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Aristotle's Hylomorphic Conception of Knowledge. From Epistemology to Psychology and Metaphysics

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Abstract

In the Posterior Analytics, Aristotle sketches a very peculiar model of science, according to which knowing what something is, discovering its causes and stating its existence entail each other. The underlying claim is one of strong realism: for it is meant that our rational concepts include in themselves knowledge of the existence of their objects; and that, therefore, it is impossible even to have a grasp of what non-existent entities such as unicorns are.

The aim of my paper is to investigate about which requisites needs Aristotle to embrace in order to defend such a position. Much of the recent scholarly work regarding the Posterior Analytics *has focused on a reconstruction of Aristotle's epistemology, especially with regard to the achievement of the principles of science. In at least some cases, this has lead to readings of the* Posterior Analytics *in the spirit of a more or less strict form of empiricism. However, these readings are at risk of falling short of making justice to Aristotelian realism.*

After considering recent studies in search for a solution, I will argue that only by broadening the scope to Aristotle's psychology—with especial regard to De Anima*—and to his metaphysical frame we get to fully understand his position. By reading Aristotle's study of our rational faculties through the filter of his hylomorphism, indeed, we understand that the concept of something's essence is itself a form "taking place" in the soul and structuring itself according to the same rules that apply to reality. My final conclusion will be that in Aristotle we do find a form of empiricism, but that at the same time justification is for him ultimately metaphysical and top-down.*

Keywords*: Aristotle, empiricism, hylomorphism, form*

CONTENTS

1 THE SKETCH OF THE *POSTERIOR ANALYTICS*

The starting point of this paper will be to consider some epistemological theses that Aristotle defends, which seem to imply that the concept of what something is should include in itself much more than just a representation of the thought object. As a consequence, the philosopher would be assuming a clear divide between a mere imagination-driven representation of an object and an authentic understanding of it. In turn, this leads him to a very strong form of realism, which seems to require further foundation in order to be defended.

I will first concentrate on making a quick sketch of the "theory of concepts" that emerges from the *Posterior Analytics*; then I will point out a very interesting and potentially problematic point, namely, that according to Aristotle if we know what something is, that something must exist.

1.1 Knowing the quiddity

In the second book of the *Posterior Analytics*, when he is about to present his theory of definition, Aristotle formulates crucial principles about our knowledge of facts (or events) and of singular objects. His basic idea is that in order to know something it is never sufficient to have a superficial grasp that a phenomenon is given; rather, a causal explanation—in the case of facts—or a grasp of the quiddity, the "what it is" of something—in the case of objects—is required. This picture is already very clear in chapter II,1.[1]

Now the process of understanding takes four things into consideration: whether something is the case and the reason why it is the case; what something is and why it is the way it is. It is crucial to notice that two different kinds of research are being thematised. The first, involving knowledge "of the fact" and "of the reason why" (τὸ ὅτι and τὸ διότι, *to hoti* and *to dioti*) is the inquiry into some kind of "relative" predication, i.e., whether something *that we already know of* is a certain other something (following Aristotle's example, whether a man is white and why). The second, involving knowledge "of whether it is" and "of what it is" (εἰ ἔστι and τί ἐστιν, *ei esti* and *ti estin*) is the research for an "absolute" kind of predication, which is what concerns us here: it is the process of *discovery* of a certain entity, an investigation into whether we are allowed to say that said entity exists or not (in the example, whether there are such things as men and what they are). It is the kind of research which Aristotle writes about in *Metaphysics* **Z**, 17, when he explains in what consists posing a question *simpliciter*,[2] that is, one that asks for the τί ἐστι of something—what is *this something here*? In other words, as Aristotle himself says, it asks what a determinate material compound is (or, to say it in other words, whether we can ascribe an essence to certain material circumstances—e.g., "this portion of wooden elongated branched matter here is a tree").[3]

Thus it is clear that there is a mutual influence between knowing what something is and stating its existence. But we have not quite completed the picture: indeed, in the discovery of the quiddity *causality* is involved as well, for in order to know whether something exists, according to Aristotle, we still need to find the *causes for its existence*. This is why in chapter VIII he reformulates the principle of mutual entailment between statement of existence and knowledge of the essence (what for the old scholastic was the "quiddity") including the cause (αἴτιον, *aition*) in his sentence: "to know what something is [τί ἐστι] and to know the explanation of whether it is [τὸ αἴτιον τοῦ εἰ ἔστι] are the same".[4] In a way, to state a proposition like "there are some Xs" is still stating a fact and, as we have learnt in chapter I, knowledge of the fact requires causal explanation.[5]

We have then that (a) knowing what something is entails knowing that it exists and that (b) knowing what something is entails knowing its causes. If we say that to know what X is means "having a concept" of X, we see that for Aristotle such a concept is a very complex epistemic unity, which includes in itself statement of existence, recognition of the cause and actual description of quiddity.

1.2 A declaration of realism

An immediate consequence of the theses presented above is that it is impossible to know what non-existent entities are. Aristotle himself comes to this conclusion with a peculiar example: "Anyone who knows what a man or anything else is [τὸ

τί ἐστιν] must also know that it exists [ὅτι ἔστιν]. (Of that which does not exist, no one knows what it is. You may know what the account or the name means when I say "goat-stag", but it is impossible to know what a goat-stag is)".[6] The goat-stag is a mythical creature half goat and half stag, that is, an imaginary creature like a unicorn; so basically Aristotle is saying that we will never know what a unicorn is, because they don't exist. Now this statement looks reasonable: Aristotle is not stating that we don't understand what is *meant* by the term "unicorn" ("you may know what the account or the name means"), just that we don't *know* what they are. Indeed, it is intuitive to say that we cannot actually *know* what a unicorn is, for there will never be a way to state what unicorns actually are. Are they mammals? How big are they? How long do they live? This all does not depend on reality, but on our imagination. However, there could be more here than it seems at a first glance.

If we look closer, we see that by maintaining that it is impossible to know what non-existent are, Aristotle seems to be buying some important consequences. First, he is opting in favour of a clear distinction (1a) between imagination (which encompasses imaginary creatures) and rational understanding (which is *not* able to penetrate the nature of such creatures) and (1b) between meaning of a term and knowledge of the object signified (we understand the word "unicorn" as "one-horned horse", but we don't know what a unicorn is).[7] Intuitively we could object that if we all agreed in defining an imaginary entity, we would know what that entity is; however, this is *not* enough for Aristotle to speak of understanding. As a consequence, we see that (2) he is connecting knowledge strictly with empirical experience: as, according to him, in order to know something, we need to *check* with reality whether that something exists and "how is it made".

Can this view bring us to counter-intuitive results? An example may show that it might indeed. If we maintain Aristotle's view, some of our scientific rational accounts should be excluded from the field of knowledge. An old physical theory explained combustion by assuming the existence of a fire-like element capable of being released from a body. As it is well known, this fluid was named phlogiston. Now our comprehension of phlogiston, unlike that of unicorns, stems from experience and serves an explanatory purpose inside of scientific theories; we would say that it is much more than the understanding of what the term "phlogiston" signifies. Yet, following Aristotle, we should assume that we *never knew* what phlogiston is, for phlogiston does not actually exist; and this is certainly a less intuitive case than the one of unicorns.

We could summarise the point as follows: for Aristotle any rational concept qualifiable as understanding must have a direct relation to existent entities. That is, the concept of an essence is not a subjectively achieved abstraction, but has already in itself that reference. So, it would seem, Aristotle is defending that our understanding is not the product of a constructed representation which at a later

stage is to be put in relation with reality, as such a representation may not succeed in intercepting something existent, while our understanding cannot fail in doing so.[8] How can Aristotle feel confident of defending such a position?

2 THE FOUNDATION OF EPISTEMOLOGY: ALTERNATIVE READINGS

Our goal then is to understand how exactly, starting from Aristotle's assumptions, the realism implied in the concepts of essence is defensible. A first approach must necessarily pass through the literature of the last forty years, which has seen a lively debate about the interpretation of Aristotle's epistemological claims. We will see then that a traditional interpretation was able to address with success the little puzzle raised above, but it was frail if compared with the evidence we find; and that the new mainstream interpretation, though more sophisticated and true to the text, has changed the focus to such an extent that it has made more difficult to see how Aristotle could be coherently a strong realist. In the end we shall see why it is necessary to analyse more fundamental metaphysical claims in order to fully make sense of the statements contained in the *Posterior Analytics*.

2.1 Rationalism vs. empiricism

It could be argued that the clash between the interpretations I will be considering could be boiled down to a traditional "rationalistic" reading and a new "empiricist" one. I use these terms loosely to address two different core theses, which in their most extreme versions go as follows: according to the former, Aristotle needs and in fact embraces the idea of an immediate act of infallible rational intuition to grasp essences and ignite science; according to the latter, he is much more like a contemporary empiricist, arguing that repeated perception retained by memory generates starting concepts, which will later be applied to the scientific inquiry. Therefore it is clear that the main proof in favour of one interpretation or the other is to be found within the problem of the principles, or "starting points" of science. How does Aristotle think that we achieve a "primitive understanding" of reality?

It is also clear how this debate may be helpful to find answers to our question. Indeed there are many evidences in the Aristotelian texts that definitions, i.e. the propositions which derive from our knowledge of the "what it is", may be the best candidates to work as primitive principles in Aristotelian sense.[9] If this is true, to understand how according to the Stagirite we get to achieve knowledge of principles entails shedding some light on his epistemological premises and on the functioning he attributes to our concepts of quiddity.

Now the old rationalistic interpretations, which have by now been dismissed by most of the interpreters, are based on the necessity of answering to the prob-

lem of verticality in Aristotelian science, i.e. to the idea that Aristotle, in a foundationalist spirit, maintains that all demonstrated truths ultimately rely on basic undemonstrated assumptions which are primitively true. Of course if this is so, given that science is supposed to be truthful, the basic truths on which we build knowledge need to be rock-solid. Therefore the rationalistic interpretations hold that according to Aristotle there be a power of intuition in our soul which is able to recognise infallibly and immediately the basic truths—in our case, the quiddity of things.[10] The authors defending this approach, or analogue versions of it, rely much on the supposed evidence that is to be found at the very end of the Posterior Analytics (II, 19), where Aristotle considers which rational faculty is responsible for the apprehension of principles and answers that *νοῦς* (nous) must be it. His choice falls on this faculty because it does not admit falsehood and is not exercised discursively.[11] Well, traditionally *νοῦς* was translated as "intellect", and it was thought to be precisely a power of infallible rational intuition.

If this all were true, we would have a very quick—and quite unsatisfying—answer to the problem raised in section 1.2: to say that we only have an understand of existent entities could be just another aspect of that infallibility that intellect is supposed to have. After all if intellect is infallible and if it only intercepts truths, whenever it understands it grasps something of reality. Imagination remains fallible in building images such as unicorns, but intellect never fails; therefore Aristotle remains confident of his realist position.

This reading is correct at least in some key aspects: for Aristotle *does* clearly posit a difference between mediated and unmediated knowledge, he *does* defend that intellect is non-demonstrative (at least in the same way that a syllogism is) and he *does* state that intellect can only think the truth. Where it might be dissatisfying is in this "easy way out" of an idea of infallible intuition. It is attacking these weakness that the more "empiricist" reading was introduced. Since the birth of this alternative interpretation, almost every single aspect that made the rationalistic approach so compelling has been dismantled: the verticality of science has been relativised;[12] the picture of *νοῦς* as an act of intuition rejected;[13] the use of the term "intellect" replaced with less menacing alternatives;[14] the necessity that *νοῦς* be always true, explained otherwise.

It is this last point that concerns us the most, so it is better to spend few words on it. Instead of taking *νοῦς* to be just a faculty that, when exercised, infallibly grasps the truth, the recent literature has focused on looking at it like a faculty whose actualisation results in a truthful state of understanding. The exercise and the investigation required to get to this state are not dependent just on the faculty of intellect itself, as they depend also in more discursive forms of reason, as well as on perception and experience. The process leading to understanding is therefore fallible, while the understanding itself is not; and this latter is not fallible, because it is by definition an apprehension of the truth. As Berti

puts it in his landmark contribution to this topic, "if one can have intellection of an essence, one will well understand the 'what it is', that is one cannot understand essence without knowing what it is".[15] With "intellect" Aristotle then would be meaning both the rational faculty of understanding what something is, and the result of its application; and *νοῦς* would be to some extent a virtue to be refined and exercised, someway in between a talent to find answers and a state of mind of recognition of the truth (basically *νοῦς*, in one possible sense, would be the faculty to recognise essences, while in another it would be something that we could have and not have at times; e.g., if I understand what a horse is, I have *νοῦς* of the essence of a horse).[16]

To see how *νοῦς* can be achieved, it is important to consider that for Aristotle science grows "organically", so to say, in a process in which consequences are justified by their premises and premises are acknowledged to be explanatory in virtue of their consequences, like it has been observed, for example, by Kosman. In a famous article of his, the author reminds us that a principle, in order to be wielded, must be both recognised as true *and* as having an explanatory function.[17] This is perfectly coherent with the Aristotelian distinctions we have introduced in section 1.1: knowledge of the fact and knowledge of the reason why must go together, and in the end our concepts are "attached" to reality in virtue of their explanatory value. In other words, any concept of essence—therefore any definition—arises in the context of a system of explanations guaranteeing its truthfulness. The assessment of the veridicality of our results is then a more complicated matter than it was thought traditionally.

The image surfacing from this line of interpretation is more refined and it is widely acknowledged as more convincing. Despite of making more justice to the complexity of the Aristotelian epistemology, however, in some authors it runs the risk of describing it as more strictly empiricist than it is. It is time now to assess exactly how much this approach is able to make justice to Aristotle's stand for realism and where instead it falls short of the task.

2.2 Which questions have remained unanswered?

If we limit ourselves to the problem of concept-acquisition, the "empiricist" interpretation, as I have called it, can be divided mainly in two approaches: a weak one and a strong one. Both are presented in an article by Horn and Rapp already quoted above.[18] Let us go in order. As the authors mention, in the case of the weaker reading the "principles" which constitute the starting-points of our understanding and of our scientific practice are mere generalisations: "Perhaps Aristotle here is deliberately speaking only of such generalisations, which themselves can never be the propositional principle of a demonstration, but which constitute an essential prerequisite for the formation of such definite premisses".[19] The same

line of thought is followed by Barnes, when he says that for Aristotle "knowledge, in sum, is bred by generalization out of perception", and that perception is "the ultimate source of knowledge".[20] The advantage of this position is that it dissolves many mysteries and remains loyal to Aristotle's empiricist flair. However, we should be cautious before we accept a reduction of principles to generalisations. There is not enough space here to discuss such a complex topic, but for the scope of the present paper it will be sufficient to point out the following: (0) if we accept the idea that principles *par excellence* are definitions, then (1) it is difficult to see how a generalisation may work as a principle, given that knowledge of what something is entails knowing something very definite and precise, a τόδε τι (*tode ti*), i.e. the form of a susbtance;[21] (2) a mere perceptual generalisation will hardly include in itself knowledge of the cause and of the fact, as we have sketched at the beginning; (3) the distinction between sensation and thought and between imagination and thought, which is crucial to the understanding of Aristotle's theory of knowledge, will be lost.[22]

Indeed the weak version puts rightly the finger on the importance of perception and induction in Aristotle, and thus makes justice to the first half of APo II, 19 where this aspects are emphasised, while it must struggle to understand what is meant in the second half, where νοῦς is said to be "always true" and responsible for our knowledge of the principles (consider that the rationalistic interpretation had the opposite problem: it could explain well the conclusion of the chapter, but it faced the difficulty of making sense of Aristotle's emphasis on empirical induction). It could be said that it is not wrong to defend that our grasp of principles is prepared by repeated perception retained by memory, as long as we take a second step and defend that from there we must still go upwards in order to achieve rational understanding, in the perfected state of νοῦς. This makes sense both of the development of thought as it is sketched in De Anima (from perception to imagination to intellect) and of the description of how a definition is generated in the Posterior Analytics (from acknowledgement of the fact, which may very well said to happen by means of perception, up towards recognition of the cause and acknowledgement of the quiddity).

Fortunately the stronger reading is more efficient in stressing the passage to rationality. It does so by emphasising the explanatory value that a principle must have. As Horn and Rapp put it, this second approach is based on the idea that "those who really know the principles of an area of investigation must find a way around a whole network of concepts and their mutual causal relationships".[23] The thesis at play here is the one presented already in section 3.1: a principle, in order to be wielded, needs to be recognised as explanatory and therefore be inserted in a causal network, thus establishing a coherence among the parts of the explanatory process.[24] A concept then will be true only if authenticated by a confrontation with experience; that is, only if it really lets us understand the

phenomena.

There is little space for doubt that causality and explanation, according to Aristotle, offer us the key to an authentic form of understanding. We see immediately, however, that if we declare ourselves satisfied with this epistemological reading we are pushed back to the beginning. Indeed our issue, the existential implication contained in a rational concept, remains question-begging at least under two respects: (i) if we say that for Aristotle our understanding must necessarily be true because there is no such thing as a "false understanding" (which would be a non-understanding), we are certainly stating something correct, but we still have not explained why understanding must be only of existing essences; (ii) if we say that the causal context is supposed to give us the answer to (i) by setting a parameter of explanatory power, we still can offer counter-examples, and in particular we can quietly stand by our example with phlogiston: a non-existent entity which was defined by its own supposed nature, whose knowledge was wielded as an explanatory principle and whose existence was confirmed by experience.

We see then that while the rationalistic approach offered us a straightforward—but likely false—answer to why Aristotelian understanding of the essence cannot fail, the empiricist approach, whose picture is more compelling, is partially unable to give us all the answers. In the case of the weaker reading the situation is more dramatic, as in it the problem of finding a justification for Aristotle's strong realism is somehow pushed aside, and the philosopher is almost read through the lens of contemporary empiricism and contemporary naturalism. This way, however, some crucial claims are not really accounted for. In the case of the stronger reading, instead, we seem to get much closer to Aristotle's intentions, but we still cannot save him from some radical objections.

Should we conclude that the Stagirite was affected by some naïveté in hoping that our concepts be always able to intercept something of reality? I think not. Indeed, considering that causality must be what accounts for the truthfulness of a concept is a promising way. The question now could be: which causality? Surely efficient causality—our modern "retracing regularities in nature"—offers an important help to recognise a pattern of rationality in the phenomena; but reducing Aristotle's epistemology to it would be anachronistic, as the real revolution in it is the invention (discovery?) of formal causality. Without any need to attack or dismantle the empiricist approach (at least in its stronger reading), then, we can push further and consider how formality is involved in the production of thought. In order to do so, however, we need to turn to Aristotle's psychology.

3 BROADENING THE SCOPE

The goal of this paper is to show that a study of Aristotle's psychology may offer us crucial interpretative keys for the understanding of his epistemology. I will then now consider some key passages of *De Anima*. In order to sustain my hypotheses I will also be making some reference to the *Metaphysics*, as to achieve a proper understanding of Aristotle's intentions we will need to point out the metaphysical frame he is using. In fact, I hope that by the end of this paper it will be clear that, even more than psychological, Aristotle's assumptions on the nature of knowledge and truth are metaphysical. I will now recall the famous definition of the soul as a "place of forms" and then go on by drawing the implications from it.

3.1 The soul as a "place of forms"

It is well known that in DA III, 4 Aristotle describes the rational soul as a "place of forms" (*τόπον ἐιδῶν*).[25] This means that the rational part of our soul, even before being characterised by language or reasoning, is definable as rational because it is "capable of receiving the form" (*δεκτικὸν ... τοῦ εἴδους*);[26] that is, receptive of the "what it is" of things (of their quiddity). This receptivity, though surfacing through experience, is absent in perception as well as in imagination. It could be said that what changes in the passage from sensation to intellect is the order of predication: while the sensitive part of our soul is focused on the properties of things, as it receives only an object's "being so and so" and can at most perceive the object itself accidentally (so to say, as a property of the qualities it instantiates), intellect perceives the object "qua this determinate something" and correctly recognises it as what is substantial. Aristotle's example is the following: when *seeing* the son of Diares, I am not recognising him as the son of Diares (i.e. a determinate instance of human), rather I am perceiving him as "this white here".[27] Reception of the form is then reception of a *τόδε τι*, a determinate "this something". While this expression in the *Posterior Analytics* indicates the individual,[28] in *De Anima* and in the *Metaphysics* it indicates the form,[29] giving us a fundamental clue: that for Aristotle knowledge of the form, while indeed being universal, is not a generalisation but rather a *rational determination* of what makes something be that concrete something. In this sense, even if knowledge is of what is universal, its ultimate reference is the nature of substances, which are individuals.[30]

But this is not all that there is to it. For according to Aristotle, in order to contemplate actively a "determinate something", the soul must *become* that determinate something; in other words, it needs to take the form of the object upon itself. So the proper object of thought is indeed the form, but the act of thought

is reflexive: when intellection happens, the soul thinks itself *qua* form.[31] This is why the intellect is said to be capable of "becoming all things" (see again note 31). So apart from being able to reflect upon the products of sensation and imagination and contemplate them under a rational light, in such a way as to retrace in the data of experience unitary entities with a determinate essence, our intellect is also able to take the rational unity of essences upon itself. Better said: it is able to retrace unity in experience, because it can become itself that unity.

This all may seem really counterintuitive to our modern sensitivity. However, if we consider carefully the meaning of what is being said, we see that it might be nothing mysterious after all. The idea at the basis of these principles is the very idea of *modelling*: whenever we reproduce the logical connections that hold in reality within our mind, we are indeed crafting our thought in accordance to the "form" of things and then reflecting upon the constructed model. The model is achieved through a subjective effort, but its validity is objective. This is exactly what Aristotle is stating. Now such an idea brings within itself important metaphysical consequences; and if we explore them, we might find a solution to our initial problem.

3.2 A metaphysical reading

The first relevant thing to say at this point is that forms are not generated. According to Aristotle's metaphysical principles, matter is the substrate undergoing change, and the formed substance is what faces generation and corruption; forms, instead, are not the subject of change, as they are instead a status the underlying substrate can find itself in. The formula used is the following: "[forms] without coming to be or passing away… are and are not" (*ἄνευ γενέσεως καὶ φθορᾶς εἰσὶ καὶ οὐκ εἰσίν*).[32] This principle is applicable to any rational form-like entity; that is, it regards individual substantial forms as well as the definitional formulae (*λόγοι*, *logoi*) we use to grasp things linguistically. The analogical application of this idea is relevant to us, as it confirms that we are speaking of a metaphysical rule which works exactly in the same way for physical (and metaphysical) realities and for the mind. Let us try then to understand exactly what is being said. If a form (of an individual or of a thought) is not generated, it means that it is rather a status, causally relevant, which takes place whenever some conditions are met. The constant change in matter on a physical level and the tiresome re-elaboration of perceptual images (*φαντάσματα*, phantasmata) on a psychological one make available the underlying process which eventually leads to the taking place of a form. In the moment in which that happens, however, the form, which was caused by the process, takes the lead and starts ruling over it. In the case of mere ontology, this means that the form will be causally active in sustaining the material compound; in the case of epistemology, that form will be responsible for the

identity of something; in the case of psychology, that form will be the one thing making sense of the images we have accumulated by means of perception and reorganised by means of imagination.

The conditions which must be given for all this to happen are granted by the laws of rationality. Thoughts then, being formed entities, will have to follow the same rational laws that rule over the world, and they will be clearly something very different than mere subjective representations. Indeed, we would be forced to this conclusion if we stood by a strictly empiricist model of knowledge, where thought is just the ultimate product of a generalisation of perceptions. But perceptions are a subjective take on reality; thought, for Aristotle, is not.[33] In thought, the correspondence between subject and object, mind and world, is given originally; the condition for the success of our thinking activity is not guaranteed by any methodological move we can make, but by the very constitution of our faculties. To say it in Buchheim's words, "It is very important to Aristotle… that in the last analysis the understood truth isn't produced by those who understand, as it is rather bestowed upon them. Only under this condition it is possible to be realists in theory of knowledge about the understanding of the world and its objects, as Aristotle indeed is".[34]

Thoughts then are something in-between a subjectively achieved model and an objectively given mental event. To understand how this double aspect of our concepts works, it is important to recall another crucial Aristotelian metaphysical principle: that "actuality separates".[35] What does this mean? Recall first of all that any process leading towards a goal, according to Aristotle, is given by a pairing of potentiality and actuality, where the first is the possibility for something to take place, and the latter is the actual taking place of that something. When the goal is achieved, actuality is able to *define* an object, separating (distinguishing) it from what surrounds it. When the first cell was born, the magmatic reality of the primordial soup saw a new entity coming into existence, causally dependent from its environment, and yet distinguished from it: a homeostatic living being whose form ruled over the matter it was composed of. Analogously, when a thought is finally achieved, the magmatic reality of our perceptions and images receives a form, and the newborn thought is distinguished from the bundle of our perceptions, though relying causally on its existence; the λόγος which the thought is rules over the images that compose it and gives them meaning, while the images—like a cell's molecules—grant it the substrate it needs to exist.

If we look back at the "theory of concepts" of the *Posterior Analytics*, we see a correspondence with what Aristotle states about psychology. The magma of experience grants us facts, which we grasp by experience (and experience in turn is based on perception and memory). Then we start defining an object until, when we discover what it is, "we find at the same time the fact and the reason why".[36] This we achieve by means of νοῦς: we give a unity to the phenomena of our

experience by rationally retracing in it a causally relevant identity—a form. The achievement of unity at the level of our notions is mirrored by the unity that our own intellect takes upon itself. And here is the key point: the understanding of what something is relates necessarily to something existent, because the act of understanding equals to an act of *identification* of an entity (again, as explained in *Z*, 17); and the necessity that this act of recognition, when it actually happens, be successful is *guaranteed* by the rules of formality. Concepts cannot be formed randomly; they need to be formulated as self-sustaining (self-explanatory) unities according to the rules of rationality. If we succeed in doing so, we have touched rock bottom and we are standing on solid ground; if we don't, it is not that we understood wrongly, we just did not understand.

Let us recapitulate once more this crucial point as clearly as possible. *Thought is essentially bound to truth*, because it needs to be *true in itself* by means of a proper articulation. There is no such thing as an act of thought lacking said articulation: either we think the truth, or we don't think at all. So by saying that νοῦς only grasps truth, Aristotle is not making a methodological point; he is rather making a definitional one, on the basis of metaphysical assumptions. Therefore it is clear that, instead of explaining epistemology by means of metaphysics, Aristotle does the opposite: he relies on metaphysical principles to tell us that knowledge is in fact possible.[37]

Now this does not prevent us from error, not by a long shot, and Aristotle knows it. For if the metaphysical guarantee of the *possibility* of success is given by the rules of rationality, the subjective effort of building a model is fallible. But if we return to the example of phlogiston, we may now imagine how the philosopher from Stagira would respond to it. Phlogiston was *imagined* in order to explain facts like combustion and rusting. Despite we were wrong in imagining a fire-like element being released from combusting bodies, we did put our finger on something true by observing the formal dynamics of combustion. It was following this formal lines that we were ultimately able to improve our theories and get to actual understanding of what combustion is. When actual understanding came about, we recognised at the same time *why* combustion happens and *that* there is such a thing as combustion. We were then able to *make much better sense* of the phenomena—and we might still improve, as we can never be sure to have reached a definitive answer; like Aristotle himself says, "it is difficult to know whether one knows or not".[38]

4 A HYLOMORPHIC TOP-DOWN APPROACH: ARISTOTLE'S SOLUTION TO THE PARADOX OF THE *MENO*

The theory of human understanding thus surfacing is intrinsically hylomorphic, as it relies on the crucial distinction between form and matter to make sense of our epistemic experience. Sense-data and induction, with which we grasp the regularities of phenomena, constitute the *matter* of our thoughts; but the actual explanation of experience is formal, and it is formal in two senses: first, because we are called to recognise formal causes; second, because our very thoughts are forms in the mind. Being hylomorphic, this theory is able to account both for efficient/material causality, which goes bottom-up, and for formal/final causality, which is rather top-down. In the first sense, thought is caused by sensation and composed of perceptual images; in the second, it is the result of an (actively achieved) tension towards a goal, and this goal gives an ultimate top-down justification when we reach a condition of rational formality which *makes sense* of the accumulated data. The process of induction and of discursive reasoning leads to understanding, but understanding justifies the process as a rational one—the result rules over the process, so to say.

That this is indeed the spirit in which Aristotle is formulating his epistemology is clear by his preoccupation with the paradox of the *Meno*, formulated by his master Plato. The paradox reads basically as follows: when we are searching for something, either we know what we are looking for, and so we don't need to look for it; or we don't know what we are looking for, but then we won't be searching at all. Plato's solution was to embrace the first horn of the dilemma: we do already know, we just need to remember it, for we have experienced it before birth.[39] The dilemma might be posed also in other words: how is it possible that we move from a state of ignorance to a state of knowledge, if knowledge is not already present from the start (given that nothing comes from nothing)? Aristotle's concern with this problem is evident, as references to the *Meno* both open and close the *Posterior Analytics*. In APo I,1 we read:

> All teaching and all learning of an intellectual kind proceed from pre-existent knowledge.[40]

> Before you are led to the conclusion, i.e. before you are given a deduction, you should perhaps be said to understand it in one way—but in another way not. If you did not now whether there was such-and-such a thing [=a triangle] *simpliciter* [ἁπλῶς], how could you have known that it had two right angles *simpliciter*? Yet it is plain that you do understand it in *this* sense: you understand it universally—but you do not understand it *simpliciter*. (Otherwise the puzzle in the *Meno* will arise: you will learn either nothing or what you already know.)[41]

The principle that both Plato and Aristotle agree on is that all knowledge must

proceed from pre-existent knowledge. Therefore, given that he does not want to fall in the paradox of the *Meno*, Aristotle distinguishes phases in knowledge: there is a "universal" knowledge, which is the result of a generalisation (e.g. "the property of being a mammal holds for all cats") and which therefore can be achieved only by means of sensation and imagination; and there is an "*simpliciter*" form of knowledge, which states something intrinsic to the thing (e.g. "it is intrinsic to the nature of a cat that it be a mammal").[42] The first one is factual, the second one is authentically explanatory. The passage from the first to the second happens bottom-up, from sensation all the way up to intellection, without any leap; but the *justification* for this process lays at its end, and is given by the rationality of reality, which pre-exists thought and allows it to "take place".[43]

This model is confirmed at the end of the treatise (II, 19):

> I have said earlier that you cannot understand anything through a demonstration unless you know the primitive immediate principles. As for knowledge of the immediates, one might wonder… whether the states, not being present in us, come about in us or rather are present in us without being noticed. It is absurd to suppose that we possess such states; for then we should possess pieces of knowledge more exact than demonstration without its being noticed. But if we get them without possessing them earlier, how could we come to acquire knowledge and to learn except from pre-existing knowledge? This is impossible.… It is clear, then, both that we cannot possess these states and also that they cannot come about in us when we are ignorant and possess no state at all.[44]

The knowledge of immediate principles is indeed the main pivot on which the significance of Aristotle's epistemology is decided. Principles need to be "more exact" than their consequences, so they cannot be the result of sensation; but at the same time they cannot either be intuitions coming from nowhere, for this would contradict the first sentence of the treatise. The solution is to embrace the necessity of a perception-based induction (first half of APo II, 19) while at the same time acknowledging that only νοῦς can be exact enough to grasp principles (second half of APo II, 19). How is this apparently schizophrenic movement possible? Again, with the theory of potentiality and actuality: a process leading to an actualisation is possible only if the first stages contain already in themselves their goal, not unlike an embryo contains in itself all the information needed to develop into an adult. In particular, the search for the quiddity is made possible by the materiality of sensation that builds up to the rational thought, and by the rationality of form, which, without being generated, is ready to take place when some conditions are met.

Thus Aristotle's hylomorphism makes the trick once again. Instead of being forced to rely on fallible methodologies to say that we can know reality as it is, the Stagirite takes a step back and works on the formal preconditions of thought;

but being this preconditions not something of our mind, but rather something given metaphysically, there will be no barrier at all between thinking and reality. Actually, thinking will be a hylomorphic reproduction of reality itself, and truth will consist in this very "reenactment" of what is the case inside of our souls. Aristotle does not think for a moment about proving that we can know reality once thought is given; rather, he prefers showing that thought is possible, once reality is given.

NOTES

1. "The things we seek are equal in number to those we understand [ἐπισθάμεθα, *know*]. We seek four things: the fact [τὸ ὅτι], the reason why [τὸ διότι], if something is [εἰ ἔστι], what something is [τί ἐστιν]. When we seek whether this or that is the case [πότερον τόδε ἢ τόδε], setting down a plurality of terms (e.g. whether the sun is eclipsed or not), we are seeking the fact. ...When we know the fact we seek the reason why.... These things we seek in this way; but certain items we seek in another way—e.g. if a centaur or a god is or is not [εἰ ἔστιν ἢ μὴ ἔστι]. (I mean if one is or is not *simpliciter* [ἁπλῶς] and not if one is white or not.) And having come to know that it is, we seek what it is (e.g.: Then what is a god? or What is a man?)" (APo II, 89b23–35). For the *Posterior Analytics* (labelled "APo") I am using Barnes' translation: Aristotle, *Posterior Analytics*, trans. with a Commentary by Jonathan Barnes, Clarendon Press, Oxford 2002.
2. Met. **Z**, 1041b1: ζητεῖται διὰ τὸ ἁπλῶς λέγεσθαι, "it is said simply". For the *Metaphysics* (labelled as "Met.") I am using Reeve's translation: Aristotle, *Metaphysics*, trans. with an Introduction and Notes by C.D.C. Reeve, Hackett, Indianapolis/Cambridge 2016.
3. Some commentators tend to think that this latter kind of research is focused only on capturing the essence of substances. Though Aristotle's use of the expression τὸ τί ἦν εἶναι could lead us to this conclusion, we must remember that in the *Posteriori Analytics* this way of saying is still used more "democratically" than in the *Metaphysics*, where it tends to be related only with substances (cf. for example J. Rist, *The Mind of Aristotle: A Study in Philosophical Growth*, University of Toronto Press, Toronto 1989). Actually it could be stated that the research for the τί ἐστι is rather the research for any *formed* (and therefore *determined*) *entity*, whose concept is to some extent self-explanatory (of this opinion is also Barnes: see J. Barnes, o.c., p. 217).
4. APo II, 93a4. In chapter II the Stagirite had made a similar statement, saying that "in all these cases it is clear that what it is [τὸ τί ἐστι] and why it is [διὰ τί ἔστιν] are the same" (90a15). The "cases" he is referring to are those in which one needs to find a middle term in the definition of something, i.e. in the investigation about what something is (cf. 90a9–11). Yet another proof that knowledge of the quiddity—and not just knowledge of the τὸ ὅτι—is connected to the research for causes.

5. This is probably why Aristotle uses the expression *εἰ ἔστι* and *τὸ ὅτι* (also: *ὅτι ἐστι*) almost interchangeably.
6. APo II, 92b4–8.
7. On this latter distinction, on which I will not be focusing extensively, a fundamental reference is a study of David Charles: D. Charles, *Aristotle on Meaning and Essence*, Clarendon Press, Oxford 2000.
8. Some further proof that this is really what Aristotle has in mind is to be found in *De Anima* III, 6 and in *Metaphysics*, *Θ*, 10, where it is stated that thoughts directed at individual objects must be always true. For a brilliant comparison of these two chapters, see E. Berti, *The Intellection of Indivisibles According to Aristotle, De Anima III, 6*, in G.E.R. Lloyd and G.E.L. Owen (eds.), *Aristotle on Mind and the Senses*, Cambridge University Press, Cambridge 1978, pp. 141–163. I will be returning on this later.
9. Not every commentator agrees on this. For example, according to Barnes, "'principles' vacillate between primitive propositions and primitive terms" (so in his commentary on the *Posterior Analytics*; J. Barnes, o.c., p. 259). There is however much evidence in the text for ascribing the principle-status to definitions, in the *Metaphysics* as well as in the *Posterior Analytics* themselves. A particularly enlightening quote is to be found at Met. *Z*, 1034a31: "just as in the deductions, the substance is the starting point of all" (*ὥσπερ ἐν τοῖς συλλογισμοῖς, πάντων ἀρχὴ ἡ οὐσία*; *Metaphysics Z*, 1034a31). It is the definition of formed entities, then, that constitutes the authentic starting point of knowledge. An example of a commentator defending that definitions (and hence knowledge of the essence) are principles is Charles Kahn (see C.H. Kahn, *The Role of Nous in the Cognition of first Principles in Posterior Analytics II, 19*, in Enrico Berti (ed.), *Aristotle on Science: The 'Posterior Analytics'. Proceedings of the Eighth Symposium Aristotelicum*, Antenore, Padova 1981, pp. 385–414).
10. A good example of this position is to be found in T.H. Irwin, *Aristotle's First Principles*, Clarendon Press, Oxford 1988, p. 134: "Intuition is needed, then, to secure the epistemic priority that Aristotle demands.... If we reject intuition, we cannot guarantee the appropriate asymmetry in knowledge, and can no longer claim that the highest principles are prior in knowledge. If we deprive Aristotle of any belief in intuition, we deprive him of his grounds for claiming that his principles satisfy his demand for epistemic asymmetry, and therefore leave him to face his own objection to coherence as a source of justification. These claims of Aristotle's make it clear that he needs a doctrine of intuitive cognition, and the doctrine will not be an isolated error, but will result from central epistemological assumptions of the *Analytics*. His conception of demonstration embodies a foundationalist conception of justification. The right sort of foundation must avoid both infinite regress and vicious circle; and Aristotle can meet this requirement only if he recognizes self-evident first principles grasped by intuition".
11. See APo II, 100 b 5-17.
12. It has been observed, for example, that for Aristotle coherence plays an important role in defining which principles should be accepted, so that the Stagirite would not be a "pure" foundationalist, but a conditioned one; so for example Buchheim: "According to Aristotle's understanding of science only two possible sources of confirmation of truth remain: first, the *coherence* with the explanations given by a science; second, the *perception* of phenomena" ("Nach dem aristotelischen Wissenschaftsverständnis

bleiben nur zwei mögliche Quellen der Wahrheitsvergewisserung von Prinzipien übrig: erstens die Stimmigkeit oder *Kohärenz* mit bereits gegebenen Erklärungen einer Wissenschaft; zweitens die *Wahrnehmung* der Phänomene", T. Buchheim, *Aristoteles – Einführung in seine Philosophie*, Verlag Karl Alber, München 2015, p. 55). Other authors have noticed the importance of dialectics in determining scientific truths, putting in doubt the idea that Aristotelian science really be a deductive model (see G.E.L. Owen, *Tithenai ta phainomena*, in S. Mansion (ed.), *Aristote et les problèmes de méthode*, Presses Universitaires de Louvain, Louvain 1961, pp. 83–103).

13. See for example C. Horn and C. Rapp, *Intuition und Methode. Abschied von einem Dogma der Platon- und Aristotelesexegese*, «Philosophiegeschichte und logische Analyse», 8 (2005), pp. 11–45. See also J.H. Lesher, *The Meaning of ΝΟΥΣ in the Posterior Analytics*, «*Phronesis*» 18 (1973), pp. 44–68: "If to intuit something is simply to have an insight or realize the truth of some proposition then certainly *νοῦς* will be intuitive knowledge and *νόησις* will be an act of intuition. If however we mean by 'intuition' a faculty which acquires knowledge about the world in an a priori or non-empirical manner, then it will be inappropriate to think of the Aristotelian *νοῦς* as intuition".
14. Barnes for example, in his edition of the *Posterior Analytics*, translates the greek *νοῦς* with a pretty innocent "understanding" (see J. Barnes, o.c.).
15. E. Berti, o.c., p. 149.
16. This reading is coherent with Aristotle's use of the term in APo I, 34, where he speaks of the ability of recognising the middle term as *ἀγχίνοια*, a "quickness of mind", as well as in APo II, 19, in the famous chapters about *νοῦς* in *De Anima* (III, 4–6) and in the *Nicomachean Ethics* VI, 6, where *νοῦς* is numbered among the intellectual virtues and is said to be connected with principles. Moreover, both in *De Anima* and in the *Nicomachean Ethics* intellect is described as an *ἕξις*, meaning a *disposition* or a *habitus*; this gives us the idea of an ability which must be exercised and can become increasingly exact.
17. "Both of these claims are clearly implicit in Aristotle's account, according to which the premises of scientific explanation must be understood to be true and to be appropriate, *οἰκεῖαι*. This latter requirement demands that we know not simply the cause of some phenomenon, but moreover that it is the cause" (A. Kosman, *Understanding, Explanation, and Insight in Aristotle's Posterior Analytics*, in A. Kosman, *Essays on Plato and Aristotle*, Harvard University Press, Cambridge (MA)/London 2014, p. 16). See also later, on p. 21: "Our ability or inability to use certain principles, to explain by them phenomena with which we begin and thus to gain with them scientific understanding of these phenomena, constitute the criteria of adequacy for these principles".
18. See note 13.
19. "Vielleicht spricht Aristoteles hier bewusst nur von solchen Allgemeinbegriffen, die selbst nie propositionales Prinzip einer Demonstration sein können, die aber eine wesentliche Voraussetzung für die Bildung solcher definitorischer Prämissen ausmachen" (C. Horn and C. Rapp, o.c., p. 39). According to the authors, this does not necessarily mean that we should ascribe to Aristotle an *extreme* form of empiricism (see o.c., p. 35).
20. J. Barnes, *Aristotle: A Very Short Introduction*, Oxford University Press, Oxford 2000.
21. A very clear contribution explaining why knowledge of the form, despite being universal, is *not* knowledge of what is "in general", is J. Lear, *Active Episteme*, in A.

Graeser (ed.), *Mathematics and Metaphysics in Aristotle. Proceedings of the X Symposium Aristotelicum*, Haupt, Bern 1986, pp. 149–174.

22. It must be admitted though that many commentators are embracing this last consequence. I have recently had the pleasure to ask Martha Nussbaum personally about the distinction between imagination and thought in Aristotle (in the occasion of the conference *De Motu Revisited*, held in Munich on Dec. 18th 2018 at the Munich School of Ancient Philosophy), and she defended that said distinction was not really crucial. At another conference I heard Pieter Hasper describing firmly *νοῦς* as the result of generalised perception and defending that rationality for Aristotle comes into the picture only by means of language; he found favourable feedback in the audience, which included important scholars (P.S. Hasper, *Text und Argumentation in Aristoteles' Analytica Posteriora II 19, 18*, Kolloquium zur antiken Philosophie der GANPH, Marburg Jan. 12th 2018). For a good explanation of how perception and thinking are radically different in Aristotle, see S. Kelsey, *Aristotle on Thinking vs. Perceiving*, Lecture held at the Catholic University of America, Washington D.C. October 17th 2012 (https://www.youtube.com/watch?v=1XUKofE92vo, accessed Jul. 31st, 2019).
23. "Wer die Prinzipien eines Bereiches wirklich kennt, der muss sich in einem ganzen Netzwerk von Begriffen und ihren wechselseitigen kausalen Beziehungen zurechtfinden" (C. Horn and C. Rapp, o.c., p. 39).
24. See again note 17 for Kosman's take on the issue and note 12 for Buchheim's stress on coherence.
25. DA III, 429a27–28. For *De Anima* (labelled "DA") I am using Shield's translation: Aristotle, *De Anima*, trans. with an Introduction and Commentary by C. Shields, Clarendon Press, Oxford 2016.
26. DA III, 429a16–17.
27. "There is co-incidental perception of him, because he coincides with the white thing, of which there is perception" (DA II, 418a21–23). Eli Diamond has a very clear way of putting it: "In incidental perception, one immediately perceives the whole object, yet as an accident perceptually predicated of the directly perceived quality". Then, with intellection, "the proper categorical structure is restored to the object: one now perceives the attributes as predicated of the underlying object, with the consequence that the true conceptual connection between underlying essence and attributes can be apprehended, rather than the inverted case of the objects being predicated of the qualities, where all connections will appear merely accidental" (E. Diamond, *Mortal Imitations of Divine Life: the Nature of the Soul in Aristotle's De Anima*, Northwestern University Press, Evanston (IL) 2015, p. 183).
28. Cf. APo I, 73b6–7: "substances, i.e. whatever means this so-and-so [*τόδε τι*]".
29. Cf. DA II, 412a6–9: "We say that among the things that exist one kind is substance, and that one sort is substance as matter, which is not in its own right some this [*τόδε τι*]; another is shape and form, in accordance with which it is already called some this [*τόδε τι*]; and the third is what comes from these".
30. Aristotle makes a very clear opening in this direction in *Metaphysics M*, 10.
31. "Whenever it [=the rational soul] becomes each thing…even then it is somehow in potentiality, not, however, in the same way as before learning or discovering. And then it is able to reason through itself [*καὶ αὐτὸς δὲ αὑτὸν τότε δύναται νοεῖν*]" (DA III, 429b5–9). Therefore Aristotle is able to say that "what reasons and what is being

reasoned about are the same" (*τὸ αὐτό ἐστι τὸ νοοῦν καὶ τὸ νοούμενον*, DA III, 430a3–4), i.e. that in the reflexive act of intellection the subject knowing and the known object are one.

32. Met. *Z*, 1039b23–26; the implied subject of the sentence is actually *λὸγοι* (*logoi*), but as I am going to say in a minute the principle is more general. The principle is repeated at very least two other times in the *Metaphysics*, at *H*, 1044b21–22 and at *Λ*, 1070a15–17. Cf. Aristotle, *Aristoteles' Metaphysik Z*, trans. with a Commentary by M. Frede and G. Patzig, C.H. Beck, München 1988, p. 290.
33. "For Aristotle what is special about thought is that, unlike perception,...its reach extends to what we might call 'the truth', inasmuch as it is in the nature of thought to represent things as they are in themselves" (S. Kelsey, o.c.).
34. "Es ist Aristoteles sehr wichtig… dass das Wahre, das man versteht, in letzter Analyse nicht vom Verstehenden hervorgebracht wird, sondern ihm nur zuteil wird. Nur unter dieser Bedingung kann man, wie eben Aristoteles, ein erkenntnistheoretischer Realist des Verstehens der Welt und ihrer Dinge sein", Aristotle, *De Anima – Über die Seele*, trans. with an Introduction and Commentary by T. Buchheim, WBG, Darmstadt 2016, p. 40.
35. *ἡ ἐντελέχεια χωρίζει*, Met. *Z*, 1039a7.
36. APo II, 93a35–36; that is, we determine the fact that something exists and we can give an explanation for that something's existence.
37. Moravcsik is very enlightening in explaining how Aristotle is *presupposing* a realist theory instead of trying to demonstrate it (see J.M. Moravcsik, *What Makes Reality Intelligibile?*, in L. Judson (ed.), *Aristotle's Physics: A Collection of Essays*, Clarendon Press, Oxford 1995, pp. 41–57. Kosman comes to a similar conclusion when he says that for Aristotle "finding the world intelligible is no more surprising than finding the world visible" (A. Kosman, o.c., p. 25).
38. APo I, 76a26.
39. Notice that his ontology is articulated analogously with respect to this statement: If unformed matter is able to move from a less perfect state to a more perfect one by shaping itself according to a form, it must be because forms already exist (in another dimension).
40. APo I, 71a1–2.
41. APo I, 24–30.
42. That especially in the search for the what-it-is scientific research is connoted by a passage from factual knowledge to formal explanation is clear also from *Z*,17: "For example, human. When we are inquiring into what it is, it escapes notice, because it is said simply, and we do not distinguish that these things are this [i.e. that something is predicated of something else]. But we must divide up before inquiring" (Met. *Z*, 1041b1–3)—that is, we must first find a fact and then seek its explanation; short later, at 1041b5, it will be made clear that "the fact" is the existence of a certain portion of matter, and the explanation is its form. Aristotle warns us that if we don't distinguish the two phases, the spectre of the *Meno* will be awaiting us: "Otherwise, inquiring into nothing and inquiring into something will become joint inquiries" (1041b3–4).
43. I think that it is likely that it was this vision that lead Aristotle to theorise the existence of an active intellect. I will not enter the discussion about what the active

intellect of DA III,5 is. It is sufficient for the scope of this paper to recall that it is a higher actuality making thought possible in the first place.

44. APo II, 99b20–32.
