Aristotle on Attention

Elena Cagnoli Fiecconi, UCL, e.fiecconi@ucl.ac.uk

Penultimate Draft, forth in *Archiv für Geschichte der Philosophie*, please cite from published version

Abstract: I argue that a study of the *Nicomachean Ethics* and of the *Parva Naturalia* shows that Aristotle had a notion of attention. This notion captures the common aspects of apparently different phenomena like perceiving something vividly, being distracted by a loud sound or by a musical piece, focusing on a geometrical problem. For Aristotle, these phenomena involve a specific selectivity that is the outcome of the competition between different cognitive stimuli. This selectivity is attention. I argue that Aristotle studied the common aspects of the physiological processes at the basis of attention and its connection with pleasure. His notion can explain perceptual attention and intellectual attention as voluntary or involuntary phenomena. In addition, it sheds light on how attention and enjoyment can enhance our cognitive activities.

Keywords: Aristotle, Attention, Perception, Thought, Pleasure

Introduction

Creatures like us can be aware of a wide variety of cognitive stimuli at the same time. We can, for example, listen to music while we read, or smell the pleasant scent of coffee while we think about what to write. Our awareness of different stimuli is neither uniform nor unlimited. Sometimes a stimulus is more vividly present than others: the musical background in a bar is less salient than the voices of the people we are talking to. Often a stimulus excludes competing stimuli: we don't hear our partner calling us for dinner if we are engrossed in writing; we can't write if there is a loud ambulance rushing down the road. These are everyday examples of the selectivity of attention. The selectivity of attention is often determined by the circumstances we find ourselves in, but sometimes it is voluntary.

In this paper, I argue that Aristotle has a notion of attention, even though he does not make attention the subject of independent theorising. The lack of an explicit theoretical analysis perhaps explains why most interpreters have neglected Aristotle's

views on this topic.[1] Nonetheless, this neglect is unjustified. Aristotle uses specific terms to refer to attention: *aisthanesthai mallon* (to perceive more), *prosechein ton noun* (to pay attention, to turn one's intellect toward) and *ephistanai/epechein tēn dianoian* (to concentrate, to fix one's intellect upon). "*Aisthanesthai mallon*" is used in the context of perceptual attention, "*prosechein ton noun*" and "*ephistanai/epechein tēn dianoian*" are used in the context of intellectual attention. The use of a different terminology for the two cases, if my argument in what follows is right, does not imply that Aristotle has two different notions of attention. Both in the intellectual case and in the perceptual case, he sees the selectivity of attention as the outcome of a competition between psychophysical stimuli. This competition takes place in our sensory apparatus, i.e. the perceptual organs and the heart.[2]

The selectivity of attention, for Aristotle, is a mental phenomenon in which certain aspects of one's mental life, including perceptions, thoughts and emotions, are in the foreground. The selectivity, therefore, describes a structural aspect of one's experience. Certain aspects are selected in the sense that either they become more vivid and salient or they exclude other aspects from one's experience entirely. Characterising attention as a kind of selectivity may suggest that it is the function of a specific activity or capacity of the soul that surveys one's mental life and picks out certain aspects of it. If my account is right, for Aristotle this is not the case. There is no internal scrutinising capacity whose exercise results in intellectual or perceptual attention. Similarly, there is no selective activity that picks out certain aspects of one's mental life and brings them to the foreground. For Aristotle, certain perceptions, thoughts, emotions and so on come to the foreground or background as a result of the competition between movements in the sensory apparatus. These movements do not compete "for attention" understood as an independent capacity, they are not themselves objects of scrutiny. Their competition, however, can be biased as a result of some intellectual activities, like my effort to memorise a shopping list, and other non-intellectual activities, like a

---

[1] See however Hahmann (2014, 17-24). Hatfield (1998), following Neumann (1971), mentions Aristotle's description of attention in *De Sensu*. Corkum (2010) calls 'attention' what others have called 'consciousness', understood as our capacity to perceive that we perceive. However, he does not analyse attention as a phenomenon potentially different from consciousness.

[2] The fact that the basic explanation of the phenomenon of attention is to be found in the competition between psychophysical stimuli and not in a dedicated cognitive capacity or activity explains why Aristotle discusses attention in the *Parva Naturalia* and not in *De Anima*. The focus of *De Anima* is on capacities of the soul that define the different kinds of living beings, like nutrition, perception and thought. Accordingly, *De Anima* does not discuss the details of the bodily background of cognitive phenomena. This bodily background is discussed in the *Parva Naturalia* and in the *Parts of Animals*. Thus, for example, *De Sensu* begins by stating that *De Anima* is about the soul by itself (*peri psuchēs kath'autēn*) and its capacities. In light of this study, *De Sensu* programmatically turns to a study of living beings and their common and peculiar functions (*Sens.* 436a1-5).

lioness' hunt for her prey. Even in these cases, the process of biasing does not involve an inward scrutiny of one's mental life. It is either part of one's voluntary behaviour in one's environment or it is part of an intellectual effort that can affect the workings of one's sensory apparatus.

I argue that his view can be uncovered starting from some observations on the physiology of attention in the *Parva Naturalia*. In light of this unified notion of attention, we can shed light on the relationship between enjoyment and attention in the *Nicomachean Ethics*.

If my account is correct, Aristotle's notion of attention is remarkable in its explanatory power, even if its physiological basis is of course out-dated. We can still conceptualise attention as the outcome of the competition between cognitive stimuli, even if we do not accept Aristotle's views on the physiology of thought and perception.[3] If we do so, we may still be able to endorse an Aristotelian principle of unity in the wide range of phenomena that relate to the selectivity of our mental life.

1. Competing *Kinēseis*

Unlike perception, attention is never directly at the centre of Aristotle's philosophical analysis. For example, it is not treated as a self-standing faculty of the soul. Nevertheless, as my discussion in what follows seeks to demonstrate, we can extrapolate a notion of attention from his psychological works, in particular the *Parva Naturalia*.

Let us begin our survey with the treatise *De Sensu*, where Aristotle describes the phenomenon of attention. *De Sensu VII* discusses whether or not it is possible to perceive two distinct things simultaneously. Aristotle thinks that simultaneous perception is possible but difficult to explain. Its possibility calls for explanation because simultaneous perception involves a kind of competition:

> If then the stronger movement always expels the weaker—which is why people do not perceive what is brought before their eyes if they happen to be deep in thought, or in a fright, or listening to some loud noise—this assumption must be made, and also [sc. the assumption] that anything is perceived more on its own than when blended. Wine, honey, and colour when pure rather than blended, and the *nētē* by itself rather than in an octave. This is because they

[3] Recent accounts of attention also envisage it as the outcome of the competition between cognitive stimuli (Duncan 2006). There is however little consensus on the nature of attention: Watzl (2017) sees it as the what structures our stream of consciousness; Mole (2011) argues that it is best understood as a specific kind of cognitive unison; Allport (1993, 207) denies that it is a unified phenomenon. For two summaries of the current debate on attention see (Wu 2014, esp. introduction and ch. 1; Mole 2013).

> tend to obscure one another. This is produced from the things from which a unity is formed.[4]

In this passage, the competition between certain movements explains the selectivity of attention, i.e. the fact that certain cognitive stimuli come to the foreground of experience. Some of these stimuli are perceptual, like sounds or colours. Others are not, like fear or thought. This competition has two possible results. Sometimes, the weaker stimulus is completely expelled (*ekkrouein*) from the perceiver's awareness. At other times, the weaker stimulus is merely obscured (*aphanizein*) and the stronger one is perceived more (*aisthanesthai mallon*), it is more vivid and salient. The examples in this passage may suggest that the outcome of the competition to some extent depends on the nature of the stimuli. When the stimuli are in the province of the same sensory organ, like hearing, they merely obscure one another: the lowest note of the lyre (*nētē*) and the note an octave apart are perceived more vividly when played on their own, but they are not imperceptible when played at the same time.[5] When the stimuli are different in kind, the stronger stimulus excludes the weaker one from the perceiver's awareness: people who are deep in thought, frightened or deafened by a loud sound do not see what is 'before their eyes'.[6]

However, one should not conclude from these examples that simultaneous perception, i.e. perceiving two different stimuli at the same time, is only possible when the two stimuli are of the same kind. Later in the same text (*Sens.* 449a3-20), the perceptual part allows the formation of unities between different kinds perceptibles because it is one in number, though different in account. Perception functions with five different sense modalities, but it retains a principle of unity, which is elsewhere called "common sense" (*DA III.* 2 and 7). Thanks to the common sense, we can grasp different perceptibles in a single unified perceptual act: we can simultaneously perceive the perfume of an apple and its colour, but we can also simultaneously hear a noise and see a colour.[7]

---

[4] εἰ δὴ ἀεὶ ἡ μείζων κίνησις τὴν ἐλάττω ἐκκρούει—διὸ ὑποφερομένων ὑπὸ τὰ ὄμματα οὐκ αἰσθάνονται, ἐὰν τύχωσι σφόδρα τι ἐννοῦντες ἢ φοβούμενοι ἢ ἀκούοντες πολὺν ψόφον—τοῦτο δὴ ὑποκείσθω, καὶ ὅτι ἑκάστου μᾶλλον ἔστιν αἰσθάνεσθαι ἁπλοῦ ὄντος ἢ κεκραμένου, οἷον οἴνου ἀκράτου ἢ κεκραμένου, καὶ μέλιτος, καὶ χρόας, καὶ τῆς νήτης μόνης ἢ ἐν τῇ διὰ πασῶν, διὰ τὸ ἀφανίζειν ἄλληλα. τοῦτο δὲ ποιεῖ ἐξ ὧν ἕν τι γίγνεται. *Sens.* 447a14–21. Translation adapted from (Beare and Ross 1991).

[5] On how the octave tends to be perceived as a unison see *Probl. XIX.*13, 23, 24, 35, 39, 41, 42, 50 (Barker 1990, 2:92–93). On *nētē* see (West 1992, 219–20).

[6] Aristotle does not say, in this context, whether being unable to perceive what it is before one's eyes involves also being unable to later on remember what was before one's eyes. If he did, this might be a sign that he admitted the possibility of unconscious perception. See also *Insomn.* 462a19-25 and (Hahmann 2015, 21).

[7] It is not my aim here to discuss the nature of common sense, for the sake of this study of attention it suffices to notice that Aristotle thinks that perceiving two different perceptibles at

A study of simultaneous perception gives us some preliminary insight into Aristotle's views of attention. Perceptual stimuli compete with each other. Sometimes, the outcome of the competition is a narrow focus of attention because one stimulus excludes or obscures the competing ones. In other occasions, we can be aware of different perceptual stimuli at the same time.

However, this account leaves room for further speculation. First, Aristotle does not explain how non-perceptual stimuli like fear and thought can enter in the competition for attention. Second, it is unclear why Aristotle characterises the competition between perceptual (and non-perceptual) stimuli as a competition between movements (*kinēseis*).

Let us start from the competition between movements, which provides the background for the discussion of perceptual attention and intellectual attention in the following sections. The role of movements in Aristotle's psychology is extremely controversial because in *De Anima I* (esp. *DA I* 3) he denies that the soul can be moved. Yet, at *DA* 408b1-18, he grants that emotions, perceptions and even thoughts appear to be movements:

> We say that the soul is pained and pleased, is confident and afraid, and further that it is angry and also that it perceives and thinks. But all of these seem to be movements. On this basis, one might suppose that the soul is in motion. But this is not necessary. For let it be the case that being pained or pleased or reasoning are movements, and that each of these counts as being moved, and that the movement is effected by the soul — for instance that being angry or afraid is the heart's being moved in such and such a way, while reasoning is presumably either this or something else moved … For it is perhaps better not to say that the soul pities or learns or thinks, but that the human being does these things with the soul; and this is not insofar as there is a movement in the soul, but rather because a movement sometimes reaches as far as the soul, and sometimes proceeds from it. Perception, for instance, is from these objects, whereas recollection is from the soul, ranging over the movements or traces in the sense organs.[8]

---

the same time is possible through some principle of unity. This principle explains the unity of consciousness, for it explains how different cognitive stimuli can enter in competition with each other (Modrak 1981, 160–66). See further (Barker 1981; Modrak 1987, 133–44; Gregoric 2007, 130–44; Johansen 2012, 178–79; Marmodoro 2014 especially ch. 4.2).

[8] φαμὲν γὰρ τὴν ψυχὴν λυπεῖσθαι χαίρειν, θαρρεῖν φοβεῖσθαι, ἔτι δὲ ὀργίζεσθαί τε καὶ αἰσθάνεσθαι καὶ διανοεῖσθαι· ταῦτα δὲ πάντα κινήσεις εἶναι δοκοῦσιν. ὅθεν οἰηθείη τις ἂν αὐτὴν κινεῖσθαι· τὸ δ' οὐκ ἔστιν ἀναγκαῖον. εἰ γὰρ καὶ ὅτι μάλιστα τὸ λυπεῖσθαι ἢ χαίρειν ἢ διανοεῖσθαι κινήσεις εἰσί, καὶ ἕκαστον κινεῖσθαί τι τούτων, τὸ δὲ κινεῖσθαί ἐστιν ὑπὸ τῆς ψυχῆς, οἷον τὸ ὀργίζεσθαι ἢ φοβεῖσθαι τὸ τὴν καρδίαν ὠδὶ κινεῖσθαι, τὸ δὲ διανοεῖσθαι ἤ τοῦτο ἴσως ἢ ἕτερόν τι, … βέλτιον γὰρ ἴσως μὴ λέγειν τὴν ψυχὴν ἐλεεῖν ἢ μανθάνειν ἢ διανοεῖσθαι, ἀλλὰ τὸν ἄνθρωπον τῇ ψυχῇ· τοῦτο δὲ μὴ ὡς ἐν ἐκείνῃ τῆς κινήσεως οὔσης, ἀλλ' ὁτὲ μὲν μέχρι ἐκείνης, ὁτὲ δ' ἀπ' ἐκείνης, οἷον ἡ μὲν αἴσθησις ἀπὸ τωνδί, ἡ δ' ἀνάμνησις

The implications of Aristotle's view that the soul is not moved are hard to understand fully.[9] However, it suffices for our purposes to note that here Aristotle grants that perceiving (*aisthanesthai*), thinking (*dianoeisthai*), feeling fear, feeling confidence and recollecting appear to be movements. However, he suggests that if these mental states, activities of affections are movements, then these movements are located in the body and not in the soul. They somehow involve the heart and have some sort of directionality with respect to the soul: being angry involves the heart being moved, and so perhaps does thinking. Perception reaches the soul, recollection proceeds from it.

At *DA* 403a28, Aristotle confirms that emotions like anger involve bodily movements, for example the boiling of the blood around the heart. However, he does not discuss elsewhere in *De Anima* the nature of the bodily movements characteristic of perception and thought. Instead, he focuses on the peculiar change from potentiality to actuality characteristic of cognitive activities (*DA II* 5). If we turn to the *Parva Naturalia* and the biological treatises, however, we find a more detailed physiology of perception. For Aristotle, the body of human and non-human blooded animals contains a continuous system of homoiomerous parts, i.e. parts constituted by a single element like air, water, blood or *pneuma*. This system enables the transmission of movements to the central perceptual organ: the heart.[10] The movements originate from an initial contact between the peripheral sensory organ and perceptible objects (this contact is always mediated by external media like water, or air).[11] Hence, we have good reason to think that these bodily movements are involved in the transmission of perceptual stimuli to a central sensory organ. This transmission is necessary for us to perceive, as proven by the fact that we can no longer see when the channels that connect our eyes to the heart are severed (*Somn.* 438b12-16).

The role for these material changes in explaining perceptual awareness is hard to determine. Scholars looking at Aristotle's views on perception have engaged in a long-

---

ἀπ' ἐκείνης ἐπὶ τὰς ἐν τοῖς αἰσθητηρίοις κινήσεις ἢ μονάς. *DA* 408b1-18, Trans. of *DA* are from (Shields 2016b).

[9] See (Carter 2018) for a recent interpretation, see (Menn 2002) for the many debates that the view that the soul does not move raises.

[10] On the heart as the central sensory organ see *Juv*. 467b28; *Somn*. 455a33-4. On the continuity of the system, see *Somn*. 438b12–16

[11] Here I follow Gregoric (2007, 40-51) and Corcilius and Gregoric (2013, 58-60). On homoiomerous parts receiving perceptual movements see *PA* 647a5-8; cf. *HA* 489a23-26; *PA* 647a22-23; *DA* 425a3-9; *Sens*. 438b16-439a5; *PA* II 10. On the vessels, blood and *pneuma* that connect peripheral organs to the heart see *GA* 743b25-744b10. There is a debate in the literature concerning the role of *pneuma* and the blood in the transmission, see further (Gregoric 2007, 40-51; Johansen 1997, 91-93).

standing debate between so-called literalist views and so-called spiritualist views.[12] Roughly speaking, while literalists like Everson (1997, 84) and Sorabji (2001) believe that specific material changes are necessary and perhaps even sufficient for perception, spiritualists like Burnyeat (1995) take it that perception is in no way a material change. Aristotle's account of the physiology of perception suggests that a radical spiritualist interpretation according to which there is no material change involved in perception is implausible, because material movements are at the basis of the transmission of perceptual stimuli, without which we can't perceive. However, this is not sufficient to settle the debate. First, we do not have enough details about the precise kind of change that underlies each specific perception. Second, it is still plausible to think that perceptual awareness involves something over and above material movements, an immaterial perceptual activity or some sort of non-standard change.[13]

For the purposes of this study of the competition between perceptual movements, it is enough to note that material movements are involved in the transmission of perceptual stimuli and that they are necessary for perception. In addition, through the mediation of *phantasia*, related material movements are involved in Aristotle's physiology of thought. *Phantasia* and *phantasmata* necessarily accompany the exercise of human thought.[14] *Phantasmata* are perceptual remnants similar in nature and content to the perceptions that originate them.[15] Aristotle repeatedly calls *phantasmata* and *phantasia* "movements" (*kinēseis*): At *DA* 428b10-17 *phantasia* is a sort of movement that only occurs in association with perception and in beings that perceive; at *DA* 429a1 it is a movement generated by active perception (*aisthēsis kat'energeian*). The same point is re-stated in *De Insomniis* (*Insomn.* 459a16-21), where Aristotle explains that dreams are *phantasmata* and that *phantasmata* are movements. He goes on to the describe the physiology of the generation of these movements as follows:

> What a dream is, and how it occurs, we may best study from the circumstances attending sleep. For sense-objects corresponding to sense organs implant a perception in us. And the affection produced by them persists in the sense organs, not only while the perceptions are active, but also after they are gone. For the affection in their case would seem akin to that of objects being carried

[12] A lot of ink has been spent on this issue, its initiator on the literalist side was (Sorabji 1974) and (Sorabji 1992) and its first opponent on the spiritualist side was (Burnyeat 1992). For a summary and a potential solution see (Caston 2004).

[13] See further (Lorenz 2007; Corcilius 2014; Hahmann 2014; Kalderon 2015, ch. 8-9).

[14] *DA* 427*b*16–18, *DA* 431*a*14–20, *DA* 432*a*3–14, *Mem.* 449*b*31-32. See the section on intellectual attention for further discussion.

[15] Here, I do not aim to reconstruct fully the workings of *phantasia*, I just look at its bodily background and its role for Aristotle's views on attention (see Nussbaum 1978; Frede 1992; Schofield 1992; Caston 1996; Modrak 1987; Wedin 1988; Scheiter 2012).

> [projectiles]. In their case too there is a movement even when the moving agent is no longer in contact with them. For the moving agent moves a certain portion of air; and that, on being moved, in turns moves another [portion of air].[16]

Dreams, which are *phantasmata*, originate from the movements that are retained in the perceptual organs. These movements are present in our bodies and can propagate even when the perceptual organs are no longer in contact with the perceptible object. The transmission of movements is compared to the propagation of movement in water and air when an object (perhaps a pebble falling into a pond or a projectile being shot) is carried through. The movements characteristic of *phantasia* originate from the movements that make perception possible and are similar to them in nature.[17] Hence, these movements are bodily, as proven by the fact that they resemble the kind of movements that propagate in air or water.

Aristotle's thesis that *phantasia*, perception and thought are, in a sense, movements is backed up by his studies in physiology. All these mental states and activities involve a bodily movement that takes place in our sensory apparatus and can be transmitted to and from the heart. This is why, in *De Sensu,* the competition between movements plays a role in the explanation of how perception, thought and *phantasia* can expel one another or obscure one another. With this physiological background in mind, we can return to perceptual attention and intellectual attention.

2. Perceptual Attention

At *Sens.* 447a14-21, attention structures our perceptual awareness: some things come to its foreground, others are pushed to the background. Perceptual awareness, in turn, is a complex phenomenon, which may or may not be reflexive:

> Actual perception is a movement through the body that occurs when the sense organ is affected in some respect. Animate things alter in the ways inanimate things do as well, inanimate things do not alter in all the ways that animate things do. For [inanimate things] do not alter in the manner of the senses; and

[16] Τί δ' ἐστὶ τὸ ἐνύπνιον, καὶ πῶς γίνεται, ἐκ τῶν περὶ τὸν ὕπνον συμβαινόντων μάλιστ' ἂν θεωρήσαιμεν. τὰ γὰρ αἰσθητὰ καθ' ἕκαστον αἰσθητήριον ἡμῖν ἐμποιοῦσιν αἴσθησιν, καὶ τὸ γινόμενον ὑπ' αὐτῶν πάθος οὐ μόνον ἐνυπάρχει ἐν τοῖς αἰσθητηρίοις ἐνεργουσῶν τῶν αἰσθήσεων, ἀλλὰ καὶ ἀπελθουσῶν. παραπλήσιον γὰρ τὸ πάθος ἐπί τε τούτων καὶ ἐπὶ τῶν φερομένων ἔοικεν εἶναι. καὶ γὰρ ἐπὶ τῶν φερομένων τοῦ κινήσαντος οὐκέτι θιγγάνοντος κινεῖται· τὸ γὰρ κινῆσαν ἐκίνησεν ἀέρα τινά, καὶ πάλιν οὗτος κινούμενος ἕτερον· *Insomn*. 459a23-31. Trans. of *Insomn.* based on (Gallop 1991).

[17] See also (Scheiter 2012, 255-261).

> [an inanimate thing] is unaware, while [an animate thing] is not unaware, of undergoing change.[18]

Both inanimate things and animate things alter, but only animate things alter in the manner of the senses and are therefore aware of their environment, they perceive what is around them. This may be because the alteration happens in the sense organs, or because the alteration is of a peculiar kind, or because perception involves an activity over and above the alteration.[19] Furthermore, awareness can be reflexive: animate things can be aware that they are undergoing change, i.e. they can perceive that they perceive.[20] In light of these complex distinctions, one might suppose that Aristotle relies on a specific perceptual activity in order to explain perceptual attention and its effects on awareness.[21] Alternatively, one might introduce a higher order reflexive

---

[18] ἡ γὰρ αἴσθησις ἡ κατ' ἐνέργειαν κίνησίς ἐστι διὰ τοῦ σώματος, πασχούσης τι τῆς αἰσθήσεως. καθ' ὅσα μὲν οὖν τὸ ἄψυχον ἀλλοιοῦται, καὶ τὸ ἔμψυχον, καθ' ὅσα δὲ τὸ ἔμψυχον, οὐ κατὰ ταῦτα πάντα τὸ ἄψυχον (οὐ γὰρ ἀλλοιοῦται κατὰ τὰς αἰσθήσεις)· καὶ τὸ μὲν λανθάνει, τὸ δ' οὐ λανθάνει πάσχον. *Phys.* 244b11-245a1. Trans based on (Wardy 1990).

[19] See the debate between literalists and spiritualists and its recent developments described in the previous section.

[20] I follow Caston (2002, 757) in taking the participle "πάσχον" (being affected) to be the thing that does not escape the notice of animate things. Aristotle describes this kind of higher order awareness at *DA* 425b12-25, *NE* 1170a29-b21, *Somn.* 455a12-22. See (Modrak 1981; Kosman 1975; Caston 2002; Johansen 2005).

[21] Hahmann (2014, 17-24) calls "attention" (aufmerksamkeit) the activity of perception that in his view explains awareness. In agreement with Bernard (1988, 141-142), he argues that this activity explains why Aristotle emphasises that it is possible for someone who has hearing not to be hearing at *DA* 425b26-426a6. Unless one's perception is active and attentive, one cannot hear, even if something is "sounding" and there to be heard. This passage, however, can be interpreted otherwise. Its point may be to clarify that the actuality of the sound being heard and the senses hearing is one and the same, but their being is different (*DA* 425b26-27; cf. Shields 2016, 267-270). To show this, one may emphasise the difference between the potential subject of perception (a hearer who does not currently hear) and a potential object of perception (something audible which is not being heard). Hence, when Aristotle writes that not all potential hearers actually hear, he is not necessarily referring to their lack of attention. Even if an attentive activity were at stake at *DA* 425b26-426a6, it speculative to assume that this activity could also explain the fact that certain things can be in the background or foreground of our awareness. Hahmann (2014, 24) rightly presents this as a possible extension of Aristotle's view, which is not backed up by explicit textual evidence. Alternatively, one might think that attention is a special case of perceiving that we perceive. On this view, *Sens*. 447a 14-21 may offer a counter-example to Aristotle's view that we always perceive that we perceive (*NE* 1170a29-b21). At *Sens*. 447a 14-21, we may not perceive what is before our eyes when deafened by a loud sound because we lack higher order awareness of *our* mental life, not because we are altogether unaware of what is before our

capacity, i.e. the capacity to perceive that we perceive, in order to explain why certain things come to the foreground of our perceptual experience.[22]

In order to illuminate Aristotle's views further, it is therefore worthwhile to look more in detail at other instances in which our awareness is structured selectively, with certain experiences coming to the foreground and others being pushed to the background. These include vivid perceptions, specific cases of colour constancy, after images and perceptual illusions. In all these cases, Aristotle does not appeal to a scrutinising capacity. Rather, he explains the changes to the structure of our perceptual experience as the result of the competition between movements. This suggests that a similar kind of competition can explain perceptual attention too.

At *GA* 780a1-5, Aristotle discusses how one's sight is affected by the constitution of one's eyes. Eyes that are prone to be moved too much or too little with respect to their transparency and fluidity are unable to see well. In addition, one's keenness of sight is affected by the competition between strong and weak movements in the eye:

> It [the eye] must avoid both (a) not being moved at all and (b) being moved too much with respect to the transparent, because the stronger movement expels the weaker. That is why people who have been looking at strong, brilliant colours, or who go out of the sunlight into the dark, cannot see: the movement which is already present in their eyes, being strong, precludes the movement which comes from outside.[23]

Here we find another account of the competition between perceptual movements. In this case, the competition takes place in the eye and it explains why one cannot see in the dark if one has just been exposed to bright colours or to a bright light. The movement caused in the eye by the bright colours is too strong and it expels competing movements coming from later perceptual contact. As in the case of perceptual attention, the competition between perceptual movements causes the expulsion of a stimulus from one's perceptual experience. The expulsion of the stimulus is an outcome of the competition and it does not require any specific perceptual activity or dedicated faculty.

Perceptual attention, however, does not merely involve the expulsion of certain stimuli. In some cases, it is a matter of perceiving something more vividly, or

---

eyes. If my interpretation is right, however, *Sens*. 447a 14-21 is not about higher order awareness or about perceiving that we perceive, but it is about awareness of our environment.

[22] An obvious candidate for this higher order capacity would be the common sense, see (Johansen 2005).

[23] δεῖ δὲ οὔτε μὴ κινεῖσθαι αὐτὸ οὔτε μᾶλλον ᾗ διαφανές· ἐκκρούει γὰρ ἡ ἰσχυροτέρα κίνησις τὴν ἀσθενεστέραν. διὸ καὶ ἀπὸ τῶν ἰσχυρῶν χρωμάτων μεταβάλλοντες οὐχ ὁρῶσι, καὶ ἐκ τοῦ ἡλίου εἰς τὸ σκότος ἰόντες· ἰσχυρὰ γὰρ οὖσα ἡ ἐνυπάρχουσα κίνησις κωλύει τὴν θύραθεν. *GA* 780a8-15. Trans. Based on (Peck 1942). On colour vision and the transparent in Aristotle, see Kalderon 2015.

perceiving it more. Unlike expulsion, vividness may be hard to envisage as the mere consequence of the competition between movements that takes place in the sensory apparatus. However, for Aristotle this competition allows for a wide range of results beyond expulsion:

> This is plain whenever we engage in perceiving something continuously. For when we shift our perception, e.g. from sunlight to darkness, our previous affection continues. For what happens is that we see nothing, because of the movement that was due to the light and is still subsisting in our eyes. Again, if we look for a long time at a single colour, be it white or green, then any object on which we may shift our vision appears to be of the same colour. And again, if we close our eyes after looking towards the sun or some other shining object, then if we watch carefully, it appears directly in line with our original vision, first in its own colour, then it changes to crimson, next to purple, until it finally turns black and disappears. Also, when people turn away from moving objects, e.g. rivers, particularly very fast-flowing ones, things at rest appear to them to be moving.[24]

The persistence of movements in our sensory organs expels competing movements and thereby excludes competing stimuli from our perceptual awareness. This explains why we see nothing if we move quickly from a sunlit environment to a dark one. Sometimes, however, the movements seem to coexist generating phenomena like after images and the waterfall illusion. In this passage, Aristotle uses the competition between perceptual movements in the sensory organs to explain both changes in the way things appear to us and the expulsion of certain perceptual stimuli.

After images, colour constancy and attention are different phenomena. However, at *Insomn*. 459b7-20 and *Sens*. 447a14-21 Aristotle appeals to the same principles to explain them: movements take place and persists in our sensory organs; these movements expel (*ekkruō*) and obscure (*aphanizō*) one another. The different outcomes of these competitions include the expulsion of a stimulus from our awareness, perceptual illusions and the gradual fading of after images. In all these cases, changes in our perceptual experience are explained neither in virtue of a higher order activity of a scrutinising internal sense, nor in virtue of a special activity of perception. The

---

[24] φανερὸν ὅταν συνεχῶς αἰσθανώμεθά τι· μεταφερόντων γὰρ τὴν αἴσθησιν ἀκολουθεῖ τὸ πάθος, οἷον ἐκ τοῦ ἡλίου εἰς τὸ σκότος· συμβαίνει γὰρ μηδὲν ὁρᾶν διὰ τὴν ἔτι ὑποῦσαν κίνησιν ἐν τοῖς ὄμμασιν ὑπὸ τοῦ φωτός. κἂν πρὸς ἓν χρῶμα πολὺν χρόνον βλέψωμεν ἢ λευκὸν ἢ χλωρόν, τοιοῦτον φαίνεται ἐφ' ὅπερ ἂν τὴν ὄψιν μεταβάλωμεν. κἂν πρὸς τὸν ἥλιον βλέψαντες ἢ ἄλλο τι λαμπρὸν μύσωμεν, παρατηρήσασι φαίνεται κατ' εὐθυωρίαν, ᾗ συμβαίνει τὴν ὄψιν ὁρᾶν, πρῶτον μὲν τοιοῦτον τὴν χρόαν, εἶτα μεταβάλλει εἰς φοινικοῦν κἄπειτα πορφυροῦν, ἕως ἂν εἰς τὴν μέλαιναν ἔλθῃ χρόαν καὶ ἀφανισθῇ. καὶ ἀπὸ τῶν κινουμένων δὲ μεταβάλλουσιν, οἷον ἀπὸ τῶν ποταμῶν, μάλιστα δὲ ἀπὸ τῶν τάχιστα ῥεόντων, φαίνεται [γὰρ] τὰ ἠρεμοῦντα κινούμενα. *Insomn*. 459b7-20. I follow Gallop in omitting γὰρ at b20 and omitting αἰ at b18.

only principles Aristotle mentions are those that govern the competition between bodily movements.

The same kind of explanation is at the basis of an outlandish but related phenomenon: the possibility to have vivid precognitive visions and dreams. Aristotle thinks that most fulfilled dreams are mere coincidences (*Div.* 463a31-b11). However, at *Div.* 463b31-464a19, he gives some credit to a theory according to which precognitive perceptions in dreams might come from emanations from far-away objects. He attributes this theory to Democritus:

> When something has moved a portion of water or air, and this in turn has moved another, then even when the initial impulse has ceased, it results in a similar sort of movement continuing up to a certain point, although the original mover is not present. In this way it is possible that some sort of movement and perception reaches the souls of dreamers, coming from the objects from which Democritus derives his images and emanations. And however they arrive, they may be more perceptible at night, because those carried by day are more easily dissipated (because air is less disturbed at night, since nights are calmer). Hence they [sc. the movements] create a perception in the body because of sleep, because the small internal movements are perceived more when one is asleep than when one is awake. These movements create *phantasmata*, from which some foresee the future.[25]

Certain movements propagate through the night air and reach some dreamers, causing movements in their sensory organs that amount to a sense impression, which Aristotle calls a "perception in the body". This sense impression is then the source of a *phantasma*, from which the dreamer foresees the future. Internal movements, i.e. movements in one's sensory organs, create a sense impression and are perceived more when one is sleeping. Presumably, by this Aristotle does not mean that these movements are perceived as movements, but that they are stored in our sensory organs and that they are attached to a vivid *phantasma*, or a vivid dream. From these *phantasmata*, certain people foresee the future.[26] Later in the same text, Aristotle calls

---

[25] ὥσπερ γὰρ ὅταν κινήσῃ τι τὸ ὕδωρ ἢ τὸν ἀέρα, τοῦθ' ἕτερον ἐκίνησε, καὶ παυσαμένου ἐκείνου συμβαίνει τὴν τοιαύτην κίνησιν προϊέναι μέχρι τινός, τοῦ κινήσαντος οὐ πάροντος, οὕτως οὐδὲν κωλύει κίνησίν τινα καὶ αἴσθησιν ἀφικνεῖσθαι πρὸς τὰς ψυχὰς τὰς ἐνυπνιαζούσας (ἀφ' ὧν ἐκεῖνος τὰ εἴδωλα ποιεῖ καὶ τὰς ἀπορροίας), καὶ ὅποι δὴ ἔτυχεν ἀφικνουμένας μᾶλλον αἰσθητὰς εἶναι νύκτωρ διὰ τὸ μεθ' ἡμέραν φερομένας διαλύεσθαι μᾶλλον (ἀταραχωδέστερος γὰρ ὁ ἀὴρ τῆς νυκτὸς διὰ τὸ νηνεμωτέρας εἶναι τὰς νύκτας), ἐν τῷ σώματι ποιεῖν αἴσθησιν διὰ τὸν ὕπνον, διὰ τὸ καὶ τῶν μικρῶν κινήσεων τῶν ἐντὸς αἰσθάνεσθαι καθεύδοντας μᾶλλον ἢ ἐγρηγορότας. αὗται δ'αἱ κινήσεις φαντάσματα ποιοῦσιν, ἐξ ὧν προορῶσι τὰ μέλλοντα. *Div.* 464*a*6-19. Trans. Of *Div.* based on (Gallop 1990).

[26] Despite the outlandish context, here Aristotle relies on his theory concerning the connection between perception and *phantasia*. As we know from *DA* 429a1 and *Insomn.* 459a16-21, *phantasmata* are derived from perception, and require the preservation and the transmission of bodily movements involved in perception. There is however a discrepancy

the movements that come from Democritean emanations 'alien' (*xenikai*) and explains that they enter in competition with the 'proper' (*oikeiai*) movements that normally accompany perception. In normal circumstances, alien movements are impeded. Hence, they give rise to very dim visions or to no visions at all. At night, or in case of insanity, the competition with other movements is less stark and alien movements give rise to vivid visions. This explains why foresight is common among people Aristotle calls 'insane' (*ekstatikoi*):

> With regard to the fact that some insane people have foresight, its explanation is that proper movements do not impede the [sc. alien] movements, but are beaten off by them. That is why they perceive most of all the alien movements.[27]

People in this particular condition experience a malfunction: the proper movements generated by the interaction between perceptible objects and perceptual organs cannot impede alien movements in the sensory organs caused by the Democritean emanations that propagate in the night air. As a result, they perceive alien movements most of all (*malista aisthanontai*). Presumably, perceiving these movements most of all does not involve sensing the changes that take place in one's sensory organs, but it involves having vivid precognitive visions. After all, the phenomenon is meant to explain why insane people have precognitive visions. If this is right, the expression "*malista aisthanesthai*" captures the distinctive salience of perceptual attention by introducing differences in the intensity of one's perception. The premonitory visions of insane people are more vivid and salient than their ordinary perceptions. This selective focus and this vividness characteristic of attention are the outcome of the competition between different material movements: alien movements create more vivid visions because they beat-off proper movements.

This phenomenon has an analogue in the treatise *De Insomniis*, where the movements that give rise to dreams are obscured and often expelled during the day because of proper perceptual movements:

> From this it is clear that the movements coming from perceptions, both the ones from within the body and those from outside, are not only present in those who are awake, but also when the affection called sleep arises, and appear even more then. During the day they are expelled because perception and thought are active, and they are obscured like a smaller fire beside a big one and like small

---

between his account of ordinary dreams and precognitive dreams, for ordinary dreams arise from remnants of our daily perceptions (*Insomn.* 462a29-30), while precognitive dreams arise from movements that reach our sensory organs while we are sleeping. In addition, we normally cannot perceive while asleep (*Somn.* 455b2-13). These difficulties may be explicable because precognitive dreams only occur in extraordinary circumstances.

[27] τοῦ δ' ἐνίους τῶν ἐκστατικῶν προορᾶν αἴτιον ὅτι αἱ οἰκεῖαι κινήσεις οὐκ ἐνοχλοῦσιν ἀλλ' ἀπορραπίζονται· τῶν ξενικῶν οὖν μάλιστα αἰσθάνονται. *Div.* 464*a*25–32. Translation loosely based on (Gallop 1990).

> pleasures and pains besides big ones, but when these stop even the small ones come to the surface. By night due to the inactivity and the impossibility to exercise each part of the senses, and because of the hot reflux of heat coming from the outside to the inside, they [sc. the movements] are brought toward the starting point of perception[28] and they become apparent once the turbulence calms down.[29]

The purpose of this passage is to explain why the *phantasmata* that give rise to dreams and illusions are either very dim or completely absent during the day. Some of these *phantasmata* "come from the outside" because their origin is a previous perceptual movement preserved in the sensory organs (*Insomn*. 459a23-28). Other *phantasmata* come from similar movements that arise internally without contact with a perceptual object, because the sensory organs move by themselves. When this happens, we experience perceptual illusions (*Insomn*. 460b22-28). Wherever they come from, these movements are expelled (*ekkruō*) and obscured (*aphanizō*) by the activity of perception and thought during the day. This activity is accompanied by movements in the sensory organs that impede the movements associated with dreams and illusions. Thus, they can at best give rise to very dim illusions. [30] At night, however, perception is not active, and the movements are brought to the central sense organ (the heart) where, once the physiological turbulences stop, they become apparent.

Here Aristotle's point is not that the movements preserved in our sensory organs are, themselves, perceived. Rather, they give rise to dreams by night and illusions during the day. During the day, the weakest sensory movements are either completely expelled or merely obscured. This is a physiological mechanism that has repercussions on the phenomenology of our perceptual experience: obscured movements give rise to

---

[28] The starting point of perception is its central organ, i.e. the hearth (*De Iuventute* 469*a*5–7).

[29] Ἐκ δὴ τούτων φανερὸν ὅτι οὐ μόνον ἐγρηγορότων αἱ κινήσεις αἱ ἀπὸ τῶν αἰσθημάτων γινόμεναι τῶν τε θύραθεν καὶ τῶν ἐκ τοῦ σώματος ἐνυπάρχουσιν, ἀλλὰ καὶ ὅταν γένηται τὸ πάθος τοῦτο ὃ καλεῖται ὕπνος, καὶ μᾶλλον τότε φαίνονται. μεθ' ἡμέραν μὲν γὰρ ἐκκρούονται ἐνεργουσῶν τῶν αἰσθήσεων καὶ τῆς διανοίας, καὶ ἀφανίζονται ὥσπερ παρὰ πολὺ πῦρ ἔλαττον καὶ λῦπαι καὶ ἡδοναὶ μικραὶ παρὰ μεγάλας, παυσαμένων δὲ ἐπιπολάζει καὶ τὰ μικρά· νύκτωρ δὲ δι' ἀργίαν τῶν κατὰ μόριον αἰσθήσεων καὶ ἀδυναμίαν τοῦ ἐνεργεῖν, διὰ τὸ ἐκ τῶν ἔξω εἰς τὸ ἐντὸς γίνεσθαι τὴν τοῦ θερμοῦ παλίρροιαν, ἐπὶ τὴν ἀρχὴν τῆς αἰσθήσεως καταφέρονται καὶ γίνονται φαναὶ καθισταμένης τῆς ταραχῆς. *Insomn.* 460*b*28–461*a*7. Lines 28–32 are corrupted and difficult to interpret. Some read αἰσθήσεων instead of αἰσθημάτων, some others read ἐνυπαρχουσῶν instead of ἐνυπάρχουσιν . Reading αἰσθήσεων generates an unnecessary contradiction with what follows, since perception is not active in sleep. By adopting Bywater's emendation ἐνυπάρχουσιν we can avoid having two genitive absolutes in the same sentence. The version one adopts does not make the difference for my interpretation below. See further (Van der Eijk 1994, 202–13; Gallop 1990, 92–93).

[30] Here as in *Sens.* 447*a*14–21, *aphanizō* indicates that a sensory stimulus is dimmed and not necessarily cancelled by the competition with other stimuli. Hence, Aristotle is not contradicting himself when he writes that the movements are expelled and obscured during the day and that they are more present at night than during the day.

dim appearances, expelled movements to not make a noticeable difference to our experience. Hence, certain appearances are dim because they come from movements that are weaker than ordinary perceptual movements: they are obscured like a small fire beside a big one. Just as stronger movements give rise to more vivid experiences, weaker movements give rise to dimmer ones. Whether or not an aspect of our experience is salient or vivid depends on the competition between movements in our sensory apparatus.

Aristotle describes the competition between movements in our sensory apparatus in a variety of contexts: attention in *De Sensu*, colour constancy in the *GA* and *De Insomniis*, precognitive dreams in *De Divinatione*, perceptual illusions and dreams in *De Insomniis*. In all these cases, the competition explains the exclusion of certain stimuli from our awareness, their characteristic vividness or their dimness.

Perceptual attention can be characterised as a kind of selectivity because it involves certain features of our experience coming to the foreground at the expense other features. The selected features are either more vivid that then others, or they exclude them entirely: our friend's voice can be more salient than the music in a bar, but we can also be deaf to it if we are listening to a song we like. We may envisage this sort of selectivity as the outcome of a higher order scrutiny of our experience. A certain aspect of our experience is selected and privileged at the expense of others because we focus on it.

However, for Aristotle perceptual attention is not a specific activity that selects some aspects of one's experience and focuses on them. Its selectivity is an aspect of our perceptual experience explained in virtue of a characteristic psychophysical mechanism. [31] Attention is the outcome of the competition between different movements in our perceptual apparatus. Sometimes, the stronger movement disturbs competing movements so much that it expels them. Sometimes, the movements coexist and give rise to simultaneous perception. In other cases still, the weaker movement generates a dim perception, the strong one a vivid one.

This reconstruction has the perhaps surprising implication that Aristotle's views on attention are compatible with a wide range of interpretations on his account of perceptual awareness. To accommodate for his notion of perceptual attention, one must allow that bodily changes are necessary for perceptual awareness and make a difference for it. On the basis of this assumption, one can accept that the competition between bodily movements affects what is included in our awareness, what is excluded from it, what comes to its foreground and to its background.[32] There might be other changes and activities that are necessary for perceptual awareness, for the material movements

[31] Aristotle's description of the psychophysical basis of attention is strikingly similar to current competition theories of attention. In these theories, the mutual suppression of competing patterns of neural stimuli is at the basis of the selectivity of attention. See (Mole 2012, 213 ff.; Duncan 2006).

[32] Thus, the only theories that cannot account for attention are the purely spiritualist ones (e.g. Burnyeat 1995), for they deny that any kind of material change is involved in perceptual awareness.

that take place in the sensory organs and reach the heart might not suffice on their own to generate a perception. These changes and activities may be background conditions for perceptual attention, but they are not part of Aristotle's explanation of the way in which its selectivity structures our perceptual experience.

3. Intellectual Attention

Aristotle's does not limit his discussion to perceptual attention. At *Sens.* 447*a*14-16, we do not perceive what is before our eyes if we are deep in thought (*sphodra ennooein*). At *Insomn.* 461*a*1, thought (*dianoia*) expels movements that would otherwise generate illusions. These examples suggest that, like perceptual attention, intellectual attention is a kind of selectivity that results from the competition between movements in our sensory apparatus. As I noted in the first section, humans cannot think without the aid of *phantasia* (*DA* 427b16-18, *DA* 431a14-20, *DA* 432a3-14, *Mem.* 449b31-32). In turn, *phantasmata* involve, like perceptions, bodily movements (*DA* 428b10-17, *DA* 429a1, *Insomn.* 459a16-21). The cooperation between thought and *phantasia*, therefore, backs up Aristotle's view that intellectual attention and perceptual attention function in a similar way. The intellect (*nous*) is not mixed with the body, it does not have a dedicated bodily organ and it is separate or separable from the body (*DA* 429*a*24-27, *DA* 429*b*5). However, since we cannot think without *phantasia,* thinking is accompanied by bodily movements.[33] These movements compete with other movements and, if they win, they lead us to focus selectively on our thoughts at the expense of our perceptions, or our emotions.

Despite this preliminary evidence, one might doubt that, like perceptual attention, intellectual attention is the result of the competition between movements in our sensory apparatus. In order to describe intellectual attention, Aristotle uses the expressions *"prosechein ton noun*" (to pay attention, to turn one's intellect toward) and "*ephistanai tēn dianoian*" (to concentrate, to fix one's intellect upon).[34] These expressions may be taken to indicate a scrutinising intellectual activity because they emphasise how the intellect (*nous* or *dianoia*) is exercised or applied in paying attention. In this respect, they differ from *aisthanesthai mallon* (to perceive more), which describes the characteristic intensity or salience typical of attention.[35]

---

[33] See further (Van der Eijk 2005). It is difficult to reconcile this view with the thesis that the intellect is unmixed with the body. Perhaps, as (Cohoe 2016) argues, there are some high-level thinking activities like thinking about divine forms that do not require *phantasia*. Another option is that the separable intellect is not really human, but divine, see (Caston 2006, 328–22).

[34] See *NE* 1175b4, *Insomn*. 458b19, *Insomn*. 462a9, *Mem*. 453a 17 discussed below.

[35] *Prosechein ton noun* and other derivates of the verb *prosechein* are found in the writings of later commentators, where they often refer to a higher order activity or capacity that explains self-reflexive consciousness. Ps.-Philoponus In *DA* 464.13-467.12 reports that certain Neoplatonic thinkers considered the attentive ability (*to prosektikon*) of the rational soul

In addition, some interpreters have read traces of an attentive intellectual scrutiny in *De Memoria*,[36] where Aristotle elucidates the relationship between thought and *phantasia* with an analogy taken from geometry:

> And thinking is not possible without a *phantasma*—for the same affection occurs in thinking that also takes place in drawing diagrams: for in this case while we make no use of the triangle having a definite quantity, nonetheless we draw a triangle with a definite quantity, and the thinking [person] in the same way, if he thinks of something which is not a quantity he places before his eyes a quantity, while he does not think of it as a quantity; and if the nature [of what he is thinking of] is a quantity, but an indefinite one, he puts before his eyes a definite quantity, but thinks of it as a quantity only.[37]

Thinking with the aid of *phantasmata* is similar to doing geometry with the aid of diagrams. As geometers ignore some of the features of the diagrams they draw, so thinkers ignore some of the features of the *phantasmata* they metaphorically put before their eyes. The *phantasma* is of an object of a certain size, but they do not think of it as having a size. Since thought is selective, we can think of things like indefinite quantities even if the *phantasmata* we "put before our eyes" are of a definite quantity. One can connect this selectivity with the selectivity of intellectual attention: thought somehow expels or ignores the aspects of the *phantasmata* that are not relevant to its activity.[38]

---

capable of surveying one's mental life and of explaining higher order consciousness. See also Michael of Ephesus., *In Ethica Nicomachea ix–x Commentaria*, 517.14-16, who probably follows some Neoplatonic source. The expression *prosechein ton noun* is often found in Plato, but it is used colloquially to indicate the activity of to paying attention to what is being said and it is not analysed as a specific activity of the soul (see *inter alia Euthyphro* 14c1, *Crito* 46d1, *Theaetetus* 145a12, *Philebus* 31d2). The related term προσοχή is found in Plotinus, *Enn.* V 1.12.10-20; Stobaeus 2.73.1-5 = SVF 3.11, Epictetus, *Diss.* 3.16.15.1-16.3, Epictetus, *Diss.* 4.12.1.2-21.4.

[36] See Cohoe (2016, 358–66) *contra* Caston (1988, 285-286), who denies that this kind of intellectual selectivity is the outcome of a higher order scrutiny.

[37] καὶ νοεῖν οὐκ ἔστιν ἄνευ φαντάσματος – συμβαίνει γὰρ τὸ αὐτὸ πάθος ἐν τῷ νοεῖν ὅπερ καὶ ἐν τῷ διαγράφειν· ἐκεῖ τε γὰρ οὐθὲν προσχρώμενοι τῷ τὸ ποσὸν ὡρισμένον εἶναι τοῦ τριγώνου, ὅμως γράφομεν ὡρισμένον κατὰ τὸ ποσόν, καὶ ὁ νοῶν ὡσαύτως, κἂν μὴ ποσὸν νοῇ, τίθεται πρὸ ὀμμάτων ποσόν, νοεῖ δ' οὐχ ᾗ ποσόν· ἂν δ' ἡ φύσις ᾗ τῶν ποσῶν, ἀορίστων δέ, τίθεται μὲν ποσὸν ὡρισμένον, νοεῖ δ' ᾗ ποσὸν μόνον. *Mem.* 450*a*1–7. Trans. of *Mem.* adapted from J. Beare in (Barnes 1991).

[38] There are other possible interpretations of this passage. Its point may be that thought goes beyond the *phantasmata* that accompany it, for example because it can extrapolate a notion of indefinite size from the representation of something with a definite size. If this is the correct interpretation, this passage is not about intellectual attention. I thank an anonymous referee for pointing out this alternative interpretation.

This parallel may suggest that in thinking one scrutinises the *phantasmata* before one's eyes and selectively pays attention to only some of their aspects. On this view, intellectual attention is a higher order activity with our mental life as its object.

On reflection, however, introducing a higher order scrutinising activity is not necessary to explain the relationship between thought and *phantasia* in this passage. Aristotle's point might just be that our thinking activities require *phantasmata* as subservient representational states. A *phantasma* may have the power to supply different kinds of content to our thoughts, in the same way in which a diagram can be used for different demonstrations. When we think of a triangle we employ a *phantasma* of a triangle without employing its powers to represent a triangle of a certain size.[39]

Here, we face a new version of the question that informed the previous description of perceptual attention. We need to determine whether or not intellectual attention is the activity of a higher order capacity directed at our experience. In this case as in the case of perceptual attention, it is helpful to look at the treatises on natural science. In what follows I argue that in these treatises we discover that intellectual attention results from the competition between movements in our sensory apparatus. Our intellect can bias this competition by initiating movements or by bringing them to rest. Hence, intellectual attention can be voluntary and up to us even if it is not a higher order capacity that scrutinises our experience.[40]

In the treatises on natural science, intellectual attention is employed in memorizing and recollecting. For Aristotle, recollection (*anamnēsis*) is an intellectual activity that involves a rational search (*Mem*. 453a9-13). This rational search is for the sake of the recovery of a past perception or even of a piece of knowledge (*Mem.* 451b2-6). The search ends when one reaches the starting point of a series of associated movements in the sensory organs and relative *phantasmata* that are preserved in the soul (*Mem.* 451b28-452a2). This series of associated movements unfolds until one gets to the one that needs to be retrieved (*Mem.* 451b10-25).[41] The effort to recollect also involves an intellectual effort related to attention:

> That the affection [sc. recollection] is something corporeal and that recollection is a searching for a *phantasma* in something corporeal, is indicated by the fact that some people feel discomfort when, even if they concentrate strenuously,

[39] See (Caston 1998, 284–86; Modrak 1987, 128). *Contra* (Cohoe 2016, 354–55), I do not think that *Mem.* 450*a*1–7, 431*a*14–17 and *DA* 432*a*3–14 imply that the thinker is aware of *phantasmata* as representations. They just imply that the thinker is aware of the content of the *phantasma* and that this awareness can be selective.

[40] On the intellect and *phantasia* being up to us, see (*DA* 427*b*15–24, *DA* 417*b*16–26).

[41] On the associated appearances and on the workings of recollection, see (Lorenz 2006, 163–73; Sorabji 2004, 94:35–46).

> they are unable to recollect. And when they are no longer trying to recollect, they feel discomfort none the less. This happens especially in melancholics.[42]

In this passage, recollection is a search for a *phantasma* that somehow takes place in the body. The effort to recollect is accompanied by intellectual concentration (*epechein tēn dianoian*). In recollecting, one sets in motion something corporeal (*somatikon ti kinei*, *Mem.* 453*a*22).[43] This explains why recollection causes some sort of discomfort in people who are in certain bodily conditions, like melancholic people.

The intellectual concentration involved in the effort to recollect, presumably, is meant to result in the selective focus of attention. Selective attention matters for recollection because recollection is successful only if one selects the correct appearance in the train of associations. The role of the selectivity of attention in recollection is most explicit when the effort to recollect fails. Aristotle thinks that people who suffer from a specific physiological condition (moisture concentrated around the heart) are bad at recollecting. These people are unable to stop the bodily movements initiated by recollection and they are similar to those who cannot control intrusive tunes, fear and anger (*Mem.* 453*a*23-31). In this context, the inability to stop bodily movements corresponds to the inability to direct one's selective focus: those who are in this condition cannot distract themselves from their anger or fear, they cannot help thinking about the intrusive tune. Although they can initiate the flux of associated movements, they are unable to stop it. Hence, the ability to direct intellectual attention in the effort to recollect depends on the ability to control the flux of movements associated with perceptual activity.

The analysis of the unreflective intellect of insane people at *Div.* 464*a*23-24 reinforces this thesis. Aristotle seems to deny that insane people really have an intellect, for he writes that their thinking faculty does not think and it is, as it were, empty and vacant (*dianoia ou phrontistikē kai hōsper erēmos*). Hence, what remains of their intellectual faculty, which presumably corresponds to their sensory apparatus, can be set in motion by the nightly emanations that are responsible for precognitive dreams.[44] An intellect that functions properly is not empty and it cannot be moved. It stands still and it can control the movements that relate to perception. The ability to bring these movements to motion or rest determines the outcome of the competition between them, thus directing the focus of selective attention.

---

[42] ὅτι δ' ἐστὶ σωματικόν τι τὸ πάθος, καὶ ἡ ἀνάμνησις ζήτησις ἐν τοιούτῳ φαντάσματος, σημεῖον τὸ παρενοχλεῖν ἐνίους ἐπειδὰν μὴ δύνωνται ἀναμνησθῆναι καὶ πάνυ ἐπέχοντες τὴν διάνοιαν, καὶ οὐκέτ' ἐπιχειροῦντας ἀναμιμνήσκεσθαι οὐδὲν ἧττον, καὶ μάλιστα τοὺς μελαγχολικούς· *Mem.* 453*a*14–19

[43] Cf. *DA* 408*b*15-18, where perception is a motion that reaches the soul, recollection is from the soul and it results in the motions or rest of the sense organs.

[44] See also (Van der Eijk 2005, 228–35). Contrary to his views in *DA*, Aristotle here seems to allow that the intellect of insane people moves. However, the contradiction can be averted because here he suggests that people in this condition are in some sense without an intellect.

Similar considerations can explain the role of attention in acquiring memories. For Aristotle, this process involves preserving a specific *phantasma* and its relative movement in the sensory organs. Some people are unable to acquire memories due to their bodily constitution. Once again, Aristotle distinguishes between people who are characterised by moisture around their heart and people who lack this moisture. Moist quick people and slow dry people do not retain memories. In dry people, the movement cannot be transmitted due to the hardness of their sensory organs. In moist people, the movement does not stick because moisture generates a constant flux of movements (*Mem.* 450*b*7-10, cf. *Mem.* 453*a*23-31). This rather peculiar account of moisture around one's sensory apparatus suggests that retaining a memory sometimes requires bringing to a stop the flux of bodily movements that underlie *phantasmata*. This explains why Aristotle thinks that intellectual attention helps to retain particularly elusive memories:

> That we say the truth, i.e. that there are such *phantastic* movements in the sensory organs, is clear whenever someone by paying attention tries to memorise the affections we undergo when falling asleep or when being awakened. For one will sometimes, in waking up, spot the images that appear in sleep, which are movements in the sensory organs.[45]

In this passage, by paying attention one can try to memorise the affections that occur while one falls asleep or while one wakes up. A side effect of this activity is the perception of certain images, which correspond to movements in one's sensory organs. Similarly, at *Insomn.* 458*b*19, one can try to memorise one's dreams by paying attention. The point of these mnemonic efforts is to retain the movements that are associated with dreams. If intellectual attention involves the ability to control the movements that accompany perception and *phantasia*, we can see why it helps to memorise dreams. The movements associated with *phantasmata* that give rise to dreams tend to be obscured by the movements generated by perceptual contact when one is awake (see *Insomn.* 460*b*28-461*a*7 above). In order to counterbalance this tendency, one needs the restraining power of the intellect,[46] which can prevent the movements associated with perception from covering over the movements associated with dreams.[47]

---

[45] ὅτι δὲ ἀληθῆ λέγομεν καὶ εἰσὶ κινήσεις φανταστικαὶ ἐν τοῖς αἰσθητηρίοις, δῆλον, ἐάν τις προσέχων πειρᾶται μνημονεύειν ἃ πάσχομεν καταφερόμενοί τε καὶ ἐγειρόμενοι· ἐνίοτε γὰρ τὰ φαινόμενα εἴδωλα καθεύδοντι φωράσει ἐγειρόμενος κινήσεις οὔσας ἐν τοῖς αἰσθητηρίοις· *Insomn.* 462*a*8–12. Trans. adapted from J. I. Beare in (Barnes 1991).

[46] See *inter alia DA* 429*a*4–8, where *nous* can prevent one from acting on false appearances.

[47] In the pseudo-Aristotelian *Problems Concerning the Love of Letters* we find a related picture of intellectual attention (the picture is not wholly Aristotelian in that it suggests that the intellect can move, see (Castelli 2011, 270), on the author of these *Problems* see (Louis 1993, Section XVIII)). At *Probl.* 916*b*1-19 and *Probl.* 917*a*18-917b3, readers 'fix on something in their intellect' (*ereisōsi pros ti en tē dianoia*), their intellect 'focuses on one

This reconstruction suggests that intellectual attention is not the characteristic activity of a higher order scrutinising capacity. Rather, it is the result of the (potentially biased) competition between movements associated with perception and *phantasia*. The intellect affects the competition between these movements by bringing some of them to a stop and initiating others. Sometimes, the winning movement is associated with an appearance that we need to memorise or recollect. In other contexts, the winning movement is associated with an appearance that gives content to our thoughts. For example, in geometrical thinking, our intellect can rely on a plethora of appearances capable of giving content to different thoughts. However, the competition between movements is biased in favour of those movements associated with the appearances with the correct content. If this is right, the mechanism that underlies intellectual attention is similar to the mechanism that underlies perceptual attention.[48]

On this account, intellectual attention is not the activity of a higher order intellectual capacity that can be exercised at will. Nonetheless, it can be voluntary. The thinker voluntarily directs the targeted selectivity required by recollection and memorisation. [49] We can make sense of the difference between voluntary and involuntary attention within the context of Aristotle's general psychology. For Aristotle, some mental processes such as thinking or exercising *phantasia* can be voluntary and up to us (*DA* 427*b*15-24, *DA* 417*b*16-26). These processes, much like voluntary actions, have an aware perceiver or agent as their decisive cause and they are goal-directed.[50] In some cases, the perceiver or thinker is not a decisive causal factor in the selection of the winning stimulus. The strength of the stimulus and a pathological psychophysical condition determine the outcome of the competition (*Sens.* 447*a*17-18, *Div.* 464*b*2-4). Furthermore, no purpose guides the outcome of the competition: when

---

point' (*stē pros hen*). Non-readers do not 'think attentively' (*dianoia noēsē epistēsasa*). Fixating on something, focusing on one point and thinking attentively while reading have different consequences for different people depending on their bodily constitution. In people who are in a natural state, intellectual concentration brings the intellect and the activities in its surroundings to a standstill. This immobility is also the cause of sleep. Here like in the *Parva Naturalia*, therefore, the intellect can restrain psychophysical motions. The focus of attention, however, is a cause and not an effect of this restraint.

[48] Aristotle does not explain how the intellect can bias the competition in the correct way. Perhaps this ability is connected with one's familiarity with certain appearances and movements rather than others. See the next section. I thank Margaret Hampson for raising this question.

[49] Similar descriptions of voluntary attention can be found elsewhere in the corpus (*Pol.* 1316*b*13–15). The history of voluntary attention becomes more and more prominent in the middle ages. See for example Peter John Olivi's view that perception and arguably consciousness require an active exercise of the mind's power called 'attention' (*attentio*). See (Olivi 1922–26AD II Sent. q. 73; III, 89. and II Sent. q. 58 ad 14 Cf. Quod. 1.7 (f. 4ra)). For discussion, see (Pasnau 1997, 130 ff.).

[50] See *NE* 1111*b*22-24 for voluntary action, for an analogy between voluntary action and cognition in Aristotle see (Corcilius 2009).

one is deafened by a loud sound or when one cannot get a tune out of one's head, the selectivity of attention is not goal-directed. In other cases, the thinker or perceiver is the decisive cause that determines the outcome of the competition between stimuli. This happens for example when the intellect brings to a stop competing movements thus determining which one will win. In many of these cases, the outcome of the competition is also goal-directed, for it is the result of the effort to engage in geometrical reasoning or the effort to recollect and memorise.

Even if most examples of voluntary attention are intellectual, it is plausible to think that Aristotle allowed the possibility of voluntary perceptual attention. Non-human animals, who according to Aristotle lack an intellect, seem evidently capable of directing their attention voluntarily. Depending on the circumstances, a lioness may voluntarily focus on a potential prey or on the cubs. Aristotle describes a case of this sort: he argues that during the mating season male birds select potential partners and pay attention to them (*prosechonta Hist.* 614*a*22-26). The selective focus of these birds seems voluntary and goal-directed. In absence of textual evidence, we can merely speculate on the mechanisms at the basis of non-intellectual voluntary attention. First, Aristotle probably noticed that merely changing one's behaviour or one's location can influence the competition between perceptual stimuli. An animal can follow a scent by approaching its source, or it can move its gaze to follow its prey. In other contexts, the voluntary exercise of a faculty akin to imagination (*phantasia*) may be sufficient to direct the competition. A non-human animal can direct its attention to food or mating possibilities by voluntary calling to mind perceptual appearances (*phantasmata*) and stirring up their associated movements.[51] These movements may succeed in the competition with other movements that affect the animal's sensory organs at the same time. An imaginative exercise of this sort would be part of the animal's goal-directed behaviour and it would have the animal as its decisive causal source.

On the basis of this evidence, we can take stock and reconstruct a unified notion of perceptual and intellectual attention in Aristotle's work on natural science. Neither kind of attention is a higher order capacity that surveys our mental life. Both structure our mental life selectively, both are the outcome of the competition between psychophysical movements, both can be either voluntary or involuntary. Intellectual attention, in addition, relies on the intellect's ability to initiate movements in our perceptual organs and bring them to a standstill. When this ability breaks down, or when it is hindered by our bodily constitution, we struggle to memorise and recollect. The competition characteristic of attention, however, is not only biased by the intellect's ability to control movements in the sensory apparatus. It can also be affected by one's actions, one's orientation in space and one's imagination.

The physiological details of Aristotle's notion of attention are clearly out-dated. However, his views seem to be remarkably unified and explanatorily powerful. Even if we do not endorse Aristotle's view on the movements that take place in our perceptual apparatus, we can still envisage attention as a kind of selectivity that

[51] At *DA* 427*b*15–24, exercising *phantasia* is up to humans. However, nothing seems to prevent non-human animals from exercising *phantasia* at will too.

emerges from a (potentially biased) competition between different cognitive stimuli. In so doing, we can capture the common aspects of voluntary, involuntary, perceptual and intellectual attention. In addition, we can develop a notion of attention as a structural characteristic of our cognitive system without introducing a dedicated capacity or faculty of attention.

4. Attention and Pleasure in the Ethics

Aristotle's description of attention reaches beyond his works on natural science. In the *Nicomachean Ethics*, we find an analysis of a particular form of attention, i.e. the concentration that arises when we engage in cognitive activities with pleasure. After having argued that pleasure completes cognitive activities,[52] Aristotle describes the effects of this completion:

> This is also apparent from the way each pleasure is bound up with the activity that it completes. For the proper pleasure increases the activity; for we discriminate each thing better and more exactly when our activity involves pleasure. If, for instance, we enjoy doing geometry, we become better geometers, and understand each question better; and similarly lovers of music, building, and so on improve at their proper function when they enjoy it. Each pleasure increases the activity, what increases it is proper to it.[53]

Pleasures increase the activity they complete. Cognitive activities become more discriminating and precise when increased by their proper pleasure. For example, those who enjoy geometry become better at it and achieve a deeper understanding of its questions. The same applies to those who enjoy other cognitive activities, like listening to music or even building.[54]

---

[52] This discussion of pleasure is famously difficult to reconcile with Aristotle's views in *NE* vii 10–12 and his views in the *Rhetoric i.* 11. These difficulties need not concern us here, for the focus of the discussion is the relationship between pleasure and attention. See further (Harte 2014).

[53] φανείη δ' ἂν τοῦτο καὶ ἐκ τοῦ συνῳκειῶσθαι τῶν ἡδονῶν ἑκάστην τῇ ἐνεργείᾳ ἣν τελειοῖ. συναύξει γὰρ τὴν ἐνέργειαν ἡ οἰκεία ἡδονή. μᾶλλον γὰρ ἕκαστα κρίνουσι καὶ ἐξακριβοῦσιν οἱ μεθ' ἡδονῆς ἐνεργοῦντες, οἷον γεωμετρικοὶ γίνονται οἱ χαίροντες τῷ γεωμετρεῖν, καὶ κατανοοῦσιν ἕκαστα μᾶλλον, ὁμοίως δὲ καὶ οἱ φιλόμουσοι καὶ φιλοικοδόμοι καὶ τῶν ἄλλων ἕκαστοι ἐπιδιδόασιν εἰς τὸ οἰκεῖον ἔργον χαίροντες αὐτῷ· συναύξουσι δὲ αἱ ἡδοναί, τὰ δὲ συναύξοντα οἰκεῖα· *NE* 1175*a*29–36. Translations of the *NE* are based, sometimes loosely, on (Irwin 1999).

[54] Building might strike us as an odd example of intellectual or perceptual activity. However, Aristotle here has in mind the craft of building, which is a productive state involving reason (*NE* 1140a10-16). See further (Harte 2014, 208) and the Platonic analogue at *Phil.* 56e8, *Phil.* 56a3, *Phil.* 56b8, *Phil.* 56a5.

Pleasure makes cognitive activities more precise and discriminating because enjoyed activities are engrossing. The music lover is absorbed in the melody she enjoys and the geometer is engrossed in the problem she is trying to solve. The cognitive stimuli that matter for each activity we enjoy are vivid, competing stimuli are expelled. This implies that the right kind of pleasure improves our cognitive activities because it narrows the focus of our attention. This suggestion is confirmed in the following lines, where enjoyment and pleasure influence the competition for attention between different cognitive activities:

> For lovers of *auloi* cannot pay attention (*prosechein*) to a conversation if they catch the sound of someone playing the *aulos*, because they enjoy *aulos* playing more than their present activity; and so the pleasure proper to *aulos* playing destroys the activity of conversation.[55]

Here, we learn that when one enjoys the sound of the *aulos* (an instrument similar to the oboe), one cannot pay attention to a simultaneous conversation. One focuses exclusively on the *aulos* and conversation is destroyed as a result. Aristotle continues by describing how pleasant activities tend to expel (*ekkruō*) other activities, so that if we enjoy an activity intensely, we cannot do anything else at the same time. If, conversely, we do not enjoy something very much, we get distracted and start doing something else. For example, we eat nuts at the theatre when actors are bad (*NE* 1175*b*7-24). This suggests that the pleasure we take in a cognitive activity is proportional to the degree to which we are immersed in it.[56] Intense enjoyment excludes from one's awareness the cognitive stimuli related to any competing activities. Mild enjoyment merely makes them less vivid.

This description of attention and enjoyment is reminiscent of the *Parva Naturalia*. Aristotle uses one of his favoured terms for attention (*prosechein*). In addition, he uses the verb 'to expel' (*ekkruō*) in order to express the outcome of competing pleasurable cognitive activities. The most pleasurable activity sometimes expels competing activities and sometimes merely obscures them. Cognitive activities, therefore, are selected as a consequence of a competition, similarly to intellectual and perceptual stimuli.

In light of these similarities, we can make sense of Aristotle's views on attention and pleasure within the context of his scientific analysis of attention. At *Insomn.* 461*a*2-3, pleasures and pains compete with each other. The stronger pleasure or pain overcomes the weaker one and it is therefore felt or perceived more. The fact that pleasures and pains compete like perceptual stimuli is not surprising. At *DM* 702*a*2-5, feelings of pleasure or pain and in general emotions like fear are accompanied by

---

[55] οἱ γὰρ φίλαυλοι ἀδυνατοῦσι τοῖς λόγοις προσέχειν, ἐὰν κατακούσωσιν αὐλοῦντος, μᾶλλον χαίροντες αὐλητικῇ τῆς παρούσης ἐνεργείας: ἡ κατὰ τὴν αὐλητικὴν οὖν ἡδονὴ τὴν περὶ τὸν λόγον ἐνέργειαν φθείρει. *NE* 1175*b*2–7.

[56] Gilbert Ryle discusses a very similar thesis in his (Ryle 1954, 142), where enjoyment and pleasure are a form of attention.

heatings and chillings that can enter in a competition for attention similar to the one between movements in our perceptual apparatus. Hence, it is plausible to think that Aristotle explained the way in which pleasures and pains become more or less salient in our experience in light of a competition between movements in our sensory apparatus.

However, in the *NE X* Aristotle is not concerned with the saliency or vividness of pleasure and pain. The relationship between enjoyment and attention is less direct: pleasure leads us to engage in the activity in the first place and it fosters subsequent regular practice. If we enjoy an activity, we will desire to engage in it as often as we can. The opposite is true of painful activities: we seek to avoid them as much as we can. This explains why, at *NE* 1175*b*13-20, pain destroys cognitive activities almost as much as competing pleasures do. Competing pleasures lead us to disregard the activity, pain leads us to shun it. Engaging in a cognitive activity because we find it pleasant is in its own right a way to direct attention to it. When we engage in a cognitive activity because we find it pleasant, we affect the competition between the available cognitive stimuli in favour of those that contribute to the activity. The favoured stimuli, in addition, can be either perceptual or intellectual. Aristotle may have chosen the example of conversation and musical performances precisely because the relevant stimuli, in these cases, may be discriminated perceptually and intellectually. Both listening to a conversation and listening to music require us to discriminate auditory stimuli. They also require an application of our linguistic intellectual capacity and of our intellectual grasp of harmonic and musical development.

In addition, with enjoyment comes practice and practice improves our cognitive performances, perceptual or intellectual. This specific kind of improvement involves the selective focus of attention. The more accustomed we are to geometrical problems, the more receptive we will be to the hints that lead to the correct solutions. The more practice we get at house building, the less will we get distracted by techniques and operations that do not contribute to our projects. A similar phenomenon is described at *Div.* 464*a*26, where familiarity with certain cognitive stimuli makes them more salient or vivid. We have vivid dreams (we are *enthuoneiroi*) about our friends and we recognise them more easily because they are familiar (*gnōrimoi*) to us. This familiarity has a physiological basis: the movements that are transmitted to our sensory organs from contact with familiar things are themselves more familiar and therefore have a privileged path toward the central organ of perception (*Div.* 464*a*30-32).

Further proof that enjoyment and practice have similar effects on the focus of our attention comes from the *Eudemian Ethics*:

> It is clear that just as in science what we have recently contemplated and learnt is most perceptible because of pleasure, so also is the recognition of things we are used to, and the same account applies to both.[57]

[57] δῆλον δ’ ὅτι ὥσπερ ἐπὶ τῆς ἐπιστήμης αἱ πρόσφατοι θεωρίαι καὶ μαθήσεις αἰσθηταὶ μάλιστα τῷ ἡδεῖ, οὕτω καὶ αἱ τῶν συνήθων ἀναγνωρίσεις, καὶ ὁ λόγος ὁ αὐτὸς ἐπ’ ἀμφοῖν. *EE* 1237*a*23– 26.

Here, enjoyment makes what we contemplate and learn more perceptible, or more vivid and salient. Practice and familiarity have a similar effect. If this is right, enjoyment can bias the competition between movements at the basis of attention on its own and also because it fosters practice and familiarity. This improvement in focus makes us better at cognitive activities that involve careful judgement and precise perceptual discrimination, like geometry or the craft of building. Aristotle's notion of attention, therefore, extends from a study of its physiological basis to the way in which its selective focus can be directed by practice and improve our cognitive performances.

Conclusion

Aristotle's psychological works contain a unitary notion of attention. Attention's selectivity is the outcome of the competition between movements in our sensory apparatus. Hence, the competition can be influenced by our bodily condition. In addition, our intellect has the peculiar capacity to restrain these movements, thus directing the focus of attention. Voluntary attention is not exclusively intellectual: voluntary actions and voluntary exercises of imagination (*phantasia*) can influence the outcomes of the competition.

Aristotle's notion of attention in the psychological works can also help us to make sense of his views on pleasure and attention in the *Nicomachean Ethics*. Enjoying a cognitive activity leads us to focus on it and to engage in it repeatedly. Enjoyed activities are in the foreground of our mental life and they are therefore more precise. Practice has similar effects, for it biases the competition in favour the movements that originate from familiar stimuli.

Aristotle has a remarkably unified notion of attention and he brings together a wide plethora of phenomena characteristic of it: the selectivity of attention is always the outcome of the competition between stimuli that takes place in our sensory apparatus, but it can be perceptual, intellectual, voluntary or involuntary. In addition, it enjoys a close link with pleasure and practice and it can enhance both perceptual and intellectual cognition. This last aspect of attention lies at the intersection between Aristotle's work on ethics and his work on psychology. Pleasure has a prominent role in moral education and it also enhances cognition by enhancing attention. It is thus plausible to think that attention has a role to play in the kind of cognitive training that is necessary for moral training. Thus, a study of Aristotle's psychology of attention opens the path to a study of his moral psychology of attention.[58]

Aristotle's notion of attention is developed against the backdrop of his views on the physiology of perception and thought. Since Aristotle's physiology is out-dated, we may wonder whether so is his notion of attention. This question is especially pressing because contemporary research challenges the view that there is a single physiological mechanism at the basis of attention.[59] However, if we extrapolate from

[58] I discuss his moral psychology of attention in a paper in progress.

[59] See e.g. (Watzl 2017, 13–33).

the details of his physiology, Aristotle's analysis remains insightful. It is elegant and economical, because it explains attention as a phenomenon that results from the integrated functioning of our sensory apparatus. It does not introduce a higher order capacity that scrutinises our perceptual and intellectual experience in order to explain the selectivity of attention. Rather, it relies on the idea that cognitive stimuli can compete with one another and that this competition has an effect on the structure of our mental life. This competition is intelligible even if we cannot explain it or reduce it to a single physiological basis. Hence, it may still prove to be an interesting candidate for a viable theory of attention.[60]

Bibliography

Allport, Alan. 1993. "Attention and Control. Have We Been Asking the Wrong Questions? A Critical Review of Twenty-Five Years." In *Attention and Performance XIV*, edited by David E. Meyer and Sylvan Kornblum, 14:183-218. Cambridge, MA: The MIT Press.

Armstrong, David M. 1981. "What Is Consciousness?" In *The Nature of Mind*, edited by John Heil, 721-28. Cornell University Press.

Barker, Andrew. 1981. "Aristotle on Perception and Ratios." *Phronesis* 26 (3):248-66.

———. 1990. *Greek Musical Writings: Harmonic and Acoustic Theory.* Vol. 2. Cambridge: Cambridge University Press.

[60] Versions of this paper were presented at Trinity College Dublin and the London ICS seminar. I thank all the participants for their suggestions. The paper was inspired by Victor Caston's very helpful comments on another paper. It has benefitted from insightful comments from two anonymous referees and from Claire Benn, Sharon Berry, Margaret Hampson, Mark Kalderon, Fiona Leigh, Olla Solomyak, Georgie Statham, Damien Storey, Casper Storm Hansen. Margaret Hampson read the final version and helped me hugely by raising important objections I am not sure I have an answer to. Finally, my thoughts on attention in Aristotle developed after a conference on the virtues of attention at NYU Abu Dhabi, where I had the opportunity to discuss and sharpen my views. I am grateful to all the participants and in particular to Pauliina Remes.

Barnes, Jonathan, ed. 1991. *Complete Works of Aristotle*. Princeton University Press.

Beare, J.I., and G.R.T. Ross. 1991. *De Sensu et Sensibilibus*. Edited by Jonathan Barnes. The Complete Works of Aristotle. Princeton University Press.

Bernard, Wolfgang. 1988. *Rezeptivität und Spontaneität der Wahrnehmung bei Aristoteles*. Baden Baden: Koerner.

Bernard, Wolfgang. 1987 (2nd edition, 2010). "Philoponus on self-awareness". In *Philoponus and the Rejection of Aristotelian Science*, *Bulletin of the Institute of Classical Studies* 103 edited by Richard Sorabji, 195-206. London.

Burnyeat, Myles. 1992. "Is an Aristotelian Philosophy of Mind Still Credible? (A Draft)." In *Essays on Aristotle's de Anima*, edited by Martha C. Nussbaum and Amélie Oksenberg Rorty, 1-26. Oxford: Clarendon Press.

———. 1995. "How Much Happens When Aristotle Sees Red and Hears Middle c? Remarks on de Anima 2. 7-8." In *Essays on Aristotle's de Anima*, edited by Amelie Oksenberg Rorty Martha C. Nussbaum, 421-34. Oxford: Clarendon Press.

Carter, Jason W. 2018. "Does the Soul Weave? Reconsidering *De Anima* 1.4, 408a29-b18." *Phronesis* 63 (1):25-63.

Castelli, Laura M. 2011. "Manifestazioni Somatiche E 'Affezioni Dell'Anima'." In *Studi Sui Problemata Physica Aristotelici*, edited by Bruno Centrone. Napoli: Bibliopolis.

Caston, Victor. 1996. "Why Aristotle Needs Imagination." *Phronesis* 41 (1):20-55.

———. 1998. "Aristotle and the Problem of Intentionality." *Philosophy and Phenomenological Research* 58 (2):249-98.

———. 2002. “Aristotle on Consciousness.” *Mind* 111 (444). Oxford University Press:751-815.

———. 2004. “The Spirit and the Letter: Aristotle on Perception.” In *Metaphysics, Soul and Ethics: Themes from the Work of Richard Sorabji*, edited by Ricardo Salles, 245-320. Oxford: Oxford University Press.

———. 2006. “Phantasia and Thought.” In *A Companion to Aristotle*, edited by G. Anagnostopoulos, 316-46. Oxford: Blackwell.

Cohoe, Caleb. 2016. “When and Why Understanding Needs Phantasmata: A Moderate Interpretation of Aristotle de Memoria and de Anima on the Role of Images in Intellectual Activities.” *Phronesis* 61 (3):337-72.

Corcilius, Klaus. 2009. “How Are Episodes of Thought Initiated According to Aristotle?” In *Ancient Perspective on Aristotle de Anima*, edited by Gerd Van Riel and Pierre Destrée, 1-17. Leuven University Press.

Corcilius, Klaus 2014. “Activity, Passivity, and Perceptual Discrimination” In *Active Perception in the History of Philosophy: From Plato to Modern Philosophy* Edited by F. Silva and M. Yrjönsuuri. New York: Springer, 31-53.

Corkum, Phil. 2010. “Attention, Perception, and Thought in Aristotle.” *Dialogue* 49 (2): 199-222.

Duncan, John. 2006. “Brain Mechanisms of Attention.” *The Quarterly Journal of Experimental Psychology* 59 (1):2-27.

Everson, Stephen. 1997. *Aristotle on Perception*. Oxford University Press.

Frede, Dorothea. 1992. “The Cognitive Role of Phantasia in Aristotle.” In *Essays on Aristotle’s de Anima*, edited by Martha C. Nussbaum and Amélie Oksenberg Rorty, 279-95. Oxford: Clarendon Press.

Gallop, David. 1990. *Aristotle on Sleep and Dreams: A Text and Translation with Introduction, Notes and Glossary*. Petersborough, Ontario; Lewiston, NY: Broadview Press.

Gregoric, Pavel. 2007. *Aristotle on the Common Sense*. Oxford: Oxford University Press.

Gregoric, Pavel and Corcilius, Klaus. 2013. “Aristotle’s Model of Animal Motion.” *Phronesis* 58 (1):52-97.

Hahmann, Andree. 2014. “Kann man Aristoteles’ Philosophie der Wahrnehmung noch für wahr nehmen?” *Philosophisches Jahrbuch* 121 (1): 3-32.

Harte, Verity. 2014. “The Nicomachen Ethics on Pleasure.” In *The Cambridge Companion to Aristotle’s Nicomachean Ethics*, edited by Ronald Polansky, 288-319. Cambridge University Press.

Hatfield, Gary. 1998. “Attention in Early Scientific Psychology.” In *Visual Attention*, edited by Richard D. Wright, 3-26. Oxford: Oxford University Press.

Irwin, Terence. 1999. *Aristotle’s Nicomachean Ethics*. Translated by Terence Irwin. 2nd Edition. Cambridge: Hackett.

Johansen, Thomas Kjeller. 1997. *Aristotle on the Sense-Organs*. Cambridge University Press.

———. 2005. “In Defense of Inner Sense: Aristotle on Perceiving That One Sees.” *Proceedings of the Boston Area Colloquium in Ancient Philosophy* 21:235-76.

———. 2012. *The Powers of Aristotle's Soul*. Oxford University Press.

Kalderon, Mark Eli. 2015. *Form Without Matter: Empedocles and Aristotle on Color Perception.* Oxford University Press.

Kentridge, Robert W. 2011. "Attention Without Awareness." In *Attention: Philosophical and Psychological Essays*, edited by Christopher Mole, Declan Smithies, and Wayne Wu. Oxford: Oxford University Press.

Kosman, Aryeh. 1975. "Perceiving That We Perceive: On the Soul III, 2." *The Philosophical Review* 84: 499-519

Lautner, Peter. 1994. "Rival theories of Self-awareness in Late Neoplatonism", *Bulletin of the Institute of Classical Studies* 39: 107-116

Lorenz, Hendrik. 2006. *The Brute Within: Appetitive Desire in Plato and Aristotle*. Oxford University Press.

Lorenz, Hendrik (2007). "The Assimilation of Sense to Sense-object in Aristotle." *Oxford Studies in Ancient Philosophy* 33:179-220.

Louis, Pierre. 1993. *Aristote. Problèmes. Tome Ii*. Paris: Les Belles Lettres.

Marmodoro, Anna. 2014. *Aristotle on Perceiving Objects*. Oxford: Oxford University Press.

Menn, Stephen. 2002. Aristotle's Definition of Soul and the Programme of the De Anima. *Oxford Studies in Ancient Philosophy* 22:83-139.

Modrak, Deborah K. W. 1981. "An Aristotelian Theory of Consciousness?" *Ancient Philosophy* 1 (2):160-70.

———. 1987. *Aristotle: The Power of Perception*. University of Chicago Press.

Mole, Christopher. 2011. *Attention Is Cognitive Unison: An Essay in Philosophical Psychology*. Oxford University Press.

———. 2012. "Attention." In *The Oxford Handbook of Philosophy of Cognitive Science*, edited by Richard Samuels Eric Margolis and Stephen P. Stich. Oxford: Oxford University Press.

———. 2013. "Attention." In *The Stanford Encyclopedia of Philosophy*, edited by Edward N.

Zalta, Fall 2013.

Neumann, O. 1971. "Aufmerksamkeit." In *Historisches Wörterbuch Der Philosophie*, edited by J. Ritter, 1:635-45. Basel: Wissenschaftliche Buchgesellschaft.

Nussbaum, Martha Craven. 1978. *Aristotle's de Motu Animalium*. Translated by Martha Craven Nussbaum. Princeton University Press.

Olivi, Petrus Ioannis. 1922-26AD. *Quaestiones in Secundum Librum Sententiarum*. Edited by B. Jansen. Firenze: Bibliotheca Franciscana Scholastica Medii Aevi IV-VI.

Pasnau, Robert. 1997. *Theories of Cognition in the Later Middle Ages*. Cambridge: Cambridge University Press.

Peck, A. L. 1942. *Aristotle. Generation of Animals.* Translated by A. L. Peck. Cambridge, MA: Harvard University Press.

Prinz, Jesse. 2011. "Is Attention Necessary and Sufficient for Consciousness?" In *Attention: Philosophical and Psychological Essays*, edited by Christopher Mole, Declan Smithies, and Wayne Wu, 174-204. Oxford: Oxford University Press.

Ryle, Gilbert. 1954. “Pleasure, Part I.” *Proceedings of the Aristotelian Society* 135:135-46.

Scheiter, Krisanna M. 2012. “Images, Appearances, and *Phantasia* in Aristotle.” *Phronesis* 57 (3):251-278.

Schofield, Malcolm. 1992. “Aristotle on the Imagination.” In *Essays on Aristotle’s de Anima*, edited by Martha Craven Nussbaum and Amélie Rorty, 249-77. Oxford University Press.

Shields, Christopher. 2016. “Aristotle’s Psychology.” In *The Stanford Encyclopedia of Philosophy*, edited by Edward N. Zalta, Winter 2016.

Shields, Christopher. 2016b. *Aristotle, De Anima. Translated with an introduction and commentary*. Oxford: Clarendon Press.

Sorabji, Richard. 1974. “Body and Soul in Aristotle.” *Philosophy* 49 (187):63-89.

———. 1992. “Intentionality and Physiological Processes: Aristotle’s Theory of Sense-Perception.” In *Essays on Aristotle’s de Anima*, edited by Martha C. Nussbaum and Amélie Oksenberg Rorty, 195-225. Oxford: Clarendon Press.

———. 2001. “Aristotle on Sensory Processes and Intentionality: A Reply to Burnyeat.” In *Ancient and Medieval Theories of Intentionality*, edited by Dominik Perler, 49-61. Leiden: Brill.

———. 2004. *Aristotle on Memory*. Vol. 94. London: Duckworth.

Van der Eijk, Philip J. 1994. *De Insomniis. De Divinatione Per Somnum*. Berlin: Akademie Verlag.

———. 2005. “The Matter of Mind: Aristotle on the Biology of ‘Psychic’ Processes and the Bodily Aspects of Thinking.” In *Medicine and Philosophy in Classical Antiquity Doctors and Philosophers on Nature, Soul, Health and Disease*, edited by Philip J. Van der Eijk, 206-37. Cambridge: Cambridge University Press.

Wardy, Robert. 1990. *The Chain of Change a Study of Aristotle's Physics Vii*. Cambridge University Press.

Watzl, Sebastian. 2017. *Structuring Mind. The Nature of Attention and How It Shapes Consciousness*. Oxford University Press.

Wedin, Michael V. 1988. *Mind and Imagination in Aristotle*. Yale University Press.

West, Martin L. 1992. *Ancient Greek Music*. Oxford: Oxford University Press.

Wu, Wayne. 2014. *Attention*. London: Routledge.