Introduction to Volume 3: Cognition and Conceptualization in the Aristotelian Tradition

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INTRODUCTION

Cognition and Conceptualisation in the Aristotelian Tradition

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This[1] is the third and final volume of the *Forms of Representation in the Aristotelian Tradition* series. The volume focuses on the most complex and uniquely human way of representing reality, one in which the mind goes beyond the senses to cognise truths about the world. Cognition is mediated by concepts that represent objects. Concepts are acquired naturally by human beings, as one experiences things and learns language from fellow humans. Of course, concepts have to represent objects adequately and they have to be connected in the right way for cognition to be successful. However, for Aristotle and his successors, much as for Plato and his followers, cognition does not amount just to having the right concepts and connecting them in the right sequence of thoughts. Rather, having the right concepts and connecting them in the right sequence of thoughts enables human beings, first and foremost, to grasp immutable and imperceptible features of objects out there in the world, to use this grasp to explain the structure and behaviour of objects, to organise such explanations in a body of science, and to communicate science to others. Obviously, we are dealing with a notion of cognition that is deeply embedded in a distinctive epistemology and metaphysics.

The purpose of this introduction is threefold. First, we would like to prepare the reader, especially if they do not have a firm footing in ancient and medieval philosophy, for the papers collected in this volume. More specifically, we will present the elements of Aristotelian metaphysics and epistemology, introduce the main texts, and explain the relevant vocabulary. We will also discuss how Aristotle thought of concepts, their acquisition, and their relation to language. These are the fundamental issues that later philosophers in the Aristotelian tradition tried to address, often in very different ways, opening

1 The preface and sections 1 and 8 were written by Gregoric, the rest by Ebbesen, but Ebbesen's text contains many elements and formulations that are due to Gregoric. Section 9 is a joint labour of the two authors. We would like to thank the other members of the *Representation and Reality* project for constructive criticism, and in particular our Arabists, Rotraud Hansberger and David Bennett, for some much-needed information.

avenues of philosophical speculation that continue to exercise theoreticians today. With this background knowledge, we hope, the reader will be able to follow and appreciate the contributions collected in this volume. The second and more conventional purpose of this introduction is to present the individual papers and briefly indicate their relevance for the topic of this volume. Finally, we add a list of editions, translations, commentaries and scholarly studies on the subject of cognition and conceptualisation in the Aristotelian tradition. The list is highly selective, intended primarily for the orientation of readers who are new to this subject.

1 The Platonic Background and a General Outline of Aristotle's Views on Rationality and Intellect

The topic of cognition and conceptualisation is sandwiched between metaphysics and epistemology, since cognition is first and foremost of things that exist. Whatever else may be cognised, it is cognised in a way that is derivative from the cognition of things that exist. Now, Plato thought that there are two types of things that exist. There are perceptible things, that is, bodies and their attributes, and there are thinkable things which he called "forms" or "ideas" (*eídē*, *idéai*). Perceptible things, he held, exist only in an attenuated sense, since their existence is temporary and marked by constant flux, so that there can be no definite knowledge of them. By contrast, forms are independent and unchangeable entities, existing in a full and unqualified way, and as such they are the true objects of knowledge. The main challenge for Plato's philosophy is to explain how these two types of existing things are related and how the cognition of one type affects the cognition of the other.

Aristotle accepted Plato's division of reality and addressed the challenge, but in so doing he had to make departures from Plato. Aristotle agrees with Plato that certain things, bodies and their attributes, are perceptible, whereas other things, forms, are thinkable. Consequently, he agrees with Plato also that we are equipped with two modes of cognition, that is, with two distinct cognitive faculties: perception (*aísthēsis*) and intellect (*nóus*). However, while agreeing with Plato that forms are the true objects of knowledge, apprehended by intellect only, Aristotle disagrees on two important points: (1) he thinks that forms do not exist independently of perceptible things (save for a few exceptions), and (2) he insists that forms cannot be cognised independently of the cognition of perceptible things. These two crucial points of departure, one metaphysical and the other epistemological, mark Aristotle's entire

philosophy, forming the background of the discussions concerning cognition and conceptualisation in the Aristotelian tradition.

Although Aristotle agreed with Plato that human beings have a unique ability to form concepts and grasp forms, he disagreed greatly as to the nature of this ability. Plato thought that all humans are born with a rational soul that allows them to make assumptions, form propositions and connect them in discursive thought, and communicate with others. With proper education, which includes detachment from the senses through rigorous mathematical and dialectical practice, humans are also able to glimpse the forms and understand the world. In the *Timaeus*, historically his most influential dialogue, Plato posited that the rational soul consists of two concentric circles in everlasting motion, the circle of the Different, by which ever-changing particulars are grasped, and the circle of the Same, with which unchanging forms are grasped. Education essentially consists, according to Plato in the *Timaeus*, in bringing the two circles of the rational soul to their natural orbits, the circle of the Same dominating and regulating the motions of the circle of the Different.

Aristotle disliked the idea of the soul having an extension and, especially, the idea of thinking as a bodily process. Soul itself is a form, according to Aristotle, but not a Platonic form, independent of the bodies subject to change; it is an Aristotelian form, the organising principle of a particular chunk of matter, in this case a living body, and a program, as it were, for its development over time. As a form, the soul is not an extended sort of thing that can be moved. Souls determine the shape of their bodies and endow them with various capacities and patterns of behaviour. The human soul is the most complex sort of soul, as it includes rational capacities. So, every human individual is a compound of a certain sort of body defined by its characteristic human shape and organisation of its parts, and a certain sort of soul characterised by the possession of a range of capacities organised into three soul-parts: the nutritive, the perceptual, and the thinking part. All rational capacities of human beings belong to the thinking part of the soul, to which Aristotle refers in different contexts with different terms, such as intellect (*nóus*), theoretical or scientific knowledge (*epistēmē*), discursive thought (*diánoia*), and reason (*lógos*).

All human beings, then, are endowed with the thinking part of the soul, and as they grow, they employ more and more of its resources: they learn words, string them together into sentences, connect them with certain images or appearances in their minds; moreover, they group these images in various ways and it seems that such groupings spontaneously bring about corresponding universal concepts in their minds. As they live their lives, most people will acquire a language and develop a significant number of concepts that

help them organise their experience and behaviour. Some people, however, go further. They use the concepts they have acquired so as to make explanatory connections among them (in response to asking the question *why*), which leads them to discover essences and make more systematic explanatory connections among things. This is largely what doing science amounts to, according to Aristotle. To do science properly, one has to observe the phenomena in a particular domain and collect as much data as possible. So, the path to understanding the world does not require detachment from the senses, as Plato had taught; on the contrary, it requires extensive and studious employment of the senses.

As the scientist organises the collected data, finding the right concepts and putting them in the right explanatory hierarchy, he will, if he is talented enough, develop an ability to grasp the concepts or propositions of the highest explanatory order, the first principles. All explanatory connections lead to them, whereas they themselves cannot be explained by anything else. The first principles cannot be reached deductively, so they have to be intuited. The ability to intuit first principles is called intellect (*nóus*) in the strictest and purest sense. This ability, it should be clear, is instantiated only in practitioners of theoretical sciences, not in the common folk, and such individuals come to develop it only with the help of extensive use of the senses.

On the interpretation offered here, our *lógos* is what allows us to acquire, manipulate, and communicate concepts. It is the most basic capacity, or set of capacities, of the thinking part of the soul, and one that all humans possess, although not everybody cares to develop *nóus* in the narrower sense of the capacity to grasp essences of things and arrange them into explanatory relations, let alone in the narrowest sense of the capacity to grasp the highest explanatory features, the indemonstrable first principles.[2]

Aristotle provides an account of the thinking part of the soul in his *De anima* 3.4–8 (sometimes referred to as *De intellectu*). Unfortunately, this account is extremely sketchy and focused on the higher capacities of that part of the soul. We hear disappointingly little about concept acquisition, language, and discursive thought in *De anima* 3.4–8. What we do learn, however, is that the proper objects of thought are essences of things. Aristotle seems to recognise three types of essences. Essences of perceptible things are substantial forms of these things that are embedded in matter, essences of mathematical objects are abstract forms that have something analogous to matter (for

2 See Michael Frede, "Aristotle's Rationalism," in *Rationality in Greek Thought*, ed. M. Frede and G. Striker (Oxford: Clarendon Press, 1996), 157–73; and Pavel Gregoric and Filip Grgic, "Aristotle's Notion of Experience," *Archiv für Geschichte der Philosophie* 88 (2006): 1–30.

instance, geometrical objects have extension), whereas essences of separate substances are pure forms, free of all matter. The intellectual apprehension or grasp of an essence is the proper act of thinking, and all other sorts of thinking, including combinations of thoughts in propositions or practical judgements, are to be accounted for in terms of the more basic, proper acts of thinking.

Probably the most baffling part of *De anima* 3.4–8 is the short chapter 5, where Aristotle distinguishes between the agent intellect (*nóus poiētikós*) and the patient intellect (*nóus pathētikós*). The former is compared to light and said to be immortal, which led some commentators to identify it with the prime mover of the universe and others with the immortal part of our individual souls, whereas the patient intellect is perishable and often identified with the capacity to have appearances (*phantasía*). It seems that Aristotle's main motivation for the distinction between the agent and the patient intellect is to give some explanation of the fact that all objects of thought are out there, always available for thinking, yet each person can think only some of the objects and only some of the time. Gallons of ink have gone into the exegesis of this distinction and many other details of *De anima* 3.4–8, as the reader of some papers in this volume will quickly realise.

2 Main Passages in Aristotle

There is no one work by Aristotle providing his theory of cognition and conceptualisation. The bricks needed for the reconstruction must be collected from several places. Apart from the treatment of the thinking part of the soul in *De anima* 3.4–8, the main passages of relevance to the topic are the following:

– *Metaphysics* 1.1, which starts with the famous declaration that all human beings desire to know, and provides a sketchy model of the acquisition of knowledge. This acquisition starts with input from the senses being stored in memory; repeated such cases of storing identical content lead to "experience" (*empeiría*), a sort of knowledge or aptitude in a limited sphere, with clearly delimited contents. Such "experience" seems to bring about or involve a range of experiential notions (*ennoēmata*) that, if connected in a certain way, become an "art" (*téchnē*), that is, the sort of knowledge specialists in various crafts have that allows them to explain the procedures pertaining to their craft and to transmit their knowledge; at the top of the ladder one reaches *epistēmē*, theoretical or scientific knowledge of things in a certain domain.
– *De anima* ("On the Soul") 2.5–3.3 and *De sensu et sensibilibus* ("On Sense and its Objects"), where the workings of the senses are examined.

– *De memoria et reminiscentia* ("On Memory and Recollection"), which treats of the workings of memory and how we recall memories that do not present themselves automatically when needed.
– *De interpretatione* ("On Linguistic Communication of Information") 1, which is a sort of preface to an investigation of the logical properties of various sorts of sentences, and hence contains a brief sketch of the relationship between linguistic items and the corresponding mental and extramental items.
– *Posterior Analytics*, which, as a whole, deals with how to obtain first-class "scientific" knowledge of necessary universal propositions, a knowledge that implies the ability to explain *why* a certain theorem is true. In the very last chapter of the work (2.19) there is a sketch of the road from perception to theoretical knowledge very similar to the one in *Metaphysics* 1.1. Aristotle himself provides a sort of summary of the doctrine in *Nicomachean Ethics* 6.3, which is worth quoting in full:

> Now, what scientific knowledge is, if we are to speak exactly and not follow mere similarities, is plain from what follows. We all suppose that what we know is not even capable of being otherwise; of things capable of being otherwise we do not know, when they have passed outside our observation, whether they exist or not. Therefore the object of theoretical knowledge is of necessity. Therefore it is eternal; for things that are of necessity in the unqualified sense are all eternal; and things that are eternal are ungenerated and imperishable. Again, every science is thought to be capable of being taught, and its object of being learned. And all teaching starts from what is already known, as we maintain in the *Analytics* also; for it proceeds partly through induction and partly by deduction (*syllogismós*). Now induction (*epagōgē*) is the starting-point which knowledge even of the universal presupposes, and deduction proceeds from universals. These are therefore starting-points from which deduction proceeds, and so cannot be reached by deduction; it is therefore by induction that they are acquired. Theoretical knowledge is, then, a state of capacity to demonstrate, and has the other limiting characteristics that we specify in the *Analytics*; for it is when a man believes in a certain way and the starting points are known to him that he has scientific knowledge, since if they are not better known to him than the conclusion, he will have his knowledge only incidentally.[3]

3 Aristotle, *Ethica Nicomachea,* trans. W. D. Ross, rev. J. O. Urmson, in *The Works of Aristotle Translated into English*, vol. 9 (Oxford: Oxford University Press, 1975), 6.3, 1139b18–35; translation modified by Ebbesen.

– *Nicomachean Ethics* 1.13–2.1, 1103a3–18 divides virtues into intellectual (*dianoētikaí*) and moral (*ēthikaí*). In 6.2 intellectual virtue is divided into a purely theoretical variant that is only concerned with truth and falsity, and a practical variant that aims at what is both true and in accordance with a correct choice (*prohaíresis*). In 6.3 Aristotle divides the mental powers that discriminate between truth and falsity by affirming or denying into art (*téchnē*), theoretical knowledge (*epistēmē*), prudence (*phrónēsis*), wisdom (*sophía*), and intellect (*nóus*) in the strictest sense – with wisdom being an accomplished combination of theoretical knowledge, with all the demonstrations that it involves, and intellect as the highly specialised ability to grasp the indemonstrable first principles. This list, with the addition of reason (*diánoia*), is repeated in *Posterior Analytics* 1.33, 89b7–8. Belief or opinion (*dóxa*) and surmise or supposition (*hypólēpsis*) are disqualified from a place in the list because "in these we may be mistaken."[4]

3 Aristotle's Systematic Vocabulary

Aristotle possessed a fairly systematic vocabulary for dealing with cognition. The central verbs for a typically reliable grasp of things and facts are *aisthánesthai* "to perceive," *mnēmonéuein* "to remember," *gi*(*g*)*nōskein* "to know," *epístasthai* "to know in a scientific or theoretical way, to understand," *dianoéisthai* "to reason," *logízesthai* "to reason or calculate," and *noéin* "to think or grasp intellectually." Less reliable relationships to the underlying objects are expressed by the verbs *doxázein* "to believe" or "to be of the opinion" and *hypolambánein* "to surmise, assume, suppose." An important verb that takes the object of consideration for its subject is *phaínesthai* "to appear." In the table below each of the central verbs is listed together with a number of derivative nouns and adjectives attested in the *Corpus Aristotelicum*. Also, each Greek term is accompanied by the Latin word or words used to render it in medieval scholastic Latin, and also with at least one of the Arabic renditions (but there is considerable variation in how different translators rendered Aristotelian terms in Arabic).[5]

4 See also *de An.* 3.3, 428a1–5, 428a18–b9.

5 The Arabic terms were provided by David Bennett.

Verb	English translation	1. Ability/act	2. Object, potential or actual
horān videre *r-ʾ-y*	to see	*ópsis, hórasis* visio, visus	*horatón* visibile
aisthánesthai sentire *ḥ-s-s*	to perceive	*áisthēsis* sensus, sensatio *ḥiss*	*aisthētón* sensibile, sensatum
phaínesthai, *phantázesthai* apparere *kh-y-l*	to appear, to seem	*phantasía* fantasia, imaginatio *takhayyul*	
mnēmonéuein, *mémnēsthai* memorari *dh-k-r*	to remember	*mnēmē* memoria *dhikr*	*mnēmoneutón* memorabile, memoratum
doxázein (*dokéin*) opinari *r-ʾ-y*	to believe	*dóxa* opinio *raʾy*, *ẓann*	*doxastón* opinabile
hypolambánein opinari, suspicari *r-ʾ-y*	to surmise, to suppose, to assume	*hypólēpsis* opinio, suspicio *raʾy*	*hypolēptón* opinabile, suspicabile
logízesthai ratiocinari *f-k-r*	to reason, to calculate	*logismós* ratiocinatio *fikr*	
dianoéisthai intelligere *f-k-r*	to reason, to think discursively	*diánoia* ratio, intelligentia, intellectus *fikr*	*dianoētón* intellectuale

3. Perceived content (information obtained)	4. Active adjective	5. Capacity of the soul	6. Organ
hórama visio, visum	*horatikós* visi-bilis, -vus	*to horatikón* visi-bile, -vum	
aísthēma sensibile (simulacrum) *maḥsūs*	*aisthētikós* sensitivus, sensibilis *ḥassās, ḥāss*	*to aisthētikón* sensitiv-a, -um, sensibile	*aisthētērion* sensitivum, sensorium, organum sentiendi *ḥāssa*
phántasma fantasma *khayāl*	*phantastikós* fantasticus *takhayyul*	*to phantastikón* fantastica *mutakhayyil*	
mnēmóneuma memorabile, memoratio	*mnēmonikós* memorativus *mudhakkira*	*to mnēmonikón* memorativa *dhikrā*	
dógma dogma, doctrina *raʾy*		*to doxastikón* opinativ-a, -um	
	logistikós ratiocinabilis *fikrī*	*to logistikón* ratiocinativa	
	dianoētikós intellectivus, intellectualis *fikrī*	*to dianoētikón* intellectiva	

(*cont.*)

Verb	English translation	1. Ability/act	2. Object, potential or actual
noéin intelligere ʿ*-q-l*	to grasp intellectually, to intuit, to think	*nóus/nóēsis* intellectus, intelligentia ʿ*aql*	*noētón* intell-igibile, -ectum
ennoéin intelligere	to think, to be aware of, to have in mind	*énnoia* intelligentia, at-, in-tentio, sententia	
epístasthai scire ʿ*-l-m*	to know theoretically or scientifically, to understand	*epistēmē* scientia ʿ*ilm*	*epistētón* scibile, scitum
eidénai scire, cognoscere	to know		
gi(*g*)*nōskein* cognoscere ʿ*-l-m*, ʿ*-r-f*	to know	*gnōsis* cognitio *maʿrifa*, ʿ*ilm*	*gnōstón* cogn-oscibile/-itum

As shown in the list, most of the verbs have several nominal derivatives, and several have all of 1–5, whereas only one has 6. The derivatives are:

(1) A noun substantive, most often ending in *-sis*, that ambiguously signifies (a) the ability to do what the verb means, and (b) the actual exercise of that ability, for instance, an act of sensing. Thus to *aisthánesthai* "to perceive" corresponds *aísthēsis* "sense, perception."

(2) A substantivised neuter adjective ending in *-tón* ambiguously signifying (a) a potential, and (b) an actual object of the verbal action. Thus *aisthētón* "object of perception."

(3) A substantive noun ending in *-ma* signifying the result of the verbal action – in the case of verbs of knowing, the information obtained. Thus *aísthēma* "sense-impression."

3. Perceived content (information obtained)	4. Active adjective	5. Capacity of the soul	6. Organ
nóēma intellectus, intelligentia, conceptus *maʿqūl* *ennóēma* conceptio, intellectum	*noētikós* intellectivus	*to noētikón, nóus* intellectiva intellectus	
	epistēmonikós faciens scire, scientialis, scientificus *ʿilm*	*to epistēmonikón* *nóus* intellectus	
	gnōstikós cogn(osc)itivus	*to gnōstikón* cogn(osc)itiva	

(4) An adjective ending in *-tikós* that can characterise powers or activities involved in the verbal action. Thus *aisthētikós* "sensitive," "able to perceive."

(5) A substantivised neuter form of the same adjective ending in *-tikón* signifying the capacity of the soul responsible for the verbal action. Thus *to aisthētikón* "the perceptual capacity of the soul."[6]

6 The perceptual capacity of the soul is fundamental to the perceptual part of the soul, one of the three parts of the soul that Aristotle recognises. The perceptual part of the soul comprises several other capacities, such as the capacity to have appearances (*to phantastikón*) and the capacity to remember (*to mnēmoneutikón*). The other two parts of the soul recognised by Aristotle are the nutritive and the thinking part, each comprising a plurality of capacities. For the distinction between parts and capacities of the soul, see Klaus Corcilius and Pavel

(6) A noun substantive signifying the organ of the verbal action. Thus *aisthētērion* "sense organ." There are no similar nouns formed from the other relevant verbs, because there were traditional names for the organs of sight, hearing, smell, and taste, while touch has no localised external organ,[7] and thought, Aristotle held, does not have the same sort of relation to bodily organs as the senses.

The systematic nomenclature is of great help in reconstructing Aristotle's views, but it is not always clear enough. Thus, a noun of type 1 in sense (a) is for all practical purposes equivalent to the substantivised adjective of type 5; *aísthēsis* in sense (a) need not denote a different entity from *to aisthētikón*, the choice of one designation rather than the other only indicates what the scholastics called a distinction of reason, that is, a conceptual distinction, not a real one (*ratiōne*, not *rē*) – which word is most appropriate depends on the point of view adopted in a given context. By contrast, *aísthēsis* in sense (b) denotes something clearly different from *to aisthētikón*. A further complication with *aísthēsis* is that it is a generic term that may be used both of the perceptual capacity in general and of specific instances or modalities of this capacity, that is, the five senses: sight, hearing, smell, taste, and touch.

Another problem for the interpreter is that the four verbs for thinking (*noéin*, *dianoéisthai*, *ennoéin*, and *logízesthai*) have overlapping semantic fields, with the result that the first three of them ended up as *intelligere* in Latin translations. The vague *gi*(*g*)*nōskein* and *eidénai*, both of them standardly translated as "to know," have little personality. In Latin they both appear as *cognoscere*, but for *eidénai* one also finds *scire*, whose primary role was to render *epístasthai* "to know theoretically, to understand in a scientific way." For interpreters in the Western tradition it has been (and is) a problem that neither Latin nor any modern Western Indo-European language possesses matching sets of deverbative nouns, that is, nouns derived from verbs, corresponding to the Greek *-sis* and *-ma* nouns, which makes their interpretation in some cases quite challenging.

Interestingly, soon after Aristotle the ancient Stoics created a rather rigidly regimented philosophical language that notably allowed one to distinguish terminologically between genuine corporeal entities and incorporeal quasi-entities, and for this purpose they used at least one feature of the Greek language that Aristotle had already used, namely the existence of two

Gregoric, "Separability vs. Difference: Parts and Capacities of the Soul in Aristotle," *Oxford Studies in Ancient Philosophy* 39 (2010): 81–119.

7 In fact, Aristotle argued that the proper organ of taste and touch is the heart, which is also the central organ of the perceptual part of the soul.

suffixes *-sis* and *-ma* with which to derive *nomina actionis* from verbs.[8] I suspect Zeno the Stoic had studied Aristotle's technique and concluded he could use it, although in a very different theoretical framework.

A note on Greek terminology. *Ennoéin* in Aristotle covers "have in mind, be aware of, think of, have a mind to." *Énnoia* is a not very precise term for "thought" or "awareness"; with a genitive it can correspond to "notion of," as in *Nicomachean Ethics*: "they have no notion of the noble and truly sweet (*tou de kalóu kai hōs alēthōs hēdéos oud' énnoian échousin*), since they have not tasted it."[9] *Ennóēma* occurs only once, in *Metaphysics* 1.1, in the sentence: "Now, art arises when from many notions (*ennoēmata*) gained by experience one universal assumption (*hypólēpsis*) arises about things that are similar."[10] *Dianoéisthai* and its derivatives are mainly used with respect to discursive reasoning or, at least, thought of a propositional nature. *Noéin* and its derivatives are the preferred terms for thinking that consists in a grasp of primitive universal terms and propositions. *Nóēma* is Aristotle's term for the result of an individual act of such grasp, or for the content thus grasped, and hence it is the closest to our notion of a single thought or concept (more on that below).

4 Acquisition of Concepts

As already mentioned, Aristotle famously rejected any notion of a realm of Platonic forms (ideas) metaphysically independent of particular things but responsible for our ability to think of particulars as instances of universals because in some sense the ideas are innate in us, or at least a capacity for grasping them is. Aristotle's rejection of innate knowledge is memorably expressed in his comparison of the intellect (*nóus*) to an initially blank tablet that has the capacity to carry written information but does not carry any until somebody writes on it:

> [...] the intellect is in a way potentially the objects of thought (*ta noētá*), but not any of them actually before it intellectually grasps (*noéi*) them. By "potentially" I mean like in a tablet on which nothing is actually written, which is the case with the intellect.[11]

8 For this trait of Stoicism, see Sten Ebbesen, "Imposition of Words in Stoicism and Late Ancient Grammar and Philosophy," *Methodos* 19 (2019), http://journals.openedition.org/methodos/5641.

9 *EN* 10.10, 1179b15–16.

10 *Metaph*. 1.1, 981a6.

11 *De An*. 3.4, 429b30–430a2; trans. Ebbesen.

Now, the objects of intellectual thought must, according to Aristotle, be universal, but ultimately the information they contain must be derived from perception. As medieval Aristotelians formulated it, "There is nothing in the intellect that has not previously been in a sense" (*Nihil est in intellectu quod non prius fuerit in sensu*). However, an act of sensing, an actual *aísthēsis*, is a particular act and results in a piece of information gathered through the senses (a sense-impression, *aísthēma*) about a particular perceptible object (*aisthētón*). So, a major problem facing all Aristotelian interpreters through the ages has been to explain how the gap between perception and intellection is bridged, that is, how do we manage to get an actual thought such that the intellect acquires a piece of information (concept, *nóēma*) about a universal thinkable object (*noētón*)? And what is the ontological status of such a thinkable object, given that it is not autonomous like a Platonic idea?

Aristotle provided clues to possible solutions, but did not give one continuous description mapping the road from the perception of particulars to the acquisition of universal concepts. One thing has been clear to all interpreters, however: any attempt to bridge the gap between the particular and the universal must assign a central role to the Aristotelian form.

Every object we can perceive may be analysed as a compound of stuff ('matter') and a programme for its organisation ('form'). Forms in this sense came to be called "substantial forms" in the Aristotelian tradition, to distinguish them from accidental forms. Accidental forms are, among other things, perceptible features of material objects like colour, taste, shape, and size, that is, the proper objects of each of the five senses plus some features that more than one sense can catch ("common objects of perception"). Substantial forms, by contrast, are thinkable features, that is, proper objects of the intellect, though there are circumstances in which they can be said to be perceived (see below). In the case of a living being, its substantial form is its soul (*psychē*).

Aristotle seems to assume that every form of a particular thing is not particular *tout court*; in some sense it is identical with forms found in other particular things of the same kind, and thus the definition of one individual's form will be identical with that of the form of any other individual of the same species: the definition of Socrates' form will be identical to that of Alcibiades', and indeed exactly identical with the definition of the universal man; what the definition captures is the essence of man. In any case, the objects of intellection, *ta noētá*, Latin *intelligibilia*, are contained in the forms we can perceive, Aristotle says in *De anima* 3.8. In the same chapter he says that in perception the sense receives the form (*éidos*, *speciēs*) of the perceptible object and actualises its potentiality for becoming like that object: "It is not the stone, but its form that is in the

soul";[12] "Initially, the perceptual capacity of the soul (*to aisthētikón*) is potentially such as the perceptible object (*to aisthētón*) is actually, and when it is being affected [by the object] it is not like (*hómoion*) it, but after being affected it has become like (*hōmoíōtai*) it and is such as it [i.e. the object] is."[13]

What exactly is meant by the assimilation to the object of perception has been endlessly debated, among other reasons because some passages seem to indicate that it is the sense organ rather than the capacity of sensation that is assimilated, but this need not detain us here.[14] More importantly: whatever happens when we perceive a whitish thing, we do not just perceive a proper object of perception, such as the whitish colour of something in front of us, but also some common objects of perception; thus we are likely to notice that the colour belongs to something with a certain shape and size and that it is moving or at rest, and at *De anima* 2.6, 418a20–23 Aristotle even indicates that through "accidental perception" we may be aware that the thing is actually a person we know.[15]

So, Aristotelian sense-perception is rich in information. Still the Philosopher is very stingy when it comes to explaining how we get from perception to intellection, that is, how we grasp the universals embedded in the forms of particulars that we perceive. At the end of *Posterior Analytics* he seems to indicate that once we have gathered and stored several similar sense-impressions, we make an intuitive leap to the universal. In other words, a being with a rational soul will spontaneously form concepts of universals after perceiving and remembering a sufficient number of similar things. This is what it is to acquire universals by induction (*epagōgē*). Aristotle also stresses that any intellectual thought-process requires the contemplation, somehow, of *phantásmata*. Now, an Aristotelian *phántasma* is the result in us of something appearing to us – the contents of an appearance as absorbed by us – and both in *De anima* 3.8 and elsewhere Aristotle links *phantasía*, the faculty of entertaining appearances, very closely to sensory input; it may perhaps be described as an ability

12 *De An.* 3.8, 431b29–432a1; trans. Ebbesen.

13 *De An.* 2.5, 418a3–6; trans. Ebbesen.

14 A philosophically sophisticated account is Hendrik Lorenz, "The Assimilation of Sense to Sense-object in Aristotle," *Oxford Studies in Ancient Philosophy* 33 (2007): 179–220.

15 The subject of the so-called "accidental perception" in Aristotle is notoriously difficult, since it is not clear whether and to what extent the perception of accidental objects of perception requires involvement of the intellect. A classic study is Stanford Cashdollar, "Aristotle's Account of Incidental Perception," *Phronesis* 18 (1973): 156–75. See also Mika Perälä's chapter "Aristotle on Incidental Perception" in *Forms of Representation in the Aristotelian Tradition, Volume One: Sense Perception*, ed. J. Toivanen (Leiden: Brill, 2022), 66–98.

to regurgitate, as it were, stored sense-impressions, *aisthēmata*.[16] So, even after having intuitively leaped from the particular to the universal, we preserve a life-line back to the senses and particulars.

5 Concepts and Language

It was pointed out in section one above that, according to Aristotle, our having rational souls means that we human beings have a natural ability to acquire concepts as a follow-up to our natural abilities to perceive, represent, and remember things. But what does Aristotle actually tell us about concepts? The Aristotelian word that best fills the bill for meaning "concept" is *nóēma*, but, alas, he only uses it sparingly. As we shall see in a moment, it can be used of mental units like man and white, but also about mental propositions, which are composite like the assertoric sentences that are their vocal counterparts, and which are true or false. This ambiguity is pervasive in Aristotle: the border between universal terms and universal propositions is fluid. In fact, the universal that, according to *Posterior Analytics* 2.19, one reaches at the end of an induction looks more like a universal proposition than like a universal concept-term. The key passage on *noēmata* is *De interpretatione* 1:

> Now spoken sounds are symbols of affections in the soul (*en tēi psychēi pathēmata*), and written marks symbols of spoken sounds. And just as written marks are not the same for all men, neither are spoken sounds. But what these are in the first place signs (*sēméia*) of – affections of the soul (*pathēmata tēs psychēs*) – are the same for all; and what these affections are likenesses (*homoiōmata*) of – things (*prāgmata*) – are also the same. These matters have been discussed in our work on the soul, they do not [properly] belong to the present discipline. Now, just as some thoughts (*noēmata*) in the soul are neither true nor false while some are necessarily one or the other, so also with spoken sounds. For falsity and truth have to do with combination and separation. Thus names and verbs by themselves – for instance 'man' or 'white' when nothing further is added – are like a thought (*nóēma*) that is without combination or

16 Cf. Aristotle, *Somn.Vig*. 2, 456a24–26: "Some people move in their sleep and do many things like people awake, but not without some *phántasma* and some *aísthēsis*, for a dream-sight is in a way an *aísthēma*" (κινοῦνται δ' ἔνιοι καθεύδοντες καὶ ποιοῦσι πολλὰ ἐγρηγορικά, οὐ μέντοι ἄνευ φαντάσματος καὶ αἰσθήσεώς τινος· τὸ γὰρ ἐνύπνιόν ἐστιν αἴσθημα τρόπον τινά); trans. Ebbesen.

> separation; for so far they are neither true nor false. A sign of this is that even 'goat-stag' signifies (*sēmaínei*) something but not, as yet, anything true or false – unless 'is' or 'is not' is added (either simply or with reference to time).[17]

Notice here that the word for "affection" is *páthēma*, that is, a noun of the type describing the outcome of the verbal "action," in this case the result of *páschein*, that is, of being subjected to some outside stimulus. The source of the *páthēma* Aristotle had in mind most probably was sensory input or some derivative thereof. Such an affection is described as a *homoíōma*, that is, the result of an assimilation to some *prāgma*. Aristotle refers to his lectures on the soul for further discussion of assimilation – if a definite passage in *De anima* is intended, a good candidate is the one from 3.8 quoted above, where perceiving was described as an assimilation of the sensitive part of the soul to the object of sensation. But what is it that the soul has been assimilated to? *Prāgmata*, the text says, using the plural of the noun *prāgma*. Unfortunately, *prāgma* is ambiguous;[18] according to its formation, the word ought to signify the outcome produced by somebody acting (*práttein*), a state of affairs, and this may have been what Aristotle had in mind, but in everyday language *prāgma* had become an unspecific word for "thing," and this seems the only possible sense in *De interpretatione* 7:

> Now, *prāgmata* come in two types: universal and particular. I call universal that in whose nature it is to be predicated of several [items], and particular that for which this is not the case. Thus Man is an example of a universal, Callias of a particular.[19]

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17 *Int.* 1, 16a3–18, trans. Ackrill, in Aristotle, *Categories and De Interpretatione: Translated with Notes* (Oxford: Clarendon Press, 1963), modified by Ebbesen. The literature on this passage is huge. See, for instance, Deborah Modrak, *Aristotle's Theory of Language and Meaning* (Cambridge: Cambridge University Press, 2001), 13–27; David Charles, *Aristotle on Meaning and Essence* (Oxford: Clarendon Press, 2000), 78–110; Ronald Polansky and Mark Kuczewski, "Speech and Thought, Symbol and Likeness: Aristotle's *De Interpretatione* 16a3–9," *Apeiron* 23 (1990): 51–63. The literature about the specific issue of interior discourse or mental language ("mentalese" in contemporary philosophical jargon) is less enormous. For an overview of the history of the notion of a language of thought, see Claude Panaccio, *Le discours intérieur de Platon à Guillaume d'Ockham* (Paris: Seuil, 1999).

18 Cf. Pierre Hadot, "Sur divers sens du mot *pragma* dans la tradition philosophique grecque," in *Concepts et catégories dans la pensée antique*, ed. P. Aubenque (Paris: Vrin, 1980), 309–19.

19 *Int.* 7, 17a38–b1, trans. Ebbesen, slightly paraphrasing.

There may be ways to reconcile the state-of-affairs interpretation with the characterisation of man and Callias as *prāgmata*,[20] but the Aristotelian tradition has overwhelmingly opted for taking the "things" meant to be items like man and not states of affairs.

Aristotle does not explicitly identify the *noēmata* of which he speaks next with the affections of the soul mentioned earlier, but most commentators have done so. And rightly so, it seems.

According to *De interpretatione*, then, a concept is a mental entity, the soul in the state of having been assimilated to some object of intellectual thought, whether this object be term-like or of a propositional character. Let me call them "simple" and "compositional" concepts, respectively. Concepts have linguistic counterparts, the text says: verbs or nouns for simple concepts and sentences for compositional ones. These counterparts differ according to which linguistic community a speaker belongs to, but the concepts of which they are symbols or signs[21] are shared by all humans – not, of course, in the sense that everybody must have exactly the same stock of concepts, but in the sense that the same type of object will elicit an identical concept in everybody. When Aristotle says that linguistic entities are signs of mental entities, that is, concepts, he must mean "of the speaker's concepts," but the claim of inter-human identity of concepts makes room for a listener's reproducing in himself the speaker's thought.

A note on Latin terminology. The authoritative Latin translation of *De interpretatione* by Manlius Boethius from the early sixth century rendered *nóēma* as *intellectus* and *pathēmata* as *passiones*, but in his commentary on the passage Boethius used *conceptiones* to paraphrase *pathēmata*, availing himself of a term of Stoic origin, Greek *katálēpsis* "grasp(ing)," a variant translation of which is *conceptus* – the direct ancestor of the English *concept*. In the early phase of Western scholasticism (twelfth century), *intellectus* was the standard word for "concept" with only a moderate competition from *conceptus* and *conceptio*, which were long used interchangeably. In the thirteenth century, *intentio*, a translation of Avicenna's *maʿnā* also began to be used, though it was mainly restricted to specialised contexts, while *conceptus* started to gain ground. Finally, *conceptus* became the standard term in the fourteenth century.

20 See, in particular, Lambertus Marie de Rijk, *Aristotle, Semantics and Ontology* (Leiden: Brill, 2002), esp. 1:105–14.

21 In recent generations some scholars have argued – wrongly, I think – that to Aristotle "being a symbol of" and "being a sign of" were not synonymous, as they have traditionally been taken to be. The debate was started by Norman Kretzmann, "Aristotle on Spoken Sound Significant by Convention," in *Ancient Logic and its Modern Interpretations*, ed. J. Corcoran (Dordrecht: Reidel, 1974), 3–21.

For *prāgmata* Boethius offers *res*, which is not ambiguous in the way that the Greek word is.

6 Aristotle's Mental Language

From Plato Aristotle inherited the notion of an internal discourse (*ésō lógos*) that underlies the utterance of sentences.[22] He only mentions it by name once, in *Posterior Analytics* 1.10, in a passage that runs:

> demonstration is not addressed to the external (*éxō*) *lógos*, but to the one in the soul (*ho en tēi psychēi*), since deduction (*syllogismós*) is not either. For one can always object to the external *lógos*, but not always to the internal (*ésō*) *lógos*.[23]

There is, however, also an indirect reference to the internal discourse in *Categories* 6:

> that a *lógos* is a quantity is evident, since it is measured by long and short syllables; I mean here the *lógos* that is spoken.[24]

A compositional concept of the type mentioned in the beginning of *De interpretatione*, one that can be true or false, must be an internal *lógos* in the sense of a mental proposition corresponding to an external, spoken assertoric sentence (*lógos apophantikós*). Does it have a structure? The way Aristotle introduces it strongly suggests so, and also that it has the same structure as a well-formed external counterpart, which, following in Plato's footsteps, he takes to be made up of two different types of component: one (the subject) is a name (*ónoma* in Greek, *nōmen* in Latin) identifying the topic of discourse, the other (the predicate, *rhēma*, *verbum*) enounces something about the thing named. Aristotle does, however, in a departure from Plato, notice that instead of being represented by a verb the predicate can be broken up into a noun (substantive, adjective or participle) + *is* and in the *Prior Analytics* he treats assertoric sentences as composed of two end-points ("terms") of the same type joined by means of *is* or *is not*. His syllogistics depends on the ability of a term to switch from having the role of predicate in one premise to having that of subject in another.

22 Plato, *Sophist* 263e3–5; *Philebus* 38e1–39a7.

23 *APo*. 1.10, 76b24–7, trans. Ebbesen.

24 *Cat*. 6, 4b32–5, trans. Ackrill, modified by Ebbesen.

The passage from *Posterior Analytics* cited above suggests that the primary bearer of truth and falsehood is the mental proposition rather than its spoken representation.

This is about as much as we can safely say about Aristotelian concepts and their relation to language and the external world without getting involved in violent disputes between interpreters. There was plenty for later Aristotelians to develop and disagree about.

7 Hot Topics in the Aristotelian Tradition

7.1 *Abstraction*

The sketchy Aristotelian accounts of how to get from sensible particulars to intelligible universals cry for supplementation.[25] In much of the later tradition "abstraction" becomes a key notion, and there were any number of theories of how the forms perceived in sensation are separated, "abstracted," from all traces of matter and particularity. In one version, popular in thirteenth-century Latin Aristotelianism, this involves the production in the mind of a *species intelligibilis*, that is, a "form of the object of intellection," abstracted from and analogous to the *species sensibilis*, "the form of the thing perceived." Just as, according to *De anima*, we sense a thing by means of a *species sensibilis*, so by means of a *species intelligibilis* we can think of something in a universal way and entertain a concept (*intellectus* or *conceptus*).

Some theories of abstraction stayed loyal to Aristotle in not introducing any autonomous universal factors, but a Platonic streak is found in many Aristotelians, be they Greek, Arabic, or Latin. Thus the agent intellect described by Aristotle in *De anima* 3.5 could be developed into a supra-personal "agent intellect" (*intellectus agens*), and this, or some matter-less "intelligence," or divine illumination – effectively access to a world of ideas – might be held responsible for the fact that humans share concepts.

The intrusion of the Platonist theory into Aristotelian exegesis was facilitated by the shared vocabulary: words like *noéin*, *noētós*, *nóēma*, etc. were used by extreme Platonists as well as by Aristotle, but with different metaphysical and epistemological baggage attached to them, and an interpreter without a thorough knowledge of the history of philosophy could easily come to conflate doctrines from a Platonist source with Aristotelian doctrine, whether he read his texts in Greek, in Arabic, or in Latin.

25 A recent study on the subject is Allan Bäck, *Aristotle's Theory of Abstraction* (Cham: Springer, 2014).

A note on Greek and Latin terminology. The Greek *éidos*, originally "looks," is Aristotle's technical word for "form." The Latin translators of Aristotle rendered it *forma* on most occasions, except when it means a class subordinate to a *genus*. However, in some passages, including *De anima* 3.8, 431b29–432a1, where *forma* would have been preferable, they used *species*. The phrases *species sensibilis* and *species intelligibilis* were slightly ambiguous: they were often taken to mean "perceptible/intelligible form," but were also sometimes interpreted as "form of the object of perception/intellection."

The Greek *aphaírēsis*, rendered *abstractio* in Latin, meant the subtraction of matter from form or the extraction of form from matter. Aristotle himself had primarily used the term *aphaírēsis* with respect to the process of subtraction that produces mathematical entities like the number 5 considered without the objects counted. In Latin it became traditional to distinguish between the *concrētum* and the *abstrāctum*. *Concrētum* originally meant "grown together" (a participle of the verb *concrēscō*), but in the heyday of Latin scholasticism it was taken to be the participle of *concernō* "consider together." Aristotle's own preferred terms for hylomorphic entities considered with respect to both of their components were *to sýntheton*, "the composite," and *to sýnolon*, "the complete totality."

Intelligentiae was the common medieval name for such separate, that is, matter-less, substances as the movers of the celestial spheres and those occurring in the emanation hierarchies of *Liber de causis* (an Arabic compilation based on Proclus' *Elements of Theology*), al-Fārābī, and Avicenna (*al-ʿuqūl* in Arabic).

7.2 *Do Words Signify Things or Concepts?*

Historically, the dominant interpretation of the remarks about signification in *De interpretatione* 1 has been that words are only signs of extra-mental realities via their signification of mental entities. "Words signify things via concepts," as the Aristoteli-Platonists of Late Antiquity said. Around the 1270s, some Western scholastics started to argue for a direct signification of realities, though not denying that underlying concepts are needed for words to be significative.[26] But their "things" or "realities" (*res*) were of a very abstract character, for example, Avicennian common natures or quiddities rather than particulars. The fourteenth-century nominalist John Buridan (d. c.1360), who was to wield great influence until the early sixteenth century, reverted to the "things via concepts" view, but his "things" were all particulars.

26 See Ana María Móra-Márquez, *The Thirteenth-Century Notion of Signification* (Leiden: Brill, 2015), 52–61.

7.3 *What Are Concepts Concepts Of?*

7.3.1 Supposing all concepts are universal, are they also *of* universal entities or of particulars? In an Aristotelian world there ought to be no free-floating universal entities around to grasp. What has traditionally been labelled "the problem of universals" has elicited any number of ingenious solutions from Aristotelians, ranging from something very similar to Platonism (for instance Avicenna's solution) to the resolute nominalism of William of Ockham (d. 1347) and John Buridan, whose concepts are linked by a relation of signification to every member of their respective sets of particulars.

7.3.2 Are there really, as Aristotle supposed, concepts corresponding to whole sentences? And, if not, what sort of thing does a sentence signify? For John Buridan, there were such concepts, although he called them *propositiones mentales* rather than *conceptus*. Many twelfth- and fourteenth-century Latin Aristotelians operated with a *dictum* (or *enuntiabile* or *complexe significabile*) as the signified content of a sentence, but did not necessarily locate it as an item of a mental language.[27] In fact, the scarcity of information about the interior *lógos* in Aristotle meant that it played a very modest role in the Aristotelian tradition until William of Ockham and John Buridan developed his hints into elaborate theories of mental language.[28]

7.3.3 Are there singular concepts, that is, concepts of individuals? The problem had been treated both in Antiquity and in the early Middle Ages in various guises: Can any definite description single out Socrates among all possible men? Is there such a thing as an individual essence, a Socraticity? The question about singular concepts became urgent for fourteenth-century nominalists with their assumption that the truth of a concept-proposition is required for the truth of a spoken sentence, so that the truth of "Socrates is running" would seem to depend on there being a concept of Socrates. John Buridan held that, indeed, there is such a concept, but his theory of singular concepts was anything but simple and naïve.[29]

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27 Although in several respects outdated, the best overview of the topic is still Gabriel Nuchelmans, *Theories of the Proposition: Ancient and Medieval Conceptions of the Bearers of Truth and Falsity* (Amsterdam: North-Holland, 1973) with the sequel *Late-Scholastic and Humanist Theories of the Proposition* (Amsterdam: North-Holland, 1980).

28 See Panaccio, *Discours intérieur*; Jenny Pelletier and Magali Roques, eds., *The Language of Thought in Late Medieval Philosophy: Essays in Honor of Claude Panaccio* (Cham: Springer, 2017).

29 See Earline Jennifer Ashworth, "Singular Terms and Singular Concepts: From Buridan to the Early Sixteenth Century," in *John Buridan and Beyond: Topics in the Language Sciences,*

7.3.4 Are there concepts corresponding to the copula 'is' and to the words the scholastics called syncategoremes (quantifiers, conjunctions, prepositions, etc.)? Nobody seems to have thought so before the fourteenth century nominalists, although it was well-known among the Latins, at least since the twelfth century, that Aristotle's logic is stepmotherly in its treatment of most syncategoremes, and a major production of studies of syncategoremes had started in the thirteenth century. Once again, John Buridan bites the bullet and accepts such concepts.

7.3.5 Are there concepts corresponding to names of fictional entities? No standard theory of abstraction can account for the production of a chimera-concept, but if there is no such concept, how can "chimera" be a meaningful word, and how can there be true and false statements about chimeras? This was a heavily debated topic in both ancient and, especially, medieval times.[30]

7.3.6 Supposing there is a proper word, W_{CT_1}, by which to express a certain concept, C_{T_1}, of some genuine thing T1, for someone to externalise his thought, alias concept, C_{T_1}, does he not need also a further concept, C_{WCT_1}, of W_{CT_1}? Or else, how come he says "W_{CT_1}" rather than "W_{CT_2}" or some other word? Some Latin Aristotelians, at least, felt the need for such a link between the concept and its vocal counterpart.[31]

7.3.7 What about second-order concepts? Aristotle has no terminology for distinguishing between first- and second-order concepts. Late-ancient commentators on Aristotle employed a (Stoic?) distinction between words of the first and words of the second *institution* or *imposition* (Greek *thésis*, Latin *positio* or *impositio*). Those of the first imposition signify the elementary furniture of the world, the sort of "things" that fall under the Aristotelian categories. These are words like "cat," "tawny," "yesterday," to each of which corresponds some concept. Words of the second imposition gather classes of first imposition words in the way "noun" and "verb" do, or classes of first order concepts in

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1300–1700, ed. R. L. Friedman and S. Ebbesen (Copenhagen: Det Kongelige Danske Videnskabernes Selskab, 2004), 121–51.

30 See Sten Ebbesen, "The Chimera's Diary," in *The Logic of Being: Historical Studies*, ed. S. Knuuttila and J. Hintikka (Dordrecht: Reidel, 1986), 115–43; reprinted in *Greek-Latin Philosophical Interaction: Collected Essays of Sten Ebbesen* (Aldershot: Ashgate, 2008), 1:35–58.

31 See Sten Ebbesen, "Psammetichus' Experiment and the Scholastics: Is Language Innate?" in *The Language of Thought in Late Medieval Philosophy: Essays in Honor of Claude Panaccio*, ed. J. Pelletier and M. Roques (Cham: Springer, 2017), 287–302.

the way "species" and "genus" do; their mental correlates will be second-order concepts.[32]

This ancient doctrine underlies Avicenna's famous dictum that logic studies the second *maʿānī* (Lat. *intentiones*) that are attached to the primary ones.[33] The straightforward interpretation is that while the natural sciences are about first-order universals like man, logic is about second-order universals like species or the subject of a proposition. This was recognised by Latin scholastic readers of Avicenna, for whom *intentiō* developed the specialised meaning of "type of concept," the process culminating in the work of Radulphus Brito (fl. 1290s). Brito combined the first/second intention distinction with that between concrete and abstract, so that the concept man is a first intention *in concreto*, humanity a first intention *in abstracto*, universal a second intention *in concreto*, and universality a second intention *in abstracto*.[34]

7.4 *How Do We Get Concepts That Encapsulate the Essences of Things?*

If concepts contain no information beyond what our senses provide, and the senses can only register accidental forms like colour, shape, and size, how does it come about that we have genuine concepts of substances such as man, whose substantial form or essence is not observable? In a baffling remark in *Posterior Analytics* 2.19, Aristotle says:

> when one of the undifferentiated things makes a stand, there is a primitive universal in the mind (for though one perceives the particular, perception is of the universal – e.g. of man but not of Callias the man).[35]

This would suggest that one can take a shortcut to the universal by contemplating just one individual of a species and save oneself the trouble of induction,

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32 See Sten Ebbesen, *Commentators and Commentaries on Aristotle's Sophistici Elenchi: A Study of Post-Aristotelian Ancient and Medieval Writings on Fallacies* (Leiden: Brill, 1981), 1:141–58; reprinted as "Porphyry's Legacy to Logic: A Reconstruction," in *Aristotle Transformed*, ed. R. Sorabji (London: Duckworth, 1990), 141–71. See also Ebbesen, "Imposition of Words."

33 Avicenna, *The Metaphysics of Healing: A Parallel English-Arabic Text* [= *al-Ilahīyāt min al-Shifāʾ*], trans. M. Marmura (Utah: Brigham Young University Press. 2004), 7; Avicenna Latinus, *Liber de philosophia prima sive scientia divina* I–IV, ed. S. Van Riet (Louvain: Peeters / Leiden: Brill, 1977), 1.2, 10. For more about Avicennian *maʿānī*, see chapter three in this volume, 95–140.

34 Cf. Ana María Mora-Márquez and Iacopo Costa, "Radulphus Brito," in *The Stanford Encyclopedia of Philosophy*, ed. E. N. Zalta (2018), https://plato.stanford.edu/archives/spr2018/entries/radulphus-brito/.

35 *APo*. 2.19, 100a15–b1; trans. J. Barnes, *Posterior Analytics* (Oxford: Clarendon Press, 1975).

and indeed someone like Radulphus Brito thought this was possible, although he did not believe substantial forms to be directly accessible to the senses. Rather, inspired by Averroes, he thought that *operatio arguit formam*: the function reveals the form. And the essential functions of the form of, for instance, man are accessible to perception (plus a little intellectual processing of the data provided by the senses): we can see, hear, and feel by touch that a human being metabolises food and grows, that it moves and senses, even that it reasons. These are the outward manifestations, the *apparentia*, of a form – a soul – comprising the nutritive, the perceptual, and the thinking part. Brito thought that it does not necessarily take observation of several humans to recognise that the defining feature of being rational is apt to be shared by several individuals or that having sensation (the defining feature of an animal) is apt to be shared by even more individuals.

Some forty years after Brito, Nicholas of Autrécourt (d. 1369) in the 1330s caused consternation by claiming that there was no way to infer the existence of a substance from the existence of accidents. With this strike at the heart of Aristotelian ontology and epistemology he became a harbinger of later revolts against Aristotelianism, which culminated in David Hume's critique of the notion of substance.

7.5 *Can Extra Information Ride Piggy-Back on Sense-Perception?*

In a famous passage Avicenna claims that in sensing an object an animal may get a *maʿnā* out of the situation that is not actually conveyed by the senses.[36] The example is a lamb seeing a wolf: besides what the lamb sees, it also comes into possession of a *maʿnā*, namely the hostility of the wolf: this is the *maʿnā* of the wolf, the meaning it has to this type of observer. *Maʿnā* was translated as *intentiō* in Latin, and in the Western tradition many people would say that two sorts of information may be extracted from the process of perception, namely perceived forms (*species sensatae*) and imperceptible intentions (*intentiones insensatae*). The imperceptible intentions are not, strictly speaking, formal traits of the object – certainly they are not essential traits, and at most they are formal in the weak sense in which properties in the categories of relation, time, and place may be said to be "formal."

36 Avicenna, *al-Shifāʾ*, *al-Nafs*, ed. F. Rahman (Oxford: Oxford University Press, 1959), 43 and 166; Avicenna, *Liber de anima seu Sextus de naturalibus*, ed. S. Van Riet (Louvain: Éditions Orientalistes / Leiden: Brill, 1968), vol. 2, 4.1, 6.79–84.

8 Contributions to This Volume

As in many other matters, so in the matter of concept formation and concept use Aristotle has a richer story to offer than Plato, but also a story that is riddled with holes – untold parts of the story that are needed to make the parts he actually tells cohere properly. Countless generations of Aristotelians – Greek, Arabic, and Latin alike – have tried to develop the story into a coherent whole, sometimes by importing into it ideas that are fundamentally foreign to Aristotelian thought, but often rather (or also) by developing hints offered by the old master. The most famous (or infamous) example is offered by the many developments of the obscure remarks about an active or productive intellect in *De anima* 3.5. Many interpreters think that Aristotle introduced the agent intellect in order to explain how essences become actually intelligible. Namely, to become actually intelligible, they have to be separated from the external world in which they exist and transferred to the soul. But this act of separation, which was later termed "abstraction," can itself only be an act of intellection, and it seems impossible that an intellect which has "no other nature than this, that it is potential" (*de An.* 3.4, 429a21–22) – admittedly, that is our human intellect – should be able to carry out such an act. So, in addition to the potential or passive intellect, an active one is needed.

The nature of this active intellect has been the subject of endless controversy. Aristotle left a clue of sorts by comparing the active intellect to light (*de An.* 3.5, 430a14–17). This momentous comparison is the subject of chapter one by Börje Bydén. One should keep in mind that on Aristotle's theory even visible objects, although they do act on the eye and thereby cause episodes of vision, can only do so under certain circumstances, namely when the body intervening between the visible object and the eye is illuminated. Apparently, then, the actualisation of intelligible objects should be in some way analogous to the actualisation of visible objects by light. It remains a moot point, though, how this is supposed to overcome the obvious disanalogy: essences are not like colours and the potential intellect is not like the eye. Bydén shows how Aristotle's followers, from his successor Theophrastus to Byzantine scholars, grappled with the comparison.

Another absolutely crucial text of Aristotle's, as we have seen, is *De interpretatione* 1. One may wonder if the whole notion of a concept would have come to play such an important role in both past and present philosophy, were it not for that text. In chapter two, David Bennett begins with the semantic triad from that chapter – "spoken sounds, *pathēmata*, *prāgmata*" – and considers how the Arabic reception of these notions resulted in a transformation of *prāgmata* into *maʿānī* (sing. *maʿnā*), conceptual properties. Bennett argues that the introduction of *maʿānī* was a feature of the Arabic translations of

Aristotle (this may have just been a case of translators being weird), and the contemporary theological discourse on concepts and their referents. So, the paper serves a dual purpose, as indicated by the ambiguous title ("Introducing the *Maʿānī*"): it shows how the term *maʿnā* was introduced to the philosophical tradition, with all the semantic complexity it entailed, and it introduces the term to historians of philosophy, who have (perhaps) only come across it in its later, *intentio* phase.

The problems associated with the interpretation of *maʿnā* in Arabo-Islamic heritage turn out to be numerous, multifaceted, and long-standing. In chapter three, Seyed N. Mousavian confines his attention to Avicenna (Ibn Sīnā, c.980–1037) and puts forward a new perspective on the study of *maʿnā* by focusing on the "semantic" features attributed to it. He begins with an exposition of a scholarly disagreement on the interpretation of Avicenna's *The Interpretation*, in the context of Aristotle's *De interpretatione* 1, 16a7, between Dimitri Gutas and Deborah Black. Mousavian's study has three main sections. First, he looks into Avicenna's use of the term *maʿnā* and tries to explicate its technical use in some of his major works insofar as it relates to some other key concepts, such as signification and (genuine) definition, in his semantics. Second, Mousavian develops further the semantics of *maʿnā* in the context of Avicenna's logic and epistemology. His interpretation is used to explain two major logical distinctions among *maʿānī*, namely particularity vs. universality and uniqueness vs. generality, and to argue that *maʿānī* have various epistemological profiles, namely they may be intelligible, imaginable, or sensible. Third, Mousavian returns to the disagreement between Gutas and Black and explains where he thinks Gutas' argument goes astray. By putting different pieces of his interpretation together, Mousavian provides a more detailed account of the semantics of *maʿnā* and indicates some subtle points at which his reading differs from Black's.

Long before Avicenna, al-Jāḥiz's (776–868) influential view was based on the idea that "the expression is a body for the *maʿnā*, and the *maʿnā* is a soul to the expression [...] a *maʿnā* can exist without having a name, but there is no name without a *maʿnā*" (see 82n18 below). The latter claim, that is "there is no name without a *maʿnā*," immediately raises the question: What are *maʿānī*? In chapter four, Seyed N. Mousavian tries to reconstruct, at least partly, his reading of Avicenna's reply to the question. Mousavian extends that picture and applies it to some, but not all, cases of "apparent reference failure." First, he introduces the problem, the standard interpretation of Avicenna's reply, and his reasons for being dissatisfied with this interpretation. Then, in a series of short sections, he explains Avicenna's view on the distinction between the truth conditions of a simple negative predicative proposition and the nature of the proposition. Accordingly, he suggests a semantic analysis of past and

future propositions that is, in principle, applicable to propositions about imaginary objects and the assumptions in *reductio ad absurdum* arguments. At the end, Mousavian shows how his alternative interpretation can solve the original problem without leading to the undesirable consequences of the standard reading.

In chapter five, Ana María Mora-Márquez focuses on two distinct operations crucial to concept formation that were in the focus of the medieval Latin Aristotelian tradition, abstraction and intellection. The chapter analyses the accounts in commentaries on Aristotle's *De anima* by three thirteenth-century scholars who are representative of three notoriously different accounts of concept formation: Albert the Great (c.1200–1280), Siger of Brabant (c.1240–1284) and Radulphus Brito (c.1270–1320). Mora-Márquez formulates what she calls the "medieval integration challenge for intellection" (MICI). The challenge is to account for intellection by means of a (1) non-cognitive/non-epistemic, (2) plausible and (3) positive link between intellection and essences that (4) makes intellection a good basis for non-accidental knowledge about them. All three philosophers, Mora-Márquez shows, meet (1) and (3). Siger fails to meet (4), on which Brito fares better, but leaves a gap as regards (2). Mora-Márquez argues that only Albert succeeds in meeting all four conditions. Although the three philosophers have structurally similar accounts, in that they all understand concept formation as crucially composed of two distinct psychological processes – intellection and abstraction – by submitting their accounts to the test of MICI, Mora-Márquez exposes subtle but substantial differences between their accounts.

Like Siger of Brabant, John of Jandun (c.1285–1328) subscribed to Averroes' (Ibn Rushd, 1126–1198) controversial view that all human beings, when they think, take part in one and the same intellect, which is unembodied and eternal. This view has been considered a threat to the Christian doctrine of personal immortality and it was criticised by a number of medieval Latin philosophers, most famously by Thomas Aquinas (1225–1274). However, Averroist monopsychism had its philosophical strengths, especially as an interpretation of Aristotle's *De anima* 3.4–8, so it has never been short of supporters, at least until the seventeenth century. In chapter six, Michael Stenskjær Christensen shows how John of Jandun was guided by monopsychist premises in his discussion of one typical Aristotelian philosophical micro-problem, that is the problem of simultaneous thought. In his *De anima* 3.2 and *De sensu* 7, Aristotle wonders whether simultaneous perception of two or more sensible qualities is possible (incidentally, this problem is also discussed by Juhana Toivanen in the first volume of this series), and Jandun raises the same problem for thought in connection with Aristotle's *De anima* 3.6, where Aristotle discusses composite

thoughts. Whereas most interpreters, before and after Jandun, believe that Aristotle would not admit simultaneous thinking of two or more unrelated objects, Jandun argues that this is possible and Christensen suggests that he came to defend that non-standard position because of his monopsychist commitments. Such commitments come with a certain set of ideas about the structure and operation of human mind, which is something that Christensen's chapter brings to light.

Finally, in chapter seven, ALEXANDER GREENBERG considers what we can learn by comparing Aristotle's views about concept acquisition to seemingly similar contemporary theories. Aristotle is usually taken to have an empiricist theory of concept possession, according to which all concepts derive from sense perception. Now in contemporary philosophy and psychology, concept empiricism has seen something of a resurgence, having been defended by the philosopher Jesse Prinz and the psychologist Lawrence Barsalou. Greenberg's focus in this chapter is on how these contemporary theories are similar to Aristotle's concept empiricism and how they differ from it. Greenberg suggests that the key difference in Aristotle's account of concept acquisition is that, despite being empiricist, it gives a greater role to the intellect than contemporary theories do. Greenberg also suggests that this key difference might be an advantage that an Aristotle-inspired concept empiricism has over contemporary concept empiricism. Thus, Greenberg's chapter highlights how an issue which has been at the heart of the Aristotelian tradition – the question of what role the intellect plays in concept acquisition and learning, and how it transcends perception – has relevance for contemporary debates in the philosophy of mind.

We hope this volume clearly demonstrates that, although the old master's body may have been cremated more than 2,300 years ago, his intellect has remained very much alive, from antiquity to date.

9 The Resources

As we have pointed out in section two above, Aristotle's theory of cognition and conceptualisation has to be reconstructed from several places. The first central text is *De anima*, especially chapters 2.5–3.2 on sense perception, chapter 3.3 on imagination, and chapters 3.4–8 on the thinking part of the soul. The second place to look at is the collection of short psycho-physiological treatises known as the *Parva naturalia*, where the first two are of immediate relevance: *De sensu et sensibilibus*, which supplements Aristotle's treatment of sense perception in *De anima*, and *De memoria et reminiscentia*, which gives an account of memory

and the human ability to recall things that do not present themselves automatically when needed. For the editions and translations of *De anima* and *Parva naturalia*, we refer the reader to the introduction to volume one of this series.[37]

Another central text is the very first chapter of *De interpretatione*, where we find a brief sketch of the relationship between linguistic items and the corresponding mental and extramental items. This chapter has been described as "the most influential text in the history of semantics."[38] The latest critical edition was prepared by Hermann Weidemann.[39] The standard English and German translations with accompanying commentaries are by John Ackrill and Hermann Weidemann, respectively.[40] A book-length commentary on this one chapter of *De interpretatione*, with extensive bibliography, is Simon Noriega-Olmos' *Aristotle's Psychology of Signification*.[41]

The very first chapter of *Metaphysics* (1.1) and the very last chapter of *Posterior Analytics* (2.19) tell a story of how we get from sense perception and memory, through experience (*empeiría*) – a sort of knowledge or aptitude in a limited sphere which involve a range of experiential notions (*ennoēmata*) – to art (*téchnē*) and science (*epistēmē*), that is the productive and theoretical knowledge in a certain domain. Such knowledge operates with causal explanations and it can be taught. If coupled with the ability to grasp the first principles, which is called "intellect" (*nóus*), theoretical knowledge can be organised into a system of demonstrations from the first principles. *Nicomachean Ethics* 6.3–4 can be profitably read as a larger framework of that story.

There are countless editions, translations and commentaries on these three texts, so we can only list a few. The critical editions in the Oxford Classical Text series are considered standard.[42] The most widely used English translations of these works can be found in the Oxford translation of the complete

37 Pavel Gregoric and Jakob Leth Fink, "Sense Perception in Aristotle and the Aristotelian Tradition," in *Forms of Representation in the Aristotelian Tradition, Volume One: Sense Perception*, ed. J. Toivanen (Brill: Leiden, 2022), 34–39.

38 Norman Kretzmann, "Aristotle on Spoken Sound Significant by Convention," in *Ancient Logic and its Modern Interpretation*, ed. J. Corcoran (Dordrecht: Springer, 1974), 3.

39 Aristotle, *De interpretatione*, ed. H. Weidemann (Berlin: De Gruyter, 2014).

40 Aristotle, *Categories and De interpretatione*, translated with notes and glossary by J. L. Ackrill (Oxford: Clarendon Press, 1963); Aristotle, *Peri hermeneias*, translation and commentary by H. Weidemann (Berlin: Akademie Verlag, 1994, 2002).

41 Simon Noriega-Olmos, *Aristotle's Psychology of Signification: A Commentay on De interpretatione 16a13–18* (Berlin: De Gruyter, 2013). See also C. W. A. Whitaker, *Aristotle's De interpretatione: Contradiction and Dialectic* (Oxford: Clarendon Press, 1996), 8–34, and Deborah K. W. Modrak, *Aristotle's Theory of Language and Meaning* (Cambridge: Cambridge University Press, 2001), 1–50.

42 Aristotle, *Metaphysica*, ed. W. Jaeger (Oxford: Clarendon Press, 1957); Aristotle, *Analytica priora et posteriora*, ed. W. D. Ross (Oxford: Clarendon Press, 1964); Aristotle, *Ethica Nicomachea*, ed. I. Bywater (Oxford: Clarendon Press, 1920).

works of Aristotle, prepared under the editorship of William D. Ross in the early twentieth century and updated by Jonathan Barnes in 1984.[43] Barnes also wrote an influential translation and commentary of *Posterior Analytics*.[44] The volume with proceedings from the Symposium Aristotelicum on *Posterior Analytics*, published in 1981, contains still relevant papers, especially by Myles Burnyeat and Charles Kahn.[45] Giuseppe Cambinano provides a careful analysis of *Metaphysics* 1.1 in his contribution to the volume with proceedings from the Symposium Aristotelicum on the first book of *Metaphysics*.[46]

There are several Greek and Arabic as well as a host of Latin commentaries on these works. Among late ancient Greek ones we may mention Ammonius' on *De interpretatione*, composed in Alexandria in the years around 500, and his pupil, John Philoponus' on *De anima* (book three only preserved in a medieval Latin translation). The first Latin commentator was Manlius Boethius (early sixth century), who produced two commentaries on *De interpretatione*, both rooted in the Greek tradition, and highly influential in medieval and early modern scholasticism. All Greek commentaries from antiquity, and a few medieval ones, were published in the Prussian Academy's *Commentaria in Aristotelem Graeca* series (1882–1909). English translations of many of them have appeared in the *Ancient Commentators on Aristotle* series, edited by Richard Sorabji (published from 1987 to 2010 by Duckworth and since 2011 by Bloomsbury), where one also finds translations of a major part of the bigger of Boethius' two companions to *De interpretatione*. The still largely unedited Greek material from the Byzantine period is to appear in the *Commentaria in Aristotelem Graeca et Byzantina* series (De Gruyter, 2020–).

Among the Arabophone philosophers, al-Fārābī (c.872–951), Avicenna, and Averroes are perhaps best known to have developed the Aristotelian proposals for how to understand the formation and use of concepts, each in his own way. In Latin translation, relevant parts of Avicenna's monumental encyclopaedia *al-Shifāʾ* and Averroes' commentaries on *De interpretatione*, *De anima*, and *Metaphysics* were to have a major impact on Western scholasticism. There are twentieth-century editions of the Latin translation of parts of *al-Shifāʾ* and of Averroes' "Long" *De anima* commentary (only extant in Latin), as well as older

43 *The Complete Works of Aristotle: The Revised Oxford Translation*, ed. J. Barnes, 2 vols (Princeton: Princeton University Press, 1984).

44 Aristotle, *Posterior Analytics*, translated with a commentary by J. Barnes (Oxford: Clarendon Press, 1975, 2nd ed. 1993).

45 Myles Burnyeat, "Aristotle on Understanding Knowledge", in *Aristotle on Science*, ed. E. Berti (Padua: Antenore: 1981), 97–139; Charles H. Kahn, "The Role of *Nous* in the Cognition of First Principles in *Posterior Analytics* II 19," in ibid., 385–414.

46 Giuseppe Cambiano, "The Desire to Know", in *Aristotle's Metaphysics Alpha*, ed. C. Steel (Oxford: Clarendon Press, 2012), 1–42.

uncritical editions of all of the Latin translations of Avicenna and Averroes.[47] Translations of the relevant texts into modern languages are still scant,[48] but this trend is changing as the wealth of the Arabic philosophical tradition is being unlocked and studied by an increasing number of scholars and historians of philosophy versed in Arabic. General introductions to Avicenna's and Averroes' life and work can be found in the monographs by Dimitri Gutas, Jon McGinnis, Majid Fakhry, and Matteo Di Giovanni.[49] On the subject of the intellect in cosmology as well as in human psychology, the reader may wish to consult Herbert A. Davidson's monograph and the recent volume edited by Meryem Sebti and Daniel De Smet, which contains chapters on several philosophers before Averroes.[50]

From the twelfth century onwards, there was a massive production of Latin commentaries on the central Aristotelian texts – in the twelfth century only on *De interpretatione*, later also on all the rest. From the thirteenth century alone, some 25 on *De interpretatione* are still extant. However, most of the works from the medieval period have never been edited, and standard histories of philosophy tend to concentrate on authors who were members of religious orders, and whose confrères not only facilitated the manuscript diffusion of their literary legacy but also took care to have it printed at an early date, and later in several cases critically edited. The Dominicans Albert the Great and Thomas Aquinas, and the Franciscan John Duns Scotus (c.1265–1308) are among the most famous

47 Avicenna, *Liber de anima seu Sextus de naturalibus*, ed. S. Van Riet, 2 vols. (Louvain: Peeters / Leiden: Brill, 1972; vol. 2, Louvain: Éditions Orientalistes / Leiden: Brill, 1968); Avicenna, *Liber de philosophia prima sive scientia divina*, ed. S. Van Riet, 2 vols. (Louvain: Peeters / Leiden: Brill, 1977–1980); Avicenna, *Logica* (*Logique du Šifāʾ*), ed. F. Hudry (Paris: Vrin, 2018); Averroes, *Commentarium magnum in Aristotelis De anima libros*, ed. F. S. Crawford (Cambridge, MA: The Mediaeval Academy of America, 1953).

48 Al-Fārābī, *Commentary and Short Treatise on Aristotle's De interpretatione*, trans. F. W. Zimmermann (London: Oxford University Press, 1981); Avicenna, *Metafisica* (Milano: Bompiani, 2002) contains the Arabic text, a reprint of Van Riet's edition of the Latin translation and an Italian translation by O. Lizzini; Averroes, *Commentaire moyen sur le De interpretatione*, trans. A. Benmakhlouf and S. Diebler (Paris: Vrin, 2000); Averroes, *Long Commentary on the De Anima*, trans. R. C. Taylor (New Haven: Yale University Press, 2009).

49 Dimitri Gutas, *Avicenna and the Aristotelian Tradition* (Leiden: Brill, 2014); Jon McGinnis, *Avicenna* (New York: Oxford University Press, 2010); Majid Fakhry, *Averroes* (*Ibn Rushd*): *His Life, Works and Influence* (Oxford: Oneworld, 2001); Matteo Di Giovanni, *Averroè* (Rome: Carocci, 2017). For al-Fārābī, see Ulrich Rudolph, "Chapter 8: Abū Naṣr al-Fārābī," in *Philosophy in the Islamic World*, vol. 1: *8th–10th Centuries*, ed. U. Rudolph, R. Hansberger, and P. Adamson, trans. R. Hansberger (Leiden: Brill, 2017), 526–654.

50 Herbert A. Davidson, *Alfarabi, Avicenna, and Averroes, on Intellect* (New York: Oxford University Press, 1992); Meryem Sebti and Daniel De Smet, eds., *Noétique et théorie de la connaissance dans la philosophie arabe du IX^e au XII^e siècle: Des traductions gréco-arabes aux disciples d'Avicenne* (Paris: Vrin, 2019).

examples. Since about 1950 increased attention has been accorded to the products from the arts faculties, in particular that of the University of Paris. There is a huge literature on epistemology in Latin Aristotelianism, but few translations into modern languages of the relevant commentaries on Aristotle.[51] Some guidance into the field may be found in part six ("Metaphysics and Epistemology") of *The Cambridge History of Later Medieval Philosophy* and in part four ("Soul and Knowledge") of the first volume of *The Cambridge History of Medieval Philosophy*.[52]

51 Even Thomas Aquinas has been translated only fragmentarily. See the list in *Thomas Aquinas in English: A Bibliography*, at http://aquinas-in-english.neocities.org/. We are only aware of one translation of a whole question commentary on *De interpretatione*: John Duns Scotus, *Duns Scotus on Time & Existence: The Questions on Aristotle's De Interpretatione*, trans. E. Buckner and J. Zupko (Washington, DC: Catholic University of America Press, 2014). This, in fact, contains both of Scotus' two sets of questions on *De interpretatione*.

52 Norman Kretzmann, Anthony Kenny, and Jan Pinborg, eds., *The Cambridge History of Later Medieval Philosophy* (Cambridge: Cambridge University Press, 1982), 383–517; Robert Pasnau and Christina Van Dyke, eds., *The Cambridge History of Medieval Philosophy* (Cambridge: Cambridge University Press, 2010), 1:293–396.