

## Thought and Imagination: Aristotle's Dual Process Psychology of Action

Jessica Moss - June 2020

Forthcoming in Caleb Cohoe ed., *De Anima: A Critical Guide* (Cambridge)

PENULTIMATE DRAFT

Toward the end of *De Anima* (3.9-11) Aristotle turns to consider something he calls movement from place to place or locomotion (κίνησις κατὰ τόπον). This is a category that includes all purpose-driven behavior: reason-guided action of the kind distinctive to rational humans, but also animal behavior, akratic behavior, and even sleep-walking. Aristotle declares locomotion to be one of the defining features of animal soul, setting animals – including humans – apart from plants.

His question in *De Anima* is about the psychological cause of locomotion: “What in the soul is the mover?” (432a18-19). He considers various candidate powers of the soul. His conclusion, at least in broad outline, is clear. Locomotion is caused primarily by desire (ὄρεξις), but always in conjunction with something else: either thought or *phantasia*.<sup>1</sup>

The distinction between thought and *phantasia* has been aired earlier in *De Anima*, but in confusing ways that have invited much interpretative debate – particularly about the nature and scope of *phantasia*.<sup>2</sup> Moreover, Aristotle's discussion of the causes of locomotion is dense and difficult, and rather than making clear the import of the distinction between thought and *phantasia*, he seems instead to treat these two almost as interchangeable. First we hear that locomotion is “with *phantasia* or desire” (432b16); later we hear that “the movers appear to be two, either desire or thought, if one posits *phantasia* as a kind of thinking” (433a9-10). Finally, we hear that the mover is desire, but with the help of one or the other of thought or *phantasia*:

<sup>1</sup> On the translation of *nous* and *dianoia* as ‘thought,’ and on possible translations of *phantasia*, see below.

<sup>2</sup> For an overview of debates about *phantasia*, and an account of it which is largely compatible with the one I assume below, see Scheiter 2012.

The mover will be one in form, the desiderative power, insofar as it is desiderative, but before everything the object of desire, for this moves, itself unmoved, by being grasped by thought or *phantasia*.<sup>3</sup> (433b10-12)

One might then think that the distinction between thought and *phantasia* is a piece of Aristotelian doctrine that serves more as a distraction than as an aid to our understanding of his account of locomotion, and that we would be better off lumping the two together into a common category – call it ‘cognition’ – and focusing on the respective roles of cognition (of whatever kind) and desire.

I want to show that Aristotle in fact has a coherent and indeed compelling account of the different roles thought and *phantasia* play in causing locomotion. Moreover, it is one that reveals him to share a core insight with an influential theory in modern psychology: the “dual processing” theory of human cognition.

In brief: all human behavior is guided by cognition, but behavior-guiding cognition falls into two importantly different types. One type is shared with animals (and is the only kind available to them); it is imagistic, impulsive, and intuitive. The other is distinctive to humans; it is rational, reflective, and deliberative. In humans, the two types can operate in parallel, they can cooperate, or they can compete. Moreover, the character of our actions reflects the character of the cognition that guides it, and thus this cognitive distinction is crucial for understanding human psychology.

### 1. Thought and *phantasia*

Animal souls are distinguished from plant souls not only in having the power of locomotion, but also in having powers of what I will call cognition (427a17-21, 432a15-17).<sup>4</sup> We have learned

<sup>3</sup> τῷ νοηθῆναι ἢ φαντασθῆναι.

<sup>4</sup> Cognition is nowadays sometimes contrasted with perception; I mean ‘cognition’ in a broader sense. I choose the word to translate Aristotle’s κρίσις and γνῶσις for lack of better term, and for the sake of tradition: the Latins translate these words in these contexts as *cognitio* (see for example Aquinas’ commentary on *de Anima*).

earlier in *De Anima* that are three forms of cognition: perception, *phantasia*, and thought.<sup>5</sup> I will give a very brief review of these here; for more detailed accounts see chapters \*\* and \*\* in this volume. (Following Aristotle's own lead, I will not always sharply mark the distinction between powers and their activities: he seems to switch between the two in speaking of the causes of locomotion.)

Perception is the simplest form of cognition, shared among all animals. It is not of direct interest to us here since Aristotle argues that the perceptual power (*aisthêtikon*) is not a cause of locomotion, on the grounds that even stationary animals have it (432b19-26).<sup>6</sup> There is however an offshoot of perception which is found only in locomotive animals: *phantasia*.<sup>7</sup> (The word is often translated 'imagination' but the connotations of activity and creativity make this too narrow. It is derived from a verb meaning "to appear," and Aristotle exploits this connection, as we will see, so one might translate as 'appearance'. I will however leave the word untranslated.)

*Phantasia* is an activity of the phantastic power of the soul (*phantastikon*), which is closely connected to the perceptual power.<sup>8</sup> *Phantasia* arises from episodes of actual perception, it is concerned with the same objects that can be perceived, it is qualitatively similar to perception, and it has similar causal powers to perception:

Since...*phantasia* seems to be a movement and arises not without perception but for perceivers and of what perception is of, and since movement may arise from the activity of perception, and this must necessarily be similar to the perception, this movement [i.e. *phantasia*]

<sup>5</sup> There is in fact a dispute about whether *phantasia* counts as a form of cognition. Aristotle asserts this however at *de An.* 428a3-4 (later editors turn the question into an assertion), and in a passage of *De Motu Animalium* very relevant to my purposes here: in causing locomotion, "both *phantasia* and perception hold the same place as thought, for they are all cognitive (κριτικά)" (*MA* 700b17-20).

<sup>6</sup> The argument is that since nature does nothing in vain, she would not give perception to stationary animals if perception were a mover. This makes most sense if we assume that for a part of the soul to be the mover, causing locomotion must be essential to it – part of its function. (Note however that in the parallel discussion of the causes of locomotion in *de Motu*, perception is included as a mover.)

<sup>7</sup> Toward the end of the discussion of locomotion Aristotle considers the possibility that all animals have *phantasia*, but some only "indefinitely" (ἀορίστως) (424a28-30).

<sup>8</sup> In *de Anima* Aristotle speculates about their relation; in *de Insomniis* he claims that the two powers are "the same although different in being" (459a16-17). For discussion see Corcilius and Gregoric 2010.

cannot happen without perception nor belong to non-perceivers, and the one who has it does and undergoes many things in accordance with it. (428b10-17)

Fleshing these claims out with Aristotle's discussions in other works (especially *de Memoria* and *de Insomniis*), we get the following picture. When a creature exercises perception, an image (*phantasma*) remains even after the actual perceiving is over. To be aware of such an image is to exercise *phantasia*. Such images can impose themselves on the subject's attention without conscious effort, as in spontaneous memory, dreams, after-images, and illusions. Or they can be conjured intentionally, as in active recollection or deliberation. Due to their qualitative similarity to actual perceptions, the images can play the same psychological roles that perceptions can: for example, generating emotions and desires.

Finally there is a form of cognition belonging to humans alone and distinguishing us from lower animals. Aristotle uses several names for distinctively human cognition in *De Anima* 3.9-11: *nous*, *noêsis*, *dianoia*, and *logismos* for the activity of thought, and corresponding terms for the power. Although in other contexts he wants to draw important distinction between these, for example reserving '*nous*' for the very highest kind of cognition, here he seems to use them interchangeably, and I will use 'thought' as a blanket term to cover them all.

The kind of thought that concerns us here is what Aristotle terms practical thought, by contrast with theoretical: the kind that calculates (*logizesthai*) how to achieve a goal.<sup>9</sup> Aristotle represents the process of practical thinking as syllogizing: asserting premises, both universal and particular, and drawing a conclusion from them. There is controversy over the relations between deliberation, the practical syllogism, and action; for defense of one interpretation see my 2014.<sup>10</sup> What will be most crucial for my purposes here however is the uncontroversial claim that the thinking leading to action is inferential: it involves moving from one belief to another in a logical

<sup>9</sup> "Both of these are causes of locomotion, desire and thought (*nous*), but thought that calculates for the sake of something, i.e. practical thought" (433a13-14). Compare the distinction between practical and theoretical thought in *Nicomachea Ethics* 6.2.

<sup>10</sup> On the interpretation I defend, deliberation takes the form of explicit syllogizing, and results in decision (*prohairesis*), the kind of desire which directly causes rational action. For competing views see Nussbaum 1978 (essay 4) and Corcilius 2008, both focusing on *De Motu Animalium*.

way, where one belief is taken to provide a reason for the next. This makes for a contrast with *phantasia*, which is more associative: a perception or feeling or memory triggers a related *phantasia*, without any requirement that the creature recognize or understand the connection between them.

This very brief review of thought and *phantasia* will allow us to give an account of their roles in locomotion (next section); it will also allow us to see how closely they parallel the “dual processes” of contemporary psychology (section 4).

## 2. Cognition, desire, and action

We have already seen Aristotle’s account of the causes of locomotion, in broad strokes: desire moves us to attain a desired object, an object which has been cognized by thought or *phantasia* (433b10-12, quoted in the introductory section above). This leaves us with various questions, however. In particular, how does cognizing an object render it an object of desire and pursuit? And what do thought and *phantasia* have in common that allows either of them to play this role? The text is difficult, but we can glean from it the following account (which I detail and defend much further in my 2012, drawing also on a similar discussion of locomotion in *De Motu Animalium*).

Let us start with the case of thought. As mentioned above, Aristotle represents practical thought as involving syllogistic reasoning. The discussion of locomotion in *De Anima* contains a classic two-premise example:

The one belief and statement [in the reasoning that leads to action] is universal, the other about particulars – for the one says that *such a person should do such an act*, and the other that *this here is such an act, and I am such a person*. (434a16-19)

The two premises differ in that the second is particular and the first universal, but they also differ in that second is merely descriptive while the first is normative – recommending something as to-be-done. Aristotle treats the evaluative and the normative as equivalent in the practical

sphere: to be a practical good is to be an end, where ends are not merely as things that are in fact pursued, but things that are to-be-pursued.<sup>11</sup> Thus we can simplify by saying that the first premise is evaluative. As Aristotle puts it in a parallel discussion in *De Motu Animalium*, the premises of practical syllogisms concern two things: “the good” and “the possible” (701a6-25).

The conclusion of this short syllogism, not made explicit here, would inherit the evaluative character of the first premise: “This act is good (I should do this act).”<sup>12</sup> It is this that gets us up and moving – not directly, but by generating a desire:

Thought does not appear to move [us] without desire: for wish (*boulêsis*) is desire, and whenever one is moved in accordance with calculation, one is also moved in accordance with wish.<sup>13</sup> (433a22-25)

Thus thought contributes to action by identifying something as the *do-able good*, i.e. as *to-be-done*, thereby giving rise to an action-causing desire for that thing.

What about *phantasia*? As we saw above, this differs from thought in various ways; in particular, it is not rational – does not involve calculation or inference. Nonetheless, Aristotle makes clear that it operates in a closely parallel way to thought. Despite their differences,

<sup>11</sup> See Aristotle’s casual switch between two formulations of an evaluative premise in *De Motu Animalium*: “Every man must walk (βαδιστέον)” at 701a13, and “Walking is good (ἀγαθὸν) for man” at 701a27. See also his description of the “starting-point” (first premise?) of practical syllogisms in *Nicomachean Ethics*: “Since the end and [i.e.] the best is of such a sort” (1144a31). For the equation of practical goods and ends, see among many other texts *Eudemian Ethics* 1218b4-6.

<sup>12</sup> Aristotle sometimes makes these normative propositional conclusions explicit, and sometimes describes practical thought as culminating in action rather than in a proposition. See *MA* 701a6-25 for a range of options. (There is also the question of where decision (*prohairesis*) fits in: is it identical with the propositional conclusion, while at the same time being a desire, which in turn generates action? I leave all these questions to another occasion. It seems that in *De Anima*, as our next passage will show, Aristotle thinks of practical thought as giving rise to a desire (presumably what he would elsewhere call a decision), whether or not by way of an explicit conclusion; it is this desire which directly generates action.

<sup>13</sup> Elsewhere Aristotle distinguishes between two species of rational desire: wish, which is for the goal, and so cannot directly move us, and decision (*prohairesis*), which is for the particular do-able thing identified as the result of deliberation (*EN* 1111b26-27). The distinction is absent here, but he is clearly talking about a desire which directly causes locomotion. Perhaps he thinks that deliberation focuses a pre-existing desire onto a particular object; the desire does not change in nature, but can now cause action. (Indeed, that is a plausible interpretation of the relation between wish and decision in the ethical works, although there he distinguishes them more sharply.)

*phantasia* shares with thought the ability to cognize something as to-be-done, thereby giving rise to desire.

This emerges from the lines directly following those just quoted:

But desire moves contrary to reasoning [too]: for appetite is desire. While thought is always correct, however, desire and *phantasia* can be correct or not correct. For which reason (διό) while the object of desire always moves, this is either the good or the apparent good. (433a26-29)

Appetite, like *phantasia*, is found in animals as well as in the non-rational part of the human soul. Here, Aristotle correlates appetite with desire for “the apparent good.” There is a strong linguistic connection between the word ‘*phantasia*’ and the word for what appears (*phainomenon*). The implication of the passage therefore is that practical thought generates wishes for what it correctly identifies things as good, while *phantasia* generates appetites for what *appears* good, veridically or otherwise.<sup>14</sup> Thus the object of desire is either what is apprehended as good by thought, correctly, or what appears good to *phantasia*, often falsely. When Aristotle makes the summary claim that the object of desire moves by being cognized through thought or *phantasia* (433b12), then, this is what he has in mind.

That *phantasia* contributes to locomotion by identifying things as good is confirmed as Aristotle continues his description of motivational conflict shortly below:

Desires arise that are opposed to one another, and this happens when the reasoned account (*logos*) and the appetites are opposed. And this occurs in those who have perception of time [*viz.*, humans]: for thought orders one to hold back on account of the future, but appetite [orders one to act] on account of the now; for the presently pleasant *appears* both without

<sup>14</sup> Does thought always correctly identify the good, as Aristotle seems to claim at 433a29? Arguably his idea is instead that thought is well suited to identify the good, while *phantasia* – in humans at least, given our propensity to be corrupted by perceptual pleasure – has an inbuilt tendency toward deception. For thoughts about how this is compatible with his teleological view, see (indirectly) the start of section 5 below.

qualification pleasant and good without qualification, from a failure to look to the future (433b5-10, emphasis mine)

Thought orders one to go for what is really good, and to hold back from some merely apparent good; appetite urges one toward it, and does so *because* (γάρ) the thing “appears good”, i.e. is cognized as good through *phantasia*.<sup>15</sup> One might attempt to read these claims in such a way that they make no reference to the agent desiring objects *as* good: the point would be simply that when one uses thought one hits on what will be genuinely beneficial, while when one relies on *phantasia* one might be led astray. But if practical cognition is purely instrumental – if its role is only to find means to achieve the goals which desire proposes, i.e. to provide “premises of the possible” – then there is no guarantee that the object of intellectual desire will always be the genuine good (see again 433a26-29). For if someone happens to desire a bad goal, no matter how correct her instrumental thinking about how to achieve it, her object of desire will still be merely apparently good.

This reading of *de Anima*, on which *phantasia* generates desire by receiving appearances of things as good, is widespread: in antiquity we find it in Simplicius and Alexander, and it has been popular in recent years as well.<sup>16</sup> The reading is nonetheless controversial. Some doubt that *phantasia*, as a non-rational form of cognition present in lower animals as well as humans, can literally cognize things as good. Elsewhere I have given a detailed account on which *phantasia* (and even perception) can indeed literally cognize value: Aristotle construes pleurably cognizing an object, through any form of cognition, as cognizing it as to-be-pursued; given his understanding of the practical good as the goal or end (*telos*), he equates this with cognizing the object as good.<sup>17</sup> For the purposes of this paper, however, the crucial claim is only that *phantasia*, just like thought, contributes to action by registering objects in a special way that makes them objects of desire. Readers who object to the claim that *phantasia* can be literally evaluative can instead substitute the claim that it can be affect-laden, where (on Aristotle’s view)

<sup>15</sup> Here Aristotle does not explicitly mention *phantasia*, but strongly suggests it: we have just seen, at 433a26-29, that conflicts between wish and appetite are conflicts between thought and *phantasia*, and that it is to *phantasia* that things appear good .

<sup>16</sup> See Simplicius’ commentary on *de Anima*, and Alexander’s; he also incorporates the view into his own theory of action: see e.g. his *De Fato* XI. 178, XIV 184, and *Mantissa* XXIII 172. In recent years see among others Richardson 1992, Charles 1984, Freeland 1994, Segvic 2002, and Destree 2007.

<sup>17</sup> See my 2012, chapter 2 for defense of this view and discussion of objections.

affect-laden cognition of an object generates desires to pursue it, and is thus functionally equivalent to cognition of the object as good.

A final note: why is it *phantasia* that plays the role of generating locomotion-causing non-rational desires, rather than perception? Not because perception cannot be evaluative, but instead because the need for locomotion only arises when a creature lacks perceptual contact with a desired object: locomotion only occurs when we desire something at a distance. If a dog is drinking water, it will perceive (taste) the water pleurably – i.e. it will perceive it as good – and continue to desire it, but will have no need to get up and move. If the dog only sees the water at a distance, however, or if its throat is parched with no water in sight, it will not have a pleasurable perception of the water's taste, but instead a *phantasia* – a memory, perhaps generalized, of previous drinking. This *phantasia* will inherit the affective and evaluative character of the previous perception: the water will *appear* good. The result will be an appetite for the water, which in turn makes the dog up and move. Moreover, *phantasia* plays this same role in humans, underlying our appetites and passions.<sup>18</sup>

### 3. Thought vs. *phantasia*: Dual Processing

We have seen that *phantasia* and thought play parallel roles in generating locomotion: each identifies an object as good, thereby generating desire for it. This is what they have in common, that lets them both play the cognition role in causing locomotion.

We have also seen that there are important differences between them. Thought tends to get things right, while *phantasia*, dependent on appearances, often leads us astray. *Phantasia* generates appetitive, or more generally passionate desires; thought generates rational desires. Stepping back from Aristotle's terminology, we can understand his big picture as follows.

Non-human animals have only one way to process and act on information. This way is imagistic, relying on perception and its offshoot, *phantasia*, rather than thought. When behavior

<sup>18</sup> See my 2012, chapter 3, for extended discussion and defense. I am in agreement with many others who think that *phantasia* contributes to locomotion by presenting things as goals (e.g. Nussbaum 1978, Modrak 1987 and many others); I depart from others by arguing that it can do so without adding to or interpreting perception, but merely reproducing it.

results, it is impulsive rather than reflective, driven by appetite and passion rather than by rational desire - in other words (on Aristotle's view) animalistic. Humans can process information in this way too, with the same kind of result, but we also have another way: we can be rational and reflective, producing deliberated decisions; when behavior results, it is reflective and reason-guided.

In other words, human minds process and respond to information in two very different ways. These processes can take place in parallel, and at times they conflict. For example, when faced with a tempting treat, a person may simultaneously respond with (1) an imagistic impression of the treat as to-be-gone-for, which generates an impulsive desire to obtain it, and (2) a reflective, deliberative judgment of the treat as leading to bad consequences that outweigh its immediate rewards, which generates a rational decision to avoid it. Human behavior is shaped in accord with both processes.

Once we put Aristotle's picture this way, we see how much it has in common with a theory of human psychology that is prevalent now: Dual Processing theory.

Over the past four decades psychologists in various fields have developed theories that converge around a core claim: "There is a fundamental duality in the human mind" (Evans and Frankish 2009, 1). The idea is that all the ways in which we perform various specific tasks – for example learning, making social judgments, and making decisions – and indeed all the ways that we process information, can be roughly divided into two types. "Type 1" processes are intuitive, automatic, effortless gut reactions: for example, the processes by which you come up with the answer to "What's your name?" or recognize a familiar face. "Type 2" processes are analytical, controlled, reflective, and effortful: for example, the processes by which you calculate the product of 217 and 673, or reconstruct an argument from a difficult passage of Aristotle. Moreover, the two processes can stand in various relations: they can act in parallel; Type 2 processes can monitor and control Type 1 processes; they can also compete with one another.

Some proponents of Dual Processing Theory recognize it as a modern version of a theory that has appeared in various guises throughout the history of psychology, and less technically as "the

everyday distinction between intuition and reason – the former immediate, quasi-perceptual, sensitive to subconscious cues and sometimes biased; and the latter slow, effortful, explicit and more cautious” (Frankish 2010, 915). Several trace it – I think rightly – to Plato’s distinction between rational and non-rational parts of the soul.<sup>19</sup> I want here to show that Aristotle’s distinction between *phantasia* and thought anticipates the modern theory in striking detail, and that we can use the modern theory to illuminate his own.

One note before I begin: on some version of the modern theory, the difference in processes is underwritten by a difference in “systems”: humans have as it were two minds, which can operate in parallel, conflict, or cooperate.<sup>20</sup> It is tempting to assimilate this view to Aristotle’s notion of soul-parts: the perceptive-cum-phanastic part of the soul operates as one unified system; the intellectual part of the soul operates as another. Exploring this possibility would however involve us in metaphysical questions about the nature of soul-parts that lie beyond the scope of this paper, and so I confine the discussion to comparisons with Dual Process theory rather than with full-blown Dual Systems theories.<sup>21</sup>

#### 4. Fast and Slow

First, I want to show that Aristotle’s *phantasia* and thought map on closely to modern Type 1 “fast” and Type 2 “slow” processing.

Here is a representative table of features taken to be distinctive of each Type:<sup>22</sup>

<b>Type 1</b>	<b>Type 2</b>
‘fast’	‘slow’
automatic	controlled
impulsive	reflective

<sup>19</sup> See for example Stanovich 2011, 16, and Singpurwalla 2010.

<sup>20</sup> Systems are the “mental architecture” underlying processes (Evans and Frankish 2009:1).

<sup>21</sup> For discussion of the metaphysical question see for example Johansen 2012, and Corcilius and Gregoric 2010.

<sup>22</sup> Drawing especially on Epstein (1994), Evans and Frankish (2009), Frankish (2010), Kahneman (2011) and Stanovich (2011). The table is by no means exhaustive.

intuitive	rational
associative	inferential
effortless	effortful
experience-based	abstract
emotional	cool-headed
gullible	critical

Practical thought, as Aristotle indicates in our passage and makes clear at length elsewhere, is a time-consuming, labor-intensive, explicit, reflective process. Its paradigm form is deliberation, working out how to achieve a goal. It is literally slow (see especially *EN* 1117a17-22). Moreover, Aristotle represents the process of practical thinking as syllogizing: asserting premises, and drawing a conclusion from them.<sup>23</sup> We saw an example above, from the discussion of locomotion in *de Anima*: from the universal premise that “such a person should do such an act,” and the particular premise that “*this here is such an act, and I am such a person*” one infers that one should do this act (434a16-19). This clearly entails that thought is *inferential*, reasoning out a conclusion from premises. It also entails that thought is *abstract*: practical syllogisms always involve a universal premise, that is, one that includes reference to a general category (“such a person,” “sweet things,” and so on).

What about *phantasia*? Even the brief summary given above is enough to see how well it fits the profile of Type 1 processes. It is *effortless* – uncontrolled, automatic: when a thirsty dog sees water, an image of the taste is triggered, and the same is true for *phantasia*’s operation in dreams, memories, and illusions. It is *associative* rather than inferential: an occurrent perception triggers a stored *phantasma*, through some similarity.<sup>24</sup> It is *imagistic*, reproducing perception.<sup>25</sup> It is *experience-based*: it reproduces what we have actually perceived, although sometimes in distorted form. When we act on it we are *impulsive* rather than reflective: just like Type 1 processes, *phantasia* gives us no ability to reckon out the consequences of our actions – hence

<sup>23</sup> See discussion in section 1 on the controversy here.

<sup>24</sup> See the account of illusions in *De Insomniis*.

<sup>25</sup> Although there is evidence that Aristotle thinks of perception, and therefore *phantasia*, as propositional as well (for discussion see Everson 1997). Perhaps Aristotle thinks cognition can be both imagistic and propositional, without seeing a conflict between these.

the contrast between thought about the future and *phantasia* of the immediate pleasure, in the motivational conflict example at 433b5-10. It is *emotional*: while practical thought gives rise to rational decisions, evaluative *phantasia* underlies non-rational passions such as appetite (*ibid.*), as well as passions like fear, pity, and anger, which all involve vivid quasi-perceptual representations.<sup>26</sup>

Finally, *phantasia* is *gullible* where thought is *critical*. Explaining this last claim, and its repercussions for the relations between *phantasia* and thought, is a longer task which I leave to the next section. First however I will note one major difference between Aristotle's distinction and the modern one. On many versions of Dual Process theory, Type 1 processes are *unconscious*: we are not aware of their workings, nor, in many cases, of their results. (For example, someone who explicitly disavows racism may have unconscious, "implicit" biased beliefs, the result of Type 1 processing: see for example Gendler 2008.) Aristotle would plausibly accept that perceptual and phantastic *processing* is unconscious, but not that the products are: we are aware of our *phantasiai* and perceptions, as well as of resulting desires and passions, just as much as of any rational phenomena.

## 5. Conflict and control

Automatic processes have clear advantages: gut reactions save us time and mental effort, allowing us to make decisions under time constraints, act efficiently, and survive in emergencies. They also have clear disadvantages, however: because they are not under our conscious control, we cannot directly monitor or influence how they work. If we are wired or habituated or in the mood to go from inputs of kind *x* to outputs of kind *y*, we will jump to a *y* reaction even if this is a special circumstance in which an *x* merits a different reaction, and even if what appears to be an *x* is in fact a *z*. In other words, because Type 1 processes are unreflective, they leave us at the mercy of how things strike us. This is the feature that first prompted the postulation of Dual Process theory in a number of areas: psychologists noticed that we often find ourselves having quickly formed a judgment that we can recognize upon reflection to be wrong, as if something within us has jumped wrongly to a conclusion. "System 1 is gullible and biased to believe,

<sup>26</sup> See *Rhetoric* 1.11 and 2; for defense of this interpretation see my 2012 chapter 4.

System 2 is in charge of doubting and unbelieving” (Kahneman 2011: 81).<sup>27</sup> Thus insofar as we rely on automatic, effortless processes, *we* are gullible. We treat suggestive answers as true, and salient scenarios as real: hence our tendency to react with disgust to perfectly innocuous peanut-butter just because it is shaped like poop, or our vulnerability to various forms of “priming.”<sup>28</sup>

Type 1 processes are all that non-rational animals have to go on: impulse and intuition guide them in everything. Humans however have the capacity for another kind of thinking. Type 2 processes are reflective and critical; through them we can scrutinize appearances, withhold judgment, and reach conclusions that about how things really are by contrast with how they appear.

Moreover, this difference between the two types of process gives rise to a relation of control between them. Type 1 processes and their outputs, because they are automatic and impulsive, stand in need of supervision and monitoring; Type 2 processes, because they are reflective and critical, are perfectly suited to do this work, and indeed this is among their main roles:

System 2 is also credited with the continuous monitoring of your own behavior – the control that keeps you polite when you are angry, and alert when you are driving at night. System 2 is mobilized to increased effort when it detects an error about to be made... Conflict between an automatic reaction and an intention to control it is common in our lives... One of the tasks of System 2 is to overcome the impulses of System 1. In other words, System 2 is in charge of self-control. (Kahneman 2011: 24-26; cf. Stanovich 2011: 20-21)

Turning back now to Aristotle, we see that he has a very similar picture of the relation between *phantasia* and thought.

<sup>27</sup> Kahneman uses “System 1 φs” as shorthand for “we φ via type 1 processes”; hence his systems talk should not here be taken to indicate any further commitment beyond the Type 1/Type 2 process distinction.

<sup>28</sup> See Gendler 2008, Kahneman 2011.

Animals do many things in accord with *phantasiai*, some because they have no thought, i.e. beasts, some because thought is sometimes covered over by passion (*pathos*) or diseases or sleep, i.e. humans. (*de An.* 429a5-8)

The movers appear to be two, either desire or thought (*nous*), if one posits *phantasia* as a kind of thinking. For people often follow *phantasiai* against knowledge, and in the other animals there is no thinking or reasoning, but *phantasia*. (433a9-12)

Lower animals are at the mercy of how things appear to them. In well-functioning humans, thought is in charge; where there is conflict, we act on *phantasia* only if thought is somehow impaired, as in fits of passion, or disease, or sleep.<sup>29</sup> We see more evidence of this control-relation between thought and *phantasia* in Aristotle's discussions of optical illusions, earlier in *de Anima* and in his work *de Insomniis*: *phantasia* is taken in by appearances, while thought has the task of scrutinizing these and when necessary contradicting them (see especially *Insomn.* 460b4-16).

One central way that thought controls *phantasia* is – as we saw above – by resisting the evaluative appearances that induce locomotion:

Thought orders one to hold back on account of the future, but appetite [orders one to act] on account of the now; for the presently pleasant appears both without qualification pleasant and good without qualification, from a failure to look to the future (433b7-10)

A present pleasure *appears* good without qualification to *phantasia*; noticing the drawbacks – the future consequences – requires a kind of reflection and calculation available only to thought. *Phantasia* is gullible, thought critical. Thought thus has the job of holding *phantasia* in check – of preventing us from acting on it. Aristotle's commentator Alexander of Aphrodisias makes these claims even more

<sup>29</sup> What about ordinary cases of absent-minded, hasty, or thoughtless action: something appears tasty and so, without further thought, one eats it? Aristotle might treat these as cases in which thought gives a kind of default assent to *phantasia*'s promptings, and thus as cases of acting on thought rather than directly on *phantasia*. (See my 2012 chapter 4 for an argument that in the absence of reason to doubt, a *phantasia* prompts a corresponding *doxa*, opinion – where a *doxa* is an exercise of thought.) Or he might treat them as cases of acting on *phantasia*, where thought *would* contradict it if it were functioning well: see his treatment of “impetuous” *akrasia* at *EN* 1150b27-28.

explicit (presumably under the influence of the Stoics, who give an elaborate theory of the relation between reason and *phantasia* very much in line with what we have seen here):

It is agreed by everyone that man has this advantage from nature over the other living creatures, that he does not follow appearances in the same way as them, but has reason (*logos*) from her as a judge of the appearances that impinge on him about certain things as deserving to be chosen. Using this, if, when they are examined, the things that appeared are indeed as they initially appeared, he assents to the appearances and so goes in pursuit of them; but if they appear different or something else [appears] more deserving to be chosen, he chooses that, leaving behind what initially appeared to him as deserving of choice. (Alexander of Aphrodisias, *de Fato* 178.17-28, trans. Sharples)

## 6. Cooperation

Finally, I turn to a relation between thought and *phantasia* that is not emphasized in Dual Processing theory, but does have very strong parallels in other modern psychological theories: cooperation.

Above I have followed Aristotle's own tendency in most of the discussion to speak as if thought were completely independent of *phantasia*, but this turns out to be a simplification. Aristotle claims explicitly on several occasions that thought is dependent on *phantasia*: "The soul never thinks without a *phantasma*" (*de An.* 431a14-17; cf. *de Memoria* 449b31-450a13).<sup>30</sup> He gives us more details in a passage that precedes his official discussion of locomotion but is clearly relevant:

Thus the power of thought thinks the forms in *phantasmata*, and as in these cases [when one is actually perceiving the objects] the objects of pursuit

<sup>30</sup> For an argument that this claim in fact applies only to practical thinking, compatible with what I argue here, see Cohoe 2016.

and avoidance have been determined for it, so also outside perception, whenever it is engaged with *phantasmata*, it is moved... Sometimes it calculates and deliberates about future things in relation to present things, using the *phantasmata* and thoughts in the soul, as if seeing. And whenever it says that there is something pleasant or painful, then it flees or pursues<sup>31</sup> – and in general does one thing. (431a14-b10)

Above we saw that *phantasia* substitutes for perception in motivating action at a distance: if you are not in appropriate perceptual contact with an object you cannot literally perceive it in a desire-inducing way, but you may have a *phantasia* that reproduces the perception and has the same motivational effect. Earlier we considered cases where this happens spontaneously: a *phantasia* of the taste of food may be triggered by the sight of food, or perhaps by the physical feeling of hunger. Here however we see that humans can deliberately instigate this process. When we deliberate about future options, we actively call up and inspect images of them, so that we can judge whether or not to pursue them. Just as in non-rational locomotion, the impulse to pursue or avoid comes from an exercise of *phantasia*, although this time from one that is deliberately instigated and controlled by thought.<sup>32</sup>

This picture is confirmed in *de Anima*'s official discussion of locomotion. Toward the end, in summing up the discussion, Aristotle says:

In general, as we have said, insofar as the animal is desiderative, thus far is it able to move itself. But it cannot be desiderative without *phantasia*. And all *phantasia* is either calculative or perceptual (λογιστικὴ ἢ αἰσθητικὴ); of the latter, the other animals too have a share. (433b27-30)

This passage raises two questions. First, why is *phantasia* necessary for desire – why couldn't there be a purely rational creature whose desires are generated by thought alone? For the reason

<sup>31</sup> Hicks gives a different translation: "And when you pronounce, just as there in sensation you affirm the pleasant or the painful, here in thought you pursue or avoid." For discussion see my 2012, chapter 6.

<sup>32</sup> Compare Frede: "All activities, whether based on non-rational or on rational desire, presuppose that I envisage something as good or bad for me, to be pursued or avoided. The necessary condition of my thinking that something is good or bad, according to Aristotle, is that the soul shall have certain *phantasmata* (431a14-17); I have to have the image of a future good or bad..." (D. Frede 1992, 288-9). For discussion of the details of deliberative *phantasia* see my 2012, chapter 6.

we have just seen: practical thought must employ *phantasia*, so even thought-generated desires require *phantasia*. Second, what is this distinction between different kinds of *phantasia*? “Perceptual *phantasia*” must be what Aristotle has so far mostly discussed: *phantasia* which arises from perception without the mediation of thought. As to calculative (or “rational”) *phantasia*, this is not a reference to a distinct power, but instead to the *use* of *phantasia* in deliberation, which Aristotle indicated earlier, and which he explains at greater length shortly below:

Deliberative<sup>33</sup> *phantasia* is present in rational animals. For whether to do this or this is already the task of calculation (λογισμοῦ), and it is necessary to measure by one thing, for one pursues the greater; so that they [rational animals] are able to make one out of many *phantasmata*. And this is the reason why [the other animals] do not seem to have opinion, because they don’t have the kind [of *phantasia*]<sup>34</sup> that comes from syllogism... (de An. 434a7-11)

The passage is difficult, and its interpretation is contested. What is clear however is that it describes the active use of *phantasmata* as an aid to practical thought. Humans can put *phantasia* to use in deciding what to do: we imagine various possible courses of action or possible outcomes, perhaps synthesizing a new image out of old ones, and then choose what seems best. In other words, we can make a controlled experiment of the process which happens without our control in cases of non-rational motivation.

This means that there is cooperation between thought and *phantasia*. In the language of Dual Processing theory, a paradigmatic Type 2 process – reflective deliberation – makes use of a paradigmatic Type 1 process: gut reactions. We rationally appraise our options by seeing how we feel about them.

<sup>33</sup> Βουλευτική. Aristotle equates deliberation with calculation at EN 1139a12-13.

<sup>34</sup> Following Hicks (1907).

Theories like this have sometimes been proposed by philosophers (there are strong affinities with Hobbes' understanding of the role of imagination in deliberation and action, in *Leviathan* I.6), but the most striking modern parallel is, again, with theories in psychology. Some psychologists argue that perception of "valences" (evaluative perception) plays a crucial role in all action – just as, I argued, Aristotle thinks that even non-rational practical cognition is evaluative.<sup>35</sup> These psychologists argue that such perception plays a role in deliberated as well as impulsive action. Indeed, they describe the process in terms strongly reminiscent of Aristotle's description of deliberative *phantasia* as making "one out of many" (although again with a non-Aristotelian emphasis on the unconscious nature of the process):

By the time you reach this level of behavior [choosing one object over another], an array of mental processes have been deployed: the object has been perceived, the relative valences of objects in the scene have been computed, these valences have been compared [to] one's current goals and motivations in the specific context...and these factors are combined to produce the current "value" of the objects... (Lebrecht et al. 2012, 5)

Indeed, given his understanding of evaluative *phantasia*, Aristotle may even be construed as anticipating the influential arguments of Damasio (1994). Using evidence that neurological damage which impairs emotional responses turns out also to impair decision-making, Damasio argued that affective responses to mental images of possible scenarios are central even to apparently dispassionate reasoning. Aristotle does not explicitly make this claim, but may have something very similar in mind. Evaluative *phantasia*, like evaluative perceptions, are always pleasurable or painful, even when they do not constitute full-blown emotions; thus Aristotle's account of deliberation entails that we experience at least a small affective response, a kind of proto-emotion, in response to each option we imagine, using these to guide our ultimate choices.<sup>36</sup>

<sup>35</sup> See Lebrecht et al., 2012. The idea is that perceiving an object involves positively or negatively evaluating it, where this is attended by pleasure or pain (sometimes below the level of conscious awareness), and that our choices are directly guided by such perception. All practical cognition, even perception, is evaluative.

<sup>36</sup> For a brief discussion of different parallels between Aristotle's view and Damasio's "somatic marker hypothesis," see Gabbe 2007. A full study of the parallels I have in mind would focus on Aristotle's account of the causes of locomotion in *de Motu Animalium*, which, unlike the discussion in *de Anima*, emphasizes the affective and the physical aspects of perception and *phantasia*. For some discussion of this text see my 2012 chapters 1 and 2.

## 7. Conclusion

Aristotle's discussion of the psychological causes of locomotion is dense, confusing, at times apparently self-contradictory, and steeped in his own distinctive terminology. I have aimed to show that we can nonetheless extract from it an account that is coherent, compelling, and that in many ways very closely anticipates modern psychological theories, in particular Dual Processing theory. Animals and humans are driven to pursue objects that attract us. Objects take on that power when we cognize them as valuable. If we rely on automatic, uncontrolled processing mechanisms, our resulting desires and actions will be impulsive; if we rely instead on critical, deliberative capacities, our resulting desires and actions will be reflective. Animals are capable only of the first kind of behavior; the human psyche is constituted of an animal psyche united with an intellectual one, and so we are capable of both.<sup>37</sup>

## Works Cited

D. Charles (1984), *Aristotle's Philosophy of Action* (London).

C. Cohoe (2016), "When and Why Understanding Needs *Phantasmata*: A Moderate Interpretation of Aristotle's *De Memoria* and *De Anima* on the Role of Images in Intellectual Activities," *Phronesis* 61: 337-72.

K. Corcilius (2008) "Two Jobs for the Practical Syllogism?" *History and Philosophy of Logical Analysis* 2: 163-184.

<sup>37</sup> Many thanks to Caleb Cohoe and Jessica Gelber for extensive comments on earlier drafts, and to the other contributors to this volume for discussion. For discussion of Dual Processing theory I am especially indebted to Jeremy Dolan, Eric Mandelbaum, and Lisa Miracchi.

– and P. Gregoric (2010), “Separability vs. Difference. Parts and Capacities of the Soul in Aristotle,” *Oxford Studies in Ancient Philosophy* 39): 81-120.

A. Damasio (1994), *Descartes' Error: Emotion, Reason, and the Human Brain* (New York).

P. Destree (2007), “Aristotle on the Causes of *Akrasia*” in C. Bobonich and P. Destree (eds.), *Akrasia in Greek Philosophy: from Socrates to Plotinus* (Leiden and Boston), 139-166.

S. Epstein (1994), “Integration of the Cognitive and the Psychodynamic Unconscious,” *American Psychologist* 49, 709-24.

S. Everson (1997), *Aristotle on Perception* (Oxford).

J.St.B.T. Evans and K. Frankish eds., (2009), *In Two Minds: Dual Processes and Beyond* (Oxford).

K. Frankish (2010), “Dual-process and dual-system theories of reasoning” *Philosophy Compass* 5: 914-926.

D. Frede (1992), “The Cognitive Role of *Phantasia* in Aristotle,” in M.C. Nussbaum and A.O. Rorty (eds.), 279-298.

C. Freeland (1994), “Aristotle on Perception, Appetition, and Self-Motion” in M.L. Gill and J.G. Lennox (eds.), *Self-Motion* (Princeton), 35-63.

M. Gabbe (2016), “Aristotle on the Metaphysics of Emotions,” *Apeiron* 49: 33–56.

T. Gendler (2008), “Alief in Action (And Reaction),” *Mind and Language* 23: 552–585.

R.D. Hicks (ed.) (1907), *Aristotle, De Anima* (Cambridge).

T. Johansen (2012), *The Powers of Aristotle’s Soul* (Oxford).

D. Kahneman (2011), *Thinking Fast and Slow* (New York).

S. Lebrecht, M. Bar, L. Feldman Barrett and M. J. Tarr (2012), “Micro-Valences: Perceiving Affective Valence in Everyday Objects,” *Frontiers in Psychology* 3, 1-5.

D. Modrak (1987), *Aristotle, The Power of Perception* (Chicago).

J. Moss (2012), *Aristotle on the Apparent Good: Perception, Phantasia, Thought and Desire* (Oxford)

– (2014), “Right Reason in Plato and Aristotle: On the Meaning of ‘Logos,’ ” *Phronesis* 59: 181-230

M. C. Nussbaum (1978), *Aristotle’s De Motu Animalium* (Princeton).

H. S. Richardson (1992), “Desire and the Good in *De Anima*”, in Nussbaum and Rorty eds. *Essays on Aristotle’s De Anima*, 381-453.

K. Scheiter (2012), "Images, Appearances, and *Phantasia* in Aristotle," *Phronesis* 57: 251-78.

H. Segvic (2002), "Aristotle's Metaphysics of Action," in *Logical Analysis and History of Philosophy, Volume 5: Focus: Medieval Philosophy* : 23-53.

R. Singpurwalla (2010), "Plato's Tripartite Theory of Motivation." *Philosophy Compass* 5: 880-892.

K. Stanovich (2011), *Rationality and the Reflective Mind*.