Cognition in Aristotle's *Poetics*[*]

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ABSTRACT: This paper examines Aristotle's understanding of the contributions of perceptual and rational cognition to the composition and reception of poetry. An initial outline of Aristotle's cognitive psychology shows that Aristotelian perception is sufficiently powerful to sustain very rich, complex patterns of behaviour in human as well as non-human animals, and examines the interaction between perception (cognition of the particular and the 'that') and the distinctive capacity for reason (which makes possible cognition of the universal and the 'why') in human behaviour. The rest of the paper applies this framework to a number of problems in the *Poetics*: (i) If Aristotelian *tekhnê* is defined as a productive disposition involving reason, how can poetic *tekhnê* be manifested in the work of poets who work by non-rational habit or talent? (ii) Why does Aristotle believe that the pleasure taken in imitation *qua* imitation involves rational inference? (iii) What does Aristotle mean when he contrasts history (concerned with the particular) and poetry (concerned with the universal)? (iv) How is Aristotle's insistence on universality and rationality in the construction of poetic plots to be reconciled with his willingness to tolerate irrationalities and implausibilities?

This paper examines Aristotle's views on the cognitive demands which poetry makes on poets and their audiences. The examination will not focus exclusively on cognition in the limited sense of rational inference or insight. Aristotle regards perception as a form of cognition (*gnôsis*),[1] and I use the term in a correspondingly inclusive sense. Humans are rational *animals*; their rationality is inextricable from the embodied perceptual capacities that they share (to a greater or lesser degree) with other animals.[2] It is self-evident that the appreciation of poetry has a perceptual basis: a contemporary of Aristotle who could neither see nor hear would have had no cognitive access to poetry at all. But it would be a mistake to assume that perception provides no more than a bare interface to texts or performances of poetry, leaving all the significant cognitive work to the

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[1] *APo*. 2.19, 99b37-9; *Mem*. 1, 450a9-12; *GA* 1.23, 731a33f.; *Met*. 1.1, 981b11f. Note also the contrast between what is more *gnôrimos* to us (perceptible) and more *gnôrimos* in itself (intelligible): *APo*. 1.2, 71b33-72a5; *Phys*. 1.1, 184a16-26; 1.5, 189a5-8.

[2] Intellect (*nous*) thinks in *phantasmata* (*DA* 1.1, 403a8-10; 3.7, 431a14-17, 431b2; 3.8, 432a7-14); and processes of inferential reasoning are underpinned by 'logistic' or 'deliberative' *phantasia* (*DA* 3.10, 433b29; 3.11, 434a5-10). *Phantasia* is a function of the embodied perceptual faculty (see §1 below); so, although intellect is not embodied (*DA* 2.2, 413b24-29; 3.4, 429a10-29), its exercise by humans does depend on their embodied perceptual capacities.

intellect. Aristotle has a richer understanding of the powers of perception, and the interplay between different levels of human cognitive capacity in the composition and reception of poetry is unlikely to be simple. The first section of the paper provides an introductory outline of Aristotle's thinking on perception, reason and their interrelation. The following sections consider the implications of Aristotle's cognitive psychology for his views on the nature of poetic *tekhnê*; the role of rational inference in the response to imitations; and the comparison of history and poetry, together with the role of universality and illusion in poetry.

1. Aristotelian cognition

The richness of Aristotle's concept of perception is rooted in his zoological perspective. An animal is a living organism that can move itself, and that has sense-perception. Those two facts are linked: the biological function of perception is to enable animals to manage their interaction with the environment in a way that promotes survival and well-being.[3] Aristotle was aware that many animals interact with their environment in sophisticated and adaptable ways; he goes so far as to describe some animals as clever or intelligent.[4] However, since Aristotle denies that any non-human animal has the capacity for reason, this intelligence is no more than analogous to human rationality (*HA* 8.1, 588a28-31). It is based entirely on the animals' perceptual capacities. Aristotle is therefore obliged to give an account of perception that is rich enough to explain the intelligence manifested in animal behaviour.

Some things can be perceived only by one sense: for example, colour is an object of perception that is *special* to sight. By contrast, shape can be perceived by sight or by touch; shape is an object of perception that is *common* to these two sense modalities (*DA* 2.6, 418a7-20). An account of perception that was limited to the special and common objects of perception would not have the necessary explanatory power, since colours and shapes and sounds as such do not motivate animal behaviour. But think of a lion that hears an ox lowing: it perceives a sound; it also perceives dinner. In Aristotle's terminology, the ox as dinner is perceived *incidentally* (*DA* 2.6, 418a20-24; *NE* 3.10, 1118a16-23). It is not the perception of sound as such that motivates the lion, but the incidental perception of dinner.[5]

Perception discriminates: it enables animals to distinguish one kind of thing from another, as the lion can distinguish potential prey from a potential mate. As

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[3] *DA* 3.12, 434b11-27; 3.13, 435b19-25; *Sens.* 1, 436b10-437a3. Even sessile animals need, at the minimum, the sense of touch if they are to react appropriately to direct contact: *DA* 3.12, 434b11-18; cf. e.g. *HA* 1.1, 487b9-11 (sponges).

[4] E.g. *HA* 9.7, 612b18-31; 9.5, 611a15-30; 9.10, 614b18-30; 9.39, 623a7-26; 9.46, 630b18-21. Relevant references are conveniently tabulated in Coles (1997), 320-3; see also Foster (1997). Charles Darwin, similarly, attributed intelligence to earthworms in view of their flexible behaviour in plugging burrow entrances: Darwin (1881), 64-98; discussion in Crist (2002).

[5] Cashdollar (1973). At *DA* 2.6, 418a20-4, Aristotle's example of an incidental object of perception is 'son of Diares'. He would appreciate the results of the playback experiments reported in Cheney and Seyfarth (1980): on hearing a particular juvenile's distress call, vervet monkeys tend to look towards that individual's mother. In Aristotelian terms, they hear the sound, and incidentally perceive 'so-and-so's offspring'; so they expect a reaction from the mother.

that example suggests, perception also evaluates: it relates things to the animal's goals.[6] The lion perceives dinner and is pleased (*NE* 3.10, 1118a20-22). The ox perceives a diner and is distressed. Those pleasant or distressing perceptions have built into them the motivations to react appropriately, by pursuit or avoidance. Perception is capable of explaining animal movement, precisely because perception and desire are linked: the perceptual capacity entails the capacity for desire (*DA* 2.2, 413b21-4; 2.3, 414b1-7). The capacity for desire is not, in fact, distinct from the perceptual capacity (*DA* 3.7, 431a10-14).[7]

The lion's perception of prospective dinner will continue to guide its movements between hearing the ox lowing and its coming into view. For perception leaves persisting traces in the animal, which Aristotle calls *phantasmata*, 'images' (*DA* 3.3, 428b30-9a6).[8] The faculty of *phantasia* is the same as the perceptual faculty (*Insomn.* 1, 459a14-22); so the reach of the perceptual faculty extends beyond what is currently being perceived. *Phantasia* supplies a variety of psychological processes with perceptual information that has accumulated (and often been modified) within the animal. One obvious and important example of the role of *phantasia* is memory (*Mem.* 1, 449b30-451a17). So it is thanks, in part, to *phantasia* that squirrels can retrieve the nuts they have cached.[9]

Storing and retrieving nuts is a fixed behaviour pattern for squirrels. But some animals are more adaptable; they can *learn* from the accumulation of past perceptions in the deeper sense that their behavioural repertoire is modified by experience (*empeiria*). The fact that animals can be taught, by humans or by conspecifics, provides one illustration of this adaptability (*HA* 9.1, 608a17-21; 9.3, 610b33f.; 9.7, 612b31; 9.15, 616b11; 9.46, 630b20; *PA* 2.17, 660b1). Experience, a form of cognition (*gnôsis*: *Met.* 1.1, 981a15f.) which arises from the integration of multiple memories (*APo.* 2.19, 100a3-6; *Met.* 1.1, 980a27-981a1), is the final element in the explanatory power of the perceptual system in Aristotle's theory.[10]

Incidental perception, *phantasia* and experience are all perceptually mediated capacities, and do not depend on reason; they are available, in varying degrees, to non-human animals.[11] They are also available to humans. The capacity for reason

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[6] In view of the shared biological orientation, it is not a coincidence that Aristotle's example calls to mind the concept of 'affordance' in Gibson's ecological theory of perception. See Gibson (1979), 127-43 (e.g. 128: 'The other animals afford, above all, a rich and complex set of interactions, sexual, predatory, nurturing, fighting, playing, cooperating, and communicating'). Cf. Reed (1989); Gibson and Pick (2000).

[7] Whiting (2002).

[8] Osborne (2000); Lorenz (2006), 113-201.

[9] Squirrels are not wholly dependent on memory: they opportunistically exploit caches revealed by perceptual (especially olfactory) cues. But there is evidence that the ability to remember the locations in which they have cached food is also important: Jacobs and Liman (1991); Devenport, Luna and Devenport (2000).

[10] LaBarge (2006); Gregorić and Grgić (2006).

[11] Some deny *empeiria* to non-human animals; e.g. Tsitsiridis (2005), 441: 'it becomes entirely clear that *empeiria* pertains exclusively to humans and to none of the other species'. But *Met.* 1.1,

decisively differentiates humans from other animals, but it does not monopolise human cognition. Indeed, Aristotle stresses that the human behavioural repertoire is far more open to modification by habit than that of any other animal; experience has correspondingly more explanatory power in the case of humans (*Met.* 1.1, 980b26f.; cf. *Pol.* 7.13, 1332a38-b11). Mature humans therefore have perceptually based capacities that are distinguishable in degree from those of other animals,[12] as well as their categorically distinctive capacity for rationality. Reason does not supersede this shared endowment, but adds to, interacts with and partially transforms it.[13]

Aristotle distinguishes perception from rational understanding (*epistêmê*) by relating the former to particulars and the latter to universals (*APo.* 1.31, 87b28-88a7; *Phys.* 1.5, 189a5-8; *DA* 2.5, 417b21-3). A related distinction, no less important, is between the 'that' (*to hoti*) and the 'why' (*to dihoti*, *to dia ti*). The 'that' is the realm of observable fact, which is accessible to perception; the 'why' is the intelligibility of the facts (*APo.* 1.2, 71b9-16; 1.13, 79a2-6). Humans share with other animals the capacity for perceptual cognition of particulars and the 'that'; but the capacity to understand the universal and the 'why' depends on reason, and so gives humans a distinctive kind of cognitive access to the world.[14]

One consequence of the capacity to grasp the 'why' and universals is that humans can engage in inferential reasoning (*sullogismos*). Whereas other animals are dependent on the spontaneous results of the interaction of *phantasmata*, humans can manipulate *phantasmata* in a process of directed search (*zêtêsis*: *NE* 3.3, 1112b20-23; 6.9, 1142a31-b2, b13-15; *Mem.* 2, 453a9-14; *Phys.* 2.8, 199a20f.). For example, some non-human animals have memory: traces of past perceptions are preserved within them, and can come to mind and influence their behaviour. But this coming-to-mind is involuntary: the animal is passive. By contrast, humans can remember in the sense of actively calling something to mind. Only humans can do this, because it involves an inferential process (*Mem.* 2, 453a4-13; *HA* 1.1, 488b24-6). Similarly, only humans are capable of deliberation, in which an agent reasons back from a goal to the actions required to implement that goal (*ta pros ta telê*: *NE* 3.3, 1112b11-15, 33f.). Since the goal is the 'why' of the action, in the sense of its final cause, this is a form of causal reasoning. Non-human animals and human children do not understand causes (that is, they have no understanding of the 'why'); and because they cannot engage in causal reasoning, they cannot deliberate (*EE* 2.10, 1226b21-29).

980b26f. explicitly attributes *empeiria* to some animals (though to a small degree, relative to humans). See further LaBarge (2006), 27 n.3.

[12] Humans are not always superior in this comparison: *DA* 2.9, 421a7-16; *GA* 5.2, 781b17f.

[13] The most obvious transformation is that in humans the non-rational part of the soul is also in a sense rational, since it can be responsive to reason (*NE* 1.13, 11-2b30-3a2; *EE* 2.1, 1219b26-32). See further n.18 below.

[14] For the nature of the connection between the 'why' and the universal, see n.42 below. It is worth noting that, although Aristotle generally uses *epistêmê* in this restricted sense, his terminology is (as always) flexible: *NE* 1147b15-17 speaks of perceptual *epistêmê* (αἰσθητικὴ ἐπιστήμη) as well as *epistêmê* in the strict sense (ἡ κυρίως ἐπιστήμη); *APo.* 1.12, 78a22-8 speaks of *epistêmê* of the 'that' as well as the 'why'.

There is a striking parallel to Aristotle's distinction between the 'that' and the 'why' in modern comparative psychology. One leading primatologist has argued that the ability to 'understand *why* events occur the way they do' is unique to humans, and is not found even in other primates.[15] This position is controversial; researchers studying chimpanzees in the wild tend to reach more generous conclusions about their cognitive capacities, even to the extent of talking about an understanding of causality.[16] Aristotle would baulk at that: to speak of an *understanding* of causality suggests an understanding of the 'why'. Nevertheless, he would have sympathy with the field-workers' generous view of animals' cognitive capacities: we have already noted his respect for animal intelligence. His idea is not that non-human animals are cognitively crude because they lack reason, but that an impressive degree of cognitive sophistication is possible even without reason. Perception and habit are enough to sustain very rich, complex patterns of behaviour in non-human animals. As we shall see, perception and habit are enough to sustain very rich, complex patterns of behaviour in humans, too. Reason massively extends the cognitive reach of humans, but even humans can reach a long way on the basis of perception and its sediment, experience.

To be capable of reason is a godlike attribute (*PA* 4.10, 686a27-9; *NE* 10.7, 1177a13-1b). But the actual exercise of human rationality is in many cases completely trivial. Imagine a human being and a laboratory animal working with the same experimental apparatus. Both discover, through trial and error, that operating a lever produces food; accordingly, both will operate the lever when they are hungry. The human may engage in a simple form of deliberation: I wish to satisfy my hunger; operating the lever produces food; so I shall operate the lever. By contrast, the animal achieves the same result without rational understanding; its behaviour will be driven, in Aristotle's view, by the pleasant anticipation of food which experience has linked to the lever's operation. In its simplest manifestations, therefore, the behavioural output of human reasoning may be identical to that of an animal's perception-based responses.[17] Reasoning is not in itself intellectually demanding: any human who engages in deliberated action has engaged in reasoning about the 'why'. The human capacity for rationality can sustain great depth of thought; but it is also at the disposal of the least philosophical (*Poet.* 4, 1448b13-15).

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[15] Povinelli (2000), 339: 'Such a specialization may have left the human species in the position of constructing explanations for why we (and others) do what we do, and why the world operates the way it does—an ability not present in other species.' Cf. Tomasello and Call (1997), 389: 'Our hypothesis is that nonhuman primates understand causal relations only in the sense of one external event typically leads to another (the events are seen as ordered and therefore predictable), but they do not understand why one event leads to another.'

[16] Boesch and Boesch-Achermann (1999), 233: 'the understanding of cause and effect allows chimpanzees to mentally anticipate their actions and to choose tools adapted to specific purposes. The understanding of causality is the ability to understand the dynamic relations between objects when external forces affect them.' For an overview of the debate see Gómez (2004), 94-123.

[17] *MA* 7, 701a28-33: in unreflective human action, or in animal behaviour, perception or *phantasia* can provide the connection between a goal (e.g. satisfying thirst) and the desire that initiates action, taking the place that a premise would have in deliberative reasoning.

The man in the experimental apparatus may not need to deliberate: in such a simple situation, he might act to achieve his goal as unreflectively as the animal. If he does deliberate, he reasons from his goal (satisfying his hunger) to the means necessary to realise that goal (operating the lever); the goal, as we have seen, is the 'why' of the means, in the sense of the final cause. But since the workings of the apparatus are concealed from him, he does not know why this way of achieving his goal works; he only knows, from experience, that it does. He does not need to know why it works in order to satisfy his hunger; and even if he does wonder why it works, he is unlikely to pursue his quest for causal understanding all the way back to the First Unmoved Mover. When human action is not wholly unreflective, it will involve causal reasoning of variable, but always limited, depth, resting on a perceptual base. However, if perception typically prompts humans to exercise their rationality by asking 'why?', thinking about the 'why' has an effect on perception in turn—at the very least, by influencing how we direct our attention.[18] So we should not think of human activity as cleanly separable into perceptually and rationally grounded behaviours; there is a complex interaction of perception and reason.

2. The nature of poetic *tekhnê*

The *Poetics* is concerned with the art (*tekhnê*) of poetry. This poses two questions. First, what is poetry? Aristotle does not tell us straight away. He does not begin by defining poetry, but after a few lines gives some examples: epic, tragedy, comedy, dithyramb (*Poet.* 1, 1447a13f.).[19] A reader new to the *Poetics* would be entitled to start by assuming the sense which the word commonly bore in contemporary usage: poetry as metrical composition.[20] But Aristotle believes that this standard definition of 'poetry' groups together activities that are only superficially related, since rhythmical language can be used to do radically different kinds of thing. Later in chapter 1, he introduces an explicitly non-standard definition of poetry (1447b13-19), proposing that a subset of the activities normally classed as poetry falls under the larger class of human activities that are imitative; this subset does form a coherent grouping. So the reader's attention is redirected from rhythmical language (with or without melody) to imitation in rhythmical language (with or without melody). Experience tells us that a certain set of activities go together (poetry); but our initial, confused perception does not tell us with any precision where the boundaries of this class are to be drawn. Reflecting on the 'why' enables us to see beyond superficial

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[18] On the responsiveness of the non-rational part of the soul to reason see n.13 above. In the passages cited there, Aristotle is concerned with the effect on desire. But it seems plausible to suppose that reason gives us new objects of incidental perception: 'son of...' is surely not the same for humans as it is for vervets (n.5), without an understanding of reproduction. Moreover, *phantasia* must be responsive to the exercise of reason: otherwise, it is difficult to see how intellect thinking in *phantasmata* (n.2) would be distinguishable from the spontaneous interaction of *phantasmata* in non-human animals.

[19] Rotstein (2004).

[20] Gorgias *Helen* 9; cf. Pl. *Gorg.* 502c5-7; *Symp.* 205c.

resemblances and draw the boundaries in a way that more accurately reflects the underlying structure of the phenomena.[21]

Secondly, what is *tekhnê*? Aristotle classes it among the intellectual excellences as a 'productive disposition involving reason' (ἕξις ποιητικὴ μετὰ λόγου, *NE* 6.4, 1140a9f.). According to the opening chapter of the *Metaphysics*, *tekhnê* stands to experience as *epistêmê* does to perception. Experience and perception are limited to cognition of the particular and the 'that'; but *tekhnê*, like *epistêmê*, involves cognition of the universal and the 'why' (*Met.* 1.1, 981a15-24, 28-30). We have already noted that *empeiria* can be acquired by some non-human animals, although not to the same degree as humans (*Met.* 1.1, 980b26f.); by contrast, the rational component of *tekhnê* means that it can be attributed to non-human animals only analogically (*HA* 8.1, 588a28-31).

We might therefore suppose that Aristotle attributes a rational understanding of the 'why' to successful practitioners of any *tekhnê*, including poetry. But that is not the case. *Empeiria* is not necessarily less practically effective than *tekhnê*. It may be enough to know the right way to do something, even if one does not understand why that is the right way to do it; indeed, *empeiria* is more effective in practice than an understanding of the rationale divorced from experience (*Met.* 1.1, 981a12-15). The pronouncements of people with experience are worth taking seriously, even when they cannot prove their claims, since the 'eye' of experience enables them to see things correctly (*NE* 6.11, 1143b11-14). Accordingly, it is clear from the *Poetics* that poets can produce good poems even if they do not understand why those poems are good. The tragedians who discovered that certain families provide the best subjects for tragedy were 'guided by chance rather than art' (*Poet.* 14, 1454a10-13). A poet who understood what he was doing would have been able to select appropriate subjects from the repertoire of traditional stories (cf. 9, 1451b23-5; 14, 1453b22-6) by applying an explicit and understood criterion; but these poets selected from the repertoire at random, until they learned by trial and error to concentrate their efforts on those stories which proved most successful in practice. Even at this stage, they may only have been able to recognise (directly, or by observing audience response) *that* these stories worked well; they did not necessarily understand *why* the favoured stories worked well. Their success was based on experience, not *tekhnê*.[22] Even more strikingly, Aristotle leaves it an open question whether Homer's ability to construct excellent

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[21] Perhaps, then, beginning πρῶτον ἀπὸ τῶν πρώτων (1, 1447a12f.) should be read in the light of the methodological principle stated in *EE* 1.7, 1217a18-20: we should begin πρῶτον ἀπὸ τῶν πρώτων... οὐ σαφῶς λεγομένων, and seek clarity; cf. 1.6, 1216b26-35; 2.1, 1220a15-18. However, Aristotle uses the formula in various ways (e.g. *HA* 5.1, 539a5; *PA* 1.5, 646a4; 2.10, 655b29; *GA* 2.4, 737b25). See Quandt (1983).

[22] In one sense the poet does know why he focuses on stories about these families: they elicit a better response from the audience. But he does not necessarily understand why these stories have that effect. At first he may follow the rule 'select one of these stories'; then he might progress to the more flexible rule 'select a story *like* one of these'. But even if he can reliably recognise relevantly similar stories, he may still be unable to state explicitly the characteristic which explains their success, as Aristotle can. It is a further step again to be able to explain why stories with that characteristic are successful. As noted in §1, the depth to which human actions are guided by causal understanding is variable. See further n.41 below.

epic plots was due to 'art or instinct' (8, 1451a19-24). The idea is perhaps that Homer had no precedents to learn from in plot construction, and there is no evidence of his having produced less successful plots in a trial-and-error learning process; therefore, if we suppose that his having an explicitly worked out theory of the 'why' is anachronistic,[23] he must have achieved his success by instinct. Natural talent would have made it possible for Homer to recognise *that* a plot worked well, without understanding *why* it worked. Yet Aristotle clearly thought that Homer was reliably good at producing excellent poems, whether or not he did so by *tekhnê*.

Aristotle accordingly uses *tekhnê* in two different ways. When his attention is focused on issues of cognition, as in the first chapter of the *Metaphysics*, *tekhnê* is used to define a particular cognitive state—one which involves a rational understanding of the 'why' of the relevant kind of production. But in contexts in which Aristotle's attention is focused on the products, a different set of considerations becomes relevant. According to Aristotle, any particular object— for example, a house—is a complex of matter and form. The building materials existed before the house; what explains the change that converts these building materials into an actual house is the builder, or (more precisely) the builder building; or (most precisely) the builder's *tekhnê*, since 'a builder builds in virtue of the art of building' (*Phys*. 2.3, 195b21-5). The builder's *tekhnê* is the form of the house, without the matter; it is the essence of the house, the rationale of the product (λόγος τοῦ ἔργου) without the matter (*Met*. 7.7, 1032b11-14; *PA* 1.1, 640a28-32). Here, therefore, the rational component of *tekhnê* is defined objectively, in terms of the product's rationale, rather than by reference to the cognitive state of the producer. Of course, the producer must be in some suitable cognitive state to secure the right outcome, but it need not be the cognitive state specified in the first chapter of the *Metaphysics*: it is not necessary that the producer understands the 'why' of his production. The form of the product may exist in the producer, not as explicit understanding, but implicitly as a set of habits and an ability to make reliable but unreasoned judgements—for example, as a result of experience or natural talent.[24]

Poetic *tekhnê*, then, has a dual aspect. On the one hand, it can designate a product-specification: it defines what makes a poem a good poem. On the other hand, it can designate the cognitive state of someone who has a rational grasp of that product-specification—someone who understands and can explain its rationale. Successful poets do not necessarily possess *tekhnê* in the latter sense, even though *tekhnê* in the first sense must be present in the poet at least

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[23] Even when Homer had shown the way, people did not follow his insight (7, 1451a19-22; 23, 1459a37-b2). His discovery was so subtle that it needed the reflective analysis of Aristotle to identify the 'why'.

[24] It is possible to achieve the same result by these cognitively different routes, because the point of production (*poiêsis*) resides in the product; hence the producer's cognitive state is external to the product. By contrast, in ethical action (*praxis*) the cognitive (and affective) state of the agent is internal to the action: a virtuous action is the right thing done by deliberate choice (*prohairesis*) for the right reason. For this contrast see *NE* 2.4, 1105a26-33.

implicitly.[25] Aristotle's subject-matter in the *Poetics* is *tekhnê* in the objective and normative sense of a product-specification: that is, the *Poetics* is concerned with what it is the poet's job to produce, rather than with how poets think or how they go about that job. However, what Aristotle aims to achieve in the *Poetics* is *tekhnê* in the cognitive sense: that is, he is trying to make explicit the 'why' of (at least some, major) features of the *tekhnê* that successful poets implicitly embody in their talent or experience. That achievement does not depend on Aristotle himself possessing that talent and experience. As we have already noted, productive ability and a rational understanding of the 'why' of that productive process do not necessarily coincide (*Met*. 1.1, 981a12-15).

3. Imitation

Poetry is rooted in the human instinct for imitation, and the pleasure which all humans take in imitations (*Poet*. 4, 1448b4-9).[26] Aristotle says that humans are the most imitative of animals, which implies that (some) other animals are imitative in some lesser degree; that is confirmed by the *History of Animals* (8.12, 597b23-9; 9.1, 609b14-18). However, when he explains the pleasure which we take in imitations, his explanation is formulated in a way that excludes non-human animals. He says that when we look at pictures 'we learn (*manthanein*) and infer (*sullogizesthai*) what each thing is, e.g. that this is so-and-so' (b15-17). 'Learn' is not a decisive obstacle: some non-human animals learn (*manthanein*: *HA* 9.1, 608a17-21, 27; 9.15, 616b11; *PA* 2.17, 660b1; *Met*. 1.1, 980b21-5). But inference involves reason, and is therefore a distinctively human capacity. The choice of this word is not casual: it appears in a parallel in the *Rhetoric* (1.11, 1371a31-b10).[27] So Aristotle seems deliberately to link the pleasure we get from imitations to reasoned inference. It follows that this pleasure is not available to any non-human animal or to human infants. That is consistent with what he has just said about infant imitation, since the capacity for imitative behaviour may be separable from the recognitional capacity that is in question here. But why should this recognition require the ability to make reasoned inferences? We look at a picture and recognise 'This is so-and-so', because the picture is a likeness of so-and-so. But it does not take reasoned inference to recognise a visual likeness: animals can detect visual similarity, too. And it is clear from the opening of the *Metaphysics* (1.1,

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[25] For modern psychological studies of implicit knowledge see (e.g.) Kihlstrom (1987); Reber (1993); Cleeremans *et al*. (1998); Wilson (2002). For a philosophical perspective: Polanyi (1958).

[26] For present purposes, we can leave to one side the question whether these are the two causes which Aristotle mentions in 1448b4f., or conjointly the first of those two causes, the second being the instinct for melody and rhythm (mentioned at 1448b20f.): see Tsitsiridis (2005), 435 n.2 for a recent overview of this debate. It is, at any rate, clear that the instinct for melody and rhythm is *a* cause of poetry (since the explanation of imitation in melodically and rhythmically elaborated language is incomplete without it), whether or not it is one of the two causes referred to initially.

[27] If we had only the passage in *Poetics* 4, we might speculate that the phrase 'learn and infer' is logically disjunctive (cf. 23, 1459a37-b1: when Aristotle says that poets other than Homer 'write about a single person, and a single period of time, and a single action of many parts', he does not mean that they do all three at once: these are three alternatives). The phrase 'learn and infer' would then present perceptually and inferentially mediated recognition as alternative possibilities. But the parallel cannot be explained in this way: here the learning is explicitly the consequence of the inferring: συλλογισμὸς ἔστιν ὅτι τοῦτο ἐκεῖνο, ὥστε μανθάνειν τι συμβαίνει.

980a21-7) that we get pleasure from learning (acquiring knowledge: *gnôrizein*) through sense perception, not just from learning through reasoned inference.[28]

Clearly, Aristotle envisages something more than the recognition of perceptual resemblance. Nevertheless, we should not leap to the opposite extreme, as Halliwell does when he says that in this passage Aristotle 'is prepared… to assimilate the general experience of artistic representation to a philosophical concept of "understanding," *manthanein*', and complains of scholars who 'ignore… the philosophical weight of *manthanein kai sullogizesthai*'.[29] It is not true that *manthanein* specifies a philosophical concept of understanding. Aristotle uses this word to denote animal learning (as was noted above), the earliest learning experiences of children (*Poet.* 4, 1448b7f.), and the easy learning which everyone enjoys (*Rhet.* 3.10, 1410b10f.); these are not philosophically weighty. Nor does *sullogizesthai* necessarily carry philosophical weight. Inferential reasoning is a baseline human capacity, exercised in the most elementary forms of deliberation and recollection (§1). Some instances of inferential learning are philosophical and weighty, but not all; and Aristotle is, quite explicitly, not talking in this passage about philosophers alone (*Poet.* 4, 1448b13-15). Aristotle is concerned here with the nature of the pleasure taken in *all* imitations *simply as such*; that pleasure is accessible to *all* adult human beings, including the least cognitively sophisticated. It is crucial to the logic of the argument in context that philosophical weight is not a condition of the process Aristotle is describing. It is precisely an elementary process of cognition which the argument of this passage needs. Nevertheless, it is an elementary process of *rational* cognition; the necessity for that has still to be explained.

In a stimulating recent contribution, Tsitsiridis has focused attention on Aristotle's observation that 'if one happens not to have seen the thing before, it will not give pleasure as an imitation' (1448b17f.). He suggests on the basis of this reference to prior perception (προεωρακώς) that Aristotle conceives of the recognition as involving (something like) active recollection, which is an inferential process (§1): 'Aristotle interprets the knowledge and the subsequent pleasure derived from mimesis by proposing that *the mimetic art is based on a cognitive process which is related to the function of memory and especially to that of recollection.*'[30] However, this interpretation leaves the requirement of active recollection unexplained. There is no obvious reason why the imitation should fail to give pleasure as an imitation if the resemblance of the picture to the object depicted triggers a non-inferential passive memory. So the specific reference to inferential reasoning has still not been adequately explained.

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[28] Although only humans are mentioned at 980a21, the claim which Aristotle makes is about *universality among*, not *exclusivity to*, humans. He speaks of animals in general at 980a27f.; distinctively human capacities only enter the reckoning at 980b27. The unimpeded exercise of a natural disposition is pleasant (*NE* 7.12, 1153a12-15), and there is good biological reason why any animal with a flexible behavioural repertoire needs to be intrinsically motivated to gain information about its environment. Non-human animals do in fact find visual (or other forms of perceptual) exploration intrinsically motivating: Butler (1965).

[29] Halliwell (2002), 187, 188 n.31 (larger discussion: 186-93).

[30] Tsitsiridis (2005), 443 (original emphasis). Though I have reached different conclusions, I found Tsitsiridis' discussion extremely helpful in understanding the nature of the problem in this passage.

A pleasure from learning that 'this is that' can be found in Aristotle's account of metaphor, too (*Rhet*. 3.10, 1410b9-27). Simile gives less pleasure than metaphor, in part because it is more extended (cf. *Poet*. 26, 1462b1f.), and in part because it does not prompt a search (*zêtein* b20). A metaphor will not be effective if the point is so obvious as to need no search (b23). But nor should the point be so obscure as to defy comprehension: the learning must be swift (b21). What is required is a search that finds the solution more or less instantaneously (b24-6).[31] The search, then, is an element in the pleasure; but the search should not be taxing: 'learning *easily* is naturally pleasant to all' (b10f.).[32] Here, too, we are dealing with an elementary process of rational cognition. Does it provide an illuminating analogy to the case of imitations?

A metaphor sets a puzzle, and thus initiates a search; the search is successfully completed when we can say 'this is that'. In Aristotle's example (3.10, 1410b14f.), when Odysseus invites Eumaeus to judge the corn from the stubble (*Od*. 14.213), 'stubble' sets a puzzle; the search which this initiates is successfully completed when we can say 'stubble is old age', having identified the similarity which explains the substitution of the one for the other. But this highlights a difference between metaphor and imitations. The link between stubble and old age is a conceptual similarity, the grasp of which plausibly depends on rational inference. The link between a picture and the object depicted is a perceptual resemblance. We still have no explanation of why that should require rational inference.

What is it in a picture that sets a puzzle and initiates a search? One obvious possibility is that a picture's perceptual resemblance to its object is necessarily incomplete. For example, coloured shapes on a two-dimensional surface are not perceptually identical to the three-dimensional object depicted. But is rational inference needed to bridge that gap? That does not seem a plausible account of how we experience looking at a picture. More importantly, there is no theoretical basis for this assumption: Aristotelian animals do not require rational inference to construct incidental objects of perception out of an array of colours and shapes. Moreover, this explanation would work least well for the especially accurate pictures which Aristotle chooses to single out in this passage (*Poet*. 4, 1448b11); the perceptual resemblance is presumably maximised in such pictures.[33] There is therefore little reason, either in principle or with respect to the context, to suppose that Aristotle was concerned with the incomplete perceptual resemblance between picture and object.

It may be more significant that Aristotle singles out especially accurate pictures *of objects that are themselves visually unpleasant* (1448b10).[34] The logic

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[31] Compare 3.11, 1412a24-6, b1 (learning is pleasant); 1412a11f. (the connection should not be obvious); 1412a32f. (comprehension should be instantaneous).

[32] It is therefore misleading to speak of 'psychological effort' (Halliwell (2002), 191) in this context: *effortful* search is not pleasant.

[33] These are at the opposite end of the range from the archaic paintings which would be unintelligible without inscriptions identifying what each thing is (*Top*. 6.2, 140a20-22).

[34] It may be helpful to review the structure of passage's argument. It starts with a *proposition*: (1) everyone enjoys imitations. The *evidence* for (1) is that (2) we enjoy *even* very accurate pictures of

of this move is readily intelligible. If one gets pleasure from looking at an image because of its visible form, then looking at the thing of which it is an image would give the same pleasure (*Pol.* 8.5, 1340a25-8). Conversely, if something is unpleasant to look at because of its visible form, any pleasure we get from looking at an image of it will not be due to its visible form. But we do enjoy looking at accurate images of things that are themselves unpleasant to look at. By focusing on our response to this kind of picture, Aristotle is able to disentangle the pleasure that may be gained from a picture's purely phenomenal attributes from the pleasure which it gives *qua* imitation. A fine painting is not necessarily a painting of something fine. Perceptual resemblance makes an easy non-inferential transition from the imitation to the imitated object possible; but if we are to respond appropriately to the painting as an imitation, the immediacy of that transition must be inhibited, so as to ensure that our response to an imitation is at least partially dissociated from our response to the object imitated. Perhaps, then, rationality is needed, not to overcome the perceptual difference between the imitation and its object, but to ensure that we are not misled by their perceptual resemblance.

In *Parts of Animals*, Aristotle talks of our getting pleasure from observing pictures of unpleasant animals, 'because we are at the same time observing the art which crafted them (e.g. the art of painting or sculpture)' (*PA* 1.5, 645a8-15). I have previously interpreted that passage as referring to an expert critic's appreciation of a painter's skill, and therefore distinct from the pleasure of *Poetics* 4, which is available to everyone.[35] That is a plausible account of what Aristotle had in mind in a context in which he is urging the close study of unattractive animals, with a view to a deep understanding of nature's craftsmanship. But deep understanding must be built on basic understanding. Neither a natural scientist nor an art critic can make progress in discerning causes unless they have understood that their objects of study are, respectively, products of nature and art; and that minimal understanding is shared by non-expert observers. In particular, the ability of even the least sophisticated viewers of paintings to dissociate their response to the imitation from their response to the object imitated,[36] presupposes that they understand *why* the imitation is like the object imitated. They must respond to the painting, not just as like, but as an artistically contrived likeness of, the object imitated. That provides a solution to our difficulty. Although it is possible to look at a picture and recognise that 'this is that' or 'this is so-and-so' on the basis of

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unpleasant objects. The *explanation* for (2) is that (3a) everyone enjoys learning, and (3b) the source of our enjoyment of pictures is learning and inferring what each thing is. The *defence* of (3b) is that (4) we do not enjoy the picture as an imitation unless we have seen the object before (i.e. unless we are equipped to make the connection between features of the picture and features of the object), although (5) we might take pleasure in other aspects, such as the execution or the colouring.

[35] Heath (1996), xi-xii; (2001), 21 n.7.

[36] Aristotle does not need to claim that this dissociation is complete, or that it is always achieved. His distinction between plots that evoke pity and fear and those that are repulsive (μιαρόν, *Poet.* 13, 1452b34-6) indicates one limit beyond which he thinks that dissociation cannot (or ought not) be achieved. Recent discussion of 'imaginative resistance' has noted that it is very commonly (though not exclusively) a moral response: e.g. Gendler (2000), (2006) (responding to the lively discussion provoked by the earlier paper); Stock (2005).

perceptual resemblance, without inferential reasoning, it is not possible to do so *in the right way* without causal understanding. Thus the appreciation of imitations *qua* imitations requires an exercise of reason—one that is cognitively trivial, and therefore available to all adult human beings, but which exceeds the capacities of non-human animals, which have no grasp of the 'why'.

4. Universality and illusion

Aristotle has gained some notoriety for claiming that 'poetry is more philosophical and more serious than history' because it 'tends to express universals, and history particulars' (*Poet.* 9, 1451b5-7). Although Aristotle was thinking of narrative history (he mentions Herodotus), it may help to clarify the issues if we start from the catalogue of Olympic victors that Aristotle compiled.[37] A collection of statements of the form 'X won competition Y in Olympiad Z' would be a particularly extreme example of historical particularity. But in his role as a philosopher, Aristotle was able to spot a pattern in the data, explain the pattern, and use the explanation to support an argument (*Pol.* 8.4, 1338b40-9a4). What he spots is that junior victors almost never went on to record a victory in the senior competition. That might seem surprising: one would expect junior victors to be good athletes, and good athletes to win senior victories. So here is a surprising 'that', and Aristotle looks for a 'why' to explain it. The explanation is the damaging effect of excessive exertion on immature physique. That in turn supports Aristotle's argument that in a properly designed educational system younger children should be given light exercise, and should not be subjected to a strict diet and intensive training.[38]

If Aristotle is right,[39] then placing bets on the intuitively plausible assumption that junior victories indicate potential for senior success will prove a costly mistake. But imagine someone who regularly attends athletic competitions, and backs competitors who have won victories in the past. He has had mixed success; but his fortunes improve as he increasingly avoids backing those competitors whose past successes were in junior competitions. At first, he does not realise that this is what he is doing. He simply follows his hunch in each individual case without realising that there is a pattern to those hunches; his recognition of the pattern is entirely implicit.[40] Clearly, this person is not thinking philosophically. But then he becomes more reflective: he looks for a pattern underlying his hunches. He notices that he is averse to backing former junior victors, and checks the victor-lists to verify the pattern. Now he knows what explains his increasing success; he can place his bets more confidently. But he is still not thinking

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[37] Listed among his works in D.L. 5.26. He also compiled a list of Pythian victors, from which a few fragments survive (F615-7 Rose = F410-14 Gigon). [See now P. Christesen, *Olympic Victor Lists and Ancient Greek History* (Cambridge 2007), 170-3 (*Olympionikai*), 179-202 (*Pythionikai*); texts 369-71, 374-82, cf. 385.]

[38] *NE* 2.2, 1104a30-3 reflects the normal expectation of a correlation of diet and exercise with strength (though see 2.6, 1106b2-5 for the relativity of the mean in such cases).

[39] Maróti (2004) argues that he is not.

[40] On implicit pattern-recognition see (e.g.) Lewicki *et al.* (1988), and the literature cited in n.25 above.

philosophically, because he is not trying to understand the pattern: he is not asking why. There is, indeed, a level at which he has achieved an understanding of a 'why': he knows why he should bet against junior victors—because it is profitable; and he knows why it is profitable—because they rarely win senior victories. What he is not interested in is why junior victors rarely win senior victories.[41] He is not committed to the systematic, deep explanatory project that is philosophy; and he not concerned with the universal.[42]

Aristotle's point in *Poetics* 9, then, is that historians are not committed to the systematic, deep explanatory project that is philosophy. Thucydides may tout the usefulness of observing a probably recurrent pattern in human affairs (1.22.4), but he does not explain why the pattern is recurrent. It is not clear that he is even very explicit about what that pattern is. He does talk about the war's 'truest cause' (1.23.5); but that is just a set of particular statements about this particular war, not an explicitly universal statement. Thucydides thinks that a pattern that will (in Aristotle's terminology) necessarily or probably recur is latent in the events he describes, but he does not explicitly identify the pattern or explain it. But until the pattern is explicitly articulated and explained, what we have is experience (*empeiria*), not philosophy.[43] That is not to diminish its usefulness. As we have seen (§2), Aristotle recognises that *empeiria* may be more useful in practice than *tekhnê*. If we are training politicians, theoretical analysis may be less useful to them than simply showing them lots of examples in the hope that this will give them sufficient experience to enable them to recognise new cases.[44]

Aristotle is not talking in this passage about what particular historians may happen to have done, but about the job description that applies to historians *as*

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[41] Our punter has a fragment of a rudimentary *tekhnê*: he knows what he should do, and why (*Met* 1.1, 981a28-30); and he could teach others the principle (981b8-10). His failure to probe deeper is not an objection: the practitioner of a *tekhnê* can derive its principles from perception or reflection (*dianoia*: *PA* 1.1, 639b14-19); for example, only the 'more philosophical' doctors will have recourse to natural science (*Sens.* 1, 436a17-b1; cf. *Resp.* 27, 480b22-30). Cf. n.22 above.

[42] When the gambler realises that his hunches relate to junior victors, or when Aristotle discovers that it is possible to replace (almost) all occurrences of 'X won a junior victory' with 'a senior non-victor won a junior victory', that discloses a pattern in the data that was not previously evident. But this only yields a generalisation (which might be coincidental). To establish that it is a genuine universal (which requires necessity or probability), one must identify the explanation (over-training as the factor which connects junior success and senior failure). This is why, in distinguishing perception from rational understanding, Aristotle links the particular with the 'that' and the universal with the 'why' (§1).

[43] de Ste Croix (1975), 51f. (= 28f.) argues that the case of Thucydides shows that 'even on Aristotle's own premises... his disparagement of history... is not fully justified'. But he gives the argument away with: 'One of the most remarkable features of Thucydides' narrative is that its "lessons"... are implicit in the narrative and do not need to be spelt out in the History in general terms'—to be philosophy, they do.

[44] Aristotle believes that politicians proceed by capacity (*dunamis*) and experience, rather than by reasoned thought (*dianoia*), and that experience is essential to those who want to know about politics (*NE* 10.9, 1181a 1-12). Ethnography and history are useful for legislation and political advice respectively (*Rhet.* 1.4, 1360a30-8). He is not, of course, suggesting that a philosophical approach, concerned with the 'why' as well as the 'that', is superfluous in politics: he explicitly denies that (*EE* 1.6, 1216b35-17a10). But in the same passage he emphasises the need for caution: people can be misled by specious arguments.

such. The historian's job description does not require more than producing an account of what happened. If, unlike Thucydides, a historian were also to provide analysis, he would not be doing that *qua* historian; he would be going beyond his role as a historian and doing something philosophical.

The poet's job description is more demanding than the historian's. Why? The historian reports a series of events, while the poet *constructs* a sequence of events. And the poet's construction is subject to a constraint which does not apply to the historian's report: the events must be causally connected. The sequence must be not just one thing after another, but one thing because of another, in accordance with necessity or probability.[45] That is what gives poetic plots their universality; and that is what makes poetry—not into philosophy, but into something *more* philosophical than history.

Note, however, that, as we said earlier (§2), describing the poet's *tekhnê* specifies the norms governing the product, not the thought processes or procedures of the poet. If the universality constraint is satisfied, it does not matter how the poet manages to achieve that result. He does not need to *understand* the universality of his plot; that is, he does not need to have any explicit grasp of the 'why' that makes this sequence of events a necessary or probable one. All he needs is the ability to *recognise* that this sequence of events works the right way for a tragedy. That can be done by *empeiria*. So when Aristotle says that poetry is more philosophical than history, there is no implication that *poets* are particularly philosophical. Nor need their audiences be: they, too, just need the ability to recognise that this plot works the right way.

Despite his insistence on the principle of universality, Aristotle does not believe that it is necessary for the universality constraint to be satisfied in full. He takes a consistently permissive attitude towards irrationalities and impossibilities in poetry, provided that the poet can prevent them *seeming* irrational or impossible. Likely impossibilities should be preferred to implausible possibilities (*Poet.* 24, 1460a26f.; cf. 25, 1461b11f.). It is perhaps just because an audience might be expected to settle for an experience-based recognition *that* the plot is connected, as distinct from a reasoned analysis of *why* the plot is connected, that it can be tricked into overlooking failures of connection. There are various techniques by which poets can reduce the salience of an irrationality, so that it goes unnoticed by the audience. It can be narrated, rather than being enacted on stage in full view of spectators (24, 1460a11-17). It can be kept outside the tragedy or narration (15, 1454b6-8; 24, 1460a27-32). The audience's attention can be distracted by other sources of pleasure (24, 1460a35-b5).[46] Poets can exploit the human tendency to make certain kinds of fallacious inference, such as affirming the consequent (16, 1455a12-16; 24, 1460a18-26). Familiar falsehoods

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[45] *Poet.* 5, 1449b5f.; 7, 1450b26-34, 1451a12f.; 8, 1451a27f.; 9, 1451a36-b9; 9, 1451b33-52a1; 10, 1452a18-21; 11, 1452a23f.; 15, 1454a35-b2; 23, 1459a17-30. Cf. Heath (1991).

[46] The example is Odysseus' arrival in Ithaca in the *Odyssey*. It is instructive to contrast Aristotle, who admires Homer's skill in concealing the genuine absurdity of this incident, with Heraclides of Pontus, who produces an elaborate rationalisation to argue that there is no absurdity: F175 Wehrli = F104 Schütrumpf (Porphyry *Homeric Questions* 2.115.9-117.27 Schrader). See the discussion in Heath (forthcoming).

will also be accepted by audiences, as when gods are portrayed in accordance with traditional stories (25, 1460b35-61a1). Coincidence can be an effective source of astonishment, if an apparently meaningful relationship between the two events conceals the absence of any genuine causal connection (9, 1452a3-11).[47]

Aristotle advocates universality, while also maintaining that an impossibility is unobjectionable if it helps to achieve the end (25, 1460b23-6). So universality is not advocated because it is, in itself, part of what poetry aims at; rather, its value to poetry is instrumental. In general, universality helps poetry to achieve its aim. But in some cases that aim can best be achieved by a violation of universality. Such violations need to be concealed (since an obtrusive impossibility would spoil the effect), and poets can achieve concealment by manipulating the salience of the impossibility, or by encouraging the audience to make a fallacious inference. Our response to poetry involves both perceptual and rational cognition; sometimes, for the poetry to work, the rational component must take the form of deliberately induced false reasoning.

5. Conclusion

Poetry involves both poets and audiences in a complex mix of perceptual and rational cognition. These are not easily disentangled, in part because Aristotelian perception has an extended cognitive reach, and in part because many exercises of reason are cognitively trivial for normal adult humans. Moreover, poetry's effectiveness sometimes exploits the human propensity for fallacious reasoning.

These conclusions will not reassure those who are anxious lest Aristotle's theory be thought crude, lacking in subtlety, or reductive.[48] But the worry is misconceived, for two reasons. First, nothing in Aristotle's discussion specifies a *limit* to the cognitive sophistication possible in one's engagement with poetry. It would be self-refuting if it did, since Aristotle's own discussion displays a greater depth of causal reasoning than it describes. For example, poets exploit and audiences engage in fallacious reasoning; but they do not need to identify the fallacies, and explain the technical reasons for their use, in the way that Aristotle does. When watching a performance, Aristotle may himself succumb to the illusions, and gain the pleasure that comes from poetry's achieving its effect. When he analyses the performance, he gets a pleasure analogous to that which an expert biologist gets from understanding how and why a natural organism is formed the way it is (*PA* 1.5, 645a8-15). Secondly, as was noted in earlier, it is not possible to understand the more cognitively sophisticated forms of engagement with poetry without acknowledging the elementary processes on which they rest.

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[47] Aristotle's example is the death of Mitys' murderer (1452a7-9); for an interesting recent discussion of this story's implications for narrative theory, see Currie (2006). Even when poets do not resort to this kind of device, the enhancement of emotional impact achieved 'when things come about contrary to expectation but because of one another' (1452a1-5) exploits a familiar human cognitive limitation: we cannot reliably identify an event's necessary or probable consequences in advance.

[48] This concern is evident, for example, in Halliwell (2002), 187. Cf. Gallop (1990), 161: 'I share [Halliwell's] concern… to dispel any impression that Aristotle's thought in ch. 4 lacks its usual subtlety.'

Aristotle himself was certainly not disdainful of simplicity. The *Metaphysics*, which culminates in a series of astoundingly bold inferences about the eternally blissful actuality of divine intellect (*Met*. 12.7, 9), begins with ordinary people looking at things.

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