Bergson and the Aristotelian model of immanent teleology

Cortina, A.

2. Aristotle: the model of immanent teleology

In this first chapter I first will show that Bergson developed a deep understanding of Aristotle's doctrine of immanent teleology. Next, I will provide a systematic account of Aristotle's own teleological thought. I shall find four elements in Aristotle's teleological argument (section 2.1) and two basic domains of application for teleology in Aristotle (section 2.2). This dual structure, composed of an structural section and a section on empirical domains will return in my account of Bergson in chapters 3 and 4.

Bergson's knowledge of Aristotle

Although Bergson's books contain discussions with contemporary scientists and philosophers, it can be said that ancient thought is always there. During the whole of the first part of his professional life (1883-1904) he taught, translated and commented on classical philosophy. At the same time, he did not consider ancient philosophy as something archaic, unrelated to philosophical contemporary issues. In this sense, his speculative accounts of different problems always retain a historical and genealogical perspective.

At the very beginning of his career, in 1883, we have his translation and commentary of Lucretius entitled *The Philosophy of Poetry. The Genius of Lucretius* (EL). In this account, Bergson links genealogically ancient materialism and Darwin genealogically.[147] Some years later, he devoted his Latin dissertation exclusively to Aristotle. The title of this academic work is *Quid Aristoteles de loco senserit* or *On the idea of place in Aristotle* (QA), defended in 1889. The whole text is about the first six chapters of the *Phys.*IV, devoted to the notion of place. The first seven sections of the dissertation are a sober commentary on Aristotle's writings, using Simplicius and Philoponus as ancient commentators, Félix Ravaisson and, especially, Eduard Zeller, as contemporary interpreters. In §8 Bergson gives a wider interpretation of the notion of *tópos*, in reference to *On the heavens*, and from § 9 to 10 the historical perspective becomes much broader. In section §9 he confronts Aristotle's conception of space with the modern conceptions of Leibniz and Kant. Bergson puts Aristotle in dialogue with the modern theories of place, proposed many centuries after.

Although later on Bergson devoted short texts to different authors (such as William James, Claude Bernard or Félix Ravaisson), this early writing, celebrated by Burnett,[148] is Bergson's sole rigorous scholarly commentary on any other philosopher's doctrine. Bergson has a place among Aristotelian commentators of the late XIX century. The importance of QA should not pass unnoticed,[149] although final causality is not involved. Only in §8, from a cosmic perspective, Bergson discusses two imitative passages of global teleology, on elementary transformation, that we will see in 2.2.

---

[147] EL, pp. 18 and 46.

[148] Burnet, John. "Quid Aristoteles de loco senserit by H. Bergson". The Classical Review, Vol. 6, No. 7. Jul., 1892, p. 322.

[149] In *Being and time* § 82 Heidegger underlines the influence of Aristotle in Bergson's notion of duration in DI. Apart from the interesting link between Aristotle and Bergson, I do not deal with Heidegger's interpretation since my research is focused on the topic of teleology, not on time. Moreover, I do not trace the Aristotelian roots of Bergson to the concept of time and duration. Martin. *Sein und Zeit*. Max Niemeyer Verlag Tübingen, 1967, p. 432-434. Heidegger repeats and develops this idea in *Die Grundprobleme der Phenomenologie*, in 1928, § 19. Among the scholarly publications there is one exception to this disregard: Waszkinel, Romuald et Hejno, Eugeniusz. "L'inspiration aristotélicienne de la métaphysique de Bergson". Revue Philosophique de Louvain. vol. 89, nº82, 1991.

Apart from that, Bergson taught ancient thought throughout his life. First, working at a high school, in general courses on ancient philosophy, like the 1894 one of Hude. These are still general introductory courses in which Aristotle did not occupy a distinctive place, so there was no place for focusing on specifics (immanent teleology, for instance). That comes later at the Collège de France. Between 1900 and 1904 Bergson occupied the chair of Ancient Philosophy. In this period, Bergson studied Aristotelian texts in which teleology plays a central role. During the academic year 1900 to 1901 he gave a course at the Collège de France on the Aristotelian ancient philosopher Alexander of Aphrodisias, on his book *On fate*. The following year, Bergson taught the second book of *Physics*, the most important Aristotelian treatise on causality and teleology. The subsequent one, from 1903 to 1904, he taught Aristotelian theology in a course on the book XII of *Metaphysics*, one of the crucial texts on global teleology, as we will see soon.

This information shows that Bergson had familiarized himself with Aristotle many years after his thesis. He was a lifelong reader of Aristotle. Alexander of Aphrodisias is also a relevant figure here. This philosopher, active in the late second and early third century, was the most important of Aristotle's commentators in Ancient times and, at the same time, he wrote creative philosophy by using Aristotelian concepts to solve new problems, originally alien to Aristotle. Namely, *On fate* is a treatise written against the Stoic philosophers of his time where freedom of action is pushed beyond anything in Aristotle.

More relevant for us is that in the two courses of 1902-1903 and 1903-1904 we can find Bergson to be a mature philosopher who is now shedding light on crucial texts of Aristotelian teleology. Notice that EC is published in 1907. Unfortunately, nowadays the contents of those lectures are lost. The same happened with most of Bergson's unpublished works, such as academic courses or conferences.

Yet, interestingly, at the Bibliotèque Littéraire Jacques Doucet in Paris, one can find the manuscripts that Bergson used. He had two copies of *Physics*, both edited only in Greek by Eduard Zeller and Hermann Bonitz in Teubner, and one copy of *Metaphysics*, edited by Wilhelm von Christ in the same German publishing house. Bergson also had Bekker's classic Aristotelian edition. One of the copies of *Phys.*II and the book *Met.*XII are both translated into French, from the beginning till the end, in pencil between lines, and annotated by Bergson himself. The other copy of *Phys.*II is translated in the same way although only between chapter 4 and chapter 6, the section on chance and fortune.[150] This last fact is also significant since those chapters will have a great deal of relevance for my interpretation.[151]

Recently, two of Bergson's courses from this era on general historical accounts were published, which contain interesting commentaries on Aristotle. They are *Histoire de l'idée de temps. Collège de France. 1902-1903* and *L'évolution du problème de la liberté. Cours au Collège de France. 1904-1905*. In the first one there are a number of lessons devoted to Aristotle, concerning time and theology. These Aristotelian meditations were summarized

[150] Regarding secondary teleology in this chapter and afterwards in 3.3, see specially BGN. 927 and 298 in Bergson Manuscripts et notes d'Henri Bergson. Bibliothèque littéraire Jacques Doucet. II-BGN-V-10 BGN 928 is the edition of the *Physics* with the complete translation and annotation of the Book II. The other volume of *Phys*., II-BGN-V-9 BGN 927, has the translation of the three chapters on chance and luck. Also, there is II-BGN-V-8 BGN 926, with annotations in the first four chapters of the second book. BGN. 924 is the edition of *Metaphysics*, with annotations.

[151] Regarding what I call "secondary teleology" see this chapter (2.1.d) and afterwards 3.3.

and included in EC, in its fourth chapter. In *L'évolution du problème de la liberté. Cours au Collège de France. 1904-1905* Aristotle is the most quoted author, and plays a central role among the defenders of freedom.[152]

Among Bergson's published works, the "Life and work of Félix Ravaisson" contains notable general remarks on Aristotle. This article (first a lecture) for the French Academy of Moral Sciences focused on Ravaisson, is connected to Aristotle. Ravaisson's book on Aristotle, entitled *Essai sur la Metaphysique d'Aristote,* was published for the first time in 1837, and by 1900 was an important general commentary of Aristotle. Bergson himself mentions it in positive terms in the first page of his dissertation, in 1889. Ravaisson was both an Aristotelian commentator and a creative philosopher and was considered by Bergson himself one of his three masters.[153]

Bergson has some general words for *Essai sur la Metaphysique d'Aristote* in the Academy text that can be useful for his historical view of the Greek philosopher. Aristotle is considered the philosopher of movement and intuition. Ravaisson even talks about the whole of nature in Aristotle as moved by one *élan*.[154] In general Bergson praises Ravaisson's work.[155] Pierre Aubenque has defended the importance of the *Essai* and also noted that Ravaisson's depiction of Aristotle is influenced by Romanticism and, even more surprisingly, is close to Bergson's own philosophy.[156] That is: for Aubenque, *Ravaisson's Aristotle resembles Bergson*. It is like a Bergsonian system *avant la lettre*. Ravaisson addresses Aristotle as the philosopher of intuition against Platonic conceptualism.

Leaving this striking association aside, Bergson notes that Ravaisson offers *too much* of a "closed system", while Bergson considered that Aristotle was an open system:

"Aristotle, a systematic genius if ever there was one, did not build up a system at all. He proceeded by analysis of concepts rather than by synthesis. His method consists in taking the ideas stored up in the language, in adjusting or renewing them, in circumscribing them in a definition, in cutting out their extension and comprehension according to their natural articulations, in pushing their development to its farthest possible limits. Yet he rarely accomplishes this development all at once: he comes back to it again and again, in different treatises on the same subject, following over again the same road, always advancing a little further".[157]

---

[152] Bergson, Henri. *L'évolution du problème de la liberté. Cours au collège de France. 1904-1905*. PUF, Paris, 2017. See e.g. the sessions of the 27th of January 1905 and 3th of February of 1905.

[153] Together with DeBiran and Plotinus. Maire, Gilbert. *Bergson, mon maître*, Editions Bernard Grasset, Paris,1936. p. 222.

[154] Ravaisson, Félix. *Essai sur la Métaphysique d'Aristote*. Éditions du Cerf, Paris, 2007, p. 406.

[155]"When he contrasts Aristotle with the physicists, who saw in things only their material mechanism, and with the Platonists, who absorbed the whole of reality into general types, when he shows us in Aristotle the master who sought in the heart of individual beings". PM, p. 273.

[156] Aubenque, Pierre. "Ravaisson interprète d'Aristote", Les etudes philosophiques, 4/ 1984. Also in ed. Denis Thouard. *Aristote au XIX siècle*. Presses Universitaires du Septentrion, Villeneuve d´Ascq Cédex, 2005.

[157] PM, p. 262. And Bergson continues: "What are the elements implied in thought or existence? What are matter, form, causality, time, place, movement? On all these points and a hundred others he dug up the ground; from eachone of them he starts a sort of subterranean gallery which he pushes out ahead, like an engineer who digs a huge tunnel by starting it simultaneously at many points. And indeed we feel that the measurements were made and the calculations performed so that everything should fit; but the junction is not always completed and often, between points which seem to us about to touch, when we flatter ourselves that all we have to do is to remove a few more shovelfuls of sand, we strike bedrock. Ravaisson did not stop at any obstacle. The metaphysics he sets forth at the end of his first volume is Aristotle's doctrine unified and reorganized. He expounds it in a language he created for it, where the fluidity of the images allows the naked idea to show

This idea of openness reappears in two texts. In the aforementioned course of 1905 and much afterwards, in the "Introduction II" to PM. The variety of meanings in Aristotle's works refers for Bergson to the idea of open system, where everything does not fit necessarily.[158] This is emphasized when he ponders Ravaisson's interpretative work: "Ravaisson did not stop at any obstacle. The metaphysics he sets forth at the end of his first volume is Aristotle's doctrine unified and reorganized".[159] Bergson also finds that all the Ravaissonian ideas come from this book on Aristotle.[160]

Afterwards I will propose how Ravaisson could have influenced both Bergson's reading of Aristotle and Bergson's own view of cosmos. I will address that question in regard to Bergsonian teleological cosmology in 4.2.d. For the moment, I believe that this idea of Aristotle's philosophy as an open system—that is, as a system which is not definitively closed and which thus remains susceptible to further developments—may be enlightening for our reformist scope.

Some of the Aristotelian texts mentioned above, the PhD thesis, and the courses at high schools pertain to an early period of Bergson's career. They are prior to MM, the first book in time where we start to find teleology. The other texts, lessons at the Collège and the latter article were produced after MM and in the years prior to the publication of EC. That is, between 1900 and 1907. As we can see, both in his early years and in his maturity, Bergson taught, read and commented on Aristotle. In one case, the text from one lecture on Aristotle was even synthesized and included in EC.

In fact, EC is the book where Bergson increasingly quotes the name "Aristotle". It is, by the way, the most quoted philosopher in the entire essay, closely after the word "Darwin". That is remarkable for a book of 1907 with the word "evolution" in its title.

In Chapter 4 I will show that in EC Aristotle plays the roles of founder of biological thinking,[161] as well as the role of founder of natural theology.[162] Since EC deals with, on the one hand, biology, and, to a somewhat lesser degree, with cosmology, on the other hand, the place given to Aristotle is then difficult to overstate. Bergson openly confronts Aristotle. In

---

through, where the abstractions come alive and live as they lived in Aristotle's thought. It has been possible to dispute the material correctness of some of his translations; doubts have been raised concerning certain of his interpretations; especially have we asked if the historian's role was really to push the unification of a doctrine further than the master wished to do, and if, by readjusting the pieces so perfectly and drawing the gears so tightly, we are not in danger of distorting some of them. It is none the less true that our mind demands that unification, that the undertaking had to be attempted, and that no one after Ravaisson has dared to repeat it". PM, pp. 262-263.

[158] "… intuition, as I describe it, is nothing beside the multiplicity of meanings the words "essence" and "existence" have in Spinoza, or the terms 'form', 'power', 'act' . . . etc., in Aristotle. Glance over the list of meanings of the word *eidos* in the *Index Aristotelicus:* you will see how much they differ. If one considers two sufficiently divergent meanings, they will almost seem to be mutually exclusive. They are not exclusive because the chain of intermediary meanings links them up". PM, p. 37.

[159] Also, Bergson considered that the Ravaissionian opposition of Plato against Aristotle was artificial. "Perhaps Ravaisson looks at Aristotle occasionally through the Alexandrians, themselves so highly colored with Aristotelianism. He may also perhaps have pushed a bit far, even to the point of converting it into a radical opposition, the frequently light and superficial, if not to say verbal, difference separating Aristotle from Plato" PM, p. 265.

[160] "What are the facts, what are the reasons which led Ravaisson to judge that the phenomena of life, instead of being explained wholly by physical and chemical forces, could, on the contrary, throw some light on them? All the elements of the theory are already found in the *Essay on the Metaphysics of Aristotle*". PM, p. 284.

[161] In 4.2.b, on EC, p. 135 and p. 174.

[162] In 4.2.d, on EC, pp. 321-323.

my reading, there is an attack and also an original appropriation of Aristotle's ideas in EC. Later in 1932, Aristotle's theology also plays again the role of the paradigm of natural theology or philosophical theology in DS.III.[163]

Until now my aim has been to demonstrate that Bergson mastered Aristotelian philosophy in general and had intimate knowledge of the doctrine that I will set out in the pages that follow.

Aristotelian immanent teleology: general model, elements and domains

The origin of teleology as of many other Aristotelian concepts must be looked for in Plato. Ariew explains very well the relation between Plato's teleology and Aristotle's: Aristotelian teleology "eschews Platonic designers for an inherent purposive or goal-directed force that resides in the material properties of living entities. Good arrangements are not the handiwork of a creator; rather they are due to some inner principle of change within living organisms".[164] In Aristotle, teleology becomes immanent in nature.

Despite the usual disputes, all the current scholars agree that Aristotle is the founder of natural teleology. As Balme says: "The novelty in Aristotle's theory was his insistence that finality is within nature", that is, "part of the natural process, not imposed upon it by an independent agent like Plato's world soul or Demiourgos".[165] Both Aristotle's traditionalism and his originality can be defended (as I hold also with regard to Bergson). The first does not exclude the second. As Sedley says, "most can be learnt by emphasizing, rather than minimizing, Aristotle's Platonic background and training".[166]

Aristotle revises the Platonic purposive structure in the *Timaeus*. However, Aristotle, perhaps proud of his own originality, considers himself the real discoverer of the final causes in nature. At least, there is not reference to his master in the historical account of this topic (*Met.* I. 7. 988b6-8).[167]

In Plato, goal-directedness implies an intelligent divine entity. Plato's demiurge produces and administrates the world, including teleology. In this schema there is providence, in Greek, *prónoia* (*Timaeus*, 30b-c). The demiurge's goodness is the principle or *archè* of the intelligent creation of the world's soul and body (*Timaeus*, 29d-30b). That is, the cause of the creation of the world in the best possible way is to be found in his goodness. Ultimately, the teleological explanations in Plato (see the case of the head in *Timaeus*, 44d-45b) may be referred to the divine good work. This means that the providential schema works with extrinsic teleology.[168]

---

[163] DS, p. 243.

[164] Ariew, André. Chapter 9: "Teleology". *The Cambridge Companion to the Philosophy of Biology*. Cambridge University Press, 2015, p.161.

[165] Balme, D. M. "Teleology and necessity", in *Philosophical Issues in Aristotle Biology*. Ed. A. Gotthelf and J. G. Lennox. Cambridge: Cambridge University Press, 1987, p. 275.

[166] Sedley, David. "Teleology, Aristotelian and Platonic", in *Nature and life in Aristotle: Essays in honor of Allan Gotthelf*. Ed. James Lennox and Robert Bolton. Cambridge University Press, 2010, p. 5.

[167] For a sharp distinction between Plato and Aristotle see Bolton, Robert. "The origins of Aristotle's natural teleology in *Physics* II" in *Aristotle's 'Physics'. A critical guide*. Ed. Mariska Leunissen. Cambridge University Press, 2015.

[168] For providence regarding human beings in Plato, see *Laws*.X. 899d and 905d. For the conception of the universe as an ordered unity also *Laws*.X. 903c, 904c.

In Aristotle there is no *prónoia*, although he accepts directionality. Natural substances tend toward the good and the best, but there is no divine intellect responsible. Thanks to this lack of providence, Aristotle's teleology is always immanent. That is, purposiveness does not mean any intentional divine predesign, theological arrangement or plan (*logismòs*, in *Timaeus*, 34a), but a feature of the natural beings as such. As we will see in due course, even Aristotle's vision of the relation between god and the world is not providential. He himself does not address an ultimate reason for that, but we can infer it, first, because of his idea of a contemplative god, and second, because in his view there is no need for evoking divine intention. Thus, Aristotelian teleology is an obvious part of nature as such, which includes human beings.

Aristotle maintains the doctrine of directedness in a sophisticated way. For Plato heavenly beings and human beings (especially males) are intelligent beings, and thus they have their own goals. But the rest of the animals are, so to speak, decadent human beings: following the literal word of *Timaeus*, 90e-92c we can say that human females, birds, quadrupeds, snakes and fishes were male human beings in the past. They became what they are through reincarnation. Aristotle rejected providence and developed the living world in an immanent way. Aristotelian teleology is more developed, richer and more complex than his master's. Aristotle is or should be a model for every philosopher who wants to defend or attack teleology.

Within Aristotle's framework, the question of teleology is a key philosophical concept. Teleology is found throughout almost all his works on natural philosophy, from ethics to biology, from biology to cosmology, from cosmology to aesthetics. One can verify the importance of teleology in general approaches to Aristotle made by scholars: almost every portrait of Aristotle tackles the "discovery" of final causes,[169] and still today Aristotelian teleology is the subject of a great deal of scholarly research, as I will show soon.

While accepting the importance of teleology in Aristotle it has to be said that nowadays the scholarly field concerned with Aristotle's natural teleology is highly controversial. Given the weight of teleology in Aristotle's philosophy, its importance is interpreted in divergent ways. One of the problems of addressing Aristotle's teleology is the lack of agreement, since there are as many exegetical hypotheses as investigations studying the topic.[170] My general perspective is comprehensive, to some extent. Let us attempt to give an overview of Aristotle's immanent teleology nonetheless.

According to Aristotle, there are three types of beings in the supralunary and infralunary realm in which he divides the whole of beings,[171] and two of these three are naturally in movement. Being in movement in this sense means, for Aristotle, that "each [individual] has in oneself a source of change and remaining unchanged, whether in respect to place, or

[169] See for Guthrie, G. K. "The mind of Aristotle. Teleology and its defense". *A history of Greek philosophy*. Op. cit. 97-98. Also see: Mansion, Augustin. Cap.VII. 3. "La nature comme fin et la finalité" *Introduction à la physique aristotélicienne*. Éditions de l´institut supérieur de philosophie. Louvain-la-Neuve, 1987, p. 35. In a book on Aristotle's general vision of nature, Mansion says that finalism "dominates" his understanding of the world. In his classic essay on the philosopher, Jaeger talks, in general, about Aristotle's "teleological conception of the world". Jaeger, W. José Gaos. *Aristoteles. Grundlegung einer Geschichte seiner Entwicklung*. [*Aristóteles*]. Trans. José Gaos. FCE, México, 2001, p. 185, 384, 437-8.

[170] Quarantotto, Diana. *Causa finale, sostanza, essenza in Aristotele. Saggio sulla struttura dei processi teleologici naturali e sulla funzione del telos*. Bibliopolio, 2005, p. 19.

[171] *Phys*.II. 7.198a17. 28-32. "Hence there are three separate studies: one of things which are unchangeable, one of things which are changed but cannot pass away, and one of things which can pass away".

growth and decay, or alteration" (*Phys*.II. 1. 192b14-16).[172] This source of change is what Aristotle understands *physis* or nature to be.

In Aristotle every individual moving being has in view its own perfection, completeness and nobility. There is an innate tendency of natural beings towards what is the best for them, that is, the *télos* (τέλος). The *télos* can be translated as end, goal, perfection, function, completion, flourishing, good, the better, beauty or nobility. It is also called "that for the sake of which" or "what something is for" (*hou héneka*). "Further, it belongs to the same study to know the end or what something is for, and to know whatever is for that end. Now nature is an end and what something is for" (*Phys*.II. 194a28-29).

The main text in which Aristotle gives a doctrinal exposition of this topic is *Phys*.II, which is among other things a study of immanent causality. Contrary to Bergson and EC, the main text in which Aristotle addresses the question of immanent teleology is focused on individual teleology. In one case Aristotle says that the end considered as the better has to be put *in relation to each* substance (*hekástou ousían*). He writes: "because better thus—better not simply, but in relation to the reality of the thing concerned" (*Phys*.II.2. 198b8-9).[173] As I will show this statement is used by the defenders of individual teleology. It makes clear that in the context of the *Physics* he is referring *exclusively* to the goals of individuals. Another important approach to teleology can be found in *PA*.I, a general treatise on biology, again exclusively focused on individuals. Namely, it addresses the issue around individuals with a soul.

The concepts of the goal and the 'for the sake of which' are intimately related to other terms too, especially in the domain of individual teleology. These other terms complete and enrich the original one. I will mention the two most important ones: form and function. In some passages both are used as synonyms for *télos*.

In *Phys*.II, final causality is presented along with a fourfold division: final cause, formal cause, efficient cause and material cause.[174] They are defined altogether in *Phys*.II.3 and again in *Phys*.II.7. Aristotle adds that there is a cooperation, if not coincidence, between some of them, in some instances.[175] Namely, it is stated that the *télos* of something coincides with its specific form, *morphé* (μορφή) or *eidos* (εἶδος). "What a thing is, and what it is for, are one and the same" (*Phys.* II. 7. 198a17). From this point of view, the form is the goal of change and movement. It has to be understood then as perfection, completeness and nobility.[176]

Almost all modern scholars agree that the Aristotelian forms have an ontological status. That is, whatever they are, forms are real and not merely heuristic tools and Aristotle's teleology is

[172] Aristotle distinguishes six types of movements or *kinéseis* in *Cat.* XIV. 15a13-14.
[173] This can be related with the ethical view in *NE*.I. 1152b6-27, as Johnson does. With regard to the passage from *Phys*. I. 2, see Sedley, David. "VI. Aristotle". *Creationism and its critics in Antiquity*. California University Press, 2007, p. 197.
[174] For the four causes see also *Met*.I. 3 and *Met*.XII. 4 among other places.
[175] "… the matter, the form, the thing which effects the change, and what the thing is for. The last three often coincide". *Phys*.II.7. 198a25.As R. Bolton notes, in *Met*.I. 3.983a31 efficient cause and final cause are opposed. Bolton, Robert. "The origins of Aristotle's natural teleology in *Physics* II" in *Aristotle's 'Physics'. A critical guide*. Op. cit. In *C.G*.I. 7.324b13-18, they seem different.
[176] Aristotle understands nature as movement or change in two ways, regarding form and regarding matter, and concludes that: "The form (*morphè*) has a better claim than the matter to be called nature". *Phys*.II. 3.193b8.

not reflective, but constitutive.[177] As D. Balme says, against Nussbaum and Wieland: "causes are objective things and events".[178] I adopt this understanding of Aristotle's ontology. The end and the form are thus real. The forms are found in beings composed of matter,[179] where matter is relative to them.[180] For Aristotle forms are not generated and indestructible.[181]

In other places, the *télos* is related to the *érgon* (ἔργον). This term means one specific natural function, activity or task. As Aristotle claims:

"… a thing is always determined by its function: a thing really is itself when it can perform its function; an eye, for instance, when it can see. When a thing cannot do so it is that thing only in name, like a dead eye or one made of stone, just as a wooden saw is no more a saw than one in a picture" (*Meteor*. IV.12.3909.10-21).[182]

In this context we can see that the goal as function is one type of action. In sum, we can see that for Aristotle a natural being is necessarily in movement or change.[183] Movement or change always or most of the times tends towards its specific form. The form is for the sake of an activity or function. This function is identified as the fulfillment, flourishment or summit of an individual being. Hence, the concepts of goal, for the sake of which, function and form are intimately related. They display what we call Aristotelian final causality.

According to a classical line of contemporary interpretation,[184] M. Bastit wrote recently that "the final cause in act is the first regarding the other causes".[185] Against this view, commentators such as Wieland or Boeri say that final cause is one among the four causes and that it has the same value.[186] Whatever the case may be, I will focus on the final cause and its importance.

---

[177]The terms reflective and constitutive come from Kantian philosophy.

[178] Balme, D. "Teleology and necessity". in *Philosophical Issues in Aristotle Biology*. Ed. A. Gotthelf and J. G. Lennox. Cambridge University Press, 1987, p. 281.

[179] *Phys*.II. 194b13-15

[180] "Again, matter is something relative to something, for the matter varies with the form". *Phys.*II. 194b8-9. Also *PA*.I. 640b26-30 and *Phys*.II. 9. 200a31-200b5. Aristotle also seems to say that parts are the material cause of the whole in *Phys.* II. 195a15-17.

[181] For form and generation: *Met.*VII. 8 and 9: overall *Met.*VII. 8.1033b5-20.

[182] With regard to dead beings, which cannot perform any function, see also *PA*.I. 641a19-21. The idea that everything has a function can be found in many other places in Aristotle, like *Pol*.I. 21252b 23-24.

[183] "And whenever there is evidently an end towards which a motion goes forward unless something stands in its way, then we always assert that the motion has the end for its purpose". *PA*.I. 641b24-25.

[184] I mean Düring or Mansion and Jaeger. Ingemar Düring says "La dottrina dei quattro aitia è in certo modo una attualizzazione della filosofia aristotelica del *telos*". *Aristoteles. Darstellung und interpretation seines Denken*s. [*Aristotele*] Trans. Pierluigi Donini. Mursia, 1976. p. 275. Jaeger talks about the "teleological doctrine of the four causes". Mansion, Augustin. *Introduction à la physique aristotélicienne*. Cap.VII. 3. "La nature comme fin et la finalité". Éditions de l´institut supérieur de philosophie. Louvain-la-Neuve, 1987, p. 35: "…l'explication finaliste de la nature, qui est caractéristique de sa physique et la domaine tout entire…".

[185] Bastit, M. "Les quatre causes de l'être selon la philosophie première d'Aristote". Louvain-la-Neuve, Ed. Peeters, 2002, p. 348, my translation.

[186] Boeri, Marcelo. *Física*. Traducción, introducción y comentarios. Editorial Biblos, 1993, p. 183. The problem of teleology, p. 147. Wieland, Wolfgang. "The problem of teleology". *Articles on Aristotle. 1. Science.* Ed. Jonathan Barnes, Malcolm Schöfield, Richard Sorabji. Duckwarth, London, 1975, p. 177.

2.1 Structural elements in Aristotle's teleology

Aristotle's argument for teleology relies upon three structural elements: the notion of perfection, the notion of analogy and the notion of regularity. These three ideas compound the teleological argument as it can be found in *Phys*.II. 1-3, 7-8 and partially in *PA*.I. 1, 5. I call them elements, because they are part of the structure of the teleological argument. Perfection as such is an ontological claim. In the context of immanent teleology, it is linked with the idea of plurality. Analogy is essential for the teleological method. The use of analogies challenges the critique of anthropomorphism. Both perfection and analogy refer one to each other in Aristotle's writings. After analyzing them, I will discuss one implicit question: the status of human beings, the "analogy-makers", in the Aristotelian framework. Although the problem of anthropocentrism is not explicit in the texts by Aristotle, I believe it is necessary to include this philosophical issue as an element. The section "Hierarchy and the problem of anthropocentrism" completes the accounts on perfection and analogy. I develop some ideas of Johnson.

Regularity also plays the role of a structural element in Aristotle. In addition, I have added a subsequent issue in 2.1.d. Following some interpreters, I distinguish two temporal dimensions for teleology: regularity and irregularity. Primary teleology, based on regularity, is to be applied to individual teleology and global teleology. Secondary teleology is an alternative model in Aristotle for explaining lucky events. These phenomena can be interpreted and reconstructed by retrospective teleology of singular events. It does not play an important role in my account on Aristotle, who focused on regular events, but it has a role to play in Chapter 3 on Bergson.

2.1.a. Perfection and pluralism

The term *télos* has a qualitative accent and it can mean nobility. Aristotle clearly states that: "Yet the final cause (*tò hou héneka*) and the good (*tò kalòn*) are more fully present in the works of nature than in the works of art" (*PA*.I. 639b19-21). This qualitative element means that an end or goal is not every *ending* limit or conclusion of a process. The *télos* is always the flourishment of a particular nature. The *télos* is something good for the individual being involved in the process. As we have read above: "because better (*béltion*) thus—better not simply, but in relation to the reality of the thing concerned (*pròs tèn hekástou ousían*)" (*Phys*.II. 7.198b8-9). Also:

"And there are the things which stand to the rest as their end and good; for what the other things are for tends to be best and their end" (*Phys*.II. 195a23-25).

In general terms, we see that:

"Nature is for the sake of the better and the end" (*héneka dè tou beltíonos kaì tou télous he physis*. *GA*. II. 4.738a37-b1)

In the following passage Aristotle refers to the notion of *télos* also in a qualitative way (the Greek term *kalós* can be translated as "beautiful"):

" (…) in not one of them [researches concerning animals of every sort and kind] is nature (*physikou*) or beauty (*kalou*) lacking. (…) in the works of nature purpose and not accident is predominant; and the purpose (*hou d'héneka*) or end (*telous*) for the sake of which those works have been constructed or

formed has its place among what is beautiful (*tou kalou*)." (*PA*.I. 5.645a24-27).

The concept of *télos* involves perfection, so not just *any* way whatsoever of finishing a process is necessarily *télos*. That is why non-perfective endings are named by him "*escháton*" or "*péras*".

This sharp distinction between end (*télos*) and limit (*péras*) becomes clear, in my opinion, in *Met*. V. In this book, a philosophical dictionary, Aristotle devotes to the goal and the limit two subsequent entries. In *Met*.V. 16 Aristotle talks about the *téleion*, which means "finality" or "completeness", and also "perfection".[187] In *Met*.V. 17 Aristotle tries to clarify the notion of *péras*.

In *Met*. V.16 the philosopher says that anything complete or perfect is:

"that which in respect of excellence and goodness (*to kai aretèn kaì tò eu*) cannot be excelled in its kind; e.g. we have a complete doctor or a complete flute-player, when they lack nothing in respect of the form of their proper excellence (…) And excellence is a completion; for each thing is complete and every substance is complete, when in respect of the form of its proper excellence it lacks no part of its natural magnitude. *The things which have attained their end, this being good, are called complete*; *for things are complete in virtue of having attained their end*. (…) Things, then, that are called complete in virtue of their own nature are so called in all these senses, some because *in respect of goodness they lack nothing and cannot be excelled and no part proper to them can be found outside them*, others in general because they cannot be exceeded in their several classes and no part proper to them is outside them; the others [other senses] presuppose these first two kinds, and are called complete because they either make or have something of the sort or are adapted to it or in some way or other involve a reference to the things that are called complete in *the primary sense*" (*Met*.V. 16. 1022a3-1021b15my emphasis).

Being complete means attaining excellence and goodness and not just any end implies excellency and goodness. Aristotle considers that in *Met*.V. 16:

"Therefore, since the end is something ultimate, we transfer the word to bad things and say a thing has been completely spoilt, and completely destroyed, when it in no wise falls short of destruction and badness, but is at its last point. This is why death, too, is by a figure of speech called the end, because both are last things" (*Met*.V. 16.1021b25-30).

I can be more concrete. In the biological realm, for instance, death cannot be a *télos* since it has nothing to do with the actual excellence of the substance, but with its destruction. In the next chapter of *Met*.V, where Aristotle ponders the meaning of limit or *péras*: the first meaning he offers is that it "means the last point of each thing (*péras légetai to te éschaton hekáston*)" (*Met*.V. 17). This definition is precisely the one he has for an end with no perfection implied. The limit is *éschaton*. In one enlightening remark, Aristotle links the non-perfective end or limit with biology, meaning death.

We read in *Phys*.II:

"Now nature is an end and what something is for. For whenever there is a definite end to a continuous

[187] For instance, Ross puts "completeness" in *Met*.V. 16 and in *NE*.I. 7. The older translation in "perfection" or "Perfectum" in Moerbecke's Latin translation. *Metafísica*. Ed. tril. Trad. Valentín García Yebra. Gredos, Madrid, 1998.

change, that last thing is also what it is for (*touto <tò> éschaton kaì tò hou héneka*); whence the comical sally in the play 'He has reached the end for which he was born'—for the end should not be just any last thing, but the best (*boúletai gàr ou pan einai tò éschaton telos, allà tò béltiston*)" (*Phys*. II. 2.194a29-33).

In contrast with this non-perfect end, we can figure out how important the notion of goal is for Aristotle. The idea of *télos* involves, as we have seen, "excellence", "completion", also the "better", the "best", and also the "good", which also can be considered as "beautiful". In contrast with the notion of limit, the *télos* implies a specific perfection of the entity involved in the particular movement or change. Aristotle says "the process is for the sake of the actual thing (*he gar génesis héneka tes ousías*), the thing is not for the sake of the process" (*PA*.I. 640a10-19). So, there is a "for the sake of" for life, but it cannot be death, because it would not be the "for the actual thing".

Still within the biological realm, the goal has to be maturity and never extinction. Maturity is the goal of every change or growth. That is how we should understand this passage in *Met*. XII:

"Those who suppose, as the Pythagoreans and Speusippus do, that supreme beauty and goodness are not present in the beginning, because the beginnings both of plants and of animals are causes, but beauty and completeness are in the effects of these, are wrong in their opinion. For the seed comes from other individuals which are prior and complete, and the first thing (*próton*) is not seed but the complete being (*téleion*); e.g. we must say that before the seed there is a man" (*Met*. XII.7. 1073a).

It is the man and not the seed that lives according to its nature, properly speaking. For the same reason the goal of a man could not be decay, illness or, in ethics, vice. These suggest precisely a lack of physical or moral completeness. For every organism maturity may imply survival, reproduction and well-being in all its varieties.[188]

The notion of *télos* is relevant beyond biology. In Aristotle's ontology and his hylomorphic doctrine we can find the use of teleology. The process of moving or changing towards the specific form is a process of actualization, which in Aristotle's ontological framework is capital.

"For the function (*érgon*) is the end (*télos*), and the actuality (*enérgeia*) is the function. And so even the word 'actuality' is derived from 'action', and points to the complete reality" (*Met*.IX. 8.1050a21-24).[189]

Leaving aside Aristotle's etymological statement, both *érgon* and *enérgeia* have to be both considered in the teleological account. Hence, if in attaining the *télos* actuality is implied, we have to be aware of the ontological ground of the term "perfection", which we are discussing. Attaining the *télos* has to be understood as an expression of actuality. Then also we could say, quoting Aristotle from his texts on that subject, that the *télos* is "more valuable" (*timióteron*) than and "prior" (*próteron*) to matter and potency.[190]

[188] In the case of humans, for instance, physical maturity comes around 37 years (*Pol.*VII. 16.1335a28), and mental maturity comes around 50 years (*Pol.*VII. 16.1335b33).
[189] I have changed Ross' translation in one point: instead of "action" I have written "function", because it is the word I am using for the term *érgon*.
[190]See *Met*.IX.8. 1049b8-1050b7 and *Met*.IX. 9.1051a4-5.

Following Mirus[191] and Natali,[192] I wanted to give a metaphysical account of the word perfection, beyond the biological one. At the same time, having noted that, I will emphasize the value of the *télos* in the biological ground. Not only because living beings are the clearest paradigm for Aristotle, but also because it is the ontological ground on which I start for the sake of a fluent comparison between him and Bergson.

Further below, in the discussion of domains of application of Aristotelian teleology, I will come back to the notion of perfection in order to stress one aspect that I will mention here: plurality. The plurality of functions, forms, nobility or beauty in this sense, entails a polysemy of the term *télos*. In Aristotle's nature there are different kinds of natural substances. Each kind has its corresponding model of completeness and perfection. As I said, one of the main values of this kind of philosophical approach is its flexibility, its capacity to fit with any kind of natural being, without subsuming it under vast overarching principles.

In 2.2 I pose different empirical expressions of the term in the biological, human and heavenly realm. Although I will tackle the prior, inorganic stages of perfection in Aristotle's teleology, in this account of teleology I interpret the term perfection with regard to the world of living beings. Here the *télos* is related to an individual development and specific potencies. Afterwards I show that there is another view of what is perfection in the global teleology passages. The *télos* as seen there is a contribution to something much larger than individual development, but it is compatible with the plurivocity of the term goal.

2.1.b. Analogy and anthropomorphism

Usually, Aristotle establishes analogies between humans and nature.[193] Methodically speaking, analogy is the basis of teleology.[194] On one side, we find conscious activities and human crafts: they are both rationally directed towards something. On the other side, we find natural tendencies of nature, such as the growth of the teeth in a dog for the sake of chewing, and ultimately eating. Also, there is the unconscious work of a spider on its web, and the coordinated development of the different growing parts of a vegetable seed. The structural argument is that each phenomenon is analogous to the extent it may be understood for the sake of some ultimate perfection, at the end of the process.[195]

However, I want to note that Aristotle did not accept every analogy. In fact, Aristotle restricted the use of analogies in philosophy, as Lloyd shows in a classic work.[196] In the corpus, he attacked openly different kinds of anthropomorphism, based on wrong analogies. As we will see in detail, Aristotle believes that spiders work for the sake of something

---

[191] In "The metaphysical roots of Aristotle's teleology" and "Aristotle's *agathon*" by Christopher Mirus. The review of Metaphysics 57. June, 2004.
[192] Natali, Carlo."Problemas de la noción de causa final en Aristóteles". Anuario Filosófico, 32. 63. 1999.
[193] Lloyd, G. E. R. *Polarity and analogy. Two types of argumentation in early greek tought*. [*Polaridad y analogía*]. Trans. Luis Vega. Taurus, Madrid, 1987. Also Witt, Charlotte. "In defense of the craft analogy: artifacts and natural teleology", in *Aristotle's 'Physics'. A critical guide*. Ed. Mariska Leunissen. Cambridge University Press, 2015; Broadie, Sarah. "Nature and craft in Aristotelian teleology". *Aristotle and beyond. Essays on metaphysics and ethics*. Cambridge University Press, 2007.
[194] On analogy and teleology. Garrigou-Lagrange, Réginald. *Le réalisme du principe de finalité*. Op, cit, pp. 84-87.
[195] Witt, Charlotte. "In defense of the craft analogy: artifacts and natural teleology", Op. cit. Against a pedagogical interpretation of the analogy, see p. 112.
[196] Aristotle still used analogies frequently, but with new rigor. Lloyd, G. E. R. *Polarity and analogy*- Op. cit, p. 283. However, Lloyd finds "vitalist" remainders in Aristotle's view of the elements and psychological heavenly bodies.

perfect, but not like humans do: spiders do not deliberate. The moon is related, Aristotle says, with menstruation, but this does not entail that the moon is feminine (*HA*.VII. 582a35-582b2).

One of the clearest cases in which Aristotle seems to despise anthropomorphism is in the theological context, where "human beings model the shapes of the gods on their own" (*Pol*.I. 2.1252b25).[197] It would be absurd to say (with the poets) that the gods are envious (*Met*.I. 2.983a-5). It would be wrong to say that among gods there is a monarchy (*Pol*.I. 2.1252.23-25). It would be inaccurate to say that they sleep, like Endimion: but it does not mean that every analogy is absurd; gods are capable of contemplation or *theorein*, like the human philosophers (*NE*.X. 8.1178b.10-20). Also in *Met*.XII. 7 and Met.XII. 9 Aristotle lists several analogies between divine life and human psychology. So *certain* analogies are rigorous, but *not every* analogy: humans and gods are not similar because of their common human form, but because of thought (*Met*.XII. 1074b-15).[198]

Nevertheless, Aristotle does not seem to have a problem extrapolating human actions to animal behavior or embryology, for instance. In *Phys*.II, a treatise on natural science written for the "student of nature", Aristotle starts talking about the final cause by using exclusively human psychological examples:

"And again, a thing may be a cause as the end. That is what something is for, as health might be what a walk is for. On account of what does he walk? We answer 'To keep fit' and think that, in saying that, we have given the cause. And anything which, the change being effected by something else, comes to be on the way to the end, as slimness, purging, drugs, and surgical instruments come to be as means to health: all these are for the end, but differ in that the former are works and the latter tools" (*Phys*.II. 3.194b30-195a2).

After the example of the walker (used also for the same goal in *Met*.V. 1013a32) and the surgical instruments, we find in *Phys*.II.3 the example of the statue and the statue maker. The doctor, the walker, the artist and their actions are considered models for natural explanation. Afterwards, in *Phys*.II.7 Aristotle tries to summarize the doctrine of the tetralogical causality of *Phys*.II.3. Then he uses an anthropomorphic example again: the battle. He asks about the final cause of a war. "Or it is what the thing is for: they fought for dominion" (*Phys*. II. 7. 198a15-20). Dominion is then the Aristotelian example of final cause. First the action of the walker, the doctor, and the sculptor and, second, the action of the fighters are Aristotle's models for natural causality. Maybe this can be striking for a scientist nowadays.

Implicit in this approach is a philosophy of nature and the human being. It will take this section and the next one to clarify it. It is clear that human practices and natural phenomena are analogical items for Aristotle. In two places in *Phys*.II Aristotle states that human art is an "imitation" of nature.[199] In this context, nature is, according to Aristotle, *better* than techniques. As we saw Aristotle says in his biological treatise *PA*: "Yet the final cause (*tò*

[197] For this idea of divine monarchy see *Met*.II. 2.997b10.
[198] Is important to remark that *Met*.XII. 1074b-15 nuances the negative idea of traditional analogies. In this passage Aristotle grants philosophical value to traditional myths, despite the anthropomorphic and zoomorphic analogies.
[199] *Phys*.II. 2.194a21 and *Phys*. II.8. 199a16-17.

hou héneka) and the good (*tò kalòn*) is more fully present in the works of nature than in the works of art" (*PA*.I. 1.639b19-21).[200]

On my reading, the argument runs as follows: teleology implies perfection. Thus, human rational actions are teleological. But nature is *more* perfect than human actions. From this perspective, human actions imitate nature in the sense that they resemble nature.

The following passage is surely one of the clearest statements of the analogy between human works and works of nature:

"Things are done for something. Therefore they are by nature such as to be for something. Thus if a house were one of the things which come to be due to nature, it would come to be just as it now does by the agency of art; and if things which are due to nature came to be not only due to nature but also due to art, they would come to be just as they are by nature. The one, then, is for the other. In general, art either imitates the works of nature or completes that which nature is unable to bring to completion. If, then, *that which is in accordance with art is for something, clearly so is that which is in accordance with nature*. The relation of that which comes after to that which goes before is the same in both" (*Phys*.II. 8.199a11-20, italics are mine).

In his teleological works, Aristotle not only talks about human activity like walking. He adds artifacts, and, in my view, precisely for the very same purpose. Crafts are the expression of human consciousness or human work.[201] Their role in Aristotle is to symbolize human actions. Human artifacts, humans and animals are potentially analogical, in this sense. A bed, an animal, a human being are analogues in *PA*.I. 640b19. At the very beginning of *Phys*.II. 1, Aristotle starts by differentiating rigidly natural beings (he mentions animals, plants and the four simple elements) and artificial beings (*Phys*.II. 1.192b10-11). The reason for this dichotomy is that the latter group, composed of artifacts, comprises beings that have no internal principle of movement. Aristotle focuses on the fact that this lack entails that crafts (in that case, beds) cannot reproduce themselves. But subsequently he establishes a solid link between one realm and the other, because of the form. Artificial beings and human activities, on one hand, and natural process, on the other, constitute the basis of this analogy, where the form is involved. Crafts, on the one hand, and natural beings, on the other, have to be understood according to their peculiar form. Aristotle begins to make this conceptual connection when he compares the form of an organic being and the form of the bed, avoiding the aforementioned difference. Among the organic beings, he says, the form is internal as a principle of movement and change; in artifacts, the form is external.

The form and function are the point of the analogy between the natural being (*physikón*) and the artificial one (*technikón*):

"A hatchet, in order to split wood, must, of necessity, be hard ; if so, then it must, of necessity, be made of bronze or of iron. Now the body, like the hatchet, is an instrument; as well the whole body as each of its parts has a purpose, for the sake of which it is; the body must therefore, of necessity, be such and such, and made of such and such materials, if that purpose is to be realized" (*PA*.I. 1.642a10-13).

In his embryological account, in *GA*.II, both the difference and the affinity between both sides is addressed in the same passage:

---

[200] Four more examples: *Phys.* II. 8.199b30-31, *PA*.I. 641b11-13, *PA*.I. 639b25-640a and *PA*.I. 639b16.
[201] See Broadie, Sarah. "Nature and craft in Aristotelian teleology". Op. cit.

"…heat and cold may make the iron soft and hard, but what makes a sword is the movement of the tools employed, this movement containing the principle of the art. For the art is the starting-point and form of the product; only it exists in something else, whereas the movement of nature exists in the product itself, issuing from another nature which has the form in actuality" (*GA*.II. 1.734b19-735a4).[202]

Although there is a definite reason for sharply distinguishing crafts such as hatchets and swords, on the one hand, and natural beings, on the other,[203] in the end Aristotle's general discourse on natural causality gives more relevance to the common element. The form and the function are the common element. There is also a comparison between the matter of the bed (wood) and the matter of the organic being (flesh and bone): they are both *relative to* the form.[204] Human actions, human artifacts and natural entities are thus analogues of each other. At least in one case, Aristotle also takes this very same analogy the other way around: the plot (*ho mythos*) of the tragedy is the *télos* of the tragedy (*Poet*.6. 1450a23), which ultimately may lead to its cathartic function. In order to explain this main feature of tragedies, which in the end is something that we construct (*synístasthai*, *Poet*.1. 1447a-2), he says that it is "like the soul" (*oion psychè*) of the artifact (*Poet*.6. 1450a39). Shortly afterwards, talking about the ordered structure of elements and magnitude, he comes back to the organic analogy (1450b35-1451a5). By no means does it entail mixing both realms. The world of artifacts is the world of extrinsic teleology, whereas the world of natural beings deals with immanent teleology. The case of the tragedies is an exception that shows the inverse use of the analogy. By *mythos* Aristotle means an especially sophisticated kind of teleological union between parts and wholes, and he recalls the case of the soul. To this extent, we can see well how art imitates nature.

It is important to notice that crafts are *not* part of immanent teleology, since their directedness is extrinsic. Crafts are excluded from immanent teleology from the beginning of the *Physics*. However, they are very useful for understanding natural teleology insofar they are an expression of human directedness. Their goal is human nature and because of their evident directedness, they offer a clear example for grasping the meaning of natural teleology.

We know now how the analogy between the realm of intentional activity and the natural unconscious realm works. It is time to explain why Aristotle proposed this in a treatise on natural causality.

As far as I am concerned, the only rejection of the possible objections of this analogy can be found in *Phys*.II.8, which is a defense of anthropomorphism or, moreover, biomorphism. In the following passage Aristotle affirms that our goal-directed actions cannot really be identified with inquiry and deliberation, since these are merely species of goal-directed actions.[205]

"The point is most obvious if you look at those animals other than men, which make things not by art, and *without carrying out inquiries or deliberation*. Spiders, ants, and the like have led people to wonder how they accomplish what they do, if not by mind. Descend a little further, and you will find

[202] There are at least two more analogies in *GA*.II. *GA*.II. 740b25-30 and *GA*.II. 743b15-25.
[203] As he does at the beginning of *Phys*.II. 1 .
[204] "It is also used for the shape and form which accords with a thing's account. Just as that which is in accordance with art and artificial is called art, so that which is in accordance with nature and natural is called nature…". *Phys*.II. 1.193a30-193b5.
[205] *Phys*.II. 8199b27-28. See Broadie, Sarah. "Nature and craft in Aristotelian teleology". Op. cit.

things coming to be which conduce to an end even in plants, for instance leaves for the protection of fruit. If, then, the swallow's act in making its nest is both due to nature, and the spider's in making its web, and the plant's in producing leaves for its fruit, and roots not up but down for nourishment, plainly this sort of cause is present in things which are and come to be due to nature. And since nature is twofold, nature as matter and nature as form, and the latter is an end, and everything else is for the end, the cause as that for which must be the latter" (*Phys*.II. 8.199A20-34, my emphasis).

Here Aristotle affirms that goals are in nature, sometimes far from human consciousness. It is found in entomology and also in plant growth, and it does not mean anthropomorphism. Spiders do not deliberate like humans, but they still have things in common with us. The same happened with gods: they do not dream, they are alien to envy, but they think. In this case, transferring immanent teleology to spiders and plants is right, and is not part of anthropomorphism. Aristotle himself would reject the analogy in terms of deliberation because of its anthropomorphic illegitimacy. A correct analogy may imply distinguishing similarities and differences with equal clarity.

The analogy between humans and nature is strengthened in a second way in *Phys*.II. 8: namely, with regard to failure. Natural beings tend toward their own form and function *regularly*. The problem is that sometimes there is no accomplishment in nature. Human failures and broken artifacts do not attain always their ends. The fulfillment of the proper goal happens always (*aeì*) or most of the time (*hos epì tò poly*): this can be applied to human affairs and, again, also to nature. The animal born deformed is the example of "natural failure".[206] It helps Aristotle to elaborate the analogy between the human conscious world and the natural world. Given that art imitates nature because nature is more perfect, and given that failures happen exceptionally in nature, it is legitimate to establish another analogy. I agree with Witt on calling this "argument from mistakes".[207] In the end this analogy is derived from the regularity of the good order of nature and reason. Failure is seen as exceptional in this context.

Ultimately, I think that the constant teleological analogy between the human realm (intelligent activities and crafts) and natural phenomena is held for two reasons. The first one is only methodological. We know the human world better, since it is our perspective. And then we can move beyond through analogy. Aristotle openly defends this method at the beginning of *Phys*.I.1, when writes:

"The natural course is to proceed from what is clearer and more knowable to us, to what is more knowable and clear by nature; for the two are not the same. Hence we must start thus with things which are less clear by nature, but clearer to us, and move on to things which are by nature clearer and more knowable" (*Phys*.I. 184a17-22).

There is a more important reason for using analogies throughout these works. It is grounded in how Aristotle conceives human beings and their legitimacy for making rigorous analogies. A philosophy of man is here implied. If we resemble nature, as Aristotle says, it is because we are part of nature. Intellect is part of nature: "For just as the intellect (*ho nous*) acts for the sake of something, nature (*he physis*) acts in the same way; and this something is its end (*télos*)" (*DA*.II. 4.415b15-18).

In the argument of immanent teleology, analogy is grounded upon a regular perfection that

[206] *Phys*.II. 8. 199a33-199b5.
[207] Witt, Charlotte. "In defense of the craft analogy: artifacts and natural teleology". Op. cit.

different phenomena have in common. There is, as I said, a genuine plurivocity regarding the Aristotelian *télos*, but at the same time, one common meaning. There can be great differences between the specifics of that perfection, but its immanent tendency towards completeness establishes the similarity. The efficacy of a hatchet, the wise practice of a surgeon, the unconscious work of a spider, the correct development of an embryo or a seed are analogue to a certain extent: they exist all for the sake of something good. Nature is more perfect than art, but resembles it. Thus, Aristotle insists on human actions for two reasons: intelligent actions are easier to understand for the students, and human beings are part of nature too, since they tend immanently towards one *télos*.

We start with human nature, like the walker. The next step is to transfer analogically this teleological idea of tendency to non-human natural beings, like plants and spiders. They also have *their own horizon* of specific perfection. Perfection and analogy are thus intimately linked in the teleological argument.

One last issue of analogy needs to be addressed. Until now I have referred to *Phys*.II. The perspective of this treatise is individual teleology, the paradigm of teleology in Aristotle. In the examples of global teleology that we will see in 2.2, the analogy between human techniques or crafts and natural phenomena is partially absent. Although the presence of the analogy is poor there, in comparison with the individual teleology excerpts from *Phys*.II, I believe that there are still analogic elements in all these passages except one. Global teleology is philosophically less developed than the other. This means, for instance, that the analogical method is less clear, although the perfective element is rapidly noticeable.

We will see these texts in detail in 2.2, but for the moment we can say something regarding the analogies. I will tackle here only two cases of the use of analogy. One of the most important texts that support the existence of immanent global teleology in Aristotle is *Met*.XII.10. It is the only text in which Aristotle covers the whole universe within one panoramic glance. The perfective element is the good arrangement of the parts (he mentions different kinds of animals). Aristotle compares the whole universe with a household and an army, not with a human body or a human action. This microcosmos and macrocosmos analogy does not refer the universe to one organism, but to a compound of them.

I observe some precaution with respect to this organic analogy in the field of cosmology. Aristotle compares the world, an ordered and hierarchical sum of entities, with two human constructs without soul like the household and the army. Aristotelian global teleology does not imply a soul of the world. He did not accept that doctrine from the *Timaeus*. To my knowledge the idea of the universe understood as an organism is referred to once in the corpus (in *Phys.*VIII. 2.252b) and he does not reject openly the Platonic notion of *anima mundi* in this chapter concerning the origin of movement.[208] In fact, Aristotle seems to accept a comparison between the world and an animal in this passage. The idea of the rejection of the soul of the world is mostly an argument from silence. He does not affirm such a notion anywhere. What interests us now is that Aristotle arranged an artificial compound of entities (an army) and a natural compound of entities (a household) for proposing the analogy. These two, army and household, are compounds of entities that appear to us as something "clearer". The ground for the analogy is its paradigm of perfection: the arrangement of the parts. I think

[208] "Aristotles seems to assume a microcosm-macrocosm analogy in all three objections". Blyth, Dougal. *Aristotle's ever-turning world in Physics 8: Analysis and commentary*. Brill, Leiden, Boston. 2016, p. 46.

that the lack of soul of these two examples is relevant, since it does not lead to Platonic assumptions. Aristotle's global teleology is still a particular conception of the world.

Other global passages deal with the term "imitation". Again, we will deal with them in 2.2, so the only thing I would like to briefly discuss here is the analogical element. Here the use of analogy is minimal, but there is still analogy in this "language of desire".[209] In *Met*.IX. 8 and *GC*.II.10 Aristotle talks about imitation among inorganic beings. In the second case, the philosopher calls imitation the general cycle of elements. In *DA*.II. 4 and *GA*.II. 1 he talks about imitation regarding plants and animals through cycles of reproduction. In these cases, the only analogic element that I have found is in fact the verb. Imitation here means something different from the "imitation of nature" by art and far from aesthetics. In this case, Aristotle uses repeatedly the term imitation. It is a choice that is, now more than ever, full of Platonic echoes. In these specific cases, perishable beings reproduce themselves for the sake of something good: taking part of eternity. Perfection means here to *contribute* with individual powers to something beyond individuality. But we will deal with that later.

The original and "clearer" sense of the verb, to imitate (*mimeisthai*), is the conscious and human one. According to Aristotle, imitation is something connatural (*symphyton*) to us. We learn by imitating (*Poet*.4. 1448b5-10), and that is the context of the term in aesthetics for instance.[210] There is a second well-known use of the mimetic language, to be found in Aristotle's natural works. As we have seen above, he repeats many times that "arts imitate nature". The ultimate meaning of this Aristotelian mantra is resemblance. Aristotle is still talking about the human realm, he is talking about arts, technical skills, although he is comparing it with nature.

There is a third context of imitation. In the four texts on global teleology, the meaning of the verb takes some steps further. As we will see, Aristotle attributes imitative qualities to elements and vegetables. In this case, imitation means, as we know, an ontological contribution and participation. This teleological activity is absolutely unconscious. It has nothing to do with imitation in terms of intentionality, as we have them in the *Poetics*, and it is not the imitation of nature, attributed to human arts in *Physics*.

The five global passages that I already have introduced have analogical features, but only in the first one, *Met*.XII. 10, were they explicit. However, even in that case, the analogy was not like the analogies in *Phys*.II and other places. The entire universe is not compared with one organism, but with one household and one army. They are items without a soul. In an old publication on organic analogies, G. Conger holds that Aristotle is not a microcosmic author.[211] He did not use the analogy between cosmos and organism. The most he does is to not reject it in *Phys.*VIII. 2.252b. The imitation passages also contain enough analogical elements, borrowed from rational imitation, but this is the same likeness that permit us to understand distant phenomena in a clearer way.[212]

---

[209] Kahn, Charles. "The place of the prime mover in Aristotle´s teleology". *Aristotle on nature and living things.* Ed. A. Gotthelf. Bristol, 1985. For analogy and metaphor: *Poet*. 21. 1457b6-9.

[210] For the distinction between poetic imitation and the imitation of nature in technical processes, see Halliwell, Stephen. *The aesthetics of mimesis*. Princeton University Press, 2002, p. 26 Witt, p. 113. For "resemblance" in Johnson, Monte Ransome. *Aristotle on teleology*. Oxford Aristotle Studies, 2005, p. 147.

[211] Conger, George. *Theories of macrocosms and microcosms in the history of philosophy*, Columbia University Press, NY. 1922. p. 10-11.

[212] For Lloyd the passage of elementary imitation through cycles is a remainder of "vitalist notions" of the previous thinkers. However, he does not state that Aristotle is hylozoist. Lloyd, G. E. R. *Polarity and analogy*. Op. cit., p. 247, 271, 282.

2.1.c. Hierarchy and anthropocentrism

The inclusion of this section has been motivated by M. R. Johnson's monograph *Aristotle on teleology*, especially its conclusion. He writes:

"Because non-human organisms do not have conscious goals or purposes, we assume that it is anthropomorphic to attribute ends to non-human things such as animals and plants. A consequence of this avoidance of anthropomorphism is the acceptance of anthropocentrism: if only humans can be the subjects of purposes and values, then only humans can be objects of purpose or value, and thus have ends".[213]

Here I introduce a new term: anthropocentrism, different and even opposed to anthropomorphism. There are different kinds and degrees of anthropocentrism in the history of philosophy, as we will see soon, but what I call *absolute* anthropocentrism concedes goals and perfectiveness *only* to gods and human beings, by identifying the mind with perfectiveness. In absolute anthropocentrism human beings are not only the most perfect beings within nature, but also the only ones that have proper goals. Absolute anthropocentrism conceives nature always in relation to human goals, and hence the goal of individual natural entities is necessarily subordinated to human goals. An absolute anthropocentric position can include providence and creation, providence without creation, and can also disregard both. Perhaps the most famous anthropocentric account of nature can be found in one passage of the first book of the Bible, which includes providence and creation.[214]

Until now I have addressed the notions of perfection and analogy in a pluralistic way. This means basically what Johnson says: the correct anthropomorphism, the rigorous biomorphic analogy, entails a "challenge to teleological versions of anthropocentrism".[215] I also believe that immanent teleology has some sort of ecological meaning or "biophilia": this approach to natural philosophy entails a "recognition that other things besides humans have intrinsic value".[216]

According to anthropocentrism we cannot think about natural beings beyond their relation with human beings; according to biomorphism or a correct anthropomorphism, we should be able to. There are different kinds of perfection in nature. There is a common perfection between every living being, and life (and not mind) is the paradigm. The model of immanent teleology implies both a philosophy of nature and a philosophy of human beings. As I said, the Aristotelian conception of man is a naturalistic one. This is an implicit philosophy of anthropology that cannot be found in *Phys*.II, but I still consider it a structural element of immanent teleology. It is necessary to complete this account of Aristotelian nature and humans by nuancing the pluralism, mentioned in sections a) and b), and also defended by Johnson.

I give three examples: Plato, the Stoics and Descartes. They are influential thinkers of absolute anthropocentrism in ancient and modern philosophy.

---

[213] Monte R. Johnson, *Aristotle on teleology*, Cambridge University Press, 2008, pp. 290-293.
[214] One can interpret in this way *Genesis*. 1. 26.
[215] Monte R. Johnson, *Aristotle on teleology*. Op. cit., p. 291.
[216] Ibid., pp. 293. For "biophilia", p. 290

As I said above, Plato defends a transcendental teleology, which includes providence and also divine creation. In this framework, heavenly beings and human males are intelligent beings and thus they have their own goals. In the end, Plato's idea of a genuine goal is restricted to these two types, while the rest of the species in nature is conceived as degraded forms. According to *Timaeus*. 90e-92c the rest of animals were sinful humans in the past. Following this passage literally we can say that for Plato human females, birds, quadrupeds, snakes and fish were human males in the past and afterwards became what they are through reincarnation.[217]

In Cicero we have a clear account of the Ancient Stoic anthropocentrism.[218] The passages from *On the nature of the gods* add to the question of providence a clearer conception of what anthropocentric teleology might be. The representative of Stoic thought says in this dialogue:

"For whose sake, then, would one say that the universe was formed? For the sake, undoubtedly, of those animate beings that exercise reason. These are gods and men, whom nothing assuredly transcends in excellence, since reason is the highest of all things. It is thus credibly established that the universe and everything that is in it were made for the sake of gods and men" (*De natura deorum*. II. Chap. 53. 133).[219]

The last remark states clearly that the goals of natural beings are necessarily related to human and divine goals. Their value and completeness are to refer to intellectual beings. Hence everything is relative to gods' and mankind's value. The next text shows us how it can be so:

"But it will be asked for whose sake so vast a work was carried out. Was it for the sake of trees and herbs, which though without sensation are nevertheless sustained by Nature? No, that at any rate is absurd. Was it for the sake of animals? It is equally improbable that the gods went to such pains for beings that are dumb and without understanding. It must, then, be admitted that this wealth of things was provided for man, unless, perhaps, it is the great abundance and variety of fruits, and the pleasantness not only of their taste, but also of their smell and appearance, that throws a doubt upon their having been bestowed by nature upon man alone! So far are they from having been also provided for the sake of animals, that we perceive the latter to have been themselves created with a view to man. What other end do sheep serve except that of clothing men with their wool, when it has been prepared and woven?" (Cicero. *De natura deorum*. II. Chap. 63. 158).[220]

The last passage is relevant for us, since it clearly shows how to understand the Stoic inter-species anthropocentric teleology. It shows the role played by non-human species in the framework. Like in one Aristotelian interspecies passage,[221] we have here a natural scale interpreted in global teleological terms: the inferior's goal is to serve the superior. This means that plants (and their fruits) are for the sake of animals and humans, since the latter are more perfect. Animals are for the sake of humans, because the latter are *better*. As we can see here, the Stoic interprets the natural scale or ontological hierarchy in teleological terms. This allows him to conceive the whole of nature as a hierarchical web of subordinated goals. Each one is relative to the next step further in the scale, and especially "with a view to man".

---

[217] To this extent Plato's anthropocentrism is human-male-centrism. For the laws of decadence through transmigration see also *Laws* X. 904c-905e.
[218] See also Crhysippus in *Stoicorum Veterum Fragmenta*. Vol. II §1157. Ed. Von Arnim. Teubner, Stuttgart, 1964, p. 333.
[219] Cicero. *On the nature of the gods*. Francis Brooks. Methuen, London, 1896, p. 155.
[220] Ibid., p. 143.
[221] I mean *Pol*.I.8. See 2.2.b. "Ecology: interspecies order".

Descartes distrusted final causality. For him transcendental teleology is useless.[222] The founder of modern philosophy is a founder of non-providential anthropocentrism. In the biological individual realm everything is mechanics and thus animals do not have such a thing as a specific form or soul.[223] In Descartes we can only talk about human goals, based on our spirit. But there is no point in saying that plants or animals have goals, not even in saying that those goals are "with a view to man". Descartes dispenses with any kind of teleology in nature, he rejects extrinsic and immanent teleology.

For absolute anthropocentrism, it is impossible to understand living beings without reference to humans and in some cases above ultimately to gods. In comparison with Aristotle, these previous visions share a restricted understanding of what a natural goal is. In the case of Descartes, there is pure anthropocentrism, since only man has goals. In the case of Plato, the vast plurality of goals in nature is referred to human males, who are the paradigm of perfection (while the rest is conceived as decadent). The world of living entities, such as plants and animals created by the demiurge, has its absolute center in the human being. The two Stoic passages show how the rest of nature can have its own goals, although its value is ultimately relative to intelligent beings, like gods and humans.

Aristotle's understanding of nature challenges the Platonic, Stoic and Cartesian conceptions of nature and human beings. Johnson is right in saying that *correct* anthropomorphism automatically implies the rejection of *absolute* anthropocentrism. In Aristotle humans are not isolated in nature. Aristotle conceives non-intelligent goals in nature.

As a consequence I believe that Aristotelian pluralism must be nuanced. In Aristotle there is neither "radical egalitarianism" nor "arbitrary relativism".[224] While he recognizes non-human life, he defends a hierarchy in which intrinsic perfection counts.[225] In the very last two pages of his work Johnson addresses the question of the hierarchy and the position of human dominance, something that is a key part of Aristotelian universe. The scholar himself asks: "But does this kind of hierarchy send us right back to the position of human dominance, and so effectively amount to the anthropocentrism that we were trying to avoid?" And he continues: "One answer is that, even if it did, at least we would have a naturalized, objective basis for that apparently inevitable axiology".[226] Secondly, Johnson says that actually there is no anthropocentrism in Aristotle and gives a rough outline of what an Aristotelian environmental ethic can be: it may regard "explotation of nature with reference to the ends of other natural entities".[227] Then the interpreter seems to link the idea of recognition with that of the notion of limit of acquisition in *Pol*.I.10. Given the recognition of value in life of any kind, exploitation would never be legitimate beyond the natural limit of acquisition, proportional to our limited necessities.

---

[222]Descartes, René. *Principes de la philosophie.* III. §47 and also I. §28.
[223]Descartes, René. *Discours de la méthode*. V.
[224] Monte R. Johnson, *Aristotle on teleology*. Op. cit., p. 293.
[225] I think the biologist Simpson summarizes well the opinion from the evolutionary perspective: there is no intrinsic value for establishing hierarchies. Perfection, as such, is an empty word: "Examination of the actual record of life and the evolutionary processes as these are now known raises such serious doubts the oversimple and metaphysical concept of a pervasive perfection principle that we must reject it altogether". Simpson, George G. *The meaning of evolution. A study of the history of life and its significance for man*. Yale University Press, 1960, p. 2421. However, I think that Simpson uses some perfective concepts: adaptive powers are for Simpson a valid evolutionary criterion.
[226] Monte R. Johnson, *Aristotle on teleology*. Op. cit., p. 293.
[227] Ibid., p. 293.

I defend a middle ground position for Aristotle, one which is not so opposed to Plato. The Aristotelian human is to be found on a natural and, ultimately, ontological scale. The human being is inferior to supralunary beings (*NE*.VI.7.1141b-5), although it is prior in nature in comparison to any other being within the infralunary realm. Human beings are a recapitulation of the physical world, since all the different grounds of life are contained in his or her own nature. Second, mankind has unique characteristics. Mankind summarizes the previous stages and adds the most perfect ones, but as Rémi Brague says, this "does not mean an *absolute* anthropocentrism".[228] Also, I think that this rooting of human faculties in the natural world is what Johnson means by "naturalized". *If* Aristotle was an anthropocentrist, it would be a *naturalized anthropocentrism*, Johnson says. But finally, he rejects that label. Johnson prefers the term "naturalized axiology".[229] The ultimate meaning of this term in Johnson is basically practical or ethical: axiology has to justify exploitation of nature. Nevertheless, apart from this possibly legitimate conclusion, there is still an ontological superiority of human beings in Aristotle.

Aristotle's naturalized anthropocentrism mitigates the previous conceptions of human beings, and challenges, *après* or *avant la lettre*, those frameworks in which man is the goal of inferior natural beings or even the only goal of nature. However, while the term "anthropocentrism" means that human goals are *more important* than animal goals, I think it must be applied to Aristotle. Humans in Aristotle summarize or represent the rest of the faculties in nature, and also add some unique ones. Unique faculties like the intellectual ones are grounded, in Aristotle, in the biological faculties.

If the "centrism" means importance or uniqueness, this might imply a certain anthropocentrism. But notice that I add the term "mitigated", for it is necessary to distinguish sharply this point of view from Plato's. Again, with Johnson I think that absolute anthropocentrism is incompatible with immanent teleology, but I do not think that the same conclusion follows from the mitigated version. That is, *mitigated anthropocentrism* is a structural part of immanent teleology and it is perfectly compatible with pluralism and anthropomorphism.

Before discussing specific features of human beings in Aristotle, I want to draw attention to the notion of hierarchy implied and almost never explicit in his writings. We have to see that man is in a specific position on the natural scale. Moreover, we will see that this scale is the structure of his own knowledge: in general terms, the scale represents man's own lower faculties. After noticing this we will be able to understand the naturalized anthropocentrism of Aristotle, where ethics and intellect are grounded on nature. Only afterwards will we be able to highlight human uniqueness, named by me as summary and uniqueness.

The scale of being is implied in multiple texts of Aristotle but he only explicitly addressed it in a few. To be sure, the Aristotelian scale is not a mere scale of living sublunary beings. It includes a wider range of entities. Among the sublunary realm it also covers the four sublunary primary bodies (fire, air, water, earth). Besides, the scale rises upwards to the heavens and up to god, the prime mover. Supralunary eternal entities like the sun, the moon,

[228] "La plus grande naturalité de l'homme ne vaut que *par rapport aux animaux*, et elle n'implique pas un anthropocentrisme absolu". Brague, Rémi. *Aristote et la question du monde*. PUF, Paris, 1988, p. 231, italics are mine. Also bid., p. 271. On recapitulation Ibid., p. 234.
[229] Monte R. Johnson, *Aristotle on teleology*. Op. cit., p. 293.

the stars and the first heaven also have their particular position in the scale. The scale includes elements, living beings, human being and heavenly bodies, as *DC*.II. 12 suggests.[230]

However, I focus on living beings. Although the idea is not developed, Aristotle has in mind an rising continuum in *DA*. There is, at least, one passage that shows clearly so: "There is also this parallel between the cases of soul and of the figures: what is prior in the sequence is always implicitly present in the other figures or ensouled things (the triangle in the rectangle, the nutritive in the perceptive)" (*DA*.II. 3.414b29-32). The perspective there is that of a variety of faculties and the types of souls, simultaneously. This means both that the beings capable of perceive also have the nutritive faculty. There is a hierarchy.

The so-called rising continuum in the living realm is described only in two places in the corpus. In fact, they are the only texts in Aristotle in which he addresses the topic of nature in a panoramic way. This panorama has the form of a natural scale.

In the first case, on Ascidians, between plants and animals:

"For nature passes from lifeless objects to animals in such unbroken sequence (*synechos*), interposing between them beings which live and yet are not animals, that scarcely any difference seems to exist between two neighbouring groups owing to their close proximity" (*PA*.IV. 5.681a10-14).

Here there is the second passage on the natural scale of biology:

"Nature proceeds little by little from things lifeless to animal life in such a way that it is impossible to determine the exact line of demarcation, nor on which side thereof an intermediate form should lie. Thus, next after lifeless things in the upward scale comes the plant, and of plants one will differ from another as to its amount of apparent vitality; and, in a word, the whole genus of plants, whilst it is devoid of life as compared with an animal, is endowed with life as compared with other corporeal entities. Indeed, as we just remarked, there is observed in plants a continuous scale of ascent towards the animal" (*HA*.VIII. 1, 588b3-7).

These texts highlight what Lovejoy calls the "principle of continuity". Although there is not a general exhaustive classification of biological species in Aristotle, there is in this view a *classification of faculties*.[231] Although he admits that there are transitional forms in Life, such as the ascidians, there are sharp distinctions between realms in his conception of biology. In *DA*.II. 4 we see that nutrition, growth and reproduction are part of all the living beings. With regard to the analogy between biological forms and geometry, nutrition is the triangle. It is the most basic ground of life. That is, the vegetable life. When in *NE*.I.7 Aristotle asks about the goal or function of plants, he mentions nourishment and the faculty of growth (*NE*.I. 7.1098a1).

After plants and Ascidians we reach animals. It is true that among animals the hierarchy is unclear. Aristotle affirms that "animals must necessarily have perception" (*DA*.III. 12.22-33), namely the sense of touch (*DA*.III. 12.434b14). In *DA*.III. 10 it seems that desire is also a necessary faculty of animals. In *DA*.III. 11 he mentions "imperfect animals" that have only the sense of touch (from which they can experience, incidentally, pain and pleasure) (*DA*.III.

[230] *DC*.II. 12.292a14-292b25. I come back to this passage in 2.2.b, in the section called "The goal of heavenly bodies".

[231] Lovejoy, Arthur. *The great chain of being: a study of the history of an idea*. Harvard University Press, Cambridge, 1964. On this topic also the brilliant article: Wolff, Francis. "L'animal et le dieu: deux modèles pour l'homme". *L'être, l'homme, le disciple*. PUF, Paris, 2000, pp.116-122.

11.434a4). A bit further he says that while touch (and taste) are for living, "the rest of the senses are for living well" (*DA*.III. 12.25-27).[232]

It seems then that there is a hierarchy between animals, regarding their capacities. There are those that only perceive through touch, and the rest are superior. Aristotle makes this distinction in different regards. Aristotle says, "it is evident, then that perceiving and understanding are not the same thing; for all animals have a share of the former, but few of the latter" (*DA*.III. 3.427b7-9). Also, regarding imagination, he says: "while imagination is present in many beasts, *lógos* is not" (*DA*.III. 3.428a28). Memory, and hence prudence, is also present in some animals, and in some there's not (*Met*.I. 1.980a25-980b27). *Some* animals (not many), apart from human beings, have the power of understanding and remembering; and *many* (not all) have imagination. In any case, to my knowledge, there is no classification of those superior animals that can perceive through vision or hearing and that also can imagine or move themselves. Hence, there are *superior animals* and *inferior animals* for Aristotle, although he does not provide any classification with examples.[233]

Just as the plants are to be understood according to the faculty of nutrition and reproduction, and human beings according to their intellectual capacities, the possibility of deliberation and being happy, the animal kingdom is, generally speaking, sensitive to pain and pleasure, as well as desires, which are the cause of locomotion. Again, in the function-argument or *ergon*-argument chapter of the first book of *NE*, Aristotle points out the specific function of animals and mentions sentient life (*NE*.I. 7.1098a1-2).

Finally, we reach mankind. It is at the top of the infralunary scale of beings. There are multiple texts in which Aristotle talks about man's superiority and unique faculties,[234] but the first feature I want to mention concerning Aristotle's man is something that I have already suggested: human beings summarize the rest of the natural world. Apart from the elementary compound, it is one unique feature of humans that they participate in the rest of the biological faculties. Humans have all the faculties mentioned in the treatise *On the soul*. In my view *NE*.I. 13 is one of the best examples for highlighting the idea of recapitulation in mankind. This means that humans summarize the whole scale of living beings in the infralunary realm. Moreover, as Brague suggests,[235] *NE*.I. 13 echoes a certain ontogeny. That means that the development of the human being, from the first embryological stage to maturity, goes through vegetable life, animal life, and, finally, human life.

While in the function-argument of *NE*.I. 7.1097b35-1098a16 Aristotle recalls the natural scale and distinguishes three basic parts of it, in *NE*.I.13 the philosopher links nutrition and growth, the goal of vegetable life or *phytikón* (*NE*.I. 7.1098a), to the first stage of human development, the life of the embryo. There he focuses on nutrition and dreams (*NE*.I. 13.1102b-5). In the function-argument of *NE*.I. 7 the function of senses or actualization of the sensitive capacity or power (*aisthetiké*) is the *télos* of the animals (*NE*.I. 7.1098a1). Apart

[232] Regarding "living well" or *eu zen,* see also *DA*.III. 13.20-25.
[233] Wolff shows that classification in Aristotle is variable and not stable: regarding habitat, the way of life, or morphology. See Wolff, Francis, "L'animal et le dieu: deux modèles pour l'homme". *L'être, l'homme, le disciple*. Op. cit., p. 117.
[234] See Clark, Stephen. *Aristotle's man: speculations upon Aristotelian anthropology*. Clarendon Press, Oxford, 1975, and Brague, Rémi. *Aristote et la question du monde*. Op. cit. Among papers the most philosophically enlightening account of Aristotelian anthropology can be found in, again, Wolff, Francis. "L'animal et le dieu: deux modèles pour l'homme". Op. cit..
[235] Brague, Rémi. *Aristote et la question du monde*. PUF, Paris, 1988. pp. 231- 234.

from that, the faculty of desire is also implied in the animal type. It can easily be linked to the irrational principle of the human soul (*NE*.I. 13.1102b15-1103a), the *orektikòn* and *epithymetikòn*. Aristotle clarifies that the first level, the vegetable one, does not participate in reason, while the second, the animal one, does it through obedience. Already in *NE*.I. 7 the philosopher had noted that human beings both *obey* reason and *have* reason and think (*dianoúmenon*) (*NE*.I. 7.1098a2-5).

It is easy to find other passages in the corpus where Aristotle makes the analogies between children and animals clearer. Regarding the development of the body, Aristotle distinguishes mature humans from animals because of the straight posture. While they move themselves horizontally, using hands and legs, children are closer to animals (*PA*.IV. 10.686b-25).[236] Aristotle is clear in saying that "children and animals" are not capable of rational deliberation,[237] and in the context of chance and fortune, Aristotle states eloquently that "nothing done by an inanimate object, beast, or child, is the outcome of luck, since such things are not capable of choosing" (*Phys*.II. 6.197b7-9). Children have senses, desire and capacity of locomotion, but do not have reason. The embryo stage and childhood are linked with the natural world because human beings summarize the rest of the faculties. The progress of the human's development shows it clearly. As I said, the vegetable faculties and the animal faculties considered in DA can be found in the human life.

But humans also count with privileges in Aristotle. They have unique features and faculties. We can start with physiology. Among the varied physiological peculiarities of the human beings in Aristotle's biological approaches,[238] I would say that human hands and the human's upright position are the most meaningful.[239] I think that is so because, although Aristotle himself states that nature makes each thing for one purpose (*hen pros hén*), unlike the Delphic multipurpose knife (*Pol*.I. 2.1252b-5), in the example of the hand we find an *extremely* multipurposeful organ.[240] It is, thus, something quite special and unique. But maybe the clearer physiological uniqueness of mankind for Aristotle is the upright posture, in *PA*.II. 10.656a7-10. There Aristotle states only that humans participate in the divine (*monon metéchei tou theiou*), and that it is manifested in their upright posture. In man alone do the natural parts appear in their natural situation (*PA*.II. 10.656a12).

Once we reach the intellectual capacities of the human soul there is only uniqueness. Although some superior animals can participate in practical reason,[241] in general terms

---

[236]Also *EN*. 1105a1 and *HA*. 588a30-588b.

[237] See *NE*.III. 2.

[238] On the variety of human eye colors: *H.A*.I. 10. 5-6. Humans are the only living beings that cannot move the ears: *H.A*.I. 11.21-22. They have the smallest nails and thinnest skin: *GA*.II.6.745b15-20. They have the longest life, along with the elephant: *GA*.IV. 10.777b-5-. Human beings have a relatively perfect sense of touch: *HA*.I. 15.494b15-20 and *PA*.II. 16.660a11-13. They have the thinnest skin. *HA*.III.517b25-30. Other specificity is the possibility of being ambidextrous: *HA*.II.1.498b.31, *PA*.IV. 8.684A27 and *NE*.V.10. 1134b33. Another peculiarity is having mammals in the front: *HA*.I. 498a. Man is the animal that dreams more: *HA*.IV. 10.537b14-15. He or she makes love at any time: *HA*.V. 8.542a27. In embryology human beings have also peculiarities, regarding the variable time of gestation and the number of fetus: *HA*.VII. 4.584a35-37 and *HA*. 585b25-30, respectively.

[239]For the hand *PA*.IV. 10.687a10-688a25. For the posture *HA*.I. 15.494a27-494b, *PA*.II. 10. 656a11-13, *PA*.IV. 10. 687a5-6.

[240] I stress "extreme" because there are in nature other things which are used for two purposes or more, like the teeth.

[241] On animals that think in Aristotle: *Met*.I. 1.980a27-b30 and *DA*.II. 3.415a7. Since friendship implies virtue or is virtue, and virtue implies any sort of reason, animal friendship, mentioned in *NE*.VIII. 1.1155a15-20, might imply some sort of virtue and reason.

animals are "idiots (*aphronéstera*) in comparison with man" (*PA*.IV. 10.686b24). The reflective capacity is exclusive to humans (*HA*.I. 488b25-27). At the top of the complex view of intellectual capacities in Aristotle can be found contemplation or *theoretiké* (*NE*.X. 7.117a18). I only need to focus on this concrete capacity. Contemplation is the most divine capacity in us (*en hemin theiótaton*, *NE*.X. 7.117a16) and entails a perfect happiness (*teleía eudaimonía*, *NE*.X. 7.117a17 and *eudaimonéstatos*, *NE*.X. 7.1178a8) and autarchy (*autárkeia*, *NE*.X. 7.1177a28). Aristotle compares it with the happiness of the divine entities (*NE*.X. 7.1177b28-1178a1, *NE*.X. 8.1178b910, *NE*.X. 8.1178b26-27). To contemplate is, for Aristotle, inaccessible for any other creature and, at the same time, the most perfect activity in the world, it is something that "in its power and value far exceeds everything" (*EN*.X. 1178a).

We have seen physiology and intellect. Another anthropological characteristic needs to be addressed. It is well known that for Aristotle humans are political animals. Sociality is a necessary characteristic of human life (*Pol*.I. 1253a-5), and the human is even more political than other political animals, more political than bees, for instance (*Pol*.I. 2.1253a7-8). In *Pol*.I.2 we see that the *télos* of man, that is, "living well" or *eu zen*, only can be achieved in the polis (not in previous, imperfect or incomplete stages of communities, such as the village or the familiar tribe, *Pol*.I. 21252b29). This entails, among other things, that humans can contemplate *only* in the context of the city, which is the only community with autarchy or self-sufficency. In his view, the capacity to use an articulated language shows its deeply political nature, since language can express moral or political values. This is all unique to human beings.

There is one aspect of Aristotelian anthropology in *Pol*.I 2 that might reduce its superiority: another central characteristic of human beings is their *ambivalence*. A rational, well-educated individual living in the context of the city is the best *but* a vicious human being, living outside the law, virtues and cultural values is *worse than any other living being*. Human beings are for Aristotle ambivalent, since they can be the best (*béltiston*) and the worst (*cheíriston*) of nature (*Pol*.I. 2.1253a31). This so-called capacity of degradation is also another expression of human uniqueness, since vice does not have this power over any other animal.[242] But in any case, is important to have in mind that when I say that the human is superior to any other infralunary being in Aristotle, I do not refer to vicious specimens, since they could not qualify as such.

Now we can turn back to the main question of the section. Human beings are not *one species among others*, but rather a unique, supreme and exclusive case in nature.

A so-called mitigated anthropocentrism means also that human beings are superior to animals, *but* likewise *inferior* to other entities, such as the supralunary ones. Mitigated anthropocentrism means, thus, that pluralism is compatible with a rigid hierarchy. To some extent, there is a sharp gap between infralunary beings and human beings, and there is another one between humans and heavenly bodies. This position does not imply that animals are necessarily for the sake of humans.[243] It states however that humans are by far *more perfect* than the rest of the worldly entities because of their unique capacities. At the same time, this perfection is rooted in nature. Human beings are also the hierarchical compendium

[242] On the contrary, animals can rise up from their natural stage to a better one while being tamed or used by human beings in higher activities. Equally, in his view, are the natural slaves or barbarians. See *Pol*.I. 5-8.
[243] I am referring to Sedley and Owens, and they interpretation of *Pol*.I. 8 along with *Met*.XII. 10. See 2.2.b.

of the biological faculties. Let me use a political metaphor. Aristotle considers nature as a plurality of different entities with different goals according to their own nature. They are for their own sake, which he recognizes. It may be seen as a democratic conception of nature. At the same time, nature is not a matter of metaphysical equality where every living body is worth the same.

This account does not directly address the teleological argument, but it nonetheless helps us to understand Aristotle's pluralism better. It also explains in which sense human beings are part of nature. Thanks to their non-rational faculties there are even closer analogies in lower levels. This means that the growth of the plant is analogous to human rationality, and furthermore it is even closer to human embryonic growth. The intellect enters only after the embryo stage and the irrational childhood stage. The intellect is the end of a perfective process that starts in nature. Humans are analogous to plants, but they were *more analogous* at the beginning of their individual progress to maturity. This means that reason and humans are to be understood within nature. It explains what Johnson says about naturalizing the axiological scale. Man's excellence is, in the end, rooted in prior faculties that pertain to the world of life.

There is one more important thing to say. Almost all human faculties are natural, but some are divine. They have what I called unique faculties. The case of human upright posture can be less clear for us, since it doesn't involve any particular faculty, but the intellect is more evident. The intellect, or contemplation, is divine. This explains, for instance, why Aristotle applies his immanent teleology to the heavens, as we will see in 2.2. For the moment we have seen the basis for this analogy. Thinking means the fulfillment of human nature. It is the function of man. This *télos* can be transferred to the heavens according to Aristotle.

If uniqueness derives from anthropocentrism, the human's sum of natural faculties and unique characteristics in the infralunary realm (including his or her capacity of being the worst of all beings) point to it. Physiologically and intellectually, humans are the most perfect. They are closer than any other being to the intellectual heavenly bodies and, ultimately, to god. Aristotle's anthropology can be defined thus as a mitigated anthropocentrism, because as we saw animals and plants have their own irreducible goals too. There is more of this to be said in 2.2. In sum, humans are not alone, but they are the best.

2.1.d. Regularity *versus* luck

- Primary teleology

While perfection is the main ontological claim in the teleological argument, analogy is the basis of the teleological method. In my view, regularity is a secondary methodical element, but still crucial. It is to be found in *Phys*.II.8. Aristotle defines final causes as outcomes of a regular non-arbitrary world, opposite to luck. At that moment, lucky events have been already tackled in that treatise, in chapter 4, 5 and 6. It is natural that chapter 8 refers to them.

Basically, Aristotle says, nature tends regularly towards the best, the good, to excellence and completion.

"…because in fact we do not find any chance creature being formed from a particular seed (*spérmatos*), but A comes from a, and from b ; nor does any chance seed come from any chance individual" (*PA*.I. 641b27-30)

Regularly, new human beings are born from already existing human beings. Regularly, the sun is in a certain position, generating winter rain, for instance. Regularly, horses live horse lives, and not plant lives, for instance. Regularly, in nature, things work for the good or the best regarding specific forms. Once again, the good or the best which is attained can be understood in a wide range of phenomena: the reproduction of the species, the place of a heavenly body in the cycle or horses' habits, for instance. The point now in *Phys*.II.8 is that in all these cases perfection happens regularly. There is a regular tendency toward the best among all the beings in the infralunary and even more clearly in the supralunary realm.[244]

Aristotle says:

"(…) but when a certain thing comes to be always (*aeì*) or for the most part (*hos epì tò poly*), it is not a concurrent happening, nor the outcome of luck" (*Phys*. II. 8. 199b23-25).

Aristotle is pointing out the regular tendencies towards the attainment of the specific form, the actualization of the substance. "Things according to nature are as fine as can be" (*tà kata physin, hos oión te kállista echein, EN*. I.10.1099b21-2). Every natural being, for the most part then (if not always), is *as fine as can be*.

As I said, the argument of regularity is a methodological one, because it shows through experience that everything in nature works toward the good. But it is grounded in an ontological claim: things happen regularly for the good and not for the bad. Only afterwards do we find the "argument from mistakes", that we saw in section 2.1.b.

- Secondary teleology: what happens only once

We have already covered the main Aristotelian texts on teleology. Now I want to add something else that will be put to good use further on in this study: Aristotle's account of chance and lucky events. This leads us to the concept of "secondary teleology", different from the "primary" one, already known. Secondary teleology means teleology beyond the boundaries of regularity. This idea of secondary teleology is central in Chapter 3 and 4.

Augustin Mansion thinks of chance and luck as an obstacle to teleology.[245] Against his view, Wieland was the first who avoided the opposition between *tyche* and teleology. According to Wieland, the chapters on chance and luck in *Phys*.II show what Aristotle thought about teleology in general. The result in his case was enormously exaggerated: in Wieland's view teleology suffers a severe ontological reduction. As we know the latter openly links Aristotle's doctrine of the final cause to Kant's Third *Critique* by saying that in *Phys*.II and in the whole corpus there is an *as if* teleology. For Wieland's Aristotle final causality is always retrospective, reflective and heuristic. The regular fulfillment of functions in the world is not

[244] "We do not think that it is the outcome of luck or coincidence that there is a lot of rain in winter, but only if there is a lot of rain in August; nor that there are heatwaves in August, but only if there is a heatwave in winter. If, then, things seem to be either a coincidental outcome or for something, and the things we are discussing cannot be either a coincidental or an automatic outcome, they must be for something".*Phys*.II. 8.199b-5. Regularity is the main thesis behind the obscure and controversial passage of rain in winter,.
[245]Mansion, Augustin. *Introduction à la physique aristotélicienne*. Op. cit.

a claim grounded in nature, but just part of the way in which we humans interpret the surrounding world.[246]

In denying the *Mansonian* assumption of obstacle to teleology in fortune, Boeri follows Wieland. Furthermore, Boeri avoids Wieland's excesses and distinguishes two teleologies. There is a primary teleology based on regular constitutive tendencies towards completeness. It is grounded in ontology and nature. It is what I have described all along these pages. It is what Mansion talks about. Boeri's account has to be understood within a line of interpretation that regards Aristotelian teleology as complex field, with alternative branches and perspectives. Also, this scholar proposes a "secondary teleology". This one is heuristic and describes the way in which we interpret accidental processes.

Take the famous example of one creditor who accidentally finds the debtor in the market.[247] The creditor did not go to the market for the sake of finding his debtor. The converse can be said of the debtor, for sure. But after that incident, one can imagine what the creditor can think about the whole event. He will interpret and reconstruct all the process *as if* he was going to the market for the sake of recovering his money. Secondary teleology permits us to make sense of contingent things.

We can study Aristotle's idea of *tyche* or luck in his own words in *Phys*.II.[248] In *Phys*.II.6 Aristotle states that while luck happens regarding the human rational ground (the ground for bad luck *–distychía-* or good luck *–eutychía-*), there is another notion of an accidental undefined cause of singular events called *autómaton* which is not to be applied to human rational beings but to natural entities, animals and children (a horse or a human baby can have neither good nor bad luck, according to the Stagirite). While I translated *tyche* as luck, I translate *autómaton* as chance. Chance does not work in the non-rational realm, while luck does. Luck is conceived twofold: there is good luck (*eutychía*) and bad luck (*distychía*). If the creditor finally obtains his money, we have a case of good luck.

What is more important for us is that lucky or *apò tyches* events are accidental and undefined (*tò dè katà symbebekòs aóriston*, *Phys*.II.196b.28. 197a8). It is crucial to see that among these phenomena *there is no "for the sake of" or goal* (*Phys*.II.197a32-35). There is no progress towards a specific form or function neither in luck nor chance. The encounter between the debtor and the creditor could never be compared with the cases of growth or function that we have already seen. Chance and luck are not regular, like the cases of growth and function: the former cases are unstable, uncertain (*abébaios*, *Phys*. II.197a.30-31). The accidental causality of chapters 4, 5 and 6 is "obscure" (*ádelos*, *Phys*.II. 5.197a10), while the primary causality is clear in Aristotle. He considers these phenomena, causally speaking, to be secondary (*Phys*.II. 198a8). Chance and fortune are based on exceptional or singular events, so they is unpredictable or inexplicable (*parálogos*, *Phys*.II. 5.197a18 and *EE*.VII. 14.1247a33). Coherently, the philosopher considers that there is no possible science of chance and luck.

Following Dudley, I defend an "indeterminist" Aristotle. This means that I do not believe that he thought of chance/luck events as being something unpredictable *for us*. I believe they are

[246] Wieland, Wolfgang. "The problem of teleology". *Articles on Aristotle. 1. Science*. Ed. Jonathan Barnes, Malcolm Schöfield, Richard Sorabji. Duckwarth, London, 1975.
[247] Boeri, Marcelo. "Chance and teleology in Aristotle's Physics". International Philosophical Quarterly 35 (1), 1995.
[248] Also, regarding fortune and, especially, good fortune and happiness: *EE*.VIII. 2 and *NE*.I. 9 and 10.

part of nature as such, although human nature has to rely on them in a special way: *tyche* is to be found exclusively in the human practical realm.

We can distinguish a primary teleology, grounded in regularity, forms and functions, from a secondary one, which in my own terms, makes sense of singular events that cannot be repeated. Primary teleology, on which I have focused, has the status of science in Aristotle. That is not the case with the second one. I call the latter narratology, for it is a coherent account of unpredictable and singular events. It is a retrospective teleology. This alternative retrospective teleology is not relevant for Aristotle's teleology, in my view, but it will be very important when we come to Bergson's teleology, where it will be applied not to the human practical realm, but to nature as such.

2.2. Two domains of immanent teleology in Aristotle

As I already mentioned in the Introduction, I distinguish two domains of final causality in Aristotle. Since my approach to Aristotle is comprehensive, I defend that both are compatible. They diverge in the notion of perfection or *télos* that is implied. In general terms, in 2.2 I will highlight different approaches to the notion of perfection from different fields. First, there is a paradigmatic individual teleology, to be found in *Phys.*II, in *P.A.*I and also in Aristotle's works on ethics, biology or even astronomy. Then, we will look at different passages on global teleology. All these together complete the picture of immanent teleology in Aristotle.

On five occasions in the corpus, Aristotle defends a twofold understanding of the final cause.[249] There the final cause or that for the sake of which (*hou héneka*) is seen as *hou héneka tinos* that is, " for the sake of " declined in the genitive, which is regularly considered by translators and interpreters a goal in the sense of an " aim ". And there is the final cause, *hou héneka tini,* where the teleological expression is declined in the dative. This is usually seen as a goal understood as a " beneficiary". Without exception, these remarks are obscure and brief, and they do not shed much light on the topic. In any case, Aristotle insists five times on the twofold description of the term, so it must be considered a stable typology. Every interpreter of Aristotle has to address this problematic and uncertain question. I believe that Gelber is right in pointing out some difficulties in the common reading of the aim/genitive and the beneficiary/dative regarding some of those texts. However, to some extent I follow the line that "commentators almost universally" follow.[250] In addition, following an important series of scholarly interpretations, that the distinction aim/beneficiary leads to a comprehensive understanding of immanent teleology, in which individual teleology and global teleology can coexist in the corpus. The goal in the sense of an aim matches with a global understanding of *télos*. And the same happens with for the sake of in terms of beneficiary.[251]

[249] See *EE.*VIII. 8, 1249b9-21, *Met.*XII. 7.1072b1-4, *DA.*II. 4.415a23-b7, in the same chapter also in *DA.*II.4. 415b15-21, *Physics.*II. 2. 194a33-6.
[250]Gelber, Jessica. "Two ways of being for an end". Phronesis 63, 2018, p. 65.
[251] "Different concepts of the final cause in Aristotle" in *Aristotle on nature and living things*, Mathesis, 1985. This theory is echoed in *Aristotle on teleology*, by M. R. Johnson, Op. cit. Some other two-fold conceptions of final cause: *Recherchez sur la notion de finalité chez Aristote*, PUF, 1969. M.P. Lerner, *Aristotle and the*

I am not as sure as Kullmann of whether the entire set of texts can be equalized in terms of meaning.[252] In *DA*.II. 4.415b15-21 Aristotle talks about the relation between the body and the soul, and in *Phys*.II. 2.194a33-6 about tools and their user. This is where Gelber's argument can work better. In my view *DA* II. 4.415b15-21 and *Met.*XII. 7.1072b1-2 can still be read in terms of aim and beneficiary. Both introduce the relation between one item in movement and another one stable, eternal, perfect. That happens also in *EE*.VIII.8, 1249b9-21, although the text is less clear. I will thus focus on the two mentioned passages.

First, we will read a famous passage from *DA*.2.4 on reproduction to which we will come back in the section on global teleology. On this occasion my focus is on the mentioned remark:

"It follows that first of all we must treat of nutrition and reproduction, for the nutritive soul is found along with all the others and is the most primitive and widely distributed power of soul, being indeed that one in virtue of which all are said to have life. The acts in which it manifests itself are reproduction and the use of food – reproduction, I say, because for any living thing that has reached its normal development and which is unmutilated, and whose mode of generation is not spontaneous, the most natural act is the production of another like itself, an animal producing an animal, a plant a plant, in order that, as far as its nature allows, it may partake in the eternal and divine. That is the goal towards which all things strive, that for the sake of which they do whatsoever their nature renders possible. The phrase 'for the sake of which' is ambiguous; it may mean either the end to achieve which (*to men hou*), or the being in whose interest, the act is done (*to de hoi*)" (*DA*.II. 4.415b15-21).

In this case, the translator (J. A. Smith) writes about the end "to achieve", which is in the genitive and might be understood as the aim. Then we have the dative, which means the beneficiary "in whose interest" we should understand the "striving". As Gelbers says: "Scholars are in agreement that Aristotle is claiming that reproduction and whatever else living things do, such as perceive and move around, is a way of aiming or striving at sharing in what is eternal and divine".[253] I think that the basic reason for this agreement is in the clarity of the text: it does not require any speculations. In this text we see what participation can mean, in Aristotelian terms: contributing to the eternal stability of the species and taking in turn a benefit from this participation in eternity, whatever it could mean for Aristotle.[254] This is global teleology, because the individual and perishable entity is partaking in something that goes far beyond it, something that is part of the cosmos as a whole, and namely, a central feature of the best within cosmos: eternity. It shows, in sum, the arrangement between two different levels of the Aristotelian cosmos understood as a whole, as we can find in *Met*.IX. 8 or elsewhere.

---

problem of value, W. J. Oates, 1963, Princeton. Also Scharle: Margaret. "Elemental teleology in Aristotle's Physics 2.8". *Oxford Studies in Ancient Philosophy*XXXIV (May 2008): 147-183. "The role of material and efficient causes in Aristotle's natural teleology" *Apeiron* 41.3 (September 2008), pp. 27-46. Chapter 5: "Man from man, but not bed from bed: Nature, art and chance in *Physics* II", in *Aristotle's 'Physics'. A critical guide*. Op. cit.

[252] Frans De Haas has brought to my attention the difference of ultimate meaning between these texts.

[253] Gelber, Jessica. "Two ways of being for an end". Phronesis 63, 2018, p. 76.

[254] See also e.g. Johnson, who says that living beings aim at "participating in the divine and eternal, which is in turn for the benefit of (*hou heneka tini*) the living animal". Johnson, Monte Ransome. *Aristotle on teleology*. Oxford Aristotle Studies, 2005, p. 69. In fact, that is one of the passages that Johnson accepts regarding global teleology.

In the most important book on theology, Aristotle recalls the twofold conception of final cause. This is the second passage I quote on this matter:

"For the final cause is some being for whose good an action is done (*hou héneka tini*), and something at which the action aims (*hou héneka tinos*); and of these the latter exists among unchangeable entities though the former does not" (*Met.*XII. 7.1072b1-2).

In the latter passage it is clearer that *hou héneka tini* (dative) or "for whose good an action is done" means the benefit; *hou héneka tinos* (genitive) means the aim. In this context, Aristotle gives new information: the latter, he says, is a goal that may be seen in regard with unchangeable entities (*en tois akinétois*).

As I see them, these excerpts refer to the two complementary dimensions of perfection and, thus, to Aristotelian immanent teleology as a whole. However, as I said, Aristotle's remarks do not clarify much of how it may work. The basis of the two different domains in Aristotelian teleology can be better defended with regard to the texts and the argument within.

2.2.a. Individual immanent teleology: form and function

Individual teleology fits with the cause for the sake of which in the sense of "*for* what is benefitted", it implies an ordered development in time of a certain function until its flourishing. This is the first domain of teleology. We are already familiar with it. The process of growth of an organic entity, an embryo or a seed is the paradigm of this directed progress:

"But the process of growth does not stand in this relation to nature: that which is growing, as such, is proceeding from something to something. What, then, is it which is growing? Not the thing it is growing out of, but the thing it is growing into. So the form is nature" (*Phys*.II. 1.193b15-19).

Phys.II shows different kinds of natural phenomena according to this model, a model restricted to singular progresses. As we have already read: "because better (*béltion*) thus—better not simply, but in relation to the reality of the thing concerned (*pròs tèn hekástou ousían*)" (*Phys*. II. 7.198b8-9). [255] Following Lennox, Judson considers that it is the "axiom" of teleology.[256]

Perfection, that is, completeness, goodness and priority can be understood in this individual sense. The main divergence among the defenders of the exclusive individual teleology is that made by the biological reading. As we will see in the next pages, some scholars consider that only biological entities have to be teleologically understood. Some other who accept the biological reading, also think that Aristotle's teleology covers items such as rocks or flames and, in more abstract terms, substances.

[255] He refers to a similar statement in Aristotle in *EN*. 1152b6-27. Sedley, David. "Is Aristotle´s teleology anthropocentric?" Phronesis. Vol. 36. Nº2. (1991). "VI. Aristotle". *Creationism and ist critics in Antiquity*. California University Press, 2007, p. 197. Also the same author in: "Chapter 11". *Aristotle's Metaphysics Lambda. Symposium Aristotelicum*. Ed. M. Frede/ D. Charles. Clarendon Press Oxford. 2000.

[256] See Judson, Lindsay. "Aristotelian teleology". *Oxford Studies in Ancient Philosophy* 29:341-66, 2005.

- Ontology and elements

Interpreters like, recently, Mirus, claim that teleology is a metaphysical conception and involves every individual being, alive or not.[257] By stressing the metaphysical concept of "actuality" held by Aristotle in *Met*. IX. 6-8, among other places, this scholar defends a non-biological interpretation of teleology. From the field of physics (*DC*.III and IV, on the concept of natural place, and *Phys*.IV, on the concept of own place) Lang also defends the non-biological roots of actuality.[258] Also, Berti,[259] and Johnson defend, in much shorter length, this position.[260]

In some occasions when Aristotle talks about "things in general", he talks about goals and functions:

"… a thing is always determined by its function: a thing really is itself when it can perform its function; an eye, for instance, when it can see. When a thing cannot do so it is that thing only in name, like a dead eye or one made of stone, just as a wooden saw is no more a saw than one in a picture". (*Meteor*. IV.12.3909.10-21)

As I said earlier this kind of teleology can be defended, in my opinion, with enough textual basis. But in any case, it will not be conceptually fruitful in this comparative work, since I have not found anything similar in Bergson's framework, which is so focused on the ontology of life. Whereas the point of my account of Aristotle's immanent teleology is to highlight its contrast with Bergson's, I shall not tackle the ontological and elemental domain. In short, these interpertations can be found in the discussion of the notion of *télos*, perfection or good. For the moment the metaphysical reading, the elementary reading and the biological one have in common one thing: perfection is to be understood regarding one substance.

- The goal of living beings: survival, reproduction and well-being

To some extent, the biological interpretation of teleology in Aristotle is uncontroversial. Again, even in this context, its origin seems to be Platonic (*Timaeus*, 44d-45b). All the Aristotelian scholars consider that the individual biological process is teleological. Survival, reproduction and well-being are included here as main cases of *érgon* and *eidos*, function and

[257] In "The metaphysical roots of Aristotle's teleology" and "Aristotle's *agathon*" by Christopher Mirus (The review of Metaphysics 57. June, 2004) Mirus has emphasized the link between the good and actuality. See above.

[258]When Aristotle starts *Phys*.II he considers also water, fire, earth and air in the former group (*Phys.* II. 1. 192b9-11). In *DC*.IV.311a5, Aristotle talks about the natural place as the *entelécheion*, which involves perfection, also before is said that the elements have functions or *érga* (*DC.* 307b21). Even Aristotle says that for natural non-living substances going to their natural place is like going to their form (*tò autou eidós*) (*DC*.IV.310a35-310b). The tendency towards health and growth is compared with the tendency towards a place (*DC*. 310b15-30). Lang states reasonably: "The order of nature as expressed by the relation of the elements to place is teleological because it is immediate, intrinsic, and characterized by an active orientation of the moved toward a mover that is at once its form and actuality". Helen S. Lang. *The order of nature in Aristotle's Physics: place and the elements*. Cambridge: Cambridge University Press, 1998. p. 265.

[260] Berti writes: "…ciascuna cosa ha un suo proprio fine, il quale nel caso degli elementi è il raggiungimento del proprio 'luogo naturale' en el caso degli esseri viventi è la piena realizzazione della propia forma e la perpetuazione di essa mediante la riproduzione". Berti, Enrico. "Ancora sulla causalità del motore immobile". Méthexis XX, 2007, p. 28. Also Johnson, Monte Ransome. *Aristotle on teleology*. Op. cit., pp. 143, 140-145. Ibid., p. 159.

form.

As we know, the analogy is illustrated by cases in which a craft or human action is referred to organic or ethological phenomena. There is a general agreement according to which individual living sublunary entities (from plants to humans) are the paradigm of Aristotelian teleology. Organisms and their functions are the clearest example of teleology in Aristotle. Surely, Aristotle himself was aware of this, and that is why he tended to use biological examples. For instance, we have the example above, from *Meteor*.IV.12, where he says that the dead eye has lost its function, and then it is not an eye anymore. As Allan Gotthelf says: in "almost every passage in which Aristotle introduces, discusses, or argues for the existence of final causality, his attention is focused on the generation and development of a living organism".[261]

Despite their different approaches and theses, Allan Gotthelf, James Lennox, David Balme, Lindsay Judson, Martha Nussbaum, Pierre Pellegrin and David Charles lead the contemporary reading of Aristotle's treatises according to which *exclusively* individual living beings are interpreted teleologically.[262] That is: individual non-living beings are *not* accepted in this *restricted* individual teleological framework.

I think Balme represents this shared position well when he says: "sublunary elements, air, earth, fire, and water, act teleologically only when they are part of a living body; outside of that (for instance the occurrence of rainstorms) there is no final cause acting on them".[263] In this sense, the only possible interpretation of the term *télos* or perfection is survival, reproduction and well-being.[264] It is now time to tackle these concepts.

For certain commentators, Aristotle's teleological framework can be put in relation with the biological concept of adaptation. Since the *télos* means a natural function or activity, and that activity is to be conceived within a context or environment, immanent purposiveness implies adaptation. Lindsay Judson mentions that in his paper "Aristotelian teleology".[265] He notices that in *PA*.III. 14, 674a22–b5 the camel has a hard palate and several stomachs because its food is woody. In *PA*.IV. 12, 694b12–17 points out that "some birds have long legs and long toes because they live in marshes and have to walk across boggy ground, and 'nature makes the organs to fit the function, not the function to fit the organs'".

The link between Darwinian adaptation and classic teleology has been studied by Lennox and Gotthelf: these authors consider, in general, adaptation as a teleological concept. To this extent, while modern biology is talking about adaptation, the ancestry of Aristotle can be

---

[261] Gotthelf, Allan. "Aristotle's conception of final causality" in *Teleology, first principles, and scientific method in Aristotle's biology*. Oxford Aristotle Studies, 2012, p. 207.

[262] Some relevant examples: *Aristotle. De motu animalium. Interpretive essays*. Nussbaum, Balme, D. "Teleology and necessity" in *Philosophical Issues in Aristotle Biology*. Eds. A. Gotthelf and J. G. Lennox. Cambridge University Press, 1987. Judson, Lindsay. "Aristotelian teleology". Oxford Studies in Ancient Philosophy. 29:341-66, 2005. Pellegrin, Pierre. "Introduction" in L*es parties des animaux*. Flammarion, Paris, 2011.

[263] The expression "acting on them" is not accurate, since it sounds as if final causes act on things from the outside, which is certainly not the case. Balme, D. "Teleology and necessity", in, *Philosophical Issues in Aristotle Biology*. Ed. A. Gotthelf and J. G. Lennox. Cambridge University Press, 1987, p. 277.

[264] Balme, D: Aristotle "makes it clearer than Plato does that 'good' is not an extrinsic value-judgement but means the useful or advantageous from the animal's viewpoint". Ibid, p. 277.

[265] Judson, Lindsay. "Aristotelian teleology". *Oxford Studies in Ancient Philosophy* 29:341-66, 2005, p. 355. Judson recalls more complex cases of seasonal migration, hibernation, and aestivation in *HA*.8. 12–17.

defended. Also the philosopher Robert Spaemann has defended teleology within the adaptive framework.[266] Important historians of biology such as Ayala, Mayr and, afterwards, Ruse admit, in different ways, Aristotelian teleological features behind the biological concept of adaptation.[267]

The goal can be easily understood as a biological flourishing. As we saw in the section 2.1.a in *Phys*.II.2, Aristotle distinguishes the goal from the limit. In that context, death is not a goal. As David Charles says: where is the good, the best and the perfection of a stone in movement? Where is the beneficial outcome of its movements? It is more difficult to see. Thus, the "*for* what is it beneficial" final cause can't be considered regarding living organisms here.[268] Living beings, in Aristotle, are entities with soul.

I can recall this passage, in which Aristotle uses the intellectual analogy pointing out his teleological understanding of live:

"It is also evident that the soul is the cause as that for the sake of which. For just as the intellect acts for the sake of something, nature acts in the same way; and this something is its end" (*DA*.II. 4.415b17-19).

The soul is the goal of the living. This is, again the paradigm of immanent teleology. Aristotle explains certain aspects of biology in mechanical and non-teleological ways.[269] In this case it is clear that final causes are for the sake of the animal's function, but the eye color is due to another sort of causality: efficient causes and necessity. Regarding the cause of heat and cold, for instance, Aristotle himself makes the distinction: "they make flesh soft partly by necessity and partly not by necessity but for some end" (*GA*.II. 734b31, 743a36b16). He also says: "True, nature sometimes uses even excess products to advantage, but this does not justify our seeking a final cause in all – but while some things exist for the sake of an end, many other things necessarily come about too because of them" (*PA*.IV. 677a17).

Not everything in every organism is for the sake of its main goal then. But the most important things (organs, senses and parts of every organism) are for the sake of their goal, the soul. Every living being has a soul; and that covers plants, animals, humans and heavenly bodies. In general, the parts and organs of one living being and its soul have a part/whole relation.

This mereological relation appears much earlier than that of maturity. In fact, attaining maturity means attaining the goal. Aristotle applied teleology to embryology. He uses the example of the seed and its directedness towards maturity, when the being is complete and

[266] Lennox, James. "Darwin was a teleologist". Biology and Philosophy. 8. 1998 and Gotthelf, Allan. "Darwin on Aristotle".Journal of the History of Biology. Volume 32, March,1999. Spaemann, Robert. *Die Frage Wozu [Fini naturali. Storia & riscoperta del pensiero teleologico*.] Op. cit.

[267] Mayr and Ayala defend a modern vision of teleology, and they employ the term teleonomy. The historian of biology Ruse defends the concept of teleology for adaptive frameworks. Mayr, Ernst."The idea of teleology". *Journal of the History of Ideas*. Vol. 53, No. 1. Jan. - Mar., 1992. "Teleological Explanations in Evolutionary Biology", Francisco J. Ayala. *Philosophy of Science*. Vol. 37, No. 1. Mar., 1970, Ruse, Michael. "Teleology: Yesterday, Today, and Tomorrow?". Studies in History and Philosophy of Science Part C Studies in History and Philosophy of Biological and Biomedical Sciences 31(1), 2000.

[268] Charles, David. "Les quatres causes d'Aristote : origines et interprétations". AITIA I. Ed. Cristina Viano, Carlo Natali, Marco Zingano. Peeters, Leuven, 2013, pp. 133-146.

[269] I list here the only three I know in the whole corpus: *Met*. VIII. 4.1044b8-12, *PA*.IV. 2.677a11-19 and *GA*.V. 1.778a29-b19.

when it can function according to its specific nature. Aristotle also tackled this phenomenon as such. The second book of *GA* is focused on embryology. For example:

"But how is each part formed? We must answer this by starting in the first instance from the principle that, in all products of Nature or art, a thing is made by something actually existing out of that which is potentially such as the finished product. Now the semen is of such a nature, and has in it such a principle of motion, that when the motion is ceasing each of the parts comes into being, and that as a part having life or soul. For there is no such thing as face or flesh without life or soul in it; it is only equivocally that they will be called face or flesh if the life has gone out of them, just as if they had been made of stone or wood. And the homogeneous parts and the organic come into being together". (*GA*.II. 1.734b20-28).

In the products of art, fulfillment is to be found at the end of the activity, so in the products of organic development the structure is repeated. First we have the semen, then the parts of the organism, after that, the "finished product". Although the *télos* comes later in chronological terms, it is ontologically prior (*GA*.II. 3.736b3-5 and *GA*.II. 6.742a20-25). I have used the metaphor of "flourishment" in relation to teleology. In the case of embryology it is not a metaphor, but a literal depiction of the phenomenon.

Aristotle used the example of the seed and the embryo many times when discussing the specific realm of life. Surely, he thought that this was a quite illustrative phenomenon of teleology. In *Met*.IX. 8—which is on the different senses of ontological priority, and specifically regarding the third sense, substantial priority—Aristotle himself uses this example:

"...because the things that are *posterior in becoming are prior in form and in substantiality* (e.g. man is prior to boy and human being to seed; for the one already has its form, and the other has not), and because everything that comes to be moves towards a principle, i.e. an end (for that for the sake of which a thing is, is its principle, and the becoming is for the sake of the end), and the actuality is the end, and it is for the sake of this that the potency is acquired" (*Met.* IX. 8.1050a5-10, my emphasis).

Thus, from the very beginning every part of the organism takes part in the activity of fulfillment of the soul. Nutrition, growth and reproduction, says Aristotle in *DA*.II. 4, are the most basic ends of the substances with soul. They can be understood as tendencies for existence, since, in the end, existing is better than not being. Then, their inner impulse to life can be interpreted as seeking perfection. Perfection is, here, being. The following statement shows deeply how teleology can be understood in a biological way:

"That they [sexes] exist because it is better and on account of the final cause, takes us back to a principle still further remote (*hos dè dià tò béltion kaì tèn aitían tèn héneka tinos ánothen échei tèn archèn*). Now some existing things are eternal and divine whilst others admit of both existence and non-existence. But that which is noble and divine is always, in virtue of its own nature, the cause of the better in such things as admit of being better or worse, and what is not eternal does admit of existence and non- existence, and can partake in the better and the worse. *And soul is better than body, and living, having soul, is thereby better than the lifeless which has none, and being is better than not being, living than not living*" (*GA*.II. 1.731b20-2a1, my emphasis).[270]

In this sense, the tendency towards the best can be interpreted as a tendency towards being. Survival for the individual involves nutrition; survival for the species involves reproduction. There are different degrees of being, and, as we saw, every substance tends toward the best specific way of being, and that involves growth. As we also have seen, this relates to the

[270] See the importance given by Johnson, Monte Ransome. *Aristotle on teleology*. Op. cit., p. 175.

concept of adaptation.

Superior animals tend also to well-being. The animal can attain its goal through the senses. Animal life is necessarily linked to sensation or *aísthesis*. Sensitive life is animal life, and its flourishing means the function of animals (*NE*.I. 7.1098a1-2). In *DA*.III. 11 Aristotle mentions "imperfect animals" that have only the sense of touch from which they can obtain pain and pleasure (*DA*.III. 11.434a4). A bit further he says that while touch (and taste) are for living, "the rest of the senses are for living well" (*DA*.III. 12.25-27). One chapter later Aristotle states: "The [superior] animal has the other senses, as was said, not for the sake of being, but for the sake of well-being (*ou tou einai héneka allà tou eu*)" (*DA*.III. 13.435b24-25).[271]

At least for superior animals, nutrition may imply pleasure: he even adds that desire is desire of what generates pleasure (*he gàr epithymía tou hedéos estín*, *PA*.II. 17.661a7-9). One sense, like vision, implies one sort of good that we can relate with well-being. In any case, a superior sensitive faculty entails knowledge. Apart from its utility, for instance, we humans love them: we enjoy feeling. Above all, we love the sensations of vision (*Met*.I. 1.980a20-980b).

-The goal of human beings: happiness

As we know, the founder of immanent teleology holds a naturalistic vision of human beings. It is not surprising that I include human beings as goal-directed entities. In *NE*.I. 7 Aristotle extends the "function argument" to the human realm. It means that Aristotle seeks to find a specific goal or function, in the context of human nature. Every complex living being has among its goals survival, reproduction and well-being. Well-being for humans may mean something else, different from the well-being previously noted.

Well-being among humans has a more concrete term: it is called "happiness" or *eudaimonia*.[272] We can read the passage from *EN*.I. 7 in which he uses again the analogy between arts and nature. In this case, the nature of human beings:

"Happiness, then, is obviously something complete and self-suficient, in that it is the end of what is done (*prakton*). But perhaps saying that happiness is the chief good sounds rather platitudinous, and one might want its nature to be specified still more clearly. It is possible that we might achieve that if we grasp the characteristic activity of a human being (*tò érgon tou anthrópou*). For just as the good the doing well of a flute-player, a sculptor or any practitioner of a skill, or generally whatever has some characteristic activity or action, is thought to lie in its characteristic activity, so the same would seem to be true of a human being, if indeed he has a characteristic activity" (*NE*.I. 7.1097b20-28).

This characteristic activity, goal, or function that gives happiness should involve reason or *lógos* (*NE*.I. 7.1097b30-109b7-8). That is happiness, in human terms. As Nussbaum rightly and reasonably reminds us, "we want to live a life that uses all our capacities".[273]

---

[271] For the notion of well-being or "*eu zen*" in animals related also with sensation or "*aísthesis*", *PA*.II. 10.656a6-7.

[272] On "function argument" in *EN*.I see Richardson Lear, Gabriel. *Happy lives and the Highest Good*. Princeton University Press, New Jersey, 2004 and Kenny, Anthony. *Aristotle on the perfect life*. Clarendon Press, Oxford, 1992. Also: Scharle, Margaret. "Elemental teleology in Aristotle's Physics 2.8". Op. cit., p. 159.

[273] Nussbaum, Martha. Aristotle. *De motu animalium. Interpretive essays*. "Appendix: The function of man", Princeton, 1978, p. 106.

In *NE*.I. 13 Aristotle emphasizes the hierarchy of faculties of the human being, according to the natural scale. As we know, the human indeed has vegetative faculties and animal faculties, but the rational one is unique to him or her, and also the best of all.

In Aristotle, the aforementioned theoretical happiness and other lower kinds of happiness in his complex account of the human being, ethics, and dianoethics can be only fulfilled in the context of the city, and not in the village nor in the tribe. Among humans the *eu zen* of human beings is unique to citizens (*Pol*.I. 2.1252b30).

For our purposes, it is important to say now that teleology does not lead to fatalism or determinism. As I say regarding *Physics* II. 4-6,[274] Aristotle leaves room for different types of indeterminacy. Like Alexander of Aphrodisias in *On fate*, Dudley defends indetermination in the Aristotle's framework. His readings rely on phenomena such as fortune and chance (*Phys*.II. 4-6, *EE*.VIII. 2, *NE*.I. 9-10), accidents (*Met.*VI. 3) and future contingents (*De interpretatione*. 9), but also on freedom in the sense of self-determination or genuine responsibility (*EN*.III. 3-5) in Aristotle.

According to Aristotle, the uniquely-human ultimate goal, well-being, involves rationality, autarchy and living in the context of a *polis*. At the same time, the human has the capacity to choose his or her destiny, to some extent. Technically speaking, the well-being of human beings is called happiness.

- The goal of heavenly bodies: happiness

The scale of living individuals does not stop at the human level. It can ascend much further. Now we ascend upwards in the scale, thus reaching the astral beings.

Change, movement and the action of individual stars and heavens is for the sake of some immanent perfection as well. Since they are supralunary, perfect, and imperishable beings, their way of attaining their end is better than that of the infralunary human beings. They tend toward movement because movement is more perfect than the other types of change (*Phys*.VIII. 7). Their movement is circular, because, among movements, the most perfect movement is circular rotation (*Phys*.VIII. 8). Among the heavenly hierarchy, the best heavens have simpler movements than the lower heavens. According to Aristotle, heavenly bodies and heavens have psychology and their *télos* is happiness as well. The long passage below illustrates relatively clearly all these considerations:

"…since the primary body shows one motion only, that the body which is nearest to it should move with the fewest movements, say two, and the one next after that with three, or some similar arrangement. But the opposite is the case. The movements of the sun and moon are fewer than those of some of the planets. Yet these planets are farther from the centre and thus nearer to the primary body than they, as observation has itself revealed. For we have seen the moon, half-full, pass beneath the planet Mars, which vanished on its shadow side and came forth by the bright and shining part (…) we have been thinking of the stars as mere bodies, and as units with a serial order indeed but entirely inanimate; *but we should rather conceive them as enjoying life and action*. On this view the facts cease to appear surprising. For it is natural that the best-conditioned of all things should have its good without action, that which is nearest to it should achieve it by *little and simple action, and that which is farther removed by a complexity of actions*, just as with men's bodies one is in good condition without exercise at all, another after a short walk, while another requires running and wrestling and hard training, and there are yet others who however hard they worked themselves could never secure

[274] Regarding ethical concerns, chance has an important role in *NE*.I. 9-10 and *EE*.VIII. 2.

this good, but only some substitute for it " (*DC*.II. 12.292a14-292b25).

The natural scale starts with elements, continues with living beings, goes on with humans and reaches heavenly bodies. From the sun to the first heaven different degrees of perfection can be found. But they are all circular or rotatory movements, and they imply a peculiarity: "Its unceasing movement, then, is also reasonable, since everything ceases to move when it comes to its proper place, but the body whose path is the circle has one and the same place for starting-point and goal" (*DC*.I.9). The *télos* is then attained simply.

In *Met*. XII. 7 Aristotle explains the origin of movement through his theory of simple circular movements. Since the desirable (*tò orektòn*) and the intelligible (*tò noetón*) move without being moved (*Met*.XII. 7.1072a26), the prime unmoved mover, god, moves the first heaven in this way. That is, god moves the first heaven as a beloved (*erómenon*, 1072b2) does. The first (rotatory) movement (*próte ton metabolon*) is originated by this sort of attraction (1072b10). This kind of movement is considered by Aristotle to be a final cause (1072b-2). In this case, at least when discussing the first heaven (it could involve more substances, even every substance), we see that the individual *télos* as self-movement and the *télos* as imitation coincide. Movement and imitation are the same for the first heaven.[275]

For Aristotle nutrition and reproduction are the basic faculties of the living beings. These are two examples of *télos*, since these two faculties seek to attain what is the best for a being: merely being or surviving. There are two ways of surviving, individually (nutrition) and as species (reproduction). This describes the teleological status of a plant. Upwards in the scale, we find different ways of sensibility and locomotion. They imply surviving, but they add sentient life, as we saw. Sentient life means well-being and a basic knowledge. Well-being is a broad concept in Aristotle and embraces more perfect senses, namely happiness and enjoying rational life. These two concepts, beyond pleasure, can be applied to humans and heavenly beings, from the moon till the last heaven. In the case of the heavenly bodies, enjoying involves, along with intellectual activity, rotation. This covers the biological realm, in its widest sense, in Aristotle: now we will leave this realm and we will move to the domain of culture.

- The goal of the city: autarchy

This subsection deals with one peculiar ontological level, what we call nowadays "human culture". In the recent scholarly literature, the teleology of the city, of tragedy and of the history of philosophy are generally disregarded. I think that a complete account of Aristotelian teleology can include such entities, or at least ponder its validity, as other relevant contemporary interpreters like Aubenque have done.

Contrary to the topic of elementary teleology, I believe that this topic, teleology of culture, is more important in Bergson than regarding Aristotle. Something similar happens around secondary teleology. Since the ultimate goal of Chapter 2 is to set up the contrast with Bergson in Chapter 4, it is worth addressing this topic and its problems, at least roughly. In advance I only defend Aristotelian immanent teleology properly speaking in the case of the city.

Among all the items mentioned above, two things are common. First, there is no soul involved. So, from this moment we are out of the biological realm and biomorphism. Second,

[275] *Met*.XII. 7.1072b3- 1072b31).

one particular being, one city, one literary genre or one theory of logic can be understood in terms of individual teleology although in a singular way. It could not qualify as global teleology, because we are not talking about nature understood as a whole or anything unperishable. The teleology of the city, the tragedy and the philosophy of history may be a *mixture between the individual and the global teleology,* for a plurality of individual substances (namely, people) take part in one process that ultimately leads to one fulfillment. Like in every other case of individual teleology there is a function and a form involved: the three examples mean fulfillment of a function. It has to be said that there is a remarkable difference between these three objects. We cannot say that they are all artificial beings. At the very least, the city qualifies in Aristotle as a natural entity, just like the household and the village.

Aristotle talks about the city in clearly teleological terms:

"… the earlier forms of society [family, village] are natural, so is the state, for it is the end of them, and the nature of a thing is its end. For what each thing is when fully developed, we call its nature, whether we are speaking of a man, a horse, or a family. Besides, the final cause and end of a thing is the best, and to be self-sufficing (*autárkeia*) is the end and the best" (*Pol*.I. 2.1252b28-1253a2).

The man, the horse (with a soul) and the family (natural but without a soul) are the analogy for this teleological claim. Self-sufficiency or autarchy is the immanent goal to attain. In other cases, Aristotle even talks about the city as analogous to people and families, but composed and prior in nature (*próteron dè te physei*, 1253a19) to them:

"…the state is by nature clearly prior to the family and to the individual, since the whole is of necessity prior to the part" (*Pol*.I.2.1253a19-20).

The city is then a natural entity. It is perfective, analogous to this extent to living beings. Aristotle points out clearly which type of perfection should be attained in his case. It is compounded of humans and their families and, as he tends to do regarding biology, adds a part/whole remark.

Both Berti and Wolff are positive about the mere analytical perspective of *Pol*.I.2, a chapter in which Aristotle talks about households and families, villages and cities in three distinguished stages, subsequent in time. Berti states that Aristotle's approach in this chapter is "clearly ideal, and doesn't pretend historical validity".[276] This ideal history of the ideal city shows the growth of one population from the isolated household to the tribe, and then towards autarchy, like a living being.[277] Given that this progress is a sort of fiction, since history is contingent and every *polis* can have a different process, what is necessary to point out clearly is that a human population can only attain its goal being a compound of families and villages. They are the material cause, like the parts in a living body. The ultimate goal of this natural entity, the city, is autarchy. Autarchy means a natural fulfillment, and the function of the final cause is affirmed clearly by Aristotle. The city is natural and its goal is clearly noted as autarchy. Then it may qualify as a teleological item in its own right.

[276] Berti, Enrico. *Il pensiero politico di Aristotele*. [*El pensamiento politico de Aristóteles*] Trans. Helena Aguila Ruzzola. Gredos, 2012, p. 27, my translation into English. See also Wolff, Francis. *Aristote et la politique*. PUF, Paris, 2012.
[277] Sometimes Aristotle relates natural stages with epochs. In *Pol*.I. 2.1252b24 and in *Pol*.III. 10.1286b4-16.

This perfect autarkic stage is the only one where human beings can enjoy well-being (*eu zen*), and not, apparently, the previous one, the village (*Pol*.I.21252b29). Human individual teleology and individual teleology of the *polis* refer to each other.

In the domain of history, Aristotle's commentaries on the progress of tragedy, the literary genre, and on philosophy as a discipline have been read as applications of his view of the final cause. I will address the two cases as two examples of history of teleology as a whole, since both refer to the same type of problem. I shall first present the texts, first on tragedy, second on history of philosophy and then address the question of the teleology of history.

Charles Kahn in "The place of the prime mover in Aristotle´s teleology"[278] extends the domain of final causality to culture. Aristotle, he says, holds a "cosmic optimism". His "willingness to see things arranged 'for the best' not only in the heavens and in biology but in human affairs generally. For example, he finds the biological pattern of development replicated in cultural history".[279] Then he quotes the passages from *Pol*.I that we have already seen, on the city, and also another one: "Attic tragedy".

Kahn quotes these lines:

"Tragedy advanced by slow degrees; each new element that showed itself was in turn developed. Having passed through many changes, it found its natural form (*tèn hautes physin*), and there it stopped" (*Poet.* 4. 1449a5-15).

One can wonder if, then, we should take the idea of nature in a strict sense or not. This would mean that the tragedy is like the city, which is, as we have seen, natural, according to Aristotle. Like *Pol*.I.2, Chapter 4 of the *Poetics* covers the whole development of a cultural form: from its origins until its *télos*. However, it is certainly more difficult to consider this narrative as one *idealized history*: Aristotle mentions concrete real individuals like Homer, Aeschylus and Sophocles.

A number of readers of the *Poetics* have interpreted the short remark on tragedy attaining its ontological status in a naturalistic way. For instance, in his commentary on the treatise, Lucas says: "the tragic form, like an organic growth, develops until it reaches its *télos*, when its potentiality its fully realized". [280]

More recently, Whalley addressed the same question but noticing the problematic aspect of it. Although Whalley compares the octopus, the human and the city, he does not include tragedy, like Kahn or Lucas do. If I have understood him correctly, tragedy would only qualify as long as it is considered part of human nature or what he calls "human dynamis". It is rooted in human nature and it is made for the sake of human psychology.[281] Thus, Whalley understands it as a natural being.

---

[278] Kahn, Charles. "The place of the prime mover in Aristotle´s teleology". *Aristotle on nature and living things.* Ed. A. Gotthelf. Bristol, 1985.
[279] Ibid., p. 198.
[280] Then this commentator quotes *Phys*.193a36. Aristotle. *Poetics*. Greek Text and English commentary by D. W. Lucas. Oxford University Press, 1968, p. 82.
[281] Whalley, George. *Aristotle's Poetics*. Translated and with commentary by George Whalley. Ed. John Baxter and Patrick Atherton. McGill-Queen's University Press Montreal & Kingston, London, Buffalo, 1997, pp. 22-23.

The other domain of culture that has been interpreted in teleological ways is the history of philosophy. The Hegelian hellenist Rodolfo Mondolfo calls Aristotle the "forerunner of the philosophy of history",[282] in reference to 19th century philosophy. He understood Aristotle's conception of the history of philosophy as a tendency to perfection.[283] This historical teleology of human thought may be regularly stopped by cataclysms. Following Plato, Aristotle seems to think that periodical catastrophes devastate human achievements.[284]

In *Le problème de l'être chez Aristote,* Aubenque nuances this view that he calls the "eternal recurrence of cycles": in his view historical time has *two faces* for Aristotle. On the one hand, it means natural destruction and, on the other, it is at the same time a "benevolent assistant of human action".[285]

For Aubenque the sense of human cultural evolution has nothing to do with either regression or oblivion, as it had for Plato. He finds two stages in Aristotle's non-regressive vision of history. First, there is an optimistic, progressive and finalistic vision of human knowledge in Aristotle at the beginning, in *On philosophy* and *Met*.I. Then in later treatises like *Met*.IV or VI, Aubenque finds a more pessimistic thinker of history, according to which philosophy and knowledge do not lead to an end. For this skeptical, second conception of history, Aubenque also recalls *Phys*.I and *DA*.I, texts where the previous philosophers do not take part in a sort of *historical conquest of truth* as in *Met*.I.3-10, a historical process from the primitive philosophy that only "whispers" what the late philosophy will formulate and solve clearly (*Met*.I.10.993a15). In *DA*.I or *Met*.IV the previous philosophers offer subjects and ideas for the sake of an untimely dialogue that "excludes any kind of genealogy".[286] Anyway, *Met*.I.3-10 represents for Aubenque a sort of teleology of philosophy, in which philosophy itself leads to one single flourishing in Aristotle.

Now I will address these teleological approaches to human culture. First, as I have noted in the subsection on analogies, Aristotle carefully divided natural entities and crafts. The crafts can be expressions of human rationality and, hence, human goals, but they do not contain them. There is a sharp border between the two worlds. Since among the things in the world some "exist by nature, some from other causes. By nature the animals and their parts exist, and the plants and the simple bodies (earth, fire, air, water)—for we say that these and the like exist by nature." And he adds: "All the things mentioned plainly differ from things which are *not* constituted by nature" (*Phys*.II.2.192b9-192b12).

Unlike families and cities, tragedies and theories cannot be called by nature. When Aristotle refers to tragedy as reaching its own nature (*tèn hautes physin*), he means its definite form and craft function. As noted, the main feature of the tragedies, the plot (*ho mythos*) is something that we construct (*synístasthai*, *Poet*.1. 1447a-2). The organic analogy between the

[282] Mondolfo, Rodolfo. Chapter 2: "La concepción historicista en Aristóteles" in *Problemas y métodos de la investigación en la historia de la filosofía*, Universidad de Tucumán, Argentina, 1949, p. 36, my translation. Also in *Comprensión del sujeto humano en la cultura antigua*. Buenos Aires, Imán, 1955, pp. 410-418.

[283] For Aristotle on the five successive, historical and progressive stages of knowledge, *On philosophy*. Ross, frag. 8b. For Aristotle on the three progressive stages of knowledge, *Met*.I. 1. 981b20-25.

[284] On periodic cataclysms in Aristotle: *DC*.I. 3.270b19-20, *Meteor*.I. 3.339b16-30 and I.14, *Met.*XII. 8.1074b7-14, and *Pol.*VII. 9.1329b25-31. Lindsay Judson kindly called my attention to these passages. It is important to note that these cataclysms do not mean universal devastation, but local devastation.

[285]For the expression "eternal recurrence" in *Le problème de l'être chez Aristote* [*El problema del ser en Aristóteles*] Trad. Vidal. Taurus, Madrid, 1984, p. 73, my own translation.

[286] Aubenque, Pierre. *Le problème de l'être chez Aristote* [*El problema del ser en Aristóteles*] Trad. Vidal. Taurus, Madrid, 1984, p. 88.

tragedy and the animal is only one analogy.[287] As we know, Aristotle knew well the difference between one artifact and a natural being. In general, Aristotle uses the analogy the other way around: he can talk about the making of a sword for making clear the development of an embryo. In this case, Aristotle refers to an organic being with an authentic soul in order to explain the structure of tragedy. The organic model is important in Aristotle, but it does not mean a confusion. The tragedies are so sophisticated that he appeals to the biological constitution of a natural being. But the tragedies are artificial beings, made by human intellect. Nor can philosophical doctrines be considered natural entities, whatever their ontological status is in Aristotle.

Thus, they both cannot be considered to be within any domain of primary immanent teleology. They can attain, to be sure, more perfect forms, forms that better fulfill the original need of human beings. The tragedies of Sophocles can be better than Aeschylus and ultimately generate better catharsis, etc. Aristotle can regard himself as the apex of ancient philosophy, the culmination of human wisdom, etc. This would not involve the use of final causality in its primary sense, but extrinsic teleology, like any other craft. But we would need much more textual evidence to be certain.

Besides, these are examples of the teleology of history. But there is no historical teleological principle ever formulated by Aristotle. Not even in *Met*.I, where Aubenque sees a teleological approach of the history of philosophy (namely, the discovery of the four causes). Surely Aristotle praised history more than any philosopher before him, but *his conception of history is neither progressive or regressive, but empirical*. Apart from the example in *Pol*.I. 2 that scholars consider ideal process, the other cases of past events and past doctrines in Aristotle do not construct a whole with a principle of development and different stages. Again, in this framework history is contingent. In this sense, there is plenty of empirical material in the corpus. There is no teleology at stake in the historical account in *Pol*.III. 10-VI, nor is there history of philosophy in the texts mentioned above concerning Aubenque, like *On philosophy* and *Met*.I. Aristotle collected large sums of data, but this does not entail a teleological structure of parts/whole.

In fact, Aristotle addressed in one place the work of the historian, and precisely what he says is that there are no historical principles. When Aristotle addresses the task of the historian (*historikòs*) he states that he is talking about particulars (*kath' hékaston*, *Poet*.9.1451b7), and nothing like general concepts, something that the philosophy of history would entail. For Aristotle the historical accounts (*historiais*) are nothing like unitarian story lines guided by principles. On the contrary, historical writings are considered summaries of events that merely happened in determinate periods, with no other relation to each other than luck (*hon hékaston hos étychen échei pro állela*, *Poet*.23.1459a21-25). This explicit denial reinforces then the lack of philosophical and teleological principles in Aristotle's view of history. As Powell says, although in Aristotle there is a rich "practice of history", there is no "systematic history".[288]

Aristotle's understanding of crafts, the lack of historical principles in his work and the vision of history in the *Poetics* make me dismiss the two latter examples of the individual teleology

[287] He says that it is "like the soul" (*oion psychè*) of the artifact (*Poet*.6.1450a39). Shortly afterwards, talking about the ordered structure of elements and magnitude, he comes back to the organic analogy (1450b35-1451a5).
[288] Powell, C.Thomas. "Why Aristotle has no philosophy of history?". *History of Philosophy Quarterly*. Vol. 4, nº. 3, 1987.

of non-living compound entities. In any case, interpreting history teleologically can be part of secondary teleology, the narratology of chance events *as if* they were teleological for the sake of the concluding fortunate stage (see 2.1.d).

2.2.b. Global immanent teleology: contribution and imitation

The second domain understands the term perfection within a much broader framework. Like cultural teleology, it extends the use of the final cause beyond the boundaries of the individual soul, although unlike tragedies and history we remain in the realm of nature. Furthermore, we are not in the domain of development any more. Global teleology deals with the static cosmic order. That is the opposite, then, of any sort of history.

This second domain of teleology fits with two of the passages of *"for* what is aimed at" teleology, as Kullmann noted. Scholars have called this domain of teleology secondary teleology, extrinsic teleology, intra-species teleology or second-degree teleology. In short, it considers that the *télos* is not just a fulfillment of its own form and specific function, but a *participating* in the whole of nature or general order (τάξις). The *eidos* and the *érgon* leave the stage for the *táxis*. In the end, this requires examining the very same items but from a broader perspective. One of the structural functions of living beings like reproduction can be conceived as imitation, meaning imitation for the sake of participation in something better. Equally, every natural individual fulfillment (survival or well-being) can be understood as contributing to the good order of everything. From this larger schema, the individual *télos* is put in relation with a general order, which is good and eternal.

Interpreters such as Kahn, Owens, Cooper, Sedley and, more recently, Scharle hold different visions of global Aristotelian teleology, but they are *always* compatible with the individual teleology reading. As Sedley says: "Aristotle's teleology can be best understood by adopting a dual perspective, combining the local and the global levels of explanation".[289] I follow this basic assumption.

As I have said, the texts we are going to comment on are highly controversial among scholars. We already know which of them deny the existence of this kind of approach to final causality in Aristotle. One interpreter has even seen this global reading as "thoroughly un-Aristotelian".[290] Others like Kullmann accept its existence within the corpus, although "this finality compared with that in the organic area is deficient".[291]

I agree with Kahn when he says that the Aristotelian god, the unmoved mover, is ultimately the basis of global teleology. But as I said in the Introduction, immanent teleology has nothing to do with providentialism. Aristotle's god is contemplative, not active. This means that he neither produces nor arranges the world. The immanent teleology model implies an active vision of nature. It is nature itself that seeks perfection. Nature has not been created by any god, in Aristotle. The Aristotelian god is the basis of global immanent teleology since it inspires in nature, in its different levels, the tendency to perfection. To this extent, the final cause is also the origin of movement in the world.

There are different ways of seeing the influence of god upon the moveable world in Aristotle.

---

[289] Sedley, David. "Teleology, Aristotelian and Platonic", in *Nature and life in Aristotle: Essays in honor of Allan Gotthelf*, ed. James Lennox and Robert Bolton. Cambridge University Press, 2010, p. 28.
[290] Broadie, Sarah. "Nature and craft in Aristotelian teleology", Op. cit., p. 91.
[291] Kullmann, W. " Different concepts of the final cause in Aristotle ". Op. cit., pp. 171-173.

Kahn finds among scholars a "narrow view", which attributes this influence to the first heaven, based on *Met*. XII.7,9. There is a wider sense that extends this teleological aspiration to heavenly bodies. There is a third one, a "broader view", led by Kahn himself, that defends the teleological influence of the prime mover upon the world. Elements, plants, animals, humans, and heavenly bodies are influenced by god, as separate entities and as one arranged whole as well.

According to Kahn "on this view, everything in nature aspires to the condition of deity; but each kind of thing can attain this goal only in a limited specific way".[292] And: " In following their own nature, then, the elements imitate their ontological superiors, just as living things do in reproducing their own kind ".[293]

There is then a general mimetic aspiration, for this interpretative line. The infralunary cycles (transformation of elements, reproduction of plants and animals) imitate, we will see, supralunary rotatory cycles. The perishable imitates the unperishable, in Aristotle. We have seen in *GA*. II. 1 that, according to Aristotle, "being is better than not being, living than not living". This can shed light on this idea of mimetic aspiration. Transformation of the elements and reproduction of the living perishable beings may be considered an aspiration for being beyond individual capacities.

Although I follow Kahn's "broader view", I do not extend the term imitation to any type of global teleology. Sometimes Aristotle uses other terms, also deeply rooted in Platonic philosophy, such as participation. In fact, to some extent imitation can be understood as one type of participation. I use the term contribution, which may contain the two meanings in their different contexts. This meaning reduces every case of global teleology to partial contributions for the sake of the everlasting stability of something within the whole or for the sake of the good order of the whole. In the first case, the model of the teleological imitation of the eternal by the perishable is the most illustrative. In the second case, it is not so.

Apart from his enlightening interpretation, in the same place Kahn gives an interesting historical account of the problem of global teleology among scholars. It can be useful to quote him again: "We find this second, broader view [of teleological influence of god upon nature] in earlier interpreters, such as Zeller and Joaquim. Recent authors tend to be more cautious, and to restrict their account of the prime mover to a narrower, more explicitly documented interpretation (…). Perhaps some will regard [the narrow view] as the more 'scientific' view of the prime mover, since it makes a minimal use of the metaphysical explanation of motion in terms of desire for the supreme good, limiting this principle to the eternal motion of the heavens where Aristotle has supported his doctrine by careful argument and closely tied to requirements of his astronomical theory".[294]

I think that Kahn is right in pointing out some of the reasons for this controversial status of the global texts. First and foremost, it is clear that individual teleology is "more explicitly documented". In comparison, it is completely true that global texts are not abundant. Second, individual teleology is more "scientific" according to Aristotle's and also to our paradigm. Global teleology is, philosophically speaking, scarcely developed and scattered. It is maybe not very representative of the philosophy of Aristotle, but I think we cannot deny its existence. Regarding the rejection of global teleology, Cooper even detects "complex

[292] Kahn, Charles. Op. cit., p. 184.
[293] Ibid., p. 189.
[294] Ibid., p. 184.

feelings" among critical commentators.[295] For whatever reason it has been rejected, the textual basis for global teleology is sufficient.

I start from the broadest teleological passages, which are on cosmology and theology. God's non-providential influence on the rest of the universe (meaning both supralunary and infralunary realms) can be understood in terms of order. Thus, participating actively in the order is the good and the *télos*. We will read one text on participation in a general order and another one on the dependence of the infralunary world on the supralunary one. Both are to be found in the last chapters of *Met*.XII. Afterwards I quote a text from *Met*.IX on imitation. At this level, the use of imitation does not refer to cycles, but is framed in purely abstract ontological terms: the sublunary realm, we will know from *Met*.XII, *depends* on the eternal supralunary world for its being. We will see that imitation is the term that expresses this dependence. Then I descend to physics: I quote the two passages in the corpus on elemental transformation. They show the influence of the eternal realm of cosmos upon the non-living beings of the infralunary realm. It may illustrate how the infralunary realm depends on the supralunary one. The cycle of elements fire-water-air-earth seems to be the imitation of the perfect circular motions in the supralunary realm. Then, I shall recall the two famous passages on biological reproduction. They highlight the influence of the eternal realm of cosmos on the living beings of the infralunary realm. Reproduction is the only way perishable living beings can be imperishable, just like the heavenly beings above. Aristotle holds that animals and plants participate in eternal imperishable life through their species. He uses the term imitation. Finally, I quote the only two passages on global teleology where the eternal does not appear. There is no trace of imitation. These last two texts, especially controversial among interpreters, show how global teleology can be applied only to biology. These are the only two examples of teleological ecology that can be found in Aristotle, to my knowledge. Despite the fact that ecology is a modern notion, I think it identifies correctly the subject of the two passages, that is, stability and inter-specific teleology. The teleological model of these two passages is participation and not imitation, and to this extent they are related with the first cosmological text that we will read, *Met*.XII. 10.

- The order of cosmos: the good of the whole

"We must consider also in which of two ways the nature of the universe contains the good (*agathòn*), and the highest good (*áriston*), whether as something separate and by itself, or as the order of the parts (*tèn táxin*). Probably in both ways, as an army does; *for its good is found both in its order and in its leader (kaì gàr en te táxei tò eu kaì ho strategós), and more in the latter; for he does not depend on the order but it depends on him*. And all things are *ordered together somehow (pánta dè syntétaktaí pos), but not all alike*, -both fishes and fowls and plants; and the world is not such that one thing has nothing to do with another, but they are connected. *For all are ordered together to one end (pros mèn gàr hén hápanta syntétaktai)*, but it is as in a house, where the freemen are least at liberty to act at random, but all things or most things are already ordained for them, while the slaves and the animals do little for the common good (*tò eis tò koinón*), and for the most part live at random; for this is the sort of principle that constitutes the nature of each. I mean, for instance, that all must at least come to be dissolved into their elements, and there are other functions similarly in which *all share for the good of the whole (éstin hon koinonei ápanta eis tò hólon)*" (*Met*. XII.10.1075a10-25, italics are mine).

[295] Cooper, John. "Aristotle on natural teleology". In M. Schofield & M. C. Nussbaum (eds.) Language and Logos. Cambridge University Press 197-222 (1982)
p. 97.

This is the most important text on global teleology in the broadest sense in Aristotle. Despite the ontological pluralism, *everything* is ordered towards something good.[296] Being ordered by this influence everything shares in the good, harmony and being. The idea of the army appears also in the quotation of Homer (*Iliad*.II. 204) at the end of Lambda, shortly after this passage. It is a variation of what we have in *On philosophy* (ed. Ross). frag. 12b. Aristotle writes:

"… they [other philosophers] give us many governing principles (*archàs pollás*); but the world (*tà dè ónta*) refuses to be governed badly. 'The rule of many is not good; one ruler let there be' (*ouk agathòn polykoiranίe: eis koίranos hésto*)".

The good or *télos* (here called "*to eu*") is here identified with order or *táxis*, as I said. Things, plants, animals and (although not mentioned) humans are not just ordered in themselves. That is, the order in Aristotle does not consist exclusively in parts/wholes, with regard to specific functions for the sake of the being and well-being of their souls. There is a general order between substances, an arrangement of one to each other. Aristotle talks about inter-species teleology. If *Met*.XII. 6-7 shows that the prime mover or god is the source of movement, then in *Met*.XII.10 Aristotle shows that the prime mover is also the source of general order. Its direct influence is not restricted here to one heaven, but to every being, regarding order. The *télos* can be understood here as the *contribution to general order* made by fishes, plants or humans. That is how the analogy with the household could be better understood.

Anyway, in *Met*.XII.7 there is also a quite clear passage in which Aristotle holds that every living and non-living being is suspended (he uses the term *értetai*) from the prime unmoved mover. It certainly adds textual basis to the relation between individual teleology and global teleology, since it links the individual "scientific approach" to the "cosmic approach", with god, the heavens and nature involved:

"On such a principle [first unmoved mover, which is good and generates movement], then, depend (*értetai*) the heavens and the world of nature. And it is a life such as the best which we enjoy, and enjoy for but a short time (for it is ever in this state, which we cannot be), since its actuality is also pleasure" (*Met.*XII. 7.1072b14-17).[297]

In the next text, mimesis or imitation is mentioned. The imitated/imitator relation is extended beyond the prime mover/first heaven domain to the supralunary/infralunary domain. That is, the sublunary beings imitate supralunary beings, since the latter are more perfect. This also gives a new hint as to how global teleology is linked to the individual one.

"And so the sun and the stars and the whole heaven are ever active, and there is no fear that they may sometime stand still, as the natural philosophers fear they may. Nor do they tire in this activity; for movement is not for them, as it is for perishable things, connected with the potentiality for opposites, so that the continuity of the movement should be laborious; for it is that kind of substance which is matter and potency, not actuality, that causes this. *Imperishable things are imitated by those that are involved in change*, e.g. earth and fire (*mimeitai dè tà háphtharta kaì tà en metabole ónta, oion ge kaì pyr*). For these also are ever active; for they have their movement of themselves and in themselves. But the other potencies, according to our previous discussion, are all potencies for opposites;" (*Met*. IX. 8. 1050b21-30).

[296] On the contrary, Broadie, Sarah. "Nature and craft in Aristotelian teleology". Op. cit., p. 98.
[297] "À un tel Principe [le Bien] sont suspendus et la nature". *Metaphysique*. Trans. Tricot, Belles Lettres, Paris, 1953. "Penden", García Yebra. "Dependet", in Moerbecke's Latin translation.

In my opinion, the following text consolidates the previous vision:

"… they [supralunary beings] continue through their entire duration unalterable and unmodified, living the best and most self sufficient of lives. As a matter of fact, this word 'duration' (*aiòn*) possessed a divine significance for the ancients, for the fulfillment which includes the period of life of any creature (*hekastou zoes chrónon*), outside of which no natural development can fall, has been called its duration (*aión*). On the same principle the fulfillment of the whole heaven (*pantòs ouranou télos*), the fulfillment which includes all time and infinity, is 'duration' (*aión*) – a name based upon the fact that it is always – duration immortal and divine. *From it derive the being and life which other things, some more or less articulately but others feebly, enjoy* (*Hóthen kaì tois állois exértetai. Tois meèn akribésteron tois d' amauros, tò einaí te kaì zen*). So, too, in its discussions concerning the divine, popular philosophy often propounds the view that whatever is divine, whatever is primary and supreme, is necessarily unchangeable". (*DC*.I. 9.279a18-33, italics are mine).

The last text shows again that the infralunary realm is *dependent* on the upper supralunary realm. In the infralunary ground, being, order and life are dependent on supralunary beings and, in the end all are dependent on the prime mover. In *Met.*XII. 7 Aristotle uses the verb "*artáo*" and in the latter, DC.I.9, "*exartáo*", which literally means 'hanging' or 'physical dependence'.

As I said, Aristotle modifies the Platonic providentialist schema of the *Timaeus*: the tendency towards perfection is motivated by the eternal, but comes from nature, ontologically dependent.[298] Thus even within this global and cosmic context, we are still in the exclusively immanent domain.

The fundamental scope of these texts is to explain order and stability in the infralunary realm as the *influence of* the eternal realm, which in this context is "the best". In Aristotelian cosmology and theology, the infralunary realm aims and aspires to be ordered and to be eternal, and in this sense it takes part in the supralunary and divine world. Again, Aristotle's global perspective includes an overarching god, but the relationship between god and the world is not providential since, as he affirms, god is totally occupied in self-understanding. From Ravaisson to Zeller in the 19th century, and from Zeller to Kahn, Sedley, and Scharle nowadays, the global interpretation of Aristotelian teleology does not pretend to return to Platonic theology. In fact, this vision is thus genuinely and thoroughly Aristotelian.

It is difficult to state anything clearly about the ontological status of nature understood as a whole. It is something natural, not artificial. It is a compound of substances. It has no soul. Sedley has compared Aristotle's conception of the city-state and also the household with the universe: none of them has a soul but all are considered natural entities with parts which refer to the whole. This whole is prior to its parts.[299]

Leunissen expresses it in this way: "…the goodness, order and joint arrangement of the cosmos as a whole emerge from the goal directed actions of the individual parts of the

[298] Natali, Carlo. "Problemas de la noción de causa final en Aristóteles". Anuario Filosófico 32. 1999.
[299] Sedley, David. "Chapter VI. Aristotle" *Creationism and its critics in Antiquity*. Op. cit., and "Chapter 11". *Aristotle's Metaphysics Lambda. Symposium Aristotelicum*. Ed. M. Frede/ D. Charles. Clarendon Press Oxford. 2000. For Sedley: "Nowhere does he suggest, in Platonic fashion, that the world is a living organism. But there is an alternative model which he does invoke: the comparison of the world to an army or a household, in *Met*.XII. 10. And *Pol*.I. 1.1253a19)". Sedley, David. "Is Aristotle´s teleology anthropocentric?" Phronesis. Vol. 36. Nº2,1991, p. 192.

cosmos towards the same end, the Unmoved Mover".[300]

- Elementary imitation: stability of non-living perishable beings.

"Coming-to-be and passing-away will, as we have said, always be continuous, and will never fail owing to the cause we stated. And this continuity has a sufficient reason on our theory. For in all things, as we affirm, nature always strives after 'the better'. *Now 'being' (we have explained elsewhere the exact variety of meanings we recognize in this term) is better than 'not-being': but not all things can possess 'being', since they are too far removed from the 'originative source*. 'God therefore adopted the remaining alternative, and fulfilled the perfection of the universe by making coming-to-be uninterrupted: for the greatest possible coherence would thus be secured to existence, because that 'coming-to-be should itself come-to-be perpetually' is the closest approximation to eternal being. - *The cause of this perpetuity of coming-to-be, as we have often said, is circular motion: for that is the only motion which is continuous*. That, too, is why all the other things – the things, I mean, which are reciprocally transformed in virtue of their 'passions' and their 'powers of action' e.g. the 'simple' bodies imitate circular motion. For when water is transformed into air, air into fire, and the fire back into water, we say the coming-to-be 'has completed the circle', because it reverts again to the beginning. *Hence it is by imitating circular motion that rectilinear motion too is continuous*" (*GC*.II.10. 337a ss, italics are mine).

The following text, strengthens this vision:

"The whole world surrounding the earth, then, the affections of which are our subject, is made up of these bodies. This world necessarily has a certain continuity with the upper motions: consequently *all its power and order is derived from* (*kybernasthai,* also "controlled by") *them*. (For the originating principle of all motion is the first cause. Besides, that element is eternal and its motion has no limit in space, but is always complete; whereas all these other bodies have separate regions which limit one another.) So we must treat fire and earth and the elements like them as the material causes of the events in this world (meaning by material what is subject and is affected), but must assign causality in the sense of the originating principle of motion to *the influence of the eternally moving bodies*" (*Meteor*.I.2.339a19-32).

The main scholar nowadays that has been working on these texts with brilliant outcomes is Scharle.[301] Following also Kullmann, Scharle distinguishes two types of teleology. In her vision, elemental teleology works with regard not only to the tendency towards natural places, but also with regard to the rotatory nature of the cycles. In this sense, Scharle's exclusively imitative teleology develops Kahn's regarding elemental substances. "In taking the best thing as their aim, individuals do not seek to improve or benefit the end, but they seek to improve *their own condition*: the more closely they approximate the activity of the best thing, the better they are".[302] And: "In moving rectilinearly the sublunary elements cannot become the best, … but nonetheless they can approximate the circular movement".[303]

As we saw in *GA*.II.1.731b20-2a1 "being is better than not being, living than not living". Although in this text Aristotle is talking about living beings, the argument could perhaps be extrapolated to non-living beings thanks to *GC*.II.10. 337a, where we read that "'being' (we have explained elsewhere the exact variety of meanings we recognize in this term) is better

[300] Leunissen, Mariska. *Explanation and teleology in Aristotle's science of nature*. Op. cit., p. 47.
[301] Scharle, Margaret. "Elemental teleology in Aristotle's Physics 2.8". *Oxford Studies in Ancient Philosophy*XXXIV, May 2008, "The Role of Material and Efficient Causes in Aristotle's Natural Teleology" *Apeiron* 41.3, September 2008, and Chapter 5: "Man from man, but not bed from bed: Nature, art and chance" in *Physics* II", in *Aristotle's 'Physics'. A critical guide*. Op. cit., 2015.
[302] Scharle, Margaret. "Elemental teleology in Aristotle's Physics 2.8". Op. cit, p. 158.
[303] Ibid., p. 169.

than 'not-being': but not all things can possess 'being', since they are too far removed from the 'originative source".

Elementary teleology is, however, not part of this account of teleology. As I said above, regarding individual elementary teleology, it would not have been possible to make a comparison with Bergson. But the latter passages have to be included in a complete account of global teleology, for the sake of imitation. For this reason, I have included elementary teleology only with regard to the cycles of transformation, which I read in a teleological way. The two texts show a general tendency to the best. The best here is being, beyond the perishable substance of the living and non-living being.

- Biological imitation: stability of perishable living beings

"For one of the most natural of works for living things (as many as are complete and not damaged, or not spontaneously generating) is to make another like itself—an animal an animal, a plant a plant—so as to partake so far as it is able in the eternal and divine. All things reach for this, and for the sake of this do whatever they do according to nature ('for the sake of' being twofold: *for* what is aimed at and *for* what is benefitted). Since, then, it is unable to share in the eternal and divine by way of continuity, because perishable things do not admit of persisting as the same thing and one in number, each thing shares in the way in which it is able to partake (one more, another less). So it persists not as the same thing but as one like itself, not one in number but one in form" (*DA*.II. 4.415a27-415b9).

And:

"Now some existing things are eternal and divine whilst others admit of both existence and non-existence. But that which is noble and divine is always, in virtue of its own nature, the cause of the better in such things as admit of being better or worse, and what is not eternal does admit of existence and non-existence, and can partake in the better and the worse. And soul is better than body, and living, having soul, is thereby better than the lifeless which has none, and being is better than not being, living than not living. These, then, are the reasons of the generation of animals. For since it is impossible that such a class of things as animals should be of an eternal nature, therefore that which comes into being is eternal in the only way possible. Now it is impossible for it to be eternal as an individual (though of course the real essence of things is in the individual) – were it such it would be eternal – but it is possible for it as a species. This is why there is always a class of men and animals and plants" (*GA*. II. 1, 731b20-2a1).

As Ross says: "The perpetuation of the type is the best proof of finality in nature".[304] These passages are certainly quite clear and have been quoted innumerable times. It is easy to note a resemblance of them with the Platonic *Symposium* (207d-209e). These biological passages, convergent in their meaning, state that Aristotelian biological infralunary species are eternal, and also that infralunary individuals are not. This is, again, due to the fact that being is better than non-living,[305] and nature does the best among the possibilities. Survival is the individual *télos*, and reproduction is the specific *télos*. Since, for Aristotle, the species is eternal and survival is not, Ross' statement is understandable.

[304] Ross, D. *Aristotle*. [*Aristóteles*]. Trans. Francisco López Martín. Gredos, Madrid, 2013, p. 148.
[305] Against Kahn, Gotthelf thinks that these passages mean "to assimilate generation to self-preservation (not the preservation of the species)". Gotthelf, Allan. "Aristotle's conception of final causality" in *Teleology, first principles, and scientific method in Aristotle's biology*. Oxford Aristotle Studies, 2012. Footnote, 13, p. 210.

As stated in the previous section on elementary transformation, there is an imitative striving to be in a stable condition, beyond the unstable existence on earth. In this sense, reproduction is an imitation of the imperishable realm, and also is expressed by circular motion: the cycle.

Biological reproduction is easily conceived within a global framework of the "*for* what is it aimed at" teleology, whereas there is a "*for* what is it beneficial" teleology at stake too. As I see it, there is a doubly comprehensive understanding of the same function: reproduction. There are two complementary levels of the term *télos* in these two places in the corpus. As always, the individual *télos*, the benefit, and the teleology of development are clearer. Reproduction is a potency of living beings. The fulfillment of that potency means, as we know well, the goal and the function. Reproduction is, like other faculties within the biological realm, a flourishing. Besides, this fulfillment expresses a general aim, called imitation by Aristotle. Obviously, it is not a conscious imitation. Imitation, here, is an analogical term: it means an ontological dependence, as we have seen. Reproduction means contributing to something beyond the individual. This something is the stability of the biological species in the cosmos. Since the Aristotelian cosmos is eternal, the biological species within it are so too. By reproducing, individual living beings contribute to eternity, that is, stability in the time of part of that cosmos: namely, their species.

While in the text from *Met*.XII.10 natural things function for the sake of the general order, in these last cases of imitation natural beings contribute to the stability of that general order. Each global passage emphasizes one aspect of that cosmic understanding of perfection.

- Ecology: interspecies order

There are still two global texts to read. They do not include eternal supralunary items any more, hence there is no imitation at stake. They fit better with the *Met*.XII.10 global perspective.

According to Judson, the first of the following two texts is "conformist" with the basic teleological "axiom", that is: the goal is "better with reference to the essence of each thing".[306] The global teleology described in *PA*.IV. 13 is conformist since the general good fits with relatively individual goods: they are compatible. The second text from *Pol*. I. 8 goes against Judson's axiom: it could never be conformist. This example means a certain asymmetric understanding of teleological relations.

Following Judson's useful commentary, I have distinguished the two passages with two titles:

Good for everybody:

"For in some [fishes] this is placed in front, at the very extremity of the body, while in others, as the dolphin and the Selachia, it is placed on the under surface; so that these fishes turn on the back in order to take their food. The purpose of nature in this was apparently not merely to provide *a means of salvation* for other animals, by allowing them opportunity of escape during the time lost in the act of turning – for all the fishes with this kind of mouth prey on living animals – but also to prevent these fishes from giving way too much to their gluttonous ravening after food. For had they been able to seize their prey more easily than they do, they would soon have *perished* from over-repletion. An additional reason is that the projecting extremity of the head in these fishes is round and small, and

[306] Judson, Lindsay. "Aristotelian teleology". Oxford Studies in Ancient Philosophy. 29:341-66 (2005), p. 359. From Lennox *On the parts of animals* and *Phys*.II.7.198b5-9

therefore cannot admit of a wide opening". *PA*.IV. 13. 696b25-34.).

Good for some, bad for others:

"For some animals bring forth, together with their offspring, so much food as will last until they are able to supply themselves; of this the vermiparous or oviparous animals are an instance; and the viviparous animals have up to a certain time a supply of food for their young in themselves, which is called milk. In like manner we may infer that, after the birth of animals, plants exist for their sake (*tá te phytà ton zóon héneken einai*) and that the other animals exist for the sake of man (*kaì álla zóa ton anthrópon chárin*), the tame for use and food, the wild, if not all at least the greater part of them, for food, and for the provision of clothing and various instruments. Now if nature makes nothing incomplete, and nothing in vain, the inference must be that she has made all animals for the sake of man (*ton anthrópon héneken autà pánta pepoiekénai tèn physin*). And so, in one point of view, the art of war is a natural art of acquisition, for the art of acquisition includes hunting, an art which we ought to practice against wild beasts, and against men who, though intended by nature to be governed, will not submit; for war of such a kind is naturally just". (*Pol*. I. 8. 1256b7-1256b26).

A number of influential scholars do not accept these texts as examples of Aristotelian teleology. First, they are only two in a huge corpus.[307] Secondly, they are not interpreted straightforwardly or literally. Balme considers the first passage, on the dolphin in *GA*.IV.13, as "sarcastic".[308] Regarding *Pol*.I.8 he states that "it is impossible that he could have meant this literally. It comes in a rhetorical and popularizing account of the varieties in natural lifestyle". In a similar way, Wieland calls global teleology accounts in general "concessions to popular notions", and, especially in *Pol*.I.8, a "practical question". In Aristotle the animals do "not [have] an innate tendency to serve man", says Wieland.[309] These two passages, but overall the second, are regularly read from popular perspective, as a opposed to a biological or scientific one.

There is an idea of a "web of interests" all over nature. It entails, in my reading, the compatibility of the global teleology of "*for* what is aimed at" and the individual teleology "*for* what is it beneficial".

Aristotle states that: "For in some [fishes] this is placed in front, at the very extremity of the body, while in others, as the dolphin and the Selachia, it is placed on the under surface; so that these fishes turn on the back in order to take their food". The purpose of nature is twofold: 1) "to provide a means of salvation for other animals, by allowing them opportunity of escape during the time lost in the act of turning – for all the fishes with this kind of mouth prey on living animals". This can be named as the "good of other animals". 2) "to prevent these fishes from giving way too much to their gluttonous ravening after food". Which can be named as the "good of the dolphin and the Selachia". 1) and 2) are the good of "*for* what is benefitted" (*érgon*, *eidos*) but the articulation is "*for* what is aimed at" (*táxis*).

We can take this other passage: "From it [duration immortal and divine] derive the being and life which other things, some more or less articulately but others feebly, enjoy" (*DC*.I.9). Or: "On such a principle [first unmoved mover, which is good], then, depend (*értetai*) the heavens and the world of nature. And it is a life such as the best which we enjoy, and enjoy

[307] For this idea Pellegrin, Pierre. "Introduction", in *Les parties des animaux*, by Aristotle. G F Flammarion. *Les parties des animaux*. Paris, 2011.
[308] Balme, D. "Teleology and necessity". in A. Gotthelf and J. G. Lennox (eds.), *Philosophical Issues in Aristotle Biology*, Cambridge University Press, 1987, p. 279.
[309] Wieland, Wolfgang. "The problem of teleology". *Articles on Aristotle. 1. Science.* ED. Jonathan Barnes, Malcolm Schöfield, Richard Sorabji. Duckwarth, London, 1975, p. 158.

for but a short time (for it is ever in this state, which we cannot be), since its actuality is also pleasure" (*Met.* XII. 7.1075a onwards). Furthermore, as we saw, in *Met*.XII.10 this "derivation" and "dependence" is considered "order" and "stability", or, maybe better, "stable order". It is the general accordance to one principle. Aristotle himself states that the idea of something "besides sensible things" is linked to the "first principle", "order", "becoming" and "heavenly bodies". These major elements all presuppose each other, it seems. The one interesting thing for us, at this point, is "order". Order, we saw, is good, it is *télos*. Against those who "give us many governing principles" Aristotle famously says the "world (*ónta*) refuses to be governed badly" (*Met*. XII.10.1076a-3).

In my view, the *Met*.XII.10 passage sheds light on *PA*.IV. 13, yet it strengthens the global teleology position (this is, precisely, Sedley's main strategy in his controversial analysis of *Pol*.I.8 in the light of *Met*.XII.10).

The first text, *PA*.IV.13 is good in two perspectives: it provides salvation for little fish and prevents gluttony among dolphins. I do not think it "reverses" *Pol*.I.8's chain, since in this conformist case, so to speak, they all win.[310]

John Cooper quotes the *PA*.IV.13 passage as a "scientifically" valid example of Aristotelian ecology.[311] I agree since it talks about interactions among species and about global stability as something good, attainable and something in which everything takes part. As Cooper says, "there is inherent in the world a fundamental tendency to preserve permanently the species of living things it contains".[312]

So I have titled the *PA*.IV. 13 passage as "good for everybody" and the *Pol*. I. 8 passage as "good for some, bad for others". This emphasizes the polemic *non-conformist* aspect of our last text on Aristotelian global and immanent teleology. It deals with the problem of anthropocentrism, defended by Sedley in two insightful texts and by Owens in a single one. In *PA*.IV.13 we were talking about an order in which the two teleologies, that of the good of "*for* what is it beneficial" (*érgon*, *eidos*) and the other "*for* what is it aimed at" (*táxis*), are compatible, and thus conformist.

On the contrary, in *Pol*. I. 8 the first individual's *télos* is, so to speak, "sacrificed" for the sake of the second's, and the second's for the sake of a third's. The order of the substance and its *télos* is referred to its degree of perfection. Thus, plants exist for the sake of animals, and animals exist for the sake of humans. *Pol*. I.8 has to be understood in the context of the "art of acquisition", which is the last topic in a sequence that starts with the nature of the *polis* and, subsequently, the legitimacy of natural slaves. The passage pertains then to the section on art of acquisition, and echoes the previous two. In this context, also the idea of using natural slaves is justified in the same way as hunting, etc. That is, Aristotle considers animals and slaves instruments for survival and well-being of the best (non-slave humans).[313] According to some scholars, this theory contradicts Aristotle's biology, just as the theory of

[310] See Leunissen, Mariska. *Explanation and teleology in Aristotle´s science of nature*. Cambridge University Press, 2010, p. Leunissen, p. 44. See also pp. 92-99.
[311] Cooper, John. "Aristotle on natural teleology" in *Language and logos*, 1984. On the "principle of the permanence of the species", p. 220.
[312]Ibid., p. 213.
[313] See *Pol*.I. 8.1256a3-1256b6.

slavery contradicts his anthropology.[314]

In this case, this ecological or global teleology is different from *PA*.IV.13 since the good or *télos* is, on occasions, death. This raises important problems, since, we know, *télos* and *péras* are different, and death is *péras*, and never the goal.

Sedley and Owens defend both "a hierarchical teleology in nature", in their opinion firmly rooted in Aristotle's thought.[315] First, Sedley is right in claiming that, despite the aforementioned context, *Pol*.I.8's passage is not *only* about human beings and nature, but also about the "art of acquisition". At this point, rigorously basing his interpretation on Aristotle's words, Sedley want to debilitate popular and pragmatic readings. He is right in saying that an important part of this text talks about biology. To my knowledge, interpreters have never responded to that satisfactorily.

Notice that Aristotle says that "the vermiparous or oviparous animals are an instance; and the viviparous animals have up to a certain time a supply of food for their young in themselves, which is called milk". Aristotle adds that "In like manner", that is, analogically, "we may infer that, after the birth of animals, plants exist for their sake (*tá te phytà ton zóon héneken einai*)". Milk and plants have their *télos* in another being. Analogically he states "that other animals exist for the sake of man (*kaì álla zóa ton anthrópon chárin*), the tame for use and food". Little further he reinforces this idea: "Now if nature makes nothing incomplete, and nothing in vain, the inference must be that she has made all animals for the sake of man (*ton anthrópon héneken autà pánta pepoiekénai tèn physin*)". As I said, the context of natural slavery is still present in the background, which is clear when Aristotle adds that the art of acquisition and hunting is "an art which we ought to practice against wild beasts, and against men who, though intended by nature to be governed, will not submit; for war of such a kind is naturally just" (*Pol*. I. 8. 1256b7-1256b26).

Sedley and Owens think that Aristotle is, within the sublunary realm, anthropocentric. Everything in nature, simple elements, plants, animals and natural slaves are for the sake of Greek human beings. To be eaten can be understood as the goal of animals and plants, according to Sedley's reading. The two scholars think that beneficiary biology and global teleology are so. Regularly, the goal of the wild animal is maturity, but *eventually,* its goal (and not only limit) *can be* death, *if this is necessary for humans*. This is the most controversial point of this non-conformist reading, but I do not support it while it is contradictory to the doctrine I have developed so far, according to which the *télos* is the completion and good.

As Sedley points out, the perspective of *Pol*.I. 8 seems to include the relation between plants and animals. Second: if we consider this a popular concession, then we have to address the doctrine of the natural slave (*physei doulos),* three chapters earlier. Owens also recalls that every human being is not equally considered, and that all are to be understood regarding the contemplative philosopher, the goal of the city.

---

[314] Berti, Enrico. *Il pensiero politico di Aristotele*. [*El pensamiento político de Aristóteles*] Trad. Helena Aguila Ruzzola]. Gredos, Madrid, 2012, pp. 42-49.

[315] The expression is taken from Owens, Joseph. "Teleology of nature in Aristotle". *Some philosophical issues in moral matters. The collected ethical writings of Joseph Owens*. Ed. D. Billy-T.Kennedy. Editiones Academiae Alphonsianae. Roma, Edalcalf, Roma, 1996, p. 206.

Aristotle recalls that in physiological terms slaves are different from their owners: they are stronger and less intelligent (*Pol*. I. 5.1254a29-1254b31). According to Aristotle this is not a conventional claim: the slave is an instrument for the owner, and that seems to be grounded in nature (*Pol*.I.5.1254b20-30). At the same time, technically speaking, as Berti points out, the slave is not one species.

In that chapter, nature is seen as a web of goals, where the inferior being in the scale is subordinated to the superior one. One could however still defend the conformist perspective here: although it is difficult for us to understand it, Aristotle's conception of the slave includes flourishing and the *télos*. By contributing to the rationality of the *télos*, the slave participates in something good, which is better for him or her. This could be a way of understanding part of the section in *Pol*.I.8. But some of those uses between species in nature imply death, i.e. the plants nourishing the cows. One of the most important ideas regarding the notion of *télos*, as we saw, is that it is not like *péras* or *escháton*. The goal is not the limit of a substance's progress of any kind, but its peak. Death could never qualify as *télos*, in my reading. The death of one living entity can be a *télos* only *accidentally* since its meat means growth for another animal.

I think that the most cautious thing to say here is to affirm that wild living beings have their own goal and that they contribute in different degrees to the general good. This contribution is certainly unclear in *Met*.XII.10, but it may involve the specific function and not the death of living entities. I think Aristotle's global teleology in *Pol*.I.8 could partially respond to this question (as Sedley says) only in cases of use, when the immanent *télos* and the general inter-species order are compatible (slavery). When they are not (the trophic interpretation of the natural scale), it cannot fit with the doctrine developed above. Death can never be a goal, since it is the opposite of the survival and flourishing of a species. *Pol*.I.8 is a non-conformist passage, like the other cases of global teleology. The controversial status of the text is justified. *Pol*.I.8 is not a popular concession, as has been suggested, since it fits clearly in *Pol*.I as a whole. At the same time, I believe a global teleology scheme belongs beyond the boundaries of the immanent teleology, linked to natural forms, addressed throughout these pages. In any case, *Pol*.I.8 is one exception in Aristotle's work