

Aristotle on Intelligent Perception

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Aristotle assigns perception a central role in both theoretical and practical contexts. On the theoretical side, he takes perception to supply the basic knowledge on which the rest of our learning depends: any advanced form of understanding must derive from and adequately explain what we perceive.¹ On the practical side, he takes perception to play a central role in guiding our actions: we perceive how things are, but we also perceive what to do in the various circumstances we face, in ways that typically elicit some action on our part.²

In both cases, it's natural to think of perception as a potentially *intelligent* form of cognition—that is, a form of cognition that might in some way involve rational modes of thought. This is a point Aristotle stresses in the practical case: perception allows us to respond in *discerning* or *knowing* ways to a range of different situations—to do what's appropriate while also recognizing why it's an appropriate thing to do. An important example here is of course the central role perception plays for the practically wise. But one might also point to the trained perception of the doctor or navigator, say, which guides the sorts of activities distinctive of their craft—activities that manifest their knowledge how to bring about health in some patient, or how to safely guide a ship to port.

Though he's less explicit about it, Aristotle also allows for an intelligent theoretical use of perception. For he often suggests that our observations can afford us a special kind of insight—that we might, for instance, observe an eclipse in a way that immediately reveals to us its cause, or observe some light refracting through glass in a way that leads us to understand how refraction works in

¹For different takes on Aristotle's account of our learning and its perceptual beginnings, see for instance Bronstein (2012), Ferejohn (2009), Frede (1996), Irwin (1988: 132–36), Lennox (2021), or Tuominen (2007: 181–93). Here and below, I will be using “knowledge” broadly, to pick out both basic and advanced forms of *γνώσις* (including perceptual *γνώσις*). Thus knowledge, as I understand it in this paper, is a state available to nonrational animals. I will also use “power” and “capacity” interchangeably for *δύναμις*, and “reason,” “thought,” and “intuition” to pick out *νοῦς* in its various manifestations.

²For perception's practical role, see for instance Corcilius (2008: 215–40), Everson (1997: 163–65), Freeland (1994), Johansen (2012: 210–18), Labarrière (1984), Lorenz (2006: 124–37), Modrak (1987: 95–99), Nussbaum (1978: 214–16), or Whiting (2002: 174–86).

general (more on these examples below). In such cases perception gives rise not to our acting intelligently, but rather to our understanding something we didn't previously understand: we observe something and, in doing so, recognize the significance of our observation to some topic of inquiry. Indeed, our very capacity to *observe* things might already seem to depend on our rationality, whatever insight it occasions besides—if our observing things is taken to require that we recognize them as relevant to our learning, and not just our survival and reproduction, or broader practical interests.

Perception, then, can be put to use in ways that involve an integration of our perceptual and rational powers, in both practical and theoretical contexts. But it's not clear exactly what this integration amounts to, or how widespread we should take it to be. Commentators sometimes claim that Aristotle takes the perceptual part of our soul to be *transformed* by our rationality—that he takes human perception to be fundamentally different from the perception of other animals, because its operation reflects (or should reflect, when things go well) certain features of our rational nature.³ But this leaves open a range of views about how our perceptual and rational powers interact, and how we should understand the thought that our rational nature might “manifest itself” or be “reflected” in our perceptions. It also leaves it open how pervasive this interaction would be—whether our perceptions *always* reflect our rational nature, or whether this is a feature of only some of our perceptions, or of our perceptions only once they reach some developed form.

In what follows, I'll be examining various ways of refining the transformative interpretation sketched above. I'll argue we should reject stronger formulations of the view, on which the very definition of human perception would make reference to our rational powers, or on which human perception would necessarily implicate these powers in its operation: I think such formulations are inconsistent with Aristotle's psychological taxonomy, and contradict some of his central claims about perception's contributions to our learning. I'll also argue we should reject—or at least qualify—formulations of the view on which the *value* of our perceptual powers would be understood solely in terms of the rational modes of thought they might promote: though the highest form of perception does implicate our

³Aquinas puts the point well: “just as an animal, as such, is neither rational nor nonrational—a human is rational and a brute nonrational—so too is the perceptual soul, as such, neither rational nor nonrational: it is rational in a human but nonrational in a brute” (*Quaestiones Disputatae de Anima* 11, ad 19). More recent commentators have also defended views along these lines—see for instance Joachim (1951: 39–40; 50), Kahn (1992: 368–71), Keil and Kreft (2019: 8–16), McDowell (1988: 92–94), McDowell (1998: 113), Nagel (1980), Rabbås (2015: 101), Shields (2016: 198), and Whiting (2002: 198). The views endorsed by these commentators differ in a number of ways, which I aim to articulate in more detail below. For a contemporary expression of this transformative view, see McDowell (1994: 64), and Boyle (2012: 409–16) and Boyle (2016).

rational powers, perception is valuable even without their assistance.

I'll then propose an alternative take on the ways in which our rationality manifests itself when we perceive intelligently. On the view I defend, our rational powers influence perception in two ways. First, they allow for a form of perception that is contemplative—that is, a form of perception that aims to work out how and what things are, and not just how things are to be responded to. Second, they afford us practical and theoretical forms of understanding that inform what we recognize perceptually, and thereby yield forms of action and insight unassisted perception cannot. As I see it, however, Aristotle does not take perception to be necessarily affected by our rational powers in these ways, nor does he think perception cannot operate (or cannot operate well) without their assistance: we humans can develop relatively sophisticated forms of knowledge by perceptual means alone, and rely on this knowledge just as nonrational animals do. Thus the thought that as rational animals we can *also* develop a kind of perceptual intelligence does not conflict with the critical role Aristotle assigns nonrational uses of perception in his account of our learning, or his broader emphasis on the continuity between animal and human forms of cognition. Or so I will argue below, after examining in more detail the various forms of perceptual cognition described in Aristotle's works.

1 Nonrational Perception

Aristotle has a generous conception of the cognitive achievements of nonrational animals. Consider for instance his description of dolphins and cranes:⁴

[1] It [=the dolphin] seems to be the fastest of all animals, whether marine or terrestrial, and it can leap higher than the masts of large ships. This typically happens when dolphins pursue fish they want as food: if some fish tries to escape, their hunger makes them follow it down deep, but when the way back up gets long they hold in their breath, as though calculating (*ἀναλογισάμενοι*), and then twist themselves around and shoot up like an arrow, wishing (*βουλόμενοι*) with all their speed to cover the long way up to catch a breath, and in doing so will leap up high over the masts of any nearby ship. Divers do the same when they plunge in deep waters: they turn around and rise up in accordance with their remaining strength. (*HA IX.48 631a20-b1*)

[2] Cranes seem to display many forms of intelligence (*φρόνιμα*). They fly far away and high up to get a broader vantage point, but if they see clouds and storms they fly back down and stay still. They also have a leader, and additional criers among those on the farther edges of the flock, so that the

⁴Unless otherwise noted, translations in the following are my own.

leader's voice be heard. When they settle down they go to sleep with their heads under their wing, standing on one leg, alternating, while the leader stays on the lookout, head uncovered, and signals with a cry when he sees something. (*HA IX.10 614b18-26*)

Descriptions of this sort are widespread in Aristotle's zoological works, and often couched in terms that would usually pick out reason-involving cognitive states.⁵ It's understandable that he would describe intelligent animals in these terms, since their behavior tracks what they would do if they could deliberate: dolphins dive as though they had calculated how much breath it would take to swim back to the surface, and cranes communicate with their flock as though they had worked out the most efficient way to respond to changing meteorological conditions and guard themselves against predators.

Still, Aristotle is clear that these behaviors do not depend on any actual rational thought or calculation, however complex they may be. For animals, as he explains, count as intelligent only by analogy:⁶

[3] Even in other [=nonhuman] animals, there are in most cases traces of these psychological traits, whose differences are clearest in humans: gentleness and fierceness, mildness and irritability, courage and meekness, fear and confidence, spiritedness, mischief, and likenesses of intellectual comprehension. These traits are present in many animals, just as we said about their [physical] parts.

For some of these traits the difference relative to humans is a matter of degree [...]. But for others the difference is a matter of analogy. For as in humans there is craft, wisdom, and comprehension, so too in some animals there is some other natural capacity of that sort. (*HA VIII.1 588a18-31*)

Aristotle is drawing a distinction here between character traits and states that would involve our rational powers. Nonhuman animals do possess character traits—traits like courage, meekness, or confidence, which we also find, to some degree or another, in humans.⁷ But they do not possess any rational states: they

⁵See for instance *HA IX.5 611a15-b23*, *IX.6 612a1-8*, *IX.6 612a12-15*, *IX.7 612b18-27*, *IX.39 623a7-24*, and *PA II.2 648a6-12* and *II.4 650b18-21*.

⁶In reading [3] this way, I am siding with Henry (2018: 15–16), Leunissen (2017: 11–13), and Sorabji (1993: 14–15), *contra* Labarrière (1984: 411–12) and Lennox (2015: 207–11).

⁷Animals do not have these traits in their fully developed form, as we might find them in virtuous humans: their full development requires practical wisdom, which animals do not possess (cf. *EN VI.2 1139a19-20* and *VI.13 1144b4-30*). Still, the character traits exhibited by animals and humans who are not yet practically wise, but exhibit what Aristotle calls “natural” virtue, are the same (*EN VI.13 1144b8-9*). This is just what Aristotle goes on to explain after [3], where he assimilates the souls of wild animals with those of young children with the “traces and seeds” of virtue (*HA VIII.1 588a31-b3*).

may have “some other natural capacity” that is *analogous* to craft or wisdom, and display certain “likenesses of intellectual comprehension,” but they do not possess craft, wisdom, or intellectual comprehension themselves, as we would find them in humans, nor any approximate form thereof. This is what we would expect, since Aristotle categorically denies animals any capacity that would require the use of rational thought—understanding, craft, calculation, and practical reasoning, but also speech, opinion, and certain deliberate uses of *phantasia*.⁸

Now, Aristotle doesn’t make it clear in [3] what sort of “natural capacity” would serve as a nonrational analogue of states like craft or wisdom. But it’s plausible to think that he takes perceptual modes of cognition to account for its development. For on his view the cognitive lives of animals are characterized by perception, and, in all but some rare cases, the retention and association of various perceptions enabled by perceptual *phantasia*.⁹ We would therefore expect perception (broadly understood) to be the mode of cognition that gives rise to the sophisticated behaviors described in [1] and [2]—an expectation that seems confirmed by two claims Aristotle emphasizes in his psychological works.

The first claim is that perception is an affectively loaded form of cognition: animals experience pleasure and pain when they perceive things, and do so in ways that normally allow them to pursue what’s good for them, and avoid what’s bad, and thereby promote their survival and reproduction.¹⁰ As Aristotle explains,

[4] all animals have at least one sort of perception, [i.e. perception by] touch. And that which has perception also has pleasure and pain, and both the pleasant and the painful. And where there are these, there is also appetite. For appetite is a desire for what is pleasant. (*An* II.3 414b3-6)

Thus perception, by being pleasant or painful, presents things in a way that makes them available to us as objects of appetite, and thereby moves us to pursue or avoid them. Indeed Aristotle explicitly presents perception (or perception

⁸For understanding, craft, calculation, and practical forms of reasoning, see for instance *Met* A1 980a28-b28, *APo* II.19 99b36-100a3, *PA* I.1 641b4-8, and *EN* I.7 1098a1ff and VI.2 1139a19-20. For speech and opinion, see *Pol* I.2 1253a9-18 and *An* III.3 428a18ff, respectively. For uses of *phantasia* dependent on rationality, see *An* III.10 433a9-14 and III.11 434a5-11, and *Mem* 453a4-13. A form of rational control over our characters and nonrational desires is also something Aristotle presents as distinctively human—cf. *EN* I.13 1102b13-03a3, and *Pol* I.5 1254b4-9 and VII.13 1332b3-6.

⁹The exceptions are probably sponges and other sessile bottom-dwellers—animals that perceive but do not retain what they perceive (cf. *PA* IV.5 681b3, *HA* IV.6 531b5-8, and *HA* V.16 548a21ff). I stay neutral here on exactly how we should understand the auxiliary role played by *phantasia*: what matters is only that perceptual *phantasia* is available to nearly all animals.

¹⁰Alongside [4], see *Sens* 436b18-37a3 (= [14]) and also *An* III.7 431a8-14, where the connection between what’s pleasant and what’s good is made explicit. For different takes on the relationship between perception, pleasure, and animal locomotion, see Achtenberg (2002: 161–63), Corcilius (2011: 124–32), or Moss (2012: 31ff).

together with *phantasia*) as playing a role analogous to that of thought in initiating such responses: where thought allows us to represent certain things as good, and thereby activates our rational wishes for them, perception allows us to experience certain things as pleasant, and thereby activates our nonrational appetites for them (*MA* 700b12-22; 701a32-33). In both cases, the relevant sort of cognition initiates a series of psychophysical changes that begin with heating and chilling around the heart, and eventually result in the movement of limbs that constitutes full-on locomotion (*MA* 701b33-02a19). This mechanism, together with perception's affective dimension, is meant to explain how animals pursue and avoid certain things—generally, things that are respectively good and bad for them.

The second claim is that perception is typically informed by the retention and association of past perceptions. As an illustrative example, consider Aristotle's description of the hunting behavior displayed by lions and dogs:¹¹

[5] [Animals do not enjoy scents or sounds in and of themselves.] For dogs do not delight in the scent of hares, but in the eating of them, but the scent told them the hares were there; nor does the lion delight in the lowing of the ox, but in eating it, but he perceived by the lowing that it was near, and therefore appears to delight in the lowing; and similarly he does not delight because he sees 'a stag or a wild goat,' but because he is going to make a meal of it. (*EN* III.10 1118a18-23)

So dogs and lions pursue their prey because they perceive a scent or sound they associate with it. The smelling and hearing, in these cases, are not pleasant in themselves. What's pleasant is the prospect of making a meal out of the prey in question—a prospect the predators associate with some occurrent scent or sound. Thus a lion might perceive an ox (or one of its distinctive features) in a way that would bring to mind past perceptions of oxen, and the subsequent pleasures felt when feeding on them. If hungry, such a lion might then be moved to hunt the ox down in virtue of these prospective pleasures—the pleasures she expects on the basis of her memories of past ox hunts.¹²

Perception thus allows for forms of animal behavior that are informed by past experience: nonrational animals endowed with *phantasia* retain their perceptions as memories, and associate these memories with each other and with their occurrent perceptions, in ways that allow them to *expect* something, and to expect it in a way that would move them to pursue or avoid it. These broadly perceptual

¹¹The translation here is adapted from Ross (2009).

¹²On Aristotle's view, animals do not recall and associate their memories in a dispassionate way: when some occurrent perception brings a past one to mind, the affective character of the past perception is replicated as well, as is therefore its motivational power (*MA* 702a2-7; cf. *Rhet* I.11 1370a27-35 and *Phys* VII.3 247a7-14). For a broader defense of this kind of view, see also Johansen (2012: 212–18), Lorenz (2006: 131–33), and Moss (2012: 57–64).

resources allow animals to recognize what their situation calls for, and they also allow them, as is implicit in [1], [2], and [5], to recognize how to *effectively* achieve some end.¹³ Thus the lion recognizes the ox as something to pursue, and also appreciates how to best hunt it down—hiding, pouncing at the right moment, stalking it with the rest of its pride, and so on, in ways that are responsive to the particular features of its environment, and could therefore plausibly be taken to serve as analogues of calculation and practical thought. In so doing such a lion perceives things in a way that is informed by its past, and perhaps also what it has learned from other animals of its kind, and which allows it to respond appropriately and effectively to its circumstances—yet without relying on any kind of calculation, deliberation, or other form of rational thought.

This nonrational form of perception will not be my focus in what follows. I discuss it here to bring out the fact that, for Aristotle, perception doesn't need the assistance of rational modes of cognition to yield sophisticated forms of knowledge—forms of knowledge which enable nonrational animals to respond to their environment in the very ways we would expect from deliberative, calculating human subjects. For even in nonrational animals, what perception conveys on some given occasion will be affected by the perceiving animal's retentive and associative powers: perception presents things as objects of pursuit or avoidance, and, with the assistance of *phantasia*, as objects to be pursued or avoided in some specific way—a way that is informed by its past experience, and perhaps also by the collective experience of animals with which it can communicate.¹⁴

In our next two sections I will examine in more detail how one might contrast this kind of sophisticated nonrational perception with its rational counterpart—as it manifests itself in both practical and theoretical contexts.

2 Rational Perception: Craft and Practical Wisdom

Aristotle thinks that perceptual modes of cognition allow for highly complex responses to our environment. But he also thinks that our rationality allows for forms of action and production which, though they centrally involve our perceptual powers, lie beyond the reach of these powers alone. The contrast he draws between experience (*ἐμπειρία*) and craft knowledge helps illustrate the distinction between the two:¹⁵

¹³We need not conceive of the such animals as recognizing *that their behavior is effective*, or why their way of achieving some end is better than some alternative: for Aristotle, that sort of recognition would require some form of rational deliberation. Still, animals can recognize and take the most effective means to their ends without understanding why they are effective.

¹⁴See further *Met* A1 980b1 and *HA* IX.1 608a17-21 on hearing animals learning from each other.

¹⁵For passages from *Met*, I've adapted Ross' translation.

[6] To have a judgment that when Callias was ill of this disease this did him good, and similarly in the case of Socrates and in many particular cases, is a matter of experience; but [to have a judgment] that it has done good to all persons of a certain constitution, marked off in one class, when they were ill of this disease, e.g. to phlegmatic or bilious people when burning with fever, is a matter of craft. (*Met* A1 981a7-12)

Experience, then, makes possible a range of particular judgments: judgments that this remedy will heal this patient, that remedy that other patient, and so on. Craft, by contrast, deals in universals: a doctor with the craft of medicine knows that phlegmatic patients ill with malaria are cured by bloodletting, that bilious patients ill with gout are cured by hellebore, and so on. Though he doesn't make it clear in this passage, Aristotle thinks of these universals as playing some *explanatory* role—the point is not just that the craft of medicine allows us to make general claims, but also, and more significantly, that it allows us to understand *why* patients exhibit the symptoms they do, and why certain remedies are good ways to alleviate these symptoms. As he puts it later on, “we take it that those with craft knowledge are wiser than those with mere experience [...] because the former know the cause, but the latter do not” (*Met* A1 981a24-28).

The state of experience described in [6] is meant to be a broadly perceptual form of knowledge. This is not something Aristotle says directly, but it's implicit in his account of our learning, which begins by separating the contributions of perception and memory from those of reason:

[7] Given that perception is present in them, some animals retain what they've perceived, and others don't—and those that don't have no knowledge except what they perceive (either none at all, or none concerning the things they don't retain). But some can still hold [what they perceive] in their soul even after perceiving. When many such things are [retained] there's a further difference: in some reason [λόγος] comes about from the retention of such things, while in others it doesn't. (*APo* II.19 99b36-100a3)

Thus all animals perceive, only some remember what they perceive, and only some of those (i.e. humans only) come to reason based on what they perceive and remember. Aristotle goes on to explain that experience is a state between perception and advanced causal knowledge, which arises out of “repeated memories of the same thing” (100a3-9).¹⁶ And in a parallel passage right before [6], he tells us that animals endowed with memory can develop at least “a small part of

¹⁶In fact he claims, more strongly, that “many memories constitute a single experience” (100a5-6). That may seem like an overstatement: experience also depends on our ability to *associate* what we retain with some occurrent perception. But it's possible Aristotle takes memory to already involve this kind of associative work, since he takes it to allow for both retention and the recognition of what we perceive as a likeness of something we've retained (*Mem* 449b22-23, 451a14-16).

experience,” while reasoning and craft are proper to humans (*Met* A1 980b26-28). The development of experience, then, seems to be possible even for nonrational animals.

Now, Aristotle does say that nonrational animals have only a “small part” of experience. Thus he need not be taken to think that they form experience in exactly the same way humans do. He might hold that their mnemonic and associative powers are less developed than our own, for instance, or that some of their senses are limited in some way, or generally oriented towards their survival and reproduction, rather than the development of more advanced forms of knowledge.¹⁷ Such limitations, however, should not be taken as a sign that the development of experience in humans depends on the use of our rational powers. For what Aristotle takes to be a distinctively rational achievement, and what he explicitly contrasts with experience in *Met* A1, is *causal* knowledge—knowledge of universals rather than particulars, which would require our grasping some explanation why things are the way we know them to be.¹⁸ As he puts the point a bit later:

[8] We do not regard any of the senses as wisdom; yet surely these give the most authoritative knowledge of particulars. But they do not tell us the “why” of anything—e.g. why fire is hot; they only say that it is hot. (*Met* A1 981b10-13)

So humans and nonrational animals alike will know that fire is hot from perception alone. By associating and storing perceptions, they can both develop coherent responses to a range of different situations they might face—whether this means avoiding fire or curing malarials. What only we humans can do is understand the causes that underlie such responses, and thereby appreciate why Callias should be leeches, in addition to recognizing that he should be leeches, or why fire is hot, in addition to recognizing that it is hot.

Someone with craft knowledge, then, has a kind of causal knowledge—e.g. knowledge why one should treat certain types of patients some way. But the knowledge in question is not theoretical: it isn’t the kind of knowledge that aims to work out exact truths about symptoms, constitutions, and diseases, say, and the complete explanatory relations between them. Craft knowledge is meant to guide our actions and make us successful at producing some result, and must therefore be a form of causal knowledge that is integrated with our experience and the grasp of particulars it affords us. Here’s how Aristotle puts the point:

¹⁷See *Met* A1 980a20-27, *An* II.9 421a7ff, and also [14] and its treatment below.

¹⁸That the kind of reliable curing described in [6] should not be taken as a marker of rationality is further confirmed by the fact that Aristotle thinks some nonhuman animals know how to cure themselves of illness (*HIA* IX.6 612a1-8).

[9] Concerning action, craft does not seem to differ in any way from experience—in fact we even see those with experience succeed more than those who have an account without experience. The reason is that experience is knowledge of particulars, and craft is knowledge of universals, and actions and productions are all concerned with the particular. For the doctor does not cure “human,” except incidentally, but Callias or Socrates or some other we pick out with a name, who happens to be human. (*Met* A1 981a13-20)

So craft knowledge requires a grasp of universals. But since crafts aim at producing particular things (e.g. health in various particular patients), they must involve more than a grasp of universals—as Aristotle puts it elsewhere, textbooks don’t make doctors (*EN* X.9 1181b2-3). What’s needed is both universal knowledge and some training in its application to particular cases—knowledge of symptoms and cures acquired over time, on the basis of repeated encounters with a range of different patients. Only with such experience can we develop the sort of causal knowledge that can be put to use, and that manifests itself in the production of health rather than its theory.

A doctor with craft knowledge will thus perceive that Callias is ill with malaria, and recognize this as calling for some leeching in a way that reflects her understanding why, in general, this kind of fever in a patient such as Callias is caused by malaria, and therefore cured by leeching. Someone with pure experience, by contrast, perceives that Callias needs leeching, but doesn’t know why—while someone with pure causal knowledge might know that malaria causes fever in phlegmatics, and know how to cure it, and why the cure works, but fail to recognize Callias as a patient of the relevant type, or maybe fail to recognize him as a patient in the first place, and so fail to cure him.¹⁹ Intelligent perception, when put to practical use, is the kind of perception of Callias someone with craft knowledge displays—a perception of Callias as someone to be leeches, which also conveys to the perceiver that Callias is a certain kind of patient, ill with a certain kind of disease, so that the intelligent perceiver’s leeching is not just an appropriate response to Callias’ symptoms, but a knowing, deliberate one—a response which rests on a global appreciation of diseases, their symptoms, and the relative merits of various remedies.²⁰

¹⁹It follows that craft knowledge is not just a matter of having both pure experience and pure causal knowledge: we need experience to respond appropriately to Callias, but the experience must be integrated with some understanding of diseases for us to respond to Callias *as a malarial patient*, that is, in a way that would be a manifestation of our knowledge of malaria and its effects.

²⁰We get an articulation of the sort of deliberation such a response might reflect at *Met* Z7 1032b6-9: “health is this, so if [the patient] is to be healthy, this must be present first—balance, say—and if that [must be present] then heat [must be]. And the doctor goes on thinking this way until he reaches a last step [=produce heat by rubbing, 1032b26] he can himself produce.” To

A similar sort of intelligent perception guides the actions of the virtuous, whose wisdom Aristotle frequently compares to craft knowledge.²¹ When distinguishing practical wisdom from scientific understanding, Aristotle makes a point similar to the one adduced in [9]:

[10] Practical wisdom is not concerned with universals only. Knowledge of particulars is needed, too—for practical wisdom is practical, and action is concerned with particulars. This is why some who do not know, and especially those with experience, are more practical than others who know. For if someone knew that light meats are digestible and healthy, but did not know which sorts of meat are light, they would not produce health—while the person who knows that chicken is healthy is more likely to produce health. (*EN* VI.7 1141b14-21)

Just as a doctor treats particular humans rather than the universal “human,” so too will practical wisdom require us to recognize various particular meats as healthy, and not just appreciate why light meats are universally healthy. This kind of recognition, Aristotle thinks, depends on our experience with the meats in question: learning that light meats are healthy is no use unless we also know that chicken (e.g.) is a light meat, and so healthy. Indeed, he adds that we’d be better off merely knowing that chicken is healthy, without understanding that it’s healthy because it’s a light meat—just as doctors with mere experience are said in [9] to be better off, practically speaking, than those with causal knowledge only.

For this reason Aristotle contrasts practical wisdom with fields like pure geometry. Kids can be good at geometry, but they cannot be practically wise, since they don’t have enough experience to qualify as such (*EN* VI.8 1142a11-20). Conversely, older people have the benefit of age—even those who fall short of practical wisdom might “see things right, because experience has given them an eye” (*EN* VI.11 1143b11-14). Recall that Aristotle thinks experience and habituation allow for the development of sophisticated forms of behavior, and that he takes nonrational animals to display, to some degree or another, the same proto-virtuous traits we might find in young children (cf. [3] and *HA* VIII.1 588a31-b3). Now, these proto-virtuous traits only constitute actual virtues in the presence of practical wisdom, the development of which is exclusive to humans

perceive intelligently in this case is to see the patient as needing to be heated by rubbing, and to do so in a way that reflects the kind of understanding of health, balance, and heat evidenced by this sort of thinking. See *MA* 701a17-25 for an example along similar lines.

²¹In addition to the parallels pointed out below, see for instance *EN* II.2 1104a1-10 and II.3 1112a30-b11. Craft knowledge does differ from practical wisdom in that the former aims at the production of something, while the latter results only in acting—which, in Aristotle’s technical sense, is not directed at an end external to the acting itself, like the health of a patient (cf. *EN* VI.4 1140a5-6, VI.5 1140b6-7). This difference won’t affect what I have to say here.

(*EN* VI.13 1144b4-30). But the early stages of their development into virtues is largely a nonrational matter: one must have an upbringing that rewards the right responses to some situation, and punishes the wrong ones, and live under laws to compel us to keep doing so later in life (*EN* II.1 1103b23-25, II.3 1104b8-13, and X.9 1179b23-80a14).²² Thus, just as craft knowledge is a form of causal knowledge integrated with our accumulated hands-on experience in some domain, so too will the complete realization of virtue require a form of wisdom integrated with our experience and habituated proto-virtuous traits.

Perception also plays a parallel role: craft knowledge centrally involves our perceiving how to bring about some result, and likewise practical wisdom centrally involves our perceiving what to do—that is, our recognizing perceptually what in our circumstances would be a way to realize some virtuous end.²³ And when the practically wise perceive a way to realize some end, they do so in light of some broader conception of the role various goods might play as means and ends in their virtuous pursuits. Thus their actions, like those of a doctor with craft knowledge, are the result of a deliberate, knowing decision—a decision that is not just correct, but which reflects some appreciation why they should act as they decide. The virtuous therefore perceive intelligently in much the same way a craftsman perceives intelligently: they perceive what to do in a manner that is sensitive to the broader structure and value of their pursuits.

Below I will consider in a bit more detail how we should understand the claim that virtuous perception would implicate rational modes of knowledge and thought, and allow for forms of action unavailable to those with mere experience. But for now I want to turn to a different form of intelligent perception—where the intelligence at play is theoretical rather than practical.

3 Rational Perception: Observation and Theoretical Insight

Aristotle often reminds us that we perceive particulars rather than universals. It's for this reason, he tells us in [8], that perception alone does not provide for the sort of wisdom distinctive of a craftsman. And though the focus in [8] is on

²²Aristotle says the formation of virtuous habits acts “like the soil that nourishes seed” (*EN* X.9 1179b26), where he presumably has in mind the “traces and seeds” of virtue present in young children and animals (*HA* VIII.1 588a31-b3). I stay neutral here on what relation these virtuous habits bear to fully developed virtues of character—on which point see for instance Irwin (1975), Lorenz (2009), or Moss (2011). For a discussion of the role experience and habituation play in the development of a virtuous character, see Hampson (forthcoming) and Jimenez (2019).

²³See for instance *EN* VI.8 1142a23-30, VI.12 1144a29-36, and [18], below. I will say a bit more about the relationship between practical wisdom and this sort of perception in section 5. As I understand *EN* VI.13 1144b26-30, the integration at play between perception and reason is what makes virtue a state *with* reason, and not just a state that *accords* with reason.

craft, Aristotle makes a similar claim in the case of theoretical knowledge: states like scientific understanding require a grasp of universal causes perception alone cannot provide (*APo* I.31 87b29-30; see also I.18 81a38-b9).

In certain cases, however, perception does *yield* an understanding of universals, even if its objects remain particular. Here's one illustration of this point:²⁴

[11] Some features [of problems] are such that if we perceived them, we would not seek; not because we know by seeing, but because we grasp the universal from seeing. For instance, if we saw the glass having been pierced and the light going through it, it'd be plain why it does, too, even if we see separately in each particular [case] but think at a single time that it's such in every case. (*APo* I.31 88a12-17)

So seeing light going through some piece of glass might make clear to us why the light is behaving as it does—because it is *refracting*, say. Now, plainly no singular observation would on its own lead us to understand how refraction works in general, or allow us to recognize what we perceive as a case of refraction. Aristotle's point must be, rather, that if we *already* know something about light and its propagation through various media, some observation might quickly lead us to understand why light behaves as it does in this case, and various other cases we've observed. That is, we will not just see light moving some way through glass, but see it in a way that is informed by our background in optics, and which will therefore allow us to recognize the significance of our observation, and intuit that the light is moving as it is because it is refracting.

In a similar vein, Aristotle claims that if we were to observe a lunar eclipse from the moon,

[12] we would seek [to determine] neither whether it is coming about nor why: these would be clear at the same time. For from perceiving we would come to know the universal as well. (*APo* II.2 90a26-29)

Again, what he means here is not that we would observe a lunar eclipse from the moon, and then come to understand the explanation for lunar eclipses merely in virtue of this one observation. His point must be, rather, that this observation *together with some background understanding of astronomy* would allow us to recognize that lunar eclipses are caused by the earth's screening. After all, to someone without the relevant astronomical knowledge, seeing a lunar eclipse from the moon wouldn't be the least bit enlightening. For a lunar eclipse presents itself as a *solar* eclipse when observed from the moon, and it takes a fairly sophisticated

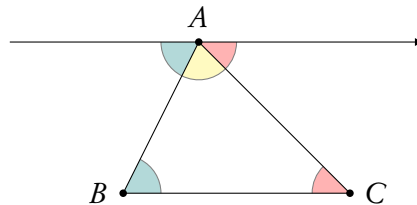
²⁴I follow the reading of the manuscripts suggested in Barnes (1993).

grasp of planetary motion and the casting of shadows to intuit what this would look like from the earth, and why.²⁵

Consider, finally, the following geometrical case:²⁶

[13] Why are the angles of the triangle equal to two right angles? Because the angles about one point are equal to two right angles. Thus if the line parallel to the side had been already been drawn out, it would have been immediately clear to someone seeing it why [=why the angular sum of triangles is equal to two right angles]. (*Met* $\Theta 9$ 1051a24-26)

The sort of diagram Aristotle has in mind might look something like this:



But note that again such a diagram is illuminating only for someone who already knows something about geometry—that the angles about a point make two right angles, as Aristotle suggests, but also that a transversal intersecting parallel lines makes equal alternate angles.²⁷ Thus for it to be “immediately clear” to someone seeing this diagram why triangles have the angular sum they do, we have to assume they already have some background understanding of geometry, so that they recognize the salient features of the diagram, and intuit their significance in establishing the claim under consideration.

In these three cases, perception’s ability to reveal something to the perceiver depends on their already having some background understanding of a scientific discipline—optics, astronomy, and geometry, respectively. But some uses of perception might be taken to reflect our rational nature even without positing any such background understanding. For Aristotle draws a more general distinction between uses of perception that would serve our animal needs and uses of perception as a source of learning:²⁸

²⁵A similar case is discussed at *APo* I.34 89b11-13, where Aristotle describes those who, “upon seeing that the moon always has its bright side toward the sun, quickly see why this is so: because it gets its light from the sun.” Here too, recognizing the explanation for the moon’s brightness must depend on some prior understanding of the sun as a source of light, the moon as a reflective body, and certain general features of the reflection and propagation of light.

²⁶Thanks to Emily Katz for bringing this passage to my attention.

²⁷The former fact is Euclid’s *Elements* I.13, and the latter is part of his *Elements* I.29.

²⁸The translation here is partly based on Beare’s. Thanks to Christine Thomas for suggesting that I consider these cases, and to an anonymous reviewer for pressing me to clarify their role.

[14] The non-contact senses—i.e. smelling and hearing and seeing—belong to all self-moving animals. In all these animals they are present for the sake of their preservation: based on past perceptions they pursue their food and shun things that are bad or destructive. But in animals who also have intelligence these senses are present for the sake of their good: they report many distinctive qualities of things, from which both theoretical and practical wisdom is generated in the soul. (*Sens* 436b18-37a3)

Thus we humans are unique among animals in being able to appreciate the “distinctive qualities of things,” and use what we perceive as a source of theoretical and practical wisdom. Other animals may well perceive the same things we do, but when they do so they recognize them only insofar as they are relevant to their survival and reproduction (they perceive this animal as something to be pursued, that plant as something to be avoided, and so on), and so not as things that might be understood apart from their practical significance. So even before we develop advanced forms of understanding, it seems we can use perception intelligently: we do so whenever we recognize what we perceive as something we might understand, rather than just react to in some way. In such cases perception is not intelligent because it allows for insights informed by our background understanding, nor is it intelligent because it contributes to our developing this understanding (though it might do that as well). Perception is intelligent simply because it allows us to appreciate what and how things are apart from the role they play in our survival, and thereby “makes us know” even when we are not engaged in any practical pursuit (cf. *Met* A1 980a24-26). This is just to say that *observation* is one form intelligent perception can take, if we take observation to require our perceiving things in such a contemplative mode.

So perception can be intelligent in a practical context, when it allows us to recognize what to do in a way that reflects a broader understanding of the situation we face. But it can also be intelligent in a theoretical context, when it allows us to intuit why something is the case in a way that reflects a broader understanding of some scientific discipline—or to recognize what we perceive as something to learn from even apart from our practical interests. The result of the first form of cognition is a certain kind of action or production, while the result of the second is a certain kind of observational insight (where the insight might but need not require theoretical sophistication). And in both cases, perception’s intelligence reflects some sort of interaction between our perceptual and rational powers. I’ll now consider more closely how we should understand this interaction, and how widespread we should take it to be.

4 Reason & Rational Perception

Human perception, as we've seen, can be intelligent in ways that depend on our rational powers. It's sometimes inferred from this that these rational powers *transform* our perceptual ones—and that they do so in such a way that we humans, just in virtue of being rational beings, would necessarily perceive in a rational manner unavailable to other animals. Here's one way to express such a view:²⁹

[T] Human perception necessarily implicates our rational powers in its operation.

It's worth noting that proponents of [T] typically do not hold such views about perception only, but also about our nutritive and desiderative powers. Though these powers are *analogous* to their counterparts in animals and plants, they function in fundamentally different ways when they are part of a human, rational soul. Here's how Joachim puts the point:³⁰

[Like the animal soul, the human soul] manifests itself in the initiation and control of the processes of assimilation, growth, and reproduction; it, too, manifests itself in sentience (sensation, association, pleasure and pain, appetite, desire, locomotion). But these functions are raised to a higher power, because they spring from a grade of soul distinctively characterized by the power of thinking. The human soul is not the nutritive faculty *plus* the sentient faculty *plus* the rational faculty: yet its distinctive character is expressed in functions analogous to, for example, the growth, etc., of plants and the sentience and appetite of animals. Its rational activities at once rest upon a plant or animal basis, and modify and ennoble or spiritualize the

²⁹Here and below, by perception's "implicating" our rational powers I mean that these powers are active when we perceive, and affect our perceptual activity in some way (e.g. by affecting what we recognize perceptually, or how we take our perceptions to bear on our deliberations or inquiries). For now, I am keeping things somewhat abstract in order to cover a range of different views—but I will have more to say about how reason might affect perception in our next section.

³⁰Joachim (1951: 39); in this passage Joachim uses "faculty" for *δύναμις*, which I've rendered "power" or "capacity" so far. I believe Rabbås (2015: 101) and Shields (2016: 198) are best read as endorsing [T], as are McDowell (1994: 64) and some of the contemporary philosophers discussed in Keil and Kreft (2019: 8–16). Some, like Kahn (1992: 368–71), hold a view slightly weaker than [T], on which all forms of perception *except for bare sensation* necessarily implicate our rational powers. Some, like Joachim, hold a stronger view, on which human perception is an *essentially* rational power, and definitionally different from perception in nonrational animals. As I've formulated it, [T] claims only that human perception necessarily involves the use of our rational powers, which I take to be a consequence of such views. Aquinas' view (mentioned in n3) is a bit more complex: he holds that perception in humans is nonrational *per se*, but counts as rational insofar as it obeys reason (*QDdA* 11, ad 15). Depending on how its obedience to reason is understood, such a view might be compatible with the one I go on to defend (as the end of his response in *QDdA* 15 may suggest). Thanks to an anonymous reviewer for pressing me on this point.

functions in which it, the most developed soul-type, shows its affiliation to the lower, less developed types.

If our rationality transforms perception in this way, then we would not, strictly speaking, share any form of perceptual cognition with other animals. For perception, memory, and experience would all be rational (or at least rationally “modified” and “ennobled”) for us humans, and not for other perceivers. There would therefore be a significant difference between the state of experience as we find it in superior animals and the state of experience as we find it in humans: both would be perceptually grounded, but the perception relied on in each case would be fundamentally different.

I think [T] is mistaken. The most direct evidence against it, to my mind, comes from the arguments Aristotle makes when assigning various capacities to some part of the soul. For instance, he begins *Mem* by asking to which part of the soul memory and recollection should be assigned (*Mem* 449b4-6). After considering a range of cases in which we might be said to remember things (a white object, something we contemplated about), he argues that remembering these things requires us to “say within ourselves that we previously heard or perceived or thought” that thing (449b22-23), and infers from this that memory requires some awareness of time, and so assigns it to the perceptual part of the soul, which is responsible for our awareness of time (449b28-30). Aristotle then concludes (*διό*, 450a15) that memory belongs not only to humans, but also to all nonrational animals capable of perceiving time.

Now, this would be a poor argument if human perception always implicitly involved our rational powers, as it does on [T]. If that were true, the fact that memory belongs to the perceptual part of *our* soul would not alone imply its presence in certain nonrational animals: the most Aristotle would be entitled to conclude on the basis of his examples (which are all cases of humans remembering things) is that certain nonrational animals have a capacity *akin* or *analogous* to memory. But that’s not the conclusion he draws. The conclusion he draws is that memory belongs both to humans and to nonrational animals who perceive time—and that this is so because it belongs to the perceptual part of the soul.³¹

More broadly, taking perception to necessarily involve our rational powers

³¹A similar point could be made about Aristotle’s argument that the perceptual part of the soul is responsible for dreams, where he plainly intends this to mean the perceptual *and nonrational* part of the soul (*Insomn* 458a33-59a10), or his arguments about the relationship between sleep and perception in *Somn* 454b9-55a3 (cf. [16], below). On this point see also Lorenz (2006: 152n7). One might reply that Aristotle is simply assimilating the two analogous cases of perception in these arguments. But it seems to me principles of charity tell against such interpretations: his argument in *Mem* clearly invokes *humans* remembering things, but is taken to establish that memory is present in *all animals who perceive time*.

would make idle the distinction Aristotle draws between rational modes of cognition and their perceptual counterparts in his account of our learning. For recall that in [7] Aristotle presents perception as a power shared by all animals, memory as a power shared only by some perceivers, and reason as a power available to humans only. And the thought that our cognitive development begins from a kind of perception we share with other animals is a key feature of the view of learning Aristotle goes on to defend (see esp. *APo* II.19 99b34-35). But that would be a puzzling point to emphasize if in fact human perception were always rational, and thus fundamentally different from the perception of other animals. So when Aristotle tells us that perception is something we share with other animals, his point must be that we really do share the same perceptual powers, and not just some nobler powers analogous to those of nonrational animals.

Arguments like these seem to me a natural consequence of Aristotle's taking the perceptive and thinking parts of the soul to be distinct—where this implies that perception and thought are “separable in account,” or definable without reference to one another (*An* II.2 413b11-16).³² Of course, it is possible that perception, though *definable* without reference to thought, would nonetheless necessarily rely on it in its operation. But it's good to remember that our ability to think can be impeded in various ways, and that in these cases Aristotle seems to think we respond to our circumstances just as nonrational animals would—that is, by relying on a form of perception uninfluenced by our rational powers. As he puts it:³³

[15] Because [images] persist and are similar to perceptions, animals do many things in accordance with them—some (like beasts) because they don't possess thought, and others (like humans) because their thought is at times obscured by passion, disease, or sleep. (*An* III.3 429a4-8)

His thought here, as I understand it, is that we humans might still rely on our perceptual powers when our thinking fails us: perceptual images persist even in the absence of thought, as does, presumably, our ability to associate these images and act in accordance with them, as (I've argued) someone with pure experience would.³⁴

I conclude that human perception, *contra* [T], need not implicate our rational powers: perception can operate on its own in humans and nonrational animals

³²In reading Aristotle this way, I am siding with Corcilius and Gregorić (2010), *contra* Whiting (2002). I do think this point about separability is sufficient to reject the stronger, definitional formulation of [T] mentioned in n30.

³³See also *EN* VII.3 1147b1-5 and VII.6 1149b31-50a1.

³⁴I take it Aristotle has in mind case of sleepwalking or reacting to dreams when he speaks of our relying on perception when thought is obscured by sleep—on which see *Somn* 456a24-26 and *Insomn* 461b24-62a8.

alike. Now, one might reply here that the cases in which perception operates without involving our rational powers are cases where it is operating *deficiently*, because our rational powers are impeded in some way. After all, in [15] Aristotle describes our living in accordance with perception as something that occurs under the influence of passion, disease, or sleep—and he makes similar remarks at *EN* VII.6 1149a9-12, characterizing some of those who “live by perception alone” as brutish, and comparing them to those under the influence of disease or madness. So instead of [T], we might think:

[T'] Human perception *when non-deficient* necessarily implicates our rational powers in its operation.

The motivating thought behind [T'] is simply that when we are ill (or overcome with passion, or sleepwalking) our perceptual powers are not functioning well: if they were, we would perceive things in a manner that does reflect our ability to think and deliberate about them. Thus on this view perception can function on its own in humans, but its functioning will always be deficient without the assistance of reason.

Some caution is needed, however, in spelling out the sense in which perception would be deficient in these cases. Aristotle, as I've argued above, has an ambitious view of the cognitive achievements made possible by our perceptual powers, even when these are used without the assistance of reason—recall that he tells us, in [9], that those with experience might succeed in a range of practical endeavors even without the grasp of universals enabled by rational thought, and that he plainly thinks highly of the kind of moral experience that gives older people “an eye” to see matters correctly despite their lack of wisdom (*EN* VI.11 1143b11-14). And the view that relatively sophisticated forms knowledge might be developed by purely perceptual means plays a central role in the contrast Aristotle seeks to draw between his account of our learning and innatist alternatives he finds absurd: where his opponents posit innate, rational forms of knowledge to remedy the deficiencies of perceptual cognition, he takes perception to serve as an adequate starting-point even unassisted by the intellect.³⁵

So it's not as though perception is inherently defective when it doesn't involve our rational powers. Indeed, Aristotle seems to allow in general that subordinate capacities might function well even when they don't involve superior ones present in the same soul—so that in particular the perceptual capacity might function well in a human soul even when it doesn't involve any form of thought. Consider for instance his description of the work of nutrition in a sleeping animal:

³⁵For a more elaborate defense of these claim, see Gasser-Wingate (2020: 17–24) and Gasser-Wingate (2021: 47–72).

[16] Creatures that have perception also have the ability to be pained or pleased—and those that have these also have appetitive desires. But plants have none of this. A sign of this is that the nutritive part does its own work better in a sleeping animal than in an animal that is awake: that’s the time when they are nourished and develop more, and so for these tasks they don’t need perception’s assistance. (*Somn* 454b29-55a3)

If this is right, it’s not just that an animal’s nutritive capacity does not require the involvement of perception, but, even more strongly, that the nutritive capacity functions *better* when perception is not in use. Aristotle takes this to support the view that plants do not have any perceptual capacities: nutrition works well in animals when they don’t perceive, and so we shouldn’t take its presence in plants to imply that plants perceive, or feel pleasure or pain. Thus it’s not the case that the functioning of subordinate capacities must always be understood in a way that reflects their subordination—even in creatures capable of perception, there is a sense in which nutrition functions well (and perhaps even *better*) without perception’s assistance.

Now, one might object that perception and reason are both *cognitive* powers, and that the relation they bear to each other is thus different from the one perception (or reason) bears to nutrition, and such that we might reasonably expect a different sort of coordination between the two.³⁶ But even with cognitive powers, subordination does not seem to preclude independent functioning. For Aristotle holds not only that the rational part of our soul is superior to its perceptual counterpart, but also that theoretical part of our rational soul is superior to its practical counterpart (see e.g. *Pol* VII.14 1333a16-30). And in that case it’s clear that the well-functioning of the latter cannot depend on its being used in ways that would also involve the use of the former: the practical and contemplative uses of reason Aristotle goes on to consider have different aims, and are involved in distinct parts of our lives.³⁷ As Anaxagoras and Thales remind us, we can be theoretically wise yet inept in practical matters—good evidence that practical and theoretical reason need not operate together (*EN* VI.7 1141b2-8).

What Aristotle does emphasize in these cases is that subordinate capacities are *for the sake of* superior ones, and that the use of the superior ones is therefore more *desirable*, and reflects a *better* part of ourselves than the use of their subordinates. Thus for Aristotle contemplative uses of reason are indeed better than practical ones—and reason in general better than perception. And so it seems plausible he would endorse the thought that perception is better when intelligent, and

³⁶Thanks to an anonymous reviewer for raising this concern.

³⁷Parts of our lives characterized by business and war, on the one hand, and by leisure and peace, on the other—involving actions aimed at what’s necessary and what’s fine, respectively (1333a30-33; cf. *EN* X.7 1177b1-26).

moreover that intelligent perception is the best form perception can take for us humans—though this is never explicitly stated. Here’s one way to put this kind of view:

[T’] Human perception *in its best form* implicates our rational powers in its operation.

In distinguishing this view from [T’] I aim to emphasize the difference between *deficient* and *imperfect* uses of perception: perception can be said to function non-deficiently even when it is not perception of the best, most developed kind—in the sense that it might function well by the standards that attach to lower, nonrational uses of perception. So while unintelligent perception would be imperfect insofar as it does not reflect the best part of ourselves, it might still serve as a basic source of knowledge and as a practical guide in our various endeavors, and not be deficient in playing *these* roles, even if it falls short in other ways.³⁸

I take [T’] to be a direct consequence of perception’s subordination to the intellect. For Aristotle, we humans are at our best when we make use of our rational powers—and so, in particular, we perceive best when we perceive intelligently. Still, we also use perception in ways that do not reflect our rational nature—and in so doing perceive as other animals do.³⁹ The central claim I want to defend here is that this lower, imperfect form of perception is itself valuable, and that its value does not stem merely from its role in promoting the development of intelligent perception, or other forms of cognition involving our rational powers. Consider, as an example of its use, Aristotle’s description of medical experience and its relationship with medical craft:

[17] Education on an individual basis is better than education in common—and so too for medical treatment. For though in general resting and fasting helps the feverish, it may well not help *this* feverish person. [...] It would seem, then, that particular cases are worked out more exactly when attention is given to the individual. For each is more likely to get what suits them.

Still, the best attention for each single individual will be provided by the doctor, or gymnastics instructor, or anyone else who has the universal

³⁸This interpretation might seem hard to square with the parallel claim made in [16], which is that nutrition functions *better* without the assistance of perception. As I understand Aristotle, though, nutrition might function better in sleeping animals *considered on its own*, but would not in fact function better if considered as a subordinate part of a perceiving animal soul. (At *An* II.3 414b20-33 Aristotle emphasizes the importance of examining souls as more than a set of separate capacities—on which point see Corcilius (2015: 43–44) and Shields (2016: 197–98), and our next section.) In any case, I do not seek to argue here that perception would function better without the assistance of reason—only that there is sense to be made of the claim that it would function well.

³⁹Allowing of course for differences in the acuity and number of our senses, and in our associative and mnemonic powers.

knowledge of what is good for everyone, or for persons of some sort [...]. Nevertheless, someone without scientific knowledge may well care for an individual person properly if experience has allowed them to see what happens in a given case—just as some people seem to be their own best doctor, though incapable of helping anyone else. (*EN* X.9 1180b7-20)

As in [9], Aristotle is emphasizing the need for experience in practical endeavors: we treat particular patients, and experience is what tells us how to apply (or not) general prescriptions like “starve the feverish” to some given individual. As in [8] and [10], someone who has an understanding of universals in addition to this experience is said to be in a better epistemic position—the doctor with craft knowledge of medicine will be better at curing patients she has not attended to personally, and she will also be able to deliberate about the merits of various cures in a way the merely experienced cannot (cf. n20). But Aristotle makes it clear here that the merely experienced can indeed care for an individual properly, and that the best kind of medical care depends on a kind of individual attention universal modes of understanding could not account for on their own.

Thus perception, even when unintelligent, affords us a grasp of particulars that allows for some measure of practical success—the practical success exhibited by those with experience but no universal knowledge. This grasp of particulars is valuable in part because it contributes to the development of universal knowledge, and thereby makes possible certain forms of intelligent perception.⁴⁰ But it is also valuable in itself: an understanding of universals does not, on its own, yield any guidance what to do in some specific situation we face, and so in any practical endeavor our decisions will depend on perception, and not reason alone (cf. *EN* II.9 1109b20-23). I take passages like [17] to suggest that perception is capable of playing this practical role even when it is not perception of the best kind—and that it therefore makes an important contribution to our cognitive lives independent of its involving or promoting the development of our rational powers. And I take it this is what we should expect given what Aristotle says in passages like [7] and [14], where it’s allowed that perception might play certain key roles in all animals alike, even if humans also use it in ways nonrational animals cannot—and in light of the sophisticated uses of nonrational perception surveyed above.

I therefore think we should grant [T^o]: the best, most developed form human perception can take does involve our rational powers. But we should deny, or at least qualify, [T’]: there is good sense to be made of the claim that lesser, unintelligent forms of perception would function well, and so not be altogether deficient simply because they fall short of the most developed form perception can take.⁴¹ For the practical value of perception (and the nonrational state of

⁴⁰On this point, see for instance *APo* I.18 81a38-b9 and I.31 87b39-88a5.

⁴¹We might take this shortfall to constitute a deficiency, in which case [T’] would be correct.

experience that emerges from it) does not depend on an understanding of the universals pertinent to our practices—even if such an understanding would indeed put us in a better epistemic position, and allow for the fullest development of human perception and the sort of insight and knowing, deliberate action such perception makes possible.

If this is right, the extent to which our rationality might be said to transform perception is somewhat more modest than has often been suggested: perception can be said to function well without the involvement of reason, and its value need not be understood solely in terms of its promoting the rational modes of thought and understanding necessary for its fullest development. Thus we humans do engage in nonrational, animal forms of perception, and these lower forms of perception play an important role in our cognition—even if we can also achieve a superior kind of perceptual intelligence other animals cannot. In our next section I will consider more closely what this perceptual intelligence amounts to, and how we might understand the integrated use of perception and reason on which it depends.

5 Psychic Integration

I argued above that human perception might be unintelligent and nonetheless serve as an effective practical guide—even if, in its best form, it would implicate our rational powers. But we might worry that allowing for an unintelligent use of perception leaves it somewhat unclear why we should entertain the possibility of an intelligent kind of *perception*, rather than merely thinking of our rational powers as operating alongside our perceptual ones. That is, we might think that perception is never *itself* rational, but that it can in certain cases contribute the materials for deliberative or theoretical modes of thought, which would then yield the forms of insight or action in the cases surveyed above. On this sort of view, there would be no *integrated* use of perception and reason—the two would just be working in tandem.

Now, Aristotle never directly explains how he conceives of the cooperation between our rational and perceptual capacities. But I think there are good reasons to resist such two-track readings of the cases surveyed above. First,

What's important is that there be room for us to understand unintelligent perception as valuable in its own way, whether or not there is some sense in which it might nonetheless count as deficient (i.e. by falling short of intelligent perception, and so being what I've called *imperfect*). Aristotle's dismissive remarks about unintelligent perception and experience (e.g. in his description of manual workers at *Met* A1 981a30-b6, or at *EN* VII.6 1149a9-12) typically occur in contexts where he aims to emphasize the superior value of rational forms of understanding—and so should be taken only as evidence of unintelligent perception's epistemic value relative to such advanced knowledge, not as an indication that unintelligent perception is an inherently deficient form of cognition.

Aristotle emphasizes at *An* II.3 414b20-33 that souls are unified wholes—wholes that contain capacities but do not amount to a mere aggregate of these capacities.⁴² This suggests that at least some uses of perception in humans would have to be understood in a way that reflects the fact that perception is part of a soul characterized by its rationality, rather than just being part of a soul that also has a rational part. And the cases of intelligent perception surveyed above are natural candidates, since (I’ve argued) they reflect a distinctively human use of our perceptual capacities.

But there is some more direct evidence as well. When discussing cognitive capacities that allow us to deal with particulars, and thus with matters of practical relevance, Aristotle says the following:⁴³

[18] Intuition (*νοῦς*) is also concerned with the last things, and in both directions. For there is intuition, rather than an explanatory account (*λόγος*), of both the first terms and last things: in demonstrations intuition is about the terms that are unchangeable and first, and in practical matters intuition is about what is last and possible, and about the minor premise. For these [last things] are the starting-points of the goal, since universals are reached from particulars. We must therefore have perception of these particulars, and that perception is intuition. (*EN* VI.11 1143a35-b5)

So the grasp of particulars necessary for practical wisdom requires a certain form of *intuition*, and Aristotle tells us here that this intuition is a kind of perception.⁴⁴ He makes a similar point in an earlier passage, where he tells us that practical wisdom is concerned with “last things,” which are objects of perception (*EN* VI.8 1142a26), and goes on to specify that the perception at play is “the sort of perception by which we perceive that the last among mathematical objects is a triangle,” rather than the kind of perception by which we would perceive special sense-objects (*EN* VI.8 1142a26-29).

These remarks suggest that practical wisdom centrally involves a specific kind of perception—the kind of perception that would allow us to grasp particulars in a way that makes clear to us their practical relevance, and thus allows us to grasp the “starting-points of the goal” by recognizing (or, as Aristotle puts it here, intuiting)

⁴²See further *An* I.5 411a30-b14 and III.9 432a22-b6 for remarks in a similar vein.

⁴³Here I adapt the translation in Irwin (1999).

⁴⁴The intuition at play here is not *identical* with practical thought—and this passage should therefore not be taken to indicate that practical thought would itself be a kind of perception. As I see it, intuition does not account for deliberation as a whole (even if it does play a key role in bringing deliberative thinking to a stop—cf. *EN* III.3 1113a1-2), and so practical wisdom must require more than intuition alone—*contra* Whiting, who holds that practical thought is “the proper form (or actualization) of the orectic part of soul” (2002: 199), and McDowell, who claim that practical wisdom just is a “special perceptual capacity” ((1988: 93); see also (1998: 111)). I take the argument against such views presented in Corcilius and Gregorić (2010: 114–18) to be decisive.

certain features of our situation as salient to its pursuit. They also indicate that the kind of perception at play is analogous to some mathematician’s perception of a triangle as “the last among mathematical objects.” And the most natural way to read Aristotle’s point here is that perception plays these roles directly, rather than supplying some sort of content on which rational modes of thought might then operate. Indeed, in both practical and theoretical cases, Aristotle emphasizes the *immediacy* of our perceptual cognition: we perceive “at once” or “straight away” why glass refracts, why some eclipse occurs, or why triangles have the angular sum they do (*ἀμα*, *APo* I.31 88a16 and II.2 90a27; *εὐθύς* *Met* Θ9 1051a26), and likewise we perceive certain ethically salient features of our situation in a manner that does not require additional deliberation, or the development of some further explanation for their relevance, as Aristotle tells us in [18], and as he also suggests at *EN* III.3 1113a1-2 and VI.8 1142a29.⁴⁵ The picture Aristotle wants to resist here is one on which our acting some way or achieving some insight would depend on an additional process of reasoning to mediate our perceptions and our actions or insights, rather than resulting immediately from perception itself.

If I’m right, then, Aristotle thinks rational perception is itself rational, rather than merely being such that it promotes the use of our rational powers, or depends on their mediation to yield rational forms of action and insight. It is, admittedly, somewhat difficult to give a general description of what perception’s rationality amounts to that would account for both its practical and theoretical manifestations. But the examples surveyed above seem to me to suggest two broad ways in which the two powers would cooperate.

First, our rational powers affect perception by allowing us to perceive in a contemplative mode. All animals perceive what to do, but, as we saw, only we humans perceive in a manner that aims to work out what things are, rather than how things are to be responded to. This is the sort of orientation Aristotle alludes to in [14] and at the beginning of *Met* A1, and which is evidenced by the

⁴⁵This is not to deny that the sort of intuition described in [18] might arise in a deliberative context, when we are thinking about what to do—just as it does for the doctor who intuits she should treat the patient by rubbing them (cf. n20). What I want to resist are views on which we would not perceive (e.g.) that the patient is to be rubbed, but rather perceive certain features of the patient, and then, separately, reason out that those features indicate the patient should be rubbed. Perception, when intelligent, would itself reveal to us certain features of the patient *as salient to our end of treating them*, and present us with a specific “last step” we can bring about to realize that end (*Met* Z7 1032b9; cf. *EN* VI.8 1142a26 and VI.11 1143b3, above). I take the perceptions of the practically wise, then, to reveal to them features of their circumstances as salient to their virtuous ends, and to indicate some specific course of action as a way to realize these ends—the *best* way to realize their ends, if they are indeed practically wise, though their recognizing it as such would depend on their having deliberated about alternatives, and so would not issue *solely* from perception. For more on the relationship between intuition and its role in deliberation, see Lorenz and Morison (2019: 20–22).

delight we take in perceiving things even apart from their practical import (*Met* A1 980a20-22). I take it our rational powers in this case are meant to account for our perceiving things *as a source of understanding*: we perceive something and, in doing so, recognize what we perceive as relevant to our learning. By allowing for this recognition, our rational powers make our perceptions salient in ways they are not for other animals.⁴⁶

Second, our rational powers allow us to develop forms of practical or theoretical understanding that inform what we perceive. In the practical case, our rational powers allow us to understand why some action would be the best way to realize some end, or why certain features of our situation are relevant to its pursuit—and in the theoretical case they allow us to understand why certain things are what they are, and have the features they do. In both cases, the relevant kind of understanding informs what we perceive by allowing us to recognize something about what we are perceiving we could not recognize by purely nonrational means—to recognize, say, that some action is called for because the alternatives are inferior in some way, or conflict with our other ends, or to recognize something as an instance of some entity or phenomenon (as an *eclipse*, or as a case of *refraction*, say). So while nonrational animals might perceive that some action is called for, and attend to salient features of their environment, only we humans can perceive that some action is called for in a manner that is sensitive to the broader structure of our pursuits, and how and why we might seek to realize them, and so only we humans can respond in a knowing, deliberate way to our circumstances. And while nonrational animals might well perceive eclipses and refracting light, only we humans can perceive these things for what they are, and thereby form an insight into what explains them, and what they, in turn, might serve to explain.

That rational forms of understanding would affect perception in this second way should come as no surprise. For recall that the background knowledge of a perceiver will always inform what they recognize perceptually—as I argued above, nonrational animals also perceive in ways that are informed by the knowledge they acquire through the use of their mnemonic and associative powers, in ways that yield the kind of sophisticated responses illustrated in passages like [1], [2], and [5]. In both cases, what the perceiver recognizes perceptually will depend on some prior knowledge: past experience for nonrational animals, and an understanding of the causal structure of the world and our pursuits for intelligent human perceivers. So while the prior knowledge is quite different, the way in which it affects perception is not.

Thus our rational nature does indeed make certain forms of human perception

⁴⁶Which is of course not to deny perception is *also* practically salient for us: our rationality simply expands the modes in which perception can be used.

different from the perception available to other animals. And these forms of perception play a critical role in giving rise to distinctively human forms of theoretical insight and practical activity. But the nature of the transformation does not preclude us from sharing an important part of our cognitive lives with nonrational animals, or undermine the value of the kinds of knowledge we might acquire by purely perceptual means. As I see it, our rationality simply expands the forms of perceptual recognition available to us, and allows for our perceptual powers to take on a contemplative orientation in addition to its practical one. This, at any rate, seems to me the most promising way to account for the cases of rational perception surveyed above as well as Aristotle's emphasis on the continuity between human and animals cognition—though it might, of course, make the transformation at play in intelligent perception a somewhat less extraordinary affair than has at times been suggested.

6 Conclusion

Perception plays a number of key roles for Aristotle. He takes it to be the form of cognition that characterizes animal life. He takes it to supply the basic knowledge on which the rest of our learning depends. And he takes it to play a central role in the development and deployment of practical wisdom and craft knowledge.

In many cases, the perception at play appears to involve our rational powers, and so to be a distinctively human kind of perception. In the practical realm, we might perceive what to do in a way that reflects some understanding why we should do it, and leads to our acting in a deliberate, knowing manner. In the theoretical realm, we might perceive how things are in a way that reflects some understanding of our observation's significance to some topic of inquiry, and gives rise to some insight relevant to the topic in question—or in a way that simply reflects our interest in working out what certain things are, whether or not we already understand anything about them.

These cases have led a number of commentators to think that Aristotle takes human perception to be transformed by our rationality. But what the transformation amounts to is seldom articulated. I've argued here we should reject the more ambitious versions of the view, on which (nondeficient) human perception would always involve the use of our rational powers: human perception need not involve their use, and its independence from rational modes of thought plays an important role in various arguments Aristotle presents in his psychological, zoological, and epistemological works. This is not to say that perception is not really transformed by our rational powers—only that the transformation is not such that it would preclude nonrational forms of perception in human subjects, or make these forms of perception and the knowledge they afford us inherently

deficient ones.

Now, Aristotle doesn't directly say how we should understand the role these rational powers play, and how they exactly they would interact with their perceptual counterparts. I've sketched a few ways we might understand their cooperation, inspired by the cases of intelligent perception we find in Aristotle's works. But even setting aside the specifics, I think there is an important lesson we can draw from the broader structure of the view I've been presenting. Indeed, it's common nowadays to oppose "transformative" and "additive" conceptions of rationality, where the former would posit an essential difference between the perception of human and nonrational animals, and the latter allow for a perceptual capacity shared by both (with the addition, in humans, of rational powers that might operate in concert with it). If I'm right, Aristotle's view does not fit neatly in either camp: he does take human perception to be transformed by our ability to perceive intelligently, and takes intelligent perception to yield forms of action or insight we could not achieve by strictly perceptual means. Yet he also thinks we share an important portion of our cognitive lives with other animals, and often respond to the world as they do—and that this is not just a lamentable concession to our embodied existence, but something that affords us forms of knowledge which are, though imperfect, valuable in their own right, even apart from the role they play in our fully realizing our rational potential. It seems to me a view of this sort preserves many of the key insights motivating transformative conceptions of our rationality while also doing justice to the fact that perception is a mode of cognition we share with other animals, and so constitutes an attractive alternative to common treatments of the relationship between perceptual and rational cognition.⁴⁷

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