

Aristotle on Perception and Colours

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Uptake of Form

Perception, for Aristotle, is a natural phenomenon¹ and as such its occurrence does not require an explanation: it occurs when and because a sense-organ is altered, and a potentiality is actualised. For Aristotle, there is no additional story to tell: perception just *is* this alteration of the sense-organ.² We may, however, ask about its causes: Perception (*aisthēsis*), an alteration of the perceiver (*De An.*, II.5), is the effect of being affected by an external object, which is actually so as the perceiver (or the respective sense-organ, cf. Hamlyn (1968, 104, ad 418a3)), before being affected by it, is potentially. The things initiating the causal process of affection which is the perceiving are the proper sensibles (colours for sight, sounds for audition, flavours for taste, smells for olfaction) and, derivatively, so-called accidental unities (such as Darius-qua-white) involving them. Each sense is a potentiality / capacity / power; its essence is “naturally relative” to its objects, its proper sensibles, which (may) exist before the sense in question exists (*Cat.* 8a6-9), for “perception is hardly of itself – but there must be something else beyond the perception, and this must be prior to the perception; since what brings about change is naturally prior to what is changed, even if they are spoken of in relation to each other” (*Met.* Γ.5, 1010b35-1011a2). Sight, for example, is thus posterior to its proper sensibles, the colours.

In *De Anima* II.12, Aristotle says that a sense (*aisthēsis*: sight, hearing, smelling, taste, touch), as distinct of its sense organ (the eyes, the ears, the nose, the tongue, the skin), receives form without matter:

Καθόλου δὲ περὶ πάσης αἰσθησεως δεῖ λαβεῖν ὅτι ἡ μὲν αἰσθησίς ἐστι τὸ δεκτικὸν τῶν αἰσθητῶν εἰδῶν ἄνευ τῆς ὕλης, οἷον ὁ κηρὸς τοῦ δακτυλίου ἄνευ τοῦ σιδήρου καὶ τοῦ χρυσοῦ δέχεται τὸ σημεῖον, λαμβάνει δὲ τὸ χρυσοῦν ἢ τὸ χαλκοῦν σημεῖον, ἀλλ' οὐχ ἢ χρυσοῦς ἢ χαλκός· ὁμοίως δὲ καὶ ἡ αἰσθησίς ἐκάστου ὑπὸ τοῦ ἔχοντος χρώμα ἢ γυμὸν ἢ φόφον πάσχει, ἀλλ' οὐχ ἢ ἔχα-

στον ἐκείνων λέγεται, ἀλλ' ἢ τοιονδί, καὶ κατὰ τὸν λόγον.

In general, with regard to all sense-perception_A,³ we must take it that the sense_A is that which can receive perceptible forms without their matter, as wax receives the imprint of the ring without the iron or gold, and it takes the imprint which is of gold or bronze, but not *qua* gold or bronze. Similarly too in each case the sense_A is affected by that which has colour or flavour or sound,

1. Psychology is part of biology because all affections of the soul (*psychē*) involve the body. It is in this sense that Aristotle may be characterised as a physicalist using a much broader notion of ‘physical’ as is customary today (cf. Burnyeat (1992, 26), but cf. Shields (2016, 101) for some reservations).

2. It is important to note that Aristotle’s question is not how perception can come about, or how it can provide us with a route to the outside world. We start with an eye, which is already a part of the natural world, and note that its function, which it has essentially, is sight, i.e. the uptake of colours. That (veridical!) perception occurs is part of the data. This reductive aspect of Aristotle’s theory is rightly stressed by Everson (1997, 6): “An eye does not see in virtue of undergoing any other change – rather it sees just because its capacity for vision is activated by an object of vision.”

3. In his “Notes on the Translation”, Hamlyn (1993, xvii) says that he uses the subscript “A” to flag occurrences of *aisthēsis*, which “may be translated variously as ‘sense’, ‘perception’, perhaps ‘sensation’, etc., and is sometimes used even to refer to the sense-organ.

4. According to his “Notes on the Translation”, any word subscripted with “L” translates “logos” (1993, xvii).

but by these not in so far as they are what each of them is spoken of as being, but in so far as they are things of a certain kind and in accordance with their principle.⁴

αἰσθητήριον δὲ πρῶτον ἐν ᾧ ἡ τοιαύτη δύναμις, ἔστι μὲν οὖν ταυτόν, τὸ δ' εἶναι ἕτερον· μέγεθος μὲν γὰρ ἂν τι εἴη τὸ αἰσθητὸν μόνον, οὐ μὴν τὸ γε αἰσθητικῶς εἶναι· οὐδ' ἡ αἰσθησις μέγεθος ἔστιν, ἀλλὰ λόγος τις καὶ δύναμις ἐκείνου. (424a16-28)

It is necessary to grasp, concerning the whole of perception generally, that perception is what is capable of receiving perceptible forms without the matter, as wax receives the seal of a signet ring without the iron or gold. It acquires the golden or the metallic seal, but not in-
The primary sense-organ is that in which such a potentiality resides. These are then the same, although what is for them to be such is not the same. For that which perceives must be a particular extended magnitude, while what it is to be able to perceive and the sense_A are surely not magnitudes, but rather a certain principle_L and potentiality of that thing. (Aristotle, 1968, 42-43)

sofar as it is gold or metal. In a similar way, perception is also in each case affected by what has the colour or taste or sound, but not insofar as each of these is said to be something, but rather insofar as each is of a certain quality, and corresponding to its proportion.

The primary sense organ is that in which this sort of potentiality resides. The sense organ and this potentiality are, then, the same, though their being is different. For what does the perceiving is a certain magnitude; nevertheless being capable of perception is not; nor is perception a magnitude, but is rather a certain proportion and a potentiality of that thing. (Aristotle, 2016, 47-48)

Two features of the more general Aristotelian context make this claim less surprising that it otherwise could be: First, we have here a straightforward application of the more general hylomorphic account of change. Because the reception of the sensible form (e.g. the colour, the sound) by the animal is an alteration of the animal (*alloiōsis*) (*De An.*, II.5, 416b34), it is, like any alteration, the acquiring of a new form by some underlying thing. The underlying thing here is either the sense-organ or the sense, i.e. its capacity to sense, and the acquired form is said to be perceptible and what is ascribed to the perceptual objects *kata ton logon*, i.e. as a form. Second, that perception and all forms of knowledge more generally are 'of the like by the like' is an *endoxon*, a plausible opinion put forward by some of Aristotle's predecessors and as such discussed in the first book of the *De Anima*. We cannot presume, it seems to me, that the acquired form, *to musikon*, is what we would ordinarily think of as a property – what Aristotelian forms are should be left open at this stage of our inquiry. Whatever they are, however, they explain perception, i.e. the change in the sense: sight passes from being potentially red to being actually red by the acquisition of a new form, THE RED, by the underlying matter, i.e. the eye.

Psychological states generally have a hylomorphic structure: they are either "enmattered forms" (*logoi enuloi*) or "forms in matter" (*logoi en hulē*) (403a25), depending on the reading of the ms. (cf. Shields, 2016, 98). Such affections (*passiones, ta pathē*) allow for two different descriptions:

διαφερόντως δ' ἂν ὀρίσαιντο ὁ φυσικὸς [τε] καὶ ὁ διαλεκτικὸς ἕκαστον αὐτῶν, οἷον ὀργή τί ἐστιν· ὁ μὲν γὰρ ὀρεξιν ἀντιλυπῆσεως ἢ τι τοιοῦτον, ὁ δὲ ζέσιν τοῦ περι καρδίας αἵματος λυπῆσεως ἢ τι τοιοῦτον, ὁ δὲ ζέσιν τοῦ περι καρδίας αἵματος καὶ θερμοῦ. τούτων δὲ ὁ μὲν τὴν ὕλην ἀποδίδωσιν, ὁ δὲ τὸ εἶδος καὶ τὸν λόγον. ὁ μὲν γὰρ λόγος ὅδε τοῦ πράγματος, ἀνάγκη δ' εἶναι τοῦτον ἐν ὕλῃ τοιαδί, εἰ ἔσται. (403a29-403b3)

But the student of nature and the dialectician would define each of these differently, e.g. what anger is. For the latter would define it as a desire for retaliation or something of the sort, the former as the boiling of the blood and hot stuff round the heart. Of these, the one gives the matter, the other the form and principle_L. For this is the principle_L of the thing, but it must be in a matter of such and such a kind if it is to be. (Aristotle, 1968, 4-5)

The natural scientist and the dialectician would define each of these affections differently, for example, what anger is. The dialectician will define it as desire for retaliation, or something of this sort, while the natural scientist will define it as boiling of the blood and heat around the heart. Of these, one describes the matter and the other the form and the account. For this is the account of the thing, but it is necessary that it be in matter of this sort if it is to exist. (Aristotle, 2016, 3)

Whether or not Aristotle claims at the end of *De An.* I.1 that *all* psychological states involve matter, he certainly claims that *some* do, e.g. anger. Anger is given a hylomorphic structure: it is the boiling of the blood (material cause) and for retaliation, and hence a type of desire (final cause).

Generalising this account to perception, we may say that of some perception of red, sight is the matter and the red the form. The matter is not the eye, the sense-organ, but its capacity, sight.⁵ Whatever it is that ‘receives’ the form, is ‘acted upon’ and ‘becomes isomorphic’, it certainly is not the sense-organ (the *aisthêtêrion*), but its capacity or potential, i.e. the faculty of perception (the *aisthêtikon*) (cf. 424a24-28 quoted above). In my perception of the red of a tomato, say, my eye realises its potentiality to ‘receive’ the sensible form of the tomato: with respect to this potentiality, it is affected by the tomato insofar as the latter has a certain sensible form, even if, with respect to its matter, i.e. to what has that potentiality, it is affected by the tomato insofar as the latter has a certain matter. Matter affects the eye, form the eye’s potentiality, sight.

In a process of perceiving, sight is the matter and what is perceived is the form. This is compatible, however, with sight being the form of the eye, which is its matter:

ὁ δ' ὀφθαλμὸς ὕλη ὄψεως, ἧς ἀπολειπού-
σης οὐκέτ' ὀφθαλμὸς, πλὴν ὁμωνύμως,
καθάπερ ὁ λίθινος καὶ ὁ γεγραμμένος.
(412b20-22)

The eye is matter for sight, and if this fails it is no longer an eye, except homonymously, just like an eye in stone or a painted eye. (Aristotle, 1968, 10)

The eye is the matter of sight; if sight is lost, it is no longer an eye, except homonymously, in the way that a stone eye or painted eye is. (Aristotle, 2016, 23)

Aristotle does not just say there that the stone eye is not an eye though it may appear to be one (in the way in which a false friend is not a friend nor a fake promise a promise), but also that the stone eye is structurally, with respect to its form, ‘almost’ an eye, except that it does not have the kind of matter it needs. We thus have at least two hylomorphic layers: an eye is a pupil that sees (pupil+sight), and a seeing is sight that has a perceptible form (sight+perceptible), in the same way in which Socrates is a body that lives (body+soul) and his life is his soul that knows (soul+knowledge).

It is thus fitting that Aristotle begins his “new start” at the beginning of book II with a general statement of hylomorphism:

λέγομεν δὴ γένος ἐν τι τῶν ὄντων τὴν οὐ-
σίαν, ταύτης δὲ τὸ μὲν, ὡς ὕλην, ὃ καθ' αὐτὸ οὐκ ἔστι τόδε τι, ἕτερον δὲ μορφὴν καὶ εἶδος, καθ' ἣν ἤδη λέγεται τόδε τι, καὶ τρίτον τὸ ἐκ τούτων. ἔστι δ' ἡ μὲν ὕλη δύ-
ναμις, τὸ δ' εἶδος ἐντελέχεια, καὶ τοῦτο διχῶς, τὸ μὲν ὡς ἐπιστήμη, τὸ δ' ὡς τὸ θεωρεῖν. (412a6-11)

Now we speak of one particular kind of existent thing as substance, and under this heading we so speak of one thing *qua* matter, which in itself is not a particular, another *qua* shape and form, in virtue of which it is then spoken of as a particular, and a third *qua* the product of these two. And matter is potentiality, while form is actuality – and that in two ways, first as knowledge is, and second as contemplating is. (Aristotle, 1968, 8)

We say that among the things that exist one kind is substance, and that one sort is substance as matter, which is not in its own right some this; another is shape and form, in accordance with which it is already called some this; and the third is what comes from these. Matter is potentiality, while form is actuality; and actuality is spoken of in two ways, first as knowledge is, and second as contemplating is. (Aristotle, 2016, 22)

Aristotle compares what is added to knowledge over contemplation to the difference between sleeping and waking: unexercised knowledge is “prior in generation” to its exercise in contemplation; contemplation is the second, knowledge the first actuality of a rational animal.⁶ The latter is the first actuality of the potentiality had by someone who has a capacity for knowledge, but does not yet know (nor, a fortiori, exercise that knowledge). The soul is not just an actuality, i.e. a form, but a ‘first actuality’ of this type:

διὸ ἡ ψυχὴ ἔστιν ἐντελέχεια ἢ πρώτη σώ-
ματος φυσικοῦ δυνάμει ζῶν ἔχοντος.
(412a27-28)

Hence the soul is the first actuality of a natural body which has life potentially. (Aristotle, 1968, 9)

Hence, the soul is the first actuality of a natural body which has life in potentiality. (Aristotle, 2016, 22)

5. Shields (2016, xxxiv) makes this quite clear: “Form reception results in perception only when it occurs in a living being endowed with the capacity of perception (*aisthêsis*).”

6. We will later (on p. 5 in sct. 0.1) come back to this important conception of autonomous causation in Aristotle.

A body that has life in potentiality is a body which has organs, functionally determined parts the functions of which are to sustain what makes the body natural, i.e its inner principle of change – its soul. It is because soul and body are related as form and matter and as actuality and potentiality, that the question of their distinctness does not arise:

διὸ καὶ οὐ δεῖ ζητεῖν εἰ ἐν ἡ ψυχῇ καὶ τὸ σῶμα, ὥσπερ οὐδὲ τὸν κηρὸν καὶ τὸ σχῆμα, οὐδ' ὅλως τὴν ἐκάστου ὕλην καὶ τὸ ὄν ἢ ὕλη· τὸ γὰρ ἐν καὶ τὸ εἶναι ἐπεὶ πλεοναχῶς λέγεται, τὸ κυρίως ἢ ἐντελέχειά ἐστιν. (412b6-9)

Hence too we should not ask whether the soul and body are one, any more than whether the wax and the impression are one, or in general whether the matter of each thing and that of which it is the matter are one. For, while unity and being are so spoken of in many ways, that which is most properly so spoken of is the actuality. (Aristotle, 1968, 9)

For this reason it is also unnecessary to inquire whether soul and body are one, just as it is unnecessary to ask this concerning the wax and the shape, nor generally concerning the matter of each thing and that of which it is the matter. For while one and being are spoken of in several ways, what is properly so spoken of is the actuality. (Aristotle, 2016, 23)

If we call some natural thing, with its own inner principle of change, like Socrates “one” or a “being”, it is of this principle, his essence and substance that we speak most properly: it is *because* he has a soul that he has being (is alive) and unity (is an organic, functionally determined body). When we speak of his body, or of what he potentially is, we speak of the capacities of what he now is in actuality, i.e. we speak of a human body – absent the soul (e.g. when dead) that body would no longer be what it is, and we would call it “body” or “human body” only homonymously.

Aristotle is more interested in what perception does than he is in what perception is. The *psychē* is the “form of the living body” and thus the essence of every plant, animal and human: having a *psychē* is being alive (*De An.*, 413a21-2). Its capacities are nutrition, perception, *phantasia* and thought. Perception distinguishes animals from plants; they need it, in particular touch, the sense of food, because they have to move for food or, if stationary, will not feed unless triggered by the perception of food (Everson, 1997, 14): this is explained by the fact that perception brings with it pain and pleasure and these entail wanting, *epithumia*, which is a “desire for that which is pleasant” (*De An.*, II.2, 413b16 and II.3, 414a32).

Aristotle distinguishes different capacities, according to how ‘life’ is said in many ways – of plants, animals and humans. Nutrition, or rather the “motion in relation to nourishment, decay and growth” (413a25) is common to everything that lives.

Perception is what is primarily responsible for something to be an animal, and among the perceptive faculties mostly touch. “Touch” is understood by Aristotle in a much broader way than we do, as whatever brings us into contact with what is solid in our environment, i.e. whatever is dry, wet, hot or cold. When we perceive the dry and the hot and we desire it, we are hungry; when we perceive the cold and the wet, we are thirsty. We desire them by our desiderative faculty, which is had by anything that perceives, i.e. every animal.

The perceptual faculty presupposes the nutritive faculty in many ways: ontologically, in that nothing that perceives is unable to grow; object-wise, because the most basic form of perception (touch) is the perception of nourishment; but also constitutionally, in that the nutritive faculty is present in the perceptive one in potentiality in the way the triangle is present in potentiality in the bisectable square. Though in humans, the nutritive faculty has its actuality in perception, it is separable in plants and it is in virtue of it that they are alive. Already in plants, it makes for some kind of ‘desire’, though Aristotle is quick to point out that it is a kind of teleological function, not an exercise of the desiderative faculty:

φυσικώτατον γὰρ τῶν ἔργων τοῖς ζῴσιν, ὅσα τέλεια καὶ μὴ πληρώματα ἢ τὴν γένεσιν αὐτομάτην ἔχει, τὸ ποιῆσαι ἕτερον οἷον αὐτό, ζῶον μὲν ζῶον, φυτὸν δὲ φυτόν, ἵνα τοῦ ἀεὶ καὶ τοῦ θείου μετέχωσιν ἢ δύνανται· πάντα γὰρ ἐκείνου ὀρέγεται, καὶ ἐκείνου ἕνεκα πράττει ὅσα πράττει κατὰ φύσιν (415a27-415b2)

...for it is the most natural function in living things, such as are perfect and not mutilated or do not have spontaneous generation, to produce another thing like themselves – an animal to produce

...for it is the most natural function in living things, such as are perfect and not mutilated or do not have spontaneous generation, to produce another thing like themselves – an animal to produce

an animal, a plant a plant – in order that they may partake of the everlasting and the divine in so far as they can; for all desire that, and for the sake of that they do whatever they do in accordance with nature. (Aristotle, 1968, 17)

For the most natural among the functions belonging to living things, at least those which are complete and neither deformed nor spontaneously generated, is this: to make another such as itself, an animal an animal and a plant

a plant, so that it may, insofar as it is able, partake of the everlasting and the divine. For that is what everything desires, and for the sake of that everything does whatever it does in accordance with nature. (Aristotle, 2016, 29)

How are we to understand perception as uptake of form? Here is Shields' account:

A perceiving subject *S* perceives some sensible object *o* if and only if: (i) *S* has the capacity *C* requisite for receiving *o*'s sensible form *F*; (ii) *o* acts upon *C* by enforming it; and (iii) *C* becomes isomorphic with *o*'s sensible form by becoming itself *F*. (2016, xxxiv)

Several questionable and/or anachronistic features should be noted: it is unclear, first, whether there is some one unique thing which is *the* sensible form of *o*; "acts", second, should be understood in line with Aristotle's general (and complicated) account of causation; third, "isomorphic" should not be understood as "related by some structure-preserving one-to-one mapping", as it is understood nowadays, but as "iso-morphic", i.e. co-formed; fourth, "becoming *F*" is not necessarily a good account of what it is to become enformed by the sensible form *F* (and it may thus be highly misleading of speaking of the eye, or sight, *exemplifying* redness; on this, more below).

Aristotelian Colours

As he does in the case of change in the *Physics*, Aristotle starts his investigation of perception in *De Anima* II.5, which "seems to be a kind of alteration" (*alloiosis*), by a distinction between potentiality and actuality – when speaking about potentiality, it is true to say, as some do, that only like affects like; whereas with respect to actuality, unlike affects unlike:

διαιρετέον δὲ καὶ περὶ δυνάμειος καὶ ἐντελεχείας· νῦν γὰρ ἀπλῶς ἐλέγομεν περὶ αὐτῶν. ἔστι μὲν γὰρ οὕτως ἐπιστημῶν τι ὡς ἂν εἴποιμεν ἄνθρωπον ἐπιστήμονα ὅτι ὁ ἄνθρωπος τῶν ἐπιστημῶν καὶ ἐχόντων ἐπιστήμη· ἔστι δ' ὡς ἤδη λέγομεν ἐπιστήμονα τὸν ἔχοντα τὴν γραμματικὴν· ἐκάτερος δὲ τούτων οὐ τὸν αὐτὸν τρόπον δυνατός ἐστιν, ἀλλ' ὁ μὲν ὅτι τὸ γένος τοιοῦτον καὶ ἡ ὕλη, ὁ δ' ὅτι βουληθεὶς δυνατὸς θεωρεῖν, ἂν μὴ τι κωλύση τῶν ἔξωθεν· ὁ δ' ἤδη θεωρῶν, ἐντελεχεία ὢν καὶ κυρίως ἐπιστάμενος τόδε τὸ Α. ἀμφοτέρω μὲν οὖν αἱ πρῶτοι, κατὰ δύναμιν ἐπιστήμονες < ὄντες, ἐνεργεῖα γίνονται ἐπιστήμονες, > ἀλλ' ὁ μὲν διὰ μαθήσεως ἀλλοιωθεὶς καὶ πολλάκις ἐξ ἐναντίας μεταβαλὼν ἔξεως, ὁ δ' ἐκ τοῦ ἔχειν τὴν ἀριθμητικὴν ἢ τὴν γραμματικὴν, μὴ ἐνεργεῖν δέ, εἰς τὸ ἐνεργεῖν, ἄλλον τρόπον. (417a21-417b1)

But we must make distinctions concerning potentiality and actuality; for at the moment we are speaking of them in an unqualified way. For there are knowers in that we should speak of a man as a knower because man is one of those who are knowers and have knowledge; then there are knowers in that we speak straightaway of the man who has knowledge of grammar as a knower. (Each of these has a capacity but not in the same way – the one because his kind, his stuff, is of this sort, the other because he can if he so wishes contemplate, as long as nothing external prevents him.) There is thirdly the man who is already contemplating, the man who is actually and in the proper sense knowing this particular *A*. Thus, both the first two, < being > potential knowers, < become actual knowers >, but the one by being altered through learning and frequent changes from an opposite direction, the other by passing in another way from the state of having arithmetical or grammatical knowledge without exercising it to its exercise. (Aristotle, 1968, 23)

One must also draw a distinction concerning potentiality and actuality. For we have just now been speaking of them without qualification. In the first case, something is a knower in the way in which we might say that a human knows because humans belong to the class of knowers and to those things which have knowledge; but in the second case, we say directly that the one who has grammatical knowledge knows. These are not in the same way potential knowers; instead, the first one because his genus and matter are of a certain sort, and the other because he has the potential to contemplate whensoever he wishes, so long as nothing external hinders him. Yet another sort of knower is the one already contemplating, who is in actuality and strictly knowing this *A*. In the first two cases, then, those knowing in potentiality come to be knowers in actuality, but the first one by being altered through learning, with frequent changes from a contrary state; and the other, from having arithmetical or grammatical knowledge and not actualizing it to actualizing in another way. (Aristotle, 2016, 33)

Aristotle here contrasts two transitions, both from (some) potentiality to (some) actuality:

episteme Humans are by their nature potentially knowers, i.e. possessors of knowledge (*episteme*); their being knowers is the actualisation of a potentiality which they have by nature, in virtue of MAN being RATIONAL ANIMAL. In this sense, all animals are perceivers, in virtue of ANIMAL being PERCEIVING LIVING THING. It is also in this sense that anything red is seen as red, for RED IS APPEARING RED.

theoria Someone who has acquired knowledge becomes able to exercise it in contemplation (*theoria*): when someone knowingly contemplates, e.g. by speaking or by solving a mathematical problem, she actualises, i.e. practices a skill she has previously acquired. In humans, such exercise is subject to the will, but not so in other animals: in such animals, the capacity will be triggered autonomously in the absence of interfering factors, in virtue of the capacity being natural, i.e. pertaining to the nature of the animal. It is in this sense that animals see red, just by laying their eyes upon something red, in the absence of interfering factors; and it is in this sense that something red comes to be seen as red, under the right circumstances.

Even though the first change is grounded in the nature of the thing changing (the actualisation of the potential is the realisation of the teleological function of the animal in question), it is a real change, “from an opposite direction”, i.e. an alteration of the changing thing. The second change, which happens autonomously in the absence of interfering factors, is not a real change, but the mere making manifest of a pre-existing and prior ability. When my eye meets the red tomato, my seeing it and it’s being seen by me are not real changes: I was already there to see it this way and it was there to be seen by me in this way.

The objects of perception are either perceived in virtue of themselves (*kath’hauta*) or accidentally (*kata sumbebekos*) (*De An.*, II.6). Among the first are the proper sensibles (“that which cannot be perceived by any other sense”, colour of sight, sound of hearing, odour of smell, flavour of taste, that to which “the essence of each sense is naturally relative”) and the common sensibles (movement, rest, number, figure, magnitude). The second are accidents of the thing that one perceives and that is the object of perception as such: in this second sense, not only the white thing, but also the son of Diaries may be called “object of my perception” (*De An.* II.6, 418a7-25), the colour and the accidental sensible (the son of Diaries) forming an “accidental unity” (ie. white son of Diaries). The sense-organ is not affected by Darius, or any other physical object, but by Darius-qua-white.⁷

We have already seen that what actualises its potentiality to see red is not the eye but *its* potentiality (to see red), i.e. sight. Interestingly, Aristotle draws a corresponding distinction on the object-side of the perception relation: what is seen is not the object itself but its visible appearance, i.e. what Aristotle calls a “proper sensible”:

Λεκτέον δὲ καθ’ ἑκάστην αἰσθησιν περὶ τῶν αἰσθητῶν πρῶτον. λέγεται δὲ τὸ αἰσθητὸν τριχῶς, ὧν δύο μὲν καθ’ αὐτὰ φαινομένη αἰσθάνεσθαι, τὸ δὲ ἓν κατὰ συμβεβηκός. τῶν δὲ δυσὼν τὸ μὲν ἴδιόν ἐστιν ἑκάστης αἰσθήσεως, τὸ δὲ κοινὸν πασῶν.

We must speak first of the objects of perception in relation to each sense_A. But objects of perception are so spoken of in three ways; of these we say that we perceive two in themselves, and one incidentally. Of the two, one is special to each sense_A, the other common to all.

In the case of each sense, it is necessary to speak first about perceptible objects. Perceptible objects are spoken of in three ways: in two cases we say perceptible objects are perceived in their own right, and in one co-incidentally. Of the first two, one is exclusive to an individual sense and the other common to them all.

7. Hamlyn remarks ad loc: “It is noteworthy here that Aristotle turns the conceptual point about the connexion between a sense and its object into one concerned with matters of fact, ie. one about what affects a given sense.” (Hamlyn, 1968, 107) I think this gives us further reason not to take the connection to be conceptual.

λέγω δ' ἴδιον μὲν ὃ μὴ ἐνδέχεται ἐτέρα
αἰσθῆσει αἰσθάνεσθαι, καὶ περὶ ὃ μὴ ἐν-
δέχεται ἀπατηθῆναι, ὅσον ὄψις χρώματος
καὶ ἀκοὴ φόφου καὶ γεῦσις γυμοῦ, ἢ δ'
ἀφῆ πλείους [μὲν] ἔχει διαφοράς, ἀλλ'
ἐκάστη γε κρίνει περὶ τούτων, καὶ οὐκ
ἀπατᾶται ὅτι χρῶμα οὐδ' ὅτι φόφος, ἀλλὰ
τί τὸ κεχρωσμένον ἢ ποῦ, ἢ τί τὸ ψοφοῦν
ἢ ποῦ. τὰ μὲν οὖν τοιαῦτα λέγεται ἴδια
ἐκάστης [...]

I call special-object whatever cannot be perceived by another sense_A, and about which it is impossible to be deceived, e.g. sight as colour, hearing sound, an taste flavour, while touch has many varieties of object. But at any rate each judges about these, and is not deceived as to the fact that there is colour or sound, but rather as to what and where the coloured thing is or as to what or where the object which sounds is. [...]

By exclusive I mean what cannot be perceived by another sense and about what one cannot be deceived. For example, sight is of colour, hearing is of sound, and taste is of flavour, whereas touch has a number of different objects. In any case, each sense discerns these and is not deceived that there is colour or that there is sound – as opposed to what or where the coloured or sounding thing is. [...]

κατὰ συμβεβηκὸς δὲ λέγεται αἰσθητόν,
ὅσον εἰ τὸ λευκὸν εἶη Διάρους υἱός· κατὰ
συμβεβηκὸς γὰρ τούτου αἰσθάνεται, ὅτι
τῷ λευκῷ συμβέβηκε τούτο, οὗ αἰσθάνε-
ται· διὸ καὶ οὐδὲν πάσχει ἢ τοιοῦτον ὑπὸ
τοῦ αἰσθητοῦ.

An object of perception is spoken of as incidental, e.g. if the white thing were the son of Diaries; for you perceive this incidentally, since this which you perceive is incidental to the white thing. Hence too you are not affected by the object of perception as such.

Something is said to be an object of perception co-incidentally if, for example, the white thing should be the son of Diaries. There is co-incident perception of him, because he coincides with the white thing, of which there is perception. For this reason, one is not affected by an object of perception insofar as it is such a thing as the son of Diaries.

τῶν δὲ καθ' αὐτὰ αἰσθητῶν τὰ ἴδια κυ-
ρίως ἐστὶν αἰσθητά, καὶ πρὸς ἃ ἡ οὐσία
πέφυκεν ἐκάστης αἰσθήσεως. (418a7-
25)

Of the objects which are perceived in themselves it is the special-objects which are objects of perception properly, and it is to these that the essence of each sense_A is naturally relative. (Aristotle, 1968, 25)

Among things perceived in their own right, exclusive objects are properly perceptible objects; and it is to these that the essence of each sense is naturally relative. (Aristotle, 2016, 34-35)

Aristotle here draws a threefold distinction in terms of two distinctions, between *per se* (*kath'hauto*) and *incidental* (*kata sumbebekos*) perception, and between its *proper* (*idion*) and *common* (*koinon*) objects:

kath'hauto, idion These are the so-called “proper sensibles”: they are perceived in their own right (directly, not by their appearances being perceived) and by just one sense only. While we can both hear, smell, taste and touch the tomato, the colour of the tomato is such that it can only be seen.

kath'hauto, koinon Of these so-called “common sensibles”, Aristotle lists here five: motion, rest, number, shape, magnitude. Motion, for example, is “an object for perception for both touch and sight” (418a19-20).

kata sumbebekos Things seen ‘incidentally’ or by ‘coincidental perception’ include things such as the son of Diaries. The son of Diaries is white – coincidentally, that is: accidentally and by way of having the white as a quality. The white or perhaps this white is a proper object of perception, and as it coincides with the son of Diaries, ‘through it’ the man is seen as well.

The proper sensibles are specific to each sense and are, *by that sense*, always perceived veridically and *kath'hauto*; they determine their sense, but are not determined by it: the essence of their sense is “naturally relative to them” (*De An.*, II.6, 418a24).

The perceptions of proper sensibles are almost always true, in the sense that the sense proper to the sensible is not deceived, though some belief based on the true perception may still be false (Everson, 1997, 19):

Aristotle’s claim that we cannot be deceived in our perception of the proper sensibles is not the weak claim that our beliefs about our own experience are incorrigible but the strong claim that, in respect of the proper sensibles, our senses guarantee a truthful report of our perceptual environment. (Everson, 1997, 20)

While perception and the perceptible are correlatives (*Cat.* 7), the relation is not symmetric, but directed *from* the perceptible objects *to* the perception, because the former, but not the latter, could

exist in the absence of the other one (*Cat.* 8a6-9): the perceptible objects themselves are the agents of perception (*Met.*, *Γ.* 5, 1010b35-1011a2), and the capacity they actualise when they act upon perceivers is grounded in non-dispositional properties: “the proper sensibles will bring about perception in virtue of being what they are: they are intrinsically such as to produce the relevant changes in the organs” (Everson, 1997, 29).

To posteriority of the senses to their *kath’hauta* objects, the proper sensibles, does not make the latter in any way ‘internal’ to or ‘subsist in’ the former.⁸ It rather constrains their material constitution:

The organ [of sight] needs to be transparent because [...] it is the transparent which, because it is colourless, is receptive of colour [...]. Coloured substances and transparent substances thus stand as agents and patients *kath’hauta*: it is the nature of colour to produce change in what is transparent – just as it is in the nature of what is transparent to be affected by colour. (Everson, 1997, 80)

The proper sensibles are thus *kath’hauto* causes of a change in a perceiving body – a change which is the perception. In all types of perception, the medium is that of a transmission of form. It is a form that is taken on in the alteration of the sense that is the perception. This is put in terms of “things in so far as they are of a certain kind” in passage quoted above (*De An.*, II.12, 424a17).

In the visual perception of a red surface, e.g., the eye is the matter, and redness its form. Redness, however, as the proper sensible of sight, is an external object, and a particular (*De An.*, II.5, 417b16). It is “capable of setting in motion that which is actually transparent, and this is its nature” (*De An.*, II.7, 418a26). That only the form, but not the matter of the red object is received, makes it a form of perception; plants, which do not perceive, lack this differential ability because they do not have sense-organs and thus no senses.

Of the nature of (some particular) redness, a proper sensible of sight, we are given the following picture: it is a form of an external object, which exists prior to and independently of our perceiving it. Because it is capable of setting air, which is a medium of sight, into motion, it may be received by a sense, i.e. sight, the nature of which it is to be receptive to it, i.e. potentially red. When the red object is perceived, it shares its form with the eye – the sense (sight) is affected by the essence of the proper sensible, while the sense-organ is affected in the sense of being of a certain extended magnitude. The sense-organ (eye) and the sense (sight) are “the same, although what it is for them to be such is not the same” (*De An.*, II.12, 424a17): sight is a potentiality of the eye, its function and essence; it is sight that becomes red, i.e. is affected only by the form (of the red object), while the eye, which is affected in a different way, is in relation not just to the form, but also the matter of the red object, the bearer of e.g. the reflectance properties that causally explain why it is red I see.⁹

So redness is a way for sight to be!

But do we not see other things than colours and shininess, as e.g. “size and shape, motion or rest, texture, depth, or the location of things” Sorabji (1974, 80)? Yes, Aristotle would say, we do see them, but not *kath’hauto*, but instead by seeing colours (or shininess).

The difference between (*kath’hauta*) and (*kata sumbebekos*) perception is very important for an account of the perceptual medium. The medium of sight is that which is transparent; it is set into motion by colours, and then becomes light. Because light is a sort of colour of the medium, we also

8. Everson (1997, 31–32) argues against Hamlyn (cf. his comments on p. 105 of Hamlyn (1968)) and Sorabji (1971, 81) that the dependence of the sense on its objects is not definitional, logical or grammatical, but causal. This also defuses the worry that Aristotle’s priority claim is implausible for the case of touch, the objects of the latter to be too varied to define the sense of touch (Hamlyn (1968, 105–106) and Sorabji (1971, 81)).

9. This interpretation makes best sense of the otherwise quite enigmatic beginning of II.12, of which I have not been able to find a convincing interpretation. Hamlyn’s use of scare quotes is telling: “Aristotle goes on to ‘explain’ the reception of form in terms of the affection of a sense by things in virtue of their form, i.e. in perception the sense is affected by an object just in so far as it is of the relevant form and not because it is what it is.” (Hamlyn, 1968, 113, ad 424a17)

see the medium, even though it is “not strictly speaking visible in itself” (*De An.*, II.7, 418b3), we see it because “the colour of each thing is always seen in light”. Like sight, audition is a relation between two things through a medium: “actual sound is always of something in relation to something and in something” (*De An.*, II.8, 419b9). For the perception of sounds, the medium plays a more active role than for the perception of colours: the differences between densities of quantities of air helps explain the diversity of sounds.¹⁰ Aristotle goes as far as *identifying* the sound with the movement of the air (*De An.*, II.8, 420a19)

Like sound, odour moves an intervening medium (*De An.* II.7, 418a22), and as with sounds, the movements of this medium are identified with the odours smelt (the proper sensibles of the sense of smell). The only sense that apparently does not require an external medium is touch, of which taste is a special kind. The medium of touch (and taste) is flesh, and of taste particularly the flesh of the tongue. The medium is touched as well, though it is not itself active, as are the media in the case of sight, audition and smell.

It is not strictly speaking true that *colours* are the proper sensibles of sight:

Ὅ μὲν οὖν ἔστιν ἡ ὄψις, τοῦτ' ἔστιν ὁρατόν, ὁρατὸν δ' ἔστι χροῶμα τε καὶ ὁ λόγῳ μὲν ἔστιν εἰπεῖν, ἀνώνυμον δὲ τυγχάνει ὄν· δῆλον δὲ ἔσται ὁ λέγομεν προσελθοῦσι. τὸ γὰρ ὁρατόν ἐστι χροῶμα, τοῦτο δ' ἔστι τὸ ἐπὶ τοῦ καθ' αὐτὸ ὁρατοῦ· καθ' αὐτὸ δὲ οὐ τῷ λόγῳ, ἀλλ' ὅτι ἐν ἑαυτῷ ἔχει τὸ αἴτιον τοῦ εἶναι ὁρατόν. πᾶν δὲ χροῶμα κινήσιον ἔχει τὸ αἴτιον τοῦ εἶναι ὁρατόν. πᾶν δὲ χροῶμα κινήσιον ἐστὶ τοῦ καθ' ἑνέργειαν διαφανοῦς, καὶ τοῦτ' ἔστιν αὐτοῦ ἡ φύσις· διόπερ οὐχ ὁρατὸν ἄνευ φωτός, ἀλλὰ πᾶν τὸ ἐκάστου χροῶμα ἐν φωτὶ ὁράται. (418a26-b3)

That of which there is sight, then, is visible. What is visible is colour and also something which may be described in words_L, but happens to have no name; what we mean will be clear as we proceed. For the visible is colour, and this is that which overlies what is in itself visible – in itself visible not by definition_L, but because it has in itself the cause of its visibility. Every colour is capable of setting in motion that which is actually transparent, and this is its nature. For this reason it is not visible without light, but the colour of each thing is always seen in light. (Aristotle, 1968, 26)

That of which there is sight is the visible. The visible is both colour and something which it is possible to describe in words, but which has no name. (What we mean will be clear as we proceed.) The visible is colour, and that which is on the surface of what is visible in its own right – in its own right not by definition, but because it contains within itself the cause of its being visible. Every colour is capable of setting in motion that which is actually transparent; and this is its nature. Consequently, nothing is visible without light. Rather, the colour of each thing is always seen in light. (Aristotle, 2016, 35)

Such a conception of colours as the proper sensibles of sight¹¹ is realist in at least three different, interlocking, ways:

- The form RED is a form of mind-independently existing objects and is the actualisation of a power they have independently of being perceived.
- The actualisation of the form RED does not depend on and is not brought about by perception; RED is actualised by light, the medium of sight, and the way it is actualised is ‘reciprocal’ to the power of light to make things visible, not the power of perceivers to see; RED is essentially visible, but not essentially seen.
- In perception, the perceiver is passive; the change that is perception occurs in the perceiver; the perceived object and its colour do not change in perception: nothing mind-independent is altered when and because perception occurs.

Aristotelian colours are not, however, objective in Burge’s sense. They are ‘constitutively explained’ by what it is to see them; the account of their nature essentially mentions human perception, and human perception is *essentially* veridical:

The constitutive explication takes the direction of the constitution relation to be asymmetric. The standards for being veridical that are parts of the natures of perceptual

10. In principle, such an account would seem to be possible for the visual case too: in this way, Aristotle could explain (at least some) visual illusions in terms of the perceptual medium.

11. Rather than of colours we should speak here of “chromatic profiles”, so as to preserve Aristotle’s claim that they are the proper sensibles of sight: we also see black and white things, transparent things and things that do not have surfaces, such as shadows, holes, holograms and rainbows. I will ignore this complication in the following.

states are constitutively dependent on attributes in the environment. The attributes in the environment are not constitutively dependent on those veridicality conditions. (Burge, 2010, 86)

In contrast to this picture, an Aristotelian view will hold that what is seen and the seeing of it are not just mutually interdependent, but that they stand in a relation of mutual grounding: what is seen is essentially visible and of a nature fully actualised only in normal human perception, while normal human perception is what it is in virtue of its power to fully realise what is there to be seen.

This essential interdependence of colours and normal human sight is compatible, however, with human perception being objective in the sense in which objectivity is *produced* by the visual system itself:

Objectivity is the product of separating what occurs on an individual's sensory surfaces from the significance of those stimulations for specific attributes and particulars in the broader environment. In this way, perception is the product of objectification. (Burge, 2010, 400)

From an Aristotelian perspective, objectification occurs in incidental perception, in the step from the seeing of the white of Darius to the seeing of white Darius, via the seeing of Darius-qua-white. Even though colours are not response-dependent in the usual, counterfactual way, they are still essentially tied to how they look to us, to objective but relational appearance properties:

The reference-fixing responses in us *a priori* associated with a secondary property are constitutive of the essence of the property; the property is, constitutively, a disposition to actually cause those properties. (García-Carpintero, 2007, 23)

The reference-fixing responses in us are appearance-properties, properties had by mind-independent things in virtue of how we see them. Such perspectival appearance properties will not be features of perspective-independent things, but rather of appearances, appearances *of* perspective-independent things, to be sure, but not things that are themselves independent of perspectives. It is the appearance of the stick half-immersed in water that looks bent-from-here and the same appearance that may look straight-from-here with respect to some other location or observer. It is the change in appearance that is responsible for the fact that once the stick is taken out of the water and seen by both of us in clear air, it may no longer be said to appear bent in any sense. Because appearances are grounded in the things appearing, together with their environment, they are appearances of things – things with which we are in perceptual contact when we perceive the appearances.

There is still a distinction between proper and common sensibles to be drawn, however:

“What puts vision apart from hearing, smell, and taste is that we do not conceive of the visible world as offering us objects of visual awareness and attention distinct from (but coincident with) the concrete objects that we also see.” (Martin, 2010, 187), citing O’Shaughnessy (2000, 571–572)

The chromatic profile of a coloured thing (its visual appearance, its look) is more closely tied to it than its taste or its visual shape: the being-the-appearance-of relation here is not causal, but constitutive. Looks are nothing but looks of things, i.e. things looking a certain way. In other terms: for *a* to have a visual look that appears red is both, for the look to be red and for the thing itself to appear red. Two possible sources of error present in the case of taste are thereby eliminated: it is not possible that only its look, but not the thing looking a certain way appears red, and the look itself cannot just appear red but fail to be red.

Representation by Exemplification

If perception is alteration, then in what does this alteration consist? It is on that question (which, for reasons laid out above, is quite tangential to Aristotle's main interest in *De Anima*) that an influential debate of interpreters has focussed:

- According to the 'literalist' interpretation of Aristotle (Slakey (1961), Sorabji (1974, 1992), Everson (1997)), "when a sense organ is activated and perception occurs, the organ is altered so that it literally becomes like its (proper) object: it takes on the property of the sensible which affects it" (Everson, 1997, 10). The material alteration of the body by perception is either identical with (Slakey, 1961, 481) or constitutes (Sorabji, 1974, 55) the perceptual activity.
- According to the 'spiritualist' interpretation (Burnyeat, 1992, 21), the change is a "becoming aware of some sensible quality in the environment". Shields (2015, 50) says that the sense organ will symbolize sensible qualities in one way or another.

But what does this mean? *How* does the eye do its symbolising?

The circularity of Burnyeat's 'spiritualist' account becomes apparent when he says (italics mine): "...receiving the warmth of a warm thing without its matter means becoming warm without really becoming warm; it means registering, noticing, or *perceiving* the warmth without really becoming warm" (1992, 24)

Hamlin puts much stress on the fact that the actualisation which is the alteration of the sense-organ that occurs in perception is of a *hexis*, not of a *dunamis*. CHECK

Contrary to Perler (2002, 13), this is not primarily the question whether perception is an at least partly physiological or entirely immaterial transmission of form. Neither do I think that it is helpful to contrast the literal with the 'representational' becoming red of the sense organ (Shields, 2015, 48): the choice is between two types of representation: by exemplification, or by some other, less direct, means.

I also think that it is beside the point to point out that exemplification is not *sufficient* for representation (Shields, 2015, 49): of course it is not, only exemplifications of red in some kind *linked to* others represent something as being red.

It is also beside the point to support the non-sufficiency claim by attentional phenomena: "That [literal alteration is sufficient for perception] seems an odd and unsustainable claim, since, for example, my flesh can become warm without my perceiving warmth; indeed, the view thus interpreted seems to entail that I perceive every sensible quality in whose presence I find myself, with no allowance for the phenomena of selective attention, inattention, distraction, and the like." (Shields, 2015, 49) Attention is a passive faculty: it presupposes some content already independently available.

The question rather is: in virtue of what does the perceiving animal, or its eye(s), represent the apple as red? Aristotle's answer is: because of the nature of redness, and the eye's nature of being receptive to it.

It is not immediately clear that this very un-orthodox theory of perception is afflicted by the main problem of its contemporary descendant: the argument from illusion, which crucially depends on 'finding a home for' what we merely seem to see in illusionary cases.

This theory combines two very attractive features: a naturalistic account of the experience we undergo when and because we perceive, and an explanation how perception and its objects may be mutually dependent and 'correlative', without making the objects 'subjective' or dependent on their being perceived.

Burnyeat (1992) thinks that the Aristotelian theory of perception needs not to be taken seriously because it presupposes something like perspectival facts:

One might say that the physical material of animal bodies in Aristotle's world is already pregnant with consciousness, needing only to be awakened to red or warmth. (1992, 19)

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