristotle's Doctrine of The Perceptual Mean". In: *Apeiron*, 52, 2019.

alleviated by considering 1106b24-28 a merely partial result, to be completed by the considerations Aristotle will add in 1107a2-8. Furthermore, none of the interpretations we have examined seems able to provide a fully satisfactory answer to the difficulties connected with the perceptual μεσότης thesis introduced in DA II.1. Hopefully, further investigation of those difficulties may shed some light on the role of bodily changes in Aristotle's theory of perception, a controversial topic that remains crucial to assess the credibility of his philosophy of mind.

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