

COSMIC ORDER AND PERCEPTUAL ORDER, ACCORDING TO ARISTOTLE

0 The general framework of the problem

1A cosmic order *De generatione et corruptione* II 10, 336a34-b4

1B the order of each living being *De anima* II 2, 414a12-14

1C regular habitudes

a *Historia animalium* IX 1, 608a11

b *Ethica Nicomachea* II 1, 1103a17-18

1D how regular habitudes produce an order: perceptual *habitus*

a *De divinatione* 1, 464a32-b1, b4-5

b *De anima* III 1, 425b6-9

c *De insomniis* 2, 460b23-25

2 the second source of perceptual order: the unity of perception

a *De somno et vigilia* 2, 455a12-26

b *De insonniis* 3, 461b3-6

c *De generatione animalium* V 1, 779a14-16

3 why the world (and the animals that live in it) are ordered beings?

a *Metaphysica* XII 7, 1072b3-4

b *Metaphysica* XII 10, 1075a16-19

0. THE GENERAL FRAMEWORK OF THE PROBLEM

A huge section of Aristotle's main psychological work, the *De anima*, is devoted to the study of sensation/perception. In the *De anima* we find a theory about the five senses, each defined by the kind of sensible quality

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that it grasps¹ (colour for sight, sound for hearing, odour for smell, flavour for taste, hot cold dry moist for touch: these are the kinds of sensible that Aristotles calls “proper” to each sense²), some very debated passages³ about the perception of environmental characters that are not reducible to these five kinds of sensibles, and whose perception is common to all senses⁴, and other passages, about the perception that animals (and human beings, which are animals) exercise about the objects in the world (f.i. other animals, plants, stones, mountains, etc.) of which the proper sensibles are properties (one thing is to see red, a quite different thing is to see that red as the red of a blood spot).

The entities that belong to this last kind act on the animal’s sense organs, according to Aristotle, just because among their properties there are proper sensibles (f.i. red) and common ones (f.i. a shape)⁵. So, how can the perception of a blood-spot happen, if such a perception is something different from the sensation of red? How can it happen that a hound, above smelling that odour, perceives the boar whose odour that odour is odour?

My interpretation of this Aristotlian doctrine will use the notion of ‘order’ at two levels: **(1A)** the world is something ordered (*kòsmos*); **(1B)** each single animal, with its own sensory faculties, is something ordered (it has a form, *èidos*, which is its soul, *psyché*⁶; soul that is a power to exercise some activities, *enèrgeiai*, that, as expressions of that kind of order which is the *psyché*, will be ordered); **(1C)** the interactions between the world, in itself ordered, and the sentient body of the animal, in itself ordered, are the sensations (*aisthéseis*), that, as interactions between two ordered beings, will follow some statistically regular patterns (to a sentient body of a given nature will usually happen to be in some given situations in which it’s normal to exercise sense-powers about some given kinds of items); **(1D)** the results of sensory acts are the sensory states (*aisthémata*) that, when the acts of sensation end, will remain (and in this case they are called “*phantàsmata*”) and will be stored, and will be re-activated (when they will

¹ Cf. *Cat.* 7, 7b36; *An.* II 11, 422b23-24.

² Cf. *An.* II 6, 418a11-12.

³ *An.* II 6, 418a17-20; III 1, 425a14-b11.

⁴ The so called “common sensibles” (*An.* II 6, 418a19).

⁵ *An.* II 6, 418a20-24.

⁶ Cf. *An.* II 1, 412a19-21.

be re-activated) according to an order that mirrors the order of the originary sensations, making the animal able to re-cognize the objects; (2) the sentient body (the animal) is so structured as to be able to co-ordinate *aisthémata* and *phantasmata* in a way that makes it able to build a consistent image of the environment in which it happens to it to be; this happens because (3) animal nature, just like everything in the world, shares that *being ordered* which is shared by everything in the physical world on account of the dependence of the physical world itself from the perfection of the unmoved mover.

The perceptual order of each animal, and so the sum of its actions that results from the cooperation of these two kinds of order (1+2), is therefore the effect of a superior order.

1A

De generatione et corruptione II 10, 336a34-b4

ανάγκη γάρ, εἴ γε ἀεὶ ἔσται συνεχῆς γένεσις καὶ φθορά, ἀεὶ μὲν τι κινεῖσθαι, ἵνα μὴ ἐπιλείπωσιν αὐταὶ αἱ μεταβολαί, δύο δ' ὅπως μὴ θάτερον συμβαίνει μονον. τῆς μὲν οὖν συνεχείας ἢ τοῦ ὅλου φορὰ αἰτία, τοῦ δὲ προσιέναι καὶ ἀπιέναι ἢ ἔγκλισις.

Infact, it's necessary, if there will always be a continuous generation and corruption, that always something is moved, in order that these changes never stop; and [it's necessary] that [this thing] is moved according to two movements, so that there isn't just one of these two [changes]⁷. Of the movement's being continuous the cause is universe's local movement; of the coming close and going away [from Athens⁸] the cause is the bending⁹.

Aristotle thinks that the Earth with its atmosphere, its seas, and all the living beings that live in these environments, is continuously changed

⁷ I follow here Joachim's interpretation (1926, 1999, *ad 36b2*).

⁸ Or from any given point of Earth's surface. Cf. Joachim, *ad 36b3-6*. The Sun's coming close to and going away from a given point of the Earth's surface is, according to Aristotle, the cause of the prevailing of coming-to-be in Spring and of the prevailing of passing-away in Autumn, in that given point of the Earth.

⁹ *Int.* the ecliptic's inclination in respect of the equator. This inclination is the cause of the Sun's coming towards North in Winter and Spring and going away from North in Summer and Autumn, and therefore of the four seasons.

according to cycles of change, cycles whose number is infinite in the past and in the future: where there was a mountain there is now a plain, because the mountain has been brushed by rains; but there is now an other mountain, where the rivers have brought the relics of the first mountain; two dogs, or two human beings, die, but they have begotten kittens, or children, which, on their turn, will beget other specimens of their species, before they die, etcetera.

There are, therefore, two things that one should explain: why the single parts of the universe come to be and pass away (and don't endure for ever); and why, regardless this continuous change, the sum of all things (the universe) preserves the order that is its own identity. Aristotle's idea is that the cause of the first fact is the climatic change that occurs in the atmosphere of each part of the Earth's surface on account of the seasonal coming-close and going-away of the Sun; and that the cause of the second fact is the fact that there is a movement (the movement of the last heaven) which is the same every day. These two movements produce some effects here on Earth: the movement of the Sun (coming-close and going-away), produces alternate effects of generation and corruption; the movement of the last heaven, that never changes its speed or direction, and that brings with itself the planets (among which is the Sun) is the cause of the permanent order of the universe.

Aristotle thinks that the main changes that occur every day here on the Earth can be explained on account of the cyclical and ordered whirling of the whole cosmos.

1B

De anima II 2, 414a12-14

ἡ ψυχὴ [...] λόγος τις ἂν εἴη καὶ εἶδος

the soul [...] will be a *lògos* and a form

The soul is, according to Aristotle, the form of the living body: not its sensible shape; rather, the ordering principle of the sum of its functions and activities. The soul is the organization by virtue of which the living body can perform some activities and not some others, and that identifies that

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living body as a living body (and not as a not-living one) and as a living body of a given kind (animal and not plant, dog and not cat). My soul doesn't set from the beginning of my life what I will do; but sets from the beginning of my life what I will be able to do as a human being: my soul is therefore a set of powers (*dynàmeis*); and each one of these powers is the power to perform some given activity (*enèrgeia*). Every action performed by the living being is an expression of its soul, and is therefore an expression of the order that the soul dictates to the body. In the case of an animal, that is different from plants because it's able to perceive, and that is defined as *animal* in the genus *living-being* by its own sensory power¹⁰, the main expression of its soul is the act of sensation. The act of sensation is therefore the main expression of the order (coordination among physical parts, ordered succession of steps of growth and decay, of waking and sleep, etc.) that is typical of some bodies on account of their souls.

1C

a *Historia animalium* IX 1, 608a11
 τὰ δ' ἦθη τῶν ζῴων ἐστὶ κτλ.
 The beasts' characters etc.

b *Ethica Nicomachea* II 1, 1103a17-18
 ἡ δ' ἠθικὴ [scil. ἀρετὴ] ἐξ ἔθους περιγίνεται, ὅθεν καὶ τοῦνομα ἔσχηκε μικρὸν παρεκκλίνον ἀπὸ τοῦ ἔθους.
 the [virtue] of the character [éthos] is a result of habitude, from which has taken the name too, on account of a little change from "habitude" [éthos].

Animals (not only human beings) have characters, and characters are produced by habits. It's clear, therefore, that Aristotle admits that some non-human animals have habits. In the book IX of the *Historia animalium* we read that these habits concerne *both* kinds of actions that some given kind of animal uses to perform *and* kinds of places in which this or that kind of animal uses to live; we can say that these habits relate to the situations in which to the animal happens for the most part to be. To admit that animals of a given kind use to be in situations of a given kind (and not in situations of some other kind) is quite obvious for Aristotle, because the situations in

¹⁰ Cf. *PA*. II 1, 647a21; III 4, 666a34; *GA*. I 23, 731b4-5.

which to the animal happens to be stem from the causal interactions between two never changing entities: the universe and the soul of that animal.

If an animal of a given kind will be for the most part in situations of a given kind, it will exercise its sensory powers for the most part about that kind of situations.

Therefore, the animal will store perceptual states (*aisthémata* that, after the end of the sensations/perceptions, are *phantàsmata*) that concern mainly that kind of situations.

1DA

a *De divinatione* 1, 464a32-b1, b4-5

οἱ δὲ μελαγχολικοὶ [...] διὰ τὸ μεταβλητικὸν ταχὺ τὸ ἐχόμενον φαντάζεται αὐτοῖς· melancholic people [...] on account of [their] disposition to change, rapidly what follows [in the series of *phantasiai*] appears to them;

ἔτι δὲ διὰ τὴν σφοδρότητα οὐκ ἐκκρούεται αὐτῶν ἡ κίνησις ὑφ' ἑτέρας κινήσεως.

And, on account of [its] strenght, the [phantastic] movement is not repelled by any other movement.

It seems, from this text, and from the whole of *De insomniis*, that Aristotle believed that the *phantàsmata* come to be re-activated not randomly, but according to an order¹¹. Why do the *phantàsmata* stored during the various acts of sensation produce an organized *habitus*?¹² Situations that happen in a given succession produce, in the animal, *phantàsmata* whose mutual relation is a succession analogous to the succession holding between the situations by which the *phantàsmata* were produced. The happening of new and new situations produces a phantastic *habitus* that reproduce the unchanging features of the environment with increasing articulation and faithfulness.

The moist complexion of melancholic people perturbs the flux of their blood; *phantàsmata* are in the blood; the turbulence in the blood mixes the

¹¹ Cf. “what follows”.

¹² Cf. *Mem.* 2, 451b10-14, 452a26-27; *Sens.* 5, 444a1-3.

phantàsmata in a lot of new combinations: each *phàntasma* rapidly brings with itself the subsequent one¹³, that shows itself with its own intentional object¹⁴. It's typical of melancholic people the swiftness and strenght of their phantastic associations: such a difference among melancholic people and not-melancholic ones is just a difference in degree; so it's presumable that, according to Aristotle, the principles that rule the association of *phantàsmata* described in the case of melancholic people hold in every sentient being. It seems, therefore, that Aristotle held that sentient beings have individual attitudes to composition of *phantàsmata*, differing on account of the individual physical complexion, of past experiences, of the kind of sense-organs of that given kind of animal. I call this attitude to create chains of *phantàsmata*¹⁵ "phantastic *habitus*" of the species or of the individual.

By storing elementary *phantàsmata* produced by sensations of elementary *qualia*, the phantastic *habitus* comes to exhibit varieties and regularities that mirror the environmental ones, on account of statistical necessity. The repetition of sensations produces phantastic habits¹⁶ and perceptual habits¹⁷ that, on account of being stemmed by interactions with the environment, can mirror the regularities of the environment itself¹⁸.

1DB

b *De anima* III 1, 425b6-9

¹³ τὸ ἐχόμενον: cf. the succession of the phantastic movements described in *Ins.* 461b13-15.

¹⁴ φαντάζομαι can mean both "show her/him/itself" and "to appear *in figura*": cf. Plat. *Rp.* 380d2ss., 382e10.

¹⁵ The fact that, in a given situation, the *àisthēma X* will be followed by the *phàntasma Y* and not by the *phàntasma Z*. J.-L. Labarrière (1990) describe this fact as a "proto-réminiscence" (p. 420).

¹⁶ Chains of *phantàsmata* that use to reappear in a mutual link.

¹⁷ Habitudes to perceive the world in this or that way, that are conditioned by the *phàntasmata* stored as material.

¹⁸ Cf. J.I. Beare, 1906, 1992, p. 315: the successions of the phantastic movements imitate, as statistical regularity, the regularity of the successions of the acts of sensation from which they were originated.

εἰ γὰρ ἦν ἡ ὄψις μόνη, καὶ αὕτη λευκοῦ, ἐλάνθανεν ἂν μᾶλλον κἂν ἐδόκει ταῦτόν εἶναι πάντα διὰ τὸ ἀκολουθεῖν ἀλλήλοις ἅμα χροῶμα καὶ μέγεθος.

In fact, if there were just sight, and sight [just] of white, [the common sensibles: f.i. movement, shape, size, number] would be more obscure, and all [the kinds of sensible things] would appear the same, because of the co-implication of colour and size.

Let's look at an example of how the articulation of the power to recognize things in the world depends on the order of the ordinary sensory experiences: Aristotle states here the hypothesis that, if we had sight just of white (and not of other colours, nor senses different from sight), the identity of a shape, that remains the same through the change of colours and tangible properties, couldn't be grasped: there weren't any change in our sensations of colours and tangible properties, from which such an identity could emerge. For this identity to emerge, we need a more complex order, a succession (“*akolouthèin*”) among sensations which is more articulated than the very simple one ‘white iff shape’.

1Dc

c *De insomniis* 2, 460b23-25

οὐ μόνον τοῦ αἰσθητοῦ κινουμένου φαίνεται ἀδήποτε, ἀλλὰ καὶ τῆς αἰσθήσεως κινουμένης αὐτῆς, ἐὰν ὡσαύτως κινῆται ὡσπερ καὶ ὑπὸ τοῦ αἰσθητοῦ.

some things appear not only if the sensible moves [the sense], but also if the sense moves itself, if it moves itself in the same way in which [is moved] by a sensible.

What moves *itself*, here, cannot be meant as the connate sensory power: if the sense could move itself before it could grasp any external sensible, there would be a violation of the basic principle of the anteriority of sensible to sense. What here moves itself, is the sensory power considered at a later stage: at the stage in which it can produce *phantasiai* as a result of past sensations. Sense-power can move itself because sense-power, considered not as an animal's connate power but, rather, as an habit, is the result of the storing of *phantasmata*; this storage sets which experiences I can recall at work in order that I can recognize the situations I meet. An actual sensation recalls a *phantasma* or some *phantasmata*: a part of my sense-power moves

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an other part, and therefore we can say that the sense moves *per accidens* itself.

2

a *De somno et vigilia* 2, 455a12-22

ἐπεὶ δ' ὑπάρχει καθ' ἐκάστην αἴσθησιν τὸ μὲν τι ἴδιον, τὸ δὲ τι κοινόν, ἴδιον μὲν οἷον τῆ ὄψει τὸ ὄρᾶν, τῆ δ' ἀκοῆ τὸ ἀκούειν, [...] ἔστι δὲ τις καὶ κοινὴ δύναμις ἀκολουθοῦσα πάσαις, ἣ καὶ ὅτι ὄρᾳ καὶ ἀκούει αἰσθάνεται (οὐ γὰρ δὴ τῆ γε ὄψει ὄρᾳ ὅτι ὄρᾳ καὶ κρίνει δὴ καὶ δύναται κρίνειν ὅτι ἕτερα τὰ γλυκέα τῶν λευκῶν οὔτε γεύσει οὔτε ὄψει οὔτε ἀμφοῖν, ἀλλὰ τινι κοινῷ μορίῳ τῶν αἰσθητηρίων ἀπάντων· ἔστι μὲν γὰρ μία αἴσθησις, καὶ τὸ κύριον αἰσθητήριον ἓν, τὸ δ' εἶναι αἰσθήσει τοῦ γένους ἐκάστου ἕτερον, οἷον ψόφου καὶ χρώματος) κτλ

Since to each sense belongs something that is proper [to it] and something that is common [to the other senses] (the proper one is f.is. for sight seeing, for hearing the act of hearing [and the analogous for the other senses]), there is a common faculty, too, which follows all [the senses], by which one perceives also that he is seeing or hearing (it isn't by sight, in fact, that one sees that he's seeing and distinguishing; and one can distinguish that the sweet things are different from the white ones not by taste nor by sight nor by using the two, but by some other part [of the soul] which is common to all the sense-organs: one, in fact, is the sensation; and one is the main sense-organ, but the being, for each sense that is relative to each genus [of sensible things] is different: f.i. [for the sense] of sound and [for the sense of] colour), etc.

b *De insomniis* 3, 461b3-6

ὅλως γὰρ τὸ ἀφ' ἐκάστης αἰσθήσεώς φησιν ἡ ἀρχή, ἐὰν μὴ ἕτερα κυριωτέρα ἀντιφῆ. φαίνεται μὲν οὖν πάντως, δοκεῖ δὲ οὐ πάντως τὸ φαινόμενον

Generally speaking, in fact, the [perceptive] principle affirms what [comes] from each sense/sensation, if an other, more authoritative one, doesn't contradict [the first one]. So [the sensible datum] always appears, but not always what appears results [as true]

c *De generatione animalium* V 1, 779a13-16

συμβαίνουνσι γὰρ καὶ καθεύδουσιν αἰσθήσεις τοῖς ζώοις, οὐ μόνον τὰ καλούμενα ἐνύπνια, ἀλλὰ καὶ παρὰ τὸ ἐνύπνιον, καθάπερ τοῖς ἀνισταμένοις καθεύδουσι καὶ πολλὰ πράττειν ἄνευ τοῦ ἐνυπνιάζειν

in fact sensations happen to sleeping animals too: not only the so called “dreams”, but also other [sensations] besides the dream; as [happens] to people that stand up during sleep; and [it happens] that one does a lot of things [during sleep] without dreaming.

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All the activities that I have described would, anyway, be impossible if the environmental regularities registered by storing *aisthémata* and *phantàsmata* couldn't be considered by some single power. According to Aristotle, such a single power (a) performs every sensory and perceptual activity that cannot be reduced to the sensations of the five kinds of proper sensibles: being aware of seeing, hearing, etc., and distinguishing between sensibles that pertain to different senses. Such a single power (b) doesn't produce any new datum: it just checks the coherence or incoherence of sense-data with other sense-data and with *phantàsmata* of past experiences. If two data (or groups of data) do conflict, the single faculty accepts the more consistent one (this is the one that "results" as true) and denies the data that conflict with that; the denied data continue to appear as sensory data, but they are not accepted as true data about the external world.

This single power is impeded during sleep; Aristotle (c) admits that in sleep is at work a particular kind of sensory activity (the *phantasià*) that produces dreams, and that we can receive data about the external world through sensation; let's consider f.i people who walk during sleep: they can perform actions, very complex actions too, f.i. to open doors, and it's therefore quite clear that they are able to grasp the environmental data; what, according to Aristotle, they can't do, is to establish a general order to which all the sense-data that they grasp would be submitted.

The sleeper is therefore conceived by Aristotle as actually sentient, but temporarily deprived of that ordering principle that makes waking people able to re-construct in the order of their sensations and perceptions an image of the environmental order of things in the world.

3

a *Metaphysica* XII 7, 1072b3-4

κινεῖ δὴ ὡς ἐρώμενον, κινούμενα δὲ τὰλλα κινεῖ

and [the unmoved mover] moves as object of love, while every other thing moves [on its turn] because it's moved.

b *Metaphysica* XII 10, 1075a16-19

πάντα δὲ συντέτακται πως, ἀλλ' οὐχ ὁμοίως, καὶ πλωτὰ καὶ πτηνὰ καὶ φυτὰ· καὶ οὐχ οὕτως ἔχει ὥστε μὴ εἶναι θατέρῳ πρὸς θάτερον μηδέν, ἀλλ' ἔστι τι. πρὸς μὲν γὰρ ἐν ἅπαντα συντέτακται

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all the things are in some way coordinated, but not in the same way: the things that swim and the ones that fly, and the things that grow from the Earth; and [all these things] are not such as not to have any relation the ones with the others; rather, there is [a relationship]. All things, in fact, are coordinated to one thing.

This text from the *Metaphysics* shows the ultimate ground of this theory: all things are in some way in some mutual relationship, because they are all in some relation with a first cause. This cause produces order in the world because the heavens do imitate its perfection in their whirling, and by whirling they produce the cycle of coming-to-be and passing-away (cf. **1A**). The level that belongs in the cosmos to each natural thing (and among them to sentient beings), therefore the nature of each thing, will be a product of its own relation of greater or smaller distance from the unmoved mover, and therefore of its own greater or smaller participation of the cosmic order. The sentient soul of the animal is, according to Aristotle, a particular degree and way of *being ordered*.

Giuseppe Feola
Scuola Normale Superiore, Pisa

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