



## Aristotle's Analysis of Perception

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Volume 66, Number 1, 2010

Intuition et abstraction dans les théories de la connaissance  
anciennes et médiévales (I)

URI: <https://id.erudit.org/iderudit/044318ar>

DOI: <https://doi.org/10.7202/044318ar>

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Publisher(s)

Faculté de philosophie, Université Laval

Faculté de théologie et de sciences religieuses, Université Laval

ISSN

0023-9054 (print)

1703-8804 (digital)

[Explore this journal](#)

Cite this article

Biondi, P. C. (2010). Aristotle's Analysis of Perception. *Laval théologique et philosophique*, 66(1), 13–32. <https://doi.org/10.7202/044318ar>

### Article abstract

This paper examines Aristotle's assertion found in *Posterior Analytics* II 19 that perception is of the universal. Through a study of *De Anima* II 6 and III 6-8, where Aristotle describes the objects of perception and of intellect, the author argues that, for Aristotle, human perception is always of the universal as it is found in the particular because the unity of the individual substance guarantees the unity of the act of perception. Consequently, the analysis into three perceptible objects is merely the result of Aristotle's analytical method used to study the act of perception.

# ARISTOTLE'S ANALYSIS OF PERCEPTION

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**RÉSUMÉ :** Ce texte examine l'affirmation d'Aristote qui se trouve dans les Seconds Analytiques II 19, que la perception porte sur l'universel. L'examen s'effectuera par le biais du De Anima II 6 et III 6-8 où Aristote décrit les objets de la perception et de l'intellect. L'auteur soutient que selon Aristote, la perception humaine porte toujours sur l'universel contenu dans le particulier parce que l'unité de la substance individuelle est garante de l'unité de l'acte de perception. Par conséquent, l'analyse en termes de trois objets de perception n'est que le résultat de la méthode analytique qu'Aristote emploie afin d'étudier l'acte de perception.

**ABSTRACT :** This paper examines Aristotle's assertion found in Posterior Analytics II 19 that perception is of the universal. Through a study of De Anima II 6 and III 6-8, where Aristotle describes the objects of perception and of intellect, the author argues that, for Aristotle, human perception is always of the universal as it is found in the particular because the unity of the individual substance guarantees the unity of the act of perception. Consequently, the analysis into three perceptible objects is merely the result of Aristotle's analytical method used to study the act of perception.

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## INTRODUCTION

In *Posterior Analytics* (*Post An*) II 19 Aristotle makes the following enigmatic remark intended to explain the perception of the universal — something that must occur if, as he argues, we acquire the principles of scientific knowledge through induction (*epagôgê*): “for though the act of perception is of the particular, the capacity of perception is of the universal, for example, of man, not of Callias the man” (*kai gar aisthanetai men to kath' hekaston, hê d' aisthêsis tou katholou estin, hoion anthrôpou, all' ou Kalliou anthrôpou*).<sup>1</sup> How are we to understand this explanatory remark?

Some Aristotelian scholars find this explanation inadequate and problematic. An examination of several modern-language translations of this statement reveals some variety in the way in which scholars establish the relationship between *aisthêsis* and

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1. 100a16-b1 ; my translation. All passages in Greek follow the OCT reading with any variant reading noted. English translations, except where otherwise noted, are those from J.L. ACKRILL, ed., *A New Aristotle Reader*, Princeton, Princeton UP, 1987.

the perception of universals in terms of object (or content) of perception/capacity (or power or faculty) of perception/activity (or act) of perception.<sup>2</sup> This diversity in understanding is evident in another point of divergence regarding *aisthêsis*: whether *aisthêsis* is held to incorporate a noetic (that is, intellectual) component. This component is said by those who do posit it to be ultimately responsible for the perception of the universal since sense-perception by means of the external senses alone is incapable of perceiving anything beyond sensible qualities.<sup>3</sup> This, of course, brings us to the heart of the debate on Aristotle's claim cited above. Barnes is representative of those who find the orthodox view, with its forced "reconciliation" between an intuitive *nous* and an empirical induction incapable of arriving at the principles of science without the assistance of intuition, problematic. He dissolves the problem by saying that *nous* has nothing to do with the inductive method except to satisfy the merely terminological question of designating the kind of knowledge present in the state (*hexis*) of possessing the principles of science, which Aristotle says is the result of induction.<sup>4</sup> In fact, he finds Aristotle's remark cited above thoroughly unsatisfactory,

2. In English: "for though the act of sense-perception is of the particular, its content is universal" (W. David ROSS, ed., *The Works of Aristotle Translated into English*, London, Oxford University Press, 1910-1952); "for although you perceive particulars, perception is of universals" (Jonathan BARNES, ed., *The Complete Works of Aristotle*, The Revised Oxford Translation, Princeton, Princeton UP, 1984); "for though one senses an individual, [the power of] sensation is of the universal" (Hippocrates G. APOSTLE, *Aristotle's Posterior Analytics*, Iowa, The Peripatetic Press, 1981); In French: "car bien que l'acte de perception ait pour objet l'individu, la sensation n'en porte pas moins sur l'universel" (Jules TRICOT, *Organon: Les Seconds Analytiques*, nouvelle édition, Paris, Vrin, 1970); "et en effet, il est vrai que l'on perçoit l'individuel, mais la perception porte sur l'universel" (Pierre PELLEGRIN, *Seconds Analytiques, Organon IV*, Paris, Flammarion, 2005); In German: "denn man nimmt zwar das Einzelne wahr, die Wahrnehmung geht aber auf das Allgemeine [wörtl.: ist vom Allgemeinen]" (Horst SEIDL, *Aristoteles Zweite Analytiken*, Umschlaggestaltung, Bernard Vandemeulebroecke, 1984); "denn man nimmt das Einzelne wahr, aber die Wahrnehmung geht auf ein allgemeines Objekt" (Eugen ROLFES, *Aristoteles Lehre vom Beweis oder Zweite Analytik*, Hamburg, Felix Meiner Verlag, 1990).
3. This is the traditional or orthodox view, where *nous* is commonly said to function intuitively; thus *nous* would be translated by 'intuition' in English. In addition, this view typically holds that induction requires an act of intuition to complete or perfect it, especially in the case of acquiring the principles of science. Most Latin medieval commentators of Aristotle held this position, which is still supported by many modern scholars who follow in the traditions of medieval thinkers. More recently, and outside the scholastic tradition, Terence IRWIN, *Aristotle's First Principles*, Oxford, Clarendon Press, 1988, p. 134-136, argues that Aristotle's "metaphysical realism and his epistemological foundationalism" commit him to "an intuitive, non-inferential grasp of first principles."
4. Jonathan BARNES, *Posterior Analytics*, Second edition, Oxford, Clarendon Press, 1994, p. 267-269. There have been an increasing number of contemporary scholars who see a variety of problems with the orthodox position. The two alluded to above (*nous* and induction as two distinct and incompatible methods of acquisition; and the inability of induction to provide principles of science having the requisite character of universality and necessity) seem to indicate the most significant weaknesses. Among contemporary scholarship, see Jean-Marie LE BLOND, *Logique et méthode chez Aristote*, Paris, Vrin, 1939 (rpt. 1970), p. 131-140; James H. LESH, "The Meaning of NOUS in the *Posterior Analytics*", *Phronesis*, 18 (1973), p. 44-68; Enrico BERTI, "The Intellection of Indivisibles according to Aristotle", in G.E.R. LLOYD, G.E.L. OWEN, ed., *Aristotle on Mind and the Senses*, Proceedings of the Seventh Symposium Aristotelicum, Cambridge, Cambridge UP, 1978, p. 141-164; Charles H. KAHN, "The Role of *nous* in the Cognition of First Principles in *Posterior Analytics* II.19", in E. BERTI, ed., *Aristotle on Science: The Posterior Analytics*, Proceedings of the Eighth Symposium Aristotelicum Padova, Padua, Editrice Antenore, 1978, p. 386-414; T. ENGBERG-PEDERSON, "More on Aristotelian *epagôgê*", *Phronesis*, 24 (1979), p. 301-319; Wolfgang WIELAND, "Aristotle's Physics and the Problem of Inquiry into Principles", in J. BARNES, M. SCHOFIELD, R. SORABJI, ed., *Articles on Aristotle, Vol. I, Science*, London, Duckworth, 1979, p. 127-140; Lambros COULOUBARITIS, "Y a-t-il une intuition des principes chez Aristote?", *Revue Internationale de Philosophie*, 34, 133-134

accusing Aristotle of not providing anywhere in his extant corpus an account of how such universal concepts as *man* can be “derived from the data of perception” (p. 266).

I, however, contend that an account can be constructed on behalf of Aristotle so that the above remark can be seen to offer a solid explanation of Aristotle's position that we come to acquire “the primary principles through induction ; for even sense-perception implants the universal this way” (100b3-5 ; my translation). In agreement with Modrak, I think that we must refer to Aristotle's psychological treatises (*De Anima* [*DA*] and the *Parva Naturalia* [*PN*]) to understand *Post An* II 19.<sup>5</sup> A full account would require a thorough study of the psychological treatises in order to see how Aristotle describes such things as sense-perception, images and imagination (*phantasia*), memory (*mnêmê*), and the intellect (*nous*). I will limit myself to only one of the elements of such an account : a study of the objects of perception as described in *DA* II 6. Furthermore, I contend that *nous* plays a very significant role in the inductive process and is not a mere “term of art”<sup>6</sup> having almost nothing to do with the sense-perception involved in induction. To demonstrate this point I will analyze *DA* III 6-8, which treats of the indivisible objects of the intellect, as well as a few other related *DA* passages.

In the course of this study I will argue in the main for the conclusion that human perception is always of the universal as it is found in the particular because the unity of the individual substance guarantees the unity of the act of perception, which is a joint activity of the senses and the intellect. Consequently, Aristotle's analysis into three perceptible objects is merely the result of his analytical method used to study the act of perception. The study will first focus on the three objects of perception outlined in *DA* II 6 and then on the two indivisible objects of the intellect described in III 6-8. However, secondary to the main argument I will answer concerns expressed by Barnes and others regarding the lack of textual evidence in Aristotle's writings required to explain the perception of universals as well as the troublesome *nous/epagôgê* relationship. To better situate the study of the objects of perception in *Post An* II 19, I wish to make some preliminary comments about the broader context of this significant chapter.

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(1980), p. 345-372 ; and Deborah K.W. MODRAK, *Aristotle : The Power of Perception*, Chicago, London, The University of Chicago Press, 1987, p. 157-179.

5. MODRAK, *Power of Perception*, p. 9, 19, and 157-158. In a brief paper such as this, it is not possible to treat of the debate over the place of *DA* and how it relates to Aristotle's other works, especially the *PN* and his biological writings. I am sympathetic to a more charitable reading which sees Aristotle's corpus as presenting a relatively coherent and consistent philosophy. For the reader interested in seeing one attempt at a charitable reading, see Abraham P. BOS, *The Soul and Its Instrumental Body*, Leiden, Brill, 2003. This work also provides an extensive review of the secondary literature on the topic.

6. BARNES, *Posterior Analytics*, p. 266. Note that Barnes' label “term of art” is applied to ‘intuition’ as the traditional translation of *nous*, hence not directly to the term *nous*.

## I. CONTEXT : DEMONSTRATION AND PLATO

*Post An* II 19 is the final chapter of a treatise whose main concern is the examination of the nature of syllogistic reasoning and of scientific knowledge (*epistêmê*), which for Aristotle, means examining demonstration since scientific knowledge is expressed in demonstrative form.<sup>7</sup> Throughout *Post An* Aristotle discusses the nature and properties of the principles (*archai*) of demonstration, which are required for generating scientific knowledge.<sup>8</sup> However, nowhere does he talk about how they are acquired apart from making the remark (in I 2) that there must be a kind of knowledge that is “other than scientific knowledge”<sup>9</sup> and (in I 3) that there can be no demonstration of the premises of demonstration — if one wants to avoid either an infinite regress in demonstrations or a circular form of demonstration. *Post An* II 19 thus has the likely purpose of showing, albeit very briefly, how principles of science can be acquired and how this acquisition is non-demonstrative in character.

Assuming that this is the appropriate context, it will be worth noting, firstly, that the *hexis* of *nous*, the cognitive state of possessing the principles of demonstration, is introduced in II 19 because of a lack in the cognitive state of science : due to the fact that the demonstrative method requires principles that are themselves indemonstrable, Aristotle brings into service *nous*. Whatever else may be said regarding the meaning and function of *nous*, it is not to be understood as being introduced due to a defect in the inductive process through sense-perception described in II 19, namely, that sense-perception by itself cannot provide universal knowledge. The *raison d’être* of *nous* in this chapter is to be found in the nature of science, not in that of induction.<sup>10</sup> Secondly, once this is granted, the purpose of the chapter can be seen to lie in showing how the indemonstrable principles of science are themselves acquired by means of an examination of the acquisition of a noetic state of possession of these principles. The non-demonstrative method of induction from sense-perception is then presented as Aristotle’s answer as to how such an acquisition can take place. Thus, the third and final point to keep in mind is that the method of induction itself is subordinate to *nous* and finds its *raison d’être* in the noetic state, for it is presented in order to explain the generation of this non-demonstrative cognitive state of mind. Furthermore, induction

7. BARNES, *Posterior Analytics*, p. 271, finds the placement of II 19 a rather obscure point and even suggests that it may be an addendum inserted by later editors unsure of where to place it in the *Analytics*. Though it may be difficult to determine the placement of II 19 with any certainty, I am not inclined to think of it as a later addendum due to the allusions to the topic of the principles of science found elsewhere in *Post An*.

8. See especially I 2, 72a5-24 ; I 3, 72b18-25 ; and I 4-10.

9. L. Aryeh KOSMAN, “Understanding, Explanation, and Insight in the *Posterior Analytics*”, in E.N. LEE, A.P.D. MOURELATOS, R.M. RORTY, ed., *Exegesis and Argument, Phronesis*, Supplementary Volume I, Assen, Van Gorcum, 1973, p. 382-384, notes the ambiguity of the phrase, *heteros esti tou epistasthai tropos* (71b16), which could either mean another form of or a form other than *epistêmê*. Both meanings, I contend, may be seen to apply to *nous* as the principles of science in the following manner : insofar as the principles are not demonstrative in character, they are *other than* scientific knowledge ; insofar as scientific knowledge requires scientific principles, they may be considered *another form of* science.

10. IRWIN, *Aristotle’s First Principles*, p. 134-136, makes it clear that Aristotle’s “*conception of demonstration* embodies a foundationalist conception of justification,” and this requirement can only be met if Aristotle “recognizes self-evident first principles grasped by intuition” [emphasis added].

is nearly identical to sense-perception, as evidenced by Aristotle's remark stating that we know the principles through induction because sense-perception implants the universal in this way.<sup>11</sup>

Another important contextual item to keep in mind is Plato, especially his views on reminiscence (or recollection) of intelligible Forms which already exist in each person's soul (or mind) though one may not be aware of them. Many scholars see lines 99b25-27 as an allusion to Plato and II 19 as a response to him.<sup>12</sup> The dilemma presented in the *Meno*, that is, the apparent impossibility of acquiring knowledge or learning, is on Aristotle's mind in the opening chapter of *Post An*. A part of his answer to this dilemma is contained in II 19 and constitutes a criticism of Plato's views. As these views are expressed in the *Meno* and the *Phaedo*, it is clear that Aristotle does not think that the body and its senses are generally an obstacle to the soul or that sense-perception can, at most, merely stimulate the recollection of Forms. It is also plausible to see Aristotle's stages leading to knowledge of the universal through various kinds of sense cognition as an alternative to the line analogy of the *Republic* (VI, 509d ff) whereby Plato opposes and keeps separate on one hand, beliefs and opinions based on sense cognition and on the other hand, knowledge based on the intellectual perception of and dialectical reasoning with intelligible Forms. In short, Aristotle finds Plato's description of human perception and scientific knowledge problematic for several reasons, some of which are implicit or explicit in II 19 as well as in other passages of *Post An* (not to mention other treatises).<sup>13</sup>

Aristotle's way of dealing with some of the difficulties is, basically, to substitute the universal for Forms. He affirms we can have scientific knowledge by simply positing the universal.<sup>14</sup> Aristotle readjusts the metaphysical balance by considering sensible individuals, rather than intelligible Forms, substantial and making universals subordinate to them as predicates : the individual man is called a primary substance ; the universal (for instance, the species *human being* and genera such as *animal* and *body*) is called a secondary substance, and this substance is said of primary substances.<sup>15</sup> On the relationship of predication (that is, something's being said of some subject), he writes : "Now of actual things some are universal, others particular (I call universal that which is by its nature predicated of a number of things, and particular

11. Thus, the orthodox view is correct in seeing *nous* as closely related to induction ; however, Barnes and the other critics noted above in n. 4 are right in finding the traditional explanation of this relationship problematic and unsatisfactory in some respects.

12. See W. David ROSS, *Aristotle's Prior and Posterior Analytics*, Revised text, Oxford, Clarendon Press, 1949 (rpt. 1957), p. 677, who points out as well a parallel in thought between lines 100a6-7 and Plato's *Phaedo* 96b. My intention in what follows is to sketch a plausible account of Aristotle's understanding of Plato's views, without suggesting thereby that these are in fact Plato's views.

13. For a discussion of some of the problems, see, for example, Harold F. CHERNISS, *Aristotle's Criticism of Plato and the Academy*, Baltimore, Johns Hopkins Press, 1944 ; and cf. Lloyd P. GERSON, *Aristotle and Other Platonists*, Ithaca, Cornell University Press, 2005.

14. So CHERNISS, *Aristotle's Criticism of Plato*, p. 71-72 and 235-239, but not GERSON, *Aristotle and Other Platonists*, p. 76-85. See *Post An* I 11, 77a5-9 and note the similarity in wording used to describe the universal in these lines with the phrasing of II 19, 100a7-8.

15. *Categories* 2, 1a20-b8 and 5, *in toto*.

that which is not ; man, for instance, is a universal, Callias a particular).”<sup>16</sup> With these modifications to Plato’s stance, it should be easier to understand why Aristotle thinks the principles of demonstration must be acquired from induction through sense-perception of particulars.<sup>17</sup>

## II. THE THREE OBJECTS OF SENSE-PERCEPTION

In *DA* II 6, Aristotle recognizes three objects of sense-perception. The description or definition of each of these objects is determined relative to the external senses. Perception is said to be a kind of alteration undergone by the percipient subject (*DA* II 5, 416b34) as its sense organs are moved and affected by sensible qualities in the environment. Most of these sensible qualities are familiar to us and are commonly divided according to the five external senses of sight, hearing, smell, taste, and touch : sight sees colours, hearing hears sounds, and so on. However, Aristotle’s method of analysis of sensible objects takes as its point of reference whether and how sensible objects stimulate the external senses into activity, that is, whether and how they are perceptible to them. According to this analytical approach, an object which is in itself perceptible to any external sense is said to be sensible per se, or essentially perceptible (*kath’ hauto*), while one which is not itself perceptible to an external sense but nonetheless accompanies, or is a concomitant of, a per se sensible object is said to be accidentally sensible (*kata sumbebēkos*). The inclusion of the second category of objects may seem odd. After all, why include items that are not at all perceptible to the external senses in a list of perceptible objects ? Yet, as I hope to show, it is highly significant and extremely pertinent to a proper understanding of the II 19 passage under examination.

Regarding the sensible per se, Aristotle subdivides these objects into two classes : proper (or special) objects (*ta idia*) and common objects (*ta koina*) (418a9-10). The proper objects include the various sensible qualities : colours (and light), sounds, smells, flavours, and tactile qualities. As for the common objects, Aristotle recognizes six of them : movement and rest, size (or magnitude or extension) and shape (or figure), number (i.e., multiplicity or plurality) and unity.<sup>18</sup> The two classes of objects

16. *On Interpretation* (*On Int*) 7, 17a37-b1. Notice the example : it is identical to the one found in the II 19 passage under examination.

17. For the purposes of my argument, the primacy of the numerically individual substance is essential and is assumed in the argumentation. To defend this assumption is not possible given the constraints ; however, the reader must be made aware of the debate over what, for Aristotle, is the primary substance : is it the individual substance, which is usually construed as a synthesis of matter and form ? Or is it the form itself ? And if it is the form, is it the specific or the particular form ? Montgomery FURTH, *Substance, Form and Psyche : an Aristotelian Metaphysics*, Cambridge, Cambridge University Press, 1988, offers an interesting and promising account in which the numerical individual (Callias) and its specific form (*man*) can both be substance because an individual can only exist as a specific kind of individual. As will be seen, my explanation of the act of perception will similarly emphasize perceiving the individual as an individual of a specific kind (in my terminology, the individual as a whole). For a different account, cf. IRWIN, *Aristotle’s First Principles*, p. 73-116, 199-276.

18. *DA* II 6, 418a17-18 lists five objects, but *DA* III 1, 425a15-16 adds unity (*hen*) as well. The list in three pairs is intended to show how common objects can be paired in terms of the contraries unlimited and limit,

are distinguished according to whether an object can be perceived by other senses or not. In other words, some objects can be perceived by only one external sense (418a11-12). These are the proper objects. Other objects can be perceived by more than one sense, in fact, by all of them in common (418a18-19). These are the common objects.<sup>19</sup> For example, the proper object of sight is colour (and light) since no other external sense can perceive the various colours. But other sensible features such as the size or the shape of the patch of colour can be perceived by other external senses besides sight. For instance, though I could discern the size and rectangular shape of a book cover by simply looking at the colour of it, I could also discern those same qualities by touch, by running my hand over the edges of the book cover while my eyes are shut.

There are several further characteristics concerning these objects that are worth noting. Regarding special objects, it is impossible for an external sense to be deceived about the perception of its special object (418a14-16). Sight, while seeing, cannot be mistaken about perceiving colour or the fact that there is colour ; however, it can be mistaken about such things as what the coloured thing is or where it is located.<sup>20</sup> Aristotle regards the special objects as objects of perception properly speaking ; it is to these that each external sense is naturally relative (418a24-25). It can be said that there is a relationship of reciprocal exclusion between proper object and capacity, that is, the sense capacity is such that it can only perceive this object, and the object is such that it can only be sensed by this capacity.

This is not the case for common objects. By referring to them as common, Aristotle wishes to indicate that they are common to all the external senses because they are perceptible to them all and to no one in particular. The senses can make many errors in perceiving them because these objects do not have a natural correspondence or fit to any one of the external senses (*DA* III 1, 425a30-b4). These objects are also more subject to circumstances ; for instance, as one approaches a patch of green that is seen from a distance, it will appear to become larger in size and its shape might al-

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respectively. Georges RODIER, *Aristote. Traité de l'âme, Tome II*, Paris, Ernest Leroux, 1900, p. 263, does not include unity, though I think it ought to be included because it is the contrary of number. W. David ROSS, *Aristotle De Anima*, Oxford, Clarendon Press, 1961, p. 33, includes time among the common objects, citing *PN* 451a17 and 452b7-9 in support. Robert D. HICKS, *Aristotle : De Anima*, Cambridge, 1907 (rpt. Amsterdam, Adolf M. Hakkert Publisher, 1965), p. LII and 362, does too. I, however, hesitate to include it among the objects of perception because the perception of time does not seem to be perceptible to the external senses like the other common objects are, requiring instead a perception of the percipient's own perceptual activity.

19. There is some difficulty in seeing how the common objects can be perceptible to all of the external senses as Aristotle claims. For instance, how can we smell the shape of pepper ? It would have been much easier to accept if Aristotle had merely claimed that a common object is one that is perceptible to at least any two external senses. RODIER, *Traité de l'âme*, p. 263, reports that the ancient commentators unanimously maintained that the common objects are not in fact perceptible to all the senses. HICKS, *De Anima*, p. 362, simply remarking that "all the senses, in various combinations, at one time or another contribute to make them known," does not offer us much assistance.

20. In a person with daltonism, colour blindness is due to a defective organ, to the material substrate ; the power of sight, the ability to see *tout court*, still sees colours. In other words, we must distinguish the psychological power from the material substrate, the physiological organ, and recognize their respective roles in perception.

ter and become more definite. In human beings sight and touch seem to be relied upon most in the perception of common objects, though paradoxically enough, sight is most easily duped by optical illusions of all sorts.<sup>21</sup> Aristotle claims that common objects are perceived by the external senses by means of the special objects and movement (*DA* III 1, 425a16-20). For instance, in discriminating the size and shape of a book cover my eyes must scan the coloured surface of the book's cover and my hand must run along its edges.<sup>22</sup> This necessary connection with a proper object makes the common object perceptible per se and not accidentally perceptible, even though no common object is proper to any one sense. Aristotle suggests that the reason we have more than one external sense is to help us distinguish proper from common sensible objects, for common objects always accompany proper objects, and by accompanying more than one proper object, we are eventually able to notice that the shape of the colour (rather, the coloured surface) is distinguishable from the colour itself (*DA* III 1, 425b4-11).

To sum up, special objects designate sensible qualities, whereas common objects designate quantitative attributes present in sensible things. Since both kinds of perceptible object are essentially perceptible to the external senses, the perception of them enables us, as percipient subjects, to perceive things in their phenomenal aspect. We capture the appearances of things even though we do not yet know what they are, that is, what kind of substances they are, or what their essential natures are. Yet as human beings, we do claim to see the son of Cleon standing by a column in the agora talking with Callias the man. How can such acts of perception so evident in our ordinary language be explained?<sup>23</sup>

Aristotle's explanation is grounded in his recognition of the accidentally perceptible object as a third object of perception (418a20-23). Ultimately (as will be shown in the next section), this object refers to the substantial nature, the essence, of things present in sensible reality. In other words, Aristotle is suggesting to us that non-sensible things referred to and signified by a universal such as the species *man* or the genus *animal* have an objective basis just as much as sensible qualities and quantitative attributes do. Thus, when I see a given patch of white, which is both a special and a common object essentially sensible to my external senses, I also 'see' the substance of this patch of white, which is not per se perceptible to my external senses but rather accidentally perceptible to them. Of course, we might wonder what in the per-

21. The paradox is noted because sight provides us with even more sensory information than touch; see *PN* 1, 437a6-9 and *Metaphysics (Meta)* I 1, 980a25-27. AQUINAS, *In Metaphysicam Aristotelis Commentaria*. Editio tertia, Turin, Marietti, 1920, I.1.8, tells us why human beings rely on these two senses most: it is that visual and tactile qualities adhere closely to the thing to which they belong.

22. Sometimes the movement is in the object and not in the percipient subject; for example, hearing the sound a passing car makes requires following the motion of the car (the Doppler effect) rather than moving my ear alongside a stationary car!

23. I am aware that perceiving phenomena requires unifying into a single image the perceptual data acquired discretely through each of the external senses. For the moment I wish to leave aside any question concerning the acts of perception and discrimination required on the side of the perceiving subject in order to focus strictly on the side of the perceptible objects. The next section will take up some of the questions regarding the percipient's activity.

ipient actually perceives this object if not the external senses. But leaving this question about the perceiving subject aside for now, what else can be said about the accidentally perceptible object ?

Hicks advises us that if we want to understand the full import of Aristotle's distinction between essential and accidental perception, "we must enlarge our notion of *sumbebêkos*."<sup>24</sup> He says, in Aristotle's writings, a quality or attribute is usually said to be an accident (*sumbebêkos*) of, or to belong to, a thing or substance. This meaning of *sumbebêkos* is a result of Aristotle's doctrine that qualities, attributes, and properties do not exist independently of the things or substances in which they inhere. But, Hicks adds, the meaning of *sumbainein* (the verbal form of *sumbebêkos*) is simply *to go with* or *to accompany* something. Thus, in the context of the three perceptible objects, these words are used to denote the thing or substance which goes with or accompanies its essentially perceptible objects. I see the white shape essentially ; the man Callias, the substance to which this white shape belongs, I perceive accidentally because the individual substance is regarded as a concomitant of the white shape. In the course of his examination of *sumbebêkos*, Hicks asks an important question : "What, then, exactly, is perceived, the qualities and attributes, or the things to which they belong ?" He thinks that, properly speaking, the quality or attribute is perceived "directly", but Aristotle's metaphysical doctrine regarding the impossibility of accidents existing independently of the substances in which they inhere compels him to find a way to rank substance as an object of perception perceived "indirectly". I think Hicks' analysis is acceptable so far as it goes ; however, I would like to expand on and modify it.

We ought to distinguish between perceptual priority and metaphysical (or ontological) priority. Perceptual priority is gained from the perspective of the percipient and takes as the point of reference what is perceptible to the subject's external senses. From this standpoint, the proper sensible objects are prior because they are the properly sensible objects relative to the external senses. The common sensible objects can be said to be equally prior in as much as they too are essentially perceptible ; however, in so far as they do not fit any of the external senses and depend on the special objects' being in motion, they can be considered somewhat posterior to the proper objects. Finally, the accidentally perceptible substantial or essential nature comes last because this object merely accompanies the essentially perceptible objects without being perceived by the external senses at all.

Metaphysical priority takes as its point of reference substance, especially the individual and numerically one substance, which is neither in a subject nor said of a subject. It offers the objective perspective. The individual substance is thus metaphysically prior to the individual accident, which is said to be in a subject and cannot exist or have its being separated from the substance in which it inheres, as Hicks notes. Furthermore, metaphysical priority grounds perceptual priority in the sense that individual accidents include sensible qualities (special objects) and quantitative

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24. HICKS, *De Anima*, p. 360-361.

attributes (common objects), and these can only exist in individual substances. In addition, individual substances are said to be primary substances because, among “actual things,” they are logically prior to secondary substances, species and genera, which are not in primary substances but are said of them. With species and genera we reach the universals plausibly referred to in II 19, for they provide the concepts which can be used as matter to generate scientific knowledge and explanations (scientific definitions, scientific propositions, and demonstrations) of the essential nature of individual substances.

In other words, Aristotle is not saying that human perception is of three distinct objects, as if each of these objects is capable of existing separately in extra-mental reality like substantially separate and independently existing individual things. Rather, from the objective perspective offered by the metaphysical standpoint, what exists first and foremost in reality is the individual substance, and this has sensible qualities and quantitative attributes (both accidents) as well as an essential nature (substance). It is possible to analyze an individual substance in terms of its substance and its accidents just as it is possible to analyze it in terms of its matter and form. But such distinctions are the result of an intellectual analysis of an indivisible ontological unit, a single entity or a single being. Similarly, it is possible to analyze the individual substance considered as something with the potential to be perceived into objects of perception by taking the external senses as the standard used to distinguish these objects. But it must never be forgotten that these objects are the result of an intellectual analysis. Ultimately, the object of perception is the reality itself, the individual substance as a whole. Therefore, in answer to Hicks’ question regarding what is perceived, the thing or the qualities and attributes of the thing, the correct answer, it would seem, is the contrary to his. It is first and foremost the individual substantial thing that is perceived in sense-perception.

In order to understand this answer, it is necessary to acknowledge several points. First of all, the fact that Aristotle includes among the objects of perception an aspect of the individual substance which is not at all perceptible to the external senses suggests two correlative points : (1) the individual substance is not exhausted by its phenomenal appearance ; and (2), the percipient must have another perceptive capacity if it is going to perceive this non-sensible aspect. Secondly, the fact that Aristotle includes an accidentally perceptible object suggests that the analysis of the objects of perception in *DA* II 6 remains incomplete. If the substantial nature of an individual substance is not perceptible to the external senses, then not only must it be perceptible to another perceptual capacity, it must be essentially perceptible to it. For that which is accidental must be reduced to something essential.<sup>25</sup> Thirdly, if we want to discover what this other perceptual ability could be, then it would seem necessary for us to change the standard used to distinguish the objects of perception. Rather than taking the external senses, I propose that we take *nous*, the intellect, as the new standard. For with *nous* as the measure, the substance and essential nature of the individ-

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25. ARISTOTLE does this in *Physics* II 5-6, where he reduces chance and spontaneity as accidental causes to the moving cause, which is an essential cause of things that come to be for some end. See especially 198a1-10.

ual substance becomes the essentially perceptible object, while the individual thing's sensible qualities and quantitative attributes become accidentally perceptible objects (as will be shown shortly). Besides, in II 19, Aristotle does explicitly say that a state of *nous* is developed by means of induction through sense-perception. Let us examine the implications of this shift.

### III. THE TWO INDIVISIBLE OBJECTS OF *NOUS*

It is in *DA* III 4-5 that we find Aristotle's thoughts on *nous* as intellectual capacity of the soul. *DA* III 6-8 adds further points about *aisthêsis* and *nous*, including some remarks about how the activity of *nous* is not possible without the use of sensory images. There are three points I would like to establish by examining these texts : (1) that the substantial nature of individual substances is indeed the essentially perceptible object of *nous* ; (2) that this object exists, at least potentially, in the phenomenal appearances acquired through the external senses' per se perception of the proper and common sensible objects ; and (3) that the individual substance but perceived as a whole, that is, from the perspective of its universal essential nature, is the main object of sense-perception, which is the joint activity of the intellect and the sense capacities.

Aristotle agrees with Plato's description of the soul as the place of forms ; however, he restricts this to the intellectual capacity of the soul and further stipulates that the soul is only potentially, not actually, the forms (*DA* III 4, 429a27-29). In the famous chapters III 4-5, Aristotle explains how the intellect must have a receptive capacity in order to receive its intelligible object as well as a productive or an actualizing capacity in order to make that which is potentially intelligible into an actually intelligible object. The object of the intellect (*to noêma*) itself is then described in III 6.<sup>26</sup> The intelligible object is said to be that which is indivisible (*to adiaireton*) (430a26). From Aristotle's presentation, it can be seen that there are two kinds of indivisible object, and that the indivisible object can be either potentially indivisible or actually indivisible.

Taking the potential/actual distinction first, a potentially indivisible object would be exemplified by a line. A line is a continuous length that is actually indivisible, but it still retains the potential to be divided because it can be cut into segments. That which is potentially indivisible, on the contrary, is something that is not only actually indivisible but also potentially not divisible (*a-diaireton*) because it is not capable of

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26. This chapter contains several exegetical obstacles, making common agreement on certain details difficult. My account will focus on elucidating only those features that will help to establish the three points I am concerned with in this section. Those interested in pursuing a more detailed analysis of the chapter are invited to see BERTI, "The Intellection of Indivisibles", in *Aristotle on Mind and the Senses*, p. 141-164 ; Thomas DE KONINCK, "La noêsis et l'indivisible selon Aristote", in J.-F. MATTÉI, ed., *La naissance de la raison en Grèce*, Actes du Congrès de Nice, mai 1987, Paris, PUF, 1990, p. 215-228 ; Enrico BERTI, "Reconsidérations sur l'intellection des 'indivisibles' selon Aristote", *De Anima*, III, 6", p. 391-404 ; Mario MIGNUCCI, "Vérité et pensée", p. 405-422 ; and Michel FATTAL, "L'intellection des indivisibles dans le *De Anima* (III, 6) d'Aristote. Lectures arabes et modernes", p. 423-440, all three found in G. ROMEYER DHERBEY, C. VIANO, ed., *Corps et âme : Sur le De Anima d'Aristote*, Paris, Vrin, 1996.

being divided at all. A point would be an example of this. Aristotle's point, it seems, is that some intelligible objects are of things that are thought of as being actually indivisible, though nothing prevents that thing from being divided, whereas other intelligible objects are of things that are thought of as being actually indivisible and must necessarily be so thought because they can never be divided or else can only be divided accidentally (that is, not essentially).

As for the two kinds of indivisible object recognized by Aristotle in this chapter, they may be designated by the labels 'simple' and 'synthetic' (or 'composite').<sup>27</sup> The difference between the two can be explained as follows : the simple indivisible object indicates a thought of something that is one and undivided in some way or other ; it is a thought of something without combining it with the thought of something else. The synthetic indivisible object refers to a combining of two thoughts of two separate things into one thought as a unity of the two things. Among the simple indivisible intelligible objects, Aristotle includes the thought of an actually undivided quantity, the thought of the actually undivided form of a thing,<sup>28</sup> and the thought of the point and any other things that are completely indivisible (that is, not even potentially divisible). The synthetic indivisible refers to the thought of any statement or proposition in which something is said of something else.

In the course of his analysis of the two kinds of indivisible object, Aristotle explains the characteristics of the thought in each of the cases, emphasizing the fact that the thought of any indivisible intelligible object occurs in an undivided time. In the case of thoughts about statements, which can be about past, present, or future states of affairs, Aristotle claims that the temporal component is also thought of and added into the composite thought : "And that which produces a unity is in each case the intellect" (*to de hen poioun, touto ho nous hekaston*) (430b5-6). One significant difference between simple and synthetic indivisible objects concerns their truth value. In the case of synthetic thought, there is both truth and falsity, for the combining of thoughts to form a unity in a statement can be true or false. Assuming Cleon is in fact white, then the statement 'Cleon is white' will be true, while saying 'Cleon is brown' will be false. This is not how it is with the simple indivisible object of thought. There is no falsity possible in such thoughts. In the case of the thought of "what a thing is in respect of 'what it is for it to be what it was'" (*ho tou ti esti kata to ti ên einai*), Aristotle maintains that it is a true thought (430b27-29). Moreover, whenever there is a thought of things which are without matter, the thought, says Aristotle, is true just

27. The synthetic object is described at 430a26-b6 and the simple at 430b6-30. My position on the nature of these objects is similar to the one expressed by FATTAL, "L'intellection des indivisibles", in ROMEYER DHERBEY, C. VIANO, ed., *Corps et âme*.

28. I read the sentence which concerns the form (*to mê kata poson adiaireton alla tõi eidei noei*) at l. 430b14-15, contrary to Bywater's recommendation to place it in the midst of 430b20. My understanding of the reference to form as an indivisible object of thought, at least for the purposes of clarifying the passage from *Post An II* 19, will be clarified below.

like the external senses which are never mistaken with respect to their special objects (430b29-30).<sup>29</sup>

From these passages, it should be evident that, according to Aristotle, the intellect has the essential nature of things as its proper object since this is what the form of a thing is (the *to ti ên einai*) and the intellect cannot be mistaken in its perception of it. Moreover, there is even a clear assertion about intellect being responsible for producing the unity of statements, which would therefore include statements regarding the forms of things. Both of these points are directly relevant to the context of *Post An* II 19. The implication to be drawn is that the *hexis* of *nous* requires the possession of both kinds of indivisible object of thought, for the perception of the essence of individual substances can assist in arriving at a definition of the essence of the things under examination in a given science, that is, assist in acquiring a scientific definition of the subject of the science ; and the production of propositions which predicate the essential properties and the causes of the subject of the science assist in arriving at demonstrations of the cause of the inherence of essential properties in this subject. This is not to suggest that *nous* can acquire definitions and some propositions useful for demonstrations without any sort of discursive activity whatsoever ; rather, what I am saying is that *nous* can grasp the essence as it is better known to us through the senses. An understanding of the essence through rational processes such as defining by means of the genus and differentia(e), or through demonstration, would constitute the kind of knowledge that is prior and more familiar by nature or absolutely (*haplôs*). But this rational understanding relies upon the indemonstrable (or 'non-rational') understanding of that which is better known to the senses and is guided by it.<sup>30</sup>

Describing this view in terms of the perceptible objects, my claim is that the intellect's essential perception of the essence can and must be connected with the external senses' essential perception of the proper and common perceptible objects. For this is how we know the essence in relation to us and through our senses. And if this is so, then the intellect must initially perceive this kind of indivisible object in the sensory image ; in other words, the universal essence must potentially be in such an image. This brings us to the second point I seek to establish, namely that the substantial nature of individual substances, the intellect's proper object, exists potentially in

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29. ARISTOTLE's thoughts on the two kinds of indivisible object of thought found in *DA* III 6 should be supplemented by his views found in *On Int* 1, *Meta* VI 4 and *Meta* IX 10 where there are similar discussions of two objects of thought and of truth and falsity. For examples of such an examination, compare MIGNUCCI, "Vérité et pensée", in ROMEYER DHERBEY, C. VIANO, ed., *Corps et âme*, p. 405-422, and HICKS, *De Anima*, p. 511-513.

30. This is how I think can be applied in the context of II 19 ARISTOTLE's doctrine regarding the two meanings of the phrase 'prior and more familiar' ; on the doctrine, see *Post An* I 2, 71b33-72a5 and I 3, 72b25-32. That which is prior and more familiar to us is the non-demonstrable understanding provided by perception of sensible particulars known through induction. This understanding then enables us to acquire that which is prior and more familiar absolutely, which is an understanding by means of universal knowledge and requires reasoning. This, I think, sufficiently establishes the fact that *nous* has some part to play in the acquisition of the principles of science *contra* BARNES, *Posterior Analytics*, p. 268-269, for instance, who trivializes Aristotle's choice of the word *nous* in II 19.

the images acquired through the external senses' per se perception of the proper and common sensible objects.

Turning to *DA* III 7-8, it is possible to glean Aristotle's position regarding this matter. He maintains, "[t]o the thinking soul images serve as sense-perceptions [...]. Hence the soul never thinks without an image" (*noei aneu phantasmatos hê psuchê*) (431a14-17). "That which can think, therefore, thinks the forms in the images [...]" (*ta men oun eidê to noêtikon en tois phantasmasi noei*) (431b2). According to Aristotle, no actual thing has an existence apart from magnitudes (*oude pragma outhen esti para ta megethê*) — that is, all things that exist must be an empirical reality or have a sensible component<sup>31</sup>; consequently, "[...] the objects of thought are included among the forms which are objects of perception [...]" (*en tois eidesi tois aisthêtois ta noêta esti*) (432a3-5). While raising a question about how the first thoughts (*ta prôta noêmata*) are distinguishable from images, Aristotle replies that no first thoughts, nor any other thoughts, are images, even though they will not exist without images (432a12-14). Finally, he asserts: "And for this reason unless one perceived things one would not learn or understand anything, and when one contemplates one must simultaneously contemplate an image; for images are like sense-perceptions, except that they are without matter" (*hotan te theôrêi, anankê hama phantasma ti theôrein. Ta gar phantasmata hôsper aisthêmata esti, plên aneu hulês*) (432a8-10).<sup>32</sup>

From these many affirmations, Aristotle's position is clear. The obstacle we may have is in understanding or explaining it. One way to explain it is to make reference to the indivisible objects of *nous*. Among the simple indivisible objects, we saw that Aristotle includes the actually indivisible quantity and the undivided form. On the plausible assumption that the perceiving subject has the ability to take sensory data provided discretely through each of the external senses and gather them together to form a unified image out of them (see below), the actually indivisible quantity would be potentially present in this unified image. For instance, it would be possible to differentiate between Callias and the column he is standing next to in the Agora by perceiving the respective shape belonging to each of those things. The shape, a limited magnitude, is an actually indivisible quantity, which would now make the image an object of the intellect once its activity is turned towards it. Similarly, the unity of the image (of Callias, say), that is, the fact of the image's being numerically one thing and quantitatively distinguishable from another thing, could provide the basis for the undivided form. This, I think, would constitute an acceptable explanation of Aristotle's claim. Notice how it is the common objects of shape and unity that provide the potential inherent in the image to become an object of *nous*. It would appear that even though sensible qualities are the proper objects of the external senses and stimulate them first and foremost, it is the quantitative attributes of the image that provide the intellect with the best opportunity to be stimulated by its indivisible objects. Aris-

31. ARISTOTLE does attenuate this statement by saying "as it seems" (*hôs dokei*). This qualification opens the door to at least one thing existing without a magnitude, likely the entity described as unmoved mover in *Physics* VIII and then as divine intellect in *Metaphysics* XII.

32. One could also add *PN* 449b31-450a10.

totle's emphasis on magnitude now becomes comprehensible, for it is the shape limiting the magnitude and the fact of it being one in number that help us perceive a thing as a whole.<sup>33</sup> Of course, it must not be forgotten that the intellect must somehow act on the image, or perceive the unity of the image, so that the essence, which is only potentially present in the image, becomes actually known to the intellect. Nonetheless, an explanation along these lines does lend credence to Aristotle's view expressed in II 19, 100a16-b1.

We are now ready to tackle the third and final point, namely that the individual substance perceived as a whole, that is, from the perspective of its universal essential nature, is the main object of sense-perception, which is the joint activity of the intellect and the sense capacities. So far, we have seen that Aristotle acknowledges three perceptible objects. Two of them, the proper and common, are essentially perceptible to the external senses. The third is accidentally perceptible to the external senses but essentially perceptible to the intellect. By means of the first two objects, we gain a perception of the appearances of things ; by means of the third, we gain a perception of their substantial natures or essences. A difficulty must be noted at this point : if, as I maintain, perception is of the thing perceived as a whole and not of its phenomenal aspect only, then how can there even be a perception of the whole thing if we perceive it through two distinct perceptual capacities ? In other words, is it possible for the intellect and the external senses to operate together in the act of perception ? If this is not possible, then we have the problem of figuring out how the intellect, which knows a given essence, can help us know that it is the essence that belongs to a given image formed by the external senses (or other sense capacities such as imagination or memory, which can retain perceived images). Obviously, an examination of the objects of perception alone is not sufficient to provide an explanation of how human beings can perceive and think about things ; or how they can acquire scientific knowledge and understanding of them. For a complete explanation, it would be necessary to add an examination of the cognitive abilities and activities of the perceiving and thinking subject. Such an examination is beyond the scope of this paper which is focused on objects of perception. However, I would like to mention briefly a few of the more important elements that must be included in any attempt at constructing Aristotle's account of the unity of the cognitive faculties and activities based on relevant passages in *DA* and *PN*.

One principle that must guide such an account is the object (*to antikeimenon*)/activity (*energeia*)/capacity (*dunamis*) relation succinctly stated in *DA* II 4, 415a14-22. Following this theoretical schema, the perceptual capacity is to be known through the acts of perception ; and the acts are to be known through the objects of perception. A closely related Aristotelian principle is the identity of the object and the activity of a cognitive faculty, which is outlined in *DA* III 2, 425b26-426a26. The account presented above regarding the objects of perception would thus constitute the

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33. Cf. DE KONINCK, "La no  sis et l'indivisible", in J.-F. MATT  I, ed., *La naissance de la raison en Gr  ce*, p. 219-221, who provides an insightful explanation of the perception of the unity of the form of an elephant in spite of the heterogeneous parts that compose it.

first step in the elaboration of acts and capacities of perception if we follow this schema.<sup>34</sup>

Another guiding principle to be included in any account of the percipient's cognitive activities would be the relationship among capacity, state, and activity. There is a tradition in the history of Aristotelian commentary that sees the value in using the cluster of concepts capacity/state/activity to understand the activity of the intellect.<sup>35</sup> In II 19, sense-perception is said to be a capacity that develops into a state of possessing universals by perceiving the universal in many particular instances. Following the capacity/state relation, this suggests that *nous* is nothing other than developed and stable *aisthêsis*. Hamlyn sees (correctly I think) a similarity with states of character and draws a parallel between the acquisition of the principles of science and the origins of moral virtues through habituation: just as one becomes just or temperate by doing just or temperate acts, likewise one would acquire the ability to perceive the universal *man* by perceiving individual human beings.<sup>36</sup> In other words, what in the realm of moral development is called 'habituation', in the intellectual realm, is called 'induction' when the intellectual capacity that is being developed is the perceptual one belonging to *nous* whenever its activity is turned towards sensible particulars; and a sign of this capacity's having been developed into a state is the ability a person has to provide on their own ostensive definitions of things, that is, she is able to select instances of the essence in question, thereby showing that she has acquired the universal as it is better known to us. In short, the developed state and the activity springing from it are identical to the successful acquisition of the universal object.<sup>37</sup> *DA* II 5, with its division into three levels of potentiality and actuality when applied to cognitive capacities, could also be of some service in the elaboration of this point.

A key passage that would have to be considered on the matter of the joint activity of the intellect and the senses is *DA* III 4, 429b10-22 in spite of its lack of clarity.<sup>38</sup>

34. MODRAK, *Power of Perception*, p. 29-32, includes these views under what she calls the "Actuality Principle," one of five foundational principles which, she claims, "determine the character of Aristotle's analysis of the functions of the perceptual capacity of the soul" (p. 24). The Actuality Principle also includes the next guiding principle to be presented.

35. Without endorsing any of their analyses, one can see, for example, ALEXANDER, *Alexandri Aphrodisiensis praeter Commentaria Scripta Minora (Supplementum Aristotelicum 2,1) : De Anima Liber cum Mantissa*, I. BRUNS, ed., Berlin, 1887, p. 81,22-91,6 and 106,18-113,24; and THEMISTIUS, *In Libros Aristotelis De Anima Paraphrasis* (CAG 5,3), R. HEINZE, ed., Berlin, 1899, p. 95,9-34 and 98,12-102,29.

36. D.W. HAMLYN, "Aristotelian *epagôgê*", *Phronesis*, 21 (1976), p. 167-184. Compare ARISTOTLE's remarks concerning *nous* and *aisthêsis* at *Nicomachean Ethics* VI 11, 1143a35-b5 and VI 8, 1142a20-30.

37. This is my explanation of the *nous/epagôgê* relationship. In short, there can never be any inductive activity without *nous* being involved because this cognitive process describes one of its intellectual activities: that of perceiving the universality of the particular (instance). Just as seeing is the activity of the eyes and its power of sight, 'inducing' is the activity of the intellect while it exercises its perceptual function. And this intellectual function requires simultaneous functioning of sensory powers (the next point to be considered). For somewhat similar explanations, cf. KOSMAN, "Understanding, Explanation, and Insight", in LEE, MOURELATOS, RORTY, ed., *Exegesis and Argument*, p. 390; and LESHER, "The Meaning of **NOUS**", p. 58.

38. This is a difficult passage to interpret and has given rise to much disagreement among scholars. The subject of the acts of discrimination discussed in it is not always clear. Is it the senses, the intellect, or the human subject possessed of both? And if it is the person, is she using only one of the capacities in two different ways? Or using both, one for each kind of object? Furthermore, the simile of the line being at one time straight and at another time bent or broken is not helpful since it is not clear what cognitive power

Aristotle's aim in this passage is to show how water and "what it is to be" (*ti ên einai*) water are "discriminated by something different or by the same thing differently disposed" (*ê allôi ê allôs echonti krinei*). Even though it is not clear what capacity is being referred to, to my mind, there are three logically possible ways of understanding his intent: (1) since the passage is included in a chapter concerned with the intellect, and since (the sensible qualities of) water is perceived by the (external) senses, then Aristotle is possibly saying that intellect is the "something different" which perceives the 'what it is to be' of water; or (2) he could be saying that the intellect perceives the essence of water, which is the intelligible object proper to the intellect, but then it is differently disposed whenever it perceives the essence in the image; disposed in this other way, the intellect is able to perceive water's sensible qualities as well; or (3) since in line 429b15 there is explicit mention of the faculty of sense-perception discriminating (*tôi aisthêtikôi krinei*) something, he could be saying instead that the sense capacity perceives water, but it is then differently disposed whenever the intellect acts on it — perhaps like light illuminating the image of water; and disposed in this way, the senses are able to perceive the essence of water. The context of the passage as well as the reference to *nous* at the end of it (in line 429b22) would make (1) or (2) more likely than (3). Be that as it may, each one of these readings shows that for Aristotle, the senses and intellect must work together in some way; and any one of these readings, if interpreted with clarity, could describe how this joint operation occurs.<sup>39</sup>

Another point that would have to be established, closely related to the previous one, is that the act of perception involves the discrimination of the various perceptual capacities working together. In *DA* III 1, 425a14-b11, Aristotle has some thoughts about how the external senses and the common sense discriminate among all the various proper and common objects. In III 2, 426b8-427a16, we find his view that that which discriminates among categorically different sensible objects like sweet (flavour) and white (colour) is something unified like a point, being both indivisible and divisible. The same idea is found in III 7, 431a21-b1 where he says that that which judges or determines the difference between sweet and hot is one as a boundary is one. The most important leitmotif running throughout these passages is that the (external) senses are capable of such acts of discrimination "not in so far as they are themselves but in so far as *they form a unity, when sense-perception simultaneously takes place in respect of the same object, e.g. in respect of bile that it is bitter and*

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each kind of line represents. The reader would do well to first consult HICKS, *De Anima*, p. 485-493, and RODIER, *Traité de l'âme*, p. 442-453, who both provide the views of several commentators, including the ancient commentators.

39. Reading 1, albeit with a slight variation, would be exemplified by ROSS, *De Anima*, p. 40-41, who tentatively speculates "that it is the *soul* that apprehends both concrete things and abstractions, but the former *qua* perceptive, the latter *qua* cognitive." Reading 2 would be the most compatible with my views presented above regarding the intellect's perception of the form in the image. It is supported by HICKS, *De Anima*, p. 485-488, who argues that ultimately, intellect judges both the forms and the sensible thing because there are many considerations which favour the view that intellect is sense in a different relation. He also wisely suggests the passage will be easier to understand if "a hard and fast distinction" between the sensitive and intellective faculties is not maintained.

yellow... (*ouch hêi autai, all' hêi mia, hotan hama genêtai hê aisthêsis epi tou autou*) (DA III 1, 425a30-b3 ; emphasis added). In other words, it is the indivisible metaphysical unity of the individual substance stimulating all (or several) external senses at the same time (*hama*) that causes the unity of the image to be formed within the percipient. Add to this point Aristotle's views regarding the dependence of imagination and memory on sense-perception<sup>40</sup> as well as the intellect's dependence on sensory images for its activity, it becomes plausible to see that sense-perception is in fact of the individual thing because its sensible qualities, quantitative attributes, and substantial nature can simultaneously stimulate all of the percipient's capacities involved in the perception of it.<sup>41</sup>

In short, it is the unity of the individual substance that guarantees the unity of the act of perception in the perceiving subject. As a consequence, the simultaneous activity of the senses and intellect enables human beings to perceive the thing. However, since the intellect is the highest cognitive capacity involved in perception, and since its object is the essence, therefore, what is ultimately perceived is the individual thing perceived as a whole (*katholou* = *kata* + *holon*) and in its essential universality. In other words, even though perception is initially determined by the external senses taken as the standard and the mind's attention is first drawn to their perceptible objects, an inversion occurs and the mind's attention is then drawn to the intellect's perceptible object because the intellect has become the standard of perception. Thus, the individual substance initially perceived in its sensible particularity is ultimately perceived in its essential universality. What is really perceived is not the whole individual thing (its sensible qualities, quantitative attributes, and essence), but rather, the individual thing perceived as a whole, which means perceiving it in its essential universality. As Aristotle carefully asserts in his example, what is perceived is Callias as (an instance of) man (that is, the individual thing as a whole), not Callias the man (that is, the whole individual thing). Thus, the complete answer to Hicks' question is that the essence of the individual thing is the object of perception. Hence Aristotle's elliptical explanation : for though the act of perception is of the particular, the capacity is of the universal and so is the object gained ; for the universal substance is in the particular substance.<sup>42</sup>

40. For imagination, see DA III 3, 428b10-17 ; for memory, see PN 1, 451a15-18.

41. Philopon (cited in HICKS, *De Anima*, p. 432) argues the fact of one act of perception (*mia aisthêsis*) from the simultaneity (*hama*) of stimulation of the senses. MODRAK, *Power of Perception*, p. 31, expresses a similar thought, except without emphasizing the unity of the sense experience, when she writes : "The epistemological priority of the object is due to its ontological priority. When a person tastes something salty, for instance, the characteristics of the salt determine the characteristics of the event of tasting in which the sense is exercised."

42. Thus, I think there is enough textual evidence showing that Aristotle did have an answer to how perception and induction of the universal can occur to lay Barnes' objection raised at the outset to rest. For a fuller account of how the senses can operate jointly with the intellect in sense-perception, see my *Aristotle Posterior Analytics II.19 : Introduction, Greek Text, Translation and Commentary Accompanied by a Critical Analysis*, Québec, PUL, 2004, p. 173-189 and 211-226.

## CONCLUSION : POST-ARISTOTLE

My claim is that Aristotle's remark about sense-perception being of the universal reflects his view that human perception is holistic, is of the universal in the sensible particular. Aristotle's metaphysical doctrine means that individual substances are primary and are what really exist. As a result, it is the unity of the individual substance that guarantees the unity of the act of perception taking place in the percipient. However, when it comes to explaining our perception of such substances, Aristotle's analytical method leads him to divide the holistic act of perception according to objects of perception. Starting with the external senses as the standard to determine what these objects are, Aristotle holds that the proper and common objects are essentially perceptible while the universal essence is accidentally perceptible. In order to complete the analysis, Aristotle shifts the standard to the intellect and maintains that the essence is essentially perceptible to it, the other two objects now becoming accidentally perceptible. And whenever the intellect perceives the essential nature in the sensible appearance, it becomes possible for him to say that perception is of things perceived in their essential universality, and not merely of their phenomenal aspect.

As for the consequences of these views for *Post An II 19*, it must be seen that induction through sense-perception is successful whenever we can perceive individual substances in their essential universality and not in their sensible particularity. This kind of perception is at the root of the development of the noetic state of possessing the principles of science, a development made possible by the shift in the mind's attention from the external senses to the intellect as the standard of perception. Furthermore, the development of the noetic state must respect the difference between that which is more familiar to us and that which is more familiar in an absolute sense ; and as described above, the former indemonstrable kind of understanding grounds the latter understanding which is rational and can include demonstration.

Finally, to conclude my brief comments made in the first section on the historical context of Aristotle, after Aristotle the Stoics, Epicureans, and other Hellenistic schools adopt philosophical views that, in the words of Inwood and Gerson, are rather "materialist" and "empiricist."<sup>43</sup> Generally speaking, there is a rejection of Aristotle's doctrine of substance and form and any other incorporeal entities present in his philosophy (and Plato's, too). And although Aristotle is an empiricist — as evidenced by his views on induction from sense-perception as the source of scientific principles — the Hellenistic schools adopt a more "thorough-going" empiricism that rejects Aristotle's inductive process while maintaining the broader belief that there is nothing in the mind which was not previously in the senses. Inwood and Gerson perspicaciously speculate : "It is tempting to see one stimulus for the rise of skepticism in the rigour of Hellenistic empiricism" (p. XVII). Rigorous, indeed ! — For they rejected the intellectual perception of the non-sensible universal in the sensible particular, which is the very essence of the inductive process as Aristotle understood it. With Plotinus and

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43. Brad INWOOD, Lloyd P. GERSON, trans., *Hellenistic Philosophy : Introductory Readings*, Second edition, Indianapolis, Hackett, 1997, p. XVI-XVII.

the Neoplatonists some Greek philosophers revert to the Platonic epistemology and metaphysics, with the concomitant duality of the sensible realm perceptible to the senses and the intelligible realm of Forms knowable to the intellect. As a consequence, Aristotle's account in *Post An* II 19 turns out to be the only attempt in the history of Greek philosophy to place so much faith in the sense-perception of 'empirical' reality as a source of knowledge and the foundation of scientific explanation.