

Forms of Representation in the Aristotelian Tradition

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Forms of Representation in the Aristotelian Tradition

Volume One: Sense Perception

Edited by

Juhana Toivanen



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Preface

Christina Thomsen Thörnqvist and Juhana Toivanen

The common title of the present three volumes, *Forms of Representation*, echoes the name of the research project that made them possible. *Representation and Reality: Historical and Contemporary Perspectives on the Aristotelian Tradition* was funded by Riksbankens jubileumsfond, Sweden, and hosted by the University of Gothenburg from 2013 to 2019. The project enabled a group of specialists on Greek, Latin, and Arabic Aristotelianism to join forces in a study of various processes and phenomena involving mental representation in late ancient, Byzantine, medieval Latin, and Arabic commentaries on the *Parva naturalia* until c.1400. Furthermore, the project concentrated on the three philosophical themes that are the topics of the three parts of the present collection: sense-perception, dreaming, and concept formation.

Two circumstances in particular have influenced the character of these volumes: the breadth of the project of which they are the outcome, and the fact that almost none of the relevant sources had been edited before the project started. An important aim of *Representation and Reality* was to make a number of unedited medieval commentaries on Aristotle's *De sensu et sensibilibus* and the treatises on sleep and dreams (*De somno et vigilia*, *De insomniis*, *De divinatione per somnum*) available in modern critical editions. Several of the chapters aim at offering an analysis of the Aristotelian problems discussed in these texts, which were edited for the first time under the auspices of the project. Other chapters focus instead on one specific philosophical problem dealt with by more than one linguistic tradition and seek to map out the interactions between them. Some chapters highlight the fact that the study of the reception triggers new questions regarding Aristotle's own account, and some chapters deal with the aftermath of Aristotle and his commentators long after the middle ages had come to an end. What links the chapters and the volumes together is the fact that they all in one way or another, directly or indirectly, demonstrate how Aristotle's successors understood, explained, and further developed the idea that when we perceive, dream, think, or communicate about the external world, reality is somehow represented in our mind. Reality is present to us first and foremost through sense-perception (vol. 1), whereas dreams (vol. 2) and concepts (vol. 3) take us in opposite directions, one of representation in detachment from reality and the other of representation supposedly revealing the truth of reality.

We expect many of our readers, but not all, to be specialists in ancient and medieval philosophy. For those who are not familiar with a broader historical background, the general introduction in volume one offers an overview of the origin and development of Aristotelianism, its sources and literary genres. In addition, each of the three volumes contains an individual introduction that serves several purposes: to provide an overview of the works of Aristotle that are the starting point for the chapters in each respective volume, to present the main philosophical problems that form the core of the historical discussions, and to show how each chapter relates to Aristotle's account and to the other chapters in the same volume. Each volume then proceeds chronologically, covering discussions from all three linguistic traditions, and occasionally pointing out connections to contemporary philosophical discussions.

The fundamental aim of the present volumes is to offer a broad range of interesting examples of how the late ancient and medieval commentary tradition on the *Parva naturalia* and related parts of Aristotle's other writings contributed to the development of philosophical theories on mental representation. Our sincere hope is that these examples will spark the interest for further philological and philosophical research into this and the many other related, and still understudied, aspects of ancient and medieval philosophy.

...

The generous funding of Riksbankens jubileumsfond made it possible to form an unusually large research group – especially for research within the humanities – that was able to work together for an exceptionally long period. The members of the research group would like to thank Riksbankens jubileumsfond for this extraordinary scholarly experience and for its competent and constant support throughout the project.

Over the seven years that the project ran, more than one hundred scholars from around the world visited the project and contributed to its results. For the present volumes, we are particularly grateful to the project's advisory board for their advice and encouragement: Peter Adamson (Ludwig-Maximilians-Universität München), Joël Biard (Université François-Rabelais, Tours), David Bloch (University of Copenhagen), Charles Burnett (The Warburg Institute), Victor Caston (University of Michigan), Paolo Crivelli (Université de Genève), Silvia Donati (Albertus-Magnus-Institut), Eyjólfur Kjalar Emilsson (University of Oslo), Henrik Lagerlund (University of Stockholm), John Magee (University of Toronto), Costantino Marmo (Università di Bologna), Robert Pasnau (University of Colorado), Dominik Perler (Humboldt-Universität zu Berlin), Pasquale Porro (Università degli

Studi di Torino), Christof Rapp (Ludwig-Maximilians-Universität München), and Jack Zupko (University of Alberta).

The members of the research group have continuously discussed and helped improving each other's work. In addition, the chapters in the present volumes were presented and discussed at a series of workshops during 2018–2019, to which a number of specialists were invited as external readers. The authors would like to thank the following scholars for their invaluable suggestions for improvement: Silvia Donati, Thomas Kjeller Johansen (University of Oslo), Jari Kaukua (University of Jyväskylä), Simo Knuuttila (University of Helsinki), Costantino Marmo, Laurent Cesalli (Université de Genève), Henrik Lagerlund, Miira Tuominen (University of Stockholm), Stephen Menn (McGill University), Frans de Haas (Universiteit Leiden), Péter Lautner (Pázmány Péter Catholic University, Budapest), and David Sanson (Illinois State University). The volumes have further benefited considerably from the corrections and suggestions of the anonymous referees.

Our project assistant Andreas Ott has been an invaluable resource throughout the project; his skilled support has significantly contributed to its outcome. We are also grateful to David Bennett for assisting us in finalising the indices, and to Jarno Hietalahti for his assistance in formatting the volumes. Last but not least, Jordan Lavender (University of Notre Dame) has saved the authors and editors from many blunders; not only has he prepared the indices and the bibliography, he has also corrected our English and made many valuable suggestions for improvements on the basis of his profound knowledge of the history of philosophy and his talent for research in general.

Abbreviations

<i>APo.</i>	Aristotle, <i>Analytica posteriora</i>
<i>APr.</i>	Aristotle, <i>Analytica priora</i>
<i>Cael.</i>	Aristotle, <i>De caelo</i>
<i>Cat.</i>	Aristotle, <i>Categoriae</i>
<i>de An.</i>	Aristotle, <i>De anima</i>
	Alexander of Aphrodisias, <i>De anima</i>
<i>De an.</i>	Adam of Buckfield, <i>De anima</i>
	Albert the Great, <i>De anima</i>
<i>De hom.</i>	Albert the Great, <i>De homine</i>
<i>de Int.</i>	Alexander of Aphrodisias(?), <i>De intellectu</i>
	Philoponus, <i>De intellectu</i>
<i>De sensu</i>	Albert the Great, <i>De sensu et sensato</i>
<i>De somno</i>	Albert the Great, <i>De somno et vigilia</i>
<i>De veg.</i>	Albert the Great, <i>De vegetabilibus</i>
<i>EN</i>	Aristotle, <i>Ethica Nicomachea</i>
<i>Exp. Sens.</i>	All exposition commentaries on <i>Sens.</i>
<i>Exp. Somn. Vig.</i>	Walter Burley, <i>Expositio in Somn. Vig.</i>
<i>GA</i>	Aristotle, <i>De generatione animalium</i>
<i>GC</i>	Aristotle, <i>De generatione et corruptione</i>
<i>HA</i>	Aristotle, <i>Historia animalium</i>
<i>in Cat.</i>	Ammonius, <i>In Aristotelis Categorias commentarius</i>
	Simplicius, <i>In Aristotelis Categorias commentarium</i>
<i>in de An.</i>	Simplicius, <i>In libros Aristotelis De anima commentaria</i>
	Philoponus, <i>In Aristotelis De anima libros commentaria</i>
	Priscian of Lydia, <i>In libros Aristotelis De anima commentaria</i>
	Ps.-Philoponus, <i>In Aristotelis De anima librum 3</i>
	<i>commentarium</i>
	Themistius, <i>In libros Aristotelis De anima paraphrasis</i>
<i>In De somno</i>	Adam of Buckfield, <i>Commentarium in De somno et vigilia</i>
<i>In Metaph.</i>	Alexander of Aphrodisias, <i>In Aristotelis Metaphysica</i>
	<i>commentaria</i>
<i>In Mete.</i>	Alexander of Aphrodisias, <i>In Aristotelis Meteorologicorum</i>
	<i>libros commentaria</i>
	Olympiodorus, <i>In Aristotelis Meteora commentaria</i>
<i>In Sens.</i>	Alexander of Aphrodisias, <i>In librum De sensu commentarium</i>

<i>In tertium de An.</i>	Siger of Brabant, <i>Quaestiones in tertium De anima</i> Radulphus Brito, <i>Quaestiones in Aristotelis librum tertium De anima</i>
<i>Insomn.</i>	Aristotle, <i>De insomniis</i>
<i>Int.</i>	Aristotle, <i>De interpretatione</i>
<i>Juv.</i>	Aristotle, <i>De juventute</i>
<i>Liber Sens.</i>	Roger Bacon, <i>Liber de sensu et sensato</i>
<i>Long.</i>	Aristotle, <i>De longitudine et brevitae vitae</i>
<i>MA</i>	Aristotle, <i>De motu animalium</i>
<i>Mem.</i>	Aristotle, <i>De memoria et reminiscencia</i>
<i>Metaph.</i>	Aristotle, <i>Metaphysica</i>
<i>Mete.</i>	Aristotle, <i>Meteorologica</i>
<i>Quaest. De animal.</i>	Albert the Great, <i>Quaestiones super De animalibus</i>
<i>Quaest. Sens.</i>	All question commentaries on <i>Sens.</i>
<i>Quaest. Somn. Vig.</i>	All question commentaries on <i>Somn. Vig.</i>
<i>PA</i>	Aristotle, <i>De partibus animalium</i>
<i>Ph.</i>	Aristotle, <i>Physica</i>
<i>Phys.</i>	Albert the Great, <i>Physica</i>
<i>Rep.</i>	Plato, <i>Republic</i>
<i>Resp.</i>	Aristotle, <i>De respiratione</i>
<i>Tim.</i>	Plato, <i>Timaeus</i>
<i>SE</i>	Aristotle, <i>Sophistici Elenchi</i>
<i>Sens.</i>	Aristotle, <i>De sensu et sensibilibus</i>
<i>Sent. de An.</i>	Thomas Aquinas, <i>Sentencia libri De anima</i>
<i>Sent. Sens.</i>	Thomas Aquinas, <i>Sentencia libri De sensu et sensato</i>
<i>ST</i>	Thomas Aquinas, <i>Summa Theologiae</i>

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General Introduction

Sten Ebbesen

1 Contents of the Volumes¹

This is the first of three volumes, written jointly by participants in a seven-year research project *Representation and Reality* (2013–2019). This project, funded by the Swedish National Bank's Tercentenary Foundation (*Riksbankens Jubileumsfond* in Swedish), has united historians of philosophy working on topics concerning sense-perception, dreaming and conceptualisation in the Aristotelian tradition from antiquity through the end of the middle ages, in all of the three major cultural spheres in which that tradition flourished: the Greek, the Arabic and the Latin.²

Each volume can be read by itself, but to avoid tedious repetition the following general introduction about the Aristotelian tradition and the source material at our disposal will only appear in the present, first, volume.

2 An Outline of the History of the Aristotelian Tradition

“The Aristotelian Tradition” is a blanket term designed to cover philosophers, philosophical thinking and philosophical writings that, in one way or another, depend on the seminal work of Aristotle (384–322 BC).

Being a fully-fledged Aristotelian implies believing that the world is fundamentally intelligible, and that to understand it we need a number of distinctions, notably the distinctions (1) between potency and actuality, (2) between a thing's matter and its form, (3) between a thing's inalterable substance or essence and its (in principle) changeable accidental properties and (4) between nine different sorts of accidental properties (quantity, quality,

1 This introduction was written by Ebbesen, but went through several readings by the whole *Representation and Reality* team, which resulted in numerous changes. The author owes particular thanks to Pavel Gregoric for incisive critique and a wealth of proposals for additions and reformulations, and to David Bennett for information about the Arabophone tradition.

2 A much smaller precursor project on the Aristotelian tradition in logic and metaphysics, also funded by *Riksbankens Jubileumsfond*, ran 2009–2011 and resulted in the anthology *The Aristotelian Tradition: Aristotle's Works on Logic and Metaphysics and Their Reception in the Middle Ages*, ed. B. Bydén and C. Thomsen Thörnqvist (Toronto: Pontifical Institute of Mediaeval Studies, 2017).

relation etc.), which together with substance make up the ten so-called categories. It also implies holding that genuine “scientific” knowledge consists in knowing *why* something is or happens the way it is or happens, and that genuine knowledge is about universals, but has its foundation not in some Platonic world of ideas but in input from the senses, which deal with particulars. Moreover, it implies holding that there are four fundamental types of explanations why something is the case or happens: (1) one may refer to an (external) “efficient” cause, (2) to the matter of the thing involved, (3) to its form, (4) to its purpose. All natural things are composites of matter and form, and everything in nature can be assigned a purpose: “Nature does nothing in vain,” as Aristotle repeatedly says. In living beings the form is what is usually called a soul.

Being a fully-fledged Aristotelian further implies believing that the world is sempiternal, i.e., it has neither a beginning nor an end in time, and that it is stable in the sense that its inventory of types of things and processes is unchangeable, while the whole machinery is kept in motion by a desire for God, the unmoved mover, who – being an intellect – unceasingly thinks and is himself the content of his thought.

Many philosophers have wholeheartedly embraced all the Aristotelian theses mentioned; others, while accepting most of them, have partly or completely rejected certain others. For instance, medieval Christians and Muslims struggled with the concept of a sempiternal, uncreated universe, and how to reconcile the aloofness of Aristotle’s God with the God of their faiths. Many also found that there must be a place for something like the Platonic ideas in their epistemology, even if they accepted major parts of Aristotle’s approach to the topic. Still others, while being fundamentally un-Aristotelian, have used and developed Aristotelian ideas – often ideas that have become so integrated into our language and culture that most people nowadays do not even know of their origin.

Most modern scientists are blissfully ignorant of the fact that they are working on an Aristotelian project (outlined in the *Posterior Analytics*) when they aim to discover universal laws, or at least laws that hold for the most part, and that their craft is called “science” because Aristotle called the goal of intellectual work *epistēmē*, “knowledge,” which was translated into Latin as *scientia*. A modern philosopher discussing the ontological status of universals need not be aware that the pair of universal/particular is Aristotelian (it does not occur in Plato, for instance), or that the discussion he engages in was initiated by Aristotle, but so it was. In the nineteenth century the distinction between potency or possibility and actuality gave rise to the notion of potential energy, and in the twentieth it was employed in possible world semantics with its opposition between possible worlds and the actual one. Some of the modern

uses of the Aristotelian distinctions would have been unacceptable to the old philosopher himself, but still he is part of their historical background.

How did we end up in a world that constantly needs to resort to Aristotelian words like “matter,” “form,” “potential,” “actual,” and “substance”?

Aristotle left behind him a number of pupils, and, importantly, one of them, Theophrastus (c.371–c.287 BC), continued to teach in the Athenian sports centre (*gymnásion*) called the Lyceum. For about a century there was an unbroken chain of successors, each head of the so-called Peripatetic school being followed by another, usually a pupil of the preceding head of the school, and in one way or another the Athenian institution seems to have survived till the early first century BC. Its demise was no catastrophe for Aristotelianism, however, because about the same time it got a new boost as Aristotle's technical treatises, the ones we still have, began to become known to more than a few specialists. These works were known in antiquity as esoteric because they were assumed – no doubt correctly – to have been composed for internal use in Aristotle's school, as opposed to the exoteric, i.e., outward-oriented ones, which, with their literary finish, had enjoyed popularity in the Hellenistic Age but now gradually fell into oblivion with the result that not a single one has survived the end of antiquity. The esoteric works seem to have originated as lecture manuscripts, and with a few exceptions never received from their author the sort of stylistic work-over and other editing that would have made them publishable. This means that there are plenty of rough edges and many ideas which are only adumbrated, not spelled out in detail.

Consequently, when philosophers began to take a serious interest in the esoteric writings, they began to write commentaries on them to clarify unclear points and investigate possible internal inconsistencies. When in the first centuries AD it became common to give courses based on the reading of Aristotelian treatises, the teaching itself became an oral commentary, which, of course, could be and frequently was written down by pupils. The first major extant set of commentaries by one man is due to Alexander of Aphrodisias, who held an imperially endowed chair of Peripatetic philosophy in Athens in the years around AD 200. We still have commentaries by him on parts of Aristotle's logic as well as parts of his natural philosophy and metaphysics, and we know that several more have been lost. The third century marked a turning point in the history of philosophy in that the old Hellenistic schools (Cynicism, Epicureanism, Stoicism) disappeared, not only as institutions (that had happened earlier) but also as schools of thought. Likewise gone was now the mildly sceptical (fallibilistic) sort of Platonism (“the New Academy”) that had thrived in Hellenistic times, as well as the sort of Peripateticism that was as much inspired by Theophrastus and other of Aristotle's successors as by the

founder himself. From now on, a unified Aristoteli-Platonism dominated the philosophical scene in the Roman Empire. Plato was recognised as the master of deep metaphysical thought and the realm of the intelligible, whereas Aristotle was considered the most penetrating thinker in matters relating to logic and the sensible world.

The alliance between Platonism and Aristotelianism was particularly promoted by Porphyry (c.AD 234–c.304), and became widely accepted. The study of philosophy had now become scholastic, i.e., it was organised round a close reading of selected works by the two old masters, and differences of opinion between them were thought to be in many cases eliminable through proper interpretation. In the last centuries of antiquity, Athens and Alexandria housed the leading philosophical schools, but after AD 529, when pagans were banned from teaching, only Alexandria kept up the tradition for a few more generations. However, on a lower level, some traditional philosophical education continued to be offered in the Middle East, not least in the Syriac-speaking community, and this proved to be extremely important for later developments.

By AD 800, the Abbasid caliphate had consolidated its power in the Middle East and Arabic was becoming the dominant language of the sciences. An extraordinary effort was made to translate Greek learning, particularly philosophy and medicine, into Arabic. Much of the translation work was undertaken under the patronage of the caliph's court by Syriac Christians. Translations, especially of Aristotle's works on logic, had been appearing in Syriac since the sixth century, and subsequent generations of specialists were able to work from Syriac intermediary texts as well as Greek originals, eventually establishing a sizeable library of philosophical texts translated into Arabic and a comprehensive technical vocabulary in Arabic for the dissemination of contemporary, Platonising Aristotelianism. The reception of Aristotle and the Greek Commentary tradition shaped the development of Arabophone philosophy.³

In the reduced Greek-language cultural sphere left after the Muslim conquests, philosophy only barely survived, but until the end of the Eastern Roman ("Byzantine") Empire in 1453 there would always be *some* people continuing the study of Aristotle and other ancient thinkers, though never a really blossoming philosophical culture with many students and teachers. And, importantly, in the Greek world it was possible to find in private or public libraries the whole

3 For a convenient survey of Arabic translations of works by Aristotle and his Greek commentators, see Dimitri Gutas, "Greek Philosophical Works Translated into Arabic," in *The Cambridge History of Medieval Philosophy*, ed. R. Pasnau (Cambridge: Cambridge University Press, 2010), 2:802–14.

Corpus Aristotelicum as well as a considerable number of ancient commentaries and other related material.

Throughout antiquity, philosophy was an almost exclusively Greek affair. In the fundamentally bilingual Roman empire, where Greek was the *lingua franca* of the East and Latin of the West, philosophy was mostly studied in Greek, even in the Latinophone part of the empire. An attempt to create an up-to-date Latin philosophical library was made by Marius Victorinus and a few others in the fourth century, but met with only moderate success. A decisive break-through only came with the monumental œuvre of Manlius Boethius from the first decades of the sixth century. Boethius managed to translate Porphyry's *Isagoge* ("Introduction to Aristotle's *Categories*") and most of Aristotle's logic into Latin, while also providing a series of auxiliary works: commentaries on the works of Porphyry and Aristotle as well as introductions to specific themes such as syllogistic. All of those auxiliary works were based on Greek models, and thus presented the Latin world with the results of Greek exegesis as well as its literary forms. The immediate effect of Boethius' works was not all that great because soon after his death horrible wars destroyed the social structures needed to upkeep philosophical studies in the West. But when the situation started to stabilise again in the Carolingian age, Boethius' works slowly began to exert their influence, culminating in their becoming, in the twelfth century, central to philosophical studies and preparing Westerners to go the whole way and acquire translations of all of Aristotle's works, which happened in the course of the twelfth and thirteenth centuries. At all higher schools in the Western world, Aristotle's works were now *the* fundamental books in the teaching of philosophy until at least the sixteenth century. As well as the *Corpus Aristotelicum*, Westerners also received translations of several late-ancient commentaries and some important Arabic works in the Aristotelian tradition, notably Avicenna's (Ibn Sīnā, c.980–1037) philosophical encyclopedia, *al-Shifā* ("The Healing") from the early eleventh century, and a number of Averroes' (Ibn Rushd, 1126–1198) Aristotle commentaries from the second half of the twelfth.⁴

By far the most important location for Aristotelian studies in the West were the universities, with Paris dominating the thirteenth century, Oxford becoming a serious rival in the fourteenth, and several lesser universities in Italy, Germany, Bohemia, and Poland gaining some importance in the fifteenth.

4 For a survey of Latin translations of Aristotle and his Greek commentators, see Michele Trizio, "Greek Aristotelian Works Translated into Latin," in *The Cambridge History of Medieval Philosophy*, ed. R. Pasnau (Cambridge: Cambridge University Press, 2010), 2:793–97.

Besides, some mendicant orders had high-quality schools (*studia*), where Aristotelian philosophy was also studied.

Aristotle and university Aristotelianism (“scholasticism”) came under attack in the Renaissance (i.e., the fifteenth and sixteenth centuries), with the attackers generally turning to the Platonic tradition and its affiliates, such as Hermeticism, for a substitute. Others, however, provided updated versions of Aristotelianism, with the Jesuits playing a crucial role in this movement. The erudite commentaries emanating from the Jesuit university of Coimbra in Portugal, published in the late sixteenth century under the uniform “series title” *Commentarii Collegii Conimbricensis Societatis Jesu*, became standard companions to Aristotle in both catholic and protestant Europe and helped keep Aristotelianism alive throughout the seventeenth century, although new philosophical currents such as Cartesianism and new developments in the sciences severely dented its influence. A last revival of major parts of the Aristotelian tradition came with the Vatican-sponsored Neo-Thomism of the late nineteenth century – an attempt to reinvigorate the thought of Thomas Aquinas that was to dominate catholic universities until the 1960s, although it rarely entered into fruitful dialogue with other currents of thought in the period.

In the Islamic world fully-fledged Aristotelianism was rather more short-lived. After a century and a half of concentrated translation and interpretation of the Aristotelian corpus, chiefly in Baghdad, Avicenna’s writings generally superseded Aristotle’s as the foundations of philosophical erudition. One major exception – and one with a huge impact on the Latin tradition – was the work of Averroes; Averroes expressly sought to recover the original Aristotelian doctrines from their Avicennian interpretation, producing extensive commentaries on many Aristotelian works. But Averroes, working in Muslim Iberia, was largely unknown in the Muslim East, where Avicennian philosophy remained dominant. Nevertheless, as Aristotelian ideas were essential aspects of the Avicennian project, the Peripatetic intellectual genealogy of Arabo-Persian epistemology is evident into the modern period.

So, to sum up: Aristotelianism in the sense of a philosophising that took Aristotle’s writings to be fundamentally trustworthy guides to the truth, flourished in Greek culture from about AD 100 till about 600, with a long, but weaker, after-life in the so-called Byzantine era through the mid-fifteenth century. It has flourished at varying locations in the Arabophone cultural area between 800 and 1200, and in the Latin lands of Western Europe from 1100 till 1600 (and in some places even longer). Its influence is evident in our language: *substance*, *quality*, *quantity*, *relation*, *matter*, *form*, and a host of other words in common use nowadays are all ones we owe to the Aristotelian movement. Ways of thinking that go back to Aristotle or to his followers are deeply embedded in the way

we go about science and many other subjects. Even many of the philosophical problems discussed in post-scholastic philosophy can be shown to have their roots in Aristotelian scholasticism. For instance, in the theory of cognition the question whether one needs to posit some mental representation or sense datum over and above the object thought of or perceived and the act of thinking or sensation themselves is a question that has been bequeathed to modern philosophers by their medieval predecessors. Indeed, the term *repraesentatio* was introduced into the philosophical discussion of cognition at the time of Peter Abelard in the early twelfth century.

3 The Central Aristotelian Sources

For the purpose of the present volume and its two sequels, four of Aristotle's works are central:

- *On the Soul (De anima)*, traditionally divided into three major sections called “books.” Starting with a presentation and refutation of previous views about the nature of the soul, Aristotle arrives in book two at his famous definition of soul as “the first actuality of a natural body furnished with organs,” and then goes on to deal with the five senses (sight, hearing, smell, taste, touch) through which humans access information about the external world, after which he ends with a disquisition into the nature of the intellect from book 3 ch. 4 onwards to ch. 8.⁵
- *On Sense and the Sensibles (De sensu et sensatis or sensibilibus)*, which, like *De anima* book two deals with the external senses, but primarily concentrates on the physics and physiology of sensation.
- *Posterior Analytics (Analytica posteriora)*, the topic of which is scientific knowledge, its characteristics, how it is acquired, and how it should be communicated. In this connection Aristotle offers some influential remarks about the acquisition of universal concepts.
- *On Sleep and Being-Awake, On Dreams, On Divination by means of Dreams (De somno et vigilia, De insomniis, De divinatione per somnia* – also known as *De divinatione per somnum* “On divination in sleep,” which corresponds more closely to the Greek title). Though nowadays usually presented as three separate works, these three treatises are so closely connected to one another that it makes excellent sense to consider them just three sub-units

5 Notice that in the Latin tradition the first three chapters of *De anima* 3 were counted as parts of book 2. The same was the case in the lost Arabic translation(s) used by Avicenna and Averroes, whereas in the only extant Arabic translation they belong to book 3.

of one work. Here Aristotle investigates the physiology of sleep, which he takes to be a shutting-down of the external senses, as well as phenomena such as dreams which indicate that something is going on in the sleepers' mind even though external input has been blocked. He finally considers whether dreams can, in some sense, be claimed to provide information about future events.

All the above treatises are very technical, often explorative rather than dogmatic statements of some finished theory, and often very brief on matters of crucial importance. In other words, they invite commentary.

4 The Genres of Commentary

4.1 *Literal Commentaries*

Literal (i.e., textual) commentaries are the dominant type of commentary in the Greek tradition, where they usually consist of

- A. A preface outlining the theme of the work to be commented on, and settling questions of authenticity and the like.
- B. A continuous series of comments (*scholia*), each covering a portion of the Aristotelian text. The portion covered by each scholium is identified by at least a lemma consisting of its initial words, but sometimes the whole section to be commented on is reproduced at the head of the scholium. Usually, a considerable part of each scholium is taken up by paraphrases of the Aristotelian text so as to make it easier to understand. The commentator may also make digressions in order to discuss some problem of interest in greater depth.

From Greek antiquity we have quite a number of such commentaries. Of particular relevance to our purposes are (1) Alexander of Aphrodisias' commentary on *De sensu et sensibilibus* from about AD 200 and (2) Philoponus', Priscian's, and Simplicius' (or Stephanus' ?) sixth-century commentaries on *De anima*. Apart from Alexander's commentary on *De sensu*, there are no ancient commentaries on the *Parva naturalia*, which seem to have been somewhat neglected in late-ancient teaching, although Priscian in the early sixth century shows familiarity with the treatises about dreams.⁶ The commentary genre was continued in Byzantine times, with Michael of Ephesus' companion to the *Parva naturalia* from the first half of the twelfth century as the most important instance in our context.

6 See Richard Sorabji's introductory note to ch. 3 of Priscian, *Answers to King Khosroes of Persia*, trans. P. Huby et al. (Bloomsbury: New York, 2016), 34–35.

The Greek type of literal commentary was transplanted into Latin soil by Manlius Boethius in the early sixth century, and his format was widely imitated in the early phases of Latin scholasticism. In the Arabophone tradition, Averroes' commentaries from the twelfth century also have this basic form, although Averroes composed "epitomes" and paraphrases as well. There is no evidence of ancient Latin commentaries on any of Aristotle's writings on the soul and its capacities, but there are plenty from the scholastic period in the middle ages (thirteenth century and onwards).

In the thirteenth century, Latin scholasticism developed a new variant of the literal commentary, namely the *lectio* commentary, in which the text under consideration is divided into a number of *lectiones*, i.e., lessons. The teacher then starts each lesson by laying out the main structure of the text, continues with a paraphrase and/or a summary of the contents, and finally adds some *notabilia*, i.e., important points to remember, and some *dubia* or *quaestiones*, i.e., discussions of problems that might seem to arise from the text under consideration.⁷

4.2 Question Commentaries⁸

Beginning in the thirteenth century, the *quaestiones* were often lifted out of the context of the literal commentary, presumably due to a teaching practice in which some lessons were devoted to a close reading of the Aristotelian text, while others were devoted to the discussion of the philosophical problems it might seem to raise. With several variants, depending on time and location, the fundamental format of a scholastic *quaestio* is:

- 0. *It is asked whether....* The question generally allows for only a Yes or a No answer.
- 1. *It seems that No.* A number of arguments for the No answer follow.
- 2. *The opposite is argued.* One or more arguments for the Yes answer is proffered. If only one, then the argument is simply that this is what the text commented on says.

7 A vaguely similar format (the "*praxis* commentary") was used by Greek commentators from the very end of antiquity. See Sten Ebbesen, "Greek and Latin Medieval Logic," *Cahiers de l'Institut du Moyen-Âge Grec et Latin* 66 (1996): 84–87, reprinted in *Greek-Latin Philosophical Interaction: Collected Essays of Sten Ebbesen*, vol. 1 (Aldershot: Ashgate, 2008).

8 The medieval Latin genre of "question commentaries" should not be confused with the genre *kata péusin kai apókrisin* "by question and answer" used by some ancient commentators (but not in texts of relevance to the volumes to which this is an introduction). In the latter, the exegesis of the text is structured by a sequence of questions asked by a fictive pupil and answered by the author.

- 3. *What should be said is this....* The master's reasoned solution to the problem at hand follows. Sometimes this section starts with a veritable *Forschungsbericht*, but usually the author goes straight to the matter.
- 4. *To the arguments.* The master's refutation of each and every argument under 1. or 2. that does not agree with his solution of the question follows.

The earliest question commentaries are from about the middle of the thirteenth century. With modifications, the format stayed in use through the end of the middle ages, but it was only used in the Latin lands. An early fifteenth-century attempt by George Scholarios (later, 1454–1464, patriarch of Constantinople under the name of Gennadios II) to introduce it in Greek teaching practice met with no success. Numerous question commentaries on all parts of Aristotle's œuvre survive, most of them still unedited, although for the purposes of the research project behind the present volumes, editions have been made of most thirteenth-century ones on *De memoria* and the books about dreams.⁹

Question commentaries are ideally suited to studies of doctrinal development, because teachers tended to ask the same questions as their predecessors, so that often one can see how master B engages in discussion with a predecessor A and either emends his solution or rejects it in favour of a new one, which in turn is modified or rejected by a later master C.

The Latin *quaestio* must have arisen out of disputations with at least a couple of (student) participants besides the master, but it would appear that in actual university teaching it soon became customary for the teacher to play all roles himself in questions on the Aristotelian texts. This did not, however, mean the end of real disputations at the medieval universities. Thus, at the

⁹ These editions, by Sten Ebbesen and Christina Thomsen Thörnqvist, have all appeared in *Cahiers de l'Institut du Moyen-Âge Grec et Latin* 82–86 (2013–2017). See the following publications by Sten Ebbesen: “Anonymus Orielensis 33 on *De memoria*: An Edition,” *Cahiers de l'Institut du Moyen-Âge Grec et Latin* 85 (2016): 128–61; “Anonymus Parisini 16160 on Memory: An Edition,” *Cahiers de l'Institut du Moyen-Âge Grec et Latin* 85 (2016): 162–217; “Anonymus Vaticani 3061 and Anonymus Vaticani 2170 on Aristotle's *Parva naturalia*: An Edition of Selected Questions,” *Cahiers de l'Institut du Moyen-Âge Grec et Latin* 86 (2017): 216–312; “Geoffrey of Aspill, *Quaestiones super librum De somno et vigilia*: An Edition,” *Cahiers de l'Institut du Moyen-Âge Grec et Latin* 83 (2014): 257–341; James of Douai, “James of Douai on Dreams,” *Cahiers de l'Institut du Moyen-Âge Grec et Latin* 84 (2015): 22–92; “Radulphus Brito on Memory and Dreams: An Edition,” *Cahiers de l'Institut du Moyen-Âge Grec et Latin* 85 (2016): 11–86; “*Quaestiones super librum De somno et vigilia*: An Edition,” *Cahiers de l'Institut du Moyen-Âge Grec et Latin* 82 (2013): 90–145; and by Christina Thomsen Thörnqvist: “Walter Burley's *Expositio* on Aristotle's Treatises on Sleep and Dreaming: An Edition,” *Cahiers de l'Institut du Moyen-Âge Grec et Latin* 83 (2014): 379–515.

Unrelated to the project, David Bloch published Peter of Auvergne's questions on *De memoria* in “An Edition of the *Quaestiones super De memoria et reminiscencia*,” *Cahiers de l'Institut du Moyen-Âge Grec et Latin* 78 (2008): 51–110.

arts faculty, graduate students (bachelors) could take the role of respondents (“answerers”) in so-called sophismatic disputations, which would involve not only a respondent (who had to defend some thesis), but also opponents (“objectors”) and a presiding master, who was to give the final solution to the problem at hand, just as in an ordinary *quaestio* on a text from the syllabus. Sophismatic disputations were primarily concerned with logical analysis, but could also take up other matters, such as conceptualisation. Disputations of relevance to our topics could also take place in the faculty of theology.

4.3 *Paraphrases*

The continuous paraphrase of a whole Aristotelian work is an ancient creation, the earliest examples of which are found among the works of Themistius (fourth century AD), from whose workshop we have a paraphrase of *De anima* that was translated into Latin almost a thousand years later. This gave it a moderate influence on scholastic thought; before that, it had been instrumental to the Arabic reception of *De anima*. Likewise, his paraphrase of the *Posterior Analytics* was to exert a moderate influence on scholastic thought about concept formation.

In such paraphrases, the Aristotelian text is repeated *verbatim* when it offers no difficulty to the reader, but paraphrased and/or equipped with explanatory additions when it is less tractable, whether because it presents linguistic problems to the reader or because the train of thought is difficult to follow. In the Greek world, paraphrases, always incorporating material from literal commentaries, continued to be composed until the fall of Byzantium; for instance, Theodore Metochites in the early fourteenth century paraphrased both *De anima* and the *Parva naturalia*. By contrast, paraphrases never became popular in the Latin West.

Besides using a translation of Themistius' paraphrase of *De anima*, the Arabic tradition also produced a ninth-century anonymous compendium derived from Philoponus' commentary and the Alexander tradition. This paraphrase was durable enough to be translated into Persian in the thirteenth century.

4.4 *Summaries*

Summaries of the contents of Aristotelian books have been popular in most periods and places. A handbook of logic, whether in Greek, in Latin, or in Arabic, whether ancient, medieval, or early modern, could be expected to contain condensed accounts of the contents of the *Categories*, *De interpretatione*, *Prior Analytics* and *Sophistical Refutations*, or at least of the parts of those works considered most important. Separate monographs summarising one Aristotelian work each also circulated. Thus Boethius' *On Categorical*

Syllogisms, which builds on a lost work by Porphyry, summarises the syllogistic of the *Prior Analytics*. For the purpose of the present volume and its sequels one such summary is of particular importance, namely Averroes' of the treatises on sleep and dreams. It was based on an adulterated ninth-century Arabic version of the Aristotelian text that had transformed Aristotle into a sort of Neo-Platonist. This allowed Averroes to depict a much less naturalist Aristotle in matters of dreaming and divination than the real Stagirite, and, since his summary was translated into Latin, it encouraged Westerners to interpret Aristotle's words (which they had in an unadulterated form) in ways that mitigated his naturalism so as to make his teaching more compatible with their ingrained belief in astrology.

4.5 *Treatises with a More or Less Loose Connection to an Aristotelian Work*

Treatises with some connection to an Aristotelian work but not following the conventions for classroom material are numerous in Greek, Arabic, and Latin. Some seem to be by-products of teaching; the ancient commentator Alexander of Aphrodisias has left us a series of discussions of matters related to *De anima* which were probably occasioned by his teaching of the Aristotelian text, but hardly give a picture of the teaching itself, which may have been more closely mirrored in his lost commentary on the work. In the same way, Boethius of Dacia's *On Dreams* from around 1270 must have been occasioned by a course on *De insomniis* and *De divinatione per somnum*, but the author has recast his lectures in order to produce a coherent treatise. By contrast, a bulky anonymous Latin treatise on sense-perception from the late thirteenth century,¹⁰ while using the *quaestio* format, contains both questions that could have been asked in courses on *De anima* and *De sensu et sensibilibus*, and questions that would have no place in such courses. Moreover, the plan of the work does not at all follow that of the two relevant Aristotelian texts.

4.6 *Encyclopedic Works*

Two encyclopedias had a major impact on philosophy in the Arabic and Latin tradition.

The first is Avicenna's voluminous *al-Shifā* ("Healing") from the early eleventh century. The plan of the work is heavily dependent on the *Corpus Aristotelicum*, but Avicenna does not by any means follow Aristotle slavishly either in structure or in content. He is close enough to Aristotle that when Westerners began to use his work in a Latin translation done in Toledo

¹⁰ Unedited, found in MS Amiens, Bibliothèque municipale, 406, fol. 155r–65v.

sometime between 1160 and 1190 they frequently thought of it as a companion to Aristotle, but his theories are often decidedly un-Aristotelian. For the purposes of our volumes the most important part of his encyclopedia is the one that in the West was known as *Liber sextus naturalium* ("Book six of the tome on the science of nature"), which treats of, among other things, the soul and its faculties.

The second important encyclopedia is Albert the Great's gigantic multi-volume work from the 1250s, most of the single parts of which correspond to one Aristotelian book each. Sometimes Albert seems to presuppose that his reader has the Aristotelian text at his elbow, on other occasions his text can be read as a substitute for the ancient text. Albert incorporates much material from contemporary commentaries, but also from multiple other sources – he was a man of vast reading. He likes reviewing what major philosophers have thought about some problem and is likewise fond of illustrating his points with empirical facts. In reality, his doxographies are often unreliable, and his "facts" anecdotes with no hold on reality. For later Latin scholars he was an inexhaustible source of materials, be it doxography, explanations of phenomena, or supposedly supporting empirical evidence.

5 Modern Scholarship

The foundations for serious study of the Greek commentators on Aristotle were laid in the years between 1882 and 1909 when the Prussian Academy in Berlin published critical editions of all ancient and some Byzantine commentaries in the series *Commentaria in Aristotelem Graeca*, some fifty volumes in all. For a long time, however, this treasure-trove of information was visited by rather few scholars, as most historians of philosophy kept their eyes fixed on the "classical" period from the Presocratics to Aristotle. But in the course of the twentieth century, and especially after World War II, scholars started to turn their attention to later phases in the history of ancient philosophy, in particular to the Hellenistic period, but gradually also to late antiquity, the time of the commentators. The study of these commentators received a considerable boost when Richard Sorabji started the multi-volume series *Ancient Commentaries on Aristotle* in 1987, which provides English translations of the texts edited in *Commentaria in Aristotelem Graeca* and some related works that did not appear in the Prussian series. A new long-term editorial project, *Commentaria in Aristotelem Graeca et Byzantina*, under the aegis of the Berlin-Brandenburg Academy (the successor of the Prussian Academy) aims at providing a textual basis for the study of Byzantine Aristotelianism like that provided for the study

of Late Ancient Aristotelianism by the academy's ancestor, but the first volume is yet to appear.

The foundations for the study of the Latin commentators also began to be laid in the late nineteenth century when the Neo-Thomist movement encouraged catholic scholars to produce editions of medieval theological and philosophical texts – in the beginning primarily the *opera omnia* of saintly authors, but soon also works by persons without much chance of ever being sainted. During the first half of the twentieth century the study of medieval philosophy was virtually restricted to Neo-Thomist environments, but this began to change after the middle of the century, the change bringing with it both alternative ways of viewing the already available material and an interest in types of material that had been of scant interest to Neo-Thomists. By now, there is a very considerable mass of editions of scholastic works, many of them commentaries on Aristotle, as well as an equally considerable secondary literature.

Studies of Arabic philosophy were very rare before the middle of the twentieth century, and still rare for about another quarter of a century, but then the topic began to attract wider attention. It is now taught in quite a few universities. However, as opposed to the situation regarding Greek and Latin Aristotelianism, there is still a massive lack of editions. Even top philosophers like Avicenna and Averroes have not been properly edited in their entirety, whether in the original Arabic or in the Latin or Hebrew translations that are sometimes the only extant witnesses to their works.

Among the topics treated in our three volumes, concept formation (vol. 3) attracted the attention of scholars from the very beginning of modern research on medieval philosophy. Because Thomas Aquinas had engaged in a debate about the matter, there is an extensive literature about it. This literature also involves Averroes, since he influenced – or was reputed to have influenced – some of Thomas' opponents on the issue. Sense-perception and dreaming (vols. 1–2) have generated many fewer editions and scholarly studies, which is why those topics were given high priority in our project.

We hope our three volumes will inspire further research into the Aristotelian tradition. There is still a huge amount of philosophically exciting texts in Greek, Arabic, and Latin that have been little investigated, or not investigated at all!

Sense Perception in Aristotle and the Aristotelian Tradition

Pavel Gregoric and Jakob Leth Fink

When we open our eyes, we see. What we see depends, among other things, on what is around us. But what *is* around us? Should we say that trees, desks, and people are around us? Or should we say rather that what is around us are colours, shapes, sizes, and textures? Or should we perhaps say that what is around us are atoms, fields, and patterns of electro-magnetic radiation? Even if reality is indeed made of particles, fields, and patterns of electro-magnetic radiation, few of us would be inclined to say that is what we see when we open our eyes. Physics teaches us that reality is hidden from our senses, so whatever we see around us, be they trees and desks, or colours and shapes, they are only appearances.

Aristotle would resolutely disagree. In his view, colours and shapes are real, as real as trees, desks, people, and other objects that are members of a totality that can be called “reality” or “the universe.” However, reality is not exhausted by material objects that can be seen, heard, smelled, tasted, or touched, for Aristotle thought that there are also immaterial objects, objects that cannot be known by perception but only by a special cognitive capacity that he called “intellect.” Moreover, he thought that objects around us have essences that we must grasp in order to explain their characteristic features, their genesis, and their behaviour, and that these essences are also accessible only by intellect. So, there is much more to reality, according to Aristotle, than meets the senses. However – and this is what distinguishes Aristotle from his teacher Plato and many other philosophers – he thinks that without the senses, without their extensive and systematic use, we can never get into a position to explain things and understand reality.

According to Aristotle and his followers, then, the senses are a gateway to reality. They do not disclose all of reality, but the portion that they do disclose is quite generous. More importantly, the senses disclose reality in a reliable way, at least at the most fundamental level of their reach. Because they are in principle reliable and because their scope is quite generous, the senses enable animals to navigate their environment and rational animals in particular to

develop an understanding of reality. To be sure, Aristotle and his followers believed that successful navigation and understanding of reality requires that it somehow be represented by imagination, memory, and intellect; but before reality can be re-presented, first it has to be presented to the senses. That is why the first volume in the *Forms of Representation in the Aristotelian Tradition* series is dedicated to sense perception.

The chapters in this volume discuss various topics related to sense perception in Aristotle and his illustrious followers, from Alexander of Aphrodisias (third century) and Avicenna (eleventh century) to Albert the Great (thirteenth century) and Franz Brentano (nineteenth century). In order to facilitate the reading of these chapters, we first outline why sense perception was of paramount importance to Aristotle and how he went about explaining it. Next, we flag some interesting questions related to this topic that were raised in the later Aristotelian tradition, first Arabic and then Latin; as we proceed, we briefly introduce the individual chapters by putting them in the context of this volume. At the end, we include an overview of the main resources for studying both Aristotle's views about sense perception and their reception in the later Greek, Arabic, and Latin Aristotelian traditions.

1 The Importance of Sense Perception

According to Aristotle, all animals are able to collect information about their environment through their senses: that is what differentiates animals from plants. Moreover, Aristotle distinguishes two large classes of animals: those that are stationary, such as sponges and sea-anemones, and those that can move themselves, such as bees, dogs, and humans. Stationary animals have the contact senses of touch and taste but do not have the distance senses of smell, hearing, and sight. By contrast, mobile animals invariably also have at least one, two, or all three distance senses. So, the contact senses are invariably present in all animals, since animals are physical entities set in a physical environment, and it is vital for them to be able to register beneficial and deleterious things in their immediate surroundings, especially in order to identify nourishing substances. Moreover, mobile animals require distance senses precisely in order to be able to navigate their environment in search of food, mates, shelter, warmth, or whatever else is necessary for their existence and well-being. Obviously, then, sense perception is a capacity of paramount biological importance.

All mobile animals, Aristotle informs us, have a sensory apparatus such that perceptions leave traces in them. External objects can appear to such animals in various ways, and these appearances can be stored and later matched with fresh perceptions. That is, most mobile animals are endowed with the capacity to have things appear to them (Aristotle calls this capacity *phantasía*, sometimes translated as “imagination”) and with the related capacity to remember. Furthermore, humans, and perhaps a few other species of animals, have such a powerful memory that things experienced before somehow get grouped and organised in one’s mind so that similarities and differences among them become obvious. This enables one to compare what is present with what is absent, to represent and anticipate things, and to behave intelligently. Aristotle calls this ability “experience” (*empeiría*).

Human beings have much more powerful experience than any other species, which probably has something to do with the fact that human beings have language and concepts to capture various similarities and differences and to group things in all sorts of ways. Once things and facts are grouped and organised, some humans are wont to ask the question “Why?”: they want to know the *causes* of things being the way they are. If they gather a sufficient amount of data, and if they have grouped these data in the right way, they will begin to discern causal connections among them. The recognition of these causal connections will lead to other more general rules, and so on, until they discover the first principles, which explain other things without themselves being explainable by anything else. What enables them to discover these causal connections and to recognise the first principles is a special capacity called *noûs*, usually translated as “intellect.” The intellect is the ability to grasp the forms or essences of things, the crucial causal factors that explain things fully and reliably, that is, scientifically. The intellect, Aristotle argued, does not have a bodily organ, it is infallible, and it connects us with the divine.

Aristotle agrees with his teacher Plato on many things about the intellect and its role in scientific knowledge (*epistémē*), but he disagrees crucially about the role of perception. Plato thought that true understanding does not come from the senses, but from recollection and rigorous dialectical exercises, which are often impeded by sense perception. Aristotle, by contrast, thought that true understanding must start with the senses. To achieve scientific knowledge of a subject, one has to collect a lot of data, and that requires extensive and systematic use of the senses. Now, if scientific knowledge is to be based on data collected through the senses, the senses must be, in principle, reliable. Of course, Aristotle recognises that the senses can go wrong in many ways, but

he was deeply convinced that, at the fundamental level and in normal circumstances, they give us reliable access to the world as it is.¹

The simplified story in the preceding paragraphs was intended to demonstrate the epistemological importance of sense perception for Aristotle. It is the most fundamental cognitive ability, one on which all the other cognitive abilities rest – directly (appearance, memory, experience) or indirectly (intellect). It is also a crucial ability from the standpoint of biology, as we have seen, in that most animal activities rest on it, from feeding and reproducing to moving about and socialising. The paramount biological and epistemological importance of sense perception, then, explains why Aristotle has paid so much attention to it, and, consequently, why it remained one of the central topics for the later Aristotelian tradition.

Aristotle discusses sense perception in many of his works, but most prominently in his extremely rich and much studied work *De anima* (*On the Soul*).² In this work he undertakes, among other things, to explain what sense perception is. This particular task keeps him occupied through nine consecutive chapters of *De anima* (2.5–3.2), out of thirty in total. The next place to look at is the collection of short biological treatises known as the *Parva naturalia*, especially the opening treatise entitled *De sensu et sensibilibus* (*On Sense and the Objects of Perception*). In this text, Aristotle discusses a series of particular questions related to the senses and their objects, questions that he was unable to address in *De anima* without disrupting its flow. The rest of the *Parva naturalia* also contains valuable remarks about the sensorium – the centralised system of organs and tissues dedicated to perception – and the processes therein, about *phantasia*, memory, and other cognitive abilities closely related to sense perception. Other biological works are also informative. *De partibus animalium* (*On the Parts of Animals*) contains a general account of the parts that make up the sensorium, *Historia animalium* (*Investigation of Animals*) includes observations about these parts in different species of animals, and *De generatione animalium* (*On the Generation of Animals*) presents observations on the generation and development of these parts.

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- 1 More on Aristotle's theory of cognition can be found in Sten Ebbesen and Pavel Gregoric, "Introduction: Cognition and Conceptualisation in the Aristotelian Tradition," in *Forms of Representation in the Aristotelian Tradition, Volume Three: Concept Formation*, ed. C. Thomsen Thörnqvist and J. Toivanen (Leiden: Brill, 2022), 1–33. See also p. 24 below.
 - 2 It may be added that the Greek text of *De anima* is unusually problematic, especially in the third book, which poses further challenges to readers and scholars.

2 The Explanatory Framework

As is well known, Aristotle explained all material objects, be they natural or artificial, by analysing them into form and matter. Form is the principle of the organisation of matter, the factor that accounts for the shape and behaviour of things. Matter is something in which a form can be realised, for instance, a chunk of marble to which the sculptor gives the form of Hermes. To explain a material object, then, one first needs to understand its form; for only once we understand the form of a certain type of object can we begin to understand why it has such-and-such a material composition and why it undergoes the processes that we normally find in objects of that type.

Living beings form one large class of natural objects, so they too are analysed into form and matter. Their form is their soul (*psyché*) and their matter is the body (*sōma*) equipped with organs. The soul explains the characteristic shape and organisation of the body, accounts for a living being's identity and persistence, and enables the living being to engage in activities typical for living beings of that kind. It should already be clear that, according to Aristotle, the soul is something immaterial, much like in Plato, but not something that could exist or operate without a suitable body. In contrast to Plato, then, immortality is out of the question for Aristotle – except perhaps in some rather impersonal way, on account of the fact that the intellect does not have an organ and is separable from the body.

Given that sense perception is an all-important feature of one large group of living beings, namely animals, Aristotle's explanation of sense perception is twofold. The formal part of the explanation is found in his account of the soul, whereas the material part is found in his account of the body. Since the formal part is prior and more important in Aristotle's explanatory framework, it is necessary to look at his *De anima* first, where we find his account of the soul. Aristotle proceeds by suitably determined soul-parts. First comes the nutritive part, which is common to all living beings and which explains their abilities to process nourishment, to grow in a proportioned way, and to reproduce themselves. Second is the perceptual part, which is common to all animals and accounts for the whole range of their perceptual abilities, as well as for their abilities to experience appearances and to remember. Finally, third is the thinking part, which is peculiar to humans (at least in the sublunary sphere), enabling them to have thoughts, combine them into propositions, and above all to grasp forms and acquire scientific knowledge.

Now, how does one give an account of a part of the soul? Each part of the soul is a capacity, or a set of closely related capacities, for some vital activity,

and Aristotle insists in *De anima* 2.3 that the only way to explain a capacity is by explaining the corresponding activity. However, to explain an activity, one needs first of all to explain the objects of that activity. The idea is that an object of a certain kind is the proper cause of a certain sort of activity, and this activity is nothing other than an activation of the relevant sort of pre-existing capacity; of course, the capacity exists in the body (or more specifically in the bodily parts designed to support such a capacity), in line with Aristotle's form-matter analysis. To understand the perceptual part of the soul, then, we need to understand four things: (1) the object of perception, (2) the activity of perceiving, (3) the capacity of perception, and finally (4) the bodily parts involved in perception.

Before we proceed to explain each of these four things, we should like to note that the fourth does not belong to the scope of *De anima*. As we have pointed out, *De anima* is a treatise on the soul, and hence we should not expect to hear much on the constitution and processes that underlie sense perception. Aristotle's views on these topics are found in other texts, notably in the *Parva naturalia*, *De partibus animalium*, and *De generatione animalium*.

2.1 *The Objects of Perception (Sensibles)*

In *De anima* 2.6, Aristotle draws a distinction between three kinds of objects of perception (or sensibles, *aisthētá*). There are, he thinks, two kinds of objects that are perceived directly, or in themselves (*káth' hautá*), and one kind that is perceived only indirectly, or accidentally (*katà symbebēkós*).

The most basic kind of objects that are perceived in themselves are the "proper" or "special" sensibles (*idia aisthētá*). There are five types of special sensibles, and each type can activate only one sense modality: for instance, colours activate only the sense of sight, and sounds only the sense of hearing. Such sensibles are the most basic object and each sense modality is *defined* with reference to the type of sensible that is special to it. For example, the sense of sight is essentially the capacity to perceive colours (i.e., the capacity activated by colours), whereas the sense of hearing is essentially the capacity to perceive sounds (i.e., the capacity activated by sounds), and so forth. This enables Aristotle to differentiate the senses, which is the topic of Katerina Ierodiakonou's chapter to which we will return shortly. What is important to point out here is that the special sensibles, according to Aristotle, are not just phenomenal properties of things, but fully real qualities of bodies out there, as real as the bodies themselves are.

Each particular special sensible is a quality on a spectrum bound by a positive and a negative extreme: for instance, all colours are qualities in the range

between white and black (or, rather, light and dark), all flavours are qualities in the range between sweet and bitter, and similarly for smells. Sounds are a bit different, since they are produced by the striking of bodies, but again they range from high to low. Tangible qualities come in several different ranges, notably hot-cold, moist-dry, and soft-hard, which raises the question whether touch is a single sense. We shall return to this question later. Aristotle claims that the special sensibles of touch are the qualities that all bodies have *qua* bodies. In other words, if something is a body, it will have some degree of hotness or coldness (temperature), some degree of moistness or dryness (humidity), and some degree of hardness or softness (consistency), which makes bodies in principle accessible to the sense of touch.

Once the five types of special sensibles are distinguished in *De anima* 2.6, the agenda is set for the first part of Aristotle's account of the perceptual part of the soul; this consists in going through each one of the five senses by looking at each type of special sensible and the conditions under which they cause the activation of the corresponding sense. This is what we find in *De anima* 2.7–11, where Aristotle considers each sense by looking at the corresponding type of special sensible, the medium through which the sensible affects the sense, the requisite state of the medium, and the way in which the sensible is produced, as the case may be (e.g., the medium of colours is air or water which must be lit; sounds have to be produced by interaction of bodies of certain properties).

The other kind of objects perceived in themselves are the so-called common sensibles (*koinà aisthētá*). The common sensibles are mostly quantitative properties of bodies, such as shape, size, number, and motion. They are called "common" because they are perceived by two or more senses. However, Aristotle observes that they are perceived as accompaniments of the special sensibles. There is no special sense just for shapes or just for sizes; rather, the five senses perceive them insofar as shapes and sizes come together with the special sensibles. For instance, we see and feel shapes because shapes determine both colours and tangible qualities. We never see just a colour, but rather, every colour we see is of some shape and size, either one or many, either moving or resting, and likewise with the tangible qualities.

It is a controversial issue exactly how the common sensibles are perceived. On the one hand, Aristotle seems to think that we perceive them with the special senses, so he would be inclined to say, for example, that we see shapes, hear motions, or feel magnitudes. On the other hand, he sometimes speaks of the so-called common sense (*koinē aísthēsis*), a higher-order perceptual capacity that unifies and monitors the five special senses, and thus many interpreters

have thought that the perception of the common sensibles is the task of the common sense. Whatever Aristotle's considered view on this question is, he believed that the senses need to be unified for the perception of the common sensibles to take place. Another controversial issue is exactly how many types of common sensibles Aristotle acknowledges, and in particular whether time and distance should be included.

The third kind of object of perception is things which are perceived only indirectly, or accidentally; they piggyback, as it were, on the special and the common sensibles. Aristotle claims that we perceive, for example, the son of Diares. However, we do not perceive him on account of his being the son of Diares, but on account of his being of a certain colour, shape, and magnitude. It is that colour of that shape and magnitude that activates our sense of sight, but what we see is more than that: we also see the son of Diares. Aristotle explains that this is because the colour, the shape, and the magnitude happen to belong (*syμβέβηκε*) to the son of Diares. Apart from substances under different descriptions, Aristotle clearly recognised locations as a type of accidental sensible. It is likely that items in any of the ten Aristotelian categories can figure as accidental sensibles, though that is disputed among scholars.

Another subject of dispute is whether accidental sensibles are objects of perception at all, rather than Aristotle's concession to ordinary language in which we regularly report perceptual events. For example, we would normally say that a dog stopped when it saw the car coming, without implying that the dog has the conceptual resources to perceive *cars* as anything other than large and fast-moving things of threatening sound and foul smell. Some scholars think that accidental sensibles are in fact a matter of "association of ideas," which requires a minimal conceptual apparatus or perhaps involvement of non-rational capacities such as *phantasía* and memory, whereas still others construe it as a sort of genuine perception.

This question is taken up by MIKA PERÄLÄ in his chapter. He shows that neither the perceptual nor the intellectual interpretation succeeds in accounting for all the cases of accidental (or incidental, *katà symbebēkós*) perception that Aristotle discusses in his psychological and methodological treatises. The perceptual interpretation fails because it is unable to explain accidental perception of universals. The intellectual interpretation fails because it overlooks accidental perception of proper sensible items of another sense. To avoid these problems, Perälä proposes an interpretation that incorporates the benefits of both interpretations without their faults. The proposal is that Aristotle has two somewhat different understandings of accidental perception, a 'deflationary' and an 'inflationary' one. In the deflationary sense, accidental perception

involves *less* than direct (*káth' hautó*) perception; it is merely a way of indicating what an individual sense does not perceive directly. So understood, accidental perception encapsulates whatever goes on beyond the scope of an individual sense. By contrast, accidental perception in the inflationary sense involves *more* than direct perception by a single sense, typically on account of the engagement of other cognitive capacities in addition to the individual sense in question. Perception of the son of Diares can be understood in either way. Perälä's discussion of accidental perception offers an epistemological (as opposed to metaphysical) analysis which will be relevant for broader issues concerning Aristotle's position with respect to the individuation of the senses and his distinction of sense perception from other forms of cognition.

Aristotle's discussion of the common and accidental sensibles in *De anima* 3.1–2 shows that the perceptual part of the soul is more than just a collection of the five senses discussed in *De anima* 2.7–11. Most importantly, it shows that the perceptual part of the soul is a unified faculty that can achieve more than the five senses severally. One such achievement is simultaneous perception of several special sensibles, which is problematic on account of Aristotle's metaphysical principle that only one object can exercise one capacity at any one time. In his chapter, JUHANA TOIVANEN demonstrates how medieval philosophers in the Latin tradition elaborated on Aristotle's account of simultaneous perception, mainly on the basis of *De sensu* 7. The medieval commentaries take up various versions of the general problem when they ask whether one external sense can perceive two different sensible qualities, whether two external senses can function at the same time equally well, and especially how different sense modalities are united in the common sense. Although the answers that medieval authors give follow to a large extent the general lines set by Aristotle and Alexander of Aphrodisias (fl. 200 CE), they also put forth different interpretations and use new strategies, especially when they concentrate on selective attention and on degrees of perceptual awareness. In addition to the commentaries on *De sensu*, Toivanen also takes discussions concerning the functions of the common sense in relation to *De anima* 3 into account.

Whether the perceptual part of the soul operating as a unified faculty is the same thing as the common sense or not, and what exactly are its (or their) functions, are issues debated in the Arabic and Latin tradition as much as in the contemporary scholarship. For instance, some Aristotelians keep the common sense distinct from *phantasía*, whereas others subsume *phantasía* under the common sense; some scholars think that our awareness of our own seeing

and hearing is due to the common sense, while others think that it is due to the senses of sight and hearing; some scholars think that we perceive the common and the accidental sensibles with the common sense, others think that we perceive them with the special senses, and so forth.

Before leaving the topic of the object of perception, we would like to make note of Aristotle's conviction that our senses are most prone to error with regard to the common sensibles, less prone with regard to the accidental sensibles, and infallible with regard to the special sensibles.³ In only one passage does Aristotle qualify his otherwise strident assertion of infallibility of the senses with regard to their special objects: "Perception of special sensibles is true, or is subject to falsity in the smallest degree."⁴ This qualification is usually interpreted with reference to abnormal conditions of perceiving, for instance, excessive distance of observation, disturbance in the medium, disorder of the sense organ, general pathological state of the perceiver, and the like. In normal or natural conditions, however, when the object is close, the medium steady and the perceiver healthy, the senses do not go wrong about the special sensibles.

This is a consequential point for Aristotle, given the importance he attaches to sense perception: unless the senses give us reliable access to reality, at least on some fundamental level, not only would animals have a hard time navigating their environment, sustaining themselves and continuing the species, but also our sciences would have very shaky foundations. Because the senses are capacities essentially related to and activated by their special objects, according to Aristotle, the senses cannot go wrong about their special sensibles, except perhaps in unnatural or abnormal circumstances. And if the senses do not go wrong about the special sensibles, human beings should be able to hone their perception of the common and accidental sensibles, and to derive scientific knowledge from data gathered with sufficient care and precision.

2.2 *The Activity of Perceiving (Sense Perception)*

Like philosophers before him, Aristotle argues in *De anima* 2.5 that the activity of perceiving is the result of the agency of external objects acting on animals. It is by virtue of certain attributes, namely special and common sensibles, that external objects affect the senses. However, Aristotle rejects the view that

3 *De An.* 3.3, 428b18–25; cf. *de An.* 2.6, 418a8–16; *Sens.* 4, 442b8–16; *Metaph.* 4.5, 1010b1–3. On some of the controversy regarding this matter, see Mark A. Johnstone, "Aristotle and Alexander on Perceptual Error," *Phronesis* 60 (2015): 310–38; and Benjamin R. Koons, "Aristotle on Infallible Perception," *Apeiron* 52 (2018): 415–43.

4 *De An.* 3.3, 428b18–19.

perception is a material process in which something comes out of the objects and enters into the sense organ, or in which something comes out of the sense organ and interacts with the objects.⁵ Moreover, he denies that this causal process is an ordinary type of change (*kinēsis*) in which one quality in the recipient gets replaced by another, as when a kettle on the stove is changed from cold to hot. Rather, it is a transition whereby a pre-existent capacity is brought to perfection, since the whole purpose of the senses is to be actualised by their objects, that is, to perceive them. And this sort of change is not a process that takes time to accomplish, but it is rather an activity (*enérgeia*) that is complete at every moment of its duration.

Aristotle's innovation – based on his philosophical toolkit of form and matter, potentiality and actuality – lies in the idea that the members of the causal relation are objects with certain attributes on one end, and ensouled beings endowed with certain capacities on the other end. When they meet, the objects bring the sense of the animal from potentiality into actuality. Consequently, if we know what the right sort of object is and if, moreover, we understand that the senses are aspects of the soul (form) couched in certain parts of the body (matter), then we have all the ingredients necessary to understand what the activity of perceiving is: it is having the senses brought into actuality by the agency of external things on account of a certain set of their qualitative and quantitative attributes (the special and the common sensibles). For example, I see the cup on my table because a suitable agent and a suitable patient are in a situation for their interaction: on account of being white, round, and medium-sized, the cup activates my sense of sight, which is couched in my healthy eyes that are facing the cup while the air around me is well lit.

According to Aristotle, this is the primary, formal part of an explanation of the activity of perceiving. Some scholars will disagree, but we believe there is also a further, material part of the explanation, for instance in terms of how sounds and smells propagate through the medium of air and water, in terms of the changes (*kinéseis*) set up in the sense-organs, and in terms of the transmission of these changes from the peripheral to the central sense organ in the body. Understandably, this material part of the story is not found in *De anima*, but it can be reconstructed from Aristotle's other writings. To be sure, it is secondary for Aristotle and does not receive as systematic a treatment as the formal part of the story, but it does exist, and many later thinkers found it fascinating

5 The first type of theory is called "intromissionist" and it was advocated, for example, by Democritus and Epicurus. The second, "extramissionist" theory was espoused, for example, by Empedocles and Plato in the *Timaeus*. In some passages, surprisingly, Aristotle seems to espouse an extramissionist theory; see below, 30 and n17.

and worth developing. However, it would be distinctly un-Aristotelian to think that the formal part can ever be replaced by or reduced to the material part of the story.

2.3 *The Capacity of Perception (Sense)*

With the division of objects of perception, as we have seen, Aristotle laid the foundation for his account of the perceptual part of the soul. In particular, his division of the special sensibles allows him to demarcate the five senses. The sense of touch poses a problem, however, since it registers several different qualitative ranges, namely hot-cold, moist-dry, and soft-hard. As we have mentioned, Aristotle claims that these qualitative ranges are qualities of bodies *qua* bodies, and he proposes that the criterion for demarcation in the case of the sense of touch is contact, which distinguishes it from sight, hearing, and smell, but requires that the sense of taste be subsumed under the sense of touch, which seems to complicate things.

In her chapter, KATERINA IERODIAKONOU reopens the discussion about the ancient philosophers' criteria for the individuation of the senses by examining closely not only the relevant Aristotelian treatises but also what the commentators of late antiquity and, in particular, Alexander of Aphrodisias has to say on this topic. Since Aristotle's texts are concise and somewhat obscure, Alexander's comments prove helpful in unravelling Aristotle's thought. Moreover, they provide us with reliable evidence of further developments in the ancient theories concerning problems related to the differentiation of the senses as well as to their hierarchy. For it seems that, although Aristotle's account of the senses often emphasises the role of their special objects, the later Aristotelian tradition is committed to a multitude of criteria that give to the whole issue a complicated and rather intriguing dimension.

Franz Brentano (1838–1917) was a first-rate Aristotle scholar, in addition to being a leading philosopher of his own day. One idea that Brentano borrowed from Aristotle and developed in interesting directions, as HAMID TAIEB shows in his chapter, is exactly the thesis that the senses should be classified in accordance with their special objects, the special sensibles, or “sensible qualities,” as Brentano calls them. When looking for a criterion that makes it possible to identify different kinds of sensible qualities themselves, Brentano again takes his cue from Aristotle. Each kind of sensible quality has a specific pair of extremes, for instance light vs. dark in the case of colours, high vs. low in the case of sounds and so forth. Taieb presents Brentano's account of the classification of the senses and discusses both its historical faithfulness to Aristotle and its philosophical relevance for contemporary philosophy of mind, in particular with respect to Brentano's interpretation of sensible qualities as

mere phenomenal, mind-dependent entities. Brentano's views show how an Aristotelian framework in the philosophy of mind can be transposed into a more modern, phenomenological pattern, while also revealing the limits of such transpositions. As Ierodiakonou's and Taieb's chapters make clear, Aristotle's views on these aspects of sense perception inspired a lasting debate.

It is noteworthy that Aristotle opens *De anima* 3.1 with an argument that there are no more than five senses. His argument is based on the assumption that the senses can only be realised in simple bodies (elements), and all the simple bodies are already used for the existent senses.⁶ Although Aristotle's argument is not particularly convincing, it is clearly meant to exclude the possibility that there are qualitative ranges of which human beings are oblivious because we are not equipped with the requisite senses. And it was important for Aristotle to exclude that possibility, given the foundational role he attaches to perception and given his deep conviction that human beings are by nature adequately equipped for a full understanding of the universe.

De anima 2.12 is sandwiched between Aristotle's account of the five special senses in terms of their special sensibles and the conditions of their mediation and production (*De anima* 2.7–11) and his discussions of various issues that are intended to show that the perceptual part of the soul is a unity that can achieve much more than the five senses taken severally (*De anima* 3.1–2). In 2.12 Aristotle advances several claims of central importance for his interpreters.

First, Aristotle opens the chapter by saying that the sense is “that which can receive sensible forms without matter.”⁷ Presumably, a “sensible form” (*aisthētòn éidos*), or what came to be called a “sensible species” (*species sensibilis*) in the Latin tradition, is a special sensible together with a set of common sensibles, for example this relatively small round patch of bright red colour that we see when we look at a tomato on the far side of the table. The phrase “without matter” seems to refer to the matter of the object in which this set of properties is instantiated, the matter of the tomato in our example. So, to perceive is for a sense to take on a sensible form of an external object without its matter. This formula stands at the centre of an extended debate among contemporary scholars as to the character of the change implied here. Some hold that a physiological change in the sensory apparatus takes place – the eyes literally take on the red colour when we see a tomato – while others maintain that the change in question is a transition of a sense from potentiality into

6 The relation between the senses and the elements is picked up again in *Sens.* 2.

7 *De An.* 2.12, 424a17–19.

actuality, which amounts to an intentional act of perceptual awareness. The two lines of interpretation are known as 'literalism' and 'spiritualism'.⁸

Second, Aristotle describes the sense as a *lógos* or proportion of the sense organ.⁹ His idea seems to be that the senses are essentially proportioned to their special objects, which explains why the senses can operate only within a certain range of parameters, or, to put this in negative terms, why the senses are obstructed or even destroyed when exposed to objects that are out of proportion, "just as the concord and pitch of a lyre is destroyed when the strings are struck violently."¹⁰ This will be a salient point of contrast between the senses and the intellect, since intense objects of thought neither destroy nor obstruct but, on the contrary, improve thinking, which Aristotle takes to indicate that the intellect does not have a bodily organ.¹¹

Third, and closely connected to the previous point, Aristotle describes the sense as a mean (*mesótēs*).¹² The sense must be neutral with respect to its range of qualities. Otherwise, if the sense already had a particular quality, it would not be able to be affected by it, that is, to perceive it. This is why the eye, for example, has to be filled with transparent eye-jelly, so that it can receive any colour. By contrast, the flesh, as the organ of the sense of touch,¹³ necessarily has some degree of hotness, wetness, and softness, which is why the sense of touch cannot register objects which instantiate these qualities in exactly the same degree. However, Aristotle insists that the flesh – especially in humans, who have a keener sense of touch than other animals – is constituted in such a way that it has exactly the middle degree of these qualities, so that the sense of touch is receptive to both ends of the respective qualitative ranges.

8 The champion of 'literalism' is Richard Sorabji, who presented this reading in "Body and Soul in Aristotle," *Philosophy* 49 (1974): 63–89; reprinted in *Articles on Aristotle*, vol. 4: *Psychology and Aesthetics*, ed. J. Barnes, M. Schofield, and R. Sorabji (London: Duckworth, 1979), 42–64. The 'spiritualist' challenge came from Myles F. Burnyeat, "Is an Aristotelian Philosophy of Mind Still Credible? (A Draft)," in *Essays on Aristotle's De Anima*, ed. M. C. Nussbaum and A. O. Rorty (Oxford: Clarendon Press, 1995), 15–26. A good summary of the debate is supplied by Victor Caston, "The Spirit and the Letter: Aristotle on Perception," in *Metaphysics, Soul, and Ethics in Ancient Thought: Themes from the Work of Richard Sorabji*, ed. R. Salles (Oxford: Clarendon Press, 2005), 245–320.

9 *De An.* 2.12, 424a25–31.

10 *De An.* 2.12, 424a31–32.

11 *De An.* 3.4, 429a31–b4. We take "intense objects of thought" to be things of great explanatory power, such as the first principles of a science.

12 *De An.* 2.12, 424b1–3.

13 More precisely, the flesh is the internal medium of the sense of touch, according to Aristotle, whereas its proper sense organ is the heart.

Aristotle asks why plants do not perceive, given that they have a soul and given that they clearly are affected by things in their environment, for instance, when they are heated by the surrounding air. The reason, he says, is that they do not have the requisite mean, “the sort of principle that receives the forms of sensible objects; rather, they are affected together with matter.”¹⁴ Plants have a soul with the nutritive and the reproductive capacities, but not with a perceptual capacity, that is, with a sense that could take on sensible forms of external objects. Consequently, plants are affected by external objects only materially, as physical things that undergo standard sorts of change, like a kettle on the stove.

In order to defend Aristotle's claim that plants have no sense perception, medieval philosophers not only had to confront the easily observed phenomenon that plants are affected by perceptible objects, as CHRISTINA THOMSEN THÖRNQVIST shows in her chapter, but they also had to get their heads around a number of theoretical problems concerning sense perception that seem to arise from Aristotle's conclusion. Medieval commentators had to sift through a number of different Aristotelian texts to come up with answers. Since Aristotle's own promised investigation of plants is now lost (if it was ever written), they could not simply look the question up, but had to think for themselves on the basis of his scattered remarks concerning plant life.¹⁵

The medieval discussion on the alleged absence of perception in plants was primarily triggered by Aristotle's claim in *Somn. Vig.* 1, 454b27–455a3 that since plants lack perception, they also lack the capacity to sleep and wake. Medieval philosophers were, of course, aware that plants at least appear to rest at certain intervals: some flowers open in the morning and close at night, and perennial plants wither away in autumn and return in spring. What is the nature of this alteration in activity if, as Aristotle claims, it is not sleep and waking? There were further problems related to the question of plant perception that bothered the commentators – substantial philosophical problems that are related to Aristotle's overall theory of the soul and that still puzzle us today. In *Somn. Vig.* 1, 454a24–b4, Aristotle claims that animals cannot survive without rest because it is impossible for the sensitive soul to be in constant activity. If plants only have the nutritive soul and lack the capacity to sleep, then the nutritive soul, unlike the sensitive, must have the capacity to operate continuously until the organism dies. What underlying fundamental difference(s) between the nutritive and the sensitive soul does this entail? Furthermore, if

14 *De An.* 2.12, 424b2–3.

15 Aristotle, *Long.* 6, 467b4–5; cf. Diogenes Laertius 5.25.

plants lack the sensitive soul, they also lack desire, and if they lack desire, they cannot distinguish between good and bad nutriment. But plants still manage to sustain themselves by feeding. How is this possible? And what does it actually mean when Aristotle states in *de An.* 2.12, 424b3 that plants cannot perceive because they are affected by the form “along with the matter”? The commentators’ answers to the last question are highly relevant because they contribute to our knowledge of the background of the literalist vs. spiritualist interpretations of Aristotle’s theory of perception mentioned above. In her chapter, Thomsen Thörnqvist traces the development of the discussion of plant perception in a number of medieval Latin commentaries, from Adam of Buckfield (d. before 1294) to John Buridan (d. c.1361).

2.4 *The Bodily Parts Involved in Perception (Sense Organs)*

While the preceding three terms of Aristotle’s explanation of sense perception – object, activity, capacity – are all duly discussed in *De anima*, the remaining term rarely appears in that work. As noted by Alexander of Aphrodisias, the treatise *De sensu* was written, in part, to close that gap.¹⁶

De sensu 2 offers a discussion of the question of material components of different sense organs. Aristotle’s predecessors used the four elements to answer this question. Predictably enough, they encountered the problem that there are four elements, but five senses. The solution to this problem should have been simple. Since taste is subsumed to touch, their respective organs are composed of the same element (earth). Aristotle hesitates to pursue this alignment of sense organs with the elements any further, but if one wishes to do so, the result would be that water is the suitable material basis for the eyes and seeing; air the suitable material basis for the ears and hearing; fire the suitable material basis for the nostrils and smelling (odour being a kind of evaporation that arises from fire) and earth the suitable material basis for flesh and tactile perception. Taste falls under touch, as already mentioned. Apart from this, *De sensu* 2 is famous for Aristotle’s rejection of extramissionist theories of vision, in which something comes out of the eyes and somehow interacts with the environment when seeing takes place. Interestingly, however, in some other works Aristotle seems to endorse an extramissionist theory of vision, for example in a passage from *Meteorology* 3.4 discussed by DAVID BENNETT and FILIP RADOVIC.¹⁷

16 Alexander of Aphrodisias, *In librum de sensu commentarium*, ed. P. Wendland (Berlin: Georg Reimer, 1901), 1.3–18.

17 Another place in which Aristotle seems to espouse an extramissionist theory is the curious passage about menstruating women and mirrors in *De insomniis* 2 (459b23–460a23),

Another important lesson of *De sensu*, reiterated in several other passages of the *Parva naturalia*, is that the peripheral sense organs – eyes, ears, nostrils, tongue, and flesh – are in a certain sense merely transmitters of sensible forms to the central sense organ. That is precisely why, for example, the inside of the eye has to be composed of a transparent matter, much like the medium of colours. Aristotle supports his claim by what happens when soldiers receive a blow in the temple so that the eye's passages are cut off from the central sense organ: they experience “a sudden fall of darkness as if a lamp had been put out, because the transparent part, the so-called eye-jelly, which resembles a lamp-screen, has been cut off.”¹⁸ Both air and water have the crucial quality of transparency, and the inside of the eye is made of water rather than of air, according to Aristotle, because water is contained more easily than air.¹⁹ Similarly, the sense organ of hearing is a portion of air walled inside the auricular canal by a delicate membrane, so that it can be affected by sounds spreading through the external medium of air or water.²⁰

So, the peripheral senses enable the sensible forms to be received and transmitted inwards to the central organ, which is the heart in Aristotle's theory. The peripheral sense organs like eyes and ears are connected to the heart via channels that plug into the network of blood-vessels. These channels are filled with *pneûma*, very fine warm air, and there are reasons to think that Aristotle envisaged a continuous portion of *pneûma* stretching throughout the blood-vessels all the way to the heart, enabling the transmission of sensible forms to the heart.²¹ The body of an animal thus seems to be constructed in such a way as to establish an uninterrupted connection between the objects in the external world and the heart. The sensible forms of external objects are received by the peripheral sense organs and transmitted to the heart, where all sense perception actually takes place and where sensory inputs from all sense modalities can be coordinated and monitored.²² The reader will not be surprised to learn that Aristotle's *De sensu* concludes by discussing the unity of the perceptual part of the soul.

for which see Pavel Gregoric and Jakob Leth Fink, “Introduction: Sleeping and Dreaming in Aristotle and the Aristotelian Tradition”, in *Forms of Representation in the Aristotelian Tradition, Volume Two: Dreaming*, ed. C. Thomsen Thörnqvist and J. Toivanen (Leiden: Brill, 2022), 14–15.

18 *Sens.* 2, 438b12–16.

19 *Sens.* 2, 438a15–16.

20 *De An.* 2.8, 420a4–11.

21 See Claire Bubb, “The Physiology of *Phantasmata* in Aristotle: Between Sensation and Digestion,” *Apeiron* 52 (2019): 273–315.

22 For details, see Klaus Corcilius and Pavel Gregoric, “Aristotle's Model of Animal Motion,” *Phronesis* 58 (2013): 56–67.

Aristotle's picture of a centralised system of bodily parts involved in perception is easy enough for us to understand if we replace Aristotle's "channels" and "blood-vessels" with "nerves," and if we think of the brain whenever he refers to the heart. Aristotle's cardiocentric theory would soon be rejected by the great third-century BCE Alexandrian doctors Herophilus and Erasistratus, who discovered the central nervous system and posited the brain as the central organ, in which they were followed by Galen (d. c.216). Through Galen's towering authority, the view of the brain as the central sense organ entered into Arabic medical and philosophical texts, and thence into Latin medieval philosophy, thus creating a large problem for all would-be Aristotelians: how to reconcile Aristotle's cardiocentrism with the encephalocentrism entrenched in the medical tradition?

3 The Arabic Reception: Sense Perception and Mental Disorders

The transmission of Peripatetic philosophy and Greek scientific literature more generally into Arabic culture, sometimes described as the "Graeco-Arabic Translation Movement," took place in the eighth to tenth centuries. Baghdad was the epicentre of this transition.²³ The sustained effort and dedication of the stakeholders in this process is breath-taking, as is the complexity of what happened and why. One of the fascinating factors in this process is the contribution, and resilience, of early Islamic theological speculation. Its impact on Arabic Peripatetic philosophy of sense perception cannot be neglected. By looking at the introduction of Aristotelian mechanisms of sense perception into the Arabic tradition, DAVID BENNETT's chapter describes how Mu'tazilite philosophy played a decisive role in shaping the intellectual milieu and presuppositions of Peripatetic Arabic philosophy of sense perception. The intellectual context, dominated by Mu'tazilite philosophy of nature and thus committed to atomistic, materialistic psychology, was slowly penetrated by Aristotelian epistemological concepts, although resistance was widespread. On top of that, Neoplatonism also held its ground as part of the intellectual environment, and philosophers such as al-Kindī (d. c.870) and al-Fārābī (d. 950/951), as well as the nascent philosophical school in Baghdad in the tenth century, had to reconcile their Aristotelian structure of knowledge-acquisition with Neoplatonic cosmology. Thus, as Aristotelianism infiltrated

23 See Dimitri Gutas, *Greek Thought, Arabic Culture: The Graeco-Arabic Translation Movement in Baghdad and Early 'Abāsīd Society (2nd–4th/8th–10th centuries)* (London: Routledge, 1998), 1–8.

mainstream philosophy, its expression was filtered through various doctrinal and methodological preoccupations. All of this affected and was in turn subject to influence from the translation process itself. The more well-known figures of Arabic Aristotelianism, such as Avicenna (d. 1037) and Averroes (d. 1198), must also be seen against this background.

Another decisive impetus came from Greek medicine, as already noted above. Mental disorders, such as hallucination, are of special interest to sense perception, because they were interpreted on the basis of Peripatetic-Galenic theories of perception. Avicenna's account of the relation between sensing and mental disorders bears this point out very clearly. In his writings on psychology and medicine, Avicenna identifies two ways of diagnosing mental disorders: one way is in relation to the function of the senses, while the other is in relation to a deliberative cognitive faculty. In his chapter, AHMED ALWISHAH demonstrates this by exploring the relations between the senses and faculties as they are affected by different aspects of mental disorders. One attains a richer understanding of the functions of sensation as it is assimilated by the cognitive faculty. Avicenna's integration of Aristotelian epistemology into his own methodology, grounded in medicine, is most evident in cases in which the ordinary process of perception is subverted. Mental disorders that result from the malfunction of the parts that are responsible for sensing in the brain are prime instances of this. Such disorders take place in the brain but are directly related to the functioning of the senses. In order to account for such mental disorders, Avicenna delves into the processes of the internal faculties of the soul. In this way, his account of mental disorder showcases the whole machinery of Peripatetic sense perception and faculty psychology as this is combined with Galenic encephalocentrism and the localisation of the faculties, not least the "inner sense," in the brain. The underlying philosophical problem is how the perceptible content of objects that do not exist in reality can exist in the disordered mind.

One curious disorder, recorded for the first time in Aristotle's *Meteorologica* 3.4, 373b1–9, is called "autoscopy," that is, a hallucination of one's own visual image. In their analysis of this passage and its reception in the Aristotelian tradition, DAVID BENNETT and FILIP RADOVIC integrate material from the Greek tradition, the Arabico-Latin tradition, a late thirteenth century Latin account, and contemporary psychopathology. Special attention is paid to modifications of Aristotle's original explanandum and diverging explanations of autoscopy in the commentary tradition, with an eye to contemporary descriptions of autoscopic phenomena in the clinical literature. Interpreted as an instance of perceptual error, autoscopy indirectly reveals how perception is supposed to work under normal, or ideal, conditions. The chapter includes the first edition

and translation of Peter of Auvergne's (d. 1304) discussion of the problem, from his commentary on Aristotle's *Meteorologica*, prepared by Sten Ebbesen.

4 Questions of Special Interest to Medieval Latin Commentators

On the basis of the catalogue of question commentaries on Aristotle's *De sensu* covering the period ca. 1260–1320, produced by the *Representation and Reality* group, it is possible to obtain a rough grasp of the topics and problems that were of special interest to the medieval Latin commentators.²⁴ Fourteen commentaries are listed, the earliest and most extensive written by Geoffrey of Aspill (d. 1287); other notable commentators include Peter of Auvergne, Radulphus Brito (d. 1320/21), and John Buridan (d. c.1361). Obviously, the questions depend to a large extent on remarks made by Aristotle in *De sensu*. Generally, the commentators are interested in questions concerning the five senses and their relation to the elements, with extended efforts to understand colours. Likewise, and unsurprisingly, almost every commentator takes up the question of whether the sense of sight should be explained on extramissionist grounds, which Aristotle denies in *De sensu* 2. Other problems are more local: Geoffrey of Aspill seems particularly fascinated by problems posed by reflections and images in mirrors, whereas the later commentators tend to worry about whether it really belongs to the natural scientist to consider health and disease. The few odd questions involving the brain (Peter of Auvergne, Anonymus Parisini 16160, John Buridan, Marsilius of Inghen), or the heart (Anonymus Parisini 16160, Anonymus Orielensis 33), are provoked by remarks by Aristotle concerning smell and touch respectively, but are grounded in the more general disagreement between the medical tradition's insistence on the importance of the brain (Galen, Avicenna), and Aristotelian cardiocentrism.

5 The Resources

It would be a Herculean task to supply a list of all the editions and translations of Aristotle's *De anima*, *Parva naturalia*, and other biological works, let alone a list of all the Greek, Arabic, and Latin commentaries. Consequently, we have to limit ourselves to a selection of what we believe are the most useful titles for further study of the subject of sense perception in Aristotle and

24 Sten Ebbesen, Christina Thomsen Thörnqvist, and Véronique Decaix, "Questions on *De Sensu*, *De memoria* and *De somno et vigilia*: A Catalogue," *Bulletin de philosophie médiévale* 57 (2015): 66–87.

the Aristotelian tradition, accepting the risk of omitting many valuable studies that have been published in the past century.

First, there is no definitive edition either of *De anima* or of *Parva naturalia*. The critical edition of *De anima* by Aurél Förster is held in the highest regard by the specialists, but it is extremely rare.²⁵ The accessible and widely used critical edition of *De anima* is that of William David Ross, the so-called *editio minor* in the Oxford Classical Texts series.²⁶ Ross's critical edition of the *Parva naturalia*, despite its shortcomings, is still the most widely used one among scholars,²⁷ though Paweł Siwek's edition is generally considered superior.²⁸

The commonly used English translations of *De anima* and *Parva naturalia* are John A. Smith's and John I. Beare's in the Oxford translation of the complete works of Aristotle, prepared under the editorship of William D. Ross in the early twentieth century and updated by Jonathan Barnes in 1984.²⁹ There are three very recent translations of *De anima* in English.³⁰ Christopher Shields's translation is accompanied with an extensive commentary, replacing the outdated partial translation and commentary of David W. Hamlyn in the Clarendon Aristotle Series.³¹ Fred Miller's very readable translation of both *De anima* and *Parva naturalia* comes in a convenient and affordable paperback. Of the commentaries in the English language, Robert D. Hicks's detailed commentary from 1907 is still useful; the most recent English commentary aiming at a philosophical audience is by Ronald Polansky.³²

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- 25 *Aristotelis De anima libri tres*, ed. A. Förster (Budapest: Hungarian Academy of Letters, 1912).
- 26 *Aristotelis De anima*, ed. W. D. Ross (Oxford: Clarendon Press, 1956). The *editio maior*, with an English introduction and a modest commentary by Ross, appeared in 1961, also from Oxford University Press.
- 27 Aristotle, *Parva Naturalia*, ed. W. D. Ross (Oxford: Clarendon Press, 1955).
- 28 *Aristotelis Parva Naturalia*, ed. P. Siwek (Rome: Desclée, 1963).
- 29 Aristotle, *Parva Naturalia*, ed. J. I. Beare and G. R. T. Ross (Oxford: Clarendon Press, 1908); reprinted in vol. 3 of *The Works of Aristotle Translated into English*, ed. W. D. Ross (Oxford: Clarendon Press, 1931); *The Complete Works of Aristotle: The Revised Oxford Translation*, ed. J. Barnes, 2 vols (Princeton: Princeton University Press, 1984).
- 30 Aristotle, *De anima: Translated with an Introduction and Commentary*, trans. C. Shields (Oxford: Clarendon Press, 2016); Aristotle, *De anima: Translated with Introduction and Notes*, trans. C. D. C. Reeve (Indianapolis: Hackett, 2017); Aristotle, *On the Soul and Other Psychological Works*, trans. F. D. Miller, Jr. (Oxford: Oxford University Press, 2018).
- 31 Aristotle, *De anima Books II and III (with passages from Book I) Translated with Introduction and Notes*, trans. D. W. Hamlyn (Oxford: Clarendon Press, 1968); reprinted with a "report on recent work and a revised bibliography" by Christopher Shields (Oxford: Clarendon Press, 1993).
- 32 Aristotle, *De anima*, ed. R. D. Hicks (Cambridge: Cambridge University Press, 1907); Ronald Polansky, *Aristotle's De Anima* (Cambridge: Cambridge University Press, 2007).

The most recent German translation of *De anima* is by Klaus Corcilius, accompanying a redaction of Förster's Greek text and a helpful introduction. Corcilius is preparing a new German commentary on *De anima* in the authoritative Akademie Verlag series to replace the outdated translation and commentary by Willy Theiler.³³ There is an accessible German translation of the *Parva naturalia* by Eugen Dönt.³⁴ There are two handy translations of *De anima* in French, by Richard Bodéüs and by Pierre Thillet, both accompanied with an introduction, notes, and bibliography.³⁵ The former is included, with Pierre-Marie Morel's translation of the *Parva naturalia*, in the complete works of Aristotle in French translation under the editorship of Pierre Pellegrin.³⁶

The Greek commentary tradition on *De anima* is very rich.³⁷ The most influential of the Greek commentators, Alexander of Aphrodisias, wrote a commentary on Aristotle's *De anima* that has been lost. What survives, however, is Alexander's own treatise entitled *De anima*, closely modelled on Aristotle's and very helpful as an aid to reading Aristotle. We also have Alexander's commentary on *De sensu*. Several short essays on topics related to sense perception are contained in his *Quaestiones et solutiones* (e.g., question 3.7 is on Aristotle's argument in *De anima* 3.1 that there are no more than five senses, question 3.6 is on Aristotle's discussion of perceptual awareness in *De anima* 3.2, question 3.8 is a discussion of accidental perception) and in the so-called *Mantissa* (e.g., "That light is not a body," "Against those who claim that seeing comes about through the entry of images," "How seeing comes about according to Aristotle").³⁸

Literal commentaries on Aristotle's *De anima* were written by Simplicius (c.490–c.560) and Philoponus (c.490–c.570), whereas Themistius (c.315–c.390) and Sophonias (fl. thirteenth century) wrote paraphrases. The first Greek commentary on the *Parva naturalia*, apart from Alexander's commentary on *De sensu*, was composed by Michael of Ephesus (fl. twelfth century). There is also a paraphrase of the *Parva naturalia* attributed to Themistius but in fact written much later by Sophonias. Most of these commentaries are translated into

33 Aristoteles, *Über die Seele*, ed. W. Theiler (Berlin: Akademie Verlag, 1983).

34 Aristoteles, *Kleine naturwissenschaftliche Abhandlungen*, ed. E. Dönt (Stuttgart: Reclam, 1997).

35 Aristote, *De l'âme*, trans. R. Bodéüs (Paris: Flammarion, 1993); Aristote, *De l'âme*, trans. P. Thillet (Paris: Gallimard, 2005).

36 Aristote, *Petits traités d'histoire naturelle*, ed. P.-M. Morel (Paris: Flammarion, 2000); Aristote, *Oeuvres complètes*, ed. P. Pellegrin (Paris: Flammarion, 2014).

37 The commentaries have been published in the *Commentaria in Aristotelem Graeca* series, which was published from 1882 to 1909 by the publisher Georg Reimer in Berlin.

38 It is questionable whether the *Mantissa* is an authentic work of Alexander's. The best edition of the *Mantissa*, with an introduction and commentary, is by Robert Sharples: Alexander of Aphrodisias, *De anima libri mantissa* (Berlin: De Gruyter, 2008).

English within the *Ancient Commentators on Aristotle* series edited by Richard Sorabji and published by Bloomsbury (previously by Duckworth).

The medieval Arabic reception of Greek philosophy, medicine, and astronomy resulted in a flood of translations and has been the subject of much scholarship.³⁹ There were at least two Arabic translations of *De anima* in circulation in the ninth century; one, attributed incorrectly in the MS to Ishāq ibn Hunayn, is available in a modern edition.⁴⁰ The situation with the texts in the *Parva naturalia* is more complicated. A peculiar adaptation of the treatises on sleep and dreaming was produced under the title *Kitāb al-Ḥiss wa-l-maḥsūs* (“On Sensation and the Object of Sensation,” named after the largely lost first section, which was a translation of *De sensu*); this text diverges considerably from the Aristotelian originals.⁴¹ It is this text that was the basis for Averroes’ commentary (*Talkhīs Kitāb al-Ḥiss wa-l-maḥsūs*).

In addition to Arabic paraphrastic and commentary works based on these sources, much of the original Greek commentary tradition was translated into Arabic in the ninth and tenth centuries; many individual works are extant and edited. Philosophers in the Arabic tradition were familiar with the Alexandrian material, including essays in the *Mantissa* such as “On sight” (chapter 15).⁴² Individual essays from the *Quaestiones et solutiones* were also commented upon.⁴³ Themistius’ paraphrase of *De anima*, which is extant in Arabic, was quite influential.⁴⁴ Many other Greek commentaries on Aristotelian works

39 For the most recent inventories and discussion of the “translation movement,” see Dimitri Gutas, “The Rebirth of Philosophy and the Translations into Arabic,” in *Philosophy in the Islamic World*, vol. 1: *8th–10th Centuries*, ed. U. Rudolph et al., trans. R. Hansberger (Leiden: Brill, 2017): 95–142; and Cristina D’Ancona, “Greek Sources in Arabic and Islamic Philosophy,” *Stanford Encyclopedia of Philosophy* (2019): <https://plato.stanford.edu/entries/arabic-islamic-greek/>. Gutas’ seminal work on the transmission of ideas from Greek into Arabic culture has already been mentioned in n23.

40 In *Aristūṭālīs fī l-naḥs*, ed. ‘Abd al-Raḥmān Badawī (Cairo: Dirāsāt Islāmiyya, 1954), 3–88.

41 The adaptation of this text attributed belief in veridical dreams to Aristotle, among other innovations: see Rotraud Hansberger, “*Kitāb al-Ḥiss wa-l-maḥsūs*: Aristotle’s *Parva naturalia* in Arabic Guise,” in *Les Parva Naturalia d’Aristote*, ed. C. Grellard and P.-M. Morel (Paris: Sorbonne, 2010), 143–62.

42 See *On Sight* (15), ed. H. Gärtje, *Studien zur Überlieferung der aristotelischen Psychologie im Islam* (Heidelberg: Carl Winter, 1971), 140–72.

43 See *On colours* (1.2), ed. H. Gärtje, “Die arabische Übersetzung der Schrift des Alexander von Aphrodisias über die Farbe,” *Nachrichten von der Akademie der Wissenschaften in Göttingen: Philologisch-Historische Klasse* (Göttingen: Vandenhoeck und Ruprecht, 1967): 343–82; *On Sense Perception according to Aristotle* (111.3), ed. H.-J. Ruland, “Die arabische Übersetzung der Schrift des Alexander von Aphrodisias über die Sinneswahrnehmung,” *Nachrichten von der Akademie der Wissenschaften in Göttingen: Philologisch-Historische Klasse* (Göttingen: Vandenhoeck und Ruprecht, 1978): 162–225.

44 *An Arabic Translation of Themistius’ Commentary on Aristotle’s De anima*, ed. M. C. Lyons (Thetford: Bruno Cassirer, 1973).

on psychology are attested, including Simplicius' commentary on *De anima* and the works of Theophrastus.⁴⁵

The Latin commentary literature on the *De anima* is huge, starting in the first half of the thirteenth century,⁴⁶ and that on *De sensu* considerable.⁴⁷ Many commentaries are still unedited and very few besides those of Thomas Aquinas are available in translations into modern languages.⁴⁸ The works of Albert the Great, written during the early phase of the rediscovery of Aristotle in the thirteenth century, were immensely influential, whereas the collective effort of the Coimbra commentators at the end of the sixteenth century should be mentioned for its synoptic erudition and clarity of exposition.⁴⁹

Secondary literature is enormous, but the reader might wish to start with a few seminal articles. Charles Kahn's "Sensation and Consciousness in Aristotle's Psychology" gives an excellent overview of Aristotle's account of the perceptual part of the soul; Richard Sorabji's "Body and Soul in Aristotle" is important both for making statements that came to characterise the so-called "literalist" interpretation and for distinguishing Aristotle's conception of mind from the one we inherited from Descartes; Myles Burnyeat's "Is An Aristotelian Philosophy of Mind Still Credible? (A Draft)" challenged the views of Sorabji, arguing that Aristotelian sense perception involves only spiritual and not physical change. A thorough summary of the literalism-spiritualism debate is Victor Caston's paper "The Spirit and the Letter." The collection of articles *Essays on Aristotle's De anima*, edited by Martha C. Nussbaum and Amélie Oksenberg Rorty, contains several influential articles on the subject of sense perception and remains an indispensable resource for students of Aristotle's

45 For a comprehensive list, with references to further information, see Gutas, "Rebirth," 121–35.

46 See Sander W. de Boer, *The Science of the Soul: The Commentary Tradition on Aristotle's De anima, c.1260–c.1360* (Leuven: Leuven University Press, 2013); and Ana María Mora-Márquez, "A List of Commentaries on Aristotle's *De anima* III (c.1200–c.1400)," *Cahiers de l'Institut du Moyen-Âge Grec et Latin* 83 (2014): 207–56.

47 Cf. Ebbesen, Thomsen Thörnqvist, and Decaix, "Questions," 59–115.

48 Thomas Aquinas, *Aristotle's De anima in the Version of William of Moerbeke and the Commentary of St. Thomas Aquinas*, trans. K. Foster and S. Humphries, introduction by I. Thomas (London: Routledge and Kegan Paul, 1951); id., *Commentary on Aristotle's On Sense and What is Sensed and On Memory and Recollection*, trans. K. White and E. M. Macierowski (Washington DC: Catholic University of America Press, 2005).

49 *Commentarii Collegii Conimbricensis Societatis Iesu in tres libros De Anima Aristotelis Stagiritae* (Coimbra: Typis & Expensis Antonii à Mariz Universitatis Typographi, 1598; reprinted Hildesheim: Georg Olms, 2001); *Commentarii Collegii Conimbricensis Societatis Iesu in Libros Aristotelis, qui Parva Naturalia Appellantur* (Lisbon: Ex Officina Simonis Lopesii, 1593). Both commentaries were immensely successful and came out in several new and expanded editions.

psychology.⁵⁰ Finally, we have edited a collection of essays that we hope will further the study of Aristotle's philosophy of mind.⁵¹

Stephen Everson's monograph *Aristotle on Perception* is a detailed study of Aristotle's theory of perception along the literalist line, whereas Thomas K. Johansen's book *Aristotle on the Sense-Organs* is a thorough study of Aristotle's understanding of the peripheral sense organs, supporting the spiritualist line of interpretation. Johansen's book *The Powers of Aristotle's Soul* is a comprehensive and philosophically meticulous discussion of Aristotle's psychology, putting sense perception in the context of Aristotle's account of the soul. For a detailed study of the common sense and the higher perceptual operations, one may wish to consult two monographs: Pavel Gregoric's *Aristotle on the Common Sense* and Anna Marmodoro's *Aristotle on Perceiving Objects*. On the other hand, Deborah Modrak's *Aristotle: The Power of Perception* and Stephan Herzberg's *Wahrnehmung und Wissen bei Aristoteles* focus on the role of sense perception in Aristotle's epistemology.⁵²

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We are thankful to the members of the *Representation and Reality* group, especially to David Bennett and Rotraud Hansberger for their help with the Arabic material, and to Sten Ebbesen and Christina Thomsen Thörnqvist for their assistance with the Latin material.

50 Charles Kahn, "Sensation and Consciousness in Aristotle's Psychology," *Archiv für Geschichte der Philosophie* 48 (1966): 43–81; Sorabji, "Body and Soul"; Burnyeat, "Is an Aristotelian Philosophy of Mind"; Caston, "The Spirit and the Letter"; Martha C. Nussbaum and Amelie O. Rorty, eds., *Essays on Aristotle's De Anima* (Oxford: Clarendon Press, 1992); the paperback edition from 1995 contains an added essay by Myles Burnyeat, "How Much Happens when Aristotle Sees Red and Hears Middle C?" in *Essays on Aristotle's De Anima*, ed. M. C. Nussbaum and A. Oksenberg Rorty (Oxford: Clarendon Press, 1995), 421–34 with a further defence of his spiritualist reading of Aristotle.

51 Pavel Gregoric and Jakob Leth Fink, eds., *Encounters with Aristotelian Philosophy of Mind* (London: Routledge, 2021).

52 Stephen Everson, *Aristotle on Perception* (Oxford: Oxford University Press, 1997); Thomas Kjeller Johansen, *Aristotle on the Sense-Organs* (Cambridge: Cambridge University Press, 1997); id., *The Powers of Aristotle's Soul* (Oxford: Oxford University Press, 2012); Pavel Gregoric, *Aristotle on the Common Sense* (Oxford: Oxford University Press, 2007); Anna Marmodoro, *Aristotle on Perceiving Objects* (Oxford: Oxford University Press, 2014); Deborah Modrak, *Aristotle: The Power of Perception* (Chicago: The University of Chicago Press, 1987); Stephan Herzberg, *Wahrnehmung und Wissen bei Aristoteles* (Berlin: De Gruyter, 2011).

Aristotle and Alexander of Aphrodisias on the Individuation and Hierarchy of the Senses

Katerina Ierodiakonou

1 Introduction

Richard Sorabji's 1971 article, "Aristotle on Demarcating the Five Senses,"¹ is the standard work quoted by contemporary philosophers who want to briefly refer to the history of the philosophical problem concerning the criteria for the individuation of the senses.² This is perfectly justifiable, since Sorabji focuses in his article on the Aristotelian distinction of the five senses and undertakes an assessment of its effectiveness. He defends the position that in Aristotle's view it is mainly the perceptible objects that constitute the criterion for differentiating the senses from each other; these objects are colours in the case of sight, sounds in the case of hearing, flavours in the case of taste, and odours in the case of smell. Only in the case of touch, Sorabji points out, does Aristotle choose instead the "contact criterion" that distinguishes touch from the three distance senses, that is, sight, hearing, and smell, while subsuming taste under touch.³ As to the question whether it is a good decision on the part of Aristotle to single out the perceptible objects for defining the senses, Sorabji thinks that it is altogether reasonable. But he also argues that, in the case of touch, Aristotle's contact criterion proves less useful than Plato's "non-localisation criterion,"⁴ according to which touch is distinguished from all the

1 Richard Sorabji, "Aristotle on Demarcating the Five Senses," *The Philosophical Review* 80 (1971): 55–79.

2 For instance, Brian Keeley, "Making Sense of the Senses: Individuating Modalities in Humans and Other Animals," *The Journal of Philosophy* 99 (2002): 20n24; Matthew Nudds, "The Significance of the Senses," *Proceedings of the Aristotelian Society* 104 (2004): 36; Fiona Macpherson, "Individuating the Senses," in *The Senses: Classic and Contemporary Philosophical Perspectives*, ed. F. Macpherson (Oxford: Oxford University Press, 2011), 38; Mohan Matthen, "The Individuation of the Senses," in *The Oxford Handbook of Philosophy of Perception*, ed. M. Matthen (Oxford: Oxford University Press, 2015), 567.

3 Sorabji, "Aristotle on Demarcating the Five Senses," 68–78.

4 Plato, *Timaeus*, in *Platonis opera*, vol. 4, ed. J. Burnet (Oxford: Clarendon Press, 1902, repr. 1968), 61d–65b.

other senses, including taste, by perceiving its objects through all parts of the body, that is “without the use of a localised organ, such as eyes, nose, ears, or tongue.”⁵

This article aims at reopening the discussion about the criteria for the individuation of the senses put forward in antiquity, focusing in particular on those proposed by Aristotle and the subsequent Aristotelian tradition. For it is not only ancient philosophers before Aristotle, notably Democritus and Plato, who expressed views on this issue. After Aristotle, too, the Peripatetic and Neoplatonic commentators of late antiquity, while interpreting Aristotle's psychological treatises, continued to engage in this topic as well as in the related topic of the hierarchy of the senses. In fact, it is the commentators' tradition that I want to make use of here, in my attempt to analyse and understand Aristotle's doctrine of the individuation and hierarchy of the senses. More specifically, I want to closely study not only relevant passages in Aristotle but, in addition, the remarks made by the most eminent of his ancient commentators, Alexander of Aphrodisias. I shall consider Alexander's treatise *De anima*, in which he discusses the same issues as those dealt with in Aristotle's *De anima*, and also his extensive commentary on Aristotle's other work on sense perception, the *De sensu*. So, in what follows, I focus on what Aristotle and Alexander in their respective writings have to say about the following three questions:

- (1) What are the criteria for demarcating the senses?
- (2) Why are there not more than the five senses?
- (3) Is there a hierarchy among the five senses?

Given that Aristotle's texts on these matters are concise and somewhat obscure, Alexander's remarks prove to be of some help in unravelling the Philosopher's thought. At the same time, it is interesting to examine Alexander's writings for traces of further developments with regard to the problems connected with the individuation and hierarchy of the senses. In this way, we may reassess how central, according to the Aristotelian tradition, the criterion of demarcation based on the perceptible objects actually is. For it seems that, although Aristotle's account often stresses their role, the later Aristotelian tradition is committed to a multiplicity of criteria that give to the whole issue a complicated and rather intriguing dimension.⁶

5 Sorabji, “Aristotle on Demarcating the Five Senses,” 73.

6 See Taieb's discussion in chapter eight for Brentano's take on this issue.

2 What Are the Criteria for Demarcating the Senses?

The first Aristotelian passage that Sorabji invokes right at the beginning of his article,⁷ in order to support his view that Aristotle emphasises the importance of the perceptible objects in identifying and classifying the senses, is a much quoted passage from the *De anima*, in which the senses are said to be defined in terms of their objects or, more precisely, in terms of their special or proper objects (*idia aisthētá*). That is to say, Aristotle claims that the very essence of each sense should be thought of as intrinsically connected to the qualities perceived only by this particular sense; for instance, sight is related to colours and hearing is related to sounds. These qualities are thus regarded as the sense's proper objects:

Regarding each of the senses, then, it is necessary to discuss their perceptible objects first. But perceptible objects are spoken of in three ways, two of which we say are perceived in virtue of themselves and the other one co-incidentally. Of the first two objects, one is proper to each sense, while the other is common to all. I mean by 'proper' that which cannot be perceived by another sense and about which it is not possible to be deceived; for example, sight is of colour, hearing is of sound, and taste is of flavour, while touch possesses several different types of objects [...] Of the objects that are perceptible in virtue of themselves it is the proper objects that are perceptible in the chief sense, and the essence of each sense is naturally relative to these objects.⁸

Besides, Sorabji claims, the structure itself of the *De anima* shows the privileged position of the proper objects in Aristotle's examination of the senses; each one of chapters 7–11 of the second book of the *De anima* deals with one of the five senses and gives prominence to the proper objects of the respective sense. Furthermore, Sorabji adds, the small psychological treatises that are

⁷ Sorabji, "Aristotle on Demarcating the Five Senses," 55.

⁸ Λεκτέον δὲ καθ' ἐκάστην αἴσθησιν περὶ τῶν αἰσθητῶν πρώτων. λέγεται δὲ τὸ αἰσθητὸν τριχῶς, ὧν δύο μὲν καθ' αὐτὰ φαμεν αἰσθάνεσθαι, τὸ δὲ ἓν κατὰ συμβεβηκός. τῶν δὲ δυοῖν τὸ μὲν ἴδιόν ἐστιν ἐκάστης αἰσθήσεως, τὸ δὲ κοινὸν πασῶν. λέγω δ' ἴδιον μὲν ὃ μὴ ἐνδέχεται ἑτέρᾳ αἰσθήσει αἰσθάνεσθαι, καὶ περὶ ὃ μὴ ἐνδέχεται ἀπατηθῆναι, οἷον ὅψις χρώματος καὶ ἀκοή ψόφου καὶ γεῦσις χυμοῦ, ἡ δ' ἀφή πλείους [μὲν] ἔχει διαφοράς [...] τῶν δὲ καθ' αὐτὰ αἰσθητῶν τὰ ἴδια κυρίως ἐστὶν αἰσθητά, καὶ πρὸς ἃ ἡ οὐσία πέφυκεν ἐκάστης αἰσθήσεως. (Aristotle, *De anima*, ed. W. D. Ross (Oxford: Oxford University Press, 1961), 2.6, 418a7–25, trans. F. D. Miller, Jr., *Aristotle: On the Soul and Other Psychological Works* (Oxford: Oxford University Press, 2018).)

included in the *Parva naturalia* also testify to Aristotle's interest in demarcating the senses on the basis of their proper objects.⁹

Sorabji also argues that Aristotle's emphasis on the proper objects is helpful overall as a criterion for demarcating the senses. Reference to the proper objects, he claims, "does pick out most of the standard cases" connected with a particular sense, and thus ensures its unity.¹⁰ Nevertheless, Sorabji himself admits that reference to the proper objects alone is not sufficient. He fleetingly points out that in distinguishing the senses Aristotle sometimes attaches importance, but certainly much less, to other aspects, such as the ways in which "the sense objects interact with the environment, so as to affect our sense organs," and the physiological processes that take place in the sense organs themselves.¹¹ But are these other criteria for demarcating the senses as insignificant and peripheral as Sorabji's analysis suggests? And even if his interpretation holds for Aristotle's account of the senses, does it also hold for the rest of the Aristotelian tradition, and especially for Alexander's own treatise *De anima* and his systematic commentary on the *De sensu*?

Before I investigate Aristotle's and Alexander's views, let me briefly look at some of the criteria suggested by contemporary philosophers for the individuation of the senses and, in particular, the four criteria offered by Paul Grice. "The senses are to be distinguished," he says,¹² by

- (1) "the differing features that we become aware of by means of them"; for instance, sight "might be characterised as perceiving things as having certain colours, shapes and sizes," while hearing might be characterised "as perceiving things (or better, in this case, events) as having certain degrees of loudness, certain determinates of pitch, certain tone-qualities."
- (2) "the special introspectible character of the experiences" they produce; for instance, sight and smell are distinguished by the different experiences they produce of seeing and smelling.
- (3) "the external physical conditions on which the various modes of perceiving depend," namely by the "differences in the 'stimuli' connected with different senses"; for instance, "the sense of touch is activated by contact, sight by light rays, hearing by sound waves."

9 Sorabji, "Aristotle on Demarcating the Five Senses," 56–57.

10 Sorabji, "Aristotle on Demarcating the Five Senses," 67.

11 Sorabji, "Aristotle on Demarcating the Five Senses," 58.

12 The following summary of the four criteria is to be found in Paul Grice, "Some Remarks about the Senses," in *Analytical Philosophy: First Series*, ed. R. J. Butler (Oxford: Basil Blackwell, 1962); repr. in *The Senses: Classic and Contemporary Philosophical Perspectives*, ed. F. Macpherson (Oxford: Oxford University Press, 2011), 85.

- (4) “the internal mechanisms associated with the various senses”; for instance, “the character of the sense organs and their mode of connection with the brain.”

More recently, Fiona Macpherson has recast Grice's four criteria in the following way:¹³ The first two, namely “the representational criterion” and “the phenomenal character criterion,” are broadly regarded as “experiential approaches, holding that which sense is being used is determined by which features the perceptual experiences produced by the sense have.”¹⁴ The other two, namely “the proximal stimulus criterion” and “the sense organ criterion,” are broadly regarded as “physical approaches that hold that which physical factors are at play in the use of a sense determine which sense is being used.”¹⁵ Does Aristotle focus merely on the first of these criteria, that is, just on the perceptible objects, or does he also take into consideration all or some of the other criteria, namely the phenomenal character, the external physical conditions, and the internal mechanisms?

In the second book of his *De anima*, Aristotle postulates the methodological principle prescribing that, in order to investigate a given power or faculty (*dýnamis*), we must look at its activity or actuality (*enérgeia*), and in order to grasp its actuality, we must look at the kinds of objects on which the faculty is exercised:

One who is going to investigate these faculties must grasp what each of them is, and then proceed to inquire about the things that come next and other matters. But if one must state what each of them is – for example, the faculties of thought, perception, and nutrition – one must state even before that what it is to think or perceive; for actualities and actions are prior in account to potentialities. And, if this is so, and if their corresponding objects should have been studied beforehand, one would first have to make a determination about those objects and for the same reason, for example, concerning nourishment and the objects of perception and thought.¹⁶

13 Macpherson, “Individuating the Senses,” 22–28.

14 Macpherson, “Individuating the Senses,” 23.

15 Macpherson, “Individuating the Senses,” 23.

16 Ἀναγκαῖον δὲ τὸν μέλλοντα περὶ τούτων σκέψιν ποιεῖσθαι λαβεῖν ἕκαστον αὐτῶν τί ἐστίν, εἴθ' οὕτως περὶ τῶν ἔχοντων καὶ περὶ τῶν ἄλλων ἐπιζητεῖν. εἰ δὲ χρὴ λέγειν τί ἕκαστον αὐτῶν, οἷον τί τὸ νοητικὸν ἢ τὸ αἰσθητικὸν ἢ τὸ θρεπτικόν, πρότερον ἔτι λεκτέον τί τὸ νοεῖν καὶ τί τὸ αἰσθάνεσθαι· πρότεροι γάρ εἰσι τῶν δυνάμεων αἱ ἐνέργειαι καὶ αἱ πράξεις κατὰ τὸν λόγον. εἰ δ' οὕτως, τούτων δ' ἔτι πρότερα τὰ ἀντικείμενα δεῖ θεωρηκέναι, περὶ ἐκείνων πρῶτον ἂν δεοί διορίσαι

Aristotle's method applies in the case of sense perception, because the senses are said to become somewhat like (*homoion*) their proper objects.¹⁷ So, by figuring out the nature of the proper objects in themselves, we manage to figure out the way they affect our senses. In the same spirit, Alexander writes the following in his own treatise *De anima*:

But those who intend to speak about the powers for perceiving and the activities corresponding to them must, since the activities of each sense concern a perceptible of its own, analyse perceptibles first briefly, if they are to make these [activities] clear, since perceiving occurs by likening to them.¹⁸

In fact, Aristotle and Alexander presuppose here the view defended by Plato, both in the *Republic* and in the *Theaetetus*, according to which different faculties have different objects and different objects involve different faculties.¹⁹

However, there is also some evidence that Aristotle does not suggest as criteria for demarcating the senses only their proper objects. In certain passages he seems to imply that it is crucial to take into account, in addition, the differences among the sense organs as well as the different external media through which our sense organs grasp their objects:

One might be convinced that there is no other sense apart from the five (namely, sight, hearing, smelling, taste, and touch) from the following considerations: we in fact possess perception of everything of which touch is the sense (for it is by touch that all the characteristics of the tangible object, in so far as it is tangible, are perceptible to us). Also, if any sense is missing, we are necessarily missing a sense organ too. And whatever objects we perceive by being in touch with them are perceptible by

διὰ τὴν αὐτὴν αἰτίαν, οἷον περὶ τροφῆς καὶ αἰσθητοῦ καὶ νοητοῦ. (*De An.* 2.4, 415a14–22, trans. F. D. Miller, Jr.)

17 *De An.* 2.5, 417a14–20, 418a3–6.

18 μέλλοντας δὲ λέγειν περὶ τῶν αἰσθητικῶν δυνάμεων καὶ περὶ τῶν ἐνεργειῶν τῶν κατ' αὐτάς, ἐπεὶ αἱ ἐνέργειαι αὐτῶν ἐκάστης γίνονται περὶ οἰκείον τι αἰσθητόν, ἀναγκαῖον πρὸς τὴν δῆλωσιν αὐτῶν πρῶτον ἐπ' ὀλίγον περὶ τῶν αἰσθητῶν διαλαβεῖν, ἐπεὶ ὁμοιώσει τούτων τὸ αἰσθάνεσθαι. (Alexander of Aphrodisias, *Praeter commentaria scripta minora: De anima liber cum Mantissa*, ed. I. Bruns (Berlin: Reimer, 1887), 40.15–19; trans. V. Caston, *Alexander of Aphrodisias: On the Soul* (London: Bloomsbury, 2012).) See also, Alexander, *de An.*, 32.25–27, 33.7–10.

19 Plato, *Republic*, in *Platonis opera*, vol. 4, ed. J. Burnet (Oxford: Clarendon Press, 1902, repr. 1968), 477c–478b; *Theaetetus*, in *Platonis opera*, vol. 1, ed. J. Burnet (Oxford: Clarendon Press, 1900, repr. 1967), 184d–185c.

touch, a sense which we in fact possess, while whatever objects we perceive through media without being in touch with them are perceptible by means of the elements, namely, air and water.²⁰

Besides, the impression that Aristotle ascribes importance to the differences among the sense organs, when it comes to demarcating the senses, is also confirmed by his discussion of the relation between the five senses and the four basic elements, namely fire, air, water, and earth. For it may be the case that in *De sensu* 2 he criticises his predecessors,²¹ and in particular Plato who argued that the sense of sight is connected to fire, hearing to air, taste to water, touch to earth, and smell to something intermediate between air and water,²² but Aristotle himself postulates a correspondence between the sense organs and the four basic elements that constitute them; according to him, the eyes are composed of water, the ears of air, the nose of fire, and the organs of both taste and touch of earth:

Hence, if any of these things take place as we say, it is evident that if one must offer an explanation that assigns each sense organ to one of the elements, we must suppose that the part of the eye capable of seeing consists of water, that what is capable of perceiving sounds consists of air, and the organ of smell consists of fire [...]. And that which is capable of touch is made of earth. And the faculty of taste is a form of touch.²³

So, Aristotle's correlation of the sense organs to the four basic elements, even if it is presented in a dialectical context, suggests that the senses are also individuated on the basis of their organs.²⁴

20 "Ὅτι δ' οὐκ ἔστιν αἴσθησις ἑτέρα παρὰ τὰς πέντε (λέγω δὲ ταύτας ὄψιν, ἀκοήν, ὄσφρησιν, γεύσιν, ἀφήν), ἐκ τῶνδε πιστεύσειεν ἄν τις. εἰ γὰρ παντὸς οὐ ἔστιν αἴσθησις ἀφή καὶ νῦν αἴσθησιν ἔχομεν (πάντα γὰρ τὰ τοῦ ἀπτοῦ ἢ ἀπτὸν πάθη τῇ ἀφῇ ἡμῖν αἰσθητὰ ἔστιν), ἀνάγκη τ', εἴπερ ἐκλείπει τις αἴσθησις, καὶ αἰσθητήριόν τι ἡμῖν ἐκλείπειν, καὶ ὅσων μὲν αὐτῶν ἀπτόμενοι αἰσθανόμεθα, τῇ ἀφῇ αἰσθητὰ ἔστιν, ἣν τυγχάνομεν ἔχοντες, ὅσα δὲ διὰ τῶν μεταξὺ καὶ μὴ αὐτῶν ἀπτόμενοι, τοῖς ἀπλοῖς, λέγω δ' οἶον ἀέρι καὶ ὕδατι. (*De An.* 3.1, 424b22–30, trans. F. D. Miller, Jr.)

21 Aristotle, *Sens.*, in *Parva naturalia*, ed. W. D. Ross (Oxford: Oxford University Press, 1955), 2, 437b10–23.

22 Plato, *Timaeus*, 45b–d; 66d–68b.

23 ὥστ' εἴπερ ἐπὶ τούτων συμβαίνει καθάπερ λέγομεν, φανερόν ὡς εἰ δεῖ τοῦτον τὸν τρόπον ἀποδιδόναι καὶ προσάπτειν ἕκαστον τῶν αἰσθητηρίων ἐνὶ τῶν στοιχείων, τοῦ μὲν ὀμματος τὸ ὁρατικόν ὕδατος ὑποληπτέον, ἀέρος δὲ τὸ τῶν ψόφων αἰσθητικόν, πυρὸς δὲ τὴν ὄσφρησιν [...]. τὸ δ' ἀπτικὸν γῆς, τὸ δὲ γευστικὸν εἰδὸς τι ἀφῆς ἔστιν. (*Sens.* 2, 438b16–439a1; trans. F. D. Miller, Jr., *Aristotle: On the Soul and Other Psychological Works* (Oxford: Oxford University Press, 2018).)

24 It should be noted, though, that in *De anima* 3.1, 425a3–9 Aristotle claims that all sense organs are composed of only water and air, while fire and earth belong to no sense-organ;

The role of the sense organs in identifying and distinguishing the senses becomes particularly prominent in Alexander's writings. Right at the beginning of his *De sensu* commentary, he presents the thematic relation between the two Aristotelian psychological treatises *De anima* and *De sensu*. He then comments on the title of the latter in the following way:

Another indication of the purpose of the inquiry in the [book] is the book's title. Because he was discussing in it sense organs and perceptibles he entitled it "On Sense and Sense Objects," since the discussion of the sense organs contributes to the inquiry concerning the senses. For perception is common to soul and body. Alternatively by "Sense" he means the sense organs. For they call the sense organs senses.²⁵

Alexander's claim that the title of Aristotle's treatise *De sensu et sensibilibus* (*Peri aisthéseōs kai aisthētôn*) should not be understood as referring to the senses and their objects, but rather to the sense organs and the perceptible objects, sounds at first rather strange. He explains it by pointing out that the Greek term "*aisthéseis*" does not mean "senses," here, but rather "*aisthētéria*," i.e., "sense organs"; and it is true that sometimes Aristotle himself uses the Greek term "*opsis*" in order to refer not to sight, which is its standard meaning, but to the eyes. What is more interesting, though, is Alexander's insistence that the topic of this treatise is both the perceptible objects and the sense organs, although in Aristotle's *De sensu* there are only a few remarks in the second chapter about the anatomy of the eyes. It seems that Alexander considers it important to present the Aristotelian doctrine of sense perception as offering some account not only of the perceptible objects but of the sense organs,

see also Alexander of Aphrodisias, *Quaestiones*, in *Praeter commentaria scripta minora: Quaestiones – De fato – De mixtione*, ed. I. Bruns (Berlin: Reimer, 1892), 3,6, 91.10–17. The inconsistency between these texts and *De sensu* 2 is, presumably, only apparent; for the context in *De sensu* 2 seems to be dialectical and it may not express Aristotle's own view. This is, in fact, how Alexander interprets it in his *De sensu* commentary (Alexander of Aphrodisias, *In librum De sensu commentarium*, ed. P. Wendland (Berlin: Reimer, 1901), 37.7–10, 38.12–16, 39.16–17 and 22–29). Of a different view is Thomas Johansen, *Aristotle on the Sense-Organ* (Cambridge: Cambridge University Press, 1997), 40–44, who claims that Aristotle is serious when he gives in *De sensu* 2 his alternative version of the correspondence between the sense organs and the four basic elements.

25 Δηλοῖ δὲ καὶ ἡ ἐπιγραφὴ τοῦ βιβλίου τὴν πρόθεσιν τῆς κατ' αὐτὸ πραγματείας. λέγων δὲ περὶ αἰσθητηρίων τε καὶ αἰσθητῶν ἐν αὐτῷ <Περὶ αἰσθήσεως καὶ αἰσθητῶν> ἐπέγραψεν αὐτό, ὥς καὶ τοῦ περὶ τῶν αἰσθητηρίων λόγου εἰς τὴν περὶ τῶν αἰσθήσεων συντελοῦντος θεωρίαν· κοινὴ γάρ ἡ αἴσθησις ψυχῆς καὶ σώματος. ἢ <αἰσθήσεων> ἀντὶ τοῦ 'αἰσθητηρίων'. αἰσθήσεις γὰρ καὶ τὰ αἰσθητήρια καλοῦσιν. (Alexander, *In Sens.* 1.3–2.6; trans. A. Towey, *On Aristotle On Sense Perception* (London: Duckworth, 2000).)

too. Hence, it is not surprising that, while commenting on Aristotle's *De sensu*, Alexander undertakes to show in detail how the five senses are distinguished from each other also on the basis of their sense organs, which are composed of different basic elements that demarcate their respective physiological mechanisms.²⁶

Another passage from Alexander's commentary on the *De sensu*, in which he stresses the role of yet another criterion for distinguishing the senses, namely that of the external physical conditions on which sense perception depends, is the passage in which Alexander explains and develops Aristotle's criticism of Democritus' view that all senses can be reduced to touch.²⁷ In this passage, Alexander argues that if all senses were actually senses of touch, they would have to perceive the contraries that we perceive by touch, namely the hard and the soft, the rough and the smooth, the hot and the cold, the moist and the dry, and in general all tangible objects; in reality, however, when we touch something, we perceive neither the white or the black, nor the sweet or the bitter. Moreover, Alexander adds, if sight were a sense of touch it would have to see things that were placed on the eyes, and the sense of smell would have to smell things that were placed on the nose, and hearing would have to hear things that were placed on the ears; but, as a matter of fact, these senses perceive only "from a distance and through an external medium."²⁸ Hence, in Alexander's view, we differentiate the senses not only by their different proper objects, but also by taking into consideration that some senses need a medium in order to perceive their proper objects. In this way, the senses of sight and hearing are distinguished from touch and taste, while smell is presented as an intermediate sense between sight and hearing, on the one hand, and touch and taste, on the other.²⁹

But apart from the general claims that we find in the works of Aristotle and Alexander concerning the demarcation of the senses, there are also remarks suggesting that some of the five senses share common features to such a degree that they cannot be considered as distinct. We have already mentioned above that, in the *De sensu*,³⁰ Aristotle explicitly says that "taste is a form of touch"; and he repeats the same statement in the *De anima*, explaining also the reason why this is so, namely that its object, i.e., flavour, is a tangible body:

26 Alexander, *In Sens.*, 14.18–15.14, 37.7–41.6.

27 Alexander, *In Sens.*, 83.13–22.

28 Alexander, *In Sens.*, 83.22–23, trans. A. Towey.

29 See also Alexander, *In Sens.*, 104.19–106.4.

30 *Sens.* 2, 438b30–439a1.

That is why taste also is as it were a sort of touch; for its object is nourishment, and nourishment is a tangible body.³¹

Besides, the object of taste could be taken to be an object of touch, since flavour is present in something moist, and the objects of touch are the hot and the cold, the moist and the dry, the hard and the soft, and other similar pairs of contraries.³² Also, taste and touch share the fact that they do not need an external medium to perceive their objects, that is, they are contact senses, which are both said to be related to the element of earth.³³ This view is fully endorsed and further expanded by Alexander.³⁴

But although taste and touch turn out to be similar, taste is considered a distinct sense from touch in the Aristotelian tradition. So, why are taste and touch thought of as different senses? It is reasonable to suggest that Aristotle is influenced in this by his predecessors who conventionally counted five senses and connected many different objects with touch, but still treated taste as distinct from it. Indeed, Aristotle devotes separate discussions in his psychological works to the five senses, and does not treat the senses of taste and touch together, in spite of his own recommendation that taste should be subsumed under touch. But, then, what is the criterion of demarcation that Aristotle uses when he treats taste and touch as two different senses? It seems that Aristotle considers decisive the fact that there is something that taste and touch do not share, namely their sense organs; touch perceives its objects through all parts of the body, while taste perceives flavours only through the tongue.

In this context, it is also worth pointing out that Aristotle raises the general question whether the sense of touch should be considered as a single sense or as a bundle of many different senses.³⁵ For, as we have just said, Aristotle lists under the sense of touch the power to perceive the hot and the cold, the moist and the dry, the hard and the soft, and other similar pairs of contraries, whereas all the other senses seem to be of a single pair of contraries; for instance, sight perceives of the white and the black, hearing of the high and the low, taste of the sweet and the bitter. Interestingly enough, this issue is reflected in recent scientific findings, as Macpherson points out: “we normally think of touch as one sensory modality, but scientists have revealed that there are in fact at least

31 δὲ καὶ ἡ γεῦσις ἐστὶν ὥσπερ ἀφή τις· τροφῆς γὰρ ἐστὶν, ἡ δὲ τροφή τὸ σῶμα ἀπτόν (*de An.* 3.12, 434b18–19, trans. F. D. Miller, Jr.). See also *de An.* 2.3, 414b6–10; 2.9, 421a19, 422a8–11.

32 *De An.* 2.11, 422b23–27.

33 On the close relation between the contact senses of taste and touch, see Johansen, *Sense-Organs*, 179–88.

34 Alexander, *de An.*, 51.26, 54.1–5, and 93.4; *In Sens.*, 39.23, 78.1–3, 105.4–5, and 168.20–22.

35 *De An.* 2.11, 422b17–23.

four different, somewhat discrete physiological mechanisms corresponding to the detection of pressure, pain, warmth, and cold.”³⁶ Aristotle, on the other hand, insists that touch is one sense, and this is actually the opinion that prevails throughout antiquity. He is fully aware, though, that touch has multiple objects and, as Stephen Everson puts it, his tactical “move is to claim that touch is not the only sense which is sensitive to more than one pair of contraries.”³⁷ Aristotle thus argues that, for instance, hearing is not only of the high and the low but also of the loud and the soft, the smooth and the rough, and certain other similar pairs of contraries.³⁸ But although this argument could be said to remove the problem of the multiple objects of touch, it does not explain what they have in common as objects of touch.³⁹

Alexander of Aphrodisias, too, recognises this problem and tries to supply Aristotle with a further argument. According to him, even the object of sight does not have a single name, since it includes colours as well as the shining objects that are seen in darkness:

And if this were the case, the difficulty would remain. Tangible objects will then differ from the perceptible objects of the other senses in that each of the other senses has one subject with its special name (the subject of hearing is sound, of sight is colour, of taste is flavour, and of smell is odour), while of touch it is not clear that the subject of which the tangible contrarieties are predicated is one. For “tangible” is not a name of the subject, but of the relation [of the object to the sense of touch], just like in the case of “visible” or “audible.” But whereas there are names for these, namely “colour” and “sound,” there is no single name special to the tangible. A possible answer is that not even in the case of the visible objects is it possible to subsume them under one name, given that colours are

36 Macpherson, “Individuating the Senses,” 11. See also Matthew Fulkerson, “What Counts as Touch?” in *Perception and its Modalities*, ed. D. Stokes, M. Matthen, and S. Biggs (Oxford: Oxford University Press, 2014), 191–204.

37 Stephen Everson, *Aristotle on Perception* (Oxford: Oxford University Press, 1997), 34.

38 *De An.* 2.11, 422b27–32.

39 Stephen Everson, *Aristotle on Perception*, 34, gives the following alternative interpretation of Aristotle’s doctrine: Aristotle points out that the organ of touch is affected by the relevant pair of contraries “as a body and by a body as a body. In being properties of a body as body, the proper objects of touch are all such as to affect the organ of touch and, in sharing this property, they constitute a unified set.” That is to say, just like the other senses, “touch is essentially related to those objects which activate it,” namely what is dry, moist, hot, cold etc., “and so is to be defined by reference to these” (*ibid.*, 29); “what gives unity to the proper objects of touch is just that they are tangible” (*ibid.*, 34). But such an interpretation is not to be found in the ancient commentaries.

visible as well as that which can be referred to by a description but happens to have no name, as Aristotle says; for these are the shining objects that are seen in darkness.⁴⁰

It is highly doubtful that Alexander's additional argument settles the issue in a satisfactory way, since we still lack a clear explanation of what the objects of touch have in common. However, both Aristotle and his commentators insist that touch is a single sense rather than a bundle of senses, despite having numerous kinds of objects.⁴¹ So, in this case, too, it is not the perceptible objects that are used to adequately define a sense and distinguish it from the others.

There is another close affinity between two senses which raises questions about the primacy of the object criterion for the demarcation of the senses, namely the affinity between the senses of taste and smell. At the beginning of the fourth chapter of the *De sensu*, which is devoted to the sense of taste, Aristotle states that the objects of taste and smell, namely odour and flavour, are "almost the same affection, although they are not realised in the same things."⁴² He corroborates this statement by referring to the fact that flavourless things are also odourless,⁴³ by the similar ways in which flavours and odours are named,⁴⁴ and by the observation that the odours connected to nourishment are said to be pleasant or unpleasant according to their corresponding flavours.⁴⁵ Such claims are also made in contemporary studies on the senses of taste and smell:

40 εἰ δὲ τοῦτο, μένοι ἂν τὸ ἡπορημένον, καὶ ἐκεῖνο δὲ διαφέρον ἔχει τὰ ἀπτά πρὸς τὰ ταῖς ἄλλαις αἰσθήσεσιν αἰσθητά, ὅτι ἐκείνων μὲν ἐκάστη ἐν τί ἐστι τὸ ὑποκείμενον οἰκείον ἔχον ὄνομα (τῇ μὲν γὰρ ἀκοῇ ψόφος τὸ ὑποκείμενον, τῇ δὲ ὄψει χρώμα, χυμὸς δὲ γεύσει, ὁσφρήσει δὲ ὁσμή), τῇ δὲ ἀφῇ, ὅτι ἐν τὸ ὑποκείμενον, περὶ ὃ αἱ ἀπταὶ εἰσιν ἐναντιώσεις, οὐκ ἔστι δηλόν. οὐ γὰρ ἐστι τὸ ἀπτόν ὄνομα τοῦ ὑποκειμένου, ἀλλὰ τῆς σχέσεως, ὡς τὸ ὁρατόν, ὡς τὸ ἀκουστόν, ὀνόματα δὲ ἐκείνων μὲν τὸ χρώμα καὶ ὁ ψόφος, τοῦ δὲ ἀπτοῦ οὐδὲν ἐστὶν ἐν ὄνομα οἰκείον. ἢ οὐδὲ ἐπὶ τῶν ὁρατῶν ἐνὶ οἷον τε ὀνόματι περιλαβεῖν αὐτά, εἴ γέ ἐστιν ὁρατὰ χρώματα καὶ ὁ λόγῳ μὲν ἐστὶν εἰπεῖν, ἀνώνυμον δὲ τυγχάνει ὄν, ὡς εἶρηκεν Ἀριστοτέλης· τοιαῦτα γὰρ τὰ σκότους στίλβοντά τε καὶ ὁρώμενα. (Alexander, *de An.*, 56.3–14, trans. K. Ierodiakonou.)

41 As Karl Dallenbach points out ("Pain: History and Present Status," *American Journal of Psychology* 52 (1939): 332), Themistius (*In de An.*, 72.11–36) finds the reasoning in favour of the view that touch is a single sense lacking, and thus considers the issue unresolved.

42 περὶ δὲ ὁσμῆς καὶ χυμοῦ λεκτέον. σχεδὸν γάρ ἐστι τὸ αὐτὸ πάθος, οὐκ ἐν τοῖς αὐτοῖς δ' ἐστὶν ἐκάτερον αὐτῶν (*Sens.* 4, 440b28–30, trans. F. D. Miller, Jr.). See also *Sens.* 6, 447a6–8.

43 *Sens.* 5, 443a8–21.

44 *Sens.* 5, 443b8–12; *de An.* 2.9, 421a26–b2.

45 *Sens.* 5, 443b19–444a8.

what are commonly taken to be experiences of taste are really experiences created by both taste and smell. For example, when one has a bad cold and loses one's sense of smell, one's food tastes bland. Of course, we can have pure taste experiences and pure smell experiences. However, what we usually take to be experiences of taste [...] are produced by mechanisms required for both pure taste and smell.⁴⁶

Let us examine, though, how Aristotle himself justifies the close connection between the senses of taste and smell at the beginning of the fifth chapter of the *De sensu*, which is devoted to the sense of smell:

It is necessary to think of smells too in the same way; for what the dry produces in moisture the flavoured moisture produces in another genus, in air and water alike. (We have said just now that transparency is common to both air and water, but a thing is not an odour in so far as it is transparent but in so far as it is capable of washing or cleansing flavoured dry stuff.) For the phenomenon of smelling is found not only in air but also in water.⁴⁷

This passage is rather puzzling, and it is not surprising that different interpretations of it have been suggested by Aristotelian scholars. For we are told, at first, that odours are produced by flavoured moisture acting on air or water, just as flavours are produced by dry stuff acting on moisture.⁴⁸ But we are also told, in what follows, that odours result from the washing or cleansing of flavoured dry stuff in air or water.⁴⁹ So, are the proper objects of smell, namely odours, produced by flavoured moisture or by flavoured dry stuff? In general, how are we supposed to understand the production of odours and their close affinity to flavours?

46 Macpherson, "Individuating the Senses," 14.

47 Τὸν αὐτὸν δὲ τρόπον δεῖ νοῆσαι καὶ περὶ τὰς ὁσμάς· ὅπερ γὰρ ποιεῖ ἐν τῷ ὑγρῷ τὸ ξηρόν, τοῦτο ποιεῖ ἐν ἄλλῳ γένει τὸ ἔγχυμον ὑγρόν, ἐν ἀέρι καὶ ὕδατι ὁμοίως. (κοινὸν δὲ κατὰ τούτων νῦν μὲν λέγομεν τὸ διαφανές, ἔστι δ' ὁσφραντὸν οὐχ ἢ διαφανές, ἀλλ' ἢ πλυτικὸν καὶ ῥυπτικὸν ἐγγύμου ξηρότητος.) οὐ γὰρ μόνον ἐν ἀέρι ἀλλὰ καὶ ἐν ὕδατι τὸ τῆς ὁσφρήσεως ἔστιν. (*Sens.* 5, 442b27–443a2, trans. F. D. Miller, Jr.)

48 See also Aristotle's account of flavour (*Sens.* 4, 441b19–21): καὶ ἔστι τοῦτο χυμός, τὸ γιγνόμενον ὑπὸ τοῦ εἰρημένου ξηροῦ πάθος ἐν τῷ ὑγρῷ, τῆς γεύσεως τῆς κατὰ δύναμιν ἀλλοιωτικὸν <ὄν> εἰς ἐνέργειαν.

49 To settle the issue, two emendations have been proposed at line 5, 442b29 of the Aristotelian text; namely, either to emend "τὸ ἔγχυμον ὑγρόν" to "τὸ ἔγχυμον ξηρόν," or to omit "τὸ ἔγχυμον ὑγρόν" altogether (see Thomas Johansen, "Aristotle on the Sense of Smell," *Phronesis* 41 (1996): 13; id., *Sense-Organ*s, 237).

In his commentary on the *De sensu*, Alexander undertakes to clarify what exactly the similarity is between the senses of taste and smell, and what exactly differentiates them:

His proposal is to discuss smell and flavour, one of which is perceptible by smell and the other by taste. He gave the explanation for mentioning them at the same time when he said, “For it is almost the same affection but [they are] not [both] in the same things.” [It is almost] the same affection because it seems to him that flavour and smell come about when that which is dry in flavours is washed off and as it were wiped off in that which is moist, and [they are] not [both] in the same thing because flavour [comes about] in water whereas smell comes about particularly in air, but also in water.⁵⁰

And some pages later, Alexander states:

Smells are produced not by the dry without flavour but by [the dry] which has already been mixed with water and possesses flavour. For he too will show that smells are generated by moisture or dryness with flavour (for how it would be described makes no difference). But it is also clear from the fact that all the things that are smellable also possess a flavour. At any rate it is often by our sense of smell first that we recognise certain flavours of things that are rotting, burning, coming to be sharp, and changing from one flavour to another because of boiling, when the change which has come about in those things is not yet evident to taste, since the smell has its coming-to-be out of the flavours and comes to be different by virtue of the change in them and itself changes in conjunction with that [change].⁵¹

50 Περὶ ὁσμῆς καὶ χυμοῦ προθέμενος λέγειν, ὡν τὸ μὲν τῇ ὁσφρήσει αἰσθητόν ἐστι, τὸ δὲ τῇ γεύσει, τοῦ ἅμα αὐτῶν μνημονεύσαι τὴν αἰτίαν παρέθετο εἰπὼν <σχεδὸν γὰρ ἐστὶ τὸ αὐτὸ πάθος, οὐκ ἐν τοῖς αὐτοῖς δέ, > τὸ μὲν αὐτὸ πάθος, ὅτι δοκεῖ αὐτῷ καὶ ὁ χυμὸς καὶ ἡ ὁσμὴ ἐναποπλυνομένου καὶ ὥσπερ ἀπομακρυνόμενου τοῦ ἐν χυμοῖς ξηροῦ ἐν τῷ ὑγρῷ γίνεσθαι, οὐκ ἐν τῷ αὐτῷ δέ, ὅτι ὁ μὲν χυμὸς ἐν τῷ ὕδατι, ἡ δὲ ὁσμὴ μάλιστα μὲν ἐν τῷ ἀέρι, γίνεται δὲ καὶ ἐν τῷ ὕδατι. ἀλλὰ περὶ μὲν τούτων προῖων δεῖξει. (Alexander, *In Sens.*, 66.20–67.1, trans. A. Towey.)

51 τὰς δὲ ὁσμάς οὐκέτι τὸ ἄχρυμον ξηρόν, ἀλλὰ τὸ μεμιγμένον ἤδη τῷ ὕδατι καὶ χυμὸν ἔχον ποιεῖ. ὅτι γὰρ ὑπὸ τῆς ἐγχύμου ὑγρότητος ἢ ξηρότητος (οὐδὲν γὰρ διαφέρει ὅπως ἂν ῥηθῇ) αἱ ὁσμαὶ γίνονται, δεῖξει μὲν καὶ αὐτός, ὅλον δὲ καὶ ἐκ τοῦ πάντα ὅσα ἐστὶν ὁσφραντὰ ταῦτα καὶ χυμὸν ἔχειν τινά. τῇ γοῦν ὁσφρήσει πολλάκις πρώτη γνωρίζομεν <τινας> καὶ τῶν σηπομένων χυμῶν καὶ τῶν προσκαιομένων καὶ τῶν ὀξέων γινομένων καὶ τῶν εἰς ἄλλον τινὰ χυμὸν ἐξ ἄλλου διὰ τὴν ἔψησιν μεταβαλλόντων, μηδέπω φανεράς αὐτῶν τῆς μεταβολῆς τῇ γεύσει γινομένης, ὡς ἐκ τῶν χυμῶν τὴν γένεσιν τῆς ὁσμῆς ἐχούσης καὶ κατὰ τὴν ἐκείνων μεταβολὴν ἀλλοίας γινομένης καὶ

So, according to Alexander, odours come about from already produced flavours, that is, first the dry stuff mixes with moisture and produces flavours, and subsequently these flavours act on either air or water and produce odours. The same interpretation has been defended by David Ross, who also regards odour as “an after-effect of flavour,” and considers the dry stuff as the proper object of taste and only indirectly as the proper object of smell.⁵² Taste and smell are thus different senses because they have different proper objects, namely flavours and odours respectively, but they are related because odours are said to be by-products of flavours. On the other hand, according to Thomas Johansen’s interpretation, also adopted by Mark Johnstone, the same dry stuff that produces flavours when it acts on moisture can also produce odours when it acts either on air or water.⁵³ Taste and smell are thus similar senses because they both are produced by the same dry stuff, but they differ because the physiological processes that flavours and odours produce differ.⁵⁴ Indeed, it seems that the motivation behind Johansen’s and Johnstone’s interpretation is just to explain the affinity that Aristotle finds between taste and smell on the basis of the affinity of their objects, which thus allows them to keep intact the object criterion for the demarcation of the senses.

This is not the place to discuss in detail the advantages and shortcomings of these interpretations. For our purposes, it is sufficient to note that all parties of the debate agree that, in Aristotle’s view, the objects of taste and smell affect different sense organs through different physiological processes, whether they are the same or not. The organ of smell is said by Aristotle to be potentially dry, while the organ of taste is potentially wet; for the tongue becomes actually wet when tasting, while the organ of smell is made dry when smelling.⁵⁵ Also, taste perceives flavours by direct contact, while smell perceives odours from a distance either through air or through water. More precisely, we perceive odours through air or water, not because air and water are transparent (*diaphanê*), but because they have in common a feature that, according to Aristotle, has

αὐτῆς καὶ συµμεταβαλλούσης ἐκείνη. (Alexander, *In Sens.*, 89.19–90.2, trans. A. Towey.) See also Alexander, *In Sens.*, 88.7–89.7.

52 Aristotle, *Parva naturalia*, ed. W. D. Ross (Oxford: Oxford University Press, 1955), 213.

53 Johansen, “Aristotle on the Sense of Smell,” 7–13; id., *Sense-Organs*, 230–37; Mark Johnstone, “Aristotle on Odour and Smell,” *Oxford Studies in Ancient Philosophy* 43 (2012): 164–70.

54 On the different interpretations concerning the specific alterations caused in the organ of smell by its proper objects as well as in the external medium of air or water, see Johnstone, “Aristotle on Odour and Smell,” 150–62.

55 *De An.* 2.9, 422a6–7, a34–b3.

no name.⁵⁶ Alexander gives to this common feature the name “transodorant” (*díosmon*):

He said ‘in another genus’. For smell does not come about in [air and water] in so far as they are moist or transparent or able to admit flavour, but in so far as they have a share in another nature, one which is able to admit smells, which one would analogously name transodorant. For in so far as water and air are transparent they are able to admit colours. Water admits flavours by virtue of its moisture of bodily form, by virtue of which it is able to be affected by what is dry, and [it admits] smells by virtue of another common potentiality besides these, which he called another genus.⁵⁷

Therefore, the Aristotelian tradition recognises that taste and smell are similar senses, but at the same time they are clearly differentiated on the basis of their organs and the processes which bring them about. However, given that scholars have placed great emphasis on the demarcation of the senses on the criterion of proper objects, they have underestimated the other aspects that individuate the senses of taste and smell. In general, the passages that I have presented from Aristotle’s and Alexander’s works show, I think, that the criteria for individuating the senses are not limited to their proper objects. According to both of them, the sense organs as well as the physiological processes on which the various modes of sense perception depend seem to play an equally significant role in identifying one sense as different from another.

Let us now examine the two related questions concerning the number of the senses and their relative importance.

3 Why Are There Not More Than the Five Senses?

Aristotle offers a teleological explanation for why we possess more than one sense. We possess more than one sense in order that the common

⁵⁶ *De An.* 2.7, 419a32–35.

⁵⁷ <Ἐν ἄλλῳ> δὲ <γένει> εἶπεν· οὔτε γὰρ καθὼ ὑγρὰ ἐστὶ ταῦτα, γίνεται ἐν αὐτοῖς ἡ ὁσμή, οὔτε καθὼ διαφανὴ ἢ χυμοῦ δεκτικά, ἀλλὰ καθὼ ἄλλης φύσεως κεκοινωνήκε τῆς δυναμένης δέχεσθαι τὰς ὁσμάς, ἣν ἀνάλογον ἂν τις δίοσμον ὀνομάζοι. καθὼ μὲν γὰρ διαφανὴ τὸ ὕδωρ καὶ ὁ ἀήρ, χρωμάτων εἰσὶ δεκτικά· κατὰ δὲ τὴν ὑγρότητα τὸ ὕδωρ τὴν σωματώδη, καθ’ ἣν ἐστὶν ὑπὸ τοῦ ξηροῦ παθητικόν, τοὺς χυμοὺς δέχεται, τὰς δὲ ὁσμάς κατ’ ἄλλην τινὰ κοινὴν δύναμιν παρὰ ταύτας, ἣν ἄλλο γένος ὀνόμασεν. (Alexander, *In Sens.*, 88.18–89.5, trans. A. Towey.)

perceptibles – for instance, movement, magnitude, and number – may be less likely to escape our notice:

But one might ask why we possess several senses and not merely one. Is it so that we will be less apt to overlook the common accompanying objects such as movement, magnitude, and number? For if the only sense were sight, and its object was white, these objects would be more apt to escape our notice, and we would believe all perceptible objects to be the same because colour and magnitude accompany each other at the same time. But, in fact, since the common objects are present also in another perceptible object, this makes it clear that each of them is something distinct.⁵⁸

But even if Aristotle's reasoning here explains the fact that there is more than one sense, why does he think that there are not more than the five senses?

According to Macpherson, cognitive psychologists and neuroscientists have recently argued that the Aristotelian five senses are “just not enough to account for the huge range of sensory possibilities of which the human species is capable.”⁵⁹ Some have claimed that we should probably talk of seventeen senses, but others have indicated that the number should be even higher:

Other candidates that have been considered as being additional human senses include senses of hunger, thirst, wet and dry, the weight of objects, fullness of the bladder, suffocation and respiration, sexual appetite, and lactiferousness [...]. Outside the human sphere, there are even more candidates in the animal kingdom for being senses in addition to the Aristotelian five. For example, pigeons and other birds seem sensitive to the magnetic field of the Earth, which gives them a fantastic sense of direction.⁶⁰

In antiquity, though, the established view was that there are just five senses. Only Democritus is reported in the doxographic tradition to have ascribed to

58 ζητήσῃ δ' ἂν τις τίνος ἕνεκα πλείους ἔχομεν αἰσθήσεις, ἀλλ' οὐ μίαν μόνην. ἢ ὅπως ἦττον λανθάνῃ τὰ ἀκολουθοῦντα καὶ κοινά, οἷον κίνησις καὶ μέγεθος καὶ ἀριθμός; εἰ γὰρ ἦν ἡ ὄψις μόνη, καὶ αὕτη λευκοῦ, ἐλάνθανεν ἂν μάλλον καὶν ἐδόκει ταῦτόν εἶναι πάντα διὰ τὸ ἀκολουθεῖν ἀλλήλοις ἅμα χρώμα καὶ μέγεθος. νῦν δ' ἐπεὶ καὶ ἐν ἐτέρῳ αἰσθητῷ τὰ κοινὰ ὑπάρχει, δῆλον ποιεῖ ὅτι ἄλλο τι ἕκαστον αὐτῶν. (*De An.* 3.2, 425b5–11, trans. F. D. Miller, Jr.)

59 Robert Rivlin and Karen Gravelle, *Deciphering the Senses: The Expanding World of Human Perception* (New York: Simon and Schuster, 1984), 17, quoted in Macpherson, “Individuating the Senses,” 20.

60 Macpherson, “Individuating the Senses,” 20.

irrational animals, wise persons, and gods more senses than the standard five,⁶¹ but we have no information on what exactly he meant by this and which these additional senses were. Pavel Gregoric has recently argued that, if Democritus was right, this would imply that humans do not have access to the whole of reality, and hence our knowledge and understanding of the world would be incomplete. This is perhaps why it is so important for Aristotle to establish that there are only the five senses that humans have, and no others; if there were “a whole segment of reality to which we humans have no access [...] we would rightly question whether the rest of our knowledge of the world is correct.”⁶²

As we have seen above, in *De anima* 3.1 Aristotle argues that humans have only the standard five senses, because they are equipped with the sense organs they have, and if some sense organ were missing the corresponding sense would be missing, too.⁶³ More specifically, in order to show that there are not more than the five senses, Aristotle at first distinguishes the senses into the contact senses, i.e., touch and presumably taste – even though it is not mentioned –, and the distance senses, i.e., sight, hearing, and smell, which perceive their objects through the transparent media of air and water. Furthermore, what seems significant in the case of the distance senses is the constitutive element of their sense organs, that is, what determines their material composition and plays a crucial role in their function; for the constitutive element of the sense organs should be similar to that of the transparent medium, so that the senses are actually able to perceive their objects. Since the transparent medium is either of air or water, the sense organs of the three distance senses are also made of air or water; namely, the eyes are made of water, the ears of air, while the sense organ of smell is made either of water or of air. It is, in fact, for this reason that fire and earth are said not to belong to any sense organ, unless they are of course taken to be common to all of them. Hence, Aristotle concludes, the correlation of the sense organs to the four basic elements suggests that no sense organ is missing, and thus no sense is missing, too. In other

61 πλείους εἶναι αἰσθήσεις [τῶν πέντε], περὶ τὰ ἄλογα ζῶια καὶ περὶ τοὺς σοφοὺς καὶ περὶ τοὺς θεοὺς. (Democritus, *Die Fragmente der Vorsokratiker*, vol. 2, 6th edition, ed. H. Diels and W. Kranz (Berlin: Weidmann, 1952, repr. 1966), A116 = Aëtius, *De placitis reliquiae*, ed. H. Diels, *Doxographi Graeci* (Berlin: Reimer, 1879), 4.10.4.)

62 Pavel Gregoric, “Aristotle’s Perceptual Optimism,” *Croatian Journal of Philosophy* 19:57 (2019): 551.

63 Aristotle’s argument (*de An.* 3.1, 424b22–425a13), which is presented in a long conditional sentence, is rather obscure and it is questionable whether it is valid or coherent. Tim Maudlin (“‘de Anima’ III 1: Is any Sense Missing?” *Phronesis* 31 (1986), 51–67) has argued that this is not Aristotle’s own argument, but merely part of a dialectical debate. However, the Aristotelian commentary tradition treats this as an argument expressing Aristotle’s own view (see below, Alexander, *Quaestiones* 3.6, 89.25–91.23).

words, Aristotle claims that there are not more than the five senses, because there are only four basic elements, and these are the ones that constitute the sense organs we do actually have; if there were more elements, and some sense organ were missing, the corresponding sense would be missing, too. But this is not the case.

Note also that at the end of this passage, Aristotle fleetingly adds that there are not more than the five senses, not only because there is no other element than the four basic ones that constitute our sense organs, but also because there are no qualities other than the ones that these sense organs are able to perceive:

In conclusion, all the senses are possessed by animals unless they are incompletely developed or defective (for even the mole evidently possesses eyes underneath its skin). Hence, if there is no other body and there is no characteristic that does not belong to any body in this world, then none of the senses could be missing.⁶⁴

This means that everything in the world, and thus our sense objects, are constituted by the four basic elements, and since there are not more than these, there is no other sense object to be perceived by some other sense. Therefore, given Aristotle's conception of the nature of the world, it makes sense that there are, as a matter of fact, only these four basic elements, only these sense organs, and hence only these five senses; no sense is missing. As Tim Maudlin points out, Aristotle's claim here "is very strong, asserting not just that humans (and other animals) have just five senses but that, for reasons having to do with the limited number of elements, one can be assured that not more senses are even possible."⁶⁵ But, Maudlin rightly asks, "what exactly is the principle, by which the number of elements is supposed to constrain the number of possible media and sense organs, and thereby of senses? If three senses can be constructed out of two elements, why not more?"⁶⁶

64 πᾶσαι ἄρα αἱ αἰσθήσεις ἔχονται ὑπὸ τῶν μὴ ἀτελῶν μηδὲ πεπηρωμένων (φαίνεται γὰρ καὶ ἡ ἀσπάλαξ ὑπὸ τὸ δέρμα ἔχουσα ὀφθαλμούς). ὥστ' εἰ μὴ τι ἕτερον ἔστι σῶμα, καὶ πάθος ὃ μηθένος ἔστι τῶν ἐνταῦθα σωματίων, οὐδεμία ἂν ἐκλείποι αἴσθησις. (*De An.* 3.1, 425a9–13, trans. F. D. Miller, Jr.)

65 Maudlin, "de Anima" III 1, 52.

66 Maudlin, "de Anima" III 1, 54.

In his *Quaestiones* Alexander, if Alexander is the author, simply reiterates Aristotle's argument of *De anima* 3.1.⁶⁷ Only at the very end of the passage there is an additional consideration meant to show that there are not more than the five senses, since there is no other basic element of which a sense could consist; for, the author claims, no sense can consist of the fifth body, that is, the heavenly aether, since this cannot be affected:

For it is not possible for there to be any simple body capable of being affected besides the four, so that there could be some instrument of sensation from this. For the instrument of sensation needs to be affected in some way by the thing sensed, and for this reason to be [composed] of a body that can be affected; and it has been shown that the fifth body cannot be affected.⁶⁸

Moreover, in a passage from his *De anima*, Alexander presents a further argument in favour of the doctrine that there are only the five senses:

That there are only the five senses, which we have already talked about, and no other sense besides these, could be shown also from the fact that no sense organ besides the ones found in the perfect animals can exist; it would be necessary, if some sense were lacking [in these animals], that some sense organ would be lacking, too, as Aristotle showed in the third book of the *de Anima*. It could also be shown from the fact that all senses are found in animals, and no animal has any other sense than the ones already mentioned, but also from the fact that the rational faculty is the most perfect among the faculties of the soul, and the more perfect faculties are added to those that are first perfected, with the result that in those [animals] in which the rational faculty occurs the whole faculty of perception occurs first.⁶⁹

67 Alexander, *Quaestiones* 3.6, 89.25–91.23. It is worth noting that the author here formalises the argument of *De anima* 3.1 by using an instance of what seems to be the second Stoic indemonstrable (*Quaestiones* 3.6, 90.12–17):

If some sense is missing, some sense organ is missing, too.

No sense organ is missing.

Therefore, no sense is missing.

68 οὐδὲν γὰρ παρὰ τὰ τέσσαρα οἷον τε ἀπλοῦν παθητὸν εἶναι σῶμα, <ὥς> ἐξ ἐκείνου δύνασθαι τι αἰσθητήριον εἶναι. δεῖ μὲν γὰρ τὸ αἰσθητήριον πάσχειν τι ὑπὸ τοῦ αἰσθητοῦ, διὸ καὶ παθητοῦ εἶναι σώματος· τὸ δὲ πέμπτον σῶμα ἀπαθὲς ἐνδεδεικται. (Alexander, *Quaestiones* 3.6, 91.20–23; trans. R. W. Sharples, *Alexander: Quaestiones* 2.15–3.16 (London: Duckworth, 1994).)

69 τὸ δὲ εἶναι μόνας τὰς πέντε αἰσθήσεις, περὶ ὧν προειρήκαμεν, καὶ μηδεμίαν παρὰ ταύτας ἄλλην, δεικνύοιτο μὲν ἂν καὶ ἐκ τοῦ μηδὲν αἰσθητήριον οἷον τε εἶναι παρὰ τὰ ὄντα ἐν τοῖς τελείοις ζώοις.

That is to say, Alexander seems to add to Aristotle's argument from experience another argument in favour of the claim that there are not more than the five senses, which presupposes the metaphysical principle that the most perfect or complete faculties of the soul inseparably contain the subordinate and imperfect ones. According to him, some animals have a single sense, namely touch, some have two senses, others three or four or five; but the animals that have the most perfect faculty, namely reason, have all the other imperfect faculties and, therefore, all the senses. In other words, since humans are rational, they have all the senses available, and hence there are not more than the five senses that the Aristotelian tradition enumerates.

4 Is There a Hierarchy among the Five Senses?

The last passage from Alexander's *De anima*, which talks about perfect and subordinate faculties of the soul, may serve as an introduction to the last question of our inquiry, that is, the question of whether in the Aristotelian tradition there is a hierarchy among the standard five senses. In Aristotle's view, the significance of the senses is explicitly related to their teleology; that is, animals have perception in order to be able to reach their nutrition and manage to survive:

But an animal must possess sense perception if nature does nothing in vain. For all natural things are present for the sake of something, or else they will be by-products of things that are for the sake of something. If, then, any body were capable of moving about but did not possess perception, it would perish and it would not come to fulfilment, which is the work of nature.⁷⁰

Thus, animals have the senses they have for a particular purpose; the more noble the purpose is, the more important the sense is considered to be. But it is

ἔδει δέ, εἰ αἰσθησίς τις ἔλειπεν, καὶ αἰσθητήριόν τι λείπειν, ὥς ἔδειξεν Ἀριστοτέλης ἐν τῷ τρίτῳ Περὶ ψυχῆς. δεικνύοιτο δ' ἂν καὶ διὰ τοῦ πάσαν μὲν αἰσθησιν ἐν ζῳῇ εἶναι, μὴ δὲ ζῶον ἔχειν ἄλλην τινὰ παρὰ τὰς προειρημένους. ἀλλὰ καὶ διὰ τοῦ τελειοτάτην μὲν τῶν ψυχικῶν δυνάμεων εἶναι τὴν λογικὴν, ἐπὶ δὲ ταῖς πρώταις τετελεσμέναις αἱ τελειότεραι, ὥστε ἐν οἷς ἡ λογικὴ, ἐν τούτοις πρῶτον πάντα ἢ αἰσθητικὴ. (Alexander, *de An.*, 65.21–66.8, trans. K. Ierodiakonou.)
 70 τὸ δὲ ζῶον ἀναγκαῖον αἰσθησιν ἔχειν, <οὐδὲ ἄνευ ταύτης οἷον τε οὐθὲν εἶναι ζῶον>, εἰ μὴθὲν μάτην ποιεῖ ἡ φύσις. ἕνεκά του γὰρ πάντα ὑπάρχει τὰ φύσει, ἢ συμπτώματα ἔσται τῶν ἕνεκά του. εἰ οὖν πᾶν σῶμα πορευτικόν, μὴ ἔχον αἰσθησιν, φθείροιτο ἂν καὶ εἰς τέλος οὐκ ἂν ἔλθοι, ὅ ἐστι φύσεως ἔργον. (*De An.* 3.12, 434a30–b1, trans. F. D. Miller, Jr.)

also worth pointing out that Aristotle is clearly concerned with different sorts of hierarchy. Sometimes he classifies the senses according to an ontological hierarchy, i.e., on how essential they are to the survival of animals, and sometimes according to an epistemological hierarchy, i.e., on the degree to which they contribute to the acquisition of knowledge.

More specifically, Aristotle pronounces touch and taste to be the fundamental senses for an animal's survival:

If an animal is an animate body, and every body is tangible, and what is perceptible by touch is tangible, then the animal's body is necessarily also capable of touch, if the animal is going to be preserved. For the other senses, such as smell, sight, and hearing, perceive through other things; but if, when the animal touches anything, it does not possess perception, it will be unable to avoid some things and grasp others. If this is the case, it will not be possible for the animal to be preserved. That is why taste also is as it were a sort of touch; for its object is nourishment, and nourishment is a tangible body.⁷¹

So, touch and taste are necessary for an animal to survive, and this is the reason why all animals have these senses, while the other three senses that perceive from a distance belong to animals that can move about for the sake of their survival, but also “to animals which possess the capacity of understanding for the sake of their well-being; for they report many distinctions, which enables animals to understand objects of thought and actions to be performed.”⁷²

There is, of course, no doubt that among the distance senses sight occupies a special place. Aristotle names it as superior to the other senses when it comes to reasoning and thought.⁷³ He explains its superiority on the basis of its ability both to register the greatest number of differentiations among things and to perceive the common objects:

71 ἐπεὶ γὰρ τὸ ζῶον σῶμα ἔμψυχόν ἐστι, σῶμα δὲ ἅπαν ἄπτόν, [ἄπτὸν δὲ τὸ αἰσθητὸν ἀφή], ἀνάγκη [καί] τὸ τοῦ ζώου σῶμα ἄπτικόν εἶναι, εἰ μέλλει σώζεσθαι τὸ ζῶον. αἱ γὰρ ἄλλαι αἰσθησεις δι' ἑτέρων αἰσθάνονται, οἷον ὄσφρησις ὀψις ἀκοή· ἄπτόμενον δέ, εἰ μὴ ἔξει αἰσθησιν, οὐ δυνήσεται τὰ μὲν φεύγειν τὰ δὲ λαβεῖν. εἰ δὲ τοῦτο, ἀδύνατον ἔσται σώζεσθαι τὸ ζῶον. διὸ καὶ ἡ γεῦσις ἐστὶν ὥσπερ ἀφή τις· τροφῆς γάρ ἐστιν, ἡ δὲ τροφή τὸ σῶμα ἄπτόν. (*De An.* 3.12, 434b11–19, trans. F. D. Miller, Jr.) See also *de An.* 2.2, 413b4–10, 414a1–4; 2.3, 414b3; 2.8, 420b16–22; 3.12, 434a28–29; 3.13, 435b4–25; *Sens.* 1, 436b10–18.

72 τοῖς δὲ καὶ φρονήσεως τυγχάνουσι τοῦ εὖ ἔνεκα πολλὰς γὰρ εἰσαγγέλλουσι διαφοράς, ἐξ ὧν ἡ τε τῶν νοητῶν ἐγγίνεται φρόνησις καὶ ἡ τῶν πρακτῶν. (*Sens.* 1, 437a1–3, trans. F. D. Miller, Jr.)

73 *De An.* 3.3, 429a2; *Sens.* 1, 437a4.

But among the senses the capacity of sight is distinguished by being the most distinct, and for this reason as well we value it most; but every sensation is a capacity for understanding through a body, just as hearing senses the sound through the ears. Thus, if living is valuable because of sensation, and sensation is a kind of cognition, and we choose it because the soul is capable of recognising by means of it; but long ago we said that the more valuable of two things is always the one that provides more of the same thing, and of the senses sight is of necessity the most valuable and honourable, and intelligence is more valuable than it and all the others, and more valuable than living, intelligence is more authoritative than truth; hence the main pursuit of all humans is to be intelligent.⁷⁴

On the other hand, when it comes to learning and teaching priority is assigned to hearing, since the pedagogical process, at Aristotle's time, involved for the most part oral communication. It is for this reason, therefore, that the blind have, according to Aristotle, an understanding superior to that of the deaf and dumb.⁷⁵

Both in his *De anima* and in the *De sensu* commentary,⁷⁶ Alexander follows Aristotle in claiming that although all senses contribute to the preservation of animals, some are absolutely indispensable for their survival while others are crucial for the development of reason. In particular, touch and taste are said to be indispensable to all animals for their nourishment and their protection

74 Τῆς δ' αἰσθήσεως ἡ τῆς ὀφθαλμοῦ διαφέρει δύναμις τῷ σαφεστάτῃ εἶναι, καὶ διὰ τοῦτο καὶ μάλιστα αἰρούμεθα αὐτήν· αἰσθησις δὲ πᾶσα δύναμις ἐστὶ γνωριστικὴ διὰ σώματος, ὥσπερ ἡ ἀκοὴ τοῦ ψόφου αἰσθάνεται διὰ τῶν ὤτων. Οὐκοῦν εἰ τὸ ζῆν μὲν ἐστὶν αἰρετὸν διὰ τὴν αἰσθησιν, ἡ δ' αἰσθησις γνώσις τις, καὶ διὰ τὸ γνωρίζειν αὐτὴ δύνασθαι τὴν ψυχὴν <τὸ ζῆν> αἰρούμεθα, πάλαι δ' εἶπομεν ὅτι [περ] θυοῖν αἰεὶ μᾶλλον αἰρετὸν ὥ μᾶλλον ὑπάρχει ταύτόν· τῶν μὲν αἰσθήσεων τὴν ὀψιν ἀνάγκη μάλισθ' αἰρετὴν εἶναι καὶ τιμίαν, ταύτης δὲ καὶ τῶν ἄλλων ἀπασῶν αἰρετωτέρα καὶ <αὐτοῦ> τοῦ ζῆν ἐστὶν ἡ φρόνησις, κυριωτέρα τῆς ἀληθείας <οὔσα>· ὥστε πάντες ἄνθρωποι τὸ φρονεῖν μάλιστα διώκουσι. (Aristotle, *Protrepticus or Exhortation to Philosophy*, ed. and trans. D. S. Hutchinson and M. R. Johnson (<http://www.protrepticus.info/protr2017x20.pdf>), 37 = ed. and trans. I. Düring, *Protrepticus: An Attempt at Reconstruction* (Göteborg: Acta Universitatis Gothoburgensis, 1961), B75–7 = Iamblichus, *Protrepticus*, ed. H. Pistelli (Leipzig: Teubner, 1888, repr. 1967), ch. 7, 44.14–26.) See also *Sens.* 1, 437a5–9; *Metaphysics*, ed. W. D. Ross (Oxford: Oxford University Press, 1953), A1 980a21–27.

75 *Sens.* 1, 437a9–17; *Metaph.* 1.1, 980b21–25. Of course, Aristotle could not fail to see that, although humans are the most perfect animals, not all of our senses are as developed as those of other animals. Still, he insists that of all the animals we have the most refined and accurate sense of touch and, in this context, it is to the sense of touch that he attributes our superior understanding (*de An.* 2.9, 421a16–26; *Histoire des animaux*, ed. P. Louis, 3 vols. (Paris: Les Belles Lettres, 1964–69), 1.16, 494b16–18).

76 Alexander, *de An.*, 40.10–15, 59.20–24, 92.23–93.24, and 96.22–23; *In Sens.*, 9.2–14.5.

from the dangers of the external world, while sight and hearing are important to humans for the attainment of knowledge and wisdom. Indeed, Alexander develops considerably the Aristotelian account of the different tasks performed by the different senses, and especially those performed by sight:

It is clear that the apprehensions by means of [sight and hearing] and differentiations in the things which they apprehend [are] origins of both action and inquiry. Clearly the differentiations in visibles led us to a conception of light and darkness, i.e., of day and night, beginning from which we investigated the things able to cause them. From this [there came about] the inquiry concerning the universe and the things in it [...]. The observation [of the stars] also led us to the investigation of the first cause, which is responsible for such ordering and locomotion as there is in them. [Sight] also educates us in a way with regard to actions. For actions are concerned with particulars, which are perceptible and visible, and from experience concerning these [there comes] the greatest part of wisdom. And by observing, out of the things which result among perceptibles, both the things that are beneficial and the things that are harmful we take in an opinion universally concerning them, saying that things of this sort are to be avoided and harmful, and things of that sort are to be chosen and beneficial.⁷⁷

That is to say, the sense of sight is crucial not only for gathering detailed information about the world, but also fundamental for the first stage of formulating abstract notions, such as numbers as well as ethical notions on the basis of which our actions are conducted. To put it briefly, sight constitutes, according to Alexander, our most reliable guide from the perceptible realm to the intelligibles.

Passages like the above provide us, in addition, with an explanation as to why it is important to differentiate the senses and classify them in a hierarchical

77 ὅτι δὲ ἀρχαὶ πράξεως τε καὶ θεωρίας αἱ δι' αὐτῶν ἀντιλήψεις καὶ διαφοραὶ τούτων ὧν ἀντιλαμβάνονται, δηλόν. αἶτε γὰρ τῶν ὁρατῶν διαφοραὶ εἰς ἔννοιαν ἡμᾶς ἤγαγον φωτός τε καὶ σκότους, τούτεστιν ἡμέρας τε καὶ νυκτός, ἀφ' ὧν ὁρμώμενοι τὰ ποιητικὰ τούτων ἐζητήσαμεν ὅθεν ἡ περὶ τοῦ κόσμου καὶ τῶν ἐν αὐτῷ θεωρία [...]. προσήγαγε δὲ ἡμᾶς ἡ τούτων θέα καὶ ἐπὶ τὴν ζήτησιν τοῦ πρώτου αἰτίου, ὃ τῆς τοιαύτης τάξεως τε καὶ φορᾶς αὐτοῖς αἰτίον ἐστι. καὶ πρὸς τὰς πράξεις δὲ ἡμᾶς παιδεύει πῶς περὶ γὰρ τὰ καθ' ἕκαστα αἱ πράξεις, ἃ ἐστὶν αἰσθητὰ τε καὶ ὁρατά, ἐκ δὲ τῆς περὶ ταῦτα ἐμπειρίας τὸ πλεῖστον τῆς φρονήσεως. παρατηρήσαντες γὰρ ἐκ τῶν συμβαινόντων ἐν τοῖς αἰσθητοῖς τὰ τε ὠφέλιμα καὶ τὰ βλαβερὰ καθόλου περὶ αὐτῶν δόξαν λαμβάνομεν, τὰ μὲν τοιαῦτα λέγοντες εἶναι φευκτὰ τε καὶ βλαβερὰ, τὰ δὲ τοιαῦτα αἰρετὰ τε καὶ ὠφέλιμα. (Alexander, *In Sens.* 11.3–12.1, trans. A. Towey.)

list. That is to say, Alexander does not simply offer an account that shows how we count the senses but also, to use Matthew Nudds' phrase, "the point of our counting them." According to Nudds, most contemporary accounts of the individuation of the senses give plausible answers to what he calls the "counting question," but do not explain the purpose behind their demarcation. In contrast, Nudds has suggested "an alternative way of approaching the question of the nature of the senses; rather than beginning with the counting question, we should begin with the question of the significance of the distinction."⁷⁸ And it seems that we do find in Alexander's texts such an explanation of the distinction between the senses. For the tasks performed by the different senses, as presented by Alexander, are meant to bring forth and make known what the significance is of the individuation of the senses as well as of their hierarchy.

5 Conclusion

To conclude, both Aristotle and Alexander are well aware of the fact that their aim to individuate and classify the senses is a complicated affair. Indeed, in their attempt to come up with plausible ways of differentiating the senses, they are often faced with difficulties that undermine the intuitive idea that the senses are easily distinguished from one another. To deal with such difficulties, Aristotle suggests a multiplicity of demarcating criteria as well as a multiplicity of hierarchies, which are later further developed more systematically by Alexander. As we have seen, the role of the criteria for individuating the senses other than the criterion of proper objects proves to be significant, especially in the case of touch, but also in the cases of smell and taste; that is, criteria other than proper objects are significant for individuating three out of the five standard Aristotelian senses. This should be a good enough reason, I think, for reassessing the established view, according to which the one essential Aristotelian criterion for defining and distinguishing the senses is their proper objects. After all, Aristotle and his followers seem to have considered multiple criteria, which allowed them to classify the senses in a complex and rather sophisticated way.

⁷⁸ Nudds, "The Significance of the Senses," 43.

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Aristotle on Incidental Perception

Mika Perälä

1 Introduction

In *De anima* 2.6, Aristotle distinguishes between two kinds of sensible items (*aisthētá*): per se (*kath' hautá*) and incidental (*katà symbebēkós*).¹ The per se sensibles are so called because they affect the senses in and of themselves. They include what Aristotle refers to as proper (*idia*) and common (*koiná*) sensible items. Proper sensible items are those by which each individual sense is defined: sight by colour, hearing by sound, smell by odour, taste by flavour, and touch by the tangible features such as temperature, solidity, and humidity. Common sensible items are those that necessarily accompany the proper sensible items and can be perceived by more than one individual sense. These items include shape, size, number, movement, and rest.² For instance, when we see a colour such as whiteness, we necessarily see it as being of some size and shape, that is, we see a white figure or patch. In a typical case, the colour belongs to a particular object in some place and time. When we touch that object by hand, we can feel its shape and size. In contrast, incidental sensible items are so called because they coincide with the per se sensible items and yet do not affect the sense that perceives the per se sensible items in question. For instance, ‘the son of Diares’ is an incidental sensible item with respect to the sense of sight because he coincides with the white figure and yet he does not affect sight. In fact, the son of Diares is an incidental sensible item with respect to each of the five senses because he affects none of them. We shall see that not all incidental sensible items are of this type; for instance, bitterness is incidental with respect to sight but not with respect to taste.

The foregoing description of Aristotle’s distinction between the two kinds of sensible items is not controversial. What is controversial, however, is the question of how Aristotle understands perception (*aísthēsis*) of an incidental

1 Aristotle, *De anima*, ed. W. D. Ross (Oxford: Clarendon Press, 1961), 418a8–25. Instead of “incidental,” some interpreters use the term “accidental”; these terms have the same meaning in this context.

2 *De An.* 2.6, 418a17–18. In *de An.* 3.1, 425a16, there is, according to most manuscripts, a more complete list, which includes “unity” (τὸ ἓν). For a discussion of this, see Pavel Gregoric, *Aristotle on the Common Sense* (Oxford: Clarendon Press, 2007), 31.

item. I shall refer to this perception as incidental perception, contrasting it with *per se* perception, which concerns proper and common sensible items. An influential interpretation suggests that incidental perception is “genuine” perception even when it concerns items such as the son of Diares that cannot affect the senses. The suggestion that incidental perception is genuine perception implies two claims: first, incidental perception is an activity of the perceptual capacity of the soul alone; second, the contents of incidental perception extend beyond those of *per se* perception.³ I shall refer to this interpretation as the “perceptual interpretation.”

The reason why many scholars are committed to the perceptual interpretation is the assumption that incidental perception plays a substantial role in Aristotle’s cognitive theory.⁴ They think that incidental perception allows us to sense individual substances that fall outside the scope of the individual senses and of the intellect.⁵ However, I argue that this assumption is controversial

- 3 This interpretation originates from Stanford Cashdollar, who claims that: “incidental perception is a case of *aisthēsis* alone” (Stanford Cashdollar, “Aristotle’s Account of Incidental Perception,” *Phronesis* 18 (1973): 156). Several others have followed Cashdollar, though in somewhat different ways, including Deborah Modrak, *Aristotle: The Power of Perception* (Chicago: The University of Chicago Press, 1987), 69; Paolo Crivelli, *Aristotle on Truth* (Cambridge: Cambridge University Press, 2004), 108; Pavel Gregoric and Filip Grgic, “Aristotle’s Notion of Experience,” *Archiv für Geschichte der Philosophie* 88 (2006): 11; Gregoric, *Aristotle on the Common Sense*, 199–201; Thomas Kjeller Johansen, *The Powers of Aristotle’s Soul* (Oxford: Oxford University Press, 2012), 182–84; Ron Polansky and John Fritz, “Aristotle on Accidental Perception,” in *Aristotle – Contemporary Perspectives on His Thought*, ed. D. Sfendoni-Mentzou (Berlin: De Gruyter, 2018), 125–50; Victor Caston, “Aristotle on Perceptual Content” (unpublished manuscript).
- 4 For instance, Cashdollar claims: “[...] incidental perception is of no less importance than perception of special and common objects in Aristotle’s psychology and thought in general.” (Cashdollar, “Incidental Perception,” 156.) More recently, an even stronger claim has been put forward by Polansky and Fritz: “Accidental perception is significantly more complicated than the simpler types of perception that serve as its basis, yet it seems ultimately to be the most important sort of perceiving that animals capable of it engage in.” (Polansky and Fritz, “Accidental Perception,” 149.)
- 5 See, e.g., Gregoric and Grgic: “It seems that experience of a thing necessarily requires perception of at least one incidental sensible, namely that thing, John’s experience of the table requires that he is perceptually aware of something in addition to a brown colour and a square shape, that is of an *object* which happens to be brown and square, and which English speakers would call ‘table’. The table is not perceptible in itself, but incidentally, because some features that are perceptible in themselves happen to belong to it, i.e., because the table is brown and square. [...] At this point we must insist that incidental perception is indeed perception, rather than some other type of cognition, inference or whatever else has been suggested. We would agree that the ability to perceive incidental sensibles requires development, and that this development may need co-operation among various cognitive capacities, notably representation and memory. However, once the ability is sufficiently

because it is not clear that Aristotle confines the scope of individual senses to sensible features in opposition to sensible substances, for instance, to a white colour in opposition to a white thing or white surface.⁶ But this is not the main reason why I am suspicious of the perceptual interpretation. Even if Aristotle confined the scope of individual senses to sensible features, there is another and more serious problem with the perceptual interpretation. The problem is that the perceptual interpretation cannot reasonably cover all those cases that Aristotle refers to as incidental, some of which he discusses outside the *De anima*, the text from which the perceptual interpretation draws most of its support. Even if the perceptualist could explain the incidental perception of the son of Diares in non-conceptual terms, for example, by reference to a memory of his sensible features, she faces a difficulty in explaining incidental perceptions of universals, which, according to Aristotle, are objects of knowledge and thus intelligible items.⁷ In *Metaphysics* 13.10, he claims: "Sight sees the universal colour incidentally because the particular colour that it sees is a colour."⁸ How could one have a genuine perception of the whiteness as a universal (*tò kathólou*)? In *Analytica posteriora* 1.31, Aristotle resolutely denies that this is possible because according to him the cognition of a universal requires cognition of a cause.⁹ The perceptual capacity alone cannot inform us of the causes of things even if we might perceive, in some sense of the term, facts such as the fact that the moon is being eclipsed.¹⁰ If there is an incidental

developed, incidental sensibles are indeed *perceived*." (Gregoric and Grgic, "Aristotle's Notion of Experience," 11.)

6 That is not to say that colour and surface are distinct per se sensible items in the way in which colour and shape are distinct, one being a proper sensible item and the other common, or in the way in which colour and place are distinct, one being a proper sensible item and the other incidental. The point is rather that seeing a colour implies seeing a coloured surface. Thus understood, the latter seeing has no more content than the former one; it is just a different, more complete way of saying the same thing.

7 *De An.* 2.5, 417b22–23.

8 Aristotle, *Metaphysics*, ed. W. D. Ross (Oxford: Clarendon Press, 1924), 13.10, 1087a19–20.

9 Aristotle, *Analytica priora et posteriora*, ed. W. D. Ross (Oxford: Clarendon Press, 1964). For arguments that Aristotle's considerations in *APo.* 1.31 are compatible with the further claim that "Although we perceive particulars, perception is of universals" (*APo.* 2.19, 100a16–b1), see, e.g., David Bronstein, *Aristotle on Knowledge and Learning* (Oxford: Oxford University Press, 2016), 245; Marc Gasser-Wingate, "Aristotle on Perception of Universals," *British Journal for the History of Philosophy* 27:3 (2019): 446–67. I shall give my interpretation in section two below.

10 *APo.* 1.31, 87b40–88a2.

perception of the universal whiteness in some substantive sense of “incidental,” the sense of sight ought to be assisted by the intellectual capacity.¹¹

The foregoing considerations suggest that the perceptual interpretation is problematic on textual and philosophical grounds. In what follows, I shall show that there is an alternative interpretation that avoids the problems outlined above. The alternative is subtler than what could be called the “intellectual interpretation”: the view that incidental perception is a thought or inference based on a *per se* perception.¹² Even if this view can explain the incidental perception of the son of Diares and of the universal whiteness, for example, it cannot explain incidental perceptions of the proper sensible items of another sense, such as the incidental seeing of something bitter, which does not require an intellectual capacity. I argue instead that if we attempt to develop a substantive account of incidental perception based on Aristotle’s

11 Caston, “Perceptual Content,” denies that the incidental perception of a universal require an intellectual capacity, and the application of a concept. In his interpretation, even non-rational animals are capable of perceiving objects as certain kinds of objects. He says that he agrees with Jonathan Barnes, *Aristotle: Posterior Analytics*, 2nd ed. (Oxford: Clarendon Press, 1993), who comments on *APo.* 2.19, 100a17, thus (on p. 266): “[...] the process Aristotle describes produces universals; but it starts from perception and perception is of particulars – how, then, can the gap between particulars and universals be jumped? Aristotle’s answer is that perception in fact gives us universals from the start (cf. *A* 31, 87b29). He means that we perceive things as *As*; and that this, so to speak, lodges the universal, *A*, in our minds from the start – although we shall not, of course, have an explicit or articulated understanding of *A* until we have advanced to Stage (D) [i.e. the final stage of inquiry]. (It should be noted that this account is intended to hold for *all* perceivers: it is not peculiar to human perception, nor does it involve the intellect in any way. Even a fly sees an *F*.)” (Emphasis original.) However, Barnes gives no reason to assume that the fly could see something as *F* (i.e., as belonging to a kind, as a universal) by simply seeing an *F*, i.e., an instance of *F*, not the *F* itself. The gap, then, remains to be jumped.

12 The interpretation that incidental perception is a thought or inference rather than perception is proposed in various ways by, e.g., John I. Beare, *Greek Theories of Elementary Cognition* (Oxford: Clarendon Press, 1906), 286; Charles Kahn, “Sensation and Consciousness in Aristotle’s Psychology,” *Archiv für Geschichte der Philosophie* 48 (1966): 48; Irwing Block, “Aristotle and the Physical Object,” *Philosophy and Phenomenological Research* 21 (1960): 94; Andreas Graeser, “Aristotle’s Framework of *Sensibilia*,” in *Aristotle on Mind and the Senses*, ed. G. E. R. Lloyd and G. E. L. Owen (Cambridge: Cambridge University Press, 1978), 90; and more recently by Stephen Herzberg, *Wahrnehmung und Wissen bei Aristoteles: Zur epistemologischen Funktion der Wahrnehmung* (Berlin: De Gruyter, 2011), 137–55. I assume that it is also implied in the Greek commentary tradition even if it is not properly discussed there. See, e.g., Alexander of Aphrodisias, *De anima*, ed. I. Bruns (Berlin: Reimer, 1887), 41.8–10; id., *Quaestiones et solutiones*, ed. I. Bruns (Berlin: Reimer, 1892), 3.8, 93.23–94.9; Themistius, *In libros Aristotelis De anima paraphrasis*, ed. R. Heinze (Berlin: Reimer, 1899), 58.5–16; Simplicius(?), *In libros Aristotelis De anima commentaria*, ed. M. Hayduck (Berlin: Reimer, 1882), 127.25–128.10.

minimal remarks on the matter, we have to incorporate insights from both the perceptual and the intellectual interpretation: some cases of incidental perception can be explained by reference to the perceptual capacity, whereas others require reference to the intellectual capacity.¹³ In Aristotle's implied view, then, there is no fixed set of incidental sensible items nor is there one single kind of incidental perception. Basically, Aristotle uses the term "incidental" (*katà symbebēkós*) in a negative sense to indicate that an individual sense does *not* perceive the incidental sensible item even if that item coincides with the per se sensible item that the sense perceives; instead the incidental item may but need not be perceived or cognised per se by another sensory or cognitive capacity, including the capacity for *phantasia* and the capacity for thinking. That means that Aristotle uses the term "incidental" to indicate the limits of a single sense. Aristotle also uses the term in a relative sense because he takes a sensible item to be either per se or incidental depending on the capacity to which it is attributed. Bitterness is a per se sensible item to the taste, but incidental to the sight. The same holds for intelligible items such as universals, which are (per se) objects of the intellect, but incidental objects to a sense. I argue that this is the way in which Aristotle introduces incidental perception in *De anima* 2.6. I shall call this understanding of incidental perception "deflationary." However, when Aristotle, in *De anima* 3.1 and 3.3, proceeds to discuss incidental perceptions that have complex contents such as "The white thing is the son of Diares," or "The yellow thing is bile," he refers to these perceptions in positive and absolute terms. In other words, he assumes that these perceptions have contents that go beyond the per se sensible items, and that these perceptions can be explained only by reference to more than one cognitive capacity. I shall call this understanding "inflationary." It is only in the inflationary sense that a substantive account of incidental perception can be given.

2 Incidental Sensible Items and Incidental Perception

Aristotle gives an account of incidental sensible items in *De anima* 2.6. There he suggests the following:

¹³ This is the interpretation given by, e.g., Thomas Aquinas, *Sentencia libri De anima*, ed. R.-A. Gauthier (Rome: Commissio Leonina / Paris: Vrin, 1984), 2.13, 120b161–122b222. My interpretation differs from his in that I do not assume that one can perceive an intelligible item incidentally only when the perceptual capacity is assisted by the intellectual capacity. This interpretation follows from the distinction that I make between two ways of understanding an incidental perception.

Something is said to be a sensible item incidentally if, for example, the white should be the son of Diares. One perceives him incidentally, because [1] he coincides with the white, [2] which¹⁴ one perceives. For this reason, [3] one is not affected by the sensible item insofar as it is the son of Diares.¹⁵

I argue that this account is best interpreted in the deflationary manner outlined above. Perceiving the son of Diares incidentally only implies seeing something white with which the son of Diares coincides. That means that the only thing that is perceived here is the white that one sees by sight. The son of Diares is not *seen* because he does not affect the sense of sight, and one can see only things which affect sight. But he need not be perceived by another sensory or cognitive capacity either, because no such requirement is set here for incidental perception. To perceive the son of Diares incidentally, then, the percipient need not have any appearance (*phantasía*) or memory (*mnēmē*) of the son of Diares, nor any intellection (*nóēsis*) of the identity of the white figure seen. Likewise, I suppose, one perceives incidentally any other item that coincides with the white, and which does not affect the sense of sight, for instance, the citizen of Athens, or a democrat. If incidental items include relative features, such as being the son of someone, or standing one kilometre from the Parthenon, they must be innumerable.¹⁶ Perceiving an infinite number of items incidentally is not a problem, however, because these items do not constitute sensory contents for the sense in question; the only contents that it has derive from the per se sensible items that are finite in each case. In

14 The reference of “which” (οὗ) at 418a23 is ambiguous. The immediately preceding word is “this” (τοῦτο) which refers to the son of Diares. R. D. Hicks, *Aristotle, De anima* (Cambridge: Cambridge University Press, 1907), 77, and Graeser, “Aristotle’s Framework,” 72–73, take the reference to be to the son of Diares. However, that does not make good sense in the context because Aristotle was supposed to explain what it is to perceive incidentally the son of Diares. It is not an adequate explanation to say that we perceive him, even if the qualification “incidentally” were read with “perceive” as Hicks reads it. Therefore, it is advisable to understand the reference to be to the white thing, which is how most recent translators and interpreters take it; see, e.g., W. D. Ross, *Aristotle, De anima* (Oxford: Clarendon Press, 1961), 239; Christopher Shields, *Aristotle: De anima* (Oxford: Clarendon Press, 2016), 35; Klaus Corcilius, *Aristoteles: Über die Seele, De anima* (Hamburg: Felix Meiner Verlag, 2017), 107; Polansky and Fritz, “Accidental Perception,” 128.

15 *De An.* 2.6, 418a20–24. All translations from Aristotle’s texts are mine unless otherwise indicated.

16 Cashdollar, “Incidental Perception,” 158, opposes this interpretation by claiming that it makes incidental perception “trivial.” However, it is not at all trivial if we acknowledge that Aristotle introduces incidental perception to indicate the limits of the individual senses, as I shall suggest below.

the deflationary sense, then, incidental perception can be true or false only in a derivative and purely stipulative sense: an incidental perception is true only if the corresponding per se perception is true, and it is false only if the per se perception is false. However, it does not make sense to say that an incidental perception might be false while the related per se perception is true. In the inflationary sense, by contrast, incidental perception can be false even when the corresponding per se perception is true, as we shall see below.

I argue that the reason why Aristotle introduces incidental sensible items and incidental perception is that he wishes to show the limits of an individual sense and in this way determine the kinds of cognitive functions that are possible on account of that sense without the contribution of another sense or some other cognitive capacity.¹⁷ His point is that even if each object has several features, both sensible and intelligible, an individual sense can single out only those that fall into its scope, that is, those items that affect the sense, both proper and common. It follows that the sense in question ignores others, namely incidental items, which affect some other sensory or cognitive capacity. To say that one perceives an *F* incidentally (by a given sense), then, means that one does not perceive that *F* per se (by that sense); instead, one perceives some per se sensible item with which the *F* coincides. To make this point about the limits of an individual sense, Aristotle need not refer to another capacity by which one can perceive or cognise the item in question per se. When a further capacity is involved, it is still true that one does not perceive the *F* per se on account of the original sense. Before I proceed to discuss this interpretation in more detail, I should like to make three terminological notes.

First, Aristotle's reference to the white (*tò leukón*) and thereby to the sensible item (*aisthētón*) is ambiguous between the white colour and the white thing (or surface), that is, that which is white. Logically speaking, the claim "The

17 Hence, I do not think that the reason why Aristotle introduces incidental sensible items and incidental perception is that he wishes to explain perception of particular substances. If this were his intention, the explanation he provided would remain inadequate because saying that we perceive the son of Diares incidentally by seeing the white thing with which he coincides does not really explain anything. All that we learn by this account is that we see the white thing. That is why those who favour the perceptual interpretation adduce further considerations to supplement Aristotle's account. See, e.g., Modrak, who claims: "The sensory basis for the perception of an incidental object does not fully determine the content of the perception. The physical characteristics of the son of Diares suffice to bring about a perception (in a healthy percipient under normal conditions) of a white thing having a certain shape and magnitude. However, only a percipient acquainted with the son of Diares would be able to perceive this white shape as the son of Diares. Similarly, only a person who has experienced flavors can perceive a white thing as sweet through sight." (Modrak, *The Power of Perception*, 69.)

white should be the son of Diares” makes sense only if “the white” is understood as signifying the white thing, but it is possible to understand “the white” as a sensible item in either of the two ways, that is, as the white colour or the white thing.¹⁸ Again, the latter phrase does not imply that the white and the thing are distinct visible items. Rather, we see the white thing only insofar as it is white, and yet we see that item in some place and time.¹⁹ I shall return to this matter shortly. Second, there are several ways in which an *F* can be incidental (*katà symbebēkós*) to a *G*.²⁰ In the present case, the son of Diares coincides (*syμβέβηκε*) with the white either because both are attributes that belong to the same thing, that is, a man, or because the son of Diares is an attribute of the white thing, or because the white thing is an attribute of the son of Diares. In any case, the son of Diares can be said to be a sensible item incidentally only because the white with which it coincides is a sensible

- 18 In *APr.* 1.27, 43a26–27, Aristotle says that “[...] for example, Cleon and Callias, and the particular and sensible items” are not truly predicated of anything else. In *APo.* 1.22, 83a4–9, however, he qualifies this position by saying that “The white is wood” is either not a case of predication at all, or is predication in a qualified sense, namely incidentally. He clarifies the example in this way: “When I say that the white is wood, then I say that that which coincides with the white is wood, and not that the white is the underlying subject for the wood” (*APo.* 1.22, 83a4–7). That means that the logical subject of the incidental predication “The white is wood” is “the white thing,” i.e., “that which is white,” rather than “the white colour” understood as the underlying subject (*τὸ ὑποκείμενον*). I assume that this is the best way to understand the predication “The white should be the son of Diares” in *de An.* 2.6, 418a21, too. Therefore, I disagree with Graeser, who notes that: “within the framework of perceptual language *τὸ λευκόν* functions indeed as the *ὑποκείμενον* of *ἃ συμβέβηκε τοῖς αἰσθητοῖς* (*De An.* III 3, 428b20)” (Graeser, “Aristotle’s Framework,” 74).
- 19 In *APo.* 1.31, 87b29–30, Aristotle makes this point by saying that “one necessarily perceives a this (*τόδε τι*) at a place and at a time.” In the present context, “a this” refers to a particular substance, e.g., that which is white. My interpretation of this passage differs in some respects from that of Jonathan Barnes. Barnes (*Aristotle, Posterior Analytics*, 193) interprets the particular substance to be an individual such as the son of Diares, and he contrasts it with sensible qualities. He states: “We see individuals incidentally; i.e., to see *a* [an individual] is to see an *F* (where *F* is some sensible quality) which in fact is *a*.” Since Barnes does not suggest that incidental perception (here incidental seeing) requires more than seeing an *F*, he in effect gives his account of incidental perception in deflationary terms. Furthermore, he takes the seeing an *F* to imply the seeing “of the universal,” but does not explain why that is so. In any case, it follows that he considers Aristotle to face the problem of explaining how we can perceive individual objects in the first place. Barnes suggests an answer on Aristotle’s behalf as follows: “[...] any proposition reporting the contents of your perception must contain or imply some reference to individual objects, times, and places; and this must be so because the act of perception is necessarily tied to some individual time and place.” However, I do not see how this could possibly work, if the sensible items are merely qualities.
- 20 *Metaph.* 5.7, 1017a19–22.

item per se.²¹ Third, the qualification “insofar as” (*hêi*) specifies the respect in which the sensible item in question is supposed to be causally efficacious or inefficacious in relation to the sense. As a result, the percipient is supposed to perceive or fail to perceive the sensible item in that respect.

The account given in the above quotation concerns incidental sensible items such as the son of Diares that do not affect any individual sense. The first issue that we need to address is whether the account given can be extended to the other kinds of incidental items, whether sensible or intelligible, that Aristotle acknowledges elsewhere. In *De anima* 3.1, he refers to the proper sensible items of another sense. They differ from the son of Diares in that they affect some sense per se. In *Metaphysics* 13.10, as seen above, Aristotle claims that sight sees a universal colour incidentally. The universal colour must be an intelligible item when the intellect apprehends it. It might be asked whether it is an incidental *sensible* item when it is attributed to the sight. Even if Aristotle does not refer to the universal colour as an incidental *sensible* item, he would be consistent in doing so based on his claim about the incidental seeing and on his assumption that an item may be called an incidental sensible even if it does not affect any sense. That is the case with the son of Diares. That the ‘son of Diares’ is a particular substance or an attribute of a substance need not explain why it is classified as being an incidental sensible. For the purposes of my argument, however, it does not matter whether the universals are referred to as being incidental intelligibles or incidental sensibles in relation to the perceptual capacity. Either way, Aristotle’s point is that we do *not* perceive the universals per se. There are good reasons, then, to extend the foregoing account to the proper sensible items of another sense and to the universals, which, for convenience, I shall call incidental sensibles. Taking all these kinds of incidental sensible items into account, then, the three conditions that Aristotle suggests for the perception of an incidental sensible item can be generalised as follows:

- [1'] The incidental sensible item coincides with a proper sensible.
- [2'] There is a per se perception of that proper sensible item.
- [3'] The individual sense that perceives the proper sensible item in question is not affected by the incidental sensible item insofar as it is incidental.²²

21 For a similar use of the term “incidentally” (*κατὰ συμβεβηχός*), see, e.g., *APo.* 1.22, 83a1–20, and *Categoriae*, 6, 5a38–b10. The text that I use for the *Cat.* is *Categoriae et liber De interpretatione*, ed. L. Minio-Paluello (Oxford: Clarendon Press, 1949).

22 Judging from the explanatory “For this reason” (*διό*) at 418a23, Aristotle assumes that condition [3'] is somehow implied by [1'] and [2']. Logically speaking, however, that condition cannot be derived from [1'] and [2']. Rather, it is a further, independent condition. The condition is required because [1'] and [2'] do not suffice to rule out common sensible items as incidental sensible items. That is why I disagree with Polansky and Fritz, “Accidental

Hence, I do not assume that incidental perception should be explained by reference to the common sense, for example. That the generalised account applies to the proper sensible items of another individual sense can be shown by way of an example. The sense of sight can incidentally perceive something bitter if the bitter coincides with the white, sight sees the white, and sight is not affected by the bitter item insofar as it is bitter. The generalised account also applies to universals because, for instance, the sense of sight can perceive incidentally colour (as a universal) if the universal colour coincides with, that is, is instantiated in some particular colour such as the white, sight sees the white, and sight is not affected by the universal colour insofar as it is universal. That is why Aristotle has good reason to distinguish between perceiving a particular (i.e., an *F*) and having a perception of the universal *F* when he discusses concept acquisition in *Analytica posteriora* 2.19.²³ He says: “Although we perceive particulars, perception is of universals.”²⁴ I am suggesting, then, that Aristotle takes the perception of the universal to be an incidental perception in the deflationary sense of the term. In this context, he makes it clear that unless memory and *empeiría* are involved, perception is not sufficient for apprehending the universal, be it a universal feature or a universal quantified proposition.²⁵ In effect, then, Aristotle claims that we perceive a particular, but we do not perceive a universal. Here, again, he puts effort into showing the limits of perception. By analogy, it could be said that we see a white thing, but we do not see the son of Diares. The seeing is *of* the son of Diares, but that only means that we see the white thing that happens to be that person.

In none of the foregoing cases does the incidental sensible item fall within the range of the individual sense in question. This claim can be clarified as follows: if sight sees the white per se, and the white coincides with the son

Perception,” 128, who consider condition [3'] irrelevant. They are mistaken about the significance of this condition because they fail to notice that Aristotle contrasts the incidental sensible items not only with proper sensible items, but also with common sensible items.

23 For a discussion on Aristotle's view on concept acquisition, see Börje Bydén, “Aristotle's Light Analogy in the Greek Tradition,” in *Forms of Representation in the Aristotelian Tradition, Volume Three: Concept Formation*, ed. C. Thomsen Thörnqvist and J. Toivanen (Leiden: Brill, 2022), 34–77.

24 *APo.* 2.19, 100a16–b1.

25 For a comparable interpretation without reference to incidental perception, see Bronstein, *Knowledge and Learning*, 245: “Perception is of the universal, not because the universal is perceivable, but because the universal is instantiated in particulars each of which is perceivable, and in virtue of this the universal is encoded in the representations we receive when we perceive particulars. Perceiving particulars is necessary but not sufficient for reaching universals. We need the perceptual faculty as a whole (including imagination and memory) and experience, which provide the basis for our advance.”

of Diare, for example, it does not follow that sight sees the son of Diare per se, i.e., as the son of Diare rather than as a white figure. It only follows that sight incidentally sees the son of Diare.²⁶ Indeed, the son of Diare is not perceived as the son of Diare unless a more sophisticated cognitive capacity is involved. For instance, the dog of the son of Diare presumably recognises his master (i.e., the son of Diare) based on his per se sensible features but she does not perceive him *as* the son of Diare because she lacks the required intellectual capacity. In the absence of such a capacity, then, incidental perception is merely a way of speaking: it is a report on what coincides with the per se sensible items. This is what I have referred to as the deflationary case.

The foregoing interpretation has two major advantages. First, it succeeds in taking into account all the incidental sensible items that Aristotle acknowledges in his treatises. Second, in accordance with the text, it does not place any further requirement for perceiving an incidental sensible item. In particular, it does not require that incidental perception necessarily involve more than one individual sense. Even if the individual senses, according to Aristotle, are integrated to constitute the perceptual capacity as a whole, there is no need to adduce this assumption to explain incidental perception. By contrast, those who favour the perceptual interpretation typically make that assumption. In their view, sight perceives incidentally neither the son of Diare nor a bitter object unless it is assisted by memory, which explains why the white thing seen is recognised as being the son of Diare and why the yellow object seen is associated with the bitter object that has been tasted previously. The perceptualists, then, are convinced that a further capacity beyond an individual sense is required for incidental perception. However, this conviction is justified only if incidental perception is understood in the inflationary sense. To review some further reasons for the perceptual interpretation, and to justify the suggested alternative, we need to study the quoted passage in more detail.

It is not clear how the son of Diare should be understood in this passage. The interpretation of the term depends on one's understanding of the white (*tò leukón*). The perceptual interpretation takes being the son of Diare as being

26 In *Sophistici Elenchi* 24, Aristotle notes that in general, "[...] it is not necessary that what is true of the accident is true of the thing" (*Sophistici Elenchi*, in *Topica et Sophistici elenchi*, ed. W. D. Ross (Oxford: Clarendon Press, 1958), 179a36–37). He gives an example about Coriscus and a man who is approaching (*Sophistici Elenchi* 24, 179b1–3). Suppose that Coriscus is the man who is approaching. Now it does not follow that if one knows Coriscus, one also knows the man who is approaching, i.e., that Coriscus is the man who is approaching. Even if Aristotle does not use the notion of incidental knowledge in this context (nor elsewhere), he would be consistent in suggesting that one knows the man who is approaching only incidentally, namely by knowing Coriscus.

an individual substance and being the white as an attribute of this substance.²⁷ This interpretation is required if one assumes that Aristotle introduces incidental perception to explain how we can perceive an individual substance rather than a mere attribute of this substance. This assumption is a key motivation for the perceptual interpretation. According to this interpretation, seeing the white per se does not imply seeing the white thing per se, because we see the white thing only insofar as it is white. What we see, then, is just an attribute. Hence, the white thing is interpreted as being logically analogous to the son of Diares as follows: if sight sees the white per se, and the white coincides with the white thing, it does not follow that sight sees the white thing per se. It only follows that sight sees the white thing incidentally. Thus understood, we would perceive individual substances only incidentally, though based on perceptions of proper sensible features that are attributes of those substances.

I argue in contrast that it is not necessary to interpret the white as an attribute of the son of Diares. An alternative interpretation, as suggested above, is that Aristotle's understanding of the white implies the white thing. According to this interpretation, being the son of Diares is an attribute of that which is white. That Aristotle applies the relative term "son" rather than the mere proper name "Diares" suggests that he has in mind the attribute rather than the substance.²⁸ However, each of the foregoing two interpretations is possible insofar as Aristotle's technical terminology is concerned.²⁹ I prefer the alternative interpretation because I do not see why Aristotle should limit the scope of the per se perceptions to the attributes of individual substances. In other words, I do not see why Aristotle should assert that sight, for example, sees the white colour per se, and yet deny that it sees the white thing per se. Let me dwell on this matter for a while because it helps to contrast incidental perception with per se perception.

Even though Aristotle claims in *De anima* 2.6 that colour is the per se sensible item for sight,³⁰ he qualifies that claim in the subsequent chapter by saying:

27 Even if Graeser, "Aristotle's Framework," 90, eventually dismisses the perceptual interpretation, he calls Aristotle's framework of perceptual language "an inverse ontology," meaning that "genuine substances are treated as attributes and non-substances are treated as genuine subjects" (ibid., 74).

28 See also Joseph Owens, "Aristotle on Common Sensibles and Incidental Perception," *Phoenix* 36 (1982): 227–28n17.

29 For instance, Hicks, *Aristotle: De anima*, 363, correctly notes that a συμβεβηκός sometimes refers to a substance; see, e.g., *APr.* 1.27, 43a33–36, and *APo.* 1.22, 83a1–20. In that case, it is a *symbebēkós* of an attribute.

30 *De An.* 2.6, 418a13.

The visible is colour, and that [i.e., the colour] is on the surface of what is visible per se – per se not by definition, but because it contains within itself the cause of its being visible.³¹

Here Aristotle extends the scope of the per se visible beyond colour to the thing or surface that has within itself the cause of its being visible. He does not assume that the thing or surface is a distinct per se sensible item in addition to the colour. Rather, he merely gives a fuller account of what constitutes a per se sensible item. Aristotle needs such an account because he wishes to distinguish between two cases of seeing, namely seeing a coloured thing in light and seeing a fluorescent thing in darkness.³² In the first case, the thing or its surface is per se visible because it has a colour that is the cause of its being visible when there is light. In the second case, the thing or its surface is per se visible because it contains fiery or fluorescent matter that is the cause of its being visible when there is no light. That means that Aristotle does not see any problem in calling not only colour and fire, but also coloured and fiery things (that is, surfaces) per se sensible items.³³ They are per se sensible in the same sense of the word, because in the present context the reference to a coloured or fiery thing is just a more complete way of referring to colour or fire.³⁴ Thus, Aristotle does not commit a category mistake here. Moreover, he makes no suggestion that coloured and fiery things are analogous to incidental sensible items such as the son of Diares. Hence, he does not define the sense of sight by reference to the per se sensible item in a way that excludes the coloured or fiery thing. That is why he refers to sensible items as particulars (*tà kath' hékasta*) in the first place.³⁵ In doing so, he assumes that the individual senses perceive particular things (individual substances) per se. Therefore, it is incorrect to judge that, since Aristotle limits the scope of the individual senses to disparate sensible features such as colours and sounds, he faces a challenge

31 *De An.* 2.7, 418a29–31.

32 *De An.* 2.7, 419a1–6. For recent studies on the matter, see Katerina Ierodiakonou, “Aristotle and Alexander of Aphrodisias on Colour,” and Pavel Gregoric, “Aristotle’s Transparency: Comments on Ierodiakonou, ‘Aristotle and Alexander of Aphrodisias on Colour,’” in *The Parva naturalia in Greek, Arabic and Latin Aristotelianism: Supplementing the Science of the Soul*, ed. B. Bydén and F. Radovic (Cham: Springer, 2018), 77–90, and 91–98, respectively.

33 See also *de An.* 3.2, 425b18–19, where Aristotle says that sight sees “the colour or that which has colour.”

34 That is because colour necessarily occurs in some body; see *Cat.* 2, 1a27–28. I assume that the same applies to fire when the reference is to fiery substances.

35 *De An.* 2.5, 417b22.

of explaining how we can perceive objects that have those features.³⁶ For the same reason, it is incorrect to judge that he introduces incidental perception to explain how we can perceive such objects. The motivation for the perceptual interpretation is therefore contestable.

Nevertheless, we need to further clarify the nature of incidental objects other than those that are proper sensible items of another sense. It is evident that universals are intelligible items. Is it correct to say that being the son of Diares is also an intelligible item? I think so, and I argue that this is Aristotle's view. That is because we cannot apprehend this object unless we have some conceptual understanding of what it is to be a son of someone. Non-rational animals lack such understanding. It follows that they can perceive the son of Diares incidentally only in the deflationary sense, which does not require the intellectual capacity. In general, it is reasonable to suggest that incidental objects other than those that are proper sensible items of another sense are, properly speaking, intelligible items. That is because Aristotle divides the existing things into two main kinds: the sensible and the intelligible.³⁷ Furthermore, he takes the division exclusively and exhaustively. Therefore, if an item is not sensible, it is intelligible, and conversely. However, the sensible and the intelligible coincide if that which is sensible is numerically the same thing as that which is intelligible.³⁸

There is further evidence for this line of interpretation. In *Physics* 5.1, Aristotle refers to colour as an incidental intelligible item.³⁹ Colour is presumably an incidental intelligible item because it is not the kind of entity that can affect the intellectual capacity, not at least insofar as it is some particular colour of a particular substance. Can we nevertheless have a genuine thought (*nóēsis*) about such a colour, as the perceptual interpretation would require by analogy? I do not think Aristotle thinks so. That is because, as seen above, he takes colour to be a proper sensible item to sight. It would, then, be superfluous to assume that there is another capacity by which we apprehend the very same item. However, it does not follow that we could not have genuine thoughts about colour in general, namely the universal colour, which we apprehend by giving an adequate account.⁴⁰ Note that Aristotle would not refer to such an

36 For a recent formulation of this problem, see Anna Marmodoro, *Aristotle on Perceiving Objects* (New York: Oxford University Press, 2014), 86.

37 *De An.* 3.8, 431b22.

38 In the final section, I shall say something about how Aristotle would understand perception of facts such as "the moon is eclipsed."

39 Aristotle, *Physica*, ed. W. D. Ross (Oxford: Clarendon Press, 1950), 224b19–20.

40 For this interpretation of the apprehension of the universal, see, e.g., Bronstein, *Knowledge and Learning*, 246.

item as an incidental intelligible item because he takes universals to be proper (and hence per se) intelligible items. That is true even though he does not use the terms “proper” (*ídion*) and “per se” (*kath’ hautó*) in referring to universals as intelligible items.⁴¹ By analogy with incidental perception, then, Aristotle could suggest that we can think of a particular colour incidentally if

- [i] that colour coincides with the universal colour (which it does, in a way),
- [ii] we think per se of the universal colour, and
- [iii] the particular colour does not affect the intellectual capacity.

The foregoing considerations suggest that, unless a further sensory or cognitive capacity is involved, incidental perception is just a manner of speaking in much the same way as incidental thought. The qualification ‘incidental’ suggests that the objects referred to are proper objects of another capacity. There is no implication that the other capacity ought to be active with respect to the object in question when we have an incidental perception or incidental thought. Indeed, the requirements that Aristotle puts on incidental perception and, by analogy, incidental thought imply that, if one has a per se perception or a per se thought, one also has, in the deflationary sense, an incidental perception or an incidental thought about those features of the object that coincide with the features perceived or thought per se. For instance, if we think of the universal colour per se, we think of a particular colour incidentally. However, that does not imply that we see that colour, or have a phantasm of the colour simultaneously. We may but need not do so.⁴² The same applies to incidental perceptions. If we see a white thing per se and thereby perceive the son of Diares incidentally, we do not need to have an appropriate act of the intellect regarding him.

41 By suggesting that universals are proper intelligible items for the intellectual capacity, I am not suggesting that apart from universals, there are no other per se intelligible items. Aristotle assumes, for instance, that the intellect (*noûs*) can apprehend individuals such as Cleon when it unites Cleon and being white in asserting that Cleon is white (*de An.* 3.6, 430b5–6). Aristotle makes no suggestion that this thought is incidental. For discussion, see Mika Perälä, “Aristotle on Singular Thought,” *Journal of the History of Philosophy* 53:3 (2015): 364–65.

42 Aristotle notes, though, that the soul, or rather we by the soul, never think without having a phantasm (*de An.* 3.7, 431a16–17). However, he does not introduce that requirement as a requirement for incidental thought. Furthermore, to be plausible, the requirement should cover cases in which we think of a universal such as the chiliagon for which we do not have a corresponding phantasm. In such a case, Aristotle could suggest that the thought of chiliagon is based upon our having a relevant sort of phantasm, say a phantasm of a triangle. That would be a reasonable suggestion to make because we might form the concept of chiliagon by adding sides to the concept of triangle for which we have a phantasm. That does not imply that to think of chiliagon, we ought to simultaneously entertain the phantasm of a triangle.

3 Sensible Items as Causes

We have seen above that Aristotle does not assign any causal power to the incidental objects of perception and thought with respect to the sensory or intellectual capacity in question. That is because he defines incidental items by reference to their lack of causal power with respect to the sensory or intellectual capacity in question. This point is put forward as conditions [3'] and [iii] above. In the following, I shall clarify these conditions by relating Aristotle's distinction between per se and incidental sensible items to the distinction he makes between per se and incidental efficient causes. My argument is that according to Aristotle incidental sensible items are merely incidental efficient causes, which means that they do not play a role in producing perceptions.⁴³ To see that he is committed to these claims, we need to study *Physics* 2 and *Metaphysics* 6.2, where he discusses incidental causes in general.⁴⁴

In *Physics* 2.3, Aristotle introduces a distinction between per se and incidental causes. As an example of a per se efficient cause, he refers to the doctor and the expert as causes of health, and to the sculptor as the cause of a statue. The doctor and sculptor are per se efficient causes of health and a statue, respectively, because they produce these things in the capacity of being a doctor (or an expert) and of being a sculptor. As an example of an incidental efficient cause, by contrast, Aristotle refers to Polyclitus, who coincides with the sculptor. This is what he says:

Furthermore, there is the incidental cause and its [different] kinds [i.e., the efficient and the final]; thus, the cause of a statue is in one way Polyclitus and in another a sculptor, because being Polyclitus coincides with the sculptor.⁴⁵

Here, as in the case of perception, Aristotle uses the term “incidental” in a negative sense to indicate that which does not constitute an efficient cause. He is thus again pointing out the limits of the subject matter. I shall suggest below

43 In this respect, I agree with most scholars. However, my arguments can be seen as a criticism of Cashdollar, who claims that Aristotle “recognizes the incidental sensible itself as the source of a certain kind of psychic movement which is distinct from but of a class with the other two distinctive movements which result from special and common perception (428b18 ff.)” (Cashdollar, “Incidental Perception,” 159).

44 For a helpful recent study on incidental causation in Aristotle, see Tyler Huismann, “Aristotle on Accidental Causation,” *Journal of the American Philosophical Association* 2:4 (2016): 561–75. My interpretation of the passages in question is compatible with his.

45 *Ph.* 2.3, 195a32–35.

that Polyclitus being an incidental cause of a statue is analogous to the son of Diares being an incidental cause of the perception of a white thing. Before I go into the analogy, we need to study the case of Polyclitus in more detail.

In the foregoing citation, Aristotle places two requirements on someone named Polyclitus being an incidental cause of a statue: (1) he must coincide with a sculptor, and (2) the sculptor is the per se efficient cause of the statue. That means that Polyclitus does not produce the statue insofar as he is named Polyclitus, but insofar as he is a sculptor. In other words, his being named Polyclitus does not contribute to the production of this particular statue even if his being named Polyclitus co-occurs with his being a sculptor. That is because his skills in sculpting that he applies in the present case suffice to explain why the statue takes a certain form rather than another form. Regardless of whether he is an inexperienced sculptor or an extraordinarily skilled one who has succeeded in establishing a brand bearing his name, he informs the statue in the capacity of a sculptor rather than as a person named Polyclitus, with his skill rather than with his name. Indeed, he could change his name without losing his capacity to produce a statue. That is why Polyclitus, insofar as he is named Polyclitus, does not exert per se efficient causal power in producing the statue. He is merely an incidental efficient cause of that statue.

The foregoing consideration suggests that incidental efficient causes are not basic explanatory causes. Their causal efficacy is based on per se efficient causes, which are universal in the sense that they apply to all cases that are similar in some relevant respect. In this way, then, incidental efficient causes are reducible to per se efficient causes: if they have any causal power whatsoever, they exert that power by coinciding with per se efficient causes. However, the foregoing consideration suggests more than that. If incidental efficient causes make no difference to the product, it is questionable whether they can be regarded as explanatory causes at all. Rather, they would be efficient causes only by name and entirely eliminable from scientific discourse. In fact, there is some evidence suggesting that Aristotle takes this line of argument.

In *Physics* 2.5, Aristotle extends his discussion of incidental causes to final causation. There he identifies chance (*týchē*) as an incidental cause, observing that: "Strictly speaking, it is the cause of nothing."⁴⁶ Aristotle's example is a man who is engaged in collecting subscriptions for a feast. Suppose the man goes to the agora for another purpose, say to buy vegetables, but by chance meets there a person who wishes to subscribe, and collects the money from her.⁴⁷ Since the man goes to the agora to buy vegetables, and going to the

⁴⁶ *Ph.* 2.5, 197a14.

⁴⁷ *Ph.* 2.5, 196b33–36.

agora and collecting the money coincide, it can be said that his wish to buy vegetables is an incidental final cause of collecting the money, whereas his wish to collect subscriptions is the *per se* final cause if it is operative in the present case (which Aristotle does not confirm, however). Aristotle adds that there are innumerable other incidental causes for going to the agora and collecting the money, such as a wish to see somebody, a wish to follow or avoid someone, or a wish to see a spectacle.⁴⁸ He identifies a common pattern in cases of efficient and final causation because he compares the present case to a flute-player as an incidental efficient cause of a house.⁴⁹ In Aristotle's view, then, there are innumerable incidental causes not only for the man going to the agora, but also for the house being built: in addition to the flute-player, we may refer to a citizen of Athens, a taxpayer, a fan of Aristophanes, a bipedal featherless animal, an ensouled body, etc. All this suggests that Aristotle is not willing to assign any explanatory role to incidental causes. They do not have any *per se* explanatory force in a scientific account which holds "always or for the most part."⁵⁰

Against this background, it is easy to see why incidental sensible items cannot be explanatory causes. The only exception to this rule are the proper sensible items of another sense, but even they affect only that other sense, not the one to which the incidental perception is attributed. Therefore, it is reasonable to infer that all the explanatory work that is required for explaining sense perception is done by the proper and common sensible items (together with sound senses as well as favourable external and internal conditions for perceiving). From what has been said thus far, however, it does not follow that the proper and common sensible items could not explain incidental perceptions if there are such perceptions. That is because one might suggest that incidental perceptions are incidental effects of the proper and common sensible items affecting the senses. Aristotle rejects this suggestion, however. He does not think that the proper and common sensible items could produce incidental perceptions as side-effects. That is because he believes that in general incidental effects do not have *per se* efficient causes. Here is the evidence from *Metaphysics* 6.2:

For one who makes a house does not produce all the things which coincide with the house that is coming to be, for they are indefinite. There is nothing to prevent the house that is produced from being pleasing to

48 *Ph.* 2.5, 197a17–21.

49 *Ph.* 2.5, 197a15.

50 *Ph.* 2.5, 197a19.

some, harmful to others, beneficial to others, and different, so to speak, from everything that is. The art of house-building does not produce any of those things.⁵¹

Aristotle thus claims that the builder does not cause those things that co-occur with the house, such as the pleasure that the owners take from the house or the pain that the neighbours feel if the house blocks their sea-view. The builder's capacity is thus restricted to producing the house, and does not extend beyond that. Understandably, there are some other per se causes that explain why people take pleasure or pain from the house, including the house and the capacities for perception and desire.

By analogy, I argue, Aristotle takes the proper and common sensible items' capacities to be restricted to inducing perceptions of proper and common items. Furthermore, he takes those capacities to induce the per se perceptions in question "always or for the most part." That is not the case with incidental sensible items. Being the son of Diaries makes a difference only to those animals that have the capacity for both seeing and intellection. When a human being associates certain per se sensible items with incidental items such as the son of Diaries, there is some further per se cause to explain why she makes such an association. For instance, the percipient may have a desire to find the son of Diaries at the agora, and when she gets a glimpse of someone who looks like him, she may use the capacity for reasoning to judge that the white thing is indeed the son of Diaries. However, this judgement is not a sense perception, but rather a belief that is based on a per se perception. I have referred to such cases as "inflationary" in opposition to "deflationary" cases, which do not require a further cognitive capacity. In the remaining sections of the present chapter, I shall examine whether either reading, the inflationary or the deflationary, can make sense of the key claims that Aristotle makes about incidental perception. In particular, I shall examine two claims: first, that the individual senses perceive each other's proper objects incidentally, and second, that one can be mistaken about incidental sensible items.

4 The Senses Perceiving Each Other's Proper Objects Incidentally

I will begin with the first claim, which Aristotle makes in *De anima* 3.1. There are two questions that we need to address: Why does he make that claim and

⁵¹ *Metaph.* 6.2, 1026b6–10.

what does it imply? I argue that the deflationary reading that I have given of *De anima* 2.6 is applicable to *De anima* 3.1, too. If this is correct, Aristotle wishes to emphasise the limits of each sense: each sense perceives its proper sensible items only, not the proper items of the other senses, even if those items coincide. Thus understood, saying that the senses perceive each other's proper sensible items incidentally means that each sense perceives its proper sensible items only even if those items coincide with the proper items of the other senses. This implies that an individual sense can incidentally perceive another sense's proper object without the contribution of that sense. My argument, then, is that the two senses need not cooperate for there to be an incidental perception.⁵² However, they do cooperate when we perceive these items per se at the same time, or discriminate (*krínein*) between them, and yet Aristotle does not refer to such perceptions and discriminations as incidental when he discusses them in detail in *De anima* 3.2 and 3.7 as well as in *De sensu et sensibilibus* 7.⁵³ Here is the key evidence from *De anima* 3.1:

The senses perceive one another's proper objects incidentally, not insofar as they are the senses they are, but insofar as they are one, whenever perception occurs of the same thing at the same time, for example of bile that it is bitter and yellow (for it most surely does not belong to another sense to say that the two are one).⁵⁴

The perceptualists tend to read this passage as saying that the senses perceive one another's proper objects incidentally only if they cooperate. That is taken to be what Aristotle suggests by saying: "insofar as they are one, whenever perception occurs of the same thing at the same time." Incidental perception, then, is to be attributed to a capacity that is comprised of the individual senses. Some refer to it as the common sense, others as the perceptual capacity in its

52 Thus, I oppose the interpretation given by, for instance, Modrak, *The Power of Perception*, 69, and Marmodoro, *Aristotle on Perceiving Objects*, 166. See also Ross, *De anima*, 34, who suggests that a sense can perceive another sense's proper object incidentally if the two senses have perceived the same object at the same time earlier.

53 For a full discussion of the interpretation that perceptual discrimination, according to Aristotle, is not an incidental perception, see Mika Perälä, "Aristotle on Perceptual Discrimination," *Phronesis* 63:3 (2018): 257–92. For the *De sensu et sensibilibus*, I am referring to Aristotle, *Parva Naturalia*, ed. W. D. Ross (Oxford: Clarendon Press, 1955).

54 *De An.* 3.1, 425a30–b2, trans. C. Shields, in *Aristotle: De anima* (Oxford: Clarendon Press, 2016), modified.

entirety.⁵⁵ I argue that the text does not compel this reading, and that there is an alternative that better captures Aristotle's intentions in the context.

The alternative that I introduced above is more modest in that it does not require cooperation of the senses. The proposal, then, is that the senses perceive one another's proper objects incidentally only if there is a single object such as bile that has features belonging to the scope of each sense in question. Since taste perceives that which is bitter, and sight perceives that which is yellow, there is a single object for the two, namely bile, which is bitter and yellow, and yet the two senses discern a different feature of that object. Aristotle says that the senses are one because they have a common object. By saying that this happens "whenever perception occurs of the same thing at the same time," he means either "whenever *each* perception occurs of the same thing at the same time," or "whenever one perception, namely discrimination of bitter and yellow, occurs of the same thing at the same time." However, as mentioned above, Aristotle does not refer to discrimination as being an incidental perception. That is why I prefer the former reading. Either way, the two perceptions are independent of each other, and the incidental perception refers to the deflationary type: perceiving another sense's proper feature only requires that a sense perceives its own proper sensible feature that as a matter of fact coincides with the other sense's proper feature. However, no necessary link such as necessary covariation between the two sensible features is required. There is thus no requirement for cooperation of the senses insofar as incidental perception is concerned.

The foregoing considerations show why the alternative interpretation is a reasonable interpretation of the present passage. This interpretation requires further support, however, because it might be objected that I have misconstrued the structure and contents of incidental perception. In fact, I have gone so far as to imply that in the deflationary case there is no structure and content to incidental perceptions because they are not perceptions at all. Indeed, I have suggested, incidental perception is just a way of saying what an individual sense does not perceive. The objection, then, is simply that Aristotle surely intends that incidental perception be more than that.

Thomas Johansen, for instance, suggests that in the passage quoted above, Aristotle takes the content of the incidental perception (in his terms, accidental perception) to be either "the bile is both bitter and yellow" or "the bitter

55 For the common sense, see, e.g., Johansen, *The Powers*, 184–85; for the perceptual capacity, see, e.g., Gregoric, *Aristotle on the Common Sense*, 199–201. In the present context, the difference between the two is merely terminological.

is (the) yellow.”⁵⁶ Either way, the incidental perception has contents that go beyond the proper and common sensible items. Johansen claims: “What makes the perception accidental seems to be that [sic] the introduction of a *relation* between the special perceptibles, sameness or difference, which is not a proper perceptible.”⁵⁷ It follows that incidental perception has complex contents that are comparable, though not identical, to linguistic predications of the type “S is P.” It also follows, as Johansen sincerely admits, that we do not acquire such contents solely by individual senses. He says: “Insofar, then, as we understand vision as taking on the form of the sense-object it is hard to see how the accidental perceptibles become part of the content of vision.”⁵⁸ He continues by claiming that we do not entertain these contents by the individual senses either:

insofar as accidental perceptibles are remembered, as implied by saying that they are acquired by learning, it seems plausible that we should not look to the special senses as the locus of their representation but rather to the common sense which is responsible for memory and other imagination-based activities.⁵⁹

I am not convinced by this line of interpretation. Johansen is too hasty to suggest that we need to introduce the notion of relation to explain the incidental perception in question. It is worth noting that in *De anima* 3.2 and 3.7 as well as in *De sensu* 7, where Aristotle explains how we can perceive several proper sensible items at a time and how we can discriminate between them, he does not introduce such a notion.⁶⁰ Indeed, there is no indication that he would take the contents of such perceptions and discriminations to be analysable in terms of relations between proper sensible items. That is true even if he assumes that a perception of several sensible features implies there being a unity of those features. That means that we either perceptually associate one feature with another one, or differentiate them. Neither of these basic acts requires that we perceive those features as standing in relation to each other either by a sameness or a difference relation. Of course, we can form perceptual beliefs about such relations, but that is not a matter of sense perception, or so Aristotle thinks.

⁵⁶ Johansen, *The Powers*, 182.

⁵⁷ Johansen, *The Powers*, 182–83, emphasis his.

⁵⁸ Johansen, *The Powers*, 184.

⁵⁹ Johansen, *The Powers*, 184.

⁶⁰ For a discussion on Aristotle's *De sensu* 7 and especially its medieval reception, see Toivanen's contribution (chapter five) below.

Johansen is not alone in promoting this line of interpretation. There are many who argue that incidental perception requires the contribution of *phantasía* or memory.⁶¹ They assume that incidental sensible objects other than those that are proper (and common) cannot affect the individual senses, and yet these items can be “perceived” incidentally. Therefore, it is argued, incidental perception ought to derive its content from *phantasía* and memory. The assumption, then, is that we can retain a phantasm of the son of Cleon from an earlier meeting with him, and that is why we can recognise (that is, perceive incidentally) the white thing that we see by sight as being the son of Cleon. The same applies to seeing the bitter incidentally in those cases in which the sense of taste is not involved: we see a yellow item per se by sight, and recognise it as being bitter based on a phantasm that we have retained from an earlier tasting of the flavour of the object.

I think this interpretation is reasonable if incidental perception is understood in the inflationary sense. However, the passage quoted above does not require this understanding. I have two further objections that are more general in nature. First, the perceptual interpretation is in one way too broad in scope. It attempts to explain incidental perception of objects such as the son of Diares by reference to *phantasía* or memory even if the texts cited in support do not mention the two. Since these texts can be given an alternative interpretation that does not appeal to *phantasía* or memory, as I have tried to show, the perceptual interpretation seems to be textually unmotivated. Second, the interpretation is in another way too narrow in scope; there are some incidental items that we cannot perceive in the suggested way. In *Metaphysics* 13.10, Aristotle says: “Sight sees the universal colour incidentally because the particular colour that it sees is a colour.”⁶² There is no way in which the perceptual interpretation can deal with this passage other than saying that incidental perception is also informed by the capacity for thinking. In fact, that would be a reasonable explanation for the incidental perception of the son of Diares, too, if the perception in question is understood in the inflationary sense. However, that is not a persuasive move because it seems to contradict the key assumption underlying the perceptual interpretation, namely that incidental perception is an activity of the perceptual capacity of the soul alone. Furthermore, if incidental perception were “penetrated” (as the contemporary idiom has it) by intellection, the distinction Aristotle draws between perceiving and thinking

61 For recent interpretations, see, e.g., Polansky and Fritz, “Accidental Perception,” 126; Marmodoro, *Aristotle on Perceiving Objects*, 165–67; Gregoric, *Aristotle on the Common Sense*, 199–201.

62 *Metaph.* 13.10, 1087a19–20.

would be seriously compromised, if not entirely obliterated.⁶³ Again, since there is an alternative interpretation that can explain incidental perception of universals, there is no need to accept the perceptual interpretation in the first place.

In addition to the foregoing objections, I should like to note that, given Aristotle's understanding of memory as being based on sense perception rather than thinking, we do not retain a phantasm of the son of Cleon insofar as he is the son of Cleon. Indeed, since memory, according to Aristotle, concerns intelligible items only incidentally, it is not based on a conceptual understanding of the object.⁶⁴ Therefore, we retain the phantasm of the son of Cleon only insofar as he is, for example, a white, moving figure. This is a deflationary reading of the memory of the son of Cleon. However, memory can be combined with a further cognitive function, in which case we are considering it in inflationary terms. For instance, we can take sensual pleasure from remembering the son of Cleon if the *per se* perceptions that gave rise to the phantasm come with sensual pleasure, or if the phantasm is associated with some other pleasant phantasms regarding him. That is how Aristotle can account for those sensible items that are perceived as desirable: food, for example, can be analysed as a certain unity of *per se* sensible items that tends to elicit pleasure of a certain type when the animal is hungry.⁶⁵ Accordingly, perceiving food can be analysed in terms of a *per se* perception that comes with feeling pleasure. This kind of perception can be called incidental, but it is incidental in the suggested inflationary sense of the word. By analogy, incidental *phantasia* can be analysed as a *per se phantasia* with, for example, pleasure or conceptual understanding.

The foregoing considerations suggest that incidental perception can be understood not only in the deflationary way, in which the reference is to an individual sense, but also in the inflationary way, in which two capacities cooperate. In the following section, I proceed to discuss the latter understanding in more detail, focusing on Aristotle's claim that one can be mistaken about incidental sensible items. My argument will be that this claim is best understood in the inflationary sense. Furthermore, I argue that the mistakes that Aristotle explicitly refers to are best understood in intellectual terms. However, if he acknowledges mistakes about the proper sensible items of another sense, he is consistent in explaining them in perceptual terms.

63 Some late Platonist commentators of Aristotle assumed that the human capacity for perception is penetrated by reason. See, e.g., Simplicius(?), *In de An.* 187.29–36.

64 *De memoria et reminiscencia*, in Aristotle, *Parva naturalia*, ed. W. D. Ross (Oxford: Clarendon Press, 1955), 1, 450a24–25; 2, 451a28–29.

65 *Sens.* 5, 443b20–26.

5 Mistakes about Incidental Sensible Items

In several places, Aristotle claims that we can be mistaken about incidental sensible items. Here are the key pieces of evidence:

Each sense discerns these [proper sensible items] and is not deceived that there is colour or that there is sound – as opposed to what or where the coloured or sounding thing is.⁶⁶

This is also why one is deceived when, should something be yellow, one thinks it is bile.⁶⁷

The perception of proper sensible objects is true, or is subject to error to the least degree. Second comes perception regarding the attributes, and already here it is possible to be mistaken. For one is not mistaken that there is white; but only as to whether this or that other thing is what is white. Third, there is perception of the common objects which follow upon the attributes to which the proper objects belong (I mean, for instance, motion and magnitude, which are attributes of the sensible objects). It is about these that perceptual error is most likely to arise.⁶⁸

As usual, Aristotle is very brief in giving these accounts. The verb that he uses for misperceiving is “to be deceived” (*apatâsthai*) in the first two passages, and “to be in error” (*pseúdesthai*) in the third. To all appearances, these verbs cover mistakes about all three kinds of sensible items, that is, proper, common, and incidental, if we assume that in the third passage Aristotle corrects himself in allowing for our being mistaken even about the proper sensible items. Indeed, he seems to imply in the first passage that we do not misperceive the proper sensible items, but in the third he makes a cautious qualification by saying that these perceptions are “subject to error to the least degree.” However, he need not assume that what it is to be deceived is the same in all three cases. That is because Aristotle accounts for the content of each type of perception in somewhat different terms.

The content of the perception of proper sensible items is given in existential terms “There is an *F*,” which can be understood as implying the mere presence of the object *F*, and the perception in question can be analysed in objective terms as “*S* perceives an *F*.” Being deceived about *F*, then, might be understood as perceptually affirming the reality of an *F* when there is no *F* present to the senses;

66 *De An.* 2.6, 418a14–16, trans. Shields.

67 *De An.* 3.1, 425b3–4, trans. Shields.

68 *De An.* 3.3, 428b18–25, trans. Shields, modified.

instead, there is a *G* that appears to be *F*. By “perceptually affirming,” I am not referring to an act of assent that is distinct from the act of perceiving an *F*. On the contrary, I take it to be essential to all perceiving that each sense by default affirms the reality of what it perceives unless there is some more authoritative capacity to contradict their report.⁶⁹ It is not clear whether the perception of common sensible items can be given an existential analysis along the same lines. An alternative analysis would be associative “The *F* with a *G*,” where *F* is a proper sensible item and *G* a common sensible item. This should be contrasted with the predicative analysis “The *F* is *G*,” which I take to require conceptual understanding, and to be a function of the intellectual capacity. I write *F* here with a definite article to indicate that the perception of a common sensible item is supposed to be based on a perception of a proper sensible item. Thus understood, misperceiving a common sensible item would be understood as mis-associating the proper sensible item with a common sensible item, which is to be contrasted with intellectually mistaking the proper item as being the common item. For the present purposes, however, we need not decide how Aristotle might understand being deceived in the cases of proper and common sensible items. Rather, we are interested in how he explains misperceiving the incidental sensible items. The above three passages suggest that he accounts for the contents of incidental perception in predicative terms, for example: “The yellow is bile,” or “The yellow is in a glass.” However, I shall suggest below that incidental perceptions of the proper sensible items of another sense are best analysed in associative terms. That is how those who prefer the perceptual interpretation tend to understand all incidental perceptions, even if some perceptualists account for them in predicative terms, failing to make a clear distinction between the predicative and the associative.⁷⁰

69 In fact, Aristotle says that it is the principle or origin (i.e., the primary perceptual capacity that lies in the heart) that affirms the report from each sense; see *De insomniis* 3, 461a30–b7 (the text is included in Ross’s edition of the *Parva naturalia*). However, there is no functional difference between the principle and the sense when only one sense is involved in perceiving the proper sensible items. Furthermore, Aristotle’s understanding of “more authoritative” (κυριωτέρα, 461b5) does not imply a rigid hierarchy of capacities. That is because he suggests that one sense can be more authoritative than another one in perceiving the common sensible items such as number. For example, when the fingers are crossed, and touch perceives there being only one object, sight has the authority to contradict this perception (*Insomn.* 2, 460b20–21). For a detailed defence of this interpretation, see Pavel Gregoric, “Aristotle and Michael of Ephesus on the Deceptive Character of Dreams,” in *Forms of Representation in the Aristotelian Tradition, Volume two: Dreaming*, ed. C. Thomsen Thörnqvist and J. Toivanen (Leiden: Brill, 2022), 28–60.

70 For instance, Cashdollar, “Incidental Perception,” 161–67, confounds the predicative and the associative by referring to what he understands as spontaneous association of perceived items as “perceptive predication.” For a perceptual interpretation that is not based on predicative analysis, see, e.g., Gregoric, *Aristotle on the Common Sense*, 199–201.

The foregoing considerations about *per se* perceptions suggest the following relational understanding: there is a yellow item which S perceives incidentally to be bile; formally, there is an *F* which S perceives incidentally to be *G*. The yellow item is present to S through a *per se* perception. Based on this perception, S perceives incidentally that the item in question is bile. I argue that when this is not understood in the deflationary sense, it is a perceptual belief, because apprehending bile requires some conceptual understanding of the matter in question.⁷¹ It would be more precise to say that S takes the item seen as being bile. In other words, there is a yellow item about which S believes that it is bile.

It is easy to see why Aristotle thinks there are false incidental perceptions in addition to those that concern the proper sensible items of another sense: he thinks that one can mistake the yellow item for bile even if it is not bile. For instance, when there is yellow soda in a glass and one sees the yellow, she can mistake it for bile, or for being in a bottle. In Aristotle's view, then, misperception of an incidental item involves mistaking a proper (or common) sensible item for something other than what it is. I argue that this is a misbelief about a proper (or common) sensible item rather than a misperception that could be accounted for in terms of a *per se* perception combined with *phantasia* or memory. Indeed, if incidental perception has predicative structure with conceptual contents, it is most reasonable to interpret it as a belief rather than as a perception which lacks conceptual contents, however complex it is otherwise. Therefore, I think, those who favour the perceptual interpretation owe us an explanation for how "being bile" or "being in a bottle" can constitute contents for a perception. The only explanation that I know from literature is this: even if the capacity for perceiving bile or a bottle requires that one has acquired the concept of bile and the concept of bottle by learning and thus by using the intellectual capacity, one may nevertheless perceive bile and a bottle through a single perceptual act without the intellectual capacity being involved in this

71 Aristotle has two terms for belief: *hypólēpsis* and *dóxa*. By *hypólēpsis*, he refers to any cognitive state that involves taking something to be the case or taking something to be true or false, including knowledge (*epistēmē*), practical reason (*phrónēsis*), and *dóxa* (*de An.* 3.3, 427b24–26). By *dóxa*, he refers to the kind of cognitive state that does not satisfy the requirements of knowledge, for example universality (see, e.g., *APo.* 1.33, 88b30–89a3). They include perceptual beliefs. For the present purposes, it is not necessary to decide whether according to Aristotle all cases of taking something to be the case or something to be true or false require predicating something of something; alternatively, there might be cases in which one grasps the truth by simply apprehending a unified item such as an essence. For a recent discussion of belief in Aristotle (and Plato), see Jessica Moss and Whitney Schwab, "The Birth of Belief," *Journal of the History of Philosophy* 57:1 (2019): 1–32.

perception.⁷² Perception, then, may have in part intellectual contents even if it is not combined with an intellectual act. The problem with this explanation is, however, that it separates intellectual contents from intellectual acts. There is no evidence that Aristotle would take this line of argument. On the contrary, there is much evidence that he takes the two to be inseparable. Thus, the perceptualists seem to apply the term “perception” too broadly when they suggest that all incidental perceptions are genuine perceptions.

I am thus suggesting that in the cases considered above, we should understand misperception of an incidental item as a misbelief about a proper or common sensible item. Unless we take it as a misbelief, we face a difficulty in explaining why Aristotle, in the second passage, explains the error in question by using a term that refers to thinking rather than perceiving. He says that the error arises “when, should something be yellow, one thinks it is bile.” It is natural to understand the expression “one thinks” (*oietai*) as indicating a misbelief about the yellow thing, which, in the present case, is sweet rather than bitter.⁷³ The passage in question immediately follows Aristotle’s discussion of the senses’ incidental perceptions of one another’s proper sensible items, which we have studied in the previous section of the present chapter. In that context, the misbelief arises because we judge the yellow thing to be bile based on seeing the yellow only. That judgement is based on seeing the yellow only because the alleged incidental perception of sweet does not contribute anything to seeing the yellow. Thus, I argue, Aristotle uses this example of a misbelief to show that there is no content to the incidental perception in question.⁷⁴ If we had tasted the object in question and learned that it is sweet, we would have realised that it cannot be bile because bile is bitter rather

72 For instance, Johansen, *The Powers*, 183–84, argues: “Clearly the reason why one can see the white as the son of Diares is that one has at some point learnt who he is; typically by somebody telling you. That somebody is the son of Diares is clearly then something we *learn*. What persuades Aristotle nonetheless to view such accidental perceptibles as objects of perception is that they are, as we might say, represented in perception. On this reasoning, it is one question whether a certain content has its origin in memory or intellect or some other cognitive activity, it is another question whether the content is perceived or not. We perceive that this white thing is the son of Diares within one perceptual act, not as an act of seeing plus an act of intellection.” (Johansen’s emphasis.) Johansen follows here Cashdollar, “Incidental Perception,” 168. For the same argument, see, e.g., Gregoric and Grgic, “Aristotle’s Notion of Experience,” 11–12.

73 See also Herzberg, *Wahrnehmung und Wissen*, 171–72.

74 By contrast, some interpreters take this example to show that we would not incidentally perceive the yellow thing as being bitter, or being bile for that matter, unless we previously had perceptions of the yellow combined with perceptions of the bitter. That is why we tend to associate the yellow with the bitter (even when there is nothing bitter present to taste), and are prone to incidentally perceive the yellow thing as being bitter, or bile.

than sweet. It is worth noting that there is nothing in the context to suggest that Aristotle would explain the mistake in question solely by reference to the senses of taste and sight, either individually or jointly. That is because neither of the two apprehends bile insofar as it is bile. They cannot apprehend bile because bile *qua* bile does not affect these senses. Hence, if there is a mistake about the nature of the yellow perceived, it ought to be explained by reference to a higher cognitive capacity, namely the capacity for thinking, as Aristotle correctly implies by using the expression “one thinks.” I assume that an analogous analysis can be given of a false incidental perception of the son of Diare, as follows: there is a white thing about which one believes that it is the son of Diare.

There is further evidence for the suggested understanding of “one thinks.” In *De insomniis* 1, Aristotle claims: “Mis-seeing and mishearing implies that one sees or hears something real, but not what one thinks it is.”⁷⁵ The context suggests that this claim is not to be taken as a general account of mis-seeing and mishearing. Aristotle only has in mind cases in which we perceive some feature of an object correctly, but make a mistake regarding another feature.⁷⁶ That is why this is analogous to the case discussed above. In the present context, Aristotle refers to the sun appearing to be a foot across, “even to those who are healthy and have knowledge.”⁷⁷ I understand him to be suggesting that in this case, we are seeing correctly a real object, the sun or its yellow colour, but are deceived about the size. There are two things involved in being deceived here. First, the sense of sight is deceptive because it does not discern accurately the size of distant objects. People who are healthy and in their right minds are aware of this limitation of sight and do not believe that the sun is a foot across even though it looks to be so. Second, in some cases, when people are seriously ill, for instance, they may be oblivious to that fact and be misled into thinking uncritically that the sun is indeed a foot across. That mistake is not a sensory misperception but rather a false belief about what one really sees or hears. Something similar happens to those who are asleep, or so Aristotle

See, e.g., Ross, *De anima*, 34; Cashdollar, “Incidental Perception,” 168; Modrak, *The Power of Perception*, 69; Gregoric, *Aristotle on the Common Sense*, 200.

75 *Insomn.* 1, 458b31–33.

76 Here, again, I am following Herzberg who suggests: “In allgemeiner Form wird solch ein sinnlicher Irrtum in *De Insomniis* beschrieben: ‘Denn das falsche Sehen und das falsche Hören geschehen erst dann, wenn man etwas Wirkliches (ἀληθές τι) sieht und hört, nicht allerdings dieses, was man meint (οἶεταί).’ (Insomn. 458b31 ff.).” (Herzberg, *Wahrnehmung und Wissen*, 172.)

77 *Insomn.* 1, 458b28.

suggests. Since belief (*dóxa*), or rather the capacity for forming beliefs, is held in check during sleep, it uncritically follows dream phantasms.⁷⁸

I am thus suggesting that the incidental perceptions in question are beliefs rather than perceptions. It might be asked why Aristotle refers to them as perceptions in the first place if they are not genuine perceptions. There is not much that one can say based on direct evidence. Nonetheless, I argue that Aristotle would have good reason for doing so. That is because he would be consistent in separating beliefs that are based on actual *per se* perceptions from beliefs that are not based on such perceptions even if they might be about *per se* sensible items. In perceptual beliefs such as “The white thing is the son of Cleon,” the subject term refers to an item that is currently perceived by sight. In non-perceptual beliefs, by contrast, the subject term does not single out an object of actual sense perception. In *De anima* 3.6, for instance, Aristotle gives as an example the thought “Cleon is white.”⁷⁹ *Per se* perception is not involved in this thought even if the thought is about a particular substance that can be perceived insofar as it is white. In this context, Aristotle claims that it is the intellect that combines the two items to make an assertion that is either true or false.⁸⁰ He does not make a corresponding claim about the perceptual belief “The white thing is the son of Cleon,” perhaps because even if that belief is the work of the thinking capacity, it involves the sense of sight being active. Hence, it is a belief that is based on a *per se* perception.

The foregoing considerations do not imply that Aristotle always refers to perceptual beliefs as incidental perceptions. In *De anima* 3.7, he discusses a case in which a thinker is moved “outside of perception, whenever one is presented with phantasms.”⁸¹ “For instance,” he says, “one who perceives a beacon, because it is fire, and by common perception sees it moving, recognises that it is an enemy’s.”⁸² Here the verb “recognises” (*gnōrízei*) signifies a belief rather than perception. This case is “outside of perception,” first, because even if recognition is based on one’s seeing the fire moving, it is not an activity of sight. Instead, it is a belief that the moving fire belongs to an enemy. Second, recognition is “outside of perception” because it involves some phantasm about an enemy, for instance, an unpleasant feeling about an earlier encounter with the enemy.

78 *Insomn.* 1, 459a6–8.

79 *De An.* 3.6, 430b5.

80 *De An.* 3.6, 430b5–6.

81 *De An.* 3.7, 431b4, trans. Shields, modified.

82 *De An.* 3.7, 431b5–6, trans. Shields.

Thus far, I have not considered mistakes about the proper sensible items of another sense. It is difficult to determine Aristotle's view on the matter because he does not discuss these cases. His lack of interest in the matter can be partly explained by the fact that he thinks we misperceive the proper sensible items "to the least degree." However, that does not imply that he thinks the per se perceptions are infallible in all circumstances. For example, an ill person may taste a sweet object as bitter if her tongue is filled with bitter fluid.⁸³ A further difficulty is that the alleged mistakes about the proper sensible items of another sense seem to overlap false discriminations of proper sensible items, and yet, as I have noted, Aristotle does not refer to discriminations as incidental perceptions. That is why we cannot be sure if he wishes to make a distinction between the two. However, we may set aside this difficulty, which is basically a terminological one, and examine how a mistake about the proper sensible item of another sense could be analysed. There are basically two kinds of cases. First, one might see a yellow object correctly, but taste it incorrectly as being bitter. Here the mistake is based on a failure of taste. Second, one might see correctly a yellow object (which is sweet) and taste another object correctly as being bitter, but make a mistake in associating the yellow object with the bitter object. In this case, the mistake can be attributed to neither sight nor taste individually, but rather to the cooperation of the two senses. In either case, the mistake can be explained in perceptual terms. This is, then, where I follow the perceptual interpretation. However, I do not assume that the associative mistake in question implies a predicative mistake.

6 Conclusion: The Cognitive Role of Incidental Perception

I will conclude my discussion by making some observations on the cognitive role of incidental perception. If the proposed interpretation is correct, Aristotle has two different ways of understanding incidental perception: the deflationary and the inflationary. I suggested that it is only in the inflationary sense that incidental perception can play some cognitive role. As an example of such a role, I made some remarks on how Aristotle understands the perception of the universal as an incidental perception when he accounts for concept acquisition in *Analytica posteriora* 2.19. I pointed out that according to Aristotle we do not grasp universals on account of the senses alone, but rather on account of several cognitive capacities that help us to proceed step by step in our inquiry towards understanding the universals.

83 *De An.* 2.10, 422b7–10.

Aristotle rarely draws a distinction between *per se* perception and incidental perception outside his psychological treatises. Even when he does so, it is difficult to determine exactly what cognitive role, if any, he assigns to incidental perception. In some cases, if my interpretation is correct, he does not assign such a role, because he wishes to show merely that a given sense does not perceive the incidental item in question *per se*. That is the case with the son of Diares in *De anima* 2.6. By contrast, many interpreters have assumed that Aristotle discusses this particular case because he wishes to show that incidental perception is required for cognition of a particular object as opposed to its attribute. In the present chapter, however, I hope to have shown that incidental perception, as it is conceived of in the *De anima*, need not play that role.

Nonetheless, the fact that Aristotle uses the term *aísthēsis* in an unqualified way in his logical and ethical treatises has led some scholars to reasonably assume that some occurrences of the term can be interpreted in the incidental sense. It has been suggested, for instance, that in contrasting practical reason (*phrónēsis*) as a kind of perception with the perception of proper sensible items,⁸⁴ Aristotle has in mind incidental perception.⁸⁵ This interpretation is not entirely out of place, if we understand the perception in question as a distinctive kind of cognition that is based on a *per se* perception. Practical reason can thus be incidental perception in the inflationary sense. I should like to emphasise, then, that even if practical reason concerns particular items that coincide with *per se* sensible items, it does not follow that according to Aristotle practical reason is an activity of the perceptual capacity of the soul.

However, when Aristotle claims, for example, that we perceive that the moon is eclipsed,⁸⁶ he does not seem to use the verb “perceive” (*aísthánesthai*) in either of the two incidental senses, the deflationary and the inflationary, that we know from the *De anima*. The predicative content “the moon is eclipsed” is analogous to the content “Cleon is white,” which, as shown in the previous section, does not require an actual *per se* perception. Rather, it constitutes content for a belief. That is all that Aristotle needs in the context of *Analytica posteriora* 1.31, where he contrasts “perceptions” of facts with knowledge of their causes. We can replace the verb “perceive” with the verb “believe” or “observe” without changing the meaning of the claims that Aristotle makes. Of course, nothing prevents us from referring to such beliefs or observations as incidental

84 Aristotle, *Ethica Nicomachea*, ed. I. Bywater (Oxford: Clarendon Press, 1894), 6.8, 1142a27–30.

85 See, e.g., Cashdollar, “Incidental Perception,” 172.

86 *APo.* 1.31, 88a1.

perceptions, but the evidence from the *De anima* suggests that Aristotle did not acknowledge such a broad understanding of incidental perception.

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Sense Perception in the Arabic Tradition: The Controversy concerning Causality

David Bennett

1 Introduction

“Can God make a blind man see?” This question does not sound especially Aristotelian at first glance. Yet it is not a question about miracles, nor a theological question at all; as I will show in this chapter, it is a question discussed by ninth–eleventh century practitioners of *kalām*¹ in order to address the mechanics of perception. At issue was whether or not sense perception involves some causal efficacy – either on the part of the object of perception or, in the extreme case suggested above, by virtue of an instance of divine agency. For one school of *kalām*, the Bahshamīs of the tenth–eleventh centuries, there is no place whatsoever for causality in accounts of sense perception; it is an automatic process which occurs when the conditions are right. For their theological opponents, the Ash‘arites, God is the sole cause of all accidental and substantial change, regardless of any conditions that may obtain. In the following, we will see how the arguments of the Bahshamīs were designed not only to defeat the Ash‘arite position, but to challenge the prominent contemporary Aristotelian model of perception as occasioned upon present perceptible qualities producing actual perception (or actualising a state of perception) in the perceiver. The ‘conditions’ of perception are meant to obviate any causal efficacy in the objects while preserving the empirical coherence of sensation.

Before introducing the controversy concerning the role of causality in perception, I will have to present the philosophical context in which it arose. The sub-sections of this introduction will cover (section 1.1) ninth century *kalām* and its relevant cosmological commitments, (section 1.2) the concurrent emergence of Arabic Aristotelianism and the technical terminology developed to convey it, and (section 1.3) the intellectual genealogy of the two major tenth–eleventh century schools of *kalām* (Bahshamī and Ash‘arite) between which this controversy was to play out. In section two, I will introduce the controversy

¹ This term will be explained below (section 1.1), along with its Ash‘arite and Bahshamī variations (section 1.3).

itself, as it is found in a systematic Bahshamī treatise in the eleventh century. This will lead to an unpacking of the sources which led to the Bahshamī evaluation of the opposing, Ash‘arite position. Then I will present (section three) the Bahshamī argument against any role for causality in perception, and (section four) for their own position – that perception is automatic when the right conditions obtain. In the final section (section five), I will argue that the entire controversy is characterised by a technical and theoretical engagement with Aristotelian positions as found in the Arabic reception of *De anima* and, later, in the Avicennan model of perception. Thus, I will show that what appeared to be a theological dispute leading to claims about divine efficacy in unnatural processes (God making a blind man see) turns out to be a philosophically recognisable contest concerning the natural occasion of sense perception (i.e., whether the actuality of perceptible qualities has an effect upon perceiving faculties).

1.1 *The “Materialist” Context: Ninth Century Kalām*

Kalām is the characteristic mode of speculative rationalism practiced by theologians; as such, it has historically been distinguished from classical Arabic philosophy. The earliest practitioners of *kalām*, those who flourished in the later eighth and throughout the ninth century, held diverse views on topics in cosmology and psychology: contemporary sources point to their apparently unanimous insistence on human free will, and refer to them accordingly as Qadariyya (proponents of human free will) or as Mu‘tazilites.² Ash‘arites, introduced below, are a school of practitioners of *kalām* named after the theologian Abū l-Ḥasan al-Ash‘arī (d. 936), who famously broke from the dominant Mu‘tazilite school of *kalām*. Mu‘tazilite doctrine became more systematic during the tenth and eleventh centuries; the Bahshamīs were a prolific group of Mu‘tazilites during this period.³ The rationalist stance of earlier and later Mu‘tazilites put them at odds with scriptural Islamic theology (with which Ash‘arism aligned itself) on the one hand, and into a competition with the nascent Graeco-Arabic philosophical movement on the other.

Although Ash‘arite theologians sharply diverged from their Mu‘tazilite predecessors (who were hardly uniform in their own theoretical output), it is clear

2 The most comprehensive study of the growth and diversification of Mu‘tazilite thought in the eighth–ninth centuries is Josef van Ess, *Theologie und Gesellschaft im 2. und 3. Jahrhundert Hidschra*, 6 vols. (Berlin: De Gruyter, 1991–97).

3 The Bahshamī movement defined itself as the successors to Abū Ḥāshim al-Jubbā‘ī (d. 933), the son of al-Ash‘arī’s Mu‘tazilite master. They are also known as the “Basran” lineage of later Mu‘tazilism, as opposed to the “Baghdad” Mu‘tazilites. The classic study of Basran/Bahshamī Mu‘tazilite theory is Richard Frank, *Beings and Their Attributes: The Teaching of the Basrian School of the Mu‘tazila in the Classical Period* (Albany: State University of New York Press, 1978).

that all of these groups shared some fundamental cosmological principles that determined their approach to psychology generally, and to questions concerning sense perception in particular. Most notably, they posited a materialistic, atomistic universe composed of atomic units (*jawāhir*, sing. *jawhar* – the term which came to stand for *ousía* in translations from Greek) and discrete accidents inhering in them. The Muʿtazilite insistence on some form of atomism put them in direct conflict with contemporary philosophers, who were in the process of adopting Aristotelian hylomorphism. Applied to psychology, the Muʿtazilite reluctance to posit non-corporeality with respect to any existent thing besides God, coupled with Islamic eschatological commitments, led to a materialist theory of the soul. Thus the human being was considered as a material spirit (*rūḥ*, corresponding precisely to Greek *pneûma* in contemporary translations) in some kind of bond with a collection of atomic parts, in which accidents such as “living,” “moving,” and, eventually, “knowing,” might inhere,⁴ alongside more pedestrian accidents such as “red” or “hot.” The distribution of such super-accidents as “knowing,” and especially those conferring agency on the human being, was a topic of continuous dispute in *kalām* – does the entire human “know” in the sense that each atom “knows,” or does knowledge inhere in the totality of the human being, or, indeed, in one very important part of the human being? These two predilections, for atomism in physical explanations and for materialism in psychological explanations, made Muʿtazilites and Ashʿarites alike hostile to the forms and faculties according to which Peripatetic analysis of sense perception was accomplished.

Nevertheless, practitioners of *kalām* discussed the same problems in sense perception as those inherited from the Greek tradition. They were concerned about the manner in which objects of sensation are distinguished, and how the senses themselves are distinct from one another.⁵ Some early Muʿtazilites

4 See al-Ashʿarī, *Maqālāt al-islāmiyyīn*, ed. H. Ritter, 4th ed. (Beirut: Klaus Schwarz Verlag, 2005), 329–34. An accident such as “knowing” or “knowledge” would, of course, require an object. Knowledge of such-and-such an object would be an accident distinct from knowledge of another object. It is only in later Muʿtazilism, and specifically in the Bahshamī tradition, that “modes” or “states” of knowing (for example) were introduced to streamline what could only become an increasingly top-heavy taxonomy of accidents. Like many Muʿtazilite innovations, this was designed to apply to the problem of divine attributes. See Jan Thiele, “Abū Hāshim al-Jubbāʾī’s (d. 321/933) Theory of ‘States’ (*aḥwāl*) and Its Adaptation by Ashʿarite Theologians,” in *The Oxford Handbook of Islamic Theology*, ed. S. Schmidtke (Oxford: Oxford University Press, 2016), 364–83.

5 Some materialists in the Muʿtazilite *Umwelt* held that the objects of sense perception – instances of colour, taste, scent, sound, and palpable qualities – were essentially interchangeable or identical, distinguished only upon the imposition of some impediment. Since the perceiving subject is also made up out of perceptible properties, a relation of the

questioned the enumeration of the senses, positing a sixth sense (or more).⁶ They worried about common sensibles – motion, especially.⁷ They disagreed about whether we perceive bodies or the properties inherent in bodies.⁸ And they discussed issues of transparency and the necessary medium for sensation: in a materialist context, sensible properties are especially susceptible to dilution. Since the entire atomist apparatus turned on an account of discrete entities (accidents and atoms) insofar as they undergo change (by virtue of God's incessant creative activity, according to the Ash'arites; or by virtue of natural processes, according to some Mu'tazilites), and perception seems to involve a change for the perceiving subject, the atomist theory of sense perception sought to provide a causal account of this type of change. The main body of this chapter will examine this effort.

1.2 The "Aristotelian" Context: Arabic Aristotelianism and Avicenna's Psychology

At the same time that practitioners of *kalām* were discussing these topics, of course, the vast cultural project known as the Graeco-Arabic translation movement was in full swing.⁹ The *De anima* circulated in at least two translations.¹⁰

redness in an object to the redness latent in a perceiver could be conceived as a relation of identity or assimilation.

- 6 Several Mu'tazilites are reported to have advocated for a sixth (and sometimes seventh) sense for the perception of pleasure and pain. ʿIṣṣār ibn ʿAmr (d. 796) held that a sixth sense is generated in resurrected humans so that they may perceive God's *māhiyya* (essence). Problems concerning the theological promise of a "vision of God" abounded in *kalām* literature; some theologians even went so far as to posit sensible properties for God.
- 7 For example, Abū l-Hudhayl (d. 841) held that "motion" is an object of vision: al-Ash'arī, *Maqālāt*, 361.
- 8 In the continuation of the passage just referred to, Abū l-Hudhayl suggests that we "touch" motion by touching a body in motion and distinguishing it from that which is not in motion. Others held that colours are themselves bodies, and that the composite substances we take to exist around us are only combinations of corporeal, sensible properties. Still others held that we "see bodies, [denying] that we could see colour, motion [...] or any other accident." These positions are reported in *Maqālāt*, 361–63.
- 9 The most recent comprehensive survey of this phenomenon, including a detailed account of the texts translated and their current status (extant or lost) is Dimitri Gutas, "The Rebirth of Philosophy and the Translations into Arabic," in *Philosophy in the Islamic World*, vol. 1, *8th–10th Centuries*, ed. U. Rudolph et al., trans. R. Hansberger (Leiden: Brill, 2017), 95–142. See also his seminal work on the subject: *Greek Thought, Arabic Culture: The Graeco-Arabic Translation Movement in Baghdad and Early 'Abbasid Society (2nd–4th/8th–10th Centuries)* (London: Routledge, 1988).
- 10 The only extant version is an edition purporting to be the translation of Iṣḥāq ibn Hunayn, published by ʿAbd al-Raḥmān Badawī, *Aristūṭālīs fī l-naḥs* (hereafter: "Badawī, *Aristūṭālīs*") (Cairo: Dirāsāt islāmiyya, 1954), 3–88. Avicenna used another translation in addition to

It is not clear whether a faithful translation of the *De sensu* was available,¹¹ but already in the early ninth century paraphrases, compendia, and commentaries on the *De anima* were appearing in Arabic.¹²

For our purposes, it is constructive to consider a few instances of translation that impacted the basic Aristotelian claim that the perceiving faculty, like anything potential, “is affected and moved by what is capable of producing such a result and is in actuality,”¹³ that is, an object of perception. The extant Arabic translation renders this passage as follows:

Everything is affected and is moved only by virtue of an act (*bi-fiʿl*) which is manifested from an agent (*al-fāʿil*) such that it reaches it.¹⁴

This translation introduces a substantive – “an act” – operating between the cause (the object of sensation, here the “agent” of the event of perception) and

this one for his “glosses” on the text: see Dimitri Gutas, “Avicenna’s Marginal Glosses on *De anima* and the Greek Commentarial Tradition,” in *Philosophy, Science and Exegesis in Greek, Arabic and Latin Commentaries*, ed. P. Adamson et al. (London: Institute of Classical Studies, University of London, 2004), 2:77–88. On the puzzles regarding which translation was in use by whom, and the problems with Badawi’s attestation of Ishāq for his text (first questioned by R. M. Frank), see Alfred Ivry, “The Arabic text of Aristotle’s ‘De anima’ and Its Translator,” *Oriens* 36 (2001): 59–77. In the few passages cited in this chapter, I use the text in Badawi’s edition: for my purposes, it does not matter whose translation it is, especially since scholars are now in agreement that it is *earlier* than Ishāq’s.

11 The surviving Arabic version of the *Parva naturalia* is a free adaptation incorporating Neoplatonic and other non-Aristotelian elements: see Rotraud Hansberger, “*Kitāb al-Ḥiss wa-l-mahsūs*: Aristotle’s *Parva naturalia* in Arabic Guise,” in *Les Parva Naturalia d’Aristote*, ed. C. Grellard and P.-M. Morel (Paris: Sorbonne, 2010), 143–62. The Arabic version, however, is missing the bulk of the first section, which corresponded to the *Sens*.

12 Among the most notable of these was a compendium attributed to the translator Ibn al-Bīṭrīq and consistent with the style of the “al-Kindī circle.” This work seems to rely upon Philoponus’ commentary (on *de An.*) and the Alexandrian tradition; thus it was based on a later Greek source. That it was subsequently translated into Persian as late as the thirteenth century testifies to its abiding influence. For this text, see Rüdiger Arnzen, *Aristoteles’ De anima: Eine verlorene spätantike Paraphrase in arabischer und persischer Überlieferung* (Leiden: Brill, 1998). The most useful study of Arabic sources related to *De anima* remains Helmut Gätje, *Studien zur Überlieferung der aristotelischen Psychologie im Islam* (Heidelberg: Carl Winter, 1971). Much of Alexander’s output on the soul and that of Themistius was transmitted into Arabic as well; on the influence of the Greek commentary tradition on Arabic philosophy (particularly in psychology), see Robert Wisnovsky, *Avicenna’s Metaphysics in Context* (Ithaca, NY: Cornell University Press, 2003).

13 *De An.* 2.5, 417a17–18 (all translations of *de An.* are from Aristotle, *De anima*, trans. C. Shields (Oxford: Oxford University Press, 2016)): πάντα δὲ πάσχει καὶ κινεῖται ὑπὸ τοῦ ποιητικοῦ καὶ ἐνεργείᾳ ὄντος.

14 Badawi, *Aristūṭālīs*, 42 (all translations from Arabic are by the author):

وإنما يَأْلَمُ كلُّ شيءٍ ويتحركُ بفعلِ يَدُو من الفاعلِ فيصِلُ إليه.

the affected object (in this case, the perceiving faculty). We might dismiss this as a rhetorical quirk were it not for the perfectly reasonable and economical way the same idea is presented at the end of this very sentence: *fa-yaṣīlu ilayhi* ("such that it reaches it").¹⁵ Why, then, "by virtue of an act"? We might wish to apply *bi-fi'l* to the preceding clause, the way one would say something occurs *bi-l-fi'l*, "in actuality," were it not for the conjugated verb (*yabdū*) which follows it, creating a clause dependent upon the indefinite *fi'l* ("an act which ..."). What we can see here is that the Arabic translators were already struggling with the *energeia* concept and its referents.

When Aristotle wants to distinguish sense perception from knowledge, he argues as follows:

Actually perceiving is spoken of in a way similar to contemplation. But there is a difference: what is capable of producing this actuality, the object of sight and hearing and so on for the remaining objects of perception, is external.¹⁶

Aristotle uses this argument to establish that the objects of sensation are particulars, whereas the objects of knowledge are universals. But for our purposes, the key claim here is that objects of perception, which are external, are what produce perception in the perceiver. Once again, the extant Arabic translation emphasises the causal nature of this relation:

The case of perception due to an act of sensation is like the case of contemplation and thought. The difference between them is that the motivating factors (*dawā'ir*) of sensation only exist externally, like the visible thing and the thing which is heard, and so on for the rest of the senses.¹⁷

Once again we have the construction *bi-fi'l*, here *bi-fi'l al-hiss*, "due to an act of sensation." The term *dawā'ir* (sing. *dā'iya*) is not one of the usual terms for "causes," but carries strong jurisprudential overtones; it appears elsewhere in

15 In itself, that construction – the verb is *w-ṣ-l* (I) *ilā* – has the special connotation of "connection," or of putting (two) things into a relation, which will come into play below.

16 *De An.* 2.5, 417b19–21.

17 Badawi, *Aristūṭālīs*, 43:

فأما الإدراك بفعل الحس فحاله مثل الحال من النظر والفكر، والفصل بينهما أن دواعي الحس إنما تكون من خارج مثل الشيء المنظور إليه والمسموع به، وعلى هذا يجري القول في سائر الحواس.

kalām as “motives” for performing a particular action in lieu of another.¹⁸ A *dā'iya* is one who “calls for” something to happen. The agency of the object of sensation is emphasised.

1.3 *Developments in Kalām in the Tenth–Eleventh Centuries*

The controversy regarding the role of causality in perception is recorded in Ibn Mattawayh's eleventh century compendium on Mu'tazilite natural philosophy, *al-Tadhkira fī aḥkām al-jawāhir wa-l-a'rāḍ* (a treatise “on the properties of substances and accidents”). Ibn Mattawayh, whose precise dates are not known, belonged to the Bahshamī line of Mu'tazilite thought, so-called because it went back to Abū Hāshim al-Jubbā'ī (d. 933), from whose father, Abū 'Alī al-Jubbā'ī (d. 915), al-Ash'arī had defected; the theological school associated with the latter, that is, the Ash'arite school, included al-Ghazālī (d. 1111) and Fakhr al-Dīn al-Rāzī (d. 1210). All of these figures counted the early Mu'tazilites (such as Abū l-Hudhayl, d. 841, and others who will be discussed below) among their antecedents, although not always with abundant pride. Ibn Mattawayh himself had studied under Abū Rashīd al-Nisabūrī (eleventh century) and 'Abd al-Jabbār (d. 1025), who was a contemporary of Avicenna, and who (allegedly) met him while they were both situated in Rayy. In other words, this controversy involved everyone active in *kalām* for some 250 years, and would have been known to Avicenna.

Al-Ash'arī had broken from the Mu'tazilites on several theological issues. Most famously, he rejected any metaphorical reading of divine attributes, aligning himself with the literalist interpretation of “traditionist” Muslims. On the topic of human action, his position became the cornerstone of Islamic “occasionalism”: every event occurs solely on account of God's free choice, such that every change among the constituent elements of the world (atoms and accidents) is due to God's act.¹⁹ The foundation for such a position was prepared by the ninth-century materialist analysis of nature described above. Crucial to that analysis, as we shall see, was the treatment of perception as an “act.” Since perception entailed the presence or emergence of a new accident in the perceiving subject, it too was subject to the occasionalist model. Post-Ash'arite Mu'tazilites,

18 See, for example, al-Ash'arī, *Maqālāt*, 380.11–12. I am grateful to an anonymous reader for drawing my attention to Frede's recognition of the juridical aspect also present in the development of the Greek concept of “cause”: see Michael Frede, “The Original Notion of Cause,” in *Doubt and Dogmatism: Studies in Hellenistic Epistemology*, ed. J. Barnes, M. F. Burnyeat, and M. Schofield (Oxford: Oxford University Press, 1980), 217–49.

19 For a recent survey of Islamic occasionalism see Ulrich Rudolph, “Occasionalism,” in *The Oxford Handbook of Islamic Theology*, ed. S. Schmidtke (Oxford: Oxford University Press, 2016), 347–63.

obviously, saw this as a threat to their principle that humans act freely; perception, at least for the perceiver, would seem to be an act that is not “free.”²⁰

2 The Controversy: How Perception Occurs

According to Ibn Mattawayh, the Ash‘arites had followed Abū l-Hudhayl in positing perception as “a *ma’nā* such that our being one who perceives is dependent upon it.”²¹ This term, *al-ma’nā*, indicating some particular cognisable factor, has a rich history in Arabic philosophy and Islamic theology: see chapter two in volume three.²² Against the position he ascribes to Abū l-Hudhayl, Ibn Mattawayh presents Abū Hāshim’s view that perception is *not* a *ma’nā*: rather, I am one who perceives on account of the following conditions:

- (1) [the subject’s] being one who is living;
- (2) the existence of an object of perception;
- (3) the soundness of the senses;
- (4) the absence of hindrances.²³

This becomes the standard Bahshamī position.²⁴ The former position, that perception is a *ma’nā*, is Ibn Mattawayh’s interpretation of the Ash‘arite understanding of perception. In both cases, and throughout *kalām* reporting, “perception” (*al-idrāk*) is presented as a *maṣḍar*, that is, a verbal noun (“perceiving”). By dint of the quirky conventions of *kalām*, “perception” is almost always discussed without a particular object in mind.²⁵ The controversy hangs

20 Another significant dispute between Ash‘arites and later Mu‘tazilites concerned the vision of God, which the latter held to be impossible or nonsensical. Leaning on the literalist reading of the Qur‘ān and applying the rule of God’s omnipotence, al-Ash‘arī allowed it.

21 Ibn Mattawayh, *al-Tadhkira fī aḥkām al-jawāhir wa-l-a‘rāḍ*, ed. D. Gimaret, 2 vols. (Cairo: Institut Français d’Archéologie Orientale, 2009), 700.17–18:

فإن أبا الهذيل أثبت معنى وجعل كون أحدنا مدرّكاً موقوفاً عليه

22 David Bennett, “Introducing the *Ma’ānī*,” in *Forms of Representation in the Aristotelian Tradition, Volume Three: Concept Formation* (Leiden: Brill, 2022), 78–94. See also Seyed Mousavian, “Avicenna on the Semantics of *Ma’nā*,” (ibid., 95–140). As we will see below, the term often establishes some sort of causal efficacy, but it generally stands for anything which can be cognised as a distinct and abiding concept.

23 Ibn Mattawayh, *al-Tadhkira*, 701.6–7:

وقد نفى الشيخ أبو هاشم أن يكون الإدراك معنى وجعل أحدنا مدرّكاً لكونه حياً ووجود المدرّك وصحة الخواصّ وزوال الموانع

24 See Frank, *Beings*, 154–55.

25 This way of talking about states as properties is characteristic of *kalām*: “knowledge” (*‘ilm*) is discussed the same way, without reference to the object of knowledge except insofar as it is an object of knowledge (*ma’lūm*). In this way, *kalām* may be considered a

on how “perception” should be analysed *as an attribute*, that is, how it may be said of a subject: for all of the figures to be discussed agree that it *occurs*. Abū Hāshim, like Ibn Mattawayh and the Bahshamīs who took up his position, held that it occurs *not* by virtue of any distinct cause, but rather due to the fulfilment of those four conditions. The distinction is subtle, and as we shall see, Ibn Mattawayh spends a lot of time making sure that we do not consider the conditions to be causally efficacious, and therefore *maʿānī*. Yet as for a distinct *maʿnā* which determines our perception, Abū l-Hudhayl posited no such thing, at least not explicitly.

In the few relevant passages in al-Ashʿarī’s *Maqālāt*, all that Abū l-Hudhayl is recorded as saying on the matter is that “perception inheres in the heart, not the eye; it is necessary knowledge.”²⁶ Elsewhere he calls it “knowledge of the heart” (*ʿilm al-qalb*).²⁷ Al-Ashʿarī noted that Abū l-Hudhayl had something to say about the “visibility” of bodies and accidents, however:

Abū l-Hudhayl said that bodies are visible, as are motions, incidents of rest, colours, combination and separation, sitting, and lying down. We see motion when we see a thing in motion, and we see rest when we see a thing at rest, by virtue of seeing it at rest (*bi-ruʾyatihi lahu sākin^{am}*) [and so on for the other accidents listed above]. Whenever we see a body in a particular disposition, we make two distinctions: we distinguish between it and other things that do not have the same appearance, and we distinguish between it and other things that are not apparent at all. This how we see the thing.²⁸

This position is interesting insofar as it introduces a capacity for making such distinctions about objects of perception, but it does not involve any *maʿnā* by which perception, distinct from the event itself, may occur. That it “inheres in the heart,” however, was enough to upset the Bahshamīs. (Not because of the “heart”; rather because inherence would make it an accident, and as such a

“grammar” for philosophy; a particular practitioner may consider only accidents, or only certain accidents, to be suitable objects of knowledge (or perception), but the general logic would still have to apply. We will see this very clearly when we go in detail over Ibn Mattawayh’s reconstruction of earlier viewpoints as positing that perception is a *maʿnā*: that *maʿnā*, for the later commentator, stands for any conceivable causally efficacious ground.

26 Al-Ashʿarī, *Maqālāt*, 312.1–2:

وكان يقول (أبو الهذيل) ان الإدراك يحل في القلب لا في العين وهو علم الاضطرار

27 Al-Ashʿarī, *Maqālāt*, 569.10.

28 Al-Ashʿarī, *Maqālāt*, 361.9–15.

distinct *ma'nā*.) When it comes to *human* perception, Abū l-Hudhayl has little to say in the earliest sources.²⁹

The first hint that we find in the sources of an Ash'arite flavour to Abū l-Hudhayl's position comes in 'Abd al-Jabbār. The "Ash'arite" quality of the position is evident:

Abū l-Hudhayl (God have mercy upon him) said that perception is an act brought about by God as something initiated [by Him], just as our master Abū 'Alī [al-Jubbā'ī] had said. But [Abū l-Hudhayl] said that one's vision can be sound, and stripped of hindrances, yet God need not create perception; in that case one will not perceive what is present to him.³⁰ God can create knowledge of colours in the heart of a blind person who cannot see any colour at all. Abū 'Alī demurred.³¹

In this passage, Abū l-Hudhayl is made to acknowledge two of the Bahshamī 'conditions' for perception (soundness; lack of hindrances) while throwing a monkey wrench into the system by ceding all control to God's will. This version of Abū l-Hudhayl only conforms to what we find in al-Ash'arī's reports in the sense that perception is "knowledge in the heart" – a commonplace, but a decidedly Hudhaylian one.³² The picture of God dropping accidents (colours, or "knowledge of colours" – the distinction is important and, of course, the subject of its own debate³³) willy-nilly into the heart without regard for

29 As for *divine* attributes (which include the Quranically sanctioned properties of "seeing" and "hearing"), we will find Abū l-Hudhayl's views more influential (see below).

30 Reading, with van Ess and Bernard, *yaḥḍuru bihi*: van Ess, *Theologie*, 5:439n49.

31 'Abd al-Jabbār, *al-Mughnī fī abwāb al-tawḥīd wa-l-'adl*, vol. 9: *Tawḥīd*, ed. Tawfiq al-Ṭawīl and Sa'īd Zāyid (Cairo: Wizārat al-Thaqāfa wa-al-Irshād al-Qawmī, n.d.), 9.12.13–17:

وأما أبو الهذيل رحمه الله فإنه كان يقول في الإدراك انه فعل الله (الله؟) تعالى على جهة الاختراع كقول شيخنا أبي علي رحمه الله لكنه يقول انه يجوز ان يكون البصر صحيحا والموانع مرتفعة ولا يخلق الله له الإدراك فلا يدرك ما يحصونه (!) يحضر به؟) ويجوز أن يخلق جل وعز العلم بالألوان في قلب الأعشى الذي لم يبصر لونا قط

Note that *fi'l li-llāh*, "an act brought about by God," is an editorial emendation of *fi'l allāh*, "an/the act of God."

32 Van Ess stressed Abū l-Hudhayl's naivety, or comparative disinterest, towards the problem: "obgleich [Abū l-Hudhayl] die Vorstellung der Seele nicht kennt und auch die Notwendigkeit eines *sensus communis* noch nicht entdeckt hat, versteht er Wahrnehmung doch als seelischen Vorgang; sie gehört zu den *af'āl al-qulūb* [the acts of hearts]. Gerade deswegen ist sie natürlich auch der Verfügung des Menschen entzogen; daß dieser seine Augen öffnen und schließen kann, ist dabei völlig unwesentlich." (*Theologie*, 3:250.)

33 Briefly: we will see below how "knowledge" and "perception" are distinguished by Ibn Mattawayh. But even among the early Mu'tazilites, there was extensive discussion about

non-divine causal regulation conforms to the later Ash'arite cosmology. The position cited here could be made to agree with that given by Ibn Mattawayh, if we take the *ma'nā* in the latter formula to be God's act as found in the former (indeed, as we shall see, 'Abd al-Jabbār does make this identification explicit in another context).

2.1 "Perception Is an Act Brought about by ...": Early Mu'tazilite Positions on Perception

The claim that "perception is an act brought about by God," which 'Abd al-Jabbār attributes to Abū l-Hudhayl, is a fixed position in *kalām* disputation. It is clear from the context in *al-Mughnī* that 'Abd al-Jabbār is running down the list of positions on that question; immediately prior to the citation provided, he mentions al-Nazzām's (d. c.840) position – namely, that "perception is a property which God performs as a necessary consequence of His having created it, and by virtue of the senses."³⁴ As van Ess pointed out,³⁵ this seems to be a corruption of the version of al-Nazzām's position presented in al-Ash'arī: there, perception "is brought about by God and nobody else, as a necessary consequence of His having created the senses."³⁶

Al-Ash'arī lists the various positions on this topic in a section headed "On what occurs by means of the senses with respect to the perception of objects of sense,"³⁷ and it is clear that causality is already the most important aspect of this question: indeed, it is the same problem of causality that will animate Ibn Mattawayh's framing of the controversy. The positions reported by al-Ash'arī take it as a given that there will be "causes" (here, *asbāb*) for the perception of objects of sense: in the first position he reports, they must be attributed either to the one who senses, or to God (i.e. not to the objects of sense).³⁸ According to al-Ash'arī, most of the early Mu'tazilites held the latter position; we have

the material extent of perception. Figures such as Abū l-Hudhayl would be careful to keep colour *out* of the "organ" (as it were: for Abū l-Hudhayl, this is just the [mind-like] heart), whereas more devoted materialists such as al-Nazzām held that colour (as a corporeal property-body) is really manifested in the "organ" (in his case, *spirit*). It does not arrive there in a very Aristotelian way, but rather "leaps" from the object of perception. Al-Nazzām's position is difficult to explain, especially given his more general statements about perception, which we will encounter immediately below.

34 'Abd al-Jabbār, *Al-Mughnī*, 9.12.11–12;

وكان أبو إسحاق النظام يقول في الإدراك خاصة ان الله سبحانه يفعلها بإيجاب خلقه وبحواس

35 Van Ess, *Theologie*, 6:119.

36 Al-Ash'arī, *Maqālāt*, 382.15:

هو لله دون غيره بإيجاب خلقه للحواس

37 Al-Ash'arī, *Maqālāt*, 382.7.

38 Al-Ash'arī, *Maqālāt*, 382.8–9.

already seen al-Nazzām's position ("brought about by God"), but other positions (which will recur in Ibn Mattawayh; see below) are given without specific proponents. Ḍirār ibn 'Amr (d. 796) is presented as holding a characteristic view: "perception is something acquired by the human, but created by God."³⁹ Only one group, referred to as the Baghdadis, takes up the first position: "perception is an act brought about by the human, and it is *impossible* for it to be an act of God."⁴⁰

In al-Ash'arī's account, however, there is one strain which does not fit into this dichotomy. It is associated with the "proponents of the elemental natures," the *aṣḥāb al-ṭabā'i*, whose position on causality is evident in the following:

Some said: Perception is from the one who senses, and it is brought about by him, but it is not by means of choice. Rather, it is an act of the elemental natures. What confirms the doctrine of the proponents of the elemental natures is that perception is an act brought about by the substrate by virtue of which it subsists. This is the doctrine of the followers of Mu'ammār.⁴¹

The proponents of this "naturalist" position were well-known bugbears in the early Mu'tazilite intellectual world; they rejected temporal creation and (as we see here) promoted natural, materialistic causality. A subsequent position attributed to the so-called *ahl al-ithbāt*⁴² retained the "natures," but made them temporally generated by God in the organ of sense;⁴³ this was evidently an attempt to "save" the Mu'ammārian position. Mu'ammār (d. 830) consistently attributed causal efficacy to such natures, from which all properties (now, including "perception," as an "act") emerge.⁴⁴ Curiously, these two groups (the proponents of the elemental properties, and the *ahl al-ithbāt*) were as dogmatically opposed as two groups can be: the eternal-world materialists on the one side, and those who would become the *ahl al-ḥadīth*, insisting on the

39 Al-Ash'arī, *Maqālāt*, 383.10: this is precisely Ḍirār's position with respect to acts.

40 Al-Ash'arī, *Maqālāt*, 383.11–12. This group would be those associated with Abū l-Qāsim al-Balkhī (d. 931); see Racha el Omari, *The Theology of Abū l-Qāsim al-Balkhī/al-Ka'bī* (Leiden: Brill, 2016), who does not mention this passage, but whose conclusions regarding al-Balkhī in the *Maqālāt* would suggest the identification.

41 Al-Ash'arī, *Maqālāt*, 382.12–14:

وقال بعضهم: هو من ذوي الحواس وله إلا أنه ليس باختيار ولكنه فعل طباع، وتحقيق قول أصحاب الطباع إن الإدراك فعلٌ لمحله الذي هو قائم به، وهم أصحاب معمر

42 Those who "posited" the real nature of the divine attributes.

43 Al-Ash'arī, *Maqālāt*, 383.1.

44 See van Ess, *Theologie*, 3:68–70 for a pithy summary.

literal acceptance of any and all Qur'ānic attributions with respect to God, on the other.

Al-Ash'arī documented another way to look at the causal relationship between objects of perception and perceiving subjects: perception is still considered an act, but the question is whether it is “an act brought about by the object which the perceiver perceives”⁴⁵ – this is rejected, according to al-Ash'arī, by “most of the practitioners of *kalām*.” He reports that some, however, allowed for this, “as when a person opens his eyes to see an object and it presents itself to him (*yaridu 'alayhi*).”⁴⁶ Such a view seems to approach the actualising capacity of sense-objects in Aristotle. Al-Ash'arī appends to these positions a third view, also unattributed, which verges curiously on anamnesis if it were applied to sense perception:

One [theorist's] view on perception was of a different kind than these positions. Namely, he claimed that vision is subsistent in the human even when his eyelids are closed, for he is endowed with sight (*baṣīr^{un}*). If this is the case, when the object is before him, and any impediments are removed, it occurs to him (*waqa' 'alayhi*) – and knowledge occurs to him at the same moment. Before that, according to [this theorist], this knowledge was concealed in the heart, prevented from occurring by means of the known object (*bi-l-ma'lūm*). When its impediment is removed, it occurs. It is not generated, for before that it had been existent, as we have described. [The theorist's] position on hearing⁴⁷ was like this as well.⁴⁸

This position is remarkable because it corresponds to the Platonising epistemology found concurrently in al-Kindī's (d. c.870) works on the soul, according to which “sensation [...] prompt[s] us to remember intelligibles.”⁴⁹ Indeed, it might well evade the problem of causality in a way sympathetic to the later Mu'tazilite (Bahshamī) approach: the conditions are considered, and the phrase *bi-l-ma'lūm* need not be read with such causal force – it could simply be that knowledge had been prevented from occurring “with respect to” the known object.

45 Al-Ash'arī, *Maqālāt*, 386.15–16:

فقال أكثر المتكلمين: لا يجوز أن يكون الإدراك فعلاً للشيء الذي أدركه المدرک.

46 Al-Ash'arī, *Maqālāt*, 386.17–18.

47 The MSS read *baṣar*, i.e. “vision,” here, but as the editor points out, this must be a mistake?

48 Al-Ash'arī, *Maqālāt*, 387.1–6.

49 Gerhard Endress and Peter Adamson, “Abū Yūsuf al-Kindī,” in *Philosophy in the Islamic World*, vol. 1: 8th–10th Centuries, ed. U. Rudolph et al., trans. R. Hansberger (Leiden: Brill, 2017), 197.

These, then, are the early Muʿtazilite (and Muʿtazilite-adjacent) positions on the activity of perception as related by al-Ashʿarī; Abū l-Hudhayl is not mentioned. Almost all of them refer to perception specifically as an act, and most make it an act performed by God; this would explain ʿAbd al-Jabbār's report above. We have sought in vain for any *early* source for Ibn Mattawayh's attribution to Abū l-Hudhayl of the position that perception is "a *ma'nā* such that our being one who perceives is dependent upon it," but we have found plenty of evidence that early Muʿtazilite positions support an occasionalist model of perception, depending upon the whim of God. The classical form in which that arrangement is discussed has already been alluded to before: it concerns the ability of God to create "vision" in a blind person.

2.2 *Can God Make a Blind Person See?*

Recall ʿAbd al-Jabbār's version of Abū l-Hudhayl. The first part of that report (that "perception is an act brought about by God as something initiated by Him"), with which Abū ʿAlī had agreed, squares with typical early Muʿtazilite theory as reported by al-Ashʿarī. The *Maqālāt* version includes two positions which share virtually the same terminology (i.e., *ikhtirāʿ*), but those two versions diverge on the issue of God's capacity:

(A) [Perception] is brought about by God, Who originates and initiates it. If He wills, He may remove it even from someone whose vision is unimpaired, whose eyes are open, who is right in front of something he would otherwise be able to see, with light conducive to seeing; if He wills to create it even in a dead person, He can do it. This is the position of Ṣāliḥ Qubba.

(B) Some said: Perception is an act of God, Who initiates it. It is not possible for a human to perform it. It is not possible for God *not* to produce perception when a person's eyes are healthy and there is sufficient light for seeing. It is not possible for God to make perception coincide with blindness, or for Him to produce it in the dead.⁵⁰

In the position attributed to Ṣāliḥ Qubba (he was a student of al-Nazzām, so he lived during the first half of the ninth century), the conditions for vision are irrelevant to its occurrence. God can make the blind man – indeed, the dead man – see, and the event of perception is still classified as an "act" in keeping with the general early Muʿtazilite approach. In the second position, the

⁵⁰ Al-Ashʿarī, *Maqālāt*, 383.3–9.

conditions are binding; God cannot go against nature, as it were, even though it remains “His” act.

Position (B), which turns out to be that of Abū ‘Alī al-Jubbā’ī, may seem to make God into a perception-computer, diligently producing the requisite perceptible content according to an unvarying protocol. But it turns out that the real motivation here is God’s power with respect to opposing (i.e. mutually contradictory) properties. Elsewhere al-Ash‘arī mentions the example (of God “creating perception with blindness”) as something over which God may not be ascribed power, according to Abū ‘Alī (he is cited by name); this is contrasted with the opposition of *bodies*, over which God *does* have power – that is, God may “join fire and cotton without creating conflagration,” or “suspend a rock in the air, and have it stay there without anything beneath it for support.”⁵¹ This difference, although al-Ash‘arī does not explain it clearly, is due to the latter cases having to do with bodies, in which one or another opposing accident may inhere; the former case involves two opposing accidents in the same substrate. That is, the cotton may be either burning, or not burning – and in any case the cotton and the fire will never actually be in the same place.⁵² So too, the rock may be plummeting, or not plummeting. God cannot make it both plummeting and not plummeting. The key to understanding the example, which al-Ash‘arī does not provide, is that “blindness” is in fact a defect inhering in the eye – that is, an accident, as is perception (recall, however, that al-Ash‘arī seems to always consider perception an “act”). The presence of the one accident is the absence of the other. Al-Ash‘arī, as we noted, knew Abū ‘Alī personally, and well, but we will have to wait until ‘Abd al-Jabbār to find a sophisticated analysis of the position (see immediately below). It is worth noting that in the same section al-Ash‘arī represents Šāliḥ’s position (“A”) accurately and memorably, saying that a nearby elephant and a distant speck of dust (*al-dharra*) are equally dependent upon God’s creation of “perception” in one who would see them.⁵³

51 Al-Ash‘arī, *Maqālāt*, 570.1–6. This is in a section of the *Maqālāt* about which there are authenticity issues; see James Weaver, “A Footnote to the Composition History of the *Maqālāt al-islāmiyyīn*: the Internal Parallels in al-Ash‘arī’s Material on the Shia,” *Journal of Abbasid Studies* 4 (2017): 142–86.

52 This is a longstanding rule in *kalām*, that two bodies may not occupy the same place – it was flaunted, notoriously, by al-Nazzām, who insisted that opposing *jawāhir* (for him, bodies) always existed in the same substrate, at mutually opposing degrees of latency/manifestation. See David Bennett, “Abū Ishāq al-Nazzām: The Ultimate Constituents of Nature Are Simple Properties and *rūḥ*,” in *Abbasid Studies IV: Proceedings of the 2010 Meeting of the School of Abbasid Studies*, ed. by M. Bernards (Exeter: Gibb Memorial Trust, 2014), 207–17.

53 Al-Ash‘arī, *Maqālāt*, 570.7–10.

3 The Bahshamī Objections to Perception as “Caused” by Anything

‘Abd al-Jabbār refines this material in his account. He sets out to reject the position that one is a perceiver by virtue of some instance of perception (*mudrik^{an} bi-drākⁱⁿ*), beginning with a claim that anticipates Ibn Mattawayh’s reconstruction of the Bahshamī line:

Know that one of us who sees only sees a thing when his (organ of⁵⁴) sense is sound, and [any] hindrances are lifted. With respect to his being one who sees, or one who perceives, there is no need for a cause by which he becomes that way. For it cannot be the case, given soundness of his (organ of) sense, the presence of the object of vision in front of him, and the absence of hindrances, that he would not see the thing in some way.⁵⁵

‘Abd al-Jabbār gives three of Ibn Mattawayh’s conditions for vision here: soundness, absence of hindrances, and the existence of the object of perception. Vision is accomplished automatically when the conditions are met.

The overly precise wording of some of these predicates in English as “one who perceives” (*mudrik*) or (from the Ibn Mattawayh passage which I used to frame this controversy) “one who is living” (*ḥayy*), that is, a perceiver or a living being, as *being* one who perceives, etc., comes from the regular application by Bahshamī theorists of the term *kawn*, “to be,” such that we get the expression *kawnuhū mudrik^{an}*, “his being one who perceives,” or in the case of ‘Abd al-Jabbār here, *kawnuhū rā’iy^{an}*, “being one who sees.” This usage has to do with the theory of modes of being, or “states,” introduced by Abū Hāshim, and will be discussed when we (finally) return to Ibn Mattawayh below.

After several dialectical arguments refuting objections to the Bahshamī position, ‘Abd al-Jabbār announces the collapse of the positions of his two most significant (Mu‘tazilite) antecedents, Abū l-Hudhayl and Abū ‘Alī al-Jubbā’ī, in a way which demonstrates how he has refined them to meet the standards of

54 I have to be careful with the English expression here, since it is by no means clear whether the Mu‘tazilites distinguished between an organ of sense and the action of sensation when they use the term *al-ḥāssa*.

55 ‘Abd al-Jabbār, *Al-Mughnī fi abwāb al-tawḥīd wa-l-‘adl*, vol. 4: *Ru‘yat al-Bārī*, ed. M. M. Ḥilmī and Abū l-Wafā’ al-Junaymī (Cairo: Wizārat al-Thaqāfa wa-l-Irshād al-Qawmī, n.d.), 4.50.2–6:

إعلم أن الرأي منا إنما يرى الشيء متى كانت حاسته صحيحة والموانع مرتفعة، ولا يحتاج في كونه رأياً ومدركاً إلى علة بها يصير كذلك: لأنه كان يجب أن يصح أن لا يوجد مع صحة حاسته وحضور المرئي بين يديه وارتفاع الموانع ولا يرى الشيء على وجه

contemporary (now late tenth century, i.e. some hundred years after the latter and nearly two hundred years after the former) *kalām*:

All of this destroys what was related from our Shaykh Abū l-Hudhayl (God bless him), that perception is a *ma'nā*, allowing, given sound vision and the absence of hindrances, that God might not create it (the *ma'nā*), such that we would not perceive what is made present by it. It also destroys the position of one who would claim that it is a *ma'nā*, but God must generate it, or generate its opposite, which is also a *ma'nā*, because a substrate cannot be empty of one or the other. Such was the position described by our Shaykh Abū 'Alī (God bless him), which he once held, saying: blindness is a deficiency in the structure of the eye.⁵⁶

Thus Abū 'Alī's concern about opposites, which had to be carefully pried out of al-Ash'arī, is made explicit. In an earlier passage in the text, 'Abd al-Jabbār purports to quote directly from one of Abū 'Alī's books (*Kitāb al-Tawallud*, which would be a nice book to have⁵⁷): "Corruption of the sense (organ) of the eye (*ḥāssat al-'ayn*) is called blindness, in terms of causality; blindness, in reality, is that which is opposed to vision."⁵⁸ Abū 'Alī has moved perception from the heart (Abū l-Hudhayl) to the sense organ. 'Abd al-Jabbār's objection is just that he and Abū l-Hudhayl keep treating "perception" as though it were a separate *ma'nā*; 'Abd al-Jabbār (and Ibn Mattawayh, as we shall see) sees the imposition of *ma'ānī* as leading directly to Ash'arism.

To summarise the Bahshamī interpretive moves when dealing with earlier Mu'tazilite doctrine: certainly some (most?) Mu'tazilites held perception to be some kind of an act involving some kind of causal impetus (this is already established in al-Ash'arī). Bahshamīs, beginning with 'Abd al-Jabbār, took this to mean that it there must be a *ma'nā* (namely, the act of perception) by virtue of which one is perceiving. The only sort of attribute perception might be, according to the Bahshamīs, is an attribute *li-l-ma'nā*, that is, one "arising from"

56 'Abd al-Jabbār, *Al-Mughnī* 4:55.15–20 (notice how polite he is about his predecessors, as long as they are Mu'tazilites!):

وهذا الجملة تسقط ما حكى عن شيخنا أبي الهذيل رحمه الله أن الإدراك معنى، ويحوز أن يكون البصر صحيحا والموانع مرتفعة، ولا يخلقه الله تعالى، فلا ندرك ما يحضر به، ويسقط قول من قال إنه معنى، وأن الله سبحانه لا بد أن يحدثه أو يحدث ضده وهو المعنى، لأن المحل لا يخلو من الشيء وضده. وقد ذكر هذا القول شيخنا أبو علي رحمه الله، وذهب إليه قديما، قال: إن المعنى نقص بنية العين.

57 Like nearly all of the hundreds of texts attributed to 9th century Mu'tazilites, it is lost.

58 'Abd al-Jabbār, *Al-Mughnī*, 4:51.2–3.

a *maʿnā*.⁵⁹ Indeed, as we saw in the case of the early reports concerning Abū l-Hudhayl, it seems that early Muʿtazilites were comfortable treating perception as some kind of attribute precisely because it was possible for God not to approve its inherence in some substrate (whether it be in the heart or in a particular sense organ). If it could not be considered in such a way, it would not be an attribute – rather, an accident – in their scheme.

In Ibn Mattawayh's hands, the entire Muʿtazilite programme is arranged around these *maʿānī*. He begins with the position he takes to be that of Abū l-Hudhayl, that perception is a *maʿnā*, and that “our being one who perceives is dependent (*mawqūf^{an}*) upon it.” According to Ibn Mattawayh, Abū l-Hudhayl agreed in principle with the ‘conditions’ which were later established by Abū Hāshim for perception, but held that, in the end, “the object of perception could only be perceived on account of that *maʿnā*.”⁶⁰ Ibn Mattawayh notes that this is the germ of the Ashʿarite position, but he does not make Abū l-Hudhayl responsible for introducing God's ability to flaunt these conditions; rather, that position is attributed to Ṣāliḥ Qubba:

Ṣāliḥ Qubba allowed for the non-existence of perception despite the fulfilment of these conditions [i.e., the Bahshamī conditions] in the case of objects of vision and incidents of pain, etc., such that there some body part could be cut off without the subject feeling pain. This led to [the occasion upon which Ṣāliḥ Qubba] was once in Mecca, and a tent (*qubba*) collapsed upon him, but he did not know that it had happened, because God had not created the [corresponding] instance of knowledge for him.⁶¹

The joke at the expense of Ṣāliḥ's nickname (*qubba*) is repurposed from earlier accounts: apparently, he originally obtained this nickname because he claimed that if he were asleep in Iraq, but dreaming that he was sitting in a tent (*qubba*) in Mecca, then he was really, at that moment, under that tent.⁶² In the version from al-Ashʿarī, the conditions (“his eyes are open,” etc.; see above, “A”)

59 On the taxonomy of attributes, see especially the study by Frank, *Beings*.

60 Ibn Mattawayh, *al-Tadhkira*, 700.18.

61 Ibn Mattawayh, *al-Tadhkira*, 700.19–21:

وقد أجاز صالح قبة عدم الإدراك مع حصول هذه الشروط في المراتب والآلام وغيرها حتى يوجد فيه التقطيع ولا يألم حتى ألزم أن يكون بمكة وقد ضربت عليه قبة وهو لا يعلم ذلك بأن لا يخلق الله له العلم، فارتكبه.

62 See van Ess, *Theologie*, 3:423–24.

are also mentioned, and equally irrelevant. The example of the severed body part is, of course, a favoured case study in *kalām*, used in discussions about the integral identity of the body, the location of spirit, and so on. Ibn Mattawayh deploys the severed hand argument liberally; even in this context, it appears in the refutation of one who would assert that perception requires contiguousness (*ittiṣāl*): “such contiguousness,” Ibn Mattawayh replies, “may exist without perception obtaining, as in the case of fingernails and hair, or a withered hand (*al-yad al-shallā*).”⁶³

Ibn Mattawayh provides Abū ‘Alī’s position in precisely the same terms (every substrate contains either an attribute or its opposite) as had ‘Abd al-Jabbār, adding only that, according to Abū ‘Alī, “there is a *ma’nā* in every substrate by which one may perceive what is specified by it (*yakhuṣṣuhū*, lit. “it bestows it”).”⁶⁴ Ibn Mattawayh presents a fourth position:

Bishr ibn al-Mu‘tamir and the Baghdadis who followed him posited perception as a *ma’nā*, but they made it momentary with respect to our act, upon opening the eyelids – or with respect to somebody else’s act, when it occurs upon us, or with respect to God’s act, when He performs a sound or some other object of perception.⁶⁵

This ambivalence (?) concerning the source of the object of perception democratises the options but tacitly fixes for any object a *sabab*, or proximate cause, without affirming a sensible property inhering anywhere in particular. The trichotomy appears to be exclusive: it accounts for miraculous events (God speaking to a prophet: the *sabab* of that sound would not inhere in God, but neither would it inhere in any terrestrial object; it would be an indeterminate particular *ma’nā*), the secondarily generated effects of others’ actions, or simply the fact of having open eyes. With regard to the *sabab* produced by others, it will be recalled that Bishr’s (d. c.825) contribution to *kalām* was the theory of *tawallud*, that is, the “generation” of effects at a distance from the first agent in a chain of atomic events. Thus, accidents like the pain instantiated when one

63 Ibn Mattawayh, *al-Tadhkira*, 699.11–12.

64 Ibn Mattawayh, *al-Tadhkira*, 701.1–2.

65 Ibn Mattawayh, *al-Tadhkira*, 701.4–5:

فأما بشر بن المعتمر ومن تبعه من البغداديين فإنهم أثبتوا الإدراك معنى وجعلوه مرة من فعلنا عند فتح الجفن ومن فعل غيرنا إذا حضر عندنا ومن فعل الله تعالى إذا فعل صوتاً أو غيره من المدرك

person shoots another with an arrow is the “generated” effect of the shooter of the arrow; or, more to our point, as al-Ash‘arī records it,

if a person opens someone else’s eyes with his hand and the other person perceives, that perception is the act of the one who opens the other person’s eyes [...] in this way, a person acts upon another by virtue of a proximate cause (*sabab*) which he generates in himself.⁶⁶

Note that once again, an act has been resolved as a proximate cause, and then further resolved, in the Bahshamī reception, as a *ma’nā*.

These four positions are thus codified as *ma’nā*-based perception, or effectuated perception; they are set against the theory of Abū Hāshim (cited at the beginning of this chapter), which we might call “condition-based” perception. Now, whether *ma’nā*-based perception is taken to be the result of human action (an act brought about by the subject), divine action (an act brought about by God, whether He creates it in our heart, in our sense organ, or wherever He wills), automatic causality (“as a necessary consequence of God’s having created the senses,” in al-Nazzām’s formulation, above, or simply from opening the eyes), or the requisite presence of an attribute or its opposite (Abū ‘Alī) – in any of these cases, it is always unacceptable for Bahshamīs insofar as it derives from some *ma’nā*.

As a postscript to this section, it should be pointed out that the Ash‘arites did indeed adopt this *ma’nā*-based perception whole-heartedly. Two examples will suffice to demonstrate this. First (al-Bāqillānī, d. 1013): “In reality, perception is something besides ‘touching,’ or the contiguity of the other sense organs to the objects of sense, or their substrates – nor is it any other type of contiguity.”⁶⁷ Second (Ibn Fūrāk, d. 1015): “Perception is a *ma’nā* added to knowledge; it is from perception that knowledge is generated.”⁶⁸ The technical terminology of the Ash‘arite theologians had evolved in precisely the same way as that of the Bahshamīs, so that Ibn Fūrāk can utter, as an Ash‘arite axiom, precisely what Ibn Mattawayh would condemn. As we shall see below, Ibn Mattawayh was content to distinguish perception and knowledge, however.

66 Al-Ash‘arī, *Maqālāt*, 402.1–3.

67 Al-Bāqillānī, *Kitāb al-Tamhīd*, ed. R. J. McCarthy (Beirut: al-Maktaba al-Sharqiyya, 1957), 11.11–13:

والإدراك في الحقيقة شيء غير اللمس واتصال سائر الحواس بالمحسوسات وأماكنها وغيره
من ضروب الاتصال.

68 Ibn Fūrāk, *Mujarrad Maqālāt al-Ash‘arī*, ed. D. Gimaret (Beirut: Dar el-Machreq, 1987), 18.1:
الإدراك معنى زائد على العلم وعنه يحدث العلم.

4 Condition-based Perception: The Bahshamī Line

Now, condition-based perception must be explicated with maximal subtlety lest one or another condition be called out as a *ma'nā*, that is, a *determining* factor. This is how Ibn Mattawayh sets out to explain it:

Know that the one who perceives, by virtue of his being one who perceives, has a particular mode-of-being: for we distinguish between his perceiving an object and his not perceiving an object insofar as something obtains which goes back to the soul of the perceiver. This must be on account of a mode-of-being by virtue of his being one who perceives, just as we [speak of a mode-of-being by virtue] of his being one who wills, or who exerts antipathy, or who believes, such that it (the mode-of-being) comes to be existent with respect to the soul.⁶⁹

The idea here is that these modes-of-being (or, to put it simply, “states”) apply to any affection of the soul such that it is on account of such states that one is being such a way.⁷⁰ If this seems like an overly fussy way to put it, we should note that these formulae were posited as a way to talk about divine attributes without threatening God’s unity – so that God might, for example, be able to know a particular object by virtue of His “being knowing” without insisting upon individual instances of knowledge (and all their vicissitudes) plaguing His divine consciousness.⁷¹

The relationship of perception to knowledge belongs properly to another chapter of *kalām*. Ibn Mattawayh used several arguments to establish the distinction: for example, one may perceive fleabites while asleep without

69 Ibn Mattawayh, *al-Tadhkira*, 697.3–5:

إِعلم أن للمدرك بكونه مدرِّكاً حالاً لأن ما يجده من التفرقة بين أن يدرك الشيء وبين أن لا يدركه أمر راجع إلى نفس المدرك، فيجب أن يكون على حالة بكونه مدرِّكاً، كما نقول في كونه مريداً وكارهاً ومعتقداً، فصارت موجودةً من النفس.

70 On states, see Thiele, “Abū Hāshim.”

71 Abū Hāshim al-Jubbā'ī introduced the usage of *akwān* for divine attributes. Abū l-Hudhayl had held that God is “knowing by virtue of a knowledge which is He” (Al-Ash'arī, *Maqālāt* 165, and many other places), that is, he identified God’s knowledge with God; other Mu'tazilites posited discrete instances of knowledge as the objects of God’s being a (the) knower. Mu'ammār left his signature in this discussion as well, claiming that “God is knowing by virtue of an instance of knowledge, and [...] the instance of knowledge He has in turn has a *ma'nā*, and that *ma'nā* has a *ma'nā*, and so on without end” (Al-Ash'arī, *Maqālāt*, 168.9–10). You can see how this would annoy the Bahshamīs, among others.

“knowing” them.⁷² For our purposes, it is sufficient to note that for both Bahshamīs and Ash‘arites, perception is the “path” to knowledge: as such, for Ibn Mattawayh, the fact of perception may be a *ma‘nā* for a particular instance of knowledge.

But of course the Bahshamīs could not simply say that we see by virtue of being seeing, with the help of the state of seeing: Abū Hāshim had introduced the four ‘conditions.’ Ibn Mattawayh goes to great pains to make sure that none of them become determining *ma‘ānī*. Although the condition of living applies to the perceiver, “being one who perceives does not derive from his being one who is living.”⁷³ Similarly, “the existence of the object of perception cannot be a cause (*‘illa*),” for various reasons. His argument about the soundness of the (organ(s) of) sense is more carefully elaborated:

The (organs of) sense and their soundness cannot be an “effective ground”⁷⁴ in this case, effectuating causes, for the senses considered in themselves derive from the part [i.e., the physical organs], whereas the one who perceives derives his being one who perceives from the totality; the causality applicable to that which is derived from the totality cannot be that which is derived from the parts. It follows that the senses do not correctly obtain unless he [i.e., the whole subject] is one who perceives, even if the object of perception is non-existent – for that (too) would be due to causes.⁷⁵

The language used here for the way in which the sense organs are efficacious (*ta‘thīr*) strongly suggests an Aristotelian model in the background. Recall that of the early Mu‘tazilites, only al-Nazzām involved the sense organs themselves in the causal programme for the experience of perception, and even he made them tools of God’s act. One possible target here, however, could be Bishr ibn al-Mu‘tamir, whose “secondarily generated effects” model of causality, applied

72 Ibn Mattawayh, *al-Tadhkira*, 697.

73 Ibn Mattawayh, *al-Tadhkira*, 698.11.

74 Borrowing Frank’s terminology: *Beings*, 155.

75 Ibn Mattawayh, *al-Tadhkira*, 700.9–12:

ولا يجوز أن تكون الحاسة وصحتها مؤثرة في ذلك تأثير العلل، لأن الحاسة حكمها راجع إلى البعض، والمدرك يجد كونه مدرّكاً راجعاً إلى الجملة، ولا يجوز تعليل ما يرجع إلى الجملة بما يرجع إلى الأبعاد. وكان يلزم أن لا تحصل الحاسة صحيحة إلا وهو مدرّك، وإن كان المدرك معدوماً، لأن ذلك من حق العلل.

(as we have seen) to perception, did indeed put proximate causes (*asbāb*) in the sense organs; arguing that the “attribute” of perception must apply to the entire living being, and not to one or some of its parts, Ibn Mattawayh mentions Bishr’s position.⁷⁶ Yet Ibn Mattawayh’s claim has a broader significance with respect to totalities: one is not perceiving, knowing, living, or willing by virtue of a part, but as a whole. This argument is crucial for Bahshamī theology as a theory of *divine* attributes which preserves the unity of God, but it also serves as a tacit rejection of faculty psychology.

The final condition, the absence of hindrances, is easily explained, unless one posits the non-existent as causally efficacious (of course, the early Mu‘tazilites did precisely that!⁷⁷). In the end, “there is nothing left to this but to say that one is a perceiver on account of a cause, which is perception.”⁷⁸ That “cause” is just the fact of perception itself, however: Ibn Mattawayh has carefully ruled out the causal efficacy of each of the four conditions. There is no *ma’nā* we can point to.

5 Conclusion: Revisiting the (Arabic) Aristotelian Context

Richard Frank noted that this *kalam* discussion

is rendered somewhat complicated by the authors’ desire to maintain the univocity of the expression ‘to be perceiving’ while explaining, at the same time, how the corporeal being and how God, the incorporeal, can be said truly and strictly to perceive the perceptible.⁷⁹

In Frank’s view, the conflation of human and divine modes of perception was the major challenge facing Bahshamī theorists. But by reading the entire controversy (which is just one node in the overall discussion of perception) from the *human* side, I propose that we can see these writers girding themselves for a fight against the philosophers, and not their Ash‘arite rivals.

The technical terminology is consistent with, and the Bahshamī categories of ‘conditions’ to be denuded of *ma’nā*-efficacy are recognisable in,

⁷⁶ Ibn Mattawayh, *al-Tadhkira*, 698.17.

⁷⁷ See David Bennett, “Things,” in *Essence and Thingness*, ed. M. Lamanna and F. Marrone (Turnhout: Brepols, forthcoming).

⁷⁸ Ibn Mattawayh, *al-Tadhkira*, 700.15.

⁷⁹ Frank, *Beings*, 154.

contemporary philosophical literature. This is especially striking in the late ninth-century translation of the *Placita philosophorum*. Here we find the Stoics claiming that an instance of perception (*idrāk*) occurs “by virtue of the senses, and by virtue of the primary organ [i.e., the *hēgemonikón*] itself.”⁸⁰ Leucippus and Democritus are said to claim that sensation “occurs by virtue of forms which occur to us from outside.”⁸¹

The entire Bahshamī argument is informed by the Arabic reading of Aristotle I drew out in section 1.2 above. It is not an exceptional reading; to cite one modern interpreter (Marmodoro): in Aristotle, “the power to perceive, defined more generally, is the ability of the senses to be causally acted upon by perceptible objects in the world.”⁸²

The development of this objection to *ma'nā*-based perception is designed to apply to the Aristotelian model as well, insofar as it was reconfigured by Avicenna. For Avicenna, sense perception is the reception by some means of a ‘form’ from the sensible object or, in some cases, from another source.⁸³ The parallel development of ‘states’-based psychology, in which the whole being of the perceiver experiences perception, though it is based in divine ontology, allowed latter-day Mu'tazilites to proceed without recourse to faculty psychology. The peculiarities of Ash'arite *ma'nā*-based perception, however, paved the way for later Ash'arites to embrace the Avicennan model of perception: al-Ghazālī did not object to it, and indeed exploited the Avicennan process to argue for God's knowledge of particulars; Fakhr al-Dīn accepted sense impression models while arguing for yet another sort of *ma'nā*ic intervention – the definition of perception as a “relation” (*al-nisba al-idāfiyya*) obtaining between the perceiver and the object.⁸⁴ Post-Avicennan writers were often flummoxed by the proliferation of mental events in Avicenna's psychology, which included (in ascending order of rarefaction) forms, *ma'ānī*, and objects of intellection in a complex web of immaterial transactions, but only the Bahshamīs were willing to throw them all out. The baby with the bathwater was the theory of internal faculties, but the Bahshamīs were not at all sorry to see it off as well.

80 Hans Daiber, *Aetius Arabus* (Wiesbaden: Franz Steiner, 1980), 196/53.5.

81 Daiber, *Aetius*, 196/53.15.

82 Anna Marmodoro, *Aristotle on Perceiving Objects* (Oxford: Oxford University Press, 2014), 80.

83 See for example Dag Hasse, “Avicenna's Epistemological Optimism,” in *Interpreting Avicenna: Critical Essays*, ed. P. Adamson (Oxford: Oxford University Press, 2013), 109–19.

84 On these post-Avicennan developments, see now Laura Hassan, “Sense Perception in Sayf al-Dīn al-Āmidī: A Theologian's Encounter with Avicennan Psychology,” in *Philosophical Problems in Sense Perception: Testing the Limits of Aristotelianism*, ed. D. Bennett and J. Toivanen (Cham: Springer, 2020), 161–84.

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Avicenna on Perception, Cognition, and Mental Disorders: The Case of Hallucination

Ahmed Alwishah

1 Introduction

The relation between sensing/cognition and mental disorders (*āfāt al-dhihn*)¹ receives special attention in Avicenna's writings on psychology and medicine. Avicenna identifies two ways of diagnosing mental disorders: one way is in relation to the function of the senses, while the other is in relation to the internal faculties. A psychological phenomenon commonly exhibited in such disorders is the experience of hallucinatory content, namely having a perceptible content presented to the mind as if it were the perception of an object that exists in the external reality.² In this chapter, I set out to investigate the cognitive process underlying the experience of hallucinatory content, and to show the significant roles that compositive imagination plays in creating and imposing this content upon sensory experience. In the course of my investigation, I show how Avicenna integrates and develops some aspects of Aristotle's theory of perception and cognition.

- 1 Avicenna explicitly uses this term in *al-Qānūn fī al-tibb*. See Avicenna, *al-Qānūn fī al-tibb, Book III*, ed. A. al-Dinnawi, (Beirut: Dār al-Kutub al-ʿIlmiya, 1999), 96. Generally speaking, Avicenna uses the term “mental disorder” to refer to a state in which cognitive powers of the soul are in disorder.
- 2 In contemporary philosophy, and according to Matthew Soteriou, a common way to distinguish between veridical perception, illusion, and hallucination is the following: “in the case of a veridical perception you perceive an object in your environment as it really is – for example, you see a red object in your environment and you really do see its red colour. In the case of an illusion, you succeed in perceiving some object in your environment, but the object you perceive isn't the way it perceptually seems to you to be – for example, you see a green object in your environment, but the object looks red to you. And in the case of hallucination, you fail to perceive any object in your environment – for example, you have an experience as of a red object, but you fail to perceive any object in your environment.” (Matthew Soteriou, *Disjunctivism* (London: Routledge, 2016), 1.) For more on hallucination, see Fiona Macpherson, “The Philosophy and Psychology of Hallucination: An Introduction,” in *Hallucination: Philosophy and Psychology*, ed. F. Macpherson and D. Platchias (Cambridge, MA: The MIT Press, 2013), 1–36.

In the first part of this chapter, I present various cases of mental disorder that involve hallucinatory content in relation to the senses and the internal faculties. Special attention is paid to the case of vertigo, which Avicenna uses explicitly to demonstrate the relation between this disorder and one's perception. In addition, I show how the physical arrangement of the internal senses in the brain determines their involvement and function with respect to hallucination. This prepares us for a discussion of the cognitive process of hallucination in the second part, where I address three key questions: (1) Which faculty plays the most critical role in generating and imposing the hallucinatory content and embedding it in the corresponding setting of external reality? (2) Why does specific hallucinatory content arise in specific cases? And finally, (3) is there a distinction between hallucinatory experience and veridical experience? The conclusion of the chapter will show that Avicenna offers a comprehensive and significant cognitive account of the hallucinatory nature of mental disorders that contributes to our understanding of human psychology.³

2 The Hallucinatory Content Manifest in Sensory Experience

Avicenna identifies two types of mental disorder that affect the human brain: those that affect the bodily parts responsible for the relation between the sense organs and the brain (such as the visual nerves) and those that directly affect the parts of the brain that are assigned to cognitive faculties.⁴ Following Hippocrates and Galen, he attributes the causes of these disorders to substantial changes of the temperament (*mizāj*), that is, an excess or lack of cold/hot and wet/dry, within different parts of the brain. By and large, these disorders affect the activities of the human brain by engendering a state of "weakness, alteration, or confusion, leading to ineffectiveness (*buṭlān*)."⁵

In the case of vision, Avicenna argues that:

[...] when vision is impacted by a disorder, it becomes either ineffective, weak, or its activities become confused, so that it deviates from its natural

3 Prior to Avicenna, Aristotle, the Stoics, and Galen in particular, presented and discussed a number of cases pertaining to hallucination, however it is not clear that they offered a comprehensive cognitive account of the hallucinatory nature of mental disorders that would contribute to our understanding of human psychology. See Marke Ahonen, *Mental Disorders in Ancient Philosophy* (Dordrecht: Springer, 2014), 77–79, 113–24, and 156–59.

4 Avicenna, *al-Qānūn*, Book III, 11.

5 Avicenna, *al-Qānūn*, Book III, 11.

course; thus, it imagines something that has no existence in external reality, such as fanciful imaginings, bugs, flames, smoke, or the like. If these disorders are not specific to the eyes, then they indicate a disorder within the brain.⁶

Thus, if the sense (in this case, vision) is otherwise sound but hallucinatory content is experienced, this is a clear indication of the existence of mental disorder within the brain. When the specific seat in the brain responsible for vision is affected by this disorder, one begins to see images that have no appropriate correspondents in external reality.

Another form of the first type of disorder is auditory hallucination. The same variation of disorder applies here: a weakened sense of hearing will only perceive what is near and loud. In the case of “confusion,” one

[...] may hear that which has no existence in external reality, such as [in the condition of] tinnitus, which resembles a low continuous vibrating sound of water, or the beating of hammers, or the sound of the drums, or the rustling of the leaves of a tree, or the hissing of the winds, or something like that.⁷

Here again, there is perceptible content – a hearing of something – in the absence of a corresponding object or auditory stimulus in external reality. Mental disorders relating to hearing may take different forms such as “hearing something as though hearing it from far away.”⁸ This case points to perceptible content fixed to a distorted spatial position. It is a problem pertaining to the faculty of representative imagination (as will be explained below), one of the primary functions of which is to fix sensory content in the right bearing and range.

The case of smell is no different than that of vision or hearing. A disorder in the forepart of the brain causes weakness, ineffectiveness, or confusion in the ability to smell. Avicenna claims that in this type of disorder one may “sense malodorous or non-malodorous scents that have no existence in external reality, and this most likely is an indication of having some humours trapped in the forepart of the brain.”⁹ Disorders producing hallucinatory content apply to the senses of taste and touch as well. However, with respect to the sense of

6 Avicenna, *al-Qānūn*, Book III, 11–12.

7 Avicenna, *al-Qānūn*, Book III, 12.

8 Avicenna, *al-Qānūn*, Book III, 12.

9 Avicenna, *al-Qānūn*, Book III, 12.

touch, unlike the previous senses, Avicenna affirms that the cause of most of its disorders have to do with the nerve endings, so the brain contributes little to it.¹⁰

The common feature in these cases is that hallucinatory content is generated within the brain and involves the sense organ, causing it to experience this content within its sensory field. The cause of having such perceptible content is different from the cause of ordinary cases of sense perception, or what modern scholars refer to as “veridical perception,” in which no illusion or hallucination is involved.¹¹ Veridical perception, in Avicenna’s view and in the Aristotelian tradition in general, results from having a sensible form of a proper object affecting the sense, causing it to have some corresponding sensory content; such content is then perceived and transmitted to different stages of cognition to become perceptible content. In contrast, in the case of hallucinatory content a reverse process occurs: there is already a perceptible content which, however, does not have a corresponding external reality, and which is embedded within the sensory experience of the perceiver.

Beyond the external senses, mental disorders also impact the function of internal faculties. Before we address that, it is important to briefly sketch out Avicenna’s view of the internal faculties. Avicenna wrote intensively on this topic both in his works of psychology and in his medical works. Many scholars have debated the nature, the function, and the Greek antecedents of internal faculties in Avicenna’s writings, arriving at different understandings of them.¹² Since this chapter is concerned with the sensory experience of hallucinatory

10 Avicenna, *al-Qānūn*, Book III, 12.

11 See Susanna Siegel, “The Epistemic Conception of Hallucination,” in *Disjunctivism: Perception, Action, Knowledge*, ed. A. Haddock and F. Macpherson, (Oxford: Oxford University Press, 2008), 205.

12 For more on structure and the functions of these internal senses see Harry Austryn Wolfson, “The Internal Senses in Latin, Arabic, and Hebrew Philosophic Texts,” *Harvard Theological Review* 28:2 (1935): 69–133; Deborah Black, “Estimation (*wahm*) in Avicenna: The Logical and Psychological Dimensions,” *Dialogue* 32 (1993): 219–58; Christopher Green, “Where Did the Ventricular Localization of Mental Faculties Come From?” *Journal of History of the Behavioral Sciences* 39:2 (2003): 131–42; Jari Kaukua, *Avicenna on Subjectivity* (Jyväskylä: University of Jyväskylä, 2007), 26–34; Henrik Lagerlund, “Introduction: The Mind/Body Problem and Late Medieval Conceptions of the Soul,” in *Forming the Mind: Essays on the Internal Senses and the Mind/Body Problem from Avicenna to the Medical Enlightenment*, ed. H. Lagerlund (Dordrecht: Springer, 2007), 1–15; Jon McGinnis, *Avicenna* (Oxford: Oxford University Press, 2010), 113–16; Deborah Black, “Rational Imagination: Avicenna on the Cogitative Power,” in *Philosophical Psychology in Arabic Thought and the Latin Aristotelianism of the 13th Century*, ed. L. X. López-Farjeat and J. A. Tellkamp (Paris: Sic et Non, 2013), 59–81; Peter Pormann, “Avicenna on Medical Practice, Epistemology, and the

content, I will confine my account to the aspects of the internal senses which are relevant to this phenomenon.

Building on Aristotle's account of psychic faculties in *De anima*, Avicenna posits a complex theory of five internal faculties/senses: common sense (*al-ḥiss al-mushtarak*), representative imagination (*al-muṣawwira*),¹³ compositive imagination (*al-mutakhayyila*), estimation (*wahm*) and memory (*al-dhākira*). These faculties transform the sensible forms into perceptible content and then represent them to the intellect. The structure and the interaction between these faculties – in the process of transforming the sensible forms and working with perceptible contents – is summed up in the following passage:

One of the animal internal faculties of perception is the faculty of fantasy, i.e., common sense, located in the forepart of the front ventricle of the brain. It receives all the forms which are imprinted on the five [external] senses and transmitted to it from them. Next is the faculty of representative imagination (*al-khayāl wal-muṣawwira*) located at the rear part of the front ventricle of the brain, which preserves what the common sense has received from the individual five senses even in the absence of the sensed objects. Know that receptivity and preservation are the function of different faculties [...]. Next is the faculty which is called the 'compositive imagination' in relation to the animal soul, and the 'rational imagination' in relation to the human soul. This faculty is located in the middle ventricle of the brain near the vermiform process, and its function is to combine certain things with others in the faculty of representative imagination, and to separate some things from others as it chooses. Then there is the estimative faculty located in the far end of the middle ventricle of the brain, which perceives the non-sensible

Physiology of the Inner Senses," in *Interpreting Avicenna*, ed. P. Adamson (Cambridge: Cambridge University Press, 2013), 91–109; Muhammad Faruque, "The Internal Senses in Nemesius, Plotinus and Galen: The Beginning of an Idea," *Journal of Ancient Philosophy* 10:2 (2016), 119–39.

- 13 There are many instances in *al-Nafs*: see Avicenna, *al-Shifāʾ, al-Nafs*, ed. F. Rahman (Oxford: Oxford University Press, 1959), 44, 152, 165. Avicenna uses "*al-muṣawwira*" (representative imagination) and "*al-khayāl*" (compositive imagination) to refer to the faculty of representation: "the perceptible form retained by the faculty which is called *al-muṣawwira* and *al-khayāl*" (165), "the faculty of *al-muṣawwira* which is *al-khayālīya* as you will see" (imagination) (152), and "*al-muṣawwira* and/or *al-khayāl* which is a faculty that is located in the frontier concavity of the brain." With that in mind, I will translate it as "representative imagination," which is F. Rahman's translation of the "*al-muṣawwira*" as the faculty of representation.

*ma'ānī*¹⁴ that exist in the individual sensible objects, like the faculty that judges that the wolf is to be avoided and the child is to be loved. Next there is the retentive and recollective faculty (memory) located in the rear ventricle of the brain, which retains what the estimative faculty perceives of the non-sensible *ma'ānī* existing in individual sensible objects.¹⁵

An important aspect that concerns us in this passage is the localisation and structure of the internal faculties in the brain. Prior to Avicenna, several philosophers discussed the localisation of the internal faculties in the brain, mainly Nemesius of Emesa,¹⁶ (to a lesser extent) Galen,¹⁷ the physician Posidonius,¹⁸

- 14 I have explained the term *ma'nā* (pl. *ma'ānī*) elsewhere. It literally means “object of concern,” and has been used in various ways: depending on the author and the context, it can mean ‘accident,’ ‘property,’ ‘entity,’ ‘causal determinate,’ ‘connotation,’ ‘intention,’ or ‘concept.’ But these translations do not capture what Avicenna has in mind here (see Ahmed Alwishah, “Avicenna on Animal Self-Awareness, Cognition and Identity,” *Cambridge Journal of Arabic Sciences and Philosophy* 26:1 (2016): 83–88). I believe that the use of it in this context is to denote the non-sensible property.
- 15 Avicenna, *al-Najāt*, ed. M. Fakhry (Beirut: Dār al-Āfāq al-Jadīda, 1985), 201–2, trans. F. Rahman, modified (see Avicenna, *al-Najāt*, Book II, trans. F. Rahman, in *Avicenna's Psychology* (Oxford: Oxford University Press, 1952), 31).
- 16 According to Nemesius, “[t]he organs of imagination are the frontal cavities of the brain, the psychic pneuma within them, the nerves from them soaked with the psychic pneuma and the apparatus of the sense-organs [...]. The organ of memory, too, is the posterior cavity of the brain, which they call the cerebellum and the enkranis, and the psychic pneuma within it [...]. Since we say that the frontal cavities of the brain are the origin and roots of sensation, that of thought the central cavity and the posterior of memory, it is necessary to demonstrate whether this is the state of affairs, lest we should seem to believe what is being said without having a good reason for it. [...] If both the frontal and the central cavities suffer, reason is damaged together with the senses. But if the cerebellum suffers, memory alone is lost together with it without sensation and thought being harmed in any way. But if the posterior suffers together with the frontal and central ones, sense, reason and memory also are destroyed, in addition to the whole creature being in danger of perishing.” (Nemesius of Emesa, *On the Nature of Man*, trans. R. W. Sharples and P. J. van der Eijk (Liverpool: Liverpool University Press, 2008), 101–2, 121–22.)
- 17 According to Julius Rocca, for Galen: “the rational soul is responsible for sensation and voluntary motion, and resides somewhere in the brain substance. The activities of the rational soul also encompass imagination, reason and memory, but these too are not placed in any specific part of the brain.” (Julius Rocca, *Galen on the Brain: Anatomical Knowledge and Physiological Speculation in the Second Century AD* (Leiden: Brill, 2003), 245.)
- 18 According to Posidonius, “when the front part [*meros*] of the brain has been harmed, the imaginative faculty alone is injured, and when the middle ventricle [*koilia*] of the brain has been harmed, there occurs a perversion of the cognitive faculty, while when the back of the brain has been harmed below the occiput, the faculty of memory is destroyed,

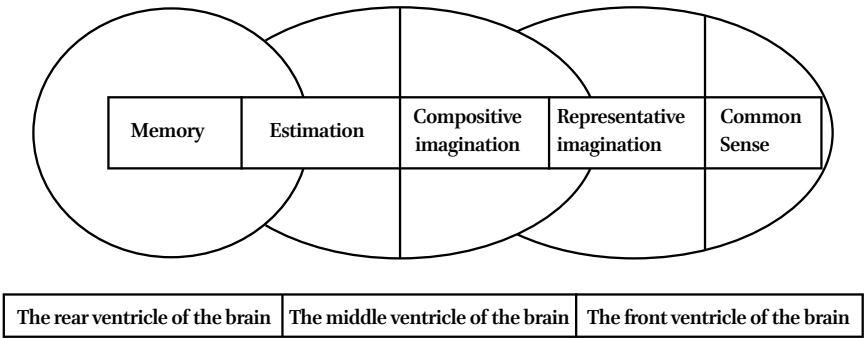


FIGURE 4.1

Qustā ibn Lūqā,¹⁹ Ḥunayn ibn Ishāq, and Abū Bakr al-Rāzī.²⁰ Avicenna refines and develops their views into a systematic and holistic version that complements his views of perception and cognition. Within this version, and as is illustrated in Figure 4.1, the seats of the internal faculties in the brain are divided into three main ventricles.²¹

In *al-Qānūn*, Avicenna shows how this structure of the faculties within the brain facilitates the movement of sensory and psychic pneuma.²² The forepart

and with it the other two are also completely destroyed.” (As cited in Green, “Ventricular Localization,” 138.)

19 According to ibn Lūqā, “[i]f there occurs some impediment in the middle of the brain and the other parts of that brain are safe, only thinking and understanding is destroyed, and sense and motion remain in balance, as happens in the person afflicted with melancholia, which is a mixture or turmoil of the reason and the destruction of knowledge. And if there is an impediment in the upper part of the brain, memory only is destroyed and the other acts of a man are balanced and normal. Now if there is an impediment in two of these ventricles or in three, and it occupies the whole brain, there is an overall impediment to knowledge and to sense and motion, as happens in the case of epilepsy and similar things.” (Qustā ibn Lūqā, *On the Difference Between Spirit and the Soul*, in *The Transmission and Influence of Qusta ibn Luqa’s “On the Difference Between Spirit and the Soul”*, ed. and trans. J. Wilcox (Ph.D. diss., City University of New York, 1985), 219–20.)

20 See Green, “Ventricular Localization,” 131–42; Pormann, “Avicenna on Medical Practice,” 91–109; Faruque, “The Internal Senses in Nemesius,” 119–39.

21 Avicenna, *al-Qānūn*, Book III, 7–8.

22 According to Armelle Debru: “To this picture we should add the role played by two entities which Galen inherits from a long philosophical and medical tradition, namely pneuma and innate heat. These are essential elements in Galen’s physiology, although he is less interested in their nature than in what they do; one needs, he thinks, to concentrate on their functional aspect [...]. As for the pneuma [...], Galen constantly reaffirms its functional conception. He considers it to be an ‘instrument’ (*organon*), although he remains non-committal as to the number of types of pneuma there are and as to its nature [...].

of the brain is responsible for distributing the sensory pneuma and the activities of common sense and representative imagination. The posterior part is the place of the moving psychic pneuma, the activities of memory, and where the *ma'ānī* are preserved. Moreover, he notes that: “[The middle part] is the passageway where [the perceptible contents] are transformed from being representative [contents] to being memorable [contents], and for this reason it becomes the best place for thinking and imagining.”²³

Avicenna, as we saw above, assigns two distinct faculties for imagination: representative imagination actively engages the senses through common sense; compositive imagination is connected to the activities of thinking and works closely with estimation.²⁴ While Avicenna assigns to the latter the function of “composing and separating (*al-tarkīb wal-taḥṣīl*) sensible forms,”²⁵ he designates the former to receive the sensory contents from common sense and retain them in a certain feature, quality, and position.²⁶

Having established that much, let us examine the relation between some specific mental disorders and the internal faculties, beginning with the faculty of common sense.

The relation with this faculty is demonstrated by the case of vertigo (*al-dawār*), in which “one imagines everything circling around him and that his brain and body is circling too.”²⁷ In fact, Avicenna uses this case to show why we need to posit a faculty that unifies the various sensible forms of a given object, namely the faculty of common sense – a claim that is motivated by Aristotle’s view of common sensibles in *De anima* 3.²⁸ In *al-Nafs*, Avicenna attributes the disorder of vertigo to the motion of the vapours causing the

There are two main domains in which its activity is central. It is ‘the principal instrument of all the animal’s sensation and voluntary movements’, as well as being ‘the primary instrument of the soul’ [...].” (Armelle Debru, “Physiology,” in *The Cambridge Companion to Galen*, ed. R. J. Hankinson (Cambridge: Cambridge University Press, 2008), 271.) Like Galen, Avicenna distinguishes between different types of pneuma: psychic pneuma (*al-rūḥ al-naḥsānī*) and sensory pneuma (*al-rūḥ al-ḥassās*). He associates the latter with the activities of common sense and representative imagination, the former with estimation and memory (see Avicenna, *al-Qānūn*, Book III, 7–8).

23 Avicenna, *al-Qānūn*, Book III, 7–8.

24 For more on the origin of this distinction see Wolfson, “The Internal Senses in Latin,” 91–101; Ahmed Alwishah, *Avicenna’s Philosophy of Mind: Self-Awareness and Intentionality* (PhD diss., The University of California of Los Angeles, 2006), 98–99; and Black, “Rational imagination,” 64.

25 Avicenna, *al-Nafs*, 51. For more on the compositive imagination, see Black, “Rational imagination,” 59–80.

26 Avicenna, *al-Najāt*, 209.

27 Avicenna, *al-Qānūn*, Book III, 113.

28 See *de An.* 3.1, 425a28–b5.

pneuma to move in a circular way.²⁹ He explains this view further in *al-Qānūn* by stating that “when a man spins around, the vapour and pneuma inside him circles as well.”³⁰ This movement is analogous to “the circular motion of a cup full of water for a period of time; when it stops, the water inside it continues to circulate [in the same way].”³¹ Thus, in the same manner that the circular motion of the cup is transferred to the water and causes it to continue to move, the circular motion of a person spinning around causes the circulation of pneuma, and such motion continues even when the person ceases to spin. This internal circular motion in turn “causes one to imagine things circling around himself.”³²

According to Avicenna, the causal relation between the internal motion and erroneous perception results from having a corresponding relation between “the perceiver (*al-ḥāss*)” and “external surrounding particulars.” The change within the perceiver causes one to imagine a change within the surrounding object(s) of perception.³³ Avicenna then argues that vertigo may also occur when one “looks at something in circular motion.”³⁴ He elaborates further by relating this case to the formation of the image of a circle out of the fast movement of dots: one “imagines the fast movement of dots as a straight line or circle.”³⁵ The dots exist in external reality as disconnected objects, but by moving in a circular way, they are connected and perceived as an image of one cohesive circle. He expands on this example by showing that vertigo may “occur from looking at things that are circulating [long enough] so that their sensible appearances are firmly established in the self.”³⁶ In this context, the form of a circulating object is transposed from the object to the perceiver causing the latter to be in the state of circular motion. Avicenna emphasises that if such a form is strong, then it would impact the internal state of the perceiver even when the latter no longer has a direct relation to the sensible object. He supports this point by asserting the principle that “every sensible object affects the sense organ with a form that is the like of it.”³⁷

The acceptance and the affirming of this form in the perceiver is contingent on the “extent of the acceptance of it by the sense organ and how strong that

29 Avicenna, *al-Qānūn*, Book III, 164.

30 Avicenna, *al-Nafs*, 164; *al-Qānūn*, Book III, 113–14.

31 Avicenna, *al-Qānūn*, Book III, 113–14.

32 Avicenna, *al-Nafs*, 164; *al-Qānūn*, Book III, 113–14.

33 Avicenna, *al-Qānūn*, Book III, 113–14.

34 Avicenna, *al-Nafs*, 164.

35 Avicenna, *al-Nafs*, 164.

36 Avicenna, *al-Qānūn*, Book III, 114.

37 Avicenna, *al-Qānūn*, Book III, 114.

form is.”³⁸ Here Avicenna seems to be inspired by Aristotle’s claims that “what has the power of sensation is potentially like what the perceived object is actually; that is, while at the beginning of the process of its being acted upon the two interacting factors are dissimilar, at the end the one acted upon is assimilated to the other and is identical in quality with it,”³⁹ and that the sense is affected by the object of perception “not insofar as each is what it is, but insofar as it is of such and such a sort and according to its form.”⁴⁰ Both philosophers emphasise that the sense organ or the perceiver takes on the sensible form or some equivalent of the object of the perception.

But why should one imagine everything as circulating around oneself? The answer to this question has to do with a subsequent stage of perception. In veridical perception, the faculty of estimation or the intellect has the ability to judge that the perceptible content is distinct from the state of the perceiver. In the case of vertigo, however, due to a substantial change in the temperament of the brain – that is, the vapours trapped in the brain⁴¹ – estimation and intellect are ineffective and the perceiver cannot distinguish between the perceptible content and her cognitive state.

So far we saw that the case of vertigo is not only a case of mental disorder but also a case of perception that demonstrates the intricate relation between the external senses and the internal faculties. Unlike the previous cases of mental disorder, in which one imagines something does exist in the corresponding reality, in the case of vertigo one merely imagines the corresponding reality in a certain state, that is, being in circular motion.

Working closely with the common sense, the faculty of representative imagination exhibits hallucinatory content when its seat is in disorder. In *al-Qānūn*, Avicenna establishes a correlation between the healthiness of the seat of this faculty in the brain and the soundness of the function of this faculty.⁴² If the temperament within the seat of this faculty in the forepart of the brain is strong, then it has the capacity of “preserving the sensible forms such as figures, design, sweetness, tastes, sounds, rhythm, and so on.”⁴³ The soundness of this faculty can be measured by its ability to preserve meticulous detail. To demonstrate this he uses a case that is analogous to Aristotle’s

38 Avicenna, *al-Qānūn*, Book III, 114.

39 *De An.* 2.5, 418a3–6. All translations of Aristotle are taken from Aristotle, *The Complete Works of Aristotle: The Revised Oxford Translation*, ed. J. Barnes (Princeton: Princeton University Press, 1984).

40 *De An.* 2.12, 424a23–24.

41 Avicenna, *al-Qānūn*, Book III, 115.

42 Avicenna, *al-Qānūn*, Book III, 13.

43 Avicenna, *al-Qānūn*, Book III, 13.

example of the geometer who apprehends a triangle in thought by employing certain images.⁴⁴ Avicenna argues that an architect is able to see the image of a drawn figure once, and it imprints in his mind with all its precise details in such way that it allows him “to complete his task to the end without revisiting this image again.”⁴⁵ In contrast, a disorder of this faculty is exposed when it is “unable to formulate an image of that which is sensed after its relation to the sense no longer exists,”⁴⁶ or when this faculty suffers weakness, inefficiency, or change from its natural course, “as when one imagines something that does not exist.”⁴⁷

This disorder does not only occur in those who are mentally ill; it can happen to people with a healthy mind and sound judgement. Avicenna writes: “This disorder could happen to those who are mentally sound, who have full knowledge of what is good and bad, and whose communication with other people is sound – yet they still imagine the presence in external reality of people who do not exist,” and he continues: “and they imagine the sound of drummers and other things as when Galen narrated that this happens to Rūṭlas the physician.”⁴⁸ Galen narrated this case somewhat differently and attributed it to the physician Theophilus. In *Diseases and symptoms*, discussing delirium, Galen states:

Often delirium (*paraphrosyne*) exists in both at the same time, i.e. in a malfunctioning imagination and an improperly functioning reasoning. Sometimes it is in relation to one of these alone. For precisely in this way was it possible for Theophilus the physician, when ill, to converse sensibly on other things and recognise correctly those present, whereas he thought some flute-players had occupied the corner of the house in which he was lying and were playing continuously at the same time as crashing about. And he thought he saw them, some standing on the spot,

44 According to Aristotle, “The subject of imagination has been already considered in our work *On the Soul*. Without an image thinking is impossible. For there is in such activity an affection identical with one in geometrical demonstrations. For in the latter case, though we do not make any use of the fact that the quantity in the triangle is determinate, we nevertheless draw it determinate in quantity. So likewise when one thinks, although the object may not be quantitative, one envisages it as quantitative though he thinks of it in abstraction from quantity.” (*Mem.* 1, 450a1–6.)

45 Avicenna, *al-Qānūn*, Book III, 13.

46 Avicenna, *al-Qānūn*, Book III, 13.

47 Avicenna, *al-Qānūn*, Book III, 13.

48 Avicenna, *al-Qānūn*, Book III, 13.

but some sitting, in this way playing unceasingly so that they neither let up during the night, nor were in the least bit silent throughout the whole day. He had cried out continuously, ordering them to be cast out of the house. And this was the form of the delirium (*paraphrosyne*) in him. And when he was restored to health completely and was free of the illness, he described in detail all the other things that had been said and done by each of those coming in and remembered the delusion (*phantasma*) concerning the flute players.⁴⁹

Thus, both philosophers affirm first that hallucinatory images do not exist in isolation, but rather are embedded within the setting of the corresponding external reality. The images of flute players are placed within the spatial boundary of the corners of the house, causing Theophilus to believe in their existence. Second, both insist that having hallucinatory content in the mind does not necessarily impact its soundness. However, one may argue that if the intellect were sound, it would not allow such hallucinatory content to exist. Avicenna would respond that this disorder impacts the seat of compositive imagination in the middle part of the brain and hence it affects only a specific aspect of the intellect in relation to imagination, and not the other aspects of cognition and judgement.

Another disorder that affects the representative imagination and gives rise to hallucinatory content is what Galen identifies as phrenitis – the inflammation (swelling) within the brain diaphragm. According to Glenda McDonald, Galen

identifies three types of phrenitis, which are differentiated according to the manifestation of delirium that they produce. One type damages a person's capacity for rational thoughts, while the second affects their faculty of image reception. In the third type of phrenitis, both faculties are compromised.⁵⁰

49 Galen, *On Diseases and Symptoms*, trans. I. Johnston (Cambridge: Cambridge University Press, 2006), book 3, 3.4, 191.

50 Glenda McDonald, "Galen on mental illness: A Physiological Approach to Phrenitis," in *Philosophical Themes in Galen*, ed. P. Adamson, R. Hansberger, and J. Wilberding (London: Institute of Classical Studies, 2014), 146; see also Ahonen, *Mental Disorders in Ancient Philosophy*, 156–59.

Two important cases are used by Galen to illustrate the impact of delirium as a result of phrenitis: picking at a small object,⁵¹ and the man of Rome.⁵² Using Galen's first case, Avicenna asserts that this disorder may cause one to "pick at the fluff from the cloth, or the hay from the [muddy] wall," or something like that, or "to imagine phantoms that do not exist [in external reality]."⁵³ Thus, instead of experiencing hallucinatory content, the person affected by this disorder experiences seeing these ordinary objects as something else, causing her to act upon these objects, for instance by picking at fluff.

Finally, a disorder that affects the seat of the faculty of memory also gives rise to hallucinatory content. For Avicenna, such content may be a sign of having a disorder within the seat of memory in the posterior part of the brain. He elaborates that a disorder within memory can be identified when

[1] the sensing and sleeping of a man are sound and [yet] he imagines phantoms (*ashbāh*) of things during his waking state, and [2] when the things and the events that he sees during his waking or sleeping state – which can be described – have departed from him, and if he sees them or hears them [again] they do not remain with him.⁵⁴

Again Avicenna reminds us in condition (1) that when the sensing is sound and yet hallucinatory content is experienced, then the disorder must be within

51 According to Galen: "I have explained this and many other things we have mentioned here in my *Commentary on Hippocrates' Humours*: I have said that by pulling out, he could have meant the (kind of) fidgeting we see delirious people do, as if they pick nap off a garment and sticks from the ground and from fences; and he could have meant by it that the patient fidgets with a region of his body that has a painful interior ailment (hidden) under the surface as if he was pulling it out." (Galen, *Commentary on Hippocrates' Epidemics Book 1 Part 1–11*, ed. and trans. U. Vagelpohl (Berlin: De Gruyter, 2014), 365.)

52 According to Galen, "a certain man, having been left in his home in Rome with one slave who was a wool-worker, got up from his bed and came to the open window, from which he could be seen and see the people passing by. When he showed each glass vessel to the people outside, he enquired whether they might urge him to throw it. When they laughingly asked him to throw the items, and clapped their hands, he successively threw down everything he had picked up, and the people below shouted in laughter. Sometime later, he enquired of them if they might order him to throw out the wool-worker, and when they had called for him to do this, he threw down the slave; when the people saw him fall from high up they were amazed, and they stopped laughing. Running toward the fallen, crushed man, they lifted him up." (Galen, *On the Affected Parts*, trans. R. Siegel (Basel: Karger, 1976), 108.) In *al-Ḥāwī fī al-ṭibb*, al-Rāzī refers to this case in the context of describing the problem of mental confusion (Abū Bakr al-Rāzī, *al-Ḥāwī fī al-ṭibb*, ed. M. Ismā'il, (Beirut: Dār al-Kutub al-'Ilmiya, 2000), 52).

53 Avicenna, *al-Qānūn*, Book III, 78; see also *ibid.*, 96.

54 Avicenna, *al-Qānūn*, Book III, 96. On the experience of seeing "phantoms," see chapter seven (by Bennett and Radovic) below.

an internal faculty. Condition (2) simply emphasises the fact that as a result of this disorder no content can be registered within the faculty of memory.

So far we have discussed a number of cases regarding the existence of hallucinatory content that results from different mental disorders affecting different parts of the brain. In all of these cases, regardless of whether the cause of them is in relation to the senses or merely contained within the internal faculties, there is a cognitive process that gives rise to the existence of hallucinatory content. Avicenna does not directly address this process nor does he devote specific space to discussing it, but by examining the structure and functions of the internal faculties and their interaction among each other, one can construct a model of this process. Our articulation of this model should centre on three key questions: Which faculty plays the critical role in generating and imposing hallucinatory contents and embedding them in the setting of the corresponding reality? Why does specific hallucinatory content arise in certain cases? And finally, is there a distinction between the hallucinatory experience and veridical experience? The next section tackles these questions.

3 The Cognitive Process of Generating and Imposing the Hallucinatory Contents

Since estimation is considered by Avicenna to be the chief and ruling faculty among the internal faculties, it is critical for us to respond to the first question by examining its role in the context of hallucinatory experience. Estimation plays many functions within the internal faculties.⁵⁵ Of these, two are essential for the process of perception: controlling the internal faculties and advancing and facilitating the perceptible content circulated among them. The failure to perform these functions properly is largely responsible for the emergence of hallucinatory content.

The seat of the faculty of estimation is in the middle ventricle of the brain. This unique position allows it to, on the one hand, oversee and control the entire function of the brain – as Avicenna puts it, “the brain in its entirety is the instrument for estimation.”⁵⁶ On the other hand, this position enables estimation to facilitate and control the flow of perceptible content between faculties in the forepart and the posterior of the brain. This psychological function stems from the physiological structure within the brain, which was proposed by Galen. In *On the Usefulness of the Parts*, Galen rejected

55 For more on this see Black, “Estimation (*wahm*) in Avicenna,” 219–58.

56 Avicenna, *al-Ishārāt wa-al-tanbīhāt II*, ed. S. Dunyā (Cairo: Dār al-Ma‘ārif, 1957), 381; see also id., *al-Nafs*, 268.

the view that the pineal gland “regulates the flow of psychic pneuma in the canal between the middle and posterior ventricles of the brain.”⁵⁷ Instead he argues:

this part which must be such as to control and govern the passage of the pneuma and which they cannot discover, is not the pineal body but the epiphysis [*vermis superior cerebelli*] that is very like a worm and is extended along the whole canal. Those versed in anatomy have named it for its shape alone and call it the vermiform epiphysis.⁵⁸

Upholding this view, Avicenna placed the cerebellar vermis under the power of estimation to facilitate the flow of perceptible content among the internal faculties. He asserts that “when estimation wills it, *cerebellar vermis* (*dūdda*) separates between its parts (the lower and the upper parts).”⁵⁹ This organ “connects the pneuma of representative imagination, via the compositive imagination, to estimation,” allowing the images (from the representative imagination) “to be imprinted in the faculty of estimation.”⁶⁰ Thus, perceptible content advances from one stage of perception to another faculty if and only if estimation permits. Contrary to this, if “estimation is opposed to certain content” within representative imagination, such content “would cease to exist for it (i.e., the estimation),” thereby not advancing to the compositive imagination. Evidence of this point, according to Avicenna, is that the images retained in the representative imagination are not always imaginable (*mutakhayila*) for the soul: “otherwise we would be obliged simultaneously to imagine many forms – that is, each form in the representative imagination.”⁶¹ I take his point to be that without the filtering function of estimation we would have innumerable raw and unsubstantiated images that could each be developed into meaningful perceptible content, but which considered together make no sense.

In addition to the above primary function, estimation has the ability to synthesise the image and the experience that is associated with it. For example, according to Avicenna, a dog fears the image of a stick because it has been

57 See Gert-Jan Lokhorst, “Descartes and the Pineal Gland,” *The Stanford Encyclopedia of Philosophy*, ed. E. N. Zalta (2018), <https://plato.stanford.edu/archives/win2018/entries/pineal-gland/>.

58 Galen, *On the Usefulness of the Parts*, trans. M. T. May (Ithaca: Cornell University Press, 1968), part 1, 420.

59 Avicenna, *al-Nafs*, 153.

60 Avicenna, *al-Nafs*, 153.

61 Avicenna, *al-Nafs*, 154.

beaten by a stick in the past; it does not recall the stick that beat him, nor the circumstance of the beating, but when it sees a stick, it associates the visual image with an experience of being beaten as if it were being beaten now, in the present.⁶²

Before proceeding to the reconstruction of the cognitive process involved in hallucinatory experience, let us review the contribution of the estimation to that process:

- (1) Estimation has access to and control over all the internal faculties.
- (2) It controls the flow of perceptible content between faculties.
- (3) It follows from (2) that it has power to decide whether or not the raw content from the senses and representative imagination should be advanced and incorporated into other stages of cognition.
- (4) Finally, it has the ability to synthesise perceptible content and the experience or the meaning that is associated with it.

We are now in a position to address the questions raised at the end of the first part and to offer an account of the cognitive process of generating and imposing hallucinatory content.

Provided that estimation has the central position and leading role within the internal faculties, a disorder that targets its seat would severely impact the function of the brain as a whole. Avicenna explicitly emphasises this point by stating that: “the strength of the faculties of estimation and intuition indicates the strength of the temperament of the brain as a whole, and the weakness of [these faculties] indicates the existence of disorder within the temperament of the brain.”⁶³

But what kind of impact would the internal faculties experience when estimation becomes weak or ineffective? In general, based on what was established above, the impact would affect (1) the management and control of the other faculties and (2) the facilitation of the flow of perceptible contents between the forepart and posterior parts of the brain. Such impact, especially (1), would significantly contribute to the appearance of hallucinatory content. Avicenna, in *al-Nafs*, assigns the role of restraining of the activities of other faculties to estimation and the intellect. For him, in the event of one's being sick or in a state of fear, a certain faculty, especially a powerful one, would run rampant with its activity unless the estimation “restrains its excessive movements.”⁶⁴ Such a faculty in this case will “predominate and carry out its activities.”⁶⁵

62 Avicenna, *al-Nafs*, 185, and 164. See also Alwishah, “Avicenna on Animal Self-Awareness,” 8.

63 Avicenna, *al-Qānūn*, Book III, 13.

64 Avicenna, *al-Nafs*, 171.

65 Avicenna, *al-Nafs*, 171.

Later, Avicenna identifies the compositive imagination as just such a powerful faculty, capable of acting independently and imposing its own perceptible content without the oversight of estimation or the intellect. Before we explain this point, it is important to keep in mind that a disorder within the intellect also affects estimation because estimation is set up to serve the intellect directly and the latter is directly in charge of the former.⁶⁶ By the same token one may assume that the control of the intellect over other faculties, the compositive imagination in particular, would be impacted if estimation were disordered.

Avicenna meticulously charts out the interplay between the intellect and the compositive imagination, showing at what stage the compositive imagination predominates and imposes its perceptible content. At the outset, he affirms that in a healthy conscious state, this faculty is preoccupied by the content of the external senses received from the common sense and representative imagination, all in service of the rational soul. Now the relation of the compositive imagination to the rational soul can be described in two ways: first by having the intellect use this faculty along with common sense to compose and separate perceptible contents in a way that serves its purpose. Second, when the intellect prevents this faculty from imagining something “that does not correspond to something existing in external reality,”⁶⁷ so that such images would not affect the content of the intellect itself. The second way is applicable to our topic, for it suggests that without the scrutiny and engagement of the intellect, the compositive imagination by its nature has the propensity to create content that has no correspondence to external reality. When compositive imagination is preoccupied by these two undertakings, then, Avicenna concludes, “its activities are weakened.”⁶⁸

However, perhaps having been influenced by Aristotle’s remarks concerning the effects of illness and sleep on mental functions,⁶⁹ Avicenna affirms that the role of the compositive imagination changes significantly when the intellect – along with estimation – is under one of these conditions: preoccupied, in an unconscious state (sleep), in the emotional state of fear, or ill.⁷⁰ Avicenna describes the last case in *al-Qānūn*, when he shows that a disorder may target the mind itself. The signs of this disorder are

66 See Avicenna, *al-Nafs*, 50.

67 Avicenna, *al-Nafs*, 171–72.

68 Avicenna, *al-Nafs*, 171–72.

69 See, *de An.* 3.3, 429a5–8; *Insomn.* 2, 460b11–3, 461a7; and Ahonen, *Mental Disorders in Ancient Philosophy*, 78, and 84.

70 Avicenna, *al-Nafs*, 170–71.

when one is saying that which he should not say, is pleased with that which he should not be pleased with, is hoping that which he should not hope for, is asking for that which he should not ask, is doing that which he should not do, is afraid of that which he should not fear, or is unable to narrate something that can be narrated.⁷¹

When the intellect is affected by any of these cases, two things may occur: (1) “the specific activities of the faculties of representative imagination and compositive imagination are intensified so that the images they bring would be represented as being sensed”; and (2) “one may hear sounds and see colours that do not exist in external reality, nor are caused by something in external reality.”⁷² The correlation between (1) and (2) is critical in explaining the development of hallucinatory content. For it seems that (1) is naturally entailed by (2). That is to say, the strength of the compositive imagination accompanied with its propensity to bring about contents that do not correspond to external reality creates favourable conditions for the emergence of hallucinatory content.

We can infer from the above that there are passive and active conditions that foster the existence of hallucinatory content. The former involve the ineffectiveness of the intellect along with estimation, and the latter involve the strength of the compositive imagination which, in turn, moves and empowers the representative imagination, as we will shortly see.⁷³

Now, when compositive imagination gains its independence, it “becomes stronger and turns toward the representative imagination to make use of it [for its own purpose]. And the unity between them becomes stronger.”⁷⁴ The compositive imagination presses the representative imagination, with the help of common sense, to display its own perceptible content. Thus, by being liberated from the constraints of the intellect and estimation, the compositive imagination comes into the state of what Immanuel Kant much later refers to as “the free play of imagination,”⁷⁵ serving its own power and no longer validated by the rational or estimative judgements. This, as we stated above, provides an opportunity for the existence of hallucinatory contents.

71 Avicenna, *al-Qānūn*, Book III, 96.

72 Avicenna, *al-Nafs*, 170.

73 Cf. Black, “Rational imagination,” 65–67.

74 Avicenna, *al-Nafs*, 172.

75 See Immanuel Kant, *Critique of the Power of Judgment*, trans. P. Guyer and E. Matthews (Cambridge: Cambridge University Press, 2000), 5:217, 101–3, and 5:316–17, 194–95. Black uses this term too (Black, “Rational imagination,” 67).

But how are these contents brought about and why is a perceptible content rather than another produced? To answer this, we turn to Avicenna's view of emotions and the different powers responsible for them – especially the concupiscible (*shahwāniya*), irascible (*ghaḍabiya*) and conative (*nuzū'iya*) powers – and their relation to the compositive imagination. In *al-Nafs*, Avicenna makes three important remarks concerning emotion that are essential to our discussion. First, change within the temperament of the body evokes different emotional states, such as fear, desire, and anger.⁷⁶ Second, the conative power and compositive imagination serve each other: the former motivates the latter to act, and the compositive imagination serves the conative power “by exhibiting specific images that are preserved in it.”⁷⁷ Third, in some cases the emotional powers “drive estimation to carry out its objectives.”⁷⁸

Avicenna demonstrates the third point by referring to the case of “the desire of animals to break out of their shackles and cages.”⁷⁹ He explains that estimation presents to the compositive imagination of a caged animal images that contrast with its current caged state: images, say, of freely grazing in a field. These images then generate feelings of joy or pleasure in the animal. The contrast between the joy and pleasure produced by the imagined image and the animal's current sensory state causes the animal to move its bodily parts in pursuance of that joy and pleasure, and so we say that the animal has a desire to be free. In this sense, estimation makes use of compositive imagination in order to satisfy a certain motive or desire.⁸⁰ In the case of hallucination, one assumes that estimation has no control over compositive imagination, but it merely plays a passive role in facilitating the demands and needs of the emotional powers.

With this in mind we can see how emotional powers take over and demand certain images that correspond to their states, be it desire, fear, or anger, and so on. Thus, we can infer that the specificity of a hallucinatory content in the disordered mind is motivated by an emotional state. The emotional state of fearing, for example, may impel, directly or indirectly through estimation, the compositive imagination to display and impose the image of a scary flame.

Another relevant question needs to be tackled: how can hallucinatory content such as smoke, flames, or flute players, which have no corresponding

76 Avicenna, *al-Nafs*, 197.

77 Avicenna, *al-Nafs*, 51.

78 Avicenna, *al-Nafs*, 196.

79 Avicenna, *al-Nafs*, 195.

80 Avicenna, *al-Nafs*, 195–96. I used this case in my essay on animal cognition: see Alwishah, “Avicenna on Animal Self-Awareness,” 11.

objects in external reality, be embedded within the setting of external reality, for instance, in the corner of a house or in a bedroom? To deal with this question we need to recall the function of the faculty of representative imagination. One of its core functions is to establish the particular position of perceptible content within the setting of external reality. Avicenna makes clear that the representative imagination retains the representative form in such way that (1) each part of the representation corresponds to a part of the object represented, and (2) the dimensions and the distances between the parts of the representation correspond to the dimensions and distances between the parts of the object represented.⁸¹ Representative imagination confers the ability to capture the sensible form along with its spatial attributes. By the same token, it has the ability to embed perceptible content that is imposed upon it by the compositive imagination within the setting of corresponding external reality.

It is worth mentioning that in a number of places, Avicenna treats the common sense and representative imagination as one item, or as he puts it, “as one faculty,”⁸² that actively works to perceive and retain the sensible forms. While we saw that compositive imagination has the ability of free play, and that it engages both the anterior faculty and the posterior faculty, representative imagination lacks this capacity for creativity and mainly directs its attention to common sense and its sensible objects. Avicenna writes: “the representative imagination is the last place in which the sensible forms reside and it [always] faces the sensible objects through the common sense.”⁸³ However, despite the fact that it primarily directs its act toward the anterior sensory content, it has the capacity to retain and establish perceptible content regardless of whether “the incoming [content] is from the external reality or from inside (the mind).”⁸⁴ In this sense, this faculty acts as a middle point between the anterior sensory content and posterior perceptible content.

This position of the representative imagination helps us to understand how hallucinatory content is embedded in the setting of external reality. In the case of the hallucinatory image of flame, for example, one assumes that after the compositive imagination imposes this image upon the representative imagination, the strategic position of the latter allows it to access external reality through the common sense and to embed the image of the flame within the field of vision of the perceiver.

81 See Avicenna, *al-Najāt*, 210; Alwishah, “Avicenna on Animal Self-Awareness,” 82.

82 Avicenna, *al-Nafs*, 165.

83 Avicenna, *al-Nafs*, 169.

84 Avicenna, *al-Nafs*, 170.

We now have a rich picture of the interplay between these two faculties that helps us to see how hallucinatory content is imposed and embedded within the setting of corresponding external reality. Perhaps this is a good place to sum up what we have discussed so far and to present it schematically:

- (1) When the intellect or the faculty of estimation is impacted by some disorder, it loses the ability to control and regulate other internal faculties.
- (2) When (1) happens, the compositive imagination acts freely and robustly, imposing its own perceptible content – hallucinatory content – on the anterior faculties (representative imagination and the common sense).
- (3) The emotional powers move the compositive imagination either directly, or indirectly through estimation, to bring about perceptible content – in this case hallucinatory content – that reflects or satisfies their own states (that is, desire, fear, or anger).
- (4) In turn, the compositive imagination utilises the representative imagination and common sense and imposes its content on these faculties to serve its own objective.
- (5) In the case of hallucinatory content, the anterior faculties (representative imagination and common sense) serve the compositive imagination by displaying its content and embedding it in the setting of corresponding external reality.

To further illustrate this process let us consider the case of fear and the perceptible content of the flame in the following figure:

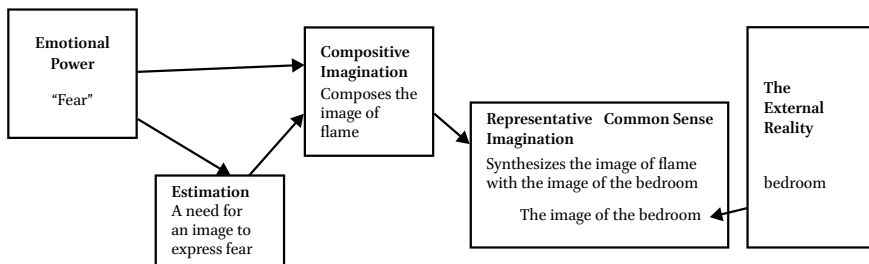


FIGURE 4.2

Having constructed and presented an account of the cognitive process of hallucinatory content, the following question arises: is there a distinction between hallucinatory experience and veridical experience, provided that the content of both is the same or, to put it in modern terms, “the most basic phenomenal character in both experiences is the same”?⁸⁵ For Avicenna, a disordered

85 I borrow this phrase from Siegel who stated it in the form of question (Siegel, “The Epistemic Conception of Hallucination,” 205).

mind does not distinguish between these two experiences. He explicitly argues that “the person who is mad, fearful, weak, or asleep sees rising phantasms just as he sees them when he is in a healthy condition, and he [possibly] hears voices too.”⁸⁶ Thus, in the case of the madman, he will see an image of an illusory object in the same way he sees it in actuality. The hallucinatory images that are synthesised in the representative imagination will appear in the common sense as if “they existed in external reality.”⁸⁷ This is because “the perceptible impression which is caused by external input and that which is caused by internal input are represented in it (the common sense). They merely differ in their relation [to it].”⁸⁸ That is to say, while they have a different relation to the faculty of common sense – one is from the inside and one from the outside – in the end, both the external and internal content is represented in the common sense as an object that is ready to be advanced to different stages of cognition. Within their contents, there is no mark or attribute that indicates their origin, that is, whether they represent an appropriate object or not. Avicenna emphasises this point by arguing that “what it is to be an actual sensible object is to be that which is represented,” and if the internal content – hallucinatory content – “is able to be represented,” then the condition that applies to the latter is the same as to the former.⁸⁹ In other words, both are treated as representational content.

However, as we saw above, Avicenna affirms that there is a variation between these two experiences by stating “they merely differ in their relation” to the common sense. Thus, while hallucinatory and veridical experiences in this sense have the most basic phenomenal character in common, they differ in their relation to that which is perceived of them, as I explained above. But this seems to be insignificant, for I think that as long as the representational content of both is the same, these two experiences have the same phenomenal character. The image of flame, for example, in both experiences is the same, simply because in both cases it is fully developed within the common sense and representative imagination. Regardless of the source, one would have similar qualitative experience of the flame. That is to say, the image of the flame in reality and the flame in the hallucination present the same image of a brightly shining object and invoke the same conceptual association.

One may argue that in the former case the flame is genuine, but in the latter case it is merely an apparent flame: we should be in a position to distinguish

86 Avicenna, *al-Nafs*, 173.

87 Avicenna, *al-Nafs*, 172–73.

88 Avicenna, *al-Nafs*, 172–73.

89 Avicenna, *al-Nafs*, 173.

between them and to ascertain the position or locality of their objects – be it in the mind or in external reality. Avicenna would argue against this critical remark on two grounds: (1) all that we have is the representation of the flame, and in both cases the image has the same phenomenal character; and (2) since, in the case of hallucination, the role of the intellect and estimation is ineffective, the ability to distinguish between these two images of a flame is less likely to be effective.⁹⁰

In the event of lacking oversight from the intellect and estimation, whatever exists in the common sense and the representative imagination is counted as an object of perception. In the case of a disordered mind, one is in no position to discriminate whether the origin of perceptible content is in the common sense or the representative faculty. For this reason, as we mentioned earlier, he asserts that the madman, for example, “sees rising phantasms as he sees them when he is in a healthy condition.”⁹¹ When the intellect regains its control over the compositive imagination and “brings it in to itself,” these perceptible forms and images fade away.⁹²

Having established that much, we can see how the dynamic relation between the intellect and estimation on the one hand and the faculties of compositive imagination and representative imagination on other hand, plays a critical role in generating hallucinatory content. While disorders within the former faculties produce a favourable environment for the existence of hallucinatory contents, the robustness of the latter faculties significantly contributes to their development and fulfilment.

4 Conclusion

Within Avicenna’s complex scheme of internal faculties, which integrates some aspects of Aristotle’s theory of cognition, one can uncover a unique account that explains the cognitive process underlying mental disorders, and hallucination in particular. In this account, one sees a clear synthesis between Avicenna’s understanding of the human brain and his views of perception

90 For a related discussion on Aristotle, see Pavel Gregoric, “Aristotle and Michael of Ephesus on the Deceptive Character of Dreams,” in *Forms of Representation in the Aristotelian Tradition, Volume Two: Dreaming*, ed. C. Thomsen Thörnqvist and J. Toivanen (Leiden: Brill, 2022), 28–51.

91 Avicenna, *al-Nafs*, 173; see also Avicenna, *al-Ta’līqāt*, ed. S. Mousavian (Tehran: Iranian Institute of Philosophy, 2013), 175 (I am grateful to Jari Kaukua for drawing my attention to this passage).

92 Avicenna, *al-Nafs*, 173.

and cognition. This synthesis helps us to understand how the structure of the brain, that is, the localisation of the internal faculties, complements the process of advancing perceptible contents from the common sense to the higher faculties and vice versa. The significance of this account lies not only in its ability to describe the conditions that give rise to hallucinatory contents, but also in that it provides a model for how they are embodied in external reality. Finally, in his inquiry into the case of hallucination, Avicenna demonstrates the affinity between medical and philosophical conceptions of mental disorders and shows how such an investigation is important for our understanding of human cognition.

Perceiving Many Things Simultaneously: Medieval Reception of an Aristotelian Problem

Juhana Toivanen

1 Introduction

It seems phenomenologically obvious that we are able to perceive many things at the same time. While I am writing this text, I hear the rhythmic tapping of the keyboard, the low humming of the air conditioner, and discussions from the corridor outside my office. I obviously see the text on the screen, but I also see the keyboard and my coffee mug sitting on a pile of books on my desk. I feel the keyboard under my fingertips and I smell coffee. In general, I can simultaneously perceive distinct perceptual qualities of one object (the colour of the keyboard and the sound it makes) as well as several qualities that belong to the same sense modality (the colour of my mug and the colour of the keyboard).¹

Aristotle admits that we have the ability to perceive many things simultaneously.² However, his theory of perception is based on theoretical premises that seem to entail that this should not be possible. First, he explains sense perception in terms of his general theory of change. According to him, we perceive an external object when its perceptual qualities (colour, sound, etc.) cause changes in our senses. The external senses are passive powers, and

1 A caveat is in order: the ability to perceive all these things simultaneously is obvious only under a certain description of 'perception.' It is less clear that we are able to consciously attend to many things at the same moment of time. Contemporary literature on the role of attention in perception is voluminous; one may begin with John Campbell, "Perceptual Attention," in *The Oxford Handbook of Philosophy of Perception*, ed. M. Matthen (Oxford: Oxford University Press, 2015), 587–601. For medieval views, see references in n. 20 below.

2 The phenomenological experience might also be accounted for by appealing to an imperceptible interval between distinct moments of time in which different objects are perceived. According to this interpretation, we do not really perceive several things at the same time but one after the other in quick succession, without noticing this. Aristotle rejects this possibility at *Sens.* 7, 448a19–31. Medieval question commentaries do not usually focus on this argument. See, however, Albert of Saxony(?), *Quaestiones super De sensu et sensato*, ed. J. Agrimi, in *Le 'Quaestiones de sensu' attribuite a Oresme e Alberto di Sassonia* (Florence: La Nuova Italia Editrice, 1983), qu. 19, 217.

when, say, a colour of an apple acts upon my eyes, it actualises my sight and I become aware of the apple. Perception is understood as assimilation: the sense power becomes like the object.³ Second, Aristotle is committed to a realist presupposition that the world is divided into individual substances, each of which has its own set of perceptual qualities. From a metaphysical point of view, these qualities are perceptual forms (later they were classified as accidental forms) of the object, and they are responsible for actualising our sense powers.⁴ These theoretical premises seem to entail that each act of perception corresponds to one and only one perceptual quality. When an external sense is actualised by an accidental form of the object, the potency to become like the object is actualised, and there is no potentiality left to be actualised by another quality. Hence, the power cannot be actualised by another object at the same time. Simultaneous perception of two distinct qualities seems to be metaphysically impossible.

On the basis of these presuppositions, it seems only natural to analyse perception as a relation between one perceptual quality and the corresponding sense power. If we understand how the colour of an apple actualises the sense of sight, and then give similar explanations for the other perceptual qualities and senses, we have a pretty good grasp of what it is to perceive. This is precisely the methodological approach that Aristotle and his medieval followers choose; they explain perception by focusing on the relation between a sense power and perceptual qualities of a single object.⁵ This method can be praised for analytic clarity, but it comes at a cost. It focuses on an unrealistic situation

3 Arguably, the famous dispute between the literalist and spiritualist interpretation of Aristotelian philosophy of mind is not relevant here. Regardless of whether the eyes literally turn red when we see a red object, or whether the change is only “spiritual,” the actualisation of the power by one object prevents it from being actualised by another object. However, as we shall see below, medieval authors think that the spiritualist interpretation can be used to solve the problem of simultaneous perception. For a summary of the dispute, see Mark A. Johnstone, “Aristotle and Alexander on Perceptual Error,” *Phronesis* 60 (2015): 310–38; Vicor Caston, “The Spirit and the Letter: Aristotle on Perception,” in *Metaphysics, Soul and Ethics: Themes from the Work of Richard Sorabji*, ed. R. Salles (Oxford: Oxford University Press, 2004), 245–320; see also the contributions in Martha Nussbaum and Amelie Oksenberg Rorty, eds., *Essays on Aristotle’s De anima* (Oxford: Clarendon Press, 1995), esp. 15–73.

4 A useful overview of Aristotle’s theory of perception and its medieval reception is Simo Knuuttila, “Aristotle’s Theory of Perception and Medieval Aristotelianism,” in *Theories of Perception in Medieval and Early Modern Philosophy*, ed. S. Knuuttila and P. Kärkkäinen (Dordrecht: Springer, 2008), 1–22.

5 This methodological approach can be seen, e.g., in *de An.* 2.5, 418a3–6; 2.12, 424a17–24; Thomas Aquinas, *Sentencia libri De anima*, ed. R.-A. Gauthier (Rome: Commissio Leonina / Paris: Vrin, 1984), 2.15, 132b75–134a135; *ibid.*, 2.24, 168a27–b75; *id.*, *Sentencia libri De sensu et sensato*, ed. R.-A. Gauthier (Rome: Commissio Leonina / Paris: Vrin, 1985), cap. 16, 90a98–91b198.

in which there *is* only one quality that acts upon one external sense – as if the perceiver were placed in a deprivation tank with only one perceptual stimulus available. All other factors that figure in our everyday engagement with the world are set aside for methodological reasons, and so are alternative possibilities for conceptualising perception. As a consequence, Aristotle and medieval philosophers (who by and large follow his approach⁶) do not analyse perception as a process by which we come to know our entire surroundings. They concentrate on the perception of individual objects.

Aristotle notices that his theory renders simultaneous perception problematic. He sets out to solve the problem in chapter seven of his *De sensu et sensibilibus*, but his argumentation is convoluted and his final answer remains philosophically challenging. Thus, John Buridan's (c.1295–1361) remark is not entirely unfair when he writes that: "This question is somewhat difficult because it is not usually discussed much, and because Aristotle resolves only what is obvious almost by itself, namely, that we perceive many things simultaneously."⁷ Buridan's point is that although Aristotle accepts simultaneous perception, he does not explain properly how it takes place. Buridan exaggerates, but it is true that Aristotle's argumentation leaves room for further clarification and development.

Medieval authors seized the opportunity to clarify Aristotle's view, and the present chapter aims to make sense of their interpretations. The main focus is on medieval commentaries on *De sensu*, written roughly between 1250

Aristotle's analysis is of course motivated by earlier accounts of perception (Plato, atomists) and he is responding to more focused philosophical problems.

6 To be sure, not all medieval theories of perception were Aristotelian in the strict sense, but since the focus here is on commentaries on *De sensu*, we can set aside theories that differ significantly from his view. It is notable, however, that traditional versions of the intromissive theory hold that perception begins with emission of visual rays from each point of a surface of *an object* (David C. Lindberg, *Theories of Vision from al-Kindi to Kepler* (Chicago: The University of Chicago Press, 1976), 58–60; cf. Roger Bacon, *Liber de sensu et sensato*, ed. R. Steele (Oxford: Clarendon Press, 1938), cap. 24, 122). Likewise, at least some versions of extramissive visual ray theories were thought to hold that the base of the visual cone is *one object*, not the whole visual field (cf. Albert the Great, *De sensu et sensato*, ed. S. Donati (Münster: Aschendorff, 2017), 1.5, 26b56–27a5; *ibid.*, 1.14, 52b39–50).

7 "Ista questio est aliquantulum difficilis, quia non solet multum tractari et quia Aristoteles de ea non determinat nisi illud quod est quasi per se manifestum, scilicet quod plura sentimus simul [...]" (John Buridan, *Quaestiones super librum De sensu et sensato*, ed. J. Toivanen, in "Medieval Commentators on Simultaneous Perception: An Edition of Commentaries on Aristotle's *De sensu et sensato* 7," *Cahiers de l'Institut du Moyen-Âge Grec et Latin* 90 (2021), qu. 21, 220.6–8).

and 1350.⁸ However, since the question is tangential to what Aristotle writes in *De anima* 3.2 and 3.7,⁹ I draw on commentaries on these sections when they help to illustrate the philosophical points made in relation to the *De sensu*. The aim is to clarify the way medieval authors understood the problem posed by Aristotle's theory and the argumentative strategies they used to solve it. As is typical of medieval commentaries on Aristotle, most authors repeat the same stock arguments, which were partially drawn from Aristotle himself, partially from other sources. The most important doctrinal innovations were made by Alexander of Aphrodisias. They were transmitted to Latin authors in Michael Scot's(?) translation of Averroes' epitomes on *Parva naturalia*, and after the 1260s they were directly accessible in William of Moerbeke's translation of Alexander's *De sensu*.¹⁰ Thirteenth and fourteenth century Latin authors used these works, but they ended up also suggesting new ideas in addition to received ones. This chapter discusses Albert the Great, Thomas Aquinas, John Felmingham(?), Radulphus Brito, John of Jandun, Albert of Saxony(?), John Buridan, and a couple of anonymous commentaries.¹¹

2 Four Versions of the Problem

The general structure of Aristotle's argument in *De sensu* 7 can be outlined as follows. Aristotle begins by arguing dialectically that (1) two perceptual qualities of the same genus (e.g. white and black) cannot be perceived

8 For a general overview on Latin translations and reception of the *Parva naturalia*, see Pieter De Leemans, "Parva naturalia, Commentaries on Aristotle's," in *Encyclopedia of Medieval Philosophy: Philosophy between 500 and 1500*, ed. H. Lagerlund (Dordrecht: Springer, 2011), 917–23.

9 *De An.* 3.2, 426b9–427a14; 3.7, 431a20–b1.

10 De Leemans, "Parva naturalia," 918–19; Börje Bydén, "Introduction: The Study and Reception of Aristotle's *Parva naturalia*," in *The Parva naturalia in Greek, Arabic and Latin Aristotelianism: Supplementing the Science of the Soul*, ed. B. Bydén and F. Radovic (Dordrecht: Springer, 2018), 18–23.

11 For catalogues of medieval commentaries on *De sensu*, see esp. Sten Ebbesen et al., "Questions on *De sensu et sensato*, *De memoria* and *De somno et vigilia*: A Catalogue," *Bulletin de Philosophie Médiévale* 57 (2015): 59–115; and Jozef de Raedemaeker, "Une ébauche de catalogue des commentaires sur les *Parva Naturalia*, parus aux XIII^e, XIV^e et XV^e siècles," *Bulletin de Philosophie Médiévale* 7 (1965): 95–108. The authorship of the commentaries attributed to John Felmingham and Albert of Saxony are uncertain: see Jole Agrimi, "Les *Quaestiones de sensu* attribuées à Albert de Saxe: Quelques remarques sur les rapports entre philosophie naturelle et médecine chez Buridan, Oresme et Albert," in *Itinéraires d'Albert de Saxe, Paris – Vienne au XIV^e siècle*, ed. J. Biard (Paris: Vrin 1991), 191–204.

simultaneously unless they form a mixture (7, 447a29–b21); he argues that (2) *a fortiori*, it is impossible to perceive two heterogenous qualities (e.g. white and sweet¹²) simultaneously (7, 447b21–448a19); he proceeds to his own position and proves that (3) white and sweet *can* be perceived simultaneously by the common sense (*koinè aisthēsis*); finally, he (4) extends the same solution to two qualities that affect the same external sense (7, 449a18–20).¹³ Each step in the argument contains difficult elements, and the last step especially remains rather elusive. Medieval authors usually do not elaborate on it and, although the philosophical solutions that they offer to the general problem are not particularly complex, their argumentation can be tangled at times, mainly because there are several different issues at stake. There are many different ways to understand what the problem is about, and some solutions pertain only to certain aspects of the general question. Arguments tend to mix, and the authors do not clearly indicate which problem they are addressing in each step. In order to understand medieval discussions, it is important to be clear about this structural complexity.

In what follows, I present a heuristic framework of four different scenarios of how two objects or qualities could in principle be perceived simultaneously, and point out the main problems that medieval authors saw in them. The framework is anchored in Aristotle's dialectical approach at the beginning of *De sensu* 7, but it is important to remember that usually medieval commentators did not present their arguments in an orderly manner. The following should be understood as an effort to systematise medieval arguments rather than as a reflection of the way medieval authors actually proceeded.

The four scenarios are based on two major divisions. The first division is between homogenous and heterogenous qualities. Simultaneous perception may be about two qualities of *the same* genus, such as two colours; or it can be about two qualities that belong to *distinct* genera, for instance white and sweet. The second division concerns the various powers of the soul: two perceptual

12 The white and sweet substance was sometimes identified with milk (as Aristotle probably did): "Item, sicut album et dulce in lacte sunt idem subiecto et differunt formaliter, sic dicunt de sensu communi" (Anonymous of Paris, *Quaestiones super librum De sensu et sensato*, ed. J. Toivanen, in "Medieval Commentators," qu. 37, 186.20–22). Some Latin authors were thinking of sugar instead: "[...] possibilia simul esse in eodem, ut album et dulce in zuc[c]aro" (Albert the Great, *De homine*, ed. H. Anzulewicz and J. R. Söder (Münster: Aschendorff, 2008), 268b70–269a1). The example is peculiar because we do not see the thing while we are eating it. John of Felmingham(?) improves it by placing sweetness (*dulce*) under smells (*odor*), not flavours (John Felmingham(?), *Expositio in librum De sensu et sensato*, ed. J. Toivanen, in "Medieval Commentators," cap. 9, 190.25–191.2).

13 For a detailed analysis of Aristotle's argumentation, see Pavel Gregoric, *Aristotle on the Common Sense* (Oxford: Oxford University Press, 2007), 129–62.

qualities may be perceived by *one external sense*, by *two external senses*, or by *the common sense*.

The first scenario looks like this:

- (A) Two homogenous qualities form a mixture, which is perceived by one external sense.

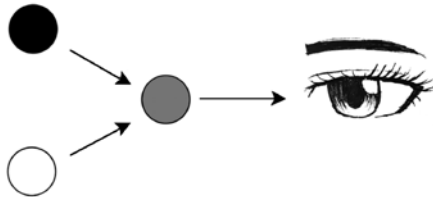


FIGURE 5.1

There are two ways in which this scenario can be understood. Either the two qualities form a real mixture in which the original qualities are not preserved, or they are just mixed in such a way that small particles of each are juxtaposed and the original qualities remain distinct in the mixture. In the first case, the scenario is unproblematic. It is also trivial and begs the question because it is not a case of perceiving two things simultaneously; the mixture is only one quality.¹⁴ The second case, by contrast, looks like a promising candidate for a case of simultaneous perception of two qualities. Aristotle has this kind of scenario in mind when he puts forth a dialectical argument according to which only the stronger of the qualities present in the mixture can be perceived, and when they are equally strong, neither is perceptible as such.¹⁵ Aristotle does not accept this view. Neither do medieval authors, who think that when two

14 "[...] ex utroque sensibili fiat compositum tertium, tunc enim neutrius sensibilis sensus erit per se. Unum enim obscurat alterum (per secundam suppositionem), quare aut nihil sentietur omnino, vel sentietur unum sensibile commixtum ex utroque et neutrum in se [...]" (Adam of Buckfield, *Commentarium in Aristotelis De sensu et sensato [Recensio II]*, ed. J. Toivanen, in "Medieval Commentators," 153.2–5.) This issue is related to Aristotle's discussion of colours in *Sens.* 3, 439b20–440b23.

15 See, e.g., Thomas Aquinas, *Sent. Sens.*, cap. 16, 89a35–46, 90a19–23. This argument seems to presuppose that the stronger quality remains perceptible until the qualities are equal, and only then does a third quality (a mixture of the two) emerge. Thus, black coffee tastes like coffee, and pure milk tastes like milk. Adding a splash of milk to coffee does not remove the taste of coffee – the taste just becomes a bit milder. However, if one prepares a mixture that contains an equal amount of coffee and milk, the mixture acquires a new taste (say, the taste of café au lait), and then neither coffee nor milk can be tasted anymore.

substances are really mixed together, the mixture always acquires new perceptual qualities (we will come back to this below).

Medieval authors do not always distinguish scenario *A* from another case in which two distinct objects act upon one external sense. However, some of them write about movement that is caused by two objects in one external sense instead of (or as an alternative to) the perception of a mixture. Their idea is that two external objects may cause distinct movements directly in the power of the soul.¹⁶ Thus, we may discern the second scenario:

- (B) Two distinct homogenous qualities affect one external sense simultaneously.

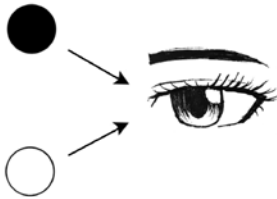


FIGURE 5.2

This scenario is problematic for metaphysical reasons. As already mentioned, the fundamental starting point in Aristotelian theories of perception is that external senses are in potentiality with respect to their proper objects. When an external object is present to the senses, its perceptual quality actualises the corresponding potentiality, and the power is “informed” (i.e., it receives the accidental form) of the object. Moreover, the power is actualised fully – it becomes like the object, and as long as the object is present, there is no potentiality to another object left. Thus, when the power of sight is actualised by the perceptual form of the black ball, it cannot perceive the white ball.

The reason why it seems plausible to think that the potentiality is used up by one quality is that if one power could be simultaneously actualised by two forms, it would be similar to two qualities at the same time. This seems problematic, especially when the qualities are contraries, such as black and white, or sweet and bitter. Nothing can have two contrary properties in the same respect at the same time.¹⁷ As it is impossible for an apple to be both red and

16 These two scenarios are not always clearly distinguished, but medieval authors are aware that they are different: see Thomas Aquinas, *Sent. Sens.*, cap. 16, 89b62–77; John Felmingham(?), *Exp. Sens.*, cap. 9, 189.5–13.

17 Thomas Aquinas, *Sent. Sens.*, cap. 16, 90a123–b158; cap. 17, 92a6–93a34. Gregoric notes that Plato used this principle to justify the tripartite division of the soul in *Republic* 4, 436b8–9, and he shows that the full strength of this problem was recognised by Alexander of

green (barring the sophism that it may be half red and half green), so external senses cannot be informed by contrary qualities because they become similar to what they perceive.

Another problem in this scenario is related to the dialectical argument according to which only stronger of two movements/qualities can be perceived. However, this time the two qualities are not mixed into one. They simultaneously cause changes in one external sense, but only the stronger of the two changes is perceived while the other remains unnoticed – for instance, the flame of a candle cannot be seen in bright sunlight, even though it affects the sense of sight in exactly the same way it would in a dark room. If the two movements happen to be equal, neither of them is properly perceived. For instance, it may be impossible to hear what people are saying if the background music is very loud, and it is equally impossible to hear the lyrics if people are speaking loudly over them.¹⁸

These two scenarios together seem to entail that two objects are either mixed together, in which case perceiving them is perceiving a mixture; or they act on the sense separately, in which case it is not possible to perceive both of them. The stronger object prevents noticing the weaker because the sense power cannot be fully actualised by two perceptual forms at the same time.

The third scenario differs from the previous two by involving perceptual qualities that belong to distinct genera. In order to perceive them, we need to add more external senses to the picture:¹⁹

- (C) Two heterogenous qualities (e.g., sound and colour) affect two different external senses simultaneously.

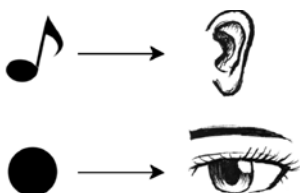


FIGURE 5.3

Aphrodisias (Pavel Gregoric, "Alexander of Aphrodisias on the Common Sense," *Filozofski vestnik* 38:1 (2017): 47–64).

18 Thomas Aquinas, *Sent. Sens.*, cap. 16, 89a49–b77; John Buridan, *Quaest. Sens.*, qu. 21, fol. 39rb.

19 Two heterogenous qualities, such as white and sweet, may belong to one object, but that does not make them one perceptual quality, "wheet" or "swite." See, e.g., Thomas Aquinas, *Sent. Sens.*, cap. 16, 89b78–91.

Although this scenario seems unproblematic at first sight, many authors were ready to admit that perception involves something more than just passive reception of perceptual qualities of external objects; it requires that the perceiver becomes aware of these qualities. Following a suggestion made by Aristotle (and later emphasised by Augustine and Avicenna), medieval authors pointed out that one needs to pay attention in order to perceive. If someone focuses intensely on listening, she may fail to see things in front of her eyes.²⁰ Thus, even though there is no metaphysical reason to question simultaneous actualisation of two external senses by two objects,²¹ it is still possible that their objects are not perceived due to a psychological incapability to concentrate on many things at once.

In this context, the attention of the soul is usually framed in terms of a stronger and weaker movement that different perceptual qualities cause in the external senses. When two senses are acted upon simultaneously, the stronger movement prevents the perceiver from noticing the weaker. At the same time, the weaker movement diminishes the stronger as if by subtracting the weaker from the stronger in such a way that if the movements were to be equal, neither would be perceived.²² Some authors also draw from the Augustinian/Avicennian tradition and point out that the internal attention of the soul (instead of the strength of the input from without) may explain why one object is perceived instead of another.²³ In both cases the result is the same: two qualities cannot be perceived simultaneously, since (1) they belong to different genera and cannot be mixed into one perceptual quality; (2) if they are unequal, only the stronger is perceived; (3) if they are equal, neither is perceived.

20 *Sens.* 7, 447a14–16. Aquinas argues that both external and internal movements (loud sound, emotion) may prevent the perception of other things (Thomas Aquinas, *Sent. Sens.*, cap. 16, 89a25–33). The idea that one needs to pay attention to perceive was a central feature in medieval theories of cognition, and in addition to Aristotle's remarks, Augustine and Avicenna influenced the development of this idea. See, e.g., Deborah Brown, "Augustine and Descartes on the Function of Attention in Perceptual Awareness," in *Consciousness*, ed. S. Heinämäa et al., 153–75; Robert Pasnau, *Theories of Cognition in Later Middle Ages* (Cambridge: Cambridge University Press, 1997), 125–58; Juhana Toivanen, *Perception and the Internal Senses: Peter of John Olivi on the Cognitive Functions of the Sensitive Soul* (Leiden: Brill, 2013), 163–91.

21 See, e.g., Radulphus Brito, *Quaestiones super librum De sensu et sensato*, ed. J. Toivanen, in "Medieval Commentators," qu. 25, 178.5–11.

22 Thomas Aquinas, *Sent. Sens.* cap. 16, 89b78–90a97; see also Albert the Great, *De sensu* 3.3, 100b51–101a4.

23 Albert the Great, *De sensu* 3.3, 101a6–11.

Medieval authors also repeat Aristotle's dialectical argument from *locus a maiori apparentia*, which states that it should be easier to perceive simultaneously two colours than a colour and a flavour because two colours are more similar to each other than two heterogenous qualities. In other words, given that scenario *B* has been shown to be impossible, also scenario *C* must be rejected.²⁴ As Pavel Gregoric has pointed out, the argument is basically valid but not very convincing – one easily thinks that scenario *C* is less problematic than scenario *B* because the latter entails the metaphysical difficulty mentioned above (one power can be actualised by only one thing at any given time) but the former does not.²⁵ Convincing or not, Aristotle puts forth this dialectical argument and medieval authors often follow suite, but since they eventually reject it, the order of difficulty is in the end of no importance to them.

The final scenario of the heuristic framework gives us the main ingredient of the solution to the original problem, as it adds the common sense to the picture.²⁶ This unifying power of the sensory soul is responsible for perceiving all perceptual qualities of the five external senses, combining them, and apprehending their diversity:

- (D) Two perceptual qualities are simultaneously perceived by the common sense. There are two versions of this general view:
 (D₁) Two heterogenous qualities are transmitted to the common sense via two external senses.

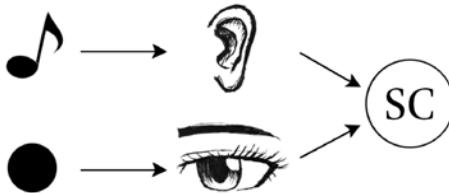


FIGURE 5.4

24 *Sens.* 7, 447b21–448a19; Thomas Aquinas, *Sent. Sens.*, cap. 16, 90a98–b162.

25 Gregoric, *Aristotle on the Common Sense*, 134–35.

26 Medieval authors occasionally suggest that the common sense differs from external senses because it has a primitive ability to perceive many qualities simultaneously: “Arguitur quod non, quia sensus unus est unius primae contrarietatis (secundo *De anima*); sensus communis non est huiusmodi; ergo etc. [...] Ad rationes. ‘Unus sensus unius etc.’ Philosophus intellegit de exterioribus, non de interioribus, quia interiores sensus ad plura se extendunt.” (Anonymous of Paris, *Quaest. Sens.*, qu. 37, 185.21–22, 188.5–6.)

(D₂) Two homogenous qualities are transmitted to the common sense via one external sense.

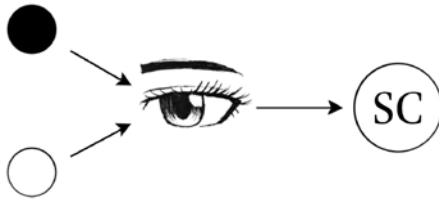


FIGURE 5.5

Medieval authors usually focused on the scenario *D* (both versions). The main reason for positing the common sense is that there has to be a power that is able to compare two different kinds of perceptual qualities (typically, white and sweet) to each other and distinguish them. As Averroes puts it in an argument, which is based on *De anima* 3.2 and became extremely popular in the subsequent commentary tradition:

If the final percipient were in the eyes, or in the case of taste in the tongue, then it would be necessary to judge by two different [powers] when we judge sweet to be different from white. [...] For if it were possible to judge these two to be different through two different powers, each of which individually apprehends one of those two, then it would be necessary that when I would sense that a thing is sweet and you that it is white, and I did not sense what you sensed nor you what I sensed, that I apprehend my sensible to be different from yours, although I do not sense yours [...]. This is clearly impossible.²⁷

The ability to perceive two heterogeneous qualities simultaneously ($= D_1$) was unanimously accepted, but it is not entirely without problems. First, the metaphysical problem that one power can be actualised by only one perceptual

27 "Si ultimum sentiens esset in oculo, aut in lingua in gustu, tunc necesse esset, cum iudicemus dulce esse aliud ab albo, iudicare per duo diversa. [...] Si enim esset possibile iudicare hec duo esse diversa per duas virtutes diversas quarum utraque singulariter comprehenderet alterum illorum duorum, tunc necesse esset ut, quando ego sentirem hoc esse dulce et tu illud esse album, et ego non sensi quod tu sensisti neque tu quod ego, ut ego comprehenderem meum sensibile esse aliud a tuo, licet non sentiam tuum [...]. Et hoc est manifeste impossibile." (Averroes, *Commentarium Magnum in Aristotelis De anima libros*, ed. F. S. Crawford (Cambridge, MA: The Medieval Academy of America, 1953), 2.146, 350–51; trans. R. C. Taylor, in Averroes, *Long Commentary on the De anima of Aristotle* (New Haven: Yale University Press, 2009), 267–68, translation slightly modified.)

quality at a time was raised also in relation to the common sense. Second, even when the ability of the common sense to perceive many qualities simultaneously is considered unproblematic, its dependence on the external senses means that some problems remain. In particular, D_2 runs into the problems of scenario *B* because it presupposes that one external sense can transmit two perceptual qualities to the common sense at the same time.²⁸ Likewise, D_1 depends on *C* and raises the question concerning the attention of the soul. Is the common sense able to perceive simultaneous movements of the external senses equally well? As a matter of fact, adding the common sense to the picture makes this problem more acute. If there was no need to unite the two perceptual qualities somewhere, the view that one power can pay attention to only one thing would not be so central.

3 Strategies for Solving the Problem

Like Aristotle, medieval authors acknowledge without hesitation that we have the ability to perceive several things simultaneously. Their starting point is our phenomenological experience, and sometimes they settle for that. A radical example is an anonymous commentator, who squeezes his entire response into a terse statement:

It must be said that one sense can discriminate contrary [qualities], and it is pointless to demonstrate this, because this is experienced by everyone. And it is pointless to give reason to those things that we experience by the senses.²⁹

Given that Aristotle devotes almost one fifth of *De sensu* to this philosophically challenging issue, the paucity of this answer is next to hilarious. However, it shows how important phenomenological experience was for medieval authors.

Thus, instead of questioning the phenomenon, the main challenge for medieval authors was to solve the aforementioned problems in a way that is compatible with the general philosophical assumptions of Aristotelian theory of perception. Different strategies were used, and in what follows I shall divide them into two groups: the metaphysical and the psychological. It should be

²⁸ Albert of Saxony(?), *Quaest. Sens.*, qu. 19, 218.

²⁹ "Dicendum quod unus sensus potest simul iudicare contraria, et istud est frivolum demonstrare, quia illud quilibet experitur. Et de eis quae ad sensum experimur frivolum est dare rationem." (Anonymous of Paris, *Quaest. Sens.*, qu. 35, 182.1–3.)

noted that medieval authors usually combined these strategies. They used several arguments to support the position that simultaneous perception is possible, and in their discussions the arguments tend to mix together in such a way that it is often difficult to see what the main point is. The division into two groups of arguments should therefore be taken as a way to analyse medieval discussions in a systematic way rather than as a summary of any medieval author's position.

3.1 *Metaphysical Strategies*

As I already mentioned, scenario *A* represents a case of perceiving two things simultaneously only if the perceptual qualities of the original ingredients remain distinct from each other in the mixture. Medieval theories of elemental composition are rather complicated, and we cannot go into the details here. Suffice it to note that the basic idea, which medieval authors inherited from Aristotle, is that the ingredients and their original qualities remain only potentially distinct in a real mixture. The exact manner in which this potentiality should be understood was a philosophical discussion of its own, and medieval authors debated also whether composition pertains to the ingredients or only their qualities.³⁰ What is crucial from our point of view is that when two elements form a mixture, their original qualities do not remain actual.

This theory is about elemental composition, and it is not clear whether it applies also to mixtures that are made of non-elemental ingredients. Medieval authors think that colours behave in this way; the mixture of white and black is a new colour. However, the mixture of wine and water – or, to use another example, coffee and milk – may not be similar in this respect.³¹ Aristotle distinguishes real mixtures from cases where the ingredients are only blended together, and in some cases it is not possible to tell whether the combination is a blend or a mixture; juxtaposition of small dots of white and black appears grey from a distance, and likewise the blend of coffee and milk tastes *café au lait* even if it may not be a real mixture metaphysically speaking.³²

30 See, e.g., Rega Wood and Michael Weisberg, "Interpreting Aristotle on Mixture: Problems about Elemental Composition from Philoponus to Cooper," *Studies in History and Philosophy of Science* 35 (2004): 681–706.

31 The example of coffee and milk is more illustrative because water has no taste of its own.

32 *GC* 1.10, 327b33–328a15. Note that Aristotle seems to think that wine mixed with water is a real mixture; *GC* 1.10, 328a23–31. He argues in *Sens.* 3, 440b1–17 that the combination of two colours does not preserve the original qualities. Thus, when he raises the argument in *Sens.* 7, 447a11–22 that it is not possible to perceive both wine and water, it is likely that he is using the example of diluted wine without really accepting its basic premise, that the taste of wine remains unchanged in the mixture and is only made less strong by the presence of water (see also *Sens.* 4, 442a13–18). Albert the Great points out that in scenario *A*,

When medieval authors raise the argument that only the stronger of two perceptual qualities can be perceived, they sometimes point out that scenarios *A* and *B* should not be treated identically. Most of them focus on scenario *B*, and even when they pose the original problem in terms of *A*, their final answers tend to discreetly shift to *B*. This shows that they consider scenario *A* somewhat trivial and mention it only because Aristotle does. However, there may also be a more fundamental reason for this move: if the ingredients remain distinct and the perceived object is not a real mixture but formed by a juxtaposition of small particles, the scenario is not *A* but *B*. The fact that coffee and milk happen to be blended in the same mug does not make a relevant difference to a case in which two perceptible objects are side by side. The size of the particles is insignificant. Thus, scenario *A* is trivial because it is either a case of perceiving one thing (real mixture) or a case in which two distinct qualities act on one sense simultaneously, which is scenario *B*.

One of the most widely used strategies to solve the metaphysical problem of scenarios *B* and *D* (that no power can be actualised by more than one object at any given time) was to make a distinction between two modes of being. A perceptual quality has a material or natural mode of being in the object, and a spiritual or “intentional” mode of being in the medium and in the sense organ. Intentionality here should not be understood in its modern sense, that is, as a distinctly mental phenomenon (cf. Brentano’s theory in chapter eight below). Rather, the term refers to a special way in which perceptual forms exist in the medium and in the sense organs. One external object cannot be both white and black in same respect, because the colour has a material mode of being in the object. However, since neither the air between the object and the perceiving subject nor the eyes of the subject change their colour when they receive the sensible species of a colourful thing, they can receive the species of two colours simultaneously. Thus, Thomas Aquinas argues:

For a natural body receives forms according to their natural and material being, according to which they have contrariety, which is why the same body cannot simultaneously receive whiteness and blackness. But the senses and the intellect receive the forms of things spiritually and

two qualities do not remain distinct but make up a new quality; perception of mixture is perception of a single quality. He mentions colours and sounds, but not other proper sensibles. (Albert the Great, *De sensu* 3.3, 102a18–27.)

immaterially according to an intentional being, in such a way that they have no contrariety.³³

As is well known, the idea of an intentional existence of the sensible species is central to medieval theories of perception. It goes back to Alexander of Aphrodisias, and it was communicated to the Latin world through Averroes, among others.³⁴ Most medieval authors accept it, and they use it to argue that neither the sensible species nor the movements caused by them in the senses exclude or are contrary to each other – not even when the qualities are contrary in their material mode of being.³⁵

This strategy can be used to solve the metaphysical problem but even there its scope is limited. In the Aristotelian tradition, sight was typically taken to be the paradigmatic sense, but there are medieval authors who point out that in certain respects sight is a special case. For instance, Radulphus Brito argues:

[...] those senses, which undergo a real change with respect to the organ, and a spiritual change with respect to the power that exists in the organ – such are touch, taste, and smell [...] – cannot perceive different perceptual qualities simultaneously, because in those senses two changes take place: a real one with respect to the organ, and a spiritual one with respect to the power. And therefore, if these powers perceived different perceptual qualities, they would be [in] contrary [states] simultaneously.³⁶

33 “Corpus enim naturale recipit formas secundum esse naturale et materiale, secundum quod habent contrarietatem, et ideo non potest idem corpus simul recipere albedinem et nigredinem; sed sensus et intellectus recipiunt formas rerum spiritualiter et immaterialiter secundum esse quoddam intentionale prout non habent contrarietatem.” (Thomas Aquinas, *De sensu*, cap. 18, 99a191–b210, trans. K. White, in Thomas Aquinas, *Commentaries on Aristotle's On Sense and What Is Sensed and On Memory and Recollection* (Washington DC: The Catholic University of America Press, 2005), 156.)

34 Richard Sorabji, “From Aristotle to Brentano: The Development of the Concept of Intentionality,” *Oxford Studies in Ancient Philosophy*, supplementary volume (1991): 227–59.

35 Illustrative passages can be found, e.g., in Albert the Great, *De hom.*, 181a21–b41; Peter of Auvergne, *Quaestiones super De sensu et sensato*, ed. K. White, in *Two Studies Related to St. Thomas Aquinas' Commentary on Aristotle's De sensu et sensato together with an Edition of Peter of Auvergne's Quaestiones super Parva naturalia*, PhD diss. (Ottawa: University of Ottawa, 1986), vol. 2, qu. 56, 111–12; “Istud autem est quia colores non causant colores medios, nisi quia causae eorum commiscuntur ad causandum colores quantum ad esse reale eorum. Sed istae species albi et nigri habent esse in medio spiritualiter solum. Ideo non commiscuntur.” (Radulphus Brito, *Quaest. Sens.*, qu. 25, 178.17–21.)

36 “[...] illi sensus, qui immutantur immutatione reali ratione organorum et immutatione spirituali ratione potentiae existentis in organo – sicut est tactus et gustus et odoratus

Sight and hearing are the only external senses that can receive many sensible species simultaneously because the other three senses require a material change in the organ.³⁷ Our flesh becomes hot when we touch a hot object, our tongues are covered with a sweet liquid when we taste honey, and our nostrils are filled with odour in a material mode of being. In each of these cases the organ changes and cannot receive another quality any more. This means that scenario *B* yields different conclusion depending on what sense we are talking about.

Given that scenario *D* also depends on the ability to receive many species simultaneously, it seems clear that the common sense must be similar to sight in this respect. Brito does not explicitly say whether the organ of the common sense undergoes a material change when it receives the sensible species from the external senses, but at least Albert the Great thinks that it does not: also touch and taste transmit the cognitive information to the common sense in a spiritual form.³⁸ Of course this does not help us to taste two distinct flavours simultaneously, since if the bottleneck is in the sense of taste (scenario *B*), only one species can be transmitted to the common sense. In spite of these limitations, the idea of the intentional mode of being was a handy device to overcome the main metaphysical problem.

Some medieval authors raise a further issue by asking how many acts the common sense needs in order to perceive many qualities. For instance, Albert the Great argues that it has only one act, which brings together information from different external senses. When the colour of a swan actualises my sense of sight and its cry does the same to my sense of hearing, I can perceive both of these qualities simultaneously either by becoming aware that the

[...] – non possunt simul sentire diversa sensibilia, quia in talibus fit dupliciter immutatio: realis ratione organi et spiritualis ratione potentiae. Et ideo si simul sentirent diversa sensibilia, contraria essent simul." (Radulphus Brito, *Quaest. Sens.*, qu. 25, 178.21–27.) The same point is made by the Anonymous of Merton: "Et ideo, quia odor et sapor multiplicat se materialiter, immutatio unius odoris impedit immutationem alterius. Sed non est sic de albo et nigro, nam album et nigrum multiplicat se spiritualiter, et ideo immutatio unius non impedit immutationem alterius." (Anonymous of Merton, *Quaestiones super De sensu et sensato*, ed. J. Toivanen, in "Medieval Commentators," qu. 15, 175.12–16.)

37 Brito differs from Aquinas, who thinks (1) that the only completely spiritual sense is sight, and (2) that the material change of the organ applies only to touch and taste, while in smell and hearing it applies to the object (Thomas Aquinas, *Summa Theologiae*, ed. P. Caramello (Turin: Marietti, 1948–50), 1.78.3). The objects of smell and hearing interfere with each other in the medium and can be affected by material changes of the medium, such as wind. For an analysis of medieval discussions concerning the material change in perception, see Thomsen Thörnqvist's chapter in this volume (chapter six).

38 Albert the Great, *De sensu* 3.6, 110b32–40; id., *De hom.*, 262b61–67.

sound is not the colour, or by attributing both the sound and the colour to the same external object. Albert seems to suggest that simultaneous perception is possible only when the common sense combines or compares many perceptual qualities to each other. Simultaneous perception is an act of judgement.³⁹

A similar strategy is used by John of Jandun in his commentary on *De sensu*. He compares perceptual powers of the soul to the intellect and claims that in both cases cognising many things simultaneously is possible only if it takes place by one act of the soul. This claim is in a sharp contrast to what he writes in his commentary on *De anima*. Michael Stenskjær Christensen shows in his contribution (volume three, chapter six) that when Jandun develops his monopsychist theory of intellectual cognition, he acknowledges that both the intellect and the sensory part of the soul are able to have several distinct cognitive acts at the same time. At this stage it is not possible to say whether the disparity between the two commentaries indicates that Jandun changed his mind after finishing the commentary on *De sensu*, or whether it boils down to contextual issues.⁴⁰ At any rate, he argues in the earlier commentary that the act that brings together two distinct qualities is a judgement concerning their difference or concurrence (*diversitas et convenientia*). One of his arguments concerns scenario *D*₂ and it goes as follows:

Someone might doubt about one particular sense in relation to different proper sensibles (such as sight in relation to white and black), whether it comprehends them simultaneously by a single act. And it can be briefly said that yes, insofar as they concur (*conveniunt*) or differ. However, the judgement concerning this concurrence or difference is in the particular sense initially and incompletely, and it is in the common sense by way of completion.⁴¹

39 Albert the Great, *De sensu* 3.6, 110a13–20. Peter of Auvergne seems to think that senses can have only one act at a time, but that it is possible to make a conceptual distinction between seeing black and seeing white (Peter of Auvergne, *Quaest. Sens.*, vol. 2, qu. 56, 111).

40 The commentary on *De sensu* dates from 1309, and the commentary on *De anima* is written between 1317–19 (Jean-Baptiste Brenet, “John of Jandun,” in *Encyclopedia of Medieval Philosophy*, ed. H. Lagerlund, (Dordrecht: Springer, 2011), 627).

41 “Sed aliquis posset dubitare de uno sensu particulari respectu diversorum sensibilium propriorum, ut est visus respectu albi et nigri, utrum comprehenderet ea simul unica actione. Et potest breviter dici quod sic, secundum quod conveniunt aut differunt. Tamen illud iudicium de illa convenientia vel differentia est initiative et minus complete in sensu particulari, complete autem in sensu communi.” (John of Jandun, *Quaestiones super librum De sensu et sensato*, ed. J. Toivanen, in “Medieval Commentators,” qu. 34, 208.6–11.) See also John of Jandun, *Quaestiones super librum De anima* (Venice: Hieronymus Scotus,

Judgement (understood as an act of comparison) is the fundamental explanatory component that makes simultaneous perception possible. This interpretation has an important advantage. Defining perception as reception of sensible species would entail the problematic consequence that one power must be simultaneously actualised by two contrary qualities – which seems impossible because one thing cannot have opposite properties at the same time. An act of judgement concerning opposites as opposites does not entail this contradiction.⁴²

John Felmingham(?) suggests a different theory. He argues that already the external senses may have separate acts by which they perceive many qualities at the same time:

[...] many perceptual qualities of one external sense can be simultaneously perceived by one external sense – in a confused way with one act, and distinctly by different acts. And many perceptual qualities that belong to different genera can be simultaneously perceived by one common sense, as it has been said.⁴³

In a similar vein, an anonymous author (hereafter Anonymous of Paris) dedicates a separate question to the issue, and his main argument is that the common sense can have either one or many acts, depending on whether it perceives two qualities in relation to each other or separately:

[...] these perceptual qualities [...] can be considered absolutely or in comparison with each other, [i.e.] according to their differences. And then I say that if these perceptual qualities are cognised by asserting the difference between them in that way, then they are cognised [by one sensation]; but if not, not. The first claim is clear, because a sense that asserts the difference between certain things, cognises them under the aspect of

1587), 2.36, 211–12. The analogy between the intellect and the senses was often used to illuminate how several objects can be cognised simultaneously. The intellect can understand many things only if they are connected to each other (for instance, the premises and the conclusion of an argument), and likewise the common sense must bring different sensible species together in a judgement. See, e.g., Thomas Aquinas, *ST* 1.85.4; John Buridan, *Quaest. Sens.*, qu. 21, 219.10–14.

42 Thomas Aquinas, *Sent. Sens.*, cap. 18, 99b219–20.

43 “[...] plura sensibilia unius sensus particularis possunt simul sentiri ab uno sensu particulari modo confuso una actione, et distincte per diversas actiones. Et sensibilia plura diversi generis simul pos<sunt> sentiri ab uno sensu communi, ut dictum est.” (John Felmingham(?), *Exp. Sens.*, cap. 9, 193.2–5.) Here and elsewhere, the angle brackets indicate my additions.

difference; but this aspect is one, and from it one cognition is received. [...] It can be said in another way that they are cognised absolutely and not in comparison to each other, because [...] the common sense, which perceives diverse perceptual qualities, is one in substance but many in account (*diversus in ratione*) in relation to the various perceptual qualities it perceives; but this would not be the case if it cognised them by one sensation; therefore, it does not cognise them by one sensation. Likewise, Aristotle says that just like we see that white and sweet are the same in subject but are different in thought and formally, so the common sense is different in thought when it perceives these qualities. And this would not be so, if it perceived them by one sensation; wherefore etc.⁴⁴

The author accepts that the comparison between white and sweet must be done by one act. However, he argues that the common sense can also perceive these qualities without relating them to each other. In this case it needs two acts, one for each object. Thus, while Albert claimed that the common sense is capable of perceiving two qualities simultaneously only because it makes a unity out of them, Anonymous of Paris and John Felmingham(?) accept the possibility of tasting sweet and seeing white without judging that they are not the same quality, and apparently also without judging whether or not they belong to the same object in the external world.

The final argument in the quoted passage is related to Alexander of Aphrodisias' explanation of how the common sense can perceive many qualities simultaneously. Alexander uses the famous illustration of the centre of a circle, which is connected to the circumference by several lines. On the one hand it is numerically one and indivisible point; on the other hand, it can be understood as an end-point of one line, and as such, it is different from its

44 "[...] ista sensibilia [...] possunt considerari absolute, vel ut habent comparisonem ad alterum, ut unum est differens ab altero. Et tunc dico quod si ista sensibilia cognoscuntur sic, ponendo differentiam inter ipsa, sicut cognoscuntur <n> tur <una sensatione>; sed si non, non. Primum patet, quia sensus, qui ponit differentiam inter aliqua, cognoscit illa sub ratione differentiae; sed illa ratio est una ex qua sumitur una cognitio. [...] Aliter potest dici quod cognoscantur absolute et non in comparatione[m], quia [...] sensus communis sentiens diversa sensibilia est unus substantia sed per comparisonem ad illa diversus est in ratione. Sed hoc non contingere[n]t si illa una sensatione cognosceret; ergo non una cognoscit. Item, dicit quod sicut videmus quod album et dulce sunt idem subiecto, differentia autem secundum rationem et formam, sic sensus communis est diversus secundum rationem, ut illa sentit. Et hoc non esset si sensaret {sic} illa una sensatione; quare etc." (Anonymous of Paris, *Quaest. Sens.*, qu. 36, 183.20–184.14.) The square brackets indicate letters and words which are present in the MS but which I consider to be scribal errors.

role as the end-point of another line.⁴⁵ Medieval authors typically accept this idea and use the illustration, but the Anonymous of Paris gives it an interesting twist. He argues that unless the common sense is able to have many simultaneous acts that are distinct from each other, there is no reason to say that it is diversified in any way.

The author proposes also another argument for his view that the common sense can have several acts simultaneously. He points out that cognitive acts of the sensory powers of the soul are not substantial but accidental.⁴⁶ Since there is nothing inherently problematic in having two or more accidental qualities at the same time, the common sense can perceive simultaneously white and sweet – and the author's point is that these accidental properties are not one but two acts. This argument cannot be applied to the case of homogenous qualities, such as black and white (scenario D_2). The author solves it by appealing to the intentional mode of being (*esse intentionale*). He argues that even contrary qualities can inhere in the same power insofar as they do not cause a material change in the organ. The sense of sight is similar to the common sense (scenario *B*). It undergoes only a spiritual change and can have several perceptual acts simultaneously, for instance, when it perceives white and black.⁴⁷

So far so good. But how about the other external senses? Is it possible to taste, smell, feel, or hear many things at the same time? One might expect the answer to be negative, because these senses function only if their organs undergo a material change. However, the author thinks otherwise. When addressing a typical objection – which states that since the intellect is not able to have many simultaneous acts, *a fortiori* the senses must lack this ability⁴⁸ – he answers that: “I say that this does not follow, because senses receive [species] by the mediation of material organs, which are divisible. Therefore, they can receive

45 Gregoric, “Alexander of Aphrodisias,” 56–62. The illustration is used also by Averroes, *Comm. magnum in De an.* 2.149, 355–56; *Long Commentary*, 271–72.

46 “Ad rationes in oppositum dico quod unus actus substantialis est un<i>us tantum. Sed istae sensationes non sunt substantiales sed accidentales, et ideo [in] plures possunt ibi esse.” (Anonymous of Paris, *Quaest. Sens.*, qu. 36, 185,5–7.)

47 “Et sicut dico de sensu communi, sic possum dicere de sensu particulari, quia visus cognoscens album et nigrum cognoscit album et nigrum ut sunt colores et ista etiam sencundum se. Tunc arguitur: sicut se habent album et nigrum ad immutationem medii, sic se habent ad immutationem organi; sed in medio sunt diversae intentiones; ergo et in organo. Sed si sint diversae sensationes simul, ut sic non una sensatione percipiuntur [...]” (Anonymous of Paris, *Quaest. Sens.*, qu. 36, 184.14–20.)

48 Cf. *de An.* 3.4, 429a15–24, where Aristotle argues that the intellect is nothing before it thinks. When it does think, it is fully actualised and cannot have another act at the same time. See Michael Stenskjær Christensen's contribution in volume three. Cf. also Roger Bacon, *Liber De sensu*, cap. 24, 126.

many [species] [...]."⁴⁹ Unlike the intellect, the senses have the advantage (or drawback) that they are actualisations of bodily organs. This feature makes them extended in space, divisible, and according to this author, able to receive one species in one part of the organ and another species in another part.

This idea cannot be found in Aristotle – as a matter of fact, he seems to reject it explicitly, as does also for instance Aquinas⁵⁰ – but it is not original because it was first proposed by Alexander of Aphrodisias.⁵¹ Anonymous of Paris does not explicitly say why he adopts this view, but his motivation may be to try and find a way to explain how those senses that undergo material changes (touch, taste, smell, and perhaps hearing) can also be informed simultaneously by contrary qualities. The explanation makes perfect sense in the case of touch, but since the author gives it in the form of a general rule, he may have meant to apply it to all cognitive powers of the sensory soul, including sight and possibly even the common sense. However, if this is the case, he ends up overdetermining his explanation, because appealing to the spiritual mode of being of the species already suffices to solve the original problem with respect to these two powers.

Few medieval authors used this explanation, but the Anonymous of Paris is not the only one. Radulphus Brito argues that sensory powers of the soul can apprehend many things simultaneously precisely because they are actualised in a bodily organ and divisible.⁵² However, he also makes use of the idea that the sensible species have a spiritual mode of being, and he appeals to the common sense and its ability to apprehend different perceptual qualities by combining them in a single act of cognition. Arguably, these strategies alone solve the initial problem and Brito would not actually need to appeal to the divisibility of the organs at all. From this perspective it may be noteworthy that he uses it in order to counter a *quod non* argument. Since he explicitly argues that only those senses that do not undergo a material change (sight and hearing) can perceive many things simultaneously, as we have seen, his appeal to the extension of the organs is perhaps meant to be nothing but a possible strategy to ward off the counter-argument.

49 "Et si dicas: intellectus actu non potest habere plures intellectiones, ergo neque sensus plures sensationes; dico quod non oportet, quia sensus recipit mediante organo corporali, quod est divisibile. Ideo potest plura recipere [...]" (Anonymous of Paris, *Quaest. Sens.*, qu. 36, 185.7–10.)

50 *Sens.* 7, 448b20–49a2; Thomas Aquinas, *Sent. Sens.*, cap. 18, 97a40–b79.

51 Whether it follows from this that the sense power can have two distinct acts is another matter. See Gregoric, "Alexander of Aphrodisias," 57–58.

52 Radulphus Brito, *Quaest. Sens.*, qu. 25, 179.11–15.

Only few authors raised the question concerning the number of acts. Those who defended the possibility of having many simultaneous acts of perception were in the minority, and even some of those who considered it worth asking ended up defending the view that the sensory powers of the soul need only one act to perceive many things (e.g., John of Jandun, on the assumption that his commentary on *De sensu* represents his considered view). Nevertheless, it is significant that there were opposing views concerning this question. An interesting offshoot of the one-act-view can be found in a question commentary on *De sensu* from the latter half of the fourteenth century. The commentary is tentatively attributed to Albert of Saxony, who squarely rejects the possibility of having several distinct acts in one cognitive power at a given time. Interestingly, he does not base his rejection on metaphysical grounds. Rather, his argument stems from a different conception of what the object of vision is. He does not use the notion of 'field of vision,' but he comes very close to claiming that we primarily see the whole visual field, instead of seeing individual objects in it.

This claim may sound far-fetched, but I think it can be justified. First, the author argues that there is no reason to say that we have as many acts of perception as there are perceived objects; all that we see, we see by one act.⁵³ This argument is not based on the idea that there is one act that compares two perceptual qualities to each other. Albert argues that a simple perception of two perceptual qualities is less perfect than a perception that involves a judgement. This means that a simple perceptual act that grasps all the objects in the visual field does not by itself include any judgement concerning these objects (we shall come back to this below).⁵⁴ Second, Albert thinks that the scope of the perceptual act is in principle without limits. The same arguments that prove the ability to perceive two objects can be used to prove the ability to perceive an infinite number of them. This suggestion is put forth as a *quod non* argument (that is, as an argument that will be later disproved), but Albert rejects only the consequence that this would allow external senses to perceive infinitely many objects. We are unable to see many objects equally well, but otherwise the only restriction is the number of objects that are present at any given time. We may suppose that this argument applies, *mutatis mutandis*, to

53 Albert of Saxony(?), *Quaest. Sens.*, qu. 19, 219.

54 Albert of Saxony(?), *Quaest. Sens.*, qu. 19, 221.

the other senses. Third, he argues that seeing an object ϕ means seeing the constitutive parts of ϕ , simply because these are the same thing.⁵⁵

These arguments indicate that the theoretical framework is no longer that of individual objects actualising the sense power. The perceptual act can be about all the objects that are present at a given moment, and thus the strict metaphysical connection between an individual object and an act of perception is loosened. The flexibility goes both ways: all objects within one's surroundings and all parts of each single object can be perceived, and this does not depend on the ability to form a judgement that brings the objects together. Whether this counts as a visual field theory is a complex question, but Albert's analysis shows that certain important steps towards such a theory have been taken.

3.2 *Psychological Strategies*

The doctrine of the intentional mode of being, coupled with the idea that the common sense functions as a centre in which different sense modalities come together, allows medieval philosophers to say that the soul is able to receive several sensible species simultaneously. However, we may still ask whether this entails that we have the ability to *perceive* many perceptual qualities at the same time. Is it possible to be equally aware of two or more qualities at the same time? This question lingers at the background in many commentaries, but it is posed with exceptional clarity when an anonymous commentor (hereafter Anonymous of Merton) discusses scenario *B*:

It must be said that a sense can perceive contraries simultaneously. This is so because when an agent is drawn near and the patient is [suitably] disposed, it is necessary that the former acts and the latter is acted upon; but white [colour] has a natural aptitude to act on sight, and so does black [colour]; therefore, when these [colours] are drawn near in the same part of the medium – or in such a way that they multiply their species through the same part of the medium – and when the power of sight is present, it is necessary that sight is simultaneously moved by both of them. However, it must be understood that although a sense can be simultaneously moved by contrary [qualities], nevertheless it cannot judge both of them distinctly at the same time, but only in a confused way.⁵⁶

55 Albert of Saxony(?), *Quaest. Sens.*, qu. 19, 219 and 222. The latter argument is taken from Buridan (*Quaest. Sens.*, qu. 21, 220.13–17), although Buridan does not raise the question concerning the number of sensations.

56 “[...] dicendum quod sensus potest percipere contraria simul. Et hoc quia agente approximato et patiente disposito necesse est hoc agere et illud pati. Sed album est natum agere in visum et similiter nigrum. Ergo istis approximatis in eadem parte medii – vel sic quod

It is a natural necessity that two perceptual qualities act on an external sense simultaneously if the conditions are right. However, this does not yet entail that these qualities are perceived in a similar way, because external senses cannot make a distinct judgement of them. There are two key elements in this argument: (1) the author distinguishes the *reception* of sensible species from the *judgement* that the senses make concerning their objects; and (2) he appeals to an idea that perception or perceptual judgement comes in degrees. Let us take a closer look at these ideas, starting with the first.

Aristotle argues in *De anima* 3.2 that sight discriminates (*krinein*) between white and black, and that the common sense is needed for cross-modal discrimination of heterogenous qualities.⁵⁷ Medieval authors accept Aristotle's view in principle, but they prefer the translation 'judgement' (*iudicare*, *iudicium*),⁵⁸ and they often claim that the judgement of external senses is somehow incomplete, with the result that the common sense is also needed in the case of homogenous qualities. So, for instance, Radulphus Brito argues that:

[...] although judgement concerning perceptual qualities is preliminarily (*inchoative*) in the external senses, nevertheless it is only in the power of the common sense by way of completion, because the common sense is the primary sensory power, while the other senses are by participation. For it is true that distinct species of white and black can be received in the organ of sight, since the species of white and black have a diminished spiritual being in the medium and in the organ, and as such they are not contrary to each other. But simultaneous judgement concerning them can take place only in the power of the common sense.⁵⁹

per eandem partem medii multiplicent species suas – et visu praesente necesse est visum ab utroque immutari simul. Sed intelligendum est, quod etsi sensus simul possit immutari contrariis, non tamen potest simul iudicare de utroque distincte, sed modo confuso.” (Anonymous of Merton, *Quaest. Sens.*, qu. 15, 174.12–18.)

57 *De An.* 3.2, 426b8–16. Aquinas, for one, accepts this view and mentions it also in relation to the problem of simultaneous perception (*Sent. de An.* 2.27, 182a1–183b65; *Sent. Sens.*, cap. 16, 90b163–91b198), but judgement is not central to his solution.

58 Anselm Oelze, *Animal Rationality: Later Medieval Theories 1250–1350* (Leiden: Brill, 2018), 102–3.

59 “Ideo dicendum quod licet inchoative iudicium de sensibilibus sit in sensibus particularibus, tamen hoc non est nisi in virtute sensus communis complete, quia ille est primum sensitivum et alii sensus participatione. Verum enim est quod diversae species albi et nigri possunt recipi in organo visus, quia species albi et nigri in medio et organo habent esse spirituale[m] diminutum. Modo ut sic non contrariantur. Sed iudicium de ipsis simul non est nisi in virtute sensus communis.” (Radulphus Brito, *Quaest. Sens.*, qu. 25, 178.5–11.) See also Peter of Auvergne, *Quaest. Sens.*, vol. 2, qu. 56, 110. Aquinas mentions this idea in *Sent. de An.* 2.27, 186a229–b236.

Judgement is a process that begins with the external senses but is completed by the common sense. Both Anonymous of Merton and Brito emphasise that mere reception of sensible species does not suffice to make us aware of things around us. The organ of sight can be affected by spiritual species of white and black, but these qualities (and the objects to which they belong) are perceived only if the soul forms a judgement concerning them.

This means that judgement is not an act of comparison that brings together or discriminates between two qualities. Although medieval authors use the concept of 'judgement' also when they refer to a cognitive operation, which compares two distinct qualities and makes us aware of their difference ("white is not sweet") or allows us to perceive them as belonging to one external object ("this white thing cries"), in many cases this does not seem to be the primary meaning of the term. Unfortunately they do not usually give a precise definition, so we have to do some philosophical work to find out what this judgement actually means. The first thing to note is that the term is used in discussions concerning the internal senses – mainly the common sense and the estimative power – and it is attributed not only to human beings but also to non-human animals. Since animals are irrational, the judgements of the internal senses (let alone external ones) do not refer to propositional and conceptual thoughts.⁶⁰ Rather, the judgement of the common sense is a perceptual act, and it makes the perceiver aware of external objects in a way that simple reception of sensible species does not.

Latin authors found this idea in Avicenna's *De anima*. He writes: "But the common sense and the external senses discern and judge in some way, because they say that 'this moving [thing] is black' and 'this red [thing] is sour.'"⁶¹ The latter example can be understood in terms of scenario *D*, because the common sense combines two heterogeneous qualities with each other.⁶² However, the first example suggests that judgement can also be about one proper sensible. In Avicenna's formulation the common sense attributes the proper sensible 'black' to an external object that is perceived also as moving, but many Latin authors seem to think of cases where only one proper sensible is perceived.

60 See, e.g., Oelze, *Animal Rationality*, 100–129.

61 "Sensus vero communis et sensus exteriores discernunt aliquo modo et diiudicant: dicunt enim hoc mobile esse nigrum et hoc rubicundum esse acidum" (Avicenna, *Liber de anima seu Sextus de naturalibus*, ed. S. van Riet (Louvain: Éditions orientalistes / Leiden: Brill, 1968), vol. 2, 4.1, 6).

62 The example may also refer to incidental perception, if sourness is not actually perceived at the moment. See José Filipe Silva and Juhana Toivanen, "Perceptual Errors in Late Medieval Philosophy," in *The Senses and the History of Philosophy*, ed. B. Glenney and J. F. Silva (New York: Routledge, 2019), 106–30.

The judgement made by the common sense results in a kind of perceptual (non-propositional) awareness that things are in a certain way in the external world. This awareness can be expressed in a propositional form, for instance, by saying: "There is a black thing right there" – but of course irrational animals do not think like this. Thus, when medieval authors write about perceptual judgement of the common sense, they do not mean that it has a propositional structure or content. Rather, they are trying to carve out a middle ground between reception of sensible species by the external senses and propositional judgement that belongs to the intellect.

Understood in this way, judgement is not necessarily an act of comparison between two or more qualities. This is what the Anonymous of Merton seems to have in mind when he writes (in the text quoted above) that: "although a sense can be simultaneously moved by contrary [qualities], nevertheless it cannot judge both of them distinctly at the same time, but only in a confused way." Sight can be actualised by sensible species of white and black, but this alone does not provide distinct awareness of two things. Perception of white and black as distinct objects requires the judgement of the common sense. But the power of sight can perceive one object distinctly by its own judgement, which suggests that judgement is equal to what might be called perceptual awareness. The species of white actualises the sense of sight, but we can be said to perceive white colour or a white object only when we form a distinct judgement concerning it.

Admittedly, medieval authors are hopelessly vague when it comes to details about how the psychological dimension of judgement should be understood. However, there are reasons to believe that at least some of them have this model in mind. For instance, John Felmingham(?) writes that:

[...] just as two eyes concur with each other via two nerves in a place which is towards the brain, in which place the principal organ of vision is, and in that place one visual judgement occurs; because if they did not concur in this way, a human being, who sees with two eyes, would not see one thing by one vision but by two visions – which is inconvenient.⁶³

63 "[...] sicut duo oculi per duos nervos concurrunt ad invicem in uno loco versus cerebrum, in quo loco est principale organum visus, et in illo loco fit unum iudicium visuale – quia nisi sic concurrerent, homo in videndo per duos oculos unam rem non videret una visione sed duabus visionibus, quod est inconveniens." (John Felmingham(?), *Exp. Sens.*, cap. 9, 192.1–6.)

If judgement took place in the eyes, we would perceive two images of one object, but because it takes place in the node of visual nerves (which is the primary organ of sight), we see only one image. Judgement is clearly a distinct operation from the reception of the species, and it does not necessarily operate on two different qualities. The power of sight does not discriminate between white and black when it receives the species of white in both eyes. Judgement is just an act of perceiving white in such a way that we become aware of it – our phenomenological experience results from the judgement at the node, not from the acts in the two eyes (at least if we suppose that the mentioned “inconvenience” refers to phenomenological implausibility).

This interpretation is corroborated when John Felmingham(?) explains how perception understood as reception of sensible species differs from judgement:

[...] it must be said that several perceptual [qualities] of one genus or of one contrariety, such as white and black, can be simultaneously perceived by one external sense. The reason for this is that the species of such [qualities] can inform the organ of sight simultaneously, and vision takes place by a visible species. However, it cannot judge these distinctly but [only] in a confused way, because a distinct judgement is only about one distinct [thing].⁶⁴

Just like Anonymous of Merton, Felmingham(?) argues that sight can be actualised by species of white and black simultaneously, and it can make a confused judgement about them (scenario *B*). Probably this means that the two qualities are somehow present in the visual field, but sight alone cannot discriminate between different objects or qualities that are present to it. When I see a white swan against green grass, my sight does not distinguish that there is one white object that is distinct from the green background. In order to judge that ‘this white’ is one thing, I need my common sense to pass a distinct judgement concerning that particular white object. The idea that “a distinct judgement is only about one distinct thing” means that judgement is a more perfect type of perception, not an act of comparison – although typically we have many things in our visual field, and focusing on one of them requires distinguishing it from

64 “[...] dicendum quod plura sensibilia unius generis sive unius contrarietatis, ut album et nigrum, simul possunt percipi ab uno sensu particulari. Cuius ratio est, quia species talium simul possunt informare organum visus, et per species visibilis fit visus. Tamen distincte de talibus non potest iudicare sed modo confuso, quia distinctum iudicium est circa unum distinctum.” (John Felmingham(?), *Exp. Sens.*, cap. 9, 191.3–8.)

the rest; the swan can become an object of distinct judgement only if I distinguish it from the grass and see that ‘this white’ is not ‘that green.’⁶⁵

In a way, perceptual awareness is like “picking out” one perceptual quality and making it appear in all its particularity and as attributed to an external object in a certain location and so forth (perhaps it also involves some kind of non-conceptual recognition of the object as the kind of object it is, but let us keep clear of that morass here⁶⁶). At any rate, this “picking out” entails some sort of non-propositional awareness that things are in a certain way in the external world. Even non-human animals are able to form a distinct judgement that there is something that is relevant for their well-being out there, and this judgement leads to action – a hen picks out (and up) a seed but does not care about small stones.

The distinction between confused and distinct judgement leads us to the second key element in the quotation from the Anonymous of Merton, namely, degrees of perception/perceptual judgement. As we have seen, several authors use this distinction. Radulphus Brito explains that external senses can make only an initial judgement and that the common sense is needed to complete it, and John Felmingham(?) argues that external senses make only confused judgements and that only the common sense judges distinctly. They do not specify what the difference between these two levels amounts to, but if we turn to the commentaries on *De anima* by John Buridan and Nicole Oresme, we may find some clues. These authors argue that there are different degrees of judgement. The most general judgement provides awareness of the genus of the perceived quality – for instance when we judge that what we see is a colour or what we hear is a sound – and in this judgement we never err. However, the perceptual power as a whole can make a more specific judgement that the colour is red, that it is of a certain hue, that it belongs to a certain object in a certain location, and so forth, and in this case we are more easily deceived.⁶⁷

65 The common sense has a capacity to pass a distinct judgement concerning many objects at the same time: “Et ideo, sicut simul possumus videre et audire colorem et sonum per diversos sensus particulares, sic possumus per unum sensum communem simul iudicare de istis” (John Felmingham(?), *Exp. Sens.*, cap. 9, 191.25–27).

66 An illuminating discussion about this issue is Jari Kaukua, “Avicenna on the Soul’s Activity in Perception,” in *Active Perception in the History of Philosophy: From Plato to Modern Philosophy*, ed. J. F. Silva and M. Yrjönsuuri (Dordrecht: Springer, 2014), 106–11. See also Juhana Toivanen, “Perceiving As: Non-Conceptual Forms of Perception in Medieval Philosophy,” in *Medieval Perceptual Puzzles: Theories of Sense Perception in the 13th and 14th Centuries*, ed. E. Băltuță (Leiden: Brill, 2020), 10–37.

67 John Buridan, *Quaestiones super De anima*, ed. P. Sobol, in *John Buridan on the Soul and Sensation*, PhD diss. (Indiana University, 1984), 2.11, 166–67; Nicole Oresme, *Expositiones in Aristotelis De anima*, ed. B. Patar (Louvain: Peeters / Paris: Éditions de l’Institut

The idea in some medieval commentators that distinct judgement gives perceptual awareness of these details of external objects suggests that they are trying to capture a phenomenological difference between two different ways in which we perceive our surroundings. On the one hand, we can be said to perceive our surroundings because in our waking state the perceptual field is never completely empty. Colours, sounds, smells, and so forth, are present to us – we would notice if we became blind, if complete silence suddenly fell upon us, and so forth – but usually they are at the periphery of our awareness and we perceive them only in what medieval authors call the “confused” or “general” way. On the other hand, when the common sense makes a distinct judgement, we become explicitly aware of a certain object in our visual (auditory, etc.) field. We grasp what a certain perceptual quality is, that it exists in a precise place, and so forth.

Here it might be useful to recall an illustrative example that was used in a debate about the structure of consciousness between William Ockham, Walter Chatton, and Adam of Wodeham. According to the example, a person is having a walk and comes across a river and a bridge. She is not fully aware of seeing the bridge because she is deeply immersed in her thoughts, but she uses it to cross the river nevertheless. The crucial point in this example is that the person sees the bridge (under some description of ‘seeing’) but does not register seeing it. All three authors agree that these levels or degrees of awareness exist, although their theories of the psychological process that accounts for them are different.⁶⁸ According to them, it is possible to be aware of the bridge without being explicitly aware of seeing it. Had the hiker paid more attention to the perceptual contents in her mind, she would have become explicitly aware of seeing the bridge, and her phenomenological experience could be described in

Supérieur de Philosophie, 1995), 2.10, 192–93; Peter G. Sobol, “John Buridan on External and Internal Sensation,” in *Questions on the Soul by John Buridan and Others: A Companion to John Buridan's Philosophy of Mind*, ed. G. Klima (Dordrecht: Springer, 2017), 98–99; Christophe Grellard, “Attention, Recognition, and Error in Nicole Oresme's Psychology,” in *Philosophical Problems in Sense Perception: Testing the Limits of Aristotelianism*, ed. D. Bennett and J. Toivanen (Cham: Springer, 2020), 223–38; José Filipe Silva, “Activity, Judgment, and Recognition in Nicole Oresme's Philosophy of Perception,” in *ibid.*, 239–53.

68 Ockham and Wodeham argue that explicit awareness of seeing the bridge is caused by a distinct second-order cognitive act; Chatton argues that the distinct second-order act is unnecessary. For discussion, see Susan Brower-Toland, “Medieval Approaches to Consciousness: Ockham and Chatton,” *Philosopher's Imprint* 12:17 (2012): 1–29; Mikko Yrjönsuuri, “The Structure of Self-Consciousness: A Fourteenth Century Debate,” in *Consciousness: From Perception to Reflection in the History of Philosophy*, ed. S. Heinämaa, V. Lähteenmäki, and P. Remes (Dordrecht: Springer, 2007), 141–52. The example is inspired by Augustine's *De trinitate* 11.8.15.

a propositional form: “I am seeing a bridge there.” But she does not have that experience because her attention is elsewhere.

The details of this dispute and its implications to the issue at hand are too complex to be analysed here. What I want to underline is that medieval authors accepted the idea of different levels of awareness. Even when the hiker does not pay attention to her surroundings, she does not need to grope her way around.⁶⁹ Applying this example to the distinction between confused and distinct perception (or judgement), we may say that she perceives her surroundings only in a confused way and fails to use her common sense to make a distinct judgement about the bridge. The distinct judgement of the common sense differs from the acts of perception because it allows one to be explicitly aware of the thing one sees; that there is a certain colour in a certain location etc. The difference between confused judgement and the distinct judgement is like the difference between ‘not groping in the dark’ and ‘being aware of *this black there*.’ The latter awareness is more distinct, it isolates individual objects – and, importantly, it requires that one pays attention to what one sees things in her surroundings. In this way, perception comes in degrees.

One may find this idea in the texts of Anonymous of Merton and John Felmingham(?), who argue that confused and incomplete perception (even of many things at the same time) is possible for the external senses but that the common sense is needed to make it perfect and distinct. The common sense makes us fully aware of two objects or qualities as two – as distinct from each other etc.

However, the most detailed discussion of the degrees of perception comes from John Buridan. He frames the whole question concerning simultaneous perception in terms of degrees of distinctness and clarity. According to him, it is an experiential fact that we can perceive many things at the same time. The question does not concern this ability as such, but the ability to perceive two things clearly and distinctly.⁷⁰ The tentative answer that Buridan puts forth in the *quod non* section is negative:

69 “[...] non percipimus nos videre dum vidimus, et tamen vidimus; aliter palpassemus sicut in tenebris [...]” (Adam of Wodeham, *Lectura secunda in librum primum Sententiarum*, ed. R. Wood (St. Bonaventure: St. Bonaventure University, 1990), vol. 1, Prol., qu. 2, 59).

70 “[...] experimur enim quod plura sentimus simul et diversis sensibus et eodem sensu, tam contraria quam similia. Sed dubitatio est utrum simul quodlibet eorum *aeque perfecte* sentimus sicut possemus sentire unum eorum.” (John Buridan, *Quaest. Sens.*, qu. 21, 220.9–12, emphasis mine.) Buridan uses similar approach when he argues that the intellect can think many things simultaneously (Jack Zupko, “Intellect and Intellectual Activity in Buridan’s Psychology,” in *Questions on the Soul by John Buridan and Others: A Companion to John Buridan’s Philosophy of Mind*, ed. G. Klima (Dordrecht: Springer, 2017), 190).

Moreover, it is said that a stronger [quality] obscures a weaker, which is why stars cannot be seen in the daytime, although both are shining, namely, both the sun and the star. And thus, when one [quality] is stronger and the other weaker, the weaker is not perceived perfectly. And if they are equal, it is likely that each diminishes the other, and thus neither is perceived equally perfectly [as they would be perceived alone]. And it is also argued in this way about different senses: it seems that they obstruct each other, because when we pay much attention to sight, we do not discern audible [qualities] equally well, and the other way round.⁷¹

Buridan accepts this argument to the extent it proves that we cannot perceive many qualities perfectly at the same time. Paying attention to one thing allows us to perceive it better, but in most cases other things are perceived to a lesser degree.⁷² It is important to note that Buridan is not focusing on judgement understood as discrimination between several perceptual qualities. He does not argue that we can compare different objects to each other in varying degrees but that we perceive them in varying degrees.

There are some traces of the so-called perspectivist theory of perception, which was developed by Alhazen, among others, and discussed in the Latin world especially by Roger Bacon, John Peckham, and Vitello. These authors were interested in explaining why sight functions better when sensible species enter the centre of the eye perpendicularly, and why objects that fall outside the centre of the visual field are seen less clearly.⁷³ Buridan echoes this discussion in a passage that is fraught with perspectivist terminology:

The fifth conclusion is that it is not possible to perceive many things simultaneously and each one of them as perfectly as one of them can

71 "Et iterum dicebatur quod maius obfuscat minus, propter quod astra non videntur de die, licet utrumque sit lucidum, scilicet tam sol quam astrum. Et sic, ubi unum est maius et alterum minus, illud quod est minus non perfecte sentitur. Et si sint aequalia, verisimile est quod utrumque remittit de reliquo et sic neutrum aequè perfecte sentitur. Et ita etiam arguitur de diversis sensibus, quia apparet quod se invicem impediunt, quia multum attenti ad visum non ita bene distinguimus audibilia et econverso." (John Buridan, *Quaest. Sens.*, qu. 21, 218.12–19.)

72 Buridan does not reply to this argument, but he emphasises that the attention of the soul explains why some qualities are perceived better than others: "Alia ratio erat quod albedo et dulcedo possunt simul perfecte esse in eodem subiecto extra; ergo similiter species possunt simul esse perfecte in sensibus. Concedatur, tamen anima non potest ita perfecte attendere ad utramque simul sicut posset ad unam." (John Buridan, *Quaest. Sens.*, qu. 21, 224.9–12.)

73 See, e.g., Roger Bacon, *Liber De sensu*, cap. 24, 127–28; Lindberg, *Theories of Vision*, 104–46.

be perceived. This is proved as follows: it is possible that some one thing is in optimal proportion to the sense, both with respect to its intensity/weakness, magnitude/smallness, and location, or rather distance/closeness. And then, if the perceiver directs his attention to it successfully, it will be perceived perfectly (that is, as perfectly as that sense can perceive that thing). But in this way it is not possible that each and every item in a plurality of simultaneously perceived things is in optimal proportion to the sense. Therefore, it is not possible that every one of them is perceived equally perfectly.⁷⁴

The argument is again based on the strength of the movement: a perceptual quality that causes a stronger movement in the soul hinders but does not prevent the perception of another quality that causes a lesser movement. The strength of the movement is related to the position etc. of the object with respect to the sense power. This applies to scenarios *B* and *C* (two qualities affecting one sense and two qualities affecting two senses).

However, Buridan's explanation is not only or even primarily based on the object's position etc. in relation to the senses. Even if all the conditions are right, the subject still has to pay attention to the object:

Likewise, a focused attention is required for the perfection of a sensation. Therefore, if we pay intensive attention to voices or melodies, we do not perceive clearly things that present themselves in front of our eyes, regardless of how well-proportioned they are to sight. But it is not possible to pay attention equally perfectly to each [thing] in some plurality as it is to one [thing], be they [objects] of the same sense or of different senses, as we commonly experience. Therefore etc.⁷⁵

74 "Quinta conclusio est quod non est possibile sentire plura simul et quodlibet eorum ita perfecte sicut posset sentiri unum eorum. Probatur sic: quia possibile est aliquod unum esse optime proportionatum sensui, et secundum intensionem vel remissionem et secundum magnitudinem vel parvitatem et secundum situm sive secundum distantiam vel propinquitatem. Et tunc si sentiens bene advertat ad illud, illud perfectissime sentietur, scilicet quantumcunque perfecte ille sensus potest ipsum sentire. Sic autem non est possibile quod aliquorum plurium simul sensorum quodlibet se habeat in optima proportione ad sensum; ideo non est possibile quod illorum quodlibet ita perfecte sentiantur." (John Buridan, *Quaest. Sens.*, qu. 21, 222.6–15.)

75 "Et item, ad perfectionem sensationis requiritur diligens attentio; ideo si valde attendimus ad voces vel melodias, non bene sentimus quae ante visum occurrunt, quantumcunque sunt visui bene proportionalia. Sed non est possibile ita perfecte attendere simul ad utrumque aliquorum plurium sicut ad unum, sive eodem sensu sive diversis, sicut communiter experimur; igitur etc." (John Buridan, *Quaest. Sens.*, qu. 21, 222.15–223.3.)

It is possible to perceive many things simultaneously, but the degree of clarity with which they are perceived depends on the conditions that prevail in each situation *and* on the psychological attention of the perceiving subject. If one focuses on listening to a conversation, one sees less clearly; but one sees nevertheless. And it is a psychological limitation that we cannot pay an equal amount of attention to everything around us. In Buridan's view, the argument about the strength of movement (i.e., the idea that two qualities are perceived less well if they are mixed, a stronger impression prevents the perception of a weaker movement, and, if the two movements are equally strong, neither or only one is perceived) is a purely psychological matter that is based on the attention of the soul.⁷⁶

The distinction between confused and distinct perception/judgement fits well with the idea that perception requires attention. Not all perceptual qualities that act upon our senses are perceived, at least not in a distinct way that makes them appear as distinct things. We may perceive in a confused way everything that happens to be in our visual field (and *mutatis mutandis* with respect to other senses), but our ability to form a distinct judgement concerning many things is limited. The limitation is a psychological one. We are able to pay full attention to one or perhaps a couple of things at the same time. Other objects remain at the periphery. They are present to us and we are aware of them to some degree but not fully.⁷⁷ Perception of many things simultaneously is possible, but there are limits to this ability.

4 Conclusion

Aristotle's theory of perception is based on the realist assumption that the world divides unproblematically into individual substances and their perceptual qualities. Coupled with certain metaphysical suppositions concerning the mechanism of perception, his theory faces a problem: How it is possible to perceive many things at the same time? Aristotle's solution is challenging in

76 Buridan defends the view that the soul is active in perception (Sobol, "John Buridan," 95–106).

77 Buridan does not say it explicitly, but we may suppose that sometimes we are completely oblivious to things around us: stars cannot be seen in full daylight. Probably this is not caused by a failure in paying attention to them but because movements they cause in the sense organs are too weak.

many ways, and when medieval authors elaborate and extend his suggestions, they use several different strategies.

One of the most important ideas is the distinction between two modes of being, material/natural and spiritual/intentional. In the context of the problem of simultaneous perception, medieval philosophers side with the spiritualist interpretation of Aristotle's theory of perception and claim that perceptual acts are spiritual, even though some sense modalities involve also a material change. This allows them to tackle the metaphysical aspect of the problem of simultaneous perception. Given that perceptual acts and the sensible species that cause them have an intentional mode of being, it is possible for two perceptual qualities to act upon one and the same sense organ simultaneously. Some authors went so far as to claim that it is possible to have two separate *acts* of perception, both belonging to the very same power, at the same time. This shows that they were unwilling to accept a strictly hylomorphist explanation of perception, which is based on the idea that formal changes of a sense power are necessarily related to (or even identical with) material changes of the sense organ. Among other things, they thought that this explanation undermines the possibility of perceiving many things simultaneously.

In addition to this metaphysical strategy, medieval authors appealed to various psychological ideas to explain how simultaneous perception is possible. They distinguished reception of sensible species from perceptual judgement. The latter is needed in order to become explicitly aware of external objects as distinct and individual objects, but it is possible to see many things at the same time without making this kind of judgement. Perceived objects may remain indistinct in our experience – for instance, when we see the whole visual field in front of us without being fully aware of all individual items in it. This idea was developed further when certain authors argued that perceptual awareness comes in degrees. Objects and qualities are perceived more clearly and distinctly when one pays attention to them, but they can be perceived in a confused way also when one's attention is directed elsewhere.

Discussions concerning the ability to perceive many things simultaneously are not the most important context in which these interpretations were offered. Many of them were commonly used in commentaries on *De anima* and other works on philosophical psychology. However, commentaries on *Parva naturalia* gave medieval authors an occasion to analyse certain fundamental challenges that Aristotle's theory of perception entails. As the focus in commentaries on *De sensu* is precisely the interaction between the body and the soul, they provide an important platform to develop and test new ideas and elaborate on the details of Aristotelian theory of perception.

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Affected by the Matter: The Question of Plant Perception in the Medieval Latin Tradition on *De somno et vigilia*

Christina Thomsen Thörnqvist

1 Introduction

In the medieval Latin question commentaries on Aristotle's *De somno et vigilia*, one of the standard *quaestiones* asks whether plants are capable of sleeping and waking. The question goes back to *Somn. Vig.* 1, 454b27–455a3 where Aristotle rules this out. Aristotle has laid the basis for this claim already in the *De anima* and again in the beginning of *De somno et vigilia*, where he states that the nutritive part of the soul can exist without the sensitive but not vice versa.¹ Plants are ensouled beings that have only the nutritive soul, and in *Somn. Vig.* 1, 454b27–455a3 Aristotle concludes that since plants, contrary to animals, lack sense-perception, and since sleep is the immobilisation of sensation, plants lack also the capacity to sleep and wake. He adds two observations as further support:

By contrast, no plant can partake of either of these affections. (i) For neither sleep nor waking belongs to anything without perception, whereas things to which perception belongs can also have pain and pleasure. And what can have these can also have appetite. But none of these belongs to plants. (ii) Proof of this is the fact that the nutrient part performs its function more during the sleeping than the waking state. For more nutrition

1 See, in particular, Aristotle, *De Anima*, ed. W. D. Ross (Oxford: Clarendon Press, 1961), 1.5, 411b27–30: ἔοικε δὲ καὶ ἡ ἐν τοῖς φυτοῖς ἀρχὴ ψυχῇ τις εἶναι· μόνῃς γὰρ ταύτης κοινωνεῖ καὶ ζῶα καὶ φυτά, καὶ αὕτη μὲν χωρίζεται τῆς αἰσθητικῆς ἀρχῆς, αἰσθησιν δ' οὐθὲν ἄνευ ταύτης ἔχει; 2.3, 414b33–415a3: διὰ τίνα δ' αἰτίαν τῷ ἐφεξῆς οὕτως ἔχουσι, σκεπτέον. ἄνευ μὲν γὰρ τοῦ θρεπτικοῦ τὸ αἰσθητικὸν οὐκ ἔστιν· τοῦ δ' αἰσθητικοῦ χωρίζεται τὸ θρεπτικὸν ἐν τοῖς φυτοῖς; *Somn. Vig.* 1, 454a11–14: διωρισμένων δὲ πρότερον ἐν ἑτέροις περὶ τῶν λεγομένων ὡς μορίων τῆς ψυχῆς, καὶ τοῦ μὲν θρεπτικοῦ χωριζομένου τῶν ἄλλων ἐν τοῖς ἔχουσι σώμασι ζωήν, τῶν δ' ἄλλων οὐδενὸς ἄνευ τούτου. The text of *de An.* is quoted from Ross' edition throughout this chapter.

and growth take place at that time, suggesting that nothing is needed from perception to further those ends.²

Aristotle's claim that plants are incapable of perceiving and, hence, also of sleeping and waking, may at first glance seem clear-cut and unproblematic, but the medievals found several reasons to debate it, one no doubt being the compelling empirical evidence that plants, like animals, display a variation in levels of activity at certain intervals. The claim also presupposes the assumption of several differences between the natures and functions of the nutritive and sensitive souls that warrant further investigation. Furthermore, the fact that the Westerners were well aware of the ancient debate on the matter no doubt contributed to the medieval interest. Via the Pseudo-Aristotelian *De plantis*, which had been translated from Arabic into Latin by Alfred of Sareshel around 1200,³ it was well known that Plato, among others, had claimed that plants have sensation.⁴ The *De plantis* begins with an overview of the ancient debate on the question, which is explicitly linked to the question of whether plants can sleep and wake, and the first chapter is almost entirely devoted to this problem.⁵ In the end, however, the most cogent reason that the ques-

2 τῶν δὲ φυτῶν οὐδὲν οἶόν τε κοινωνεῖν οὐδετέρου τούτων τῶν παθημάτων· ἄνευ μὲν γὰρ αἰσθήσεως οὐχ ὑπάρχει οὔτε ὕπνος οὔτε ἐγρήγορσις· οἷς δ' αἰσθησις ὑπάρχει, καὶ τὸ λυπεῖσθαι καὶ τὸ χαίρειν· οἷς δὲ ταῦτα, καὶ ἐπιθυμία· τοῖς δὲ φυτοῖς οὐδὲν ὑπάρχει τούτων. σημείον δ' ὅτι καὶ τὸ ἔργον τὸ αὐτοῦ ποιεῖ τὸ θρεπτικὸν μόριον ἐν τῷ καθεύδειν μᾶλλον ἢ ἐν τῷ ἐγρηγορέναι· τρέφεται γὰρ καὶ αὐξάνεται τότε μᾶλλον, ὥς οὐδὲν προσδεόμενα πρὸς ταῦτα τῆς αἰσθήσεως. Throughout the chapter, Aristotle's *Somn. Vig.* and other works belonging to the *Parva naturalia* are quoted from David Ross' edition Aristotle, *Parva naturalia: A Revised Text with Introduction and Commentary* (Oxford: Clarendon Press, 1955). The English translation is quoted with some minor modifications from *Aristotle on Sleep and Dreams: A Text and Translation with Introduction, Notes and Glossary*, trans. D. Gallop (Warminster: Aris & Phillips Ltd., 1996); here p. 67.

3 The work was probably by Nicolaus of Damascus (c.64–?). An edition of Alfred of Sareshel's Latin translation is available in H. J. Drossaart Lulofs and E. L. J. Poortman, eds., *Nicolaus Damascenus De plantis: Five Translations* (Amsterdam: North-Holland, 1989), 464–561. Alfred also wrote a commentary on *De plantis*, an edition of which is available in R. James Long, "Alfred of Sareshel's Commentary on the Pseudo-Aristotelian *De plantis*: A Critical Edition," *Mediaeval Studies* 47 (1985): 125–67. On Alfred's biography and works, see Olga Weijers et al., *Le travail intellectuel à la Faculté des arts de Paris: Textes et maîtres (ca. 1200–1500)*, 9 vols. (Turnhout: Brepols, 1994–2012), 1:58–60.

4 ἂ δὴ νῦν ἡμερὰ δένδρα καὶ φυτὰ καὶ σπέρματα παιδευθέντα ὑπὸ γεωργίας τιθασῶς πρὸς ἡμᾶς ἔσχεν [...] πᾶν γὰρ οὖν, ὅτιπερ ἂν μετάσχη τοῦ ζῆν, ζῶν μὲν ἂν ἐν δίκῃ λέγοιτο ὀρθότατα· μετέχει γε μὴν τοῦτο δ' οὖν λέγομεν τοῦ τρίτου ψυχῆς εἶδους, ὃ μεταξὺ φρενῶν ὀμφαλοῦ τε ἰδρῦσθαι λόγος, ᾧ δόξης μὲν λογισμοῦ τε καὶ νοῦ μέτεστιν τὸ μηδὲν, αἰσθήσεως δὲ ἡδέας καὶ ἀλγεινῆς μετὰ ἐπιθυμιῶν (Plato, *Tim.* 77a6–b6, in *Platonis opera*, ed. J. Burnet (Oxford: Oxford University Press, 1902; repr. 1978), vol. 4).

5 See Ps.-Arist., *De plantis*, 517.2–521.31.

tion of absence of perceptual capacity in plants became a standard topic in the medieval tradition is clearly that from the commentators' perspective it puts Aristotle's definition of perception to the test. The present chapter aims to demonstrate how the medievals identified a number of crucial questions generated by *Somn. Vig.* 1, 454b27–455a3 that must be answered in order for Aristotle's claim about the complete lack of perceptual capacity in plants to fit with his overall theory of perception.

2 Albert the Great

The earliest known medieval Latin commentary on Aristotle's treatises on sleep and dreams is the commentary by Adam of Buckfield (c.1220–before 1294), dated to between the late 1230s and early 1240s.⁶ If a date towards the end of this period is correct, Adam's commentary appeared more or less at the same time as Albert the Great's (1206/7–1280) exposition of *Somn. Vig.* in *De homine*, which was finished around 1242.⁷ There is no clear indication that Albert used Adam's work, and in the case of *Somn. Vig.* 1, 454b27–455a3 Adam's commentary contains little more than a paraphrase of Aristotle's text.⁸ Albert's *De homine*, on the other hand, contains the earliest known proper discussion of Aristotle's claim that plants cannot sleep or wake because they lack sense-perception. Here, Albert's exposition of Aristotle's conclusion in *Somn. Vig.* on the lack of sense-perception and sleep in plants is not yet systematised as a separate problem, but addressed as part of the question whether sleep and waking are affections of sensation.⁹ For Albert's main point, which is the affirmative

6 For the date of Adam's commentary, see Charles Burnett, "The Introduction of Aristotle's Natural Philosophy into Great Britain: A Preliminary Survey of the Manuscript Evidence," in *Aristotle in Britain during the Middle Ages*, ed. J. Marenbon (Turnhout: Brepols, 1996), 40–41. For a biographical overview of Adam of Buckfield, see Olga Weijers et al., *Le travail intellectuel*, 9:24–30. Adam's commentary on *Somn. Vig.* is edited in Thomas Aquinas, *Doctoris angelici divi Thomae Aquinatis opera omnia* 24, ed. S. E. Fretté (Paris: Vivès 1875), 293–310.

7 *De homine* is the second part of Albert's *Summa de creaturis*, which is believed to have been finished 1242 or earlier; see Henryk Anzulewicz and Joachim R. Söder, *Alberti Magni De homine* (Münster: Aschendorff, 2008), xiv–xv. For a chronology of Albert's works, see James Athanasius Weisheipl, "Albert's Works on Natural Science (libri naturales) in Probable Chronological Order," in *Albertus Magnus and the Sciences: Commemorative Essays*, ed. J. A. Weisheipl (Turnhout: Brepols, 1980), 565–77. For a bibliographical overview, see Weijers et al., *Le travail intellectuel*, 1:34–47.

8 Adam of Buckfield, *Commentarium in De somno et vigilia*, in Thomas Aquinas, *Doctoris angelici divi Thomae Aquinatis opera omnia* 24, ed. S. E. Fretté (Paris: Vivès 1875), *lectiones* 1, 2.

9 Albert the Great, *De hom.*, 326.1–329.76.

answer to this question, Aristotle's observations in *Somn. Vig.* 1, 454b27–455a3 come in handy as proof that sleep is not an affection of the nutritive soul, but of the sensitive.¹⁰ For further defence of Aristotle's claim that the nutritive soul is even more active in sleep, Albert turns to Averroes' *Compendium*,¹¹ where Averroes argues that the fact that both irrational animals and human beings are in possession of their sense-organs in sleep while at the same time they do not perceive or move in sleep¹² proves that in the sleeping state the sensitive power of the animal withdraws from the sense-organs into the body. Albert concludes:

The meaning of this authoritative statement is that sleep is proved to be an affection of perception by the fact that plants do not sleep whereas brute animals and human beings do, and the latter two have nothing else in common but the sensitive soul. And since only the external senses, and not the interior, are immobilised in sleep, sleep is an affection of the external senses and not of the interior.¹³

2.1 *A Soul in Continuous Operation*

In this connection, Albert raises a number of counterarguments to the claim that sleep is only an affection of the sensitive soul and not of the nutritive. The first of these became one of the most debated problems among Albert's successors with regard to the interrelation of perception and sleep, because it presupposes a fundamental difference between the sensitive and nutritive

10 Albert the Great, *De hom.*, 326.39–45: "Et ratio fundatur super hoc quod cuiuscumque partis animae propria passio est somnus, illam immobilitat et impedit ab actu. Ergo si nutritivae particulae, quae est pars vegetabilis, propria passio esset somnus, tunc ipsam immobilitaret et impediret ab actu; sed hoc falsum est, quia virtutes illae intenduntur in somnis in actibus suis."

11 Albert believes that the *Compendium* is by Al-Fārābī; see Silvia Donati, "Albert the Great as a Commentator of Aristotle's *De somno et vigilia*: The Influence of the Arabic Tradition," in *The Parva naturalia in Greek, Arabic, and Latin Aristotelianism*, ed. B. Bydén and F. Radovic (Cham: Springer 2018), 173.

12 Averroes, *Compendia librorum Aristotelis qui Parva naturalia vocantur*, ed. A. L. Shields (Cambridge, MA: Medieval Academy of America, 1949), 77.33–78.43. Averroes continues by stating that what withdraws from the sense-organs is the *sensus communis* (see 78.43–79.50).

13 "Sensus huius auctoritatis est quod somnus probatur esse passio sensus ex hoc quod plantae non dormiunt, sed bruti et homines dormiunt, quae non communicant nisi in anima sensibili; et cum in somno non immobilitentur nisi sensus exteriores et non interiores, erit somnus passio sensuum exteriorum et non interiorum." (Albert the Great, *De hom.*, 326.62–65.)

soul. Albert here refers to *Somn. Vig.* 1, 454a26–32, where Aristotle explains why no animal can be always asleep or always awake:¹⁴

For all things that have a natural function must, whenever they exceed the time for which they can do a certain thing, lose their capacity and cease from doing it, e.g., the eyes from seeing. It is the same for the hand and everything else that has a function. So if perceiving is the function of some part, then this part too, should it exceed the due time for which it is capable of perceiving continuously, will lose its capacity and will do so no longer.¹⁵

Since the nutritive power also, Albert claims, has a function that is limited by nature, the plant also must rest, and the living being's rest from its natural function is sleep. To solve the apparent contradiction between this argument and Aristotle's claim, Albert argues in response that unlike animals, plants do not need rest. While it is true, Albert grants, that every agent that acts finitely acts within a limited time, not all agents that act finitely also have the capacity to continue acting after its limit; only an agent that acts "with effort and suffering" can do so:

As to the objection that sleep is an affection of the nutritive soul, it must be said that it is true that every finitely acting agent acts with respect to some determinate time, but not every finitely acting agent has the capacity to exceed it. The Philosopher states that an agent that performs its function with effort and suffering has the capacity to exceed its time; when it exceeds the limit of its ability to continue operating, it will become tired and need rest in order not to be destroyed.¹⁶

14 Albert the Great, *De hom.*, 326.68–327.11.

15 ἔτι ὅσων ἔστι τι ἔργον κατὰ φύσιν, ὅταν ὑπερβάλλῃ τὸν χρόνον ὅσον δύναται τι ποιεῖν, ἀνάγκη, ἀδυνατεῖν, ὡς τὰ ὄμματα ὁρῶντα, καὶ παύεσθαι τοῦτο ποιοῦντα, ὁμοίως δὲ καὶ χεῖρα καὶ ἄλλο πᾶν οὐ ἔστι τι ἔργον. εἰ δὴ τινὸς ἔστιν ἔργον τὸ αἰσθάνεσθαι, καὶ τοῦτο, ἂν ὑπερβάλλῃ ὅσον ἦν χρόνον δυνάμενον αἰσθάνεσθαι, συνεχῶς, ἀδυνατήσῃ καὶ οὐκέτι τοῦτο ποιήσῃ. (*Somn. Vig.* 1, 454a26–32.)

16 "Ad id quod obicitur quod somnus sit passio vegetabilis, dicendum quod verum quidem est quod omne agens finite agit secundum tempus determinatum, sed non omne agens finite potest excellere tempus. A Philosopho enim dicitur illud agens excellere tempus quod opus suum facit cum labore et poena; illud enim si excedat modum suae virtutis in continuando opus, lassabitur et indigebit quiete ne corrumpatur." (Albert the Great, *De hom.*, 328.20–27.) Cf. *De hom.*, 46.50–54, 324.14–28. For the expression "cum labore et poena," cf. Albert the Great, *Super Dionysium De caelesti hierarchia*, ed. P. Simon and W. Kübel (Münster: Aschendorff, 1993), 221.7–13: "Videtur enim, quod angelus moveat

Albert here seems to be loosely referring to Aristotle's remark in *Somn. Vig.* 1, 454a26–b9 that the parts of the animal will become exhausted if they exceed their capacity and cease to function.¹⁷ Albert points out that this includes the sensory apparatus.¹⁸ But the sensory organs and the organs of motion exceed their capacity in different ways: the body gets tired by moving in directions opposite to that which is natural to its matter. Hence, moving a leg or an arm upwards will exhaust the organs of motion,¹⁹ whereas it is not movement but excessive stimuli that exhaust the sensory organs.²⁰ In both cases, when the natural limit of the body's capacity has been exceeded, it is necessary for the body to sleep. But for the nutritive soul, Albert claims, the conditions are very different: the activities of the nutritive soul are performed not by means of various bodily organs but by means of natural heat (*calor naturalis*) as its only tool (*instrumentum*).²¹ Since there is in this case no contrary

corpus assumptum cum labore et poena. Labor enim et poena moventis contingit ex hoc quod mobile non ex toto oboedit moventi; sed corpus assumptum non ex toto oboedit virtuti moventis angeli, quia non semper movet ad motum naturalem illi corpori, cum moveat in diversas partes; ergo movet cum labore et poena."

17 Also, see *Somn. Vig.* 2, 455b13–22.

18 As pointed out by Aristotle; see *Somn. Vig.* 1, 454a29–32: εἰ δὴ τινός ἐστιν ἔργον τὸ αἰσθάνεσθαι, καὶ τοῦτο, ἂν ὑπερβῇ ὅσον ἦν χρόνον δυνάμενον αἰσθάνεσθαι συνεχῶς, ἀδυνατῇ καὶ οὐκέτι τοῦτο ποιήσει. In other words, it is not because plants are incapable of locomotion that they do not need rest; if they had perception, that would in itself generate a need for sleep. Stationary animals need sleep, but plants do not.

19 "Et illius causam tangit Avicenna in vi de naturalibus et Averroes in libro De essentia orbis dicens quod talia agentia agunt in organo, cuius motus naturalis secundum naturam materiae contrarius est motui agentis. Dico autem motum agentis, quo movet agens; et hoc est verum de organis processivi motus, quae secundum naturam gravia sunt et descendunt deorsum, cum virtus motiva non moveat deorsum, sed in omnem partem." (Albert the Great, *De hom.*, 328.27–35.) I have been unable to locate the passage in Avicenna's *Liber sextus* that Albert has in mind, but the second reference is to Averroes, *De substantia orbis: Critical Edition of the Hebrew Text with English Translation and Commentary*, ed. A. Hyman (Cambridge, MA: The Medieval Academy of America / Jerusalem: Israel Academy of Sciences and Humanities, 1986), 76; see also Averroes, *Long Commentary on De caelo*, in *Aristotelis Omnia quae extant opera et Averrois Cordubensis in ea opera omnes, qui ad haec usque tempora pervenere commentarii*, 9 vols. (Venice: Comin da Trino di Monferrato, 1562–1574; repr. Frankfurt am Main: Minerva, 1962), 2:5, 96v: "Causa enim fatigationis in animalibus est, quia in eis est principium motus contrariorum motui animae, scilicet pars gravis quae est in eis. Hoc autem movet nos multum ad contrariam partem illi, qua intendimus moveri ex anima nostra, quapropter accidit nobis labor et fatigatio"; 98v: "somnia enim et quies in animalibus necessario sunt in eis propter laborem, labor autem non est, nisi quia in eis existit principium contrarium motui animae."

20 Albert the Great, *De hom.*, 328.35–39.

21 Note, for instance, *de An.* 2.4, 416b20–31.

relation between the nature of the instrument and the operation of it, living beings that have only the nutritive soul cannot exceed the limit of their capacity.²² Albert does not discuss the difference between exhaustion from motion and from sensation here; the difference between the process in the case of the organs of motion in the animal and the flow of natural heat in plants is clear enough, but the difference between the latter and the exhaustion of the sensory apparatus much less so. Albert here adds a peculiar alternative explanation of how the sensory organs are worn out: “some” claim that the sensible power finds sensing enjoyable and so goes on sensing for longer than it ought to. Albert dismisses this explanation on the rather dubious grounds that, of the two explanations, the former is closest to the truth because it agrees with the theory of exhaustion from motion.²³

Albert’s second exposition of *Somn. Vig.* in his commentary on the *Parva naturalia* develops the question of the absence of perception in plants further.²⁴ Here, Albert repeats his claim that the animal body becomes exhausted from moving in a direction contrary to the nature of its matter, whereas the activities of the nutritive soul are of a different nature and, unlike locomotion, do not cause the living being to exceed the limit of its natural capacity. He adduces a more elaborate form of his explanation in *De homine*: unlike locomotion, the motion involved in the activities of the nutritive soul, viz. nutrition, growth, and generation, is not contrary or violent, but natural in relation to the nature of the matter of the body. Nutriment moves not with effort, but naturally (*naturaliter*) to its destination, and nutriment, in turn, is the cause of both growth and reproduction. Hence, the motion in this case, viz. the flow of the

22 “In operibus autem vegetabilis animae non sic est. Opera enim ipsius sunt alimento uti et augmentare et generare; et haec omnia fiunt unico instrumento quod est calor naturalis, et fiunt etiam actione calidi, et ideo actio instrumenti eadem est et non contraria cum actione virtutis moventis. Unde etiam non potest causari lassitudo sicut causatur in virtutibus sensibilibus et virtutibus motivis motu processivo, et idcirco illae potentiae non possunt excellere tempus suae virtutis et suae proportionis ad actum.” (Albert the Great, *De hom.*, 328.39–48.)

23 “Sunt tamen quidam hoc aliter solventes dicendo quod virtutes sensibiles apprehendunt delectabile in sensibus, et ideo vi delectationis incitantur ad opus, ita quod continuantur in ipso ultra tempus suae possibilitatis; sed non est talis apprehensio obiecti in virtutibus animae vegetabilis, et idcirco illae non excedunt tempus suum. Sed prima solutio verior est, quia illa tangit causam lassitudinis et poenae.” (Albert the Great, *De hom.*, 328.49–56.)

24 Albert’s commentary on the *Parva naturalia* was written after his exposition in *De homine*, probably around 1256. On the date, see J. A. Weisheipl, “Albert’s Works,” 570, and Donati, “Albert the Great as a Commentator,” 170–71. Donati is currently preparing a critical edition of Albert’s commentary on *Somn. Vig.* for the Cologne edition.

nutriment, which Albert defines as a non-violent traction,²⁵ does not result in exhaustion of the living being, but in its perfection.²⁶

Albert is well aware that there is a wealth of empirical evidence to suggest not only that plants respond to external stimuli but also that they display different activity levels at certain intervals. In his commentary on *Somn. Vig.*, he adduces as visible proof of the alternating retraction and expansion of the vital spirit in the plant that flowers open at dawn and close at dusk.²⁷ Albert here provides a peculiar argument in support of the opposing position: it is a property of the sleeping body that it is smaller than the waking;²⁸ hence, the opening and closing of flowers is empirical evidence that plants also sleep and

25 For the movement of the nutriment, which according to Albert is of the same nature as the traction of a magnetic object to the magnet, Albert refers to his commentary on the *Physics* (*Physica libri 1–4*, ed. P. Hoßfeld (Münster: Aschendorff, 1987), 523.60–70) and to his *De nutrimento et nutribili*, ed. S. Donati (Münster: Aschendorff, 2017), 7.30–39; but note also Albert the Great, *De anima*, ed. C. Stroick (Münster: Aschendorff, 1968), 86.79–87.16.

26 See Albert the Great, *De somno et vigilia*, ed. A. Borgnet (Paris: Vivès, 1891), 126b: “Talis enim motus non est [sentire,] nutrire, et augere, [...] quod cibus movetur naturaliter ad membrum sicut ad suum locum, et ad suum speciem per quantitatem ejus fit augmentum, et per superfluum ejus generatio, et ideo tales motus non inducunt lassitudinem, sed perfectionem; propter quod ex illis non causatur somnus nec etiam vigilia.” (The square brackets are my own; ‘sentire’ should be deleted or the text perhaps emended into ‘nutrire, augere, et generare’ or something similar.) Food makes the ensouled being grow *qua* quantitative (*de An.* 2.4, 416b12–14) and semen is a residue of nutriment (*GA* 1.18, 724b24–725a4). Also, cf. Avicenna, *Liber de anima seu Sextus de naturalibus*, ed. S. Van Riet (Louvain: Éditions Orientalistes / Leiden: Brill, 1968–1972), 1:5, 81.29–82.39 (and note Fazlur Rahman, *Avicenna’s Psychology* (London: Oxford University Press, 1952), 25.22–33); Albert the Great, *De hom.*, 117.19–23.

To prove that sleep is not necessary for the plant, Albert has to explain not only why the digestive process in the plant does not generate a need for rest, but also why it (unlike the animal’s digestion; see *Somn. Vig.* 3, 456a30–458a26) does not presuppose sleep; see, for instance, Albert the Great, *Quaestiones super De animalibus*, ed. E. Filthaut (Münster: Aschendorff, 1955), 144.84–145.9, where Albert claims that the plant feeds constantly and does not absorb more than it can digest, whereas the animal feeds at intervals and, hence, its digestion needs extra strength immediately after eating, which makes it necessary for other bodily powers to subside temporarily: “Et praeterea planta continue sumit nutrimentum nec plus sumit quam possit digerere, et ideo somnus non est ei necessarius. Sed animal semel sumit nutrimentum, et ideo indiget, quod virtus digestiva magis confortetur post assumptionem nutrimenti quam antea, quod non potest fieri, nisi aliae virtutes cessent; ideo etc.”

27 For the role of the *spiritus vitalis* in relation to the *spiritus animalis* in Albert, see Miguel de Asúa, “War and Peace: Medicine and Natural Philosophy in Albert the Great,” in *A Companion to Albert the Great: Theology, Philosophy, and the Sciences*, ed. I. M. Resnick (Leiden: Brill, 2013): 277–81.

28 “Hoc autem est proprium dormientium, quod corpora sunt minora dormientia, et sunt majora vigilantia” (Albert the Great, *De somno*, 126a–b.)

wake. Albert refutes the argument by claiming that it is not sleep that causes bodies to shrink and flowers to close, but low temperature.²⁹

Not only the opening and closing of the flower could result in the erroneous conclusion that plants sleep and wake; the fact that some plants blossom during summer, wither in winter, and bloom again in spring, could also be mistaken for an alternation between activity and rest identical to the cycle of sleep and waking in animals. When later expounding on the alternation of sleep and waking in animals in his commentary on *Somn. Vig.*, Albert explains the mechanisms reflected in Aristotle's statement in *Somn. Vig.* 1, 454a29–32: not only locomotion but also perception necessitate sleep in animals. The *spiritus* is reduced through the activities of the waking body; in sleep, the spirit is withdrawn from the external organs and returns to the inner parts of the body where it is restored and wherefrom it can then again expand.³⁰ Since, according to Albert, an analogous circulation of the spirit takes place in plants, he needs to explain why the flow does not necessitate rest in the case of the plant. His explanation is far from convincing: since the matter of plants is both hard and moist, the *spiritus* can move only with great difficulty and, hence, the flow in the plant is much slower than in the animal; the cycle of the flow of the *spiritus* in the plant takes the whole year, with the *spiritus* flowing outwards during summer and withdrawing again in the course of winter.³¹ One would have imagined that the assumption of a higher resistance in the plant would result in exactly the opposite conclusion, that is, that the flow of the *spiritus* in this case would cause an even greater need for rest than in the animal. Instead, Albert's account does not contain any explanation of why the mere fact that the cycle is longer in the plant than in the animal entails the conclusion that plants have no need for sleep whereas animals do, nor does he explain how the plant, without perception of the external world and of time,³² distinguishes between summer and winter.

It is clear, then, that nutrition, growth, and reproduction, do not cause exhaustion in the plant according to Albert, but it is equally clear that plants, as all other living beings, die at some point. In plants, the natural heat, without which the soul cannot operate, is sustained by the plant's digestion and

29 "Et quod corpora sint minora uno tempore quam alio, non est nisi propter frigus aeris circumstantis, et non propter somnum. Et ex eadem causa est clausio florum in nocte, et apertio quae est in die." (Albert the Great, *De somno*, 127a.)

30 Albert the Great, *De somno*, 134a–b.

31 Albert the Great, *De somno*, 126a–27a.

32 Perception of time is the task of the common sense, which plants do not have; see *Mem.* 1, 450a9–12. For a discussion of perception of time with reference to the common sense, see Pavel Gregoric, *Aristotle on the Common Sense* (Clarendon Press: Oxford, 2007), 99–111.

a suitable temperature in its environment. When nutriment enters the plant body, it has a cooling effect, which prevents the heat from burning out.³³ The natural death of the plant occurs after a determinate time when the body is no longer capable of cooling the natural heat:

Violent death or destruction is the extinction or waning of the heat (for destruction may occur from either of these causes), but natural death is the decay of the same due to lapse of time, and to its having reached its appointed end. In plants this is called withering, in animals death. Death in old age is the decay of the organ owing to its inability to cause refrigeration because of old age.³⁴

But is there no connection between the plant's eventual inability to cool the natural heat and exhaustion of the nutritive soul over time? To my knowledge, Albert does not address this question in any of his works, but on the other hand, Aristotle does not seem to provide a clear answer to it either. Generally, plants are more long-lived than animals, since, even though they are dry and earthy, they are more moist than animals and do not dry out as easily (*Long.* 6, 467a6–11). Hence, Albert's observation that the cycle of the natural heat is much slower in plants than in animals seem to have some support in Aristotle. It would seem that Albert understands the process in plants as both slower and weaker, in the sense that less *spiritus* is consumed and the need for rest is accordingly less. However, none of the arguments adduced by Albert demonstrate that the need for rest in plants is non-existent.

33 *Juv.* 4, 469b6–5, 470a5; 6, 470a19–31.

34 τελευτή δὲ καὶ φθορὰ βίαιος μὲν ἢ τοῦ θερμοῦ σβέσις καὶ μάρανσις (φθαρεῖν γὰρ ἂν δι' ἀμφοτέρων ταύτας τὰς αἰτίας), ἢ δὲ κατὰ φύσιν τοῦ αὐτοῦ τούτου μάρανσις διὰ χρόνου μήκος γινομένη καὶ τελειότητα τοῖς μὲν οὖν φυτοῖς αὖανσις, ἐν δὲ τοῖς ζώοις καλεῖται θάνατος. τούτου δ' ὁ μὲν ἐν γήρῳ θάνατος μάρανσις τοῦ μορίου δι' ἀδυναμίαν τοῦ καταψύχειν ὑπὸ γήρωσ. (*Resp.* 24, 479a32–b5 in *Parva naturalia*, ed. Ross.) Even though, according to Aristotle, plants also have organs (e.g., *de An.* 2.1, 412b1–4) and all living beings have either a heart or the equivalent of one, in this case no particular organ in the plant (analogous to the lungs in the animal; see *Resp.* 16, 478a28–34) is responsible for cooling down the natural heat. Regarding the heart, the point where the root and the stem of the plant are joined is of particular relevance; see *Juv.* 3, 468b16–28; cf. Albert the Great, *De generatione*, ed. P. Hoßfeld (Münster: Aschendorff, 1971), 147.54–59 (“virtus formativa [...] sita in uno membro, quod est cor vel id quod est loco cordis in animalibus et radix in plantis, et ex illo formantur omnes partes”).

2.2 *Feeding without Taste and Touch*

Albert's treatment of the question of plant perception in his commentary on *Somn. Vig.* not only elaborates on the theory of the nutritive soul's lesser need for rest, further arguments are also added. If food is perceived by taste and touch,³⁵ and the power of nutrition belongs to the nutritive soul, would that not imply that plants must also have taste and touch? Isaac Israeli is here mentioned as holding such a position:

And this is what the philosopher Isaac the Israelite claims in his work *On the Elements* when he distinguishes between two different types of touch and two different types of taste. For he says that some [living beings] have these senses only naturally (*naturaliter*) and some have them both naturally and in the way of an animal (*animaliter*); he says that those have them naturally that feed only with respect to substance, whereas those that feed with respect to substance and also have the capacity to receive the sensible species of the food, feed also in the way of an animal. From this argument it follows that plants seem to have these two senses, and it then follows that plants have sleep and waking.³⁶

Albert's reference is to Isaac Israeli's *De elementis*, which was accessible to the Westerners in Gerard of Cremona's (c.1114–1187) translation. Here, Isaac, on the basis of a number of empirical examples, concludes that plants have sensation because they are attracted to substances that are good for them and avoid those that can harm them. Plants are natural living beings, and thus the type of sensation they have is a *sensus naturalis*, whereas animals have, in addition to the natural sense, the higher *sensus animalis*, which includes, according to Isaac, the capacity to feel pain and to move by one's own will. Hence, Albert's rendering of Isaac's position is somewhat misleading; Isaac clearly states that plants find pleasure in what is good for them and avoid what is contrary to their nature, and so the claim that it is only living beings that feed *animaliter* that can perceive their food finds no support in Isaac. In Isaac,

35 As claimed by Aristotle in *de An.* 2.3, 414a32–b7, and 3.12, 434b18–22.

36 "Et hoc quidem dicit Isaac Israelita Philosophus in libro de *Elementis*, distinguens duplicem tactum et duplicem gustum: dixit enim hos duos sensus inesse quibusdam naturaliter solum, et quibusdam naturaliter et animaliter: naturaliter autem dicit his inesse quae capit alimentum secundum substantiam solum, naturaliter vero et animaliter his quae capiunt alimentum secundum substantiam, et insuper habent potentias apprehensivas sensibilibus specierum alimenti: plantis igitur videbuntur inesse per hanc rationem isti duo sensus, et per consequens ita erit in eis somnus et vigilia." (Albert the Great, *De somno*, 125b–26a.)

the capacity to distinguish between good and bad nutriment appears to be a power shared by plants and brute animals (human beings, who in addition to perceiving *naturaliter* and *animaliter* also have the superior intellectual sense, the *sensus intellectualis*).³⁷

The decisive point for Albert in his commentary on *Somn. Vig.* is that Isaac's conclusion relies on an erroneous definition of perception. Albert concludes: to perceive is to receive the sensible forms without the matter, a capacity that belongs exclusively to the sensitive soul.³⁸

Albert's refutation of Isaac's conclusion can only be properly understood in light of Aristotle's *de An.* 2.12, 424a32–b3:

And it is evident also why plants do not perceive, although they have a soul-part and are affected in a way by tangible objects; for instance, they are both cooled and heated. The reason is that they do not possess a mean, that is, the sort of principle that receives the forms of perceptible objects; rather, they are affected together with the matter.³⁹

Plants have no sensitive power and, hence, no way of meeting the definition of perception in *de An.* 2.12, 424a17–19, viz. to receive the form without the matter,⁴⁰ but plants can be affected – and changed – by the matter of sensible bodies.

37 Isaac Israeli's Arabic original of the "Book on the elements" has not survived. Gerard of Cremona's Latin translation is available in *Omnia opera Ysaac ...* (Lyon: Bartholomeus Trot, 1515). Albert's reference is to *De elementis* 2, fol. x, col. a, ll. 24–col. b, l. 2 (e.g.: "Et sensus quidem naturalis est qui est proprius arboribus et plantis et quoniam ipsa sunt naturalia, propter hoc sentiunt sensu naturali. Quod si naturae et complexionis suae conveniens est ex nutrimento, et delectantur eo et recipiunt ipsum assidue. Si vero diversum sibi et refugiunt ab ipso eo quod diversum est a natura et complexione ipsorum et expellunt ipsum a se [...] et vegetabili quidem inest sensus naturalis, quo sentit in nutrimento et augmento suo, et animali inest cum sensu naturali sensus animalis quo sentit dolorem corporeum et mouet voluntarie"). For the debate against Isaac on this matter, see also Albert the Great, *De an.*, 50.38–54; *De caelo et mundo*, ed. P. Hoßfeld (Münster: Aschendorff, 1971), 110.45–58; *Super IV sententiarum, dist. XXIII–L*, ed. A. Borgnet (Paris: Vivès, 1894), 51b; *De vegetabilibus*, ed. A. Borgnet (Paris: Vivès, 1891), 9a.

38 See Albert the Great, *De somno*, 126b: "[...] sensibilis enim particula gustus et tactus non diffinitur ab eo quod est capere alimentum tantum, sed ab eo quod est sensibiles species apprehendere sine materia."

39 καὶ διὰ τί ποτε τὰ φυτὰ οὐκ αἰσθάνεται, ἔχοντά τι μόριον ψυχικὸν καὶ πάσχοντά τι ὑπὸ τῶν ἀπτῶν (καὶ γὰρ ψύχεται καὶ θερμαίνεται)· αἴτιον γὰρ τὸ μὴ ἔχειν μεσότητα, μηδὲ τοιαύτην ἀρχὴν οἷαν τὰ εἶδη δέχεσθαι τῶν αἰσθητῶν, ἀλλὰ πάσχειν μετὰ τῆς ὕλης (*de An.* 2.12, 424a32–b3). The translation of *de An.* quoted is that of Fred D. Miller, in Aristotle, *On the Soul and Other Psychological Works* (Oxford: Oxford University Press, 2018); here p. 46.

40 καθόλου δὲ περὶ πάσης αἰσθησεως δεῖ λαβεῖν ὅτι ἡ μὲν αἰσθησις ἐστὶ τὸ δεκτικὸν τῶν αἰσθητῶν εἰδῶν ἄνευ τῆς ὕλης (*de An.* 2.12, 424a17–19). ("In general, then, concerning the whole of

The ultimate reason that plants cannot sense is their composition; perception requires, according to Aristotle, a compound composition. Plants are, just like bones and hair, living substances but have no sensation because they are mainly composed of earth and, hence, too simple.⁴¹ But what exactly does it mean that the plant receives the form together with the matter? Albert's exposition in his commentary on *Somn. Vig.* is in this case surprisingly scant. His example of the plant's reaction to temperature changes and Aristotle's example of hot and cold in *de An.* 2.12, 424a33–34 do not trigger a further explanation from a philosophical perspective. Also his commentary on *De anima* contains little of interest in the matter and no answer to the question that concerns us most: sensible objects also act on plants with both form and matter, but because of their simple composition, plants cannot perceive, but can only be affected by a "material affection" (*passio materialis*, as opposed to a *passio formalis*). Hence, plants can be changed by the matter, but not by the form only; for instance, in the case of taste plants can feed and be changed by the matter of the nutriment, but they cannot judge the flavours,⁴² for instance, they cannot discriminate sweet from bitter.⁴³

Albert discusses the distinction between sensing *materialiter* and *animaliter* at greater length in his commentary on *De plantis* and elaborates

perception we must grasp that perception is the capacity to receive perceptible forms without the matter.")

41 See *de An.* 3.13, 435a21–b1: πάντων γὰρ ἡ ἀφή τῶν ἀπτῶν ἐστὶν ὥσπερ μεσότης, καὶ δεκτικὸν τὸ αἰσθητήριον οὐ μόνον ὅσαι διαφοραὶ γῆς εἰσὶν, ἀλλὰ καὶ θερμοῦ καὶ ψυχροῦ καὶ τῶν ἄλλων ἀπτῶν ἀπάντων. καὶ διὰ τοῦτο τοῖς ὅσοις καὶ ταῖς θριξὶ καὶ τοῖς τοιοῦτοις μορίοις οὐκ αἰσθανόμεθα, ὅτι γῆς ἐστὶν. καὶ τὰ φυτὰ διὰ τοῦτο οὐδεμίαν ἔχει αἴσθησιν, ὅτι γῆς ἐστὶν ("For touch is as it were a mean between all tangible characteristics, and its sense-organ is capable of receiving not only the distinguishing features of earth but also of hot and cold and all the other tangible characteristics. And it is for this reason that we do not perceive by means of our bones and hair and other parts of this sort, because they are composed of earth.")

42 See Albert the Great, *De an.*, 150.5–21: "Ulterius autem ex dictis manifestum est, quare *plantae non habent sensum*; licet enim *patiantur a tangibilibus*, quae agunt in ipsas actione materiae et non tantum actione speciei, et licet *habeant quandam partem animae*, tamen quia organa plantarum non sunt harmonice proportionata ad solas *sensibillum species recipiendas*, non possunt sentire plantae; carent autem *huiusmodi* harmonia in organis propterea, quia terrestres sunt, et ideo actiones earum ab actionibus materialibus elevari non possunt, *sed patiuntur passione materiali*, non formali, sicut diximus. Et ideo dicentes plantas habere duos sensus, gustum scilicet et tactum, absque dubio errant, quia licet trahant nutrimentum et alterentur tangibilibus, tamen non iudicant sapes nec alterantur alteratione speciei tantum, sed alteratione materiae. Hoc est igitur, quod convenit omni sensui, inquantum est sensus."

43 See *de An.*, 3.2, 426b8–12 on the sense-organs' capacity to perceive differences in the sensible objects.

extensively – and apparently independently – on the view reported by Isaac:⁴⁴ according to some, plants have the two senses that do not require an external medium, but operate “within” the living being (*per medium intrinsecum*), viz. taste and touch. These are, in turn, present in the plant and the animal in different ways. The theory represented by Isaac is here explicitly adjusted to the Aristotelian definition of perception: to sense *animaliter* is to receive the form without the matter; to sense *naturaliter* is to receive sensible qualities by a material change:

They say that a living being has sensation in the way of an animal when it has it in respect of actions and affections belonging to the soul only, and this is the capacity to judge and receive the sensibles; this only the soul performs when it receives the impression of the signet ring without receiving the gold or the matter of that signet ring. On the other hand, they claim that to have sensation by nature is to receive the sensibles through the action of the qualities of the matter and the material being that they have in their matter externally, as heat is in the hot and sweetness is in what has been infused with a sweet substance, and so on,

44 Albert the Great, *De veg.*, 17a–18b. Albert’s commentary on *De plantis* probably dates to 1256–1257; see Gilla Wöllmer, “Albert the Great and his Botany,” in *A Companion to Albert the Great*, ed. Resnick, 226.

It may be mentioned that Peter of Auvergne’s *Quodlibet*, qu. 14 (edited by J. Koch in “Sind die Pygmäen Menschen: Ein Kapitel aus der philosophischen Anthropologie der mittelalterlichen Scholastik,” *Archiv für Geschichte der Philosophie* 40:2 (1931): 194–213) contains a similar line of argumentation in a very different context. The topic of Peter’s qu. 14 is whether pygmies are human beings. In addition to the observation that pygmies look like humans, Peter adduces as arguments *quod sic* various actions of the pygmies that appear to give evidence that they are rational beings, among these the fact that they seem to worship the sun: “Secundo quia sole oriente in regione illa moventur applaudantes eidem et quasi reverentiam exhibentes adorando ipsum, quod ad cultum religionis videtur pertinere, qui non est sine ratione, per quam distinguitur homo a non-homine” (Peter of Auvergne, *Quodlibet*, 210). Peter objects that this behaviour is not an indication of rational capacity but merely the result of the *spiritus*’ reaction to the warmth of the sun. He compares the phenomenon of the plant’s reaction to changes in temperature: “[...] oriente sole in illa regione virtute solis calefiunt corpora eorum et dilatantur spiritus, quod sentientes delectati moventur [...]. Etiam videmus in plantis, quod sole ascendente ad cenith calefacte aperiuntur flores, sicut patet in solsequio, et descendente clauduntur constrictae.” (Peter of Auvergne, *Quodlibet*, 213.) Peter is, however, quite clear about the fact that the pygmies actually perceive the heat: “[...] non est opus rationis intellectualis, sed eius que ad sensum pertinent que aliquam similitudinem ad rationem particularem habet in homine” (ibid.). I am grateful to Juhana Toivanen for calling my attention to Peter’s account.

because through this nature of the agent and the affected it is clear that the sensible is in a material and natural being.⁴⁵

But if the plant can only be affected by the matter with the form, is there then any difference between this material change of the plant and the acting of a sensible object on an inanimate being? Yes, Albert replies on behalf of the theory's proponents, because what acts and is affected by the tangible and tasteable object in the plant is still the soul, which informs all the body's activities.⁴⁶

Interestingly enough, Adam of Buckfield's commentary on *De anima* discusses the distinction between the *sensus naturalis* and the *sensus animalis* ascribed by Albert to Isaac, but Adam does not refer to Isaac, and his line of reasoning deviates somewhat from both Isaac's and Albert's. When expounding Aristotle's *de An.* 3.12, 434b22–24, where Aristotle concludes that taste and touch are essential capacities for the animal's survival, Adam states that plants only feed on what is good for them because they feed only by nature. Animals feed not only by nature, but also by will, and since will can lead the animal to food that is either good or harmful, the animal needs the capacity to distinguish the former from the latter in order to survive, whereas, in contrast, the absence of will in plants makes the absence of taste and touch unproblematic.⁴⁷

45 "Animaliter autem inesse dicunt sensum, quando inest secundum solum animae actum vel passionem: et hoc est iudicium sensibilem et apprehensio quam sola facit anima quando recipit formam sigilli immaterialiter omnino, sicut cera recipit figuram sigilli, nihil omnino recipiens de auro vel sigilli materia. Naturaliter autem inesse sensus dixerunt quando sensibilia insunt per actiones qualitatum materiae et per esse materiale quod habent in materia extra, sicut calidum inest calefacto, et dulce ei quod infunditur dulci substantia: et sic de aliis: quia per talem naturam agentis et patientis constituitur sensibile inesse materiali et naturali." (Albert the Great, *De veg.*, 17b.)

46 "Haec igitur est causa, quod hos sensus naturaliter acceptos plantis attribuerunt, non autem rebus inanimatis: quia in eis nulla est forma animae primo informans agentia, ut secundum ejus naturam corpus ipsum suscipiat sensibilem passionem, sed suscipiunt eas ut corpora tantum, ut diximus" (Albert the Great, *De veg.*, 18a.)

47 "Similiter potest dubitari de eo quod dicit quod gustus est sensus alimenti. Si enim ita sit, cum plantae recipiant alimentum, videtur quod debeant habere sensum, ad minus gustum. Et dicendum quod gustus non dicitur sensus alimenti quia sit iudex super ipsum; solum enim iudicat de suo proprio obiecto, quod est sapor. Sed dicitur esse sensus alimenti secundum quod est receptivus alimenti. Non propter hoc oportet quod insit plantis, licet recipiant alimentum; illud enim quod in plantis recipit alimentum est natura quae non recipit nisi illud quod est conveniens rei. In animalibus autem non solum est natura recipiens alimentum, sed est ibi voluntas, quia recipitur cum voluntate. Et quia voluntas potest esse aliquando ad aliquid utile, aliquando ad nocivum, indiget animal in comprehendendo alimentum sensu quo discernat utile a nocivo, quamvis plantae non indigeant ista discretione, et ita nec sensu." (Adam of Buckfield, *De an.*, ad 3.12, 434b22; available in

The question of appetite and desire in plants is a key problem already in *De plantis*. The work reports how Anaxagoras, Empedocles, and Plato, among others, claimed that plants have desire,⁴⁸ but the author, following Aristotle, objects that desire can only exist with sensation.⁴⁹ Albert elaborates on this conclusion in his *De vegetabilibus*, arguing that without sensation living beings are unable to discern what is desirable and, consequently, cannot have desire.⁵⁰ But if the plant is incapable of desire, would that not mean that it is also incapable of distinguishing between good and harmful food and of pursuing the former and avoiding the latter? Obviously, Adam's solution that plants by nature feed only on what is good for them does not hold empirically. In his question commentary on *De animalibus*, Albert, taking as his starting point Aristotle's *de An.* 3.13, 435a17–b1, claims that plants have sensation in the first actuality and the power to absorb nutriment that is appropriate and reject what is harmful, but still lack the ability to perceive because they have no sense-organs:

To the first argument, it must be said that bones have the first actuality of sensation, because life is diffused in all parts of the body and so is sensation. But the second actuality [of sensation] exists only in the sense-organ. Hence, because of the first actuality of sensation and life, bones have the power to discern the appropriate and expel the noxious, and still they have no sensation. And for this reason, one can say that the plant has the power to receive the appropriate and expel the noxious, and still it has no sensation.⁵¹

transcription of the ms Bologna, Bibl. Univ., 2344 (fol. 24r–53v) by J. Ottman: <http://rrp.stanford.edu/BuckfieldDAn3.shtml>.)

In his question commentary on Aristotle's works on animals (*GA*, *HA*, and *PA*, which all circulated under the collective title *De animalibus* in the medieval West), Albert grants that plants are able to accept suitable nutriment and reject that which is harmful, but he also denies that plants can distinguish the former from the latter by perception; see Albert the Great, *Quaest. De animal.*, 129.44–130.8.

48 Ps.-Arist., *De plantis*, 517.3–5, 7–10.

49 The author of *De plantis* is as categorical as Aristotle: "Dico ergo quod plantae nec sensum habent nec desiderium: desiderium enim non est nisi ex sensu, et nostrae voluntatis finis ad sensum convertitur. Nec invenimus in eis sensum nec membrum sentiens nec similitudinem eius nec formam terminatam nec consecutionem rerum nec motum nec iter ad aliquid sensatum nec signum aliquod per quod iudicemus illas sensum habere, sicut signa per quae scimus eas nutriri et crescere." (Ps.-Arist., *De plantis*, 518.11–12.)

50 See Albert the Great, *De veg.*, 6a.

51 "Ad primam dicendum, quod in ossibus est actus primus ipsius sensus, quia vita diffunditur per omnes partes corporis et similiter sensus. Actus tamen secundus non est nisi in parte organica ipsius sensus. Ideo propter actum primum ipsius sensus et vitae est virtus discretiva convenientis et nocivi expulsiva, et tamen non est ibi sensus. Et propter [the

This is puzzling in several ways. According to Aristotle, perception requires a sense-organ and an external object.⁵² Hence, it is surprising that Albert states that perception in the first actuality exists in the plant. Furthermore, if the plant's ability to distinguish between appropriate and inappropriate food does not require perception, but is a power of the nutritive soul, why then would animals, as stated by Aristotle,⁵³ need perception to survive? The fact that plants are stationary whereas (most) animals are capable of voluntary progressive motion is, just as Adam claims, an important part of the explanation, but if not by sensation, by which power does the plant separate appropriate food from inappropriate if that is at all within the plant's capacity? Considering the fact that it is an easily observed phenomenon that plants grow towards favourable conditions and away from unfavourable ones,⁵⁴ what separates plants from stationary animals in this respect?

To sum up at this point, Albert raises several questions related to Aristotle's conclusion that plants have no sensation, but provides us with answers that are far from satisfactory. Albert's explanations of the continuous operation of the nutritive soul are hardly persuasive, and his arguments and conclusion in the discussion on whether plants have the ability to distinguish between good and bad nourishment even weaker, but, perhaps most importantly, Aristotle's compressed statement that plants receive the matter together with the form (*de An.* 2.12, 424b3) does not get any clearer in Albert's account. In the latter case, however, Albert is perhaps not the only one to blame. As noted by the editors of the Cologne edition of Albert's commentary on *De anima*, Albert is not using any of the known available Latin translation of *de An.* but an older translation from the Arabic,⁵⁵ and the lemma in Albert's commentary contains no literal Latin rendering of Aristotle's μετά (*metá*, here "along with") in *de An.* 2.12, 424b3. In Albert's text, the formula "affected by the matter at the same time as the form" is represented by "affected by a material affection, not a formal."⁵⁶ In want of the Latin translation used by Albert, we cannot know whether he is quoting the translation or writing what he thought Aristotle

edition reads praeter] hoc potest dici, quod in planta est virtus receptiva convenientis et nocivi expulsiva, et tamen non est ibi sensus." (Albert the Great, Quaest. De animal., 129.76–130.8.) Cf. also Albert the Great, De veg., 4a–b, 274b.

52 See, for instance, *de An.* 2.5, 416b32–417a14.

53 *De An.* 3.12, 434b11–24.

54 Albert ascribes this argument to the proponents of the theory that plants do have sensation; see Albert the Great, *De veg.*, 4a–b.

55 See Clemens Stroick, ed., *Alberti Magni De anima* (Münster: Aschendorff, 1968), v–vi.

56 See above, 194n39, and Albert the Great, *De an.*, 150.14–15 (italics indicating quoted lemmata follow the Cologne edition): "[...] sed patiuntur passione materiali, non formali, sicut diximus." Both James of Venice's and William of Moerbeke's translations render Aristotle's πάσχειν μετά τῆς ὕλης by "pati cum materia." (Both translations are available

ought to have written, but there is to my knowledge no other indication in Albert's works that he saw a need to explain *de An.* 2.12, 424b3 further.⁵⁷

3 The Tradition after Albert

3.1 *Albert's Successors on the Continuous Operation of the Nutritive Soul*

All arguments *quod sic* and *quod non* and corresponding refutations found in Albert live on in his successors, but some modifications and additions worth mentioning are made along the way. I have studied seven question commentaries on *Somn. Vig.* dating from the mid-thirteenth century to the mid-fourteenth: Geoffrey of Aspall (early 1260s),⁵⁸ two commentaries in the MS Rome, Biblioteca Angelica 549 (one anonymous (1270–1300?))⁵⁹ and one tentatively ascribed to Siger of Brabant (c.1250–70),⁶⁰ Peter of Auvergne (1270s),⁶¹ Simon of

electronically in the *Aristoteles Latinus Database*; printed editions are in progress; see <https://hiw.kuleuven.be/dwmc/al/editions>.)

57 Averroes does not quote or comment on ἀλλὰ πάσχειν μετὰ τῆς ὕλης in 2.12, 424b2–3; see Averroes, *Commentarium magnum in Aristotelis De anima libros*, ed. F. S. Crawford (Cambridge, MA: The Medieval Academy of America, 1953), 2, 319.

58 For a bibliographical overview, see Weijers, *Le travail intellectuel*, 331–35. Note Silvia Donati, “Goffredo di Aspall (†1287) e alcuni commenti anonimi ai *Libri naturales* nei mss. London, Wellcome Hist. Med. Libr., 333 e Todi, BC, 23 (*Qq. super I De gen. et corr.*, *Qq. super Phys.* V, VI) Parte I,” *Documenti e studi sulla tradizione filosofica medievale* 23 (2012): 245–320, and “... parte II,” *Documenti e studi sulla tradizione filosofica medievale* 24 (2013): 219–418. On Aspall's question commentary on *Somn. Vig.*, see Sten Ebbesen, Christina Thomsen Thörnqvist, and Véronique Decaix, “Questions on *De sensu et sensato*, *De memoria* and *De somno et vigilia*: A Catalogue,” *Bulletin de Philosophie Médiévale* 57 (2015): 96–98. Aspall's commentary is edited in Sten Ebbesen, “Geoffrey of Aspall, *Quaestiones super librum De somno et vigilia*: An Edition,” *Cahiers de l'Institut de Moyen-Âge Grec et Latin* 83 (2014): 257–341.

59 MS Rome, Bibl. Angelica, 549, fol. 104vb–112rb (hereafter Anon. Angel., *Quaest. Somn. Vig.*). See Ebbesen, Thomsen Thörnqvist, and Decaix, “Questions,” 106–7. I am currently preparing a critical edition of the work.

60 The commentary is preserved in MSS Rome, Bibl. Angelica, 549, fol. 99vb–104va and Munich, BSB, Clm. 9559, fol. 47ra–51rb. The Rome manuscript contains only the first *quaestio* on *Insomn.*, viz. the question whether dreaming is an affection of the common sense, whereas the Munich manuscript contains six additional questions on *Insomn.* and six on *Div. Somn.*; see Ebbesen, Thomsen Thörnqvist, and Decaix, “Questions,” 100–101. For an overview of all of Siger's works, see Weijers and Calma, *Le travail intellectuel*, 9:55–89. On the attribution to Siger of Brabant, see Jan Pinborg, “Die Handschrift Roma Bibliotheca Angelica 549 und Boethius de Dacia,” *Classica et Mediaevalia* 28 (1969): 383. I am currently preparing a critical edition of the commentary.

61 Peter's commentary is edited in Kevin White, *Two Studies Related to St. Thomas Aquinas' Commentary on Aristotle's De sensu et sensato together with an Edition of Peter of Auvergne's Quaestiones super Parva naturalia* (PhD dissertation, Ottawa, 1986), 2:203–20.

Faversham,⁶² John of Jandun (1309),⁶³ John Buridan (c.1300–c.1361; date of the commentary unknown).⁶⁴ I have also checked the *expositio* by Walter Burley (probably first decade of the fourteenth century)⁶⁵ and, for comparison with a later work, the question commentary by John Versor (1443).⁶⁶ In the earliest of the works studied, the commentary by Geoffrey of Aspill, the problem of plant perception is, as in Albert's commentary on *Somn. Vig.*, discussed as part of the larger question of whether the capacity of sleep and waking is found only in living beings that have sensation. In the vast majority of the later commentaries, however, the question whether plants have sensation is typically treated either as a separate question under this particular heading or as part of the question on whether plants are capable of sleep and waking. Several of the commentaries also include both questions.

For an overview of Peter's works, see Griet Galle, "A Comprehensive Bibliography on Peter of Auvergne, Master in Arts and Theology at Paris," *Bulletin de philosophie médiévale* 42 (2000): 53–79; Weijers, *Le travail intellectuel*, 7:95–127. On the content of the *quaestiones* on *Somn. Vig.*, see Ebbesen, Thomsen Thörnqvist, and Decaix, "Questions," 102.

- 62 Bibliographical overview in Weijers and Calma, *Le travail intellectuel*, 9:99–111. On the content of the *quaestiones* on *Somn. Vig.*, see Ebbesen, Thomsen Thörnqvist, and Decaix, "Questions," 105. Simon's commentary is edited in Sten Ebbesen, "Simon of Faversham, *Quaestiones super librum De somno et vigilia*: An Edition," *Cahiers de l'Institut de Moyen-Âge Grec et Latin* 82 (2013): 90–145 (see pp. 93–94 for the date of Simon's commentary on *Somn. Vig.*).
- 63 John of Jandun's question commentary is still only available in four medieval manuscripts and some early prints. The text in *Ioannis Gandavensis philosophi acutissimi Quaestiones super Parvis naturalibus*, ed. A. Apulus (Venice: Hieronymus Scotus, 1557), 33rb–47ra, has been used throughout this chapter. Bibliographical overview: Weijers, *Le travail intellectuel*, 5:87–104. See Ebbesen, Thomsen Thörnqvist, and Decaix, "Questions," 110–12, for a list of the *quaestiones* included.
- 64 Buridan's question commentary on *Somn. Vig.* is here quoted from George Lockert's edition: *Quaestiones et decisiones physicales insignium virorum Alberti de Saxonia ... Thimonis ... Buridani in Aristotelis ... Librum de Somno et Vigilia* (Paris: Josse Bade, 1516), XLIII–XLVIIv. A critical edition of the full question commentary on the *Parva naturalia* is supposed to be available in Jana Burydana, *Quaestiones super Parva naturalia Aristotelis: Edycja krytyczna i analiza historyczno-filozoficzna*, ed. M. Stanek (Katowice, 2015), to which I have unfortunately had no access. For a bibliographical overview of Buridan's works, see Weijers, *Le travail intellectuel*, 5:127–65; on the content of the *quaestiones* on *Somn. Vig.*, see Ebbesen, Thomsen Thörnqvist, and Decaix, "Questions," 112–13.
- 65 Bibliographical overview in Weijers, *Le travail intellectuel*, 6:37–62. Simon of Faversham's and Walter Burley's commentaries are closely related, but it is not clear whether the many similarities are due to a dependence on a common source or to one work being dependent on the other; see Christina Thomsen Thörnqvist, "Walter Burley's *Expositio* on Aristotle's Treatises on Sleep and Dreaming: An Edition," *Cahiers de l'Institut de Moyen-Âge Grec et Latin* 83 (2014): 379–515.
- 66 I have used *Quaestiones super libros Aristotelis*, inc. 2: *Quaestiones super parva naturalia Aristotelis* (Cologne: Heinrich Quentell, 1489); see Weijers, *Le travail intellectuel*, 5:174; Ebbesen, Thomsen Thörnqvist, and Decaix, "Questions," 115.

As pointed out elsewhere, Geoffrey of Aspell's commentary is of particular interest in that his work displays no clear indication that he knew of Albert's work.⁶⁷ Geoffrey's discussion of plant perception is no exception, but if the conclusion that he has not seen Albert's work is true, the few similarities between both treatments of the problem must be seen as an indication of a dependence on common source material. Unlike the other works here studied, Geoffrey's discussion of the problem of whether only animals sleep and wake includes a comparison not only with plants but also with supralunar bodies and separate substances. For the two latter categories, Geoffrey argues that they have intellect but not sensation and, hence, they cannot be claimed to wake or sleep.⁶⁸ For plants, the only clear parallel between Albert's and Geoffrey's discussions is the objection that not only the sensitive but also the nutritive soul needs to rest from its operations. Whereas Albert takes great pains to adduce several reasons why the activities of the sensitive soul but not those of the nutritive generate a need for rest, Geoffrey restricts himself to a categorical statement that plants operate without rest. Geoffrey's main problem is instead Aristotle's observation in *Somn. Vig.* 1, 454b32–455a1 that the animal's nutritive faculty is more active in sleep than in waking. This claim, Geoffrey explains, does not apply to plants, but refers to a certain accidental property of living beings that have sensation. When such beings sleep, the *spiritus* withdraws from the external senses, which leaves these immobilised, and moves inwards where it instead fortifies the digestive process; hence it is not sleep itself that enhances digestion, but only the particular way that the *spiritus* behaves in living beings endowed with a sensory apparatus.⁶⁹ Furthermore, in the animal, sleep is

67 See Ebbesen, "Geoffrey of Aspell, *Quaestiones*," 261.

68 See Geoffrey of Aspell, *Quaest. Somn. Vig.*, 285: "Ad rationes ostendentes quod somnus et vigilia insunt substantiis separatis et etiam corporibus supralunaribus dicendum quod non quaecumque actualis operatio facit vigiliam, sed solum actualis operatio circa sensum. Unde, licet ibi sit actualis operatio circa intellectum sive actuale intelligere, non tamen est ibi vigilia proprie nisi extendendo nomen vigiliae."

69 Geoffrey of Aspell, *Quaest. Somn. Vig.*, 285. As a standard refutation, the commentators conclude that it is not just any circulation of the *spiritus* in the body that is sleep, but the process where the sensory apparatus is immobilised. Albert's explanation of the alternating outward and inward flow of the *spiritus* in the plant merely as a reaction to air temperature and with no restoring function becomes commonplace in the later commentaries; cf. Peter of Auvergne, *Quaest. Somn. Vig.*, 209.41–48; Simon of Faversham, *Quaest. Somn. Vig.*, 100, 101; Anon. Angel., *Quaest. Somn. Vig.*, fol. 105rb–va; Walter Burley, *Exp. Somn. Vig.*, 414.2–7, 415.3–12, and 417.21–418.1. Also, cf. Albert the Great, *Quaest. De animal.*, 144.44–53; John of Jandun, *Quaest. Somn. Vig.*, fol. 36ra–b; John Buridan, *Quaest. Somn. Vig.*, fol. XLIIVa, XLIIVb.

not caused by digestion itself, but by evaporations arising from the digestion of food; since the nutritive process in plants does not involve this phenomenon, the argument that sleep is needed for the digestive process *per se* does not hold.⁷⁰

The discussion in Albert about the ability of the nutritive soul to operate continuously is found in some form in all the commentaries here studied.⁷¹ The question commentary ascribed to Siger of Brabant takes the argument several steps further, mainly by adding arguments for why the nutritive soul must be constantly active. Siger(?) refers to Averroes' claim in his *Long Commentary on De anima*, 2.136.46–47 that the nutritive soul is always in its “final perfection,” that is, always fully actualised, whereas the sensitive soul need not be actualised all the time.⁷² Averroes cannot mean that all the functions of the

70 Geoffrey of Aspill, *Quaest. Somn. Vig.*, 285; cf. Siger of Brabant(?), *Quaest. Somn. Vig.*, fol. 101va; Walter Burley, *Exp. Somn. Vig.*, 418.24–419.2. Also, note the argument in Albert (*Quaest. De animal.*, 144.84–145.9) that the fact that animals and plants feed in different ways contributes to the difference in need for rest: plants feed continuously whereas animals feed at intervals; hence, the need to fortify the digestion in the animal immediately upon the intake of food has no counterpart in the plant. (“Et praeterea planta continue sumit nutrimentum nec plus sumit quam possit digerere, et ideo somnus non est ei necessarius. Sed animal semel sumit nutrimentum, et ideo indiget, quod virtus digestiva magis confortetur post assumptionem nutrimenti quam antea, quod non potest fieri, nisi aliae virtutes cessent; ideo etc.”)

71 See Geoffrey of Aspill, *Quaest. Somn. Vig.*, 284, 285; Siger of Brabant(?), *Quaest. Somn. Vig.*, fol. 101va; Anon. Angel., *Quaest. Somn. Vig.*, fol. 105va; Walter Burley, *Exp. Somn. Vig.*, 413.15–414.1, 417.1–20; Peter of Auvergne, *Quaest. Somn. Vig.*, 208.3–8, 209.33–45; John of Jandun, *Quaest. Somn. Vig.*, fol. 35rb–va; John Buridan, *Quaest. Somn. Vig.*, fol. xliiva–b; John Versor, *Quaest. Somn. Vig.*, fol. 246ra, 246va. Simon of Faversham's commentary does not contain the argument in full: the beginning of the relevant *quaestio* is missing in the only text witness, the ms Oxford, Merton College Library, 292 (O.1.8), fol. 368ra. See Ebbesen, “Simon of Faversham, *Quaestiones*,” 100. Jandun and Buridan both indicate that the argument that also the nutritive soul must need to rest at some point is the most difficult to refute; see John of Jandun, *Quaest. Somn. Vig.*, fol. 35rb: “Item difficilior, cuiuscumque rei naturalis est aliquod tempus determinatum secundum naturam, cum excesserit tempus, in quo natum est agere: oportet quod deficiat ab agendo”; John Buridan, *Quaest. Somn. Vig.*, fol. xliivb: “Sed hic accidit magna dubitatio, quare virtus nutritiva non fatigatur in operando nec indiget requie ut virtus sensitiva.”

72 “Virtutes enim sensitiuae non semper reperiuntur in sua ultima perfectione, sed uirtutes uegetatiuae semper in sua ultima perfectione reperiuntur. Ex hoc contingit, quod uirtutes [quod] non necesse est (quod *del. ms*) in plantis deficere in operationibus, ut in uegetando, quia uirtus uegetatiua semper agit et est operans in eo, cuius est, usque ad ultimam perfectionem siue ad ultimum (ultimam *ms*) suae perfectionis, et non est <sic> de uirtute sensitiua in animali” (Siger of Brabant(?), *Quaest. Somn. Vig.*, fol. 101va); cf. Peter of Auvergne, *Quaest. Somn. Vig.*, 209.32–41; Simon of Faversham, *Quaest. Somn. Vig.*, 101; Walter Burley, *Exp. Somn. Vig.*, 417.1–4.

vegetative soul are constantly in their second actuality; the plant can hardly be claimed to be constantly growing or constantly reproducing, and Siger(?) clarifies that it is the body's nourishing itself that is constant:

Furthermore, it [the nutritive soul] acts continuously for the survival of the animal, which is a mixture of contraries, and a continuous action of contraries generates a continuous loss, and so some power is needed to continuously restore this continuous loss. But it is not necessary for the animal to perceive constantly in order to survive; therefore, etc.⁷³

Hence, both the operation of the nutritive soul and that of the sensitive soul are important, but, unlike the nutritive, the sensitive does not need to be constantly active in order for the animal to survive, because the animal does not need to feed all the time. The cessation of the operation of the sensitive soul in the animal means sleep whereas the cessation of the operation of the nutritive means the death of the living being.⁷⁴ But in addition to this difference, the sensitive soul also has a greater need for rest, according to Siger(?), because it is a passive power:

Every [animal] can cease from the act of sensing, and the reason for this is the following: the nutritive power is purely active. Taste and touch are kind of active, but the passive powers [of the soul] are sensitive. That whose operation consists in being acted upon requires more recovery and rest than that whose operation consists in acting.⁷⁵

73 "Item continue agit propter saluationem animalis, quod mixtum est ex contrariis, et ex actione continua contrariorum fit deperditio continua, et ideo requiritur aliquae uirtus, quae continue restauret continuam deperditionem. Sed ad saluationem animalis non est necesse semper sentire; ideo et cetera" (Siger of Brabant(?), *Quaest. Somn. Vig.*, fol. 101va); cf. John of Jandun, *Quaest. Somn. Vig.*, fol. 35va. Also, cf. Albert's account of the function of the *virtus animalis* vs. that of the *virtus naturalis* and *vitalis* in Albert the Great, *Quaest. De animal.*, 144.68–79. On the body as composed of contraries, see *de An.* 1.4, 407b27–32. Cf. Albert the Great, *De gen.*, 146.21–28.

74 This becomes a standard explanation in the commentaries after Albert; see, for instance, Anon. Angel., *Quaest. Somn. Vig.*, fol. 105va; Simon of Faversham, *Quaest. Somn. Vig.*, 100; John Versor, *Quaest. Somn. Vig.*, fol. 246va.

75 "Omnia possunt deficere in actu sentiendi, et huius est causa, quia uirtus uegetatiua est solum uirtus actiua; gustare et tangere quaedam actiones sunt, uirtutes autem passiuae sunt sensitiuae. Cuius operatio consistit in quodam pati magis indiget recreatione et quiete quam cuius operatio consistit in agere" (Siger of Brabant(?), *Quaest. Somn. Vig.*, fol. 101va); cf. Walter Burley, *Exp. Somn. Vig.*, 418.2–8. That the patient is in more need of

The same argument is found later in Simon of Faversham, who elaborates on it and also clarifies that the eventual exhaustion of the sensitive soul is not due to exhaustion of the sense itself but of the sense-organ. To prove his case, Simon refers to *de An.* 1.4, 408b21–22, where Aristotle proves that aging is due to an affection of the body and not of the soul by adducing the hypothetical example that if an old man acquired the eye of a young man, his visual capacity would be as good as the young man's.⁷⁶ Walter Burley also refers the sensitive soul's greater need for rest to the presence of sense-organs: the more widely diffused the spirit is in the body, the weaker it becomes. In the animal, unlike in the plant, the spirit is distributed between the various sense-organs and, hence, less concentrated and burns out more easily.⁷⁷ John of Jandun contrasts this refutation with Albert's explanation that the animal's forward motion, unlike the natural motion of the nutriment, is contrary to the nature of the body and hence generates a need for rest. "Some," John claims, dismiss Albert's theory as self-contradictory, and he does not make any attempt to come to Albert's rescue:

But some disapprove of this, because it is certain that in the operation of nutrition some consumption of the spirits must occur. Furthermore, nutriment by nature moves downwards, but in the nutritive process it moves in all directions. Hence, it appears to move contrary to its natural inclination, wherefore it would seem that the nutritive process needs to rest for the spirits to recover sufficiently.⁷⁸

recovery than the agent seems a somewhat surprising claim but it probably has its origin in the doctrine that the action is in the patient, which goes back to *Ph.* 3.3, but note also *de An.* 2.2, 414a11–12: δοκεῖ γὰρ ἐν τῷ πάσχοντι καὶ διατιθεμένῳ ἡ τῶν ποιητικῶν ὑπάρχειν ἐνέργεια. I am grateful to Sten Ebbesen for pointing this out to me.

76 Simon of Faversham, *Quaest. Somn. Vig.*, 101.

77 See also Walter Burley, *Exp. Somn. Vig.*, 418.12–23; John of Jandun, *Quaest. Somn. Vig.*, fol. 35va. Jandun suggests that the *spiritus* recovers while operating: "Et ideo diversitas huius forte est ista, quia ipsa planta in opere nutritionis suae non consumit magnam multitudinem spirituum, quia spiritus eius sunt grossiores et durabiliores et ideo non est necesse, quod quandoque planta quiescat a nutriendo per aliquod tempus, ut huiusmodi spiritus restaurentur, sed in operando sufficienter restaurantur. Sed ipsum animal in sentiendo multos spiritus consumit aut debilitatur propter subtilitatem et passibilitatem ipsorum spirituum." In Buridan, it is rather the fact that the *spiritus* flows from the inner parts of the body to the external senses that makes the perceiving animal consume it faster: "Sed in opere sensuum exteriorum natura indiget mittere spiritus ad organa exteriora ad exercendum opera sua et illi spiritus iam in organis exterioribus existentes cito propter subtilitatem exhalant" (John Buridan, *Quaest. Somn. Vig.*, fol. xliivb).

78 "Sed illud non placet aliquibus, quia certum est, quod in operatione nutritionis oportet fieri aliquam consumptionem spirituum. Et adhuc nutrimentum de natura sua habet

3.2 *Plant "Perception" and Plant "Appetite"*

Following Albert, Siger(?) reports Isaac Israeli's division of sensation (but ascribes it to Galen). Siger(?) accepts the claim that plants are able to distinguish between good and bad food, but, like Albert, he rejects the labeling of this capacity as a perceptual capacity, referring to the fact that if the so called natural sense is to be understood as a type of sense-perception, it would mean that we would also find pain and pleasure, desire, appetite and, ultimately, locomotion in plants.⁷⁹ Siger(?) here anticipates the objection that there are stationary animals that have sensation but are still incapable of forward motion, and concludes that such animals are at least capable of moving, if not their whole body, a part of it, and if not by forward motion, by stretching towards something desirable and retracting from something harmful. Since plants lack both sensation and intellect, they cannot move by either of these and, therefore, they cannot move at all.⁸⁰ It is not clear how Siger(?) explains the apparently similar motion in plants when these, for instance,

deorsum, sed in nutritione movetur ad omnem differentiam positionis. Propter quod videtur moveri contra suam naturalem inclinationem, et sic videtur, quod indiget quiete, ut in operatione sufficienter restituatur spiritus." (John of Jandun, *Quaest. Somn. Vig.*, fol. 35vb.)

79 See, e.g., *de An.* 2.2, 413b22–24; cf. Walter Burley, *Exp. Somn. Vig.*, 415.20–416.4; John of Jandun, *Quaest. Somn. Vig.*, fol. 35rb. Burley and Jandun refute Isaac's theory on identical grounds: plants do not have sensation because they are too earthy; hence, they are unable to receive the form without the matter.

80 "Intelligendum, sicut narrat Albertus supra librum De somno et uigilia, quod Galenus dixit triplicem sensum: unum naturalem, qui est in plantis, quo attrahunt conueniens nutrimentum et refutant disconueniens, quod est eis contrarium. Secundum animale, qui est in brutis, tertium intellectualem, qui est in hominibus. Sic autem dicere non est, nisi aequiuocare uocabulum sensus; si enim uirtutem existentem in plantis uocemus sensum, et similiter alias. Hoc est autem aequiuoce, sed de sensu proprie dicto est quaestio, et uidetur, quod plantis non inest sensus hoc modo. Et ratio Aristotelis ad hoc est, quod tunc in eis esset appetitiua particula, et per consequens delectio et tristitia; illud autem totaliter, quod quaeritur, probat et non est petitio, quia, cum alicui inest appetitus, eis inest motus secundum locum, de quo ad locum aut saltem motu delectationis et contristationis. Haec autem non mouent plantas, quia duo sunt principia motiua animalis: Aut enim mouetur appetitu intellectuali aut appetitu sensuali ita, quod idem inest appetitus. Si tamen obicias: 'Terrae affixa habent appetitum et tamen non mouentur,' dico, quod si huiusmodi animalia non mouentur secundum totum, mouentur tamen <motu> dilatationis et constrictionis. Et secundum partem mouentur, quia secundum quod sentiunt aliquod dilectabile, dilatantur et mouentur secundum partem. Secundum autem quod aliquid nocium, constringuntur. Et huiusmodi appetitus non est in plantis." (Siger of Brabant(?), *Quaest. Somn. Vig.*, fol. 101va.) Cf. Walter Burley, *Exp. Somn. Vig.*, 413.9–14, 414.8–17, and 416.20–23.

grow towards the sunlight and away from harmful substances. Just as in Albert, this observation is not considered at all in the discussion.

Whereas the question above is not treated, Siger(?) addresses *de An.* 2.12, 424a32–b3 indirectly by adding the argument *quod* that plants can be destroyed by excessive stimuli and so must be able to sense.⁸¹ He refutes the argument by referring to Averroes' theory of the variable nature of the sensible species as a corporeal being in the sensible object and as a spiritual one in the medium.⁸² When vultures sense the smell of a carcass fifty miles away, they do not perceive the sensible forms as the corporeal beings that they are in the sensible objects, but in the spiritual form they have in the medium.⁸³ Siger(?)'s point seems to be that the sensible forms affecting the plant *materialiter* as corporeal beings is not the same as having sensation, that is, the capacity to also receive the sensible forms *spiritualiter*.⁸⁴

81 Siger(?) refers to *De plantis* for the observation that plants can be destroyed by excessive sensible qualities such as strong odours (Siger of Brabant(?), *Quaest. Somn. Vig.*, fol. 101va), but I have been unable to find the passage there.

82 Averroes, *Comm. magnum in De an.* 2, 276.7–278.77 (for the example of the vultures, see *ibid.*, 2, 278.49–50). On this passage and interpretations of it in other thirteenth-century commentators on Aristotle's theories of sense-perception, see Simo Knuuttila and Pekka Kärkkäinen, "Medieval Theories," in *Sourcebook for the History of the Philosophy of Mind: Philosophical Psychology from Plato to Kant*, ed. S. Knuuttila and J. Sihvola (Dordrecht: Springer, 2014), 68–70.

83 "Ad primam rationem in oppositum, quod secundum Commentatorem secundo De anima quaedam sunt, quae multiplicant se spiritualiter, ut albedo et odor, et quaedam sensibilia sunt, quae multiplicant materialiter (sensualiter *ms*). Quod odor multiplicatur spiritualiter, quia quae spiritualiter se multiplicant per magnam distantiam multiplicantur, hoc ostendit per hoc, quod uultures per quinquaginta miliaria ueniunt ad cadauera mortuorum. Sed non posset esse tanta multiplicatio odoris materialiter; quare spiritualiter ibi solum multiplicabatur. Dico ergo, quod illud, quod transmutatur a sensibili spiritualiter sensum habet, non autem quando materialiter. Et uerum est, quod uniuersaliter sensibilia immutant sensus suos spiritualiter; unde odor sensum olfactus et color uisum. Unde dico, quod, si immutetur spiritualiter <***> sed si corrumpatur ab aliquo excellenti sensibili materiali, non est necesse." (Siger of Brabant(?), *Quaest. Somn. Vig.*, fol. 101va.) Cf. Thomas Aquinas, *Sententia De anima*, ed. R.-A. Gauthier (Rome: Commissio Leonina / Paris: Vrin, 1984), 2, 20, 152–53; John Buridan(?), *Quaestiones super librum De anima*, ed. B. Patar in *Le traité de l'âme de Jean Buridan (de prima lectura)* (Louvain-la-Neuve: Editions de l'Institut supérieur de philosophie, 1991), qu. 22 ("Utrum odor sit in medio realiter an spiritualiter"), 621.1–624.25 (= Lockert xviiiia–xlviiia). Patar attributes the commentary to Buridan, but its authenticity has been questioned; see Sander W. de Boer and Paul J. J. M. Bakker, "Is John Buridan the Author of the Anonymous *Traité de l'âme* Edited by Benoît Patar?" *Bulletin de Philosophie Médiévale* 53 (2011): 283–332. Also, note Albert the Great, *De an.*, 135.12–51 on *de An.* 2.9, 421b10–13.

84 Cf. Averroes, *Comm. magnum in De an.* 2, 318.6–11.

The same argument and a similar, but not identical, refutation is found in Walter Burley⁸⁵ and, in a fragmentary form, in Simon of Faversham, where the refutation apparently formed part of the *quaestio*'s solution; the only available manuscript starts off in the middle of it.⁸⁶ The refutation in Burley and Faversham echoes Averroes' explanation but does not include the distinction between material and spiritual transmission; the plant is said to be affected not by smell directly, but by bodies that carry it ("corpus habens odorem foetidum") and by a "material condition" that is present in these bodies that "infects" the medium which, in turn, destroys the plant.

Whereas the other commentators from Albert onwards provide either no answer at all or quite fragmentary solutions to the question of how the plant feeds without perception and appetite, Peter of Auvergne puts quite an effort into providing a tenable explanation. In two separate *quaestiones*, Peter deals first with the question of whether plants have appetite and desire⁸⁷ and, second, whether they have pleasure and pain.⁸⁸ As to the former, Peter gives the following answer: since plants, like all living beings, need food to survive, and all living beings desire to survive, plants must also have an appetite and a desire for food. Appetite, according to Peter, falls into two main categories closely corresponding to Isaac's division of sensation: natural appetite (*appetitus naturalis*) and animal appetite (*a. animalis*). The latter category falls into two subtypes: the intelligible and the sensitive. The former is called will (*voluntas*) and is found in the rational part of the soul. The latter falls into another set of subtypes: the concupiscible appetite (*a. concupiscibilis*), which is an attraction towards what appears desirable to the animal, and the irascible (*a. irascibilis*), which is a resistance towards what appears undesirable. The *appetitus animalis* and its subtypes, Peter concludes, require cognition; plants have only the *appetitus naturalis* – "an inclination towards something by a natural instinct and without cognition,"⁸⁹ by which they are stimulated "to exist, to be preserved, and towards appropriate food."⁹⁰ The division is found

85 See Walter Burley, *Exp. Somn. Vig.*, 415.13–18; 419.4–9. Siger(?) refers to *De plantis* for the observation that plants can be destroyed by excessive sensible qualities such as strong odours, but I have been unable to find the passage there. Burley erroneously ascribes it to Theophrastus' "On Plants" (Walter Burley, *Exp. Somn. Vig.*, 415.16–17).

86 Simon of Faversham, *Quaest. Somn. Vig.*, 100.

87 Peter of Auvergne, *Quaest. Somn. Vig.*, 210.3–211.32.

88 Peter of Auvergne, *Quaest. Somn. Vig.*, 211.33–212.22.

89 Cf. Thomas Aquinas, *Summa Theologiae* (Rome: Commissio Leonina, 1897), 1.78.3; see Robert Pasnau, *Thomas Aquinas on Human Nature: A Philosophical Study of Summa Theologiae*, 1a 75–89 (Cambridge: Cambridge University Press, 2001), 209–12.

90 Peter of Auvergne, *Quaest. Somn. Vig.*, 211.27–31: "Appetitus naturalis est inclinatio ad aliquid instinctu naturae et non ex cognitione; appetitus animalis est inclinatio ad aliquid

already in Albert, who ascribes it to Averroes,⁹¹ but Peter's systematic account of the division in response to the argument *quod non* in this case has no counterpart in the other commentaries here studied.

John of Jandun's question commentary adds a couple of new elements to the discussion. Neither Albert nor any of the other commentators here studied problematise the fact that the plant's ability to grow towards favourable conditions and retract from harmful ones could be seen as a type of voluntary motion analogous to that of stationary animals.⁹² Jandun is the only commentator on *Somn. Vig.* here studied to grant that the plant's growth could be claimed to be a form of motion, but he dismisses the possibility that it can be claimed to be governed by appetite:

But plants do not move by themselves locally, because they do not move by themselves by stretching out and retracting or by forward movement, which is obvious. Nevertheless, it is true that they in some way and accidentally move locally by themselves in the respect that in some way locomotion accompanies movement of growth. But the reason that plants have this property is not that they have some power to pursue something insofar as it is appropriate, viz. the pursuit that accompanies appetite and processive motion in order to pursue [sc. the appropriate] or avoid [sc. the inappropriate].⁹³

cum cognitione." Note that in Albert's account of Isaac's theory in *De veg.*, 17a, the division of sensation is explicitly linked to a corresponding division of desire, and the difference between the two main types is based on the absence vs. presence of cognition as in the division into natural and animal appetite in Peter: "Quod enim Plato desiderium inesse dixit plantis et appetitum, et alii quidam sensum, planum est intelligere si quis inspiciat rationes eorum. Ipsi enim, sicut testatur Isaac, duplex dixere desiderium et duplicem sensum. Unum quidem, quod est cum apprehensione desiderati et sensibilis et aliud quod est sine apprehensione omni. Et ideo, quando sensum attribuerunt plantae, non dederunt [desiderunt *Borgnet*] ei sensum et desiderium cum apprehensione sensibilis et desiderati, sed sine his." In the brief *quaestio* on whether plants have pleasure and pain Peter concludes without much further ado that since plants do not have cognition, they are affected by neither of these.

91 Albert the Great, *Phys.*, 73.78–81. It is not clear to me which passage Albert is referring to, but see Averroes, *Comm. magnum in De an.* 3, 522.22–28 on *de An.* 3.10, 433b7–8.

92 Aristotle mentions in *de An.* 2.2, 413a25–b1 the plant's ability to grow in all directions: διὸ καὶ τὰ φυόμενα πάντα δοκεῖ ζῆν· φαίνεται γὰρ ἐν αὐτοῖς ἔχοντα δύναμιν καὶ ἀρχὴν τοιαύτην, δι' ἧς αὐξήσιν τε καὶ φθίσιν λαμβάνουσι κατὰ τοὺς ἐναντίους τόπους· οὐ γὰρ ἄνω μὲν αὐξεται, κάτω δ' οὐ, ἀλλ' ὁμοίως ἐπ' ἅμφω καὶ πάντη, ὅσα αἰεὶ τρέφεται τε καὶ ζῇ διὰ τέλους, ἕως ἂν δύνηται λαμβάνειν τροφήν. χωρίζεσθαι δὲ τοῦτο μὲν τῶν ἄλλων δυνατόν, τὰ δ' ἄλλα τούτου ἀδύνατον ἐν τοῖς θνητοῖς. φανερόν δ' ἐπὶ τῶν φυομένων· οὐδεμία γὰρ αὐτοῖς ὑπάρχει δύναμις ἄλλῃ ψυχῆς.

93 "Plantae autem non moventur secundum locum per se, non enim moventur ex se motu dilatationis et constrictionis, neque processivo motu, ut manifestum est. Verum tamen

4 Conclusion

Aristotle's classification of plants as ensouled beings without sense-perception and his subsequent conclusion that plants are incapable of sleep and waking raise and leave open a number of questions related to sense-perception that the medieval commentators on *Somn. Vig.* tried to answer. Their efforts center around three main problems. Two of these are intimately connected to the survival of the animate organism.

- (1) Perceptual capacity is necessary for the animal's survival, and so is sleep, because the sensitive soul cannot function without intervals of inactivity. The nutritive soul, on the other hand – or at least the power by which the plant nourishes itself – has to operate continuously; when it reaches the limit of its capacity, the organism runs out of fuel and dies. The medievales provide a set of explanations for why the sensitive soul needs rest whereas the nutritive does not, and they employ a double strategy when doing so: they adduce a range of reasons why the nutritive process consumes very little of the organism's *spiritus*, and the overall gist of their arguments seems to be that so little fuel is lost in process that the nutritive soul conducts its nourishing activity as a more or less self-sustaining system. At the same time, a corresponding set of arguments is adduced to explain why the sensitive soul cannot operate continuously. The standard explanation of the difference between the nutritive and sensitive soul in this respect is partly a matter of concentration of the *spiritus* and complexity of the organism, partly of motion and resistance: not only is it the case that in the animal organism, unlike in the plant, the various bodily organs, including the sensory organs when operating, must all be supplied with the *spiritus*; it is also the case that the animal's forward motion, unlike the motion of the flow of the nutriment, wearies the body, because it is contrary to the nature of the animal's body.
- (2) According to Aristotle, the plant is a self-nourishing being with no perception and hence neither touch nor taste. Thus, plants have no capacity to distinguish between appropriate and inappropriate food. Consequently, they are also incapable of locomotion, but so are some animals. So if the stationary animal's stretching out towards favourable conditions and

est, quod aliquo modo moventur localiter ex se per accidens in quantum motum augmenti consequitur aliquo modo motus localis, sed hoc non est eis per se quia habeant aliquam virtutem apprehendentem aliquid sub ratione convenientis, quam apprehensionem consequatur appetitus et motus secundum locum ad prosequendum vel fugiendum." (John of Jandun, *Quaest. Somn. Vig.*, fol. 35rb.)

pulling back from conditions and substances that would otherwise harm it is the work of the animal's sensitive soul and of desire, why could the apparently similar behaviour in the plant not also be claimed to be evidence of desire and appetite? If the capacity to distinguish good food from bad is vital to the stationary animal, why would it not be vital to the plant? The few of the Latin commentaries here studied that address the problem make some attempts at assuming a lower form of appetite in plants, which, contrary to animal appetite, is separate from perceptual capacity and still has the function of directing the plant towards appropriate food. Aristotle is very clear in *de An.*: plants do not have the "mean" that makes it possible for the animal to discern sensible qualities and differences between these.⁹⁴ So, if not by perception as this mean, how is the appropriate target of this goal-directed motion of the plant identified by the nutritive soul? The accounts of the theory of natural vs. animal appetite in the commentaries on *Somn. Vig.* are terse and appear to generate more questions than they answer. It is perhaps somewhat telling that Peter of Auvergne, whose commentary on *Somn. Vig.* contains the most elaborate account of the theory, argues in his question commentary on *Sens.* that the reason that plants (as well as inanimate objects) have not been endowed with perception as protection against threats is that "nature cares more about the survival of the animal than that of plants and inanimate objects."⁹⁵

- (3) As to the question of how plants can lack the ability to perceive and still be acted upon by sensible objects, the commentators found an explicit answer in Aristotle's claim that the form of a sensible object can act upon the plant but only together with the matter. Considering the complexity of the question and the lemma's key role in it, the commentators devote surprisingly little attention to explaining the precise meaning of Aristotle's expression "along with the matter" (μετὰ τῆς ὕλης) in *de An.* 2.12, 424b3. To receive the form without the matter is impossible for a being without sense-perception, and the reverse is impossible for all beings, but by some affection by the matter of the sensible object together with its

94 Cf. *de An.* 2.12, 424a32–b3 with 2.11, 424a2–10.

95 "Similiter dico sensus gustus est necessarius animali quia animal est vivum et nutribile; ei autem secundum quod vivum et nutribile competit cibus conveniens, et contrarium huius corrumpit ipsum vivum. Et ideo animali datus est sensus gustus ut cognoscat quis cibus sit conveniens et quis non conveniens. Unde natura, magis intendens salutem animalium quam plantarum vel inanimatorum, dedit animalibus, quae sunt in gradu superiori, tactum et gustum, et non plantis vel inanimatis." (Peter of Auvergne, *Quaest. Sens.*, qu. 10, 23.28–36.)

form, the matter of the plant can, evidently, still undergo some kind of change. The precise nature of this change is not clear in Aristotle and the interpretation of *de An.* 2.12, 424a32–b3 has been much discussed in modern scholarship. This chapter will not dwell on the details of the contemporary debate.⁹⁶ What can be concluded here, however, is that the nine medieval commentaries here studied provide little more than a superficial rendering of this important passage, which is clearly an appendix to the crucial definition of *aísthēsis* (αἴσθησις) in *de An.* 2.12, 424a17–24. As mentioned above, Albert's commentary on *de An.* does not bring much to the table in this respect, but it may be worthwhile to search further in the Latin tradition on *de An.* Further study of the reception of *de An.* 2.12, 424a32–b3, as well as further inquiry into the nature of the *appetitus naturalis*, is, I think, likely to contribute not only to the investigation begun in this chapter, but also to our knowledge of the reception of Aristotle's theory of perception more broadly.

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96 Note, in particular, Richard Sorabji, "Intentionality and Physiological Processes: Aristotle's Theory of Sense-Perception," in *Essays on Aristotle's De anima*, ed. M. Nussbaum and A. Oksenberg Rorty (Oxford: Clarendon Press, 1995), 215–18, and the concise and helpful overview of the debate in Ronald Polansky, *Aristotle's De anima* (New York: Cambridge University Press, 2007), 353n27. I quote here, with Polansky, David Bradshaw, "Aristotle on Perception: The Dual-Logos Theory," *Apeiron* 30 (1997): 148: "It is well known that the closing statement, that plants are affected 'together with matter,' is ambiguous. Does it refer to the matter of the plants, the point being that plants are affected in their matter as a substrate? Or does it refer to the matter of the objects affecting them, the point being that plants undergo change by incorporating matter?" See also Damian Murphy, "Aristotle on Why Plants Cannot Perceive," *Oxford Studies in Ancient Philosophy* 29 (2005): 295–339.

Autoscopy in *Meteorologica* 3.4: Following Some Strands in the Greek, Arabic, and Latin Commentary Traditions

Filip Radovic and David Bennett

Rainbows are visions, but only illusions ...

KERMIT T. FROG



1 Introduction

Aristotle introduces a peculiar case of a man who sees an image of his own face in his discussion of rainbows in *Meteorologica*. Aristotle has just stated that the rainbow is a reflection and aims to explain what kind of reflection it is, how its special characteristics emerge, and the causes of these characteristics. Aristotle tells us that vision is reflected from all smooth surfaces, including air and water. He then provides this striking illustration:

Air reflects when it is condensed; but even when not condensed it can produce a reflection when the sight is weak. An example of this is what used to happen to a man whose sight was weak and unclear: he always used to see an image [*eídōlon*] going before him as he walked, and facing towards him. And the reason why this used to happen to him was that his vision was reflected back to him; for its enfeebled state made it so weak and faint that even the neighbouring air became a mirror and it was unable to thrust it aside.¹

1 γίγνεται δὲ ἀπὸ μὲν ἀέρος, ὅταν τύχῃ συνιστάμενος. διὰ δὲ τὴν τῆς ὀψευς ἀσθένειαν πολλάκις καὶ ἄνευ συστάσεως ποιεῖ ἀνάκλασιν, οἷόν ποτε συνέβαινέ τινα πάθος ἡρέμα καὶ οὐκ ὀξὺ βλέποντι· αἰεὶ γὰρ εἰδῶλον ἐδόκει προηγέσθαι βαδίζοντι αὐτῷ, ἐξ ἐναντίας βλέπον πρὸς αὐτόν. τοῦτο δ' ἔπασχε διὰ τὸ τὴν ὄψιν ἀνακλᾶσθαι πρὸς αὐτόν· οὕτω γὰρ ἀσθενὴς ἦν καὶ λεπτὴ πάμπαν ὑπὸ τῆς ἀρρωστίας, ὥστ' ἔνοπτρον ἐγίγνετο καὶ ὁ πλησίον ἀήρ, καὶ οὐκ ἐδύνατο ἀπωθεῖν. (Aristotle, *Meteorologica*, trans. H. D. P. Lee (Cambridge, MA: Harvard University Press, 1952), 3.4, 373b1–10.) Lee uses

Aristotle's description is likely the oldest extant diagnostic description of *autoscopia* (literally, "self-observation").² In contemporary psychiatry, autoscopy is classified as a hallucination of one's own visual appearance located in external space. One may doubt whether Aristotle's description really corresponds to an authentic case of hallucination in the modern clinical sense, yet Aristotle's explanation of the phenomenon includes a non-hallucinatory case of 'self-observation' by means of a mirror. However, if we assume that recent descriptions of autoscopy in the psychiatric literature reflect a universal condition that existed before it was described by modern psychiatry, it does not seem too far-fetched to suppose that the case that Aristotle considers corresponds to what is currently described as a certain type of hallucination. Of course, the report may be fabricated – perhaps there really was no man who saw a face before him as the report has it. Nevertheless, while there are many uncertainties in the relevant passage, the distinct nature of the condition suggests an autoscopic hallucination as described in contemporary psychiatric literature.³

This paper illuminates two intertwined themes related to this peculiar case of self-observation. First, we will show that the correspondence between Aristotle's description of the phenomenon and the attested psychiatric condition is valid and provocative. Second, we will examine the commentary tradition on this passage, particularly the claim regarding 'weak perception,' in order to show how the Aristotelian tradition dealt with aberrant or confusing cases of sense perception. By examining these themes together, we can make some progress towards disambiguating mental disorders from perceptual errors, both theoretically and in the textual tradition. For although Aristotle endorsed no distinction between somatic and mental illnesses, later theorists had to contend with such categorical distinctions: see, for example, Alwishah's contribution to this volume (chapter four).

Since, as is common practice in contemporary psychiatric literature, such experiences are referred to as 'hallucinations,' we might be tempted to associate them with conditions of mental illness or (preferably) the effects of

Fobes' text: Aristotle, *Aristotelis Meteorologicorum Libri Quattuor*, ed. F. H. Fobes (Cambridge, MA: Harvard University Press, 1918).

- 2 For earlier work that links Aristotle's account of self-observation to the condition of autoscopy as described by the modern psychiatric tradition, see especially Peter Bicknell, "Déjà Vu, Autoscopia, and Antiphron: Notes on Aristotle *Memory and Recollection* I, 451a 8–12 and *Meteorologica* III, 4.373b1–10," *Acta Classica* 24 (1981): 156–59.
- 3 Peter Brugger, Marianne Regard, and Theodor Landis, "Illusory Reduplication of One's Own Body: Phenomenology and Classification of Autoscopic Phenomena," *Cognitive Neuropsychiatry* 2.1 (1997): 19–38 report that autoscopic hallucinations often occur with a short duration, i.e., in the range of seconds. Note that Aristotle asserts that the man always used to see this image.

psychedelic intoxication. Nevertheless, regardless of their causes, hallucinations are habitually described as false perception-like experiences that occasionally are mistaken for cases of veridical perception. Thus, hallucinations sometimes appear in the form of trustworthy perceptions from their observer's point of view, even if they are not. So, even if they are not perceptual errors in the form of common perceptual distortions that occur in everyday life, but rather symptoms of a disordered mind, they can still be (and are, diagnostically) described as sensory errors that appear as perceptual states.⁴

Moreover, as we shall see in section two, contemporary discussions in literature on sensory illusions make it clear that it is difficult to maintain a principled distinction between 'hallucinations,' 'illusions,' and 'misperceptions' in terms of perceptual errors involving external objects, on the one hand, and pure hallucinations, which occur in the absence of external stimuli, on the other. In fact, 'hallucination' as well as 'illusion' are often used in different ways in the modern theoretical literature.

The ambiguity pervading discussions of hallucinations, that is, as to their origins in sensory or mental deficiencies, also informed ancient and medieval commentators, who rejected Aristotle's explanation in *Meteorologica*, turning instead to Aristotle's account of sensory errors in the *De insomniis* in order to explain this case of self-observation. This move involved consideration of the internal factors in the mind, anticipating modern explanations of sensory illusions and hallucinations, as well as later attempts to distinguish between misperceptions, illusions (including persistent systematic perceptual illusions), and hallucinations.

Even when it is taken to indicate a special case of false perceptual awareness, rather than a symptom of mental illness, applying the term "hallucination" to the Aristotelian framework is problematic for a number of reasons. Aristotle does not use any straightforward equivalent of the term hallucination in the Greek. Instead Aristotle uses the term *pseudos* (falsehood) as a generic word for sensory errors (e.g. *Insomn.* 1, 459a6), but it is not applied in this case. Further, Aristotle does not distinguish between misperception, illusion, and hallucination in a way that reflects divisions in modern literature. For example, he does not make any kind of distinction between 'illusion' and 'hallucination' such as that attributed to Aretaeus of Cappadocia (c.150 CE) and later developed by Jean-Étienne Dominique Esquirol (1722–1840), according to which illusions are understood roughly as sensory distortions of perceived objects, whereas hallucinations are taken to be perception-like experiences

4 This phenomenon is also discussed in Alwishah's contribution to this volume.

in the absence of any corresponding external object.⁵ In any event, it is clear that the case of autoscopia is not part of Aristotle's general account of sensory errors that occur because of conditions that restrain the working of the mind (illness, intoxication, sleep,⁶ or strong emotion) – states in which the observer may be aware of false sensory occurrences as errors and, if the conditions are severe, in which such errors are not noticed (delusional awareness).⁷ The term “hallucination” is also ambiguous in relation to some of the perceptual errors Aristotle explicitly discusses. For example, he asserts that a person who is affected by disease may perceive cracks in the wall as animals (*De insomniis* 2, 460b11–13): this may be characterised as a borderline case between misperception and hallucination because of the radical change in the awareness of the perceived external reality.

Nor does the case of autoscopia completely match any of the cases of misperception that Aristotle gives in *De insomniis* or other sensory errors mentioned elsewhere. Such cases include: (1) sense organs that remain active when the object that caused their movement is no longer present (afterimages and other perceptual after-effects) (*Insomn.* 2, 459b7–23); (2) illusions of size (*Insomn.* 2, 460b18–19); (3) misidentification of persons and objects (*Insomn.* 2, 460b6–7; 460b11–13); (4) misapprehension of the reality of a *phántasma* (*Insomn.* 3, 461b1–7; *Mem.* 1, 451a8–12); (5) atypical perceptual circumstances, e.g., touching with crossed fingers (*Insomn.* 2, 460b20–22; 3, 461b2–3), or a single finger pressed beneath the eye appearing as two (*Insomn.* 3, 461b30–462a1). The case of autoscopia most resembles (5), that is, a perceptual error that emerges in atypical perceptual circumstances, due to the sense organ's particular interaction with the perceived environment.

5 The distinction between ‘illusion’ and ‘hallucination’ is unclear in many cases. Oliver Sacks writes: “If I see someone cross the room from left to right, then see them crossing the room in precisely the same way again and again, is this sort of repetition (a ‘palinopsia’) a perceptual aberration, a hallucination, or both? We tend to speak of such things as misperceptions or illusions if there is something there to begin with – a human figure, or example – whereas hallucinations are conjured out of thin air. But many of my patients experience outright hallucinations, illusions, and complex misperceptions, and sometimes the line between these is difficult to draw.” (*Hallucinations* (London: Picador, 2012), x–xi.) For attempts in the modern literature to define ‘illusion’ and ‘hallucination,’ see Jan Dirk Blom, *A Dictionary of Hallucinations* (Dordrecht: Springer, 2010), for a great variety of suggestions.

6 The condition of sleep not only enables dreams, but also makes the dreamer disposed to mistake dreams for present real-world objects. See *Insomn.* 3, 461b7–30.

7 ‘Delusional’ in this context means that the subject is unaware of the illusory nature of the appearance, that is, he/she is responding to the observed image as if it was a perceived real physical object. On delusions perpetuated by emotional states, see *Insomn.* 2, 460b3–16.

Aristotle characterises the autoscopic case as a mirror-phenomenon that occurs when the visual ray is unable to penetrate the air in front of the observer, and therefore becomes reflected. The failure of weak sight to penetrate dense air seems to be the main cause of the phenomenon. The same phenomenon is said to occur for those with normal sight in especially dense air, which seems to imply that a perceiver with strong sight may “see through” some portion of dense air, whereas a perceiver with considerably weaker sight will have his visual rays reflected when they encounter the same concentration of dense air.

In this chapter, we will examine (§2) Aristotle’s description of *autoscopy* against the backdrop of contemporary psychiatric theorising, insofar as it harmonises with descriptions of the phenomenon found in contemporary psychiatric case reports. Then (§3) we will consider an odd feature of Aristotle’s explanation: namely, that it involves an extramission theory of visual perception – a type of theory that is rejected in Aristotle’s major works on perception, that is, in *De anima* and *De sensu*. Aristotle’s seemingly ad hoc acceptance of the extramission theory will be one major reason why alternative accounts of autoscopia are developed in the commentary tradition. The rest of this chapter (§§4–6) will be devoted to the vicissitudes of that tradition, as successive commentators grappled with the example. It will be shown that Alexander of Aphrodisias challenges Aristotle’s explanation and further alters Aristotle’s articulation of the explanandum. Special attention is given to the Arabic translation of the *Meteorologica*, which presents further interpretive difficulties, both in the Arabic tradition itself and in the Latin reception of the Arabic translation.

Finally, we will consider Peter of Auvergne’s description and explanation of autoscopia, which combines elements from Aristotle and Alexander; Appendix 2 contains the first edited version of the relevant passage in Peter’s commentary on the *Meteorologica*.⁸ Peter’s contribution is basically an elaboration of Alexander’s account, but unlike Alexander he remains faithful to Aristotle’s original description of the phenomenon. Moreover, both Alexander and Peter construe the case of autoscopia as a special case of illusion as characterised by Aristotle in the *De insomniis*. This particular move makes the conceptualisation of autoscopia more modern, as it were, but less faithful to Aristotle’s original account, while remaining Aristotelian in essence: that is, it is a case in which the commentary tradition deviates from Aristotelian doctrine while staying faithful to Aristotelian methodology. However, as was common among ancient and medieval scholars, no commentator or translator questioned the account as a viable report of some human experience: the

8 We are especially grateful to Sten Ebbesen for preparing this edition exclusively for this inquiry.

explanations were contested, the properties of what was seen were debatable, but the phenomenon was taken for granted.

2 Autoscopic Phenomena in Modern Psychiatric Literature

The term “autoscopic hallucination” was introduced by the French physician and mesmerist Charles Féré (1852–1907).⁹ The condition (sometimes also known as specular hallucination) is basically a hallucination of one's own visual appearance. There is no general agreement on how the phenomenon should be conceptualised.¹⁰ The most common use of the designation autoscopia refers to a visual experience where the subject observes a visual image of him/herself in external space, viewed from within his/her own physical body.

A closely related phenomenon is the so-called *doppelgänger* phenomenon, that is, the sense of one's own double being present, with or without an accompanying visual image.¹¹ Yet another related but distinct condition is the so-called out-of-body experience, where there is an experience of being

9 Blom, *A Dictionary of Hallucinations*, 52.

10 See here for instance Tom R. Denning's and German E. Berrios' remarks in “Autoscopic Phenomena,” *British Journal of Psychiatry* 165 (1994): 809: “Autoscopia belongs within a range of ill-classified symptoms involving the boundaries of the self. There is disagreement as to whether autoscopia refers to a hallucination, an illusion, a delusion, a disorder of the body image, a disorder of the self, or a form of vivid imagery. The term ‘autoscopia’ is used ambiguously, and the phenomena included are heterogeneous (Jaspers, 1963). In addition, after Menninger-Lerchenthal (1935), the term ‘heautoscopia’ is sometimes used, emphasising that the self-image is seen at a distance (i.e. separate from one's body). However, we see no advantage in this term; it is pedantic, almost unpronounceable and not widely used in ordinary practice.” The references in the quote are to Erich Menninger-Lerchenthal, “Das Truggebilde der eigenen Gestalt (Heautoscopia, Doppelgänger),” *Abhandlungen aus der Neurologie, Psychiatrie, Psychologie und ihren Grenzgebieten* 74 (1935): 1–196, and Karl Jaspers, *General Psychopathology*, trans. J. Hoenig and M. W. Hamilton (Manchester: Manchester University Press, 1963). The claim that ‘heautoscopia’ is used to emphasise that the self-image is seen at a distance is likely to be a misunderstanding on Denning's and Berrios' part. The adjustment is most likely intended to do justice to the fact that ‘oneself’ is the object, not the subject, of the seeing: think of ‘autopsy’ (‘to see with one's own eyes’). Thus, the use of the term “heautoscopia” may be understood as an attempt to introduce a more precise term than “autoscopia” (unqualified as ‘self-observation’).

11 Andrew Sims, *Sims' Symptoms in the Mind*, 4th ed. (Edinburgh: Saunders/Elsevier, 2008), 225: “The ‘double’ or *doppelgänger* phenomenon is an awareness of oneself as being both outside, alongside, and inside oneself: the subjective phenomenon of *doubling*. In the discussion that follows, the description is of a symptom or phenomenon and not a syndrome or diagnosis; the experience occurs with different conditions or with no mental disorder at all. It is cognitive and ideational rather than being necessarily perceptual.”

separated from one's own physical body, and at times the body is observed from a distant position in space.¹²

In typical reports of autoscopia, however, the subject feels himself to be located within his own body and there is an apparent image of oneself that often has a distinct mirror quality. Brugger notes that:

It is typically reported by patients with occipital lesions who describe it as the experience of 'seeing oneself *as in a mirror*'. Therefore, the autoscopic hallucination has also been labelled a 'mirror hallucination', especially in the French psychiatric literature of the late 19th and early 20th centuries (e.g., Féré, 1891; Naudascher, 1910; Sollier, 1903). This term is entirely appropriate, since the hallucinated image exhibits all the properties of a mirror image (i.e., it is naturally coloured and wears clothing identical to and has the same facial paraphernalia as the real self). The most important characteristic in the present context is the left-right reversal, as if the patient were actually standing in front of a real mirror.¹³

Autoscopic phenomena may appear in delusional as well as non-delusional forms, that is, the patient may respond to the image as something real or be aware of the image's illusory nature. The observed double can be hostile but also friendly.¹⁴ Note that Aristotle's description does not provide any clue as to whether the individual described reacted to the image as an illusion (e.g., a mere mirror image) or as a physically present double.

Aristotle refers to the autoscopic image as an *eídōlon*, which is his standard term for figures seen on reflecting surfaces (mirrors and liquids at rest; see, e.g., *Insomn.* 3, 461a14–15; *Div.Somn.* 2, 464b8–15). Note also that Aristotle seldom, if ever, describes mirror images as illusions (cf. *phantásmata* qualified as illusions in *Insomn.* 1, 459a6–8). Moreover, he on no occasion refers to mirror images as *phantásmata*, unlike Plato who seems to use *eídōlon* and *phántasma*

12 See, e.g., Susan J. Blackmore, *Beyond the Body: An Investigation of Out-of-the-Body Experiences* (Chicago: Academy Chicago Publishers, 1982, reprinted 1992).

13 Peter Brugger, "Reflective Mirrors: Perspective-Taking in Autoscopic Phenomena," *Cognitive Neuropsychiatry* 7 (2002): 181. The references in the quote are to Charles Féré, "Note sur les hallucinations autoscopiques ou spéculaires et sur les hallucinations altruistes," *Comptes Rendues Hebdomadaires des Séances et Mémoires de la Société de la Biologie* 3 (1891): 451–53; M. G. Naudascher, "Trois cas d'hallucinations spéculaires," *Annales Médico-Psychologiques* 68 (1910): 284–96; Paul Auguste Sollier, *Les phénomènes d'autoscopie* (Paris: Alcan, 1903).

14 See Ronald K. Siegel, *Fire in the Brain: Clinical Tales of Hallucination* (New York: Plume, 1993), or, for instance, Dostoyevsky's novella *The Double*, trans. R. Pevear and L. Volokhonsky (New York: Knopf, 2005), which portrays a man and his malicious double.

interchangeably.¹⁵ Aristotle's consistent description of mirror images as *éidōla* makes good sense considering the external origin of mirror images; that is, they are not apparitions produced by *phantasía*. Even if the relevant (auto-scopic) image, according to Aristotle, is not classified as a *phántasma*, *éidōla* are illusions of a sort, since the term in its traditional use strongly connotes ghostly appearances that imitate the superficial characteristics of real-world objects or living beings.¹⁶

3 The Extramission Theory of Vision

Aristotle's reference to autoscopia is worth exploring for other reasons besides its documentation of a rare experience acknowledged in contemporary psychiatry. Notably, Aristotle's explanation of the phenomenon relies on the so-called extramission theory of visual perception. By that model, sight is possible by means of visual rays that emanate from the eyes and reach out to external objects.¹⁷ So why does Aristotle endorse a theory of perception in the *Meteorologica* that he rejects elsewhere in his major works on sense perception?¹⁸ Before introducing the case of autoscopia, Aristotle says that he relies on the idea that our vision is reflected from the air and other smooth surfaces because this is what is accepted in the established field of optics (*Mete.* 3.2, 372a29–32), which is at odds with the intromission theory of vision that is endorsed in *De anima* and *De sensu*. In fact, Aristotle argues that the two rival accounts of perception make no explanatory difference when explaining,

15 For instance, reflections in water are referred to by Plato as *phantásmata* in *Republic*, ed. and trans. C. Emlyn-Jones and W. Preddy (Cambridge, MA: Harvard University Press, 2013), 6.510a, but described as *éidōla* in *Rep.* 7.516a and *Timaeus*, trans. R. G. Bury (Cambridge, MA: Harvard University Press, 2013), 71b5.

16 Cf. other references to *éidōla*, e.g., in *Insomn.* 3, 462a11–15. The term *éidōlon* carries strong visual connotations in Aristotle's use and in other traditional applications.

17 Cf. Plato's theory of perception, as described in *Timaeus*, 46a–b.

18 Cf. Bicknell, "Déjà Vu," 159: "One thing is certain; we must avoid reading into the text a temporary adherence by Aristotle to the Platonic theory that he attacked at *Sens.* 2, 437b9ff., of visual rays proceeding from the eye." However, a temporary adherence to an extramission theory, of the kind that Plato endorses (or other kinds, for that matter), is exactly what it looks like in this case. One may ask whether Aristotle wholeheartedly endorsed the extramission theory in *Meteorologica* or whether he used it for pedagogical purposes, to put forward convincing explanations. For a discussion of assumed Aristotelian expository principles, see William Wians and Ronald Polansky, *Reading Aristotle: Argument and Exposition* (Leiden: Brill, 2017), 1.

for instance, perception of distant objects (*GA* 5.1, 780b34–781a12) or the apparent quivering of the fixed stars (*Cael.* 2.8, 290a18–24).¹⁹

However, if the mirror reflection is caused by poor eyesight, as Aristotle maintains, it is difficult to see how the two rival theories of perception could be equivalent in this particular case. It may be that Aristotle endorses extramission in order to make his point about reflecting surfaces clearer while downplaying the reasons for preferring one theory over the other. *Meteorologica* is just the sort of work to make such digressions from the preferred view since it does not set out to explain the mechanisms of perception in general.

Alexander of Aphrodisias (second century CE) (along with other commentators) makes it clear that Aristotle's true view of perception is presented in *De anima* and *De sensu*. Alexander then goes on to highlight the idea that the two opposing views are virtually of equal worth when it comes to explanations of how mirror images appear on smooth surfaces. Alexander adds that Aristotle "avails himself of the doctrine of rays, as being both more widely received and approved by the mathematicians."²⁰ Thus, Alexander roughly repeats the reasons Aristotle gives for using the extramission theory in *Meteorologica* (3.2, 372a29–32).

Later, Olympiodorus (sixth century), just like Alexander, observes the inconsistency with the view of perception that Aristotle defends in *De sensu* and *De anima*. Olympiodorus also identifies the views expressed in *De sensu* and *De anima* as Aristotle's genuine position on the matter. He adds that when Aristotle's account is presented in a sort of digression, *then* it will follow the majority view. So, according to Olympiodorus, Aristotle discards the extramission theory in most cases, but in some exceptional cases he will follow the received view, for instance, when stressing some particular point.²¹

19 Aristotle claims that the visual ray becomes weak when reaching out to faraway stars; this explains the twinkling of the fixed stars and the absence of the twinkling in the perception of planets (since they are closer).

20 Alexander of Aphrodisias, *Alexandri in Aristotelis Meteorologicorum libros commentaria*, ed. M. Hayduck (Berlin: Reimer, 1899), 141.29–30. Börje Bydén has provided translations of Alexanders' text exclusively for this inquiry.

21 Olympiodorus, *Olympiodori in Aristotelis Meteora commentaria*, ed. W. Stüve (Berlin: Reimer, 1900), 4.27–5.10. For a recent account of Aristotle's ambivalence regarding intromission and extramission theories of visual perception, see Sylvia Berryman, "It Makes No Difference': Optics and Natural Philosophy in Late Antiquity," *Apeiron* 5 (2012): 201–20.

4 Alexander of Aphrodisias and the Greek Commentary Tradition

4.1 *Alexander of Aphrodisias*

As we have seen, Aristotle explains the phenomenon of autoscopia as an effect of weak sight (that is, a weak visual ray) that is unable to penetrate the surrounding air. Thus, the visual ray bounces back, which explains the emergence of the reflected image.

It is quite clear that Alexander is uncomfortable with Aristotle's application of the extramission theory for theoretical reasons. Alexander rejects the extramission theory but also takes on the challenge of explaining the phenomenon in an alternative way which downplays the mirror-like qualities of the "seen" image. We will present his analysis of the problem in full here because it illustrates the lengths to which he is willing to apply his alternative explanation:

But since we claim that it is not possible for a visual ray to be reflected, one may inquire what experience it was that befell Antiphron. [It could be the case that,] just as it seems to those who have a scar in the area of the pupil owing to severe inflammation of the eye or some injury, and indeed to those who are about to develop a cataract, that a gnat is hovering before their eyes, since they see what is inside the pupil itself and imposed on it against nature as if it were outside, on account of the habitude of the sense. For it is habitual for it [sc. the visual sense] to see what is outside, and in the end it sees all objects of vision as if they were outside. For in a sense these objects, too, are outside it, since they are externally imposed on it against nature. An indication that it is from some affection of this kind that the appearance of a gnat arises is that those who see it do so especially at times when an evaporation from things that remain undigested in the stomach is brought up from the mouth of the stomach. For when the blood-vessels in the area of the pupil are filled with unclean and unprocessed refuse, they counteract the transparency of the sense-organ, and the visual sense sees this thing which occludes it as if it were in front of the eyes and outside. The same affection also arises when a cloud-like formation taking shape in the area of the pupil is not yet sufficient to block it and prevent it from seeing but already possesses thickness, as is wont to happen prior to the emergence of cataracts. For to those who are so afflicted the light presents this kind of affection and the visible object thus imposed, together with the external visible objects, as something external. Accordingly, just as it appears to these people that something similar to a gnat is hovering before the visual organ, sometimes equipped with wings (when the

blood-vessels are distended) and sometimes without this kind of appendage (when there is less repletion in the blood-vessels), in the same way it seemed to Antipheron, who had poor and dull eyesight on account of the spread of some rather extensive formation over his pupils, that a larger object was leading the way in front of his visual organ, which he likened to a face, as the previously mentioned people [liken what appears to them] to a gnat. Their experience is similar to that of those who liken the formations and reliefs of clouds to satyrs or shapes of certain wild animals on the basis of a small similarity.²²

Alexander's account is complex but also highly innovative, involving several crucial explanatory moves which deserve special consideration. First, there is the possible explanation that a scar or some other injury on the pupil gives rise to a gnat phenomenon or some observed cloud-like phenomenon. These 'internal objects' on the pupil are present in different sizes and the appearance of a face presumably involves a larger injury than the appearance of a hovering gnat.

Alexander claims that visual perception, by habit, tends to externalise its objects. When some digestive condition leads to something like 'unprocessed refuse' (poop) in the eye, the visual sense will naturally project it as an external object of observation. Indeed, Alexander seems to assume that visual

22 ἀλλ' ἐπεὶ μὴ οἶόν τε τὴν ὄψιν ἀνακλᾶσθαι φαμεν, ἐπιζητήσῃεν τις ἄν, τί ἦν τὸ γενόμενον πάθος περὶ τὸν Ἀντιφέροντα. ἡ ὥσπερ τοῖς οὐλὴν τινα περὶ τὴν κόρην ἔχουσιν ἢ διὰ βαρεῖαν ὀφθαλμῖαν ἢ διὰ τρῶσίν τινα, καὶ μέντοι τοῖς ὑποχέισθαι μέλλουσι κωνώπιόν τι πρὸ τῶν ὀφθαλμῶν ἵπτασθαι δοκεῖ, τὸ ἐν αὐτῇ τῇ κόρῃ ὄν καὶ ἐπικείμενον παρὰ φύσιν ὡς ἔξω ὄν ὁρώσι διὰ τὴν συνήθειαν τῆς αἰσθήσεως. σύνηθες μὲν γὰρ αὐτῇ τὰ ἔξω ὁρᾶν, ἡδὴ δὲ καὶ πάντα τὰ ὁρώμενα ὡς ἔξω ὄντα ὁρᾷ. τρόπον γὰρ τινα καὶ ταῦτα ἔξω ἐστὶν αὐτῆς διὰ τὸ ἔξωθεν προσκεῖσθαι παρὰ φύσιν. σημεῖον δὲ τοῦ ἀπὸ τοιοῦτου τινὸς πάθους κωνωπίου γίνεσθαι φαντασίαν τὸ τότε μάλιστα τοὺς ὁρῶντας αὐτὸ ὁρᾶν, ὅταν ἐκ τοῦ στόματος τῆς κοιλίας ἀνενεχθῇ τις ἀναθυμίασις ἀπὸ τῶν ἐν αὐτῇ καταλειφθέντων ἀπέπτων· πληρούμενα γὰρ τὰ περὶ τὰς κόρας φλεβία ῥυπαρὰς καὶ ἀκατεργάστου περιττώσεως ἀντιπράττει τῇ τοῦ αἰσθητηρίου διαφανείᾳ, καὶ τὸ κατασκιάζον αὐτὴν τοῦτο ἡ ὄψις ὡς πρὸ ὀμμάτων ὄν καὶ ἔξω ὁρᾷ· γίνεται δὲ τὸ αὐτὸ πάθος καὶ νεφελοειδοῦς τινος συστάσεως συνισταμένης περὶ τὴν κόρην οὕτω μὲν ἱκανῆς πρὸς τὸ ἐπιφράττειν καὶ κωλύειν αὐτὴν ὁρᾶν, ἡδὴ δὲ πάχος ἐχούσης, ὡς πρὸ τῶν μελλουσῶν ὑποχύσεων γίνεσθαι φιλεῖ. τὸ γὰρ φῶς τοῖς οὕτως ἔχουσιν σὺν τοῖς ἔξωθεν ὁρατοῖς καὶ τὸ τοιοῦτον πάθος καὶ τὸ οὕτως προσκεῖμενον ὁρατὸν ὡς τι τῶν ἔξω ποιεῖ. ὡς οὖν ἐκεῖνοις εἰκόσι τι φαίνεται κωνωπίῳ πρὸ τῆς ὄψεως αἰωρεῖσθαι ποτὲ μὲν ἔχοντι πτερὰ, ὅταν ἢ διωγκωμένα τὰ φλεβία, ποτὲ δὲ χωρὶς τοιαύτης προσθήκης, ὅταν ἐλάττων ἢ περὶ αὐτὰ πλήρωσις ἦ, οὕτως τῶ Ἀντιφέροντι μικρὸν καὶ οὐκ ὀξύ ὁρῶντι διὰ τὸ πλείω τινὰ σύστασιν ἐπεσεκεδᾶσθαι ταῖς κόραις μεῖζόν τι πρὸ τῆς ὄψεως ἐδόκει προηγεῖσθαι, ὃ εἰκάζετο προσώπῳ, ὡς οἱ προειρημένοι κώνωπι, ὁμοῖόν τι πάσχοντες τοῖς τὰς τῶν νεφῶν συστάσεσι τε καὶ ἐξοχὰς εἰκάζουσιν ἀπὸ μικρᾶς ὁμοιότητος Σατύροις ἢ θηρίων τινῶν μορφαῖς. (Alexander, *In Mete.*, 148.4–30, trans. B. Bydén.)

perception always involves the externalisation of perceived objects. So even if some objects are internal to the eye, the perceiver tends to see such objects as belonging to the perceived environment. Alexander not only suggests that an object in the eye is misapprehended as being located in external space, he also suggests that the internal object would be fused with genuine external objects of perception. Thus, some internal object may partly cover the external object, appearing as though it were in front of the proper external object.

The man to whom Aristotle attributes the autoscopic experience is identified by Alexander as Antipheron of Oreus. This identification is not as arbitrary as it may appear at first glance. Aristotle mentions 'Antipheron of Oreus' in *Mem.* 1, 451a9 in a passage usually interpreted as explaining how false memories emerge. The fundamental distinction that Aristotle refers to is between the apprehension of a picture, as such, (*zôón*, that is, 'the animal' or picture) and the same picture conceived as a likeness (*eikón*) in relation to a real-world object (*Mem.* 1, 450b20–451a2). The distinction aims to illuminate two ways of apprehending *phantásmata*, either as something in themselves or as resembling real-world objects or events. However, before introducing the special case of false memory, which adds a temporal dimension, Aristotle mentions the general case where he says that some people "spoke of their images as having actually happened" (*Mem.* 1, 451a10).²³ Now, if Aristotle first considers the general case in which people misapprehend imagined content as real happenings and later the special case of false memories, it becomes natural to identify the man who suffers from autoscopia as Antipheron.²⁴ So, if Antipheron is a man who is assumed to see things that are not really there, he might also be the very man that Aristotle refers to in the *Meteorologica*. Even if Alexander does not faithfully follow the point that Aristotle highlights in *De memoria*, that Antipheron and his ilk mistake *phantásmata* for real happenings, he explains how an internal phenomenon (an injury in the eye, not a *phántasma*) is misapprehended as an externally perceived object. Accordingly, there is a loose correspondence between Alexander's account of the autoscopic vision described in *Meteorologica*, and the cognitive errors that Aristotle attributed to Antipheron and other unstable people like him.

23 David Bloch remarked in conversation that the passage about Antipheron in *De memoria* can be read as regarding the general case of mistaking *phantásmata* for real events followed by the specific case of false memory.

24 Note that the text is rather unclear about whether it is Antipheron that sees things that are not really there, or whether he is the man who supposedly undergoes episodes of false memories. However, it is clear that Antipheron exemplifies a man who mistakes *phantásmata* for real events.

Even if Alexander offers an alternative account, like Aristotle he assumes that the man has poor sight. However, in Alexander's account, the poor eyesight does not depend on the weakness of the visual rays but is caused by a scar or some other injury of the eye, or by some thickening formation on the pupil (cf. Peter of Auvergne below).

Finally, Alexander accepts Aristotle's description of the case as involving a man who sees a face in front of him, but he does not accept Aristotle's explanation in terms of visual rays that become reflected. Thus, according to Aristotle's explanation the man sees his own face, and not just any face. By contrast, Alexander explains the appearance of a face and does not allow any explicit claim regarding the identity of the face, which is understandable if Alexander rejects Aristotle's explanation of the phenomenon as a mirror-phenomenon.

It is a face because it is a misperception based on what the interfering entity in the eye resembles. The entire explanation centres upon such flaws in the eye, and how they lead Antipheron to see a discernible figure in front of him, located in external space. The main idea here is that ambiguous perceptual content is determined in terms of what it resembles. Alexander argues that the case is analogous to one in which people liken cloud-formations to certain animals or satyrs (cf. *Insomn.* 3, 461b19–21). Alexander assumes that it is basically the same mechanism that explains the presence of a moving speck before one's eyes (the gnat phenomenon) and the presence of a face. The speck is identified as a gnat and the "rather extensive formation" as a face simply because they resemble such objects. This means that Alexander's explanation goes beyond the assumption of weak sight (due to an injury in the eye), so he must complement it with a cognitive account.²⁵

As noted, Alexander does not provide an explanation of autoscopy, strictly speaking, but rather explains how a perception-like appearance of a human face emerges. However, both Alexander's and Aristotle's accounts explain the illusory appearance of a face located in external space. For Aristotle, it is a reflection of sorts; Alexander's explanation involves a misidentification of the perceived object, paving the way to treat the error as a special case of perceptual misidentification as explained in *De insomniis*.

In sum, Alexander's account presents a number of potential internal conditions that, when combined with the visual sense's tendency to project its objects into an external field, could give rise to various misperceptions: scars,

25 This explanatory move raises further questions about which cognitive capacities are involved in the assumed case of perceptual misidentification. Aristotle's view on the matter is not explicit. For a thorough discussion of his view on these matters, see Mika Perälä's contribution to this volume (chapter two).

inflammations, evaporated stomach-stuff, “cloud-like formation[s] in the area of the pupil,” and finally, in the case of Antipheron, “the spread of some rather extensive formation over his pupils” – any or all of these could be the culprit. The observer may register a gnat, or in this case, a face, insofar as it resembles the internal defect.

On the other hand, Alexander’s alternative account draws substantially on Aristotle’s theories of illusion as presented in the *De insomniis*. Alexander’s suggestion to view the image of a face as a misperception of some other object reclassifies the phenomenon from a literal mirror reflection (as in Aristotle’s original account) to an illusion proper, in line with the wider Aristotelian framework. As we shall see later, Peter of Auvergne is likely to have profited from Alexander’s account: he stays faithful to Aristotle’s description of the mirror experience while discarding the assumed mirror mechanism. Thus, Peter may be said to defend a position between Aristotle’s and Alexander’s.

4.2 *Sextus Empiricus and Michael of Ephesus*

At this point it may be worthwhile to take a look at two additional Greek sources that consider Aristotle’s case of autoscopia in *Meteorologica*. First, Sextus Empiricus (second century CE) makes a brief reference to Aristotle’s description of autoscopia. Sextus does not have much to say about the phenomenon *qua* autoscopia. He reports: “Aristotle describes a Thasian who thought that the image of a man was always preceding him.”²⁶ The object is not a specific man; Sextus does not mention that the case involves an image of the perceiver’s own face or that the face appears in the form of a mirror image. In any event, it is clear from the context that Sextus’ main business is not to explain why the man sees an image of a face before him. He rather uses Aristotle’s report of the phenomenon in order to highlight the particular point that perceptual conditions may vary for different observers. Nevertheless, as we shall see, Sextus contributes substantially to the confusion as regards the origin of the mentioned man by describing him as originating from Thasos.

Another relevant source is Michael of Ephesus’ twelfth-century commentary on the *Parva naturalia*, which offers a quite original explanation:

For Antipheron of Oreus, whom he [sc. Aristotle] also mentions in the *Meteorologica* on account of the weakness of his eyesight, used to suppose, when he saw a person moving opposite him, that he was not seeing

26 Sextus Empiricus, *Outlines of Scepticism*, trans. J. Annas and J. Barnes (Cambridge: Cambridge University Press, 2000), 1.84.6–8.

this now, but he had seen this person previously and was now remembering it.²⁷

As in Alexander, the subject is Antipheron of Oreus, and the object is not his own image. Antipheron, in this account, mistakes a presently perceived object for a memory image. At any rate, Michael's reference to Antipheron does not reflect the particular point Aristotle makes about Antipheron and his ilk. Aristotle's point is that such people erroneously speak of their *phantásmata* as if they were real external objects. This does not seem to be Michael's point at all.²⁸

5 The Arabic Tradition – Text and Interpretations

5.1 *Arabic Interpretations*

The *Meteorologica* (Ar. *Kitāb al-Āthār al-ʿulwīyya*) was translated into Arabic early, around 800 CE, by Ibn al-Bīṭrīq (d. 830).²⁹ This version survives and was

27 ὁ γὰρ Ἀντιφέρων ὁ Ὠρεΐτης, οὗ καὶ ἐν τοῖς Μετεώροις ἐμνήσθη διὰ τὴν ἀσθένειαν τῆς ὀψευς, ἐναντίως αὐτῷ φερόμενον ὁρῶν ἄνθρωπον ὑπενόει ὡς οὐ νῦν τοῦθ' ὁρᾷ, ἀλλ' ὅτι πάλαι τοῦτον ἰδὼν νῦν μνημονεύει αὐτό. (Michael of Ephesus, *In Parva naturalia Commentaria*, ed. P. Wendland (Berlin: Reimer, 1903), 17.30–18.2, trans. B. Bydén exclusively for this inquiry.)

28 As we have seen, there are various assumptions made about the identity and geographical origin of the man who undergoes the alleged autoscopic experience in *Meteorologica*. As mentioned, Sextus Empiricus refers to the man as a citizen of Thasos (*Outlines* 1.84). On the other hand, Alexander says that the man is Antipheron of Oreos, the man who is mentioned in *Mem.* 1, 451a9 (*In Mete.* 147.28–32). Further, Olympiodorus (*In Mete.*, 230.13–18, 232.10–14) also identifies the man as Antipheron, albeit as a citizen of Tarentum. Olympiodorus adds (*ibid.*, 232.14–15) that the same Antipheron is mentioned in the *Ethics*. However, there is no reference to Antipheron in the *Nicomachean Ethics* or any other extant ethical work by Aristotle. Bicknell suggests “it is tempting to suppose that Olympiodorus was merely guilty of two slips of memory. Recalling Alexander's comment he misrecalled Antipheron's ethnicity; he then referred Aristotle's specific allusion to Antipheron to the wrong work.” (“*Déjà vu*,” 158; see also Bicknell's attempts to link Antipheron in *De memoria* with the man who sees his own image in *Meteorologica* by means of particular traits common to autoscopia and déjà vu.) As suggested above, Alexander's identification of the man as Antipheron in *De memoria* may rely on a superficial resemblance between the man who sees his own face and the cognitive errors that Aristotle attributes to Antipheron and people like him in *De memoria*.

29 The latest edition of this text is presented in Pieter Schoonheim, *Aristotle's Meteorology in the Arabico-Latin Tradition: A Critical Edition of the Texts, with Introduction and Indices* (Leiden: Brill, 2000), hereafter referred to as “Schoonheim,” which includes on facing pages Gerard's Latin. Note that Ibn al-Bīṭrīq was also named as the translator of the (sadly lost) *Timaeus*.

the basis for several commentaries as well as a Latin translation by Gerard of Cremona (see below). It seems to be based, however, on a later redaction of Aristotle's text; Paul Lettinck, following the analysis of Endress, argues for a "Hellenistic" version of Aristotle's treatise from which the Syriac and Arabic traditions proceeded, rendering Ibn al-Biṭrīq's text "distorted, incomplete, and sometimes confused."³⁰ A later version by Ḥunayn ibn Isḥāq, dubbed a 'compendium,' also seems to have been based on the supposed Hellenistic intermediary.³¹ Translations from the Greek commentary tradition are well-attested in Arabic: Alexander's and Olympiodorus' commentaries are lost, although something purporting to be the latter's commentary, translated again by Ḥunayn and corrected by his son Isḥāq ibn Ḥunayn, is extant – but it seems to have been based on a paraphrase of the original.³² The Alexander commentary was known in Arabic at least as late as Averroes, who made use of it in his Middle Commentary (see below).³³

Lettinck's exhaustive study of the Arabic reception of the *Meteorologica* provides further details on all of these sources, and describes in detail the original Arabic compositions that made use of the Aristotelian material. The Arabic commentary tradition is robust, culminating in two extant texts by Averroes (both based on Ibn al-Biṭrīq's text, although Averroes is demonstrably familiar with other versions and/or commentaries). The Arabic reception of the sections of the work that are on rainbows is particularly rich, exhibiting an increasingly sophisticated application of theories of optics to the core material. As in the Greek tradition, much was made of Aristotle's ambivalence concerning extramission in this treatise (as opposed to his position in the other canonical texts).³⁴

The Arabic version of the autoscopic passage (together with its interpretation by Averroes) presents some interesting issues. In Ibn al-Biṭrīq, the passage is as follows:

Now that we have reported about 'haloes' and rainbows and the cause of their occurrence – namely their being polished and gleaming, we must describe their way of being. I say that this state of being polished and gleaming is only observed in air and water when they are at rest, for then

30 Paul Lettinck, *Aristotle's Meteorology and its Reception in the Arab World* (Leiden: Brill, 1999), 7.

31 Hans Daiber, ed., *Ein Kompendium der aristotelischen Meteorologie in der Fassung des Ḥunayn ibn Isḥāq* (Leiden: Brill, 1975). This text does not include our autoscopic moment.

32 Lettinck, *Aristotle's*, 9.

33 Lettinck, *Aristotle's*, 13.

34 Again, this is discussed at length in Lettinck, *Aristotle's*, 243–300.

they are receptive to the ray and can return it to bodies. There was an ill man whose vision was weakened by his illness, who, while he was walking, would see a figure in front of him, shining opposite him, also walking. This is because bodies were represented as their forms in the air and the water while there was wetness in his eye, such that they were represented to him as such.³⁵

The case described deviates slightly from Aristotle's version: the man is now "ill," the image is "shining" (*muḍīʿan*), and what is observed is a human figure (*shakhṣ*) rather than an unspecified image. The explanation, as one of the earlier editors of the Arabic text noted, is quite different from Aristotle's: it concerns the wetness of the perceiver's eye, an explanation to which we will return below. Of immediate interest, however, is the use of the term *shakhṣ* for *eidōlon* here. The term is used for 'individual,' as in a human individual. When Avicenna discusses the gradual refinement of an infant's ability to pick out individuals in the *Physics* of *The Healing*, for example, he distinguishes between (1) the image of a "vague individual," like the infant's impression of any human or an individual (form) "imprinted upon sensation from a distance" such as some sort of animal, before it is seen more clearly, and (2) the image of a concrete individual, for example, *this man*. (Actually, Avicenna is distinguishing between an imagined human and a human observed under conditions that make his individuality unclear, but here we are trying to describe how a 'vague individual' becomes an object of perception generally.) The image, that which should be the *eidōlon* in the Aristotelian tradition, is *al-khayāl* in this case, that is, imaginary content. The individual (*shakhṣ*) is considered as vague or indeterminate (*muntashar* and *ghayr muʿayyan*), but it is a human-like shape.³⁶ As a technical term, *shakhṣ* usually denotes logical individuality (*shakhṣiyya*), not

35 Schoonheim, 131 (all Arabic passages trans. D. Bennett unless otherwise indicated):

فاذ قد اخبرنا عن الاستدارة والقوس وعن علة كونها من الصقالة والتلاؤ، ولكنه قد يجب علينا أن نذكر كينوتتها. فأقول إن الصقالة والتلاؤ إنما يريان في الهواء والماء إذا كانا ساكنين لأنهما حينئذ يقبلان الشعاع، ويردانه إلى الأجسام. وقد كان مرض رجل، فضعف بصره من مرضه ذلك، فبينما هو يمشي إذ يرى شخصاً أمامه مضيئاً مواجهاً له يمشي، وذلك لأن الأجسام تتصور في الهواء والماء كصورتها، فلما كانت الرطوبة التي كانت في عينه تصور ذلك له.

36 Avicenna, *The Physics of The Healing*, ed. and trans. J. McGinnis (Provo: Brigham Young University Press, 2009), 1.8–9.

an instance of perceptible content; it is comparatively rare to find it used in such a way.³⁷

Averroes' *Short Commentary* hews more closely to the Aristotelian explanation for the instance of autoscapy:

Aristotle related [the case of] a man afflicted by a weakness of vision. He always saw in front of him his own 'blurry apparition' in the air, because the air, in relation to his vision, was like a mirror (*bi-manzilat al-mir'ah*) for healthy vision.³⁸

The "shining" aspect of the image is absent, and the mirror-like element of the explanation is reinstated. If there is any indication here that Averroes may have noticed Ibn al-Biṭrīq's *shakhṣ*, it is only in the use of yet another term for the *eidōlon*: namely, *shabah*. Immediately prior to this passage (59–60), Averroes had presented haloes, rainbows, (mock) "suns," and rods as visions and imaginings (*ru'ya*; *takhayyul*), and had even given the example of the appearance of heavenly bodies in water as *ashbāḥ al-kawākib*. This expression for 'blurry apparitions' most commonly denotes ghosts, but it would certainly have been familiar to Averroes from Avicenna's treatment of meteorology in *al-Shifā'*. Avicenna calls the same phenomena (haloes, etc.) *khayālāt*, imaginary things (this is another Arabic word for *eidōla*), describing the phenomenon as a transposition of forms in the subject: we see "the visual image (*shabah*) of a thing together with the form of some other thing in the way that we come across the form of a man together with the form of a mirror."³⁹ Although this is not

37 In a tenth-century report on a conversation set contemporaneously with Ibn al-Biṭrīq's composition, that is, at the end of the eighth century, two practitioners of *kalām* are imagined to discuss the perceptive operation of the 'spiritual power' (*al-quwwa al-rūḥiyya*) governing humans once it is disembodied: the objects of its perception are *ashkhāṣ* (plur. *shakhṣ*) and *ashkāl*, "shapes." This report is found in al-Maqdisī, *Kitāb al-Bad' wa-l-ta'rikh*, ed. C. Huart (Paris: E. Leroux, 1899–1919), 2:223. Modern commentators have been perplexed about this usage of *ashkhāṣ* as primary objects of perception, but its appearance here suggests common ground. The rest of this text is interesting for several reasons: it involves a dialectical analysis of perception, its necessity, and its relationship to material forms and a faculty of imagination. Terms for the internal process of imagination (*takhayyul*, *tawahhum*) are discussed, but it is unclear whether these are added by al-Maqdisī or present in the original discourse.

38 Averroes, *Rasā'il* (Hyderabad: Dār al-Ma'ārif al-Uthmāniyya, 1947), 4:60:

وقد حكى ارسطوان رجلا اصابه ضعف بصر فكان يرى بين يديه شبحه في الهواء دائما لان الهواء كان بالإضافة الى بصره بمنزلة المرأة الى الابصار السليمة.

39 Cited in Nicolai Sinai, "Al-Suhrawardī on Mirror Vision and Suspended Images (*muthul mu'allaqa*)," *Arabic Sciences and Philosophy* 25 (2015): 284.

cloud/shape conflation, but rather superimposition, it follows the same rules to produce a single image.

In the so-called Middle Commentary (*Talkhīṣ*), Averroes specifies *shakhṣ*, following Ibn al-Biṭrīq's preference for *eidōlon*, while affirming the original Aristotelian explanation (mirror-like) and reiterating the ghostly appearance of the figure:

This is like what occurs to a man who is afflicted by a weakness of vision due to some illness; he always sees in front of him a figure (*shakhṣ*) like him walking with him. Thus, because of this weakness of this man's vision, it happens that the air with respect to its relation to *his* vision [becomes] like a mirror with respect to its relation to *strong* vision; thus he sees his 'blurry apparition' in the air, just as a man would see his 'blurry apparition' in a mirror across from him.⁴⁰

In the surrounding text, Averroes has done some systematic re-working of the material. This quote, for example, comes within an overall explanation of 'reflection' (*in'ikās*). There are three explanations for reflection: the smoothness and density of the object, weakness of vision (where this example occurs), and weakness of the colour itself. Weakness of vision (the inability of vision to penetrate dense air) and 'intervening objects' were both presented as causes of the 'visions' in the *Short Commentary* as well.⁴¹ It should also be noted that the *Short Commentary* proceeded with a discussion of reflection after the example, whereas in the *Talkhīṣ* the example is presented within an exposition of the nature of reflection.

Comparing the Arabic tradition to the Greek, then, several difficulties arise. Recall that in Ibn al-Biṭrīq's version, wetness in the eye is assumed to play a vital role in the emergence of the image. The idea concerning some quantity of wetness in the eye recalls elements of Alexander's account, but it is difficult to substantiate any direct influence from Alexander. Yet, other commentators in the Arabic tradition seem to have conflated wet eyes with weak vision: Ibn

40 Averroes, *Talkhīṣ al-Āthār al-'ulwiyya*, ed. J. E. Alaoui (Beirut: Dār al-Gharb al-Islāmī, 1994), 153:

مثلاً عرض لرجل أن مرض بضعف بصره من ذلك المرض فكان يرى بين يديه دائماً شخصاً مثله يمشي معه، وذلك أن لضعف بصر هذا الرجل عرض له أن كان الهواء بالإضافة إليه مثل المرأة بالإضافة إلى البصر القوي، فكان يرى شبحه في الهواء كما يرى الإنسان شبحه في المرأة التي يستقبلها.

41 See *Rasā'il*, 4:60.

Suwar (d. c.1030 CE), for example, suggests that people see haloes around lamps when they “have moisture in their eyes or [...] weak sight.”⁴² In Ibn al-Biṭrīq’s version, it remains obscure by what mechanism the image of the observed figure appears as such, as opposed to as a featureless blob, given (i) the observation that motionless quantities of air function as mirrors, (ii) the acceptance of the extramission theory (if assumed to be correct), (iii) the presupposition of weak sight, and (iv) claims about some quantity of wetness in the eye.

The text refers to an observed figure (*shakhṣ*), but there is no explicit description of the seen image as necessarily resembling the observer’s own (or anybody else’s) face.⁴³ (That ‘resemblances’ like Alexander’s gnats and clouds do not enter the Arabic tradition also suggests that his commentary was not in use.) However, allusions to the extramission theory suggest a mirror phenomenon of the kind Aristotle proposes; the mirror likeness is invoked explicitly in Averroes and in a nearby passage in Ibn al-Biṭrīq’s translation.

By and large, Ibn al-Biṭrīq’s version of Aristotle’s *Meteorologica* appears to combine scattered pieces from both Aristotle and Alexander’s commentary. For instance, the passage on reflection and smooth surfaces sounds Aristotelian, whereas the part about the wetness in the eye sounds like a rough paraphrase of Alexander’s account. Given the current state of the text, it is very difficult to formulate a consistent and coherent interpretation of the content.

5.2 *The Latin Translation of the Arabic Translation*

Further oddities emerge when we consider the corresponding Latin translation of the Arabic text:

As we have now dealt with the roundness and the arch, and told that the cause of their being is polish and shine, then it is necessary that we tell how their being is. I say, then, that polish and shine are not seen in air and water except when they are at rest, because then both of them receive the ray and return it to bodies. A man fell ill and his eye-sight was weakened. *** And while he was walking, because he saw before him a light in his face, he walked, which is because bodies are formed in air and water such as are their forms. So, because there is humidity, which is in his eyes, this is formed for him. And maybe it is seen when the air is clean and the eyesight similarly, and maybe it is not seen; which is due to one of two

42 Lettinck, *Aristotle’s*, 324 (Arabic text), 325 (Lettinck’s translation).

43 There may be a clue in the wording in Ibn al-Biṭrīq, who has the figure *muwājah*^{an}, literally ‘facing’ him. As in English, the root term is the same in both cases: the noun ‘face’ in Arabic is *wajh*.

causes: either because of turbulence of the air, or because of weakness of the eyesight, or because of weakness of the colour and lack of a strong impression of the body in the air.⁴⁴

The Latin text of the relevant passage basically follows the Arabic version; there is a short lacuna in the Arabic after the ‘wetness in the eye’ explanation, but the Latin version includes additional explanatory sentences in which the author seems to dwell on the circumstances by which the image is *not* visible. Thus, turbulence in the air and weak sight explain why the image would not be seen even if it is there. This particular emphasis on the role of weak sight does not correspond to Aristotle’s account. Aristotle introduces the condition of weak sight as one of two related conditions (the other being dense air) in order to explain how the visible image (*eidōlon*) emerges in the first place. Cf. Peter of Auvergne below, who uses the condition of weakened sight as a counterargument against Aristotle’s explanation.⁴⁵

44 “Quia ergo iam narravimus de rotunditate et arcu, et quod causa esse eorum est tersio et splendor, tunc necesse est nobis, ut dicamus qualiter est esse eorum. Dico ergo quod tersio et splendor non videntur in aere et aqua, nisi quando sunt quieti, quoniam tunc utrique recipiunt radium et reddunt ipsum ad corpora. Vir autem infirmatus fuit et debilitatus fuit visus eius * * * Et dum iret, quia vidit ante se lumen coram facie sua, ambulavit, quod est quoniam corpora formantur in aere et aqua, sicut sunt formae eorum. Quia ergo est umiditas, quae est in oculis eius, formatur illud ei.

Et fortasse videtur, quando aer est mundus et visus similiter, et fortasse non videtur, quod est propter unam duarum causarum, aut propter turbulentiam aeris, aut propter debilitatem visus, aut propter debilitatem coloris et paucitatem impressionis corporis in aere.” (Schoonheim, 965.8–23, trans. S. Ebbesen.)

45 The Hebrew version of the text basically follows the Latin text (although it is a translation from the Arabic), including the lines that are missing in the Arabic version, plus some remarks regarding the accuracy of translation. Cf. the following section from *Otot Ha-Shamayim*: “I say the smoothness and luminosity are visible in air and water when these are calm and quiet, for in such conditions they can receive the sunshine and reflect it to objects. It happened to a man who was sick, his sight having become weak by his illness, that as he walked he used to see his image walking before him with his face towards him, for objects are represented in the air as their forms, and this image was imagined by him because of the moisture in his eyes. Sometimes it is seen when the air is clear and the vision too, and sometimes they are not seen, which is due to one of two causes: either density of air or weakness of sight or colour or because of the small impact of the object on the clarity of the air. Samuel Ibn Tibbon [i.e., interjecting here as editor of his own translation] says: I have not found these two lines from the words ‘sometimes it is seen’ up to there in the commentary of Alexander and their explanation has not become clear to me. Therefore, I was forced to translate one Arabic word in two different ways, namely the word I have translated as ‘it is seen’ but [could also be read as] ‘they are seen’. The Arabic word admits of these two meanings.” (Samuel Ibn Tibbon, *Otot Ha-Shamayim*, *Samuel Ibn Tibbon’s Hebrew Version of Aristotle’s Meteorology: A Critical*

6 Peter of Auvergne on Autoscopic Phenomena

Peter of Auvergne (d. 1304) provides a rather interesting commentary that combines some elements from Aristotle and Alexander's accounts of the phenomenon.⁴⁶ Here is what Peter has to say about the phenomenon under discussion in his commentary on the *Meteorologica*:

(1) Next, when he says [3.4, 373b1–2] “It happens from air,” he first explains in what state air must be for there to occur a reflection from it, next, when he says [373b13–14] “But from water” in what state water must be. Concerning the first, he first states two ways in which reflection occurs from air, and next, when he says [373b10] “Because of which” he explains the second one. In the first part he says that reflection from air occurs when the air has become thick, either by being mixed with some earthy and thick exhalation or by being gathered by cold, for thickened air becomes like something dark, which has the property of preventing the alteration of light (*lumen*) in a straight line. Moreover, sometimes reflection from air occurs even when it has not been thickened, because of the weakness of [somebody's] sight, which is not capable of penetrating the air, and consequently uses it as a mirror, as it were – as happened to some person whose sight was weak and not sharp, whom he [i.e.

Edition, with Introduction, Translation, and Index, ed. and trans. R. Fontaine (Leiden: Brill, 1995), 169.) This is interesting and confusing. The two lines Samuel identifies are the ones missing from Ibn al-Biṭriq's translation, but Ibn Tibbon seems to be identifying that text with Alexander's commentary. Perhaps he was using a recension of Ibn al-Biṭriq's translation similar to that used by Gerard and simply notes that the added passage – which looks like an interpolated scholion on the previous passage – is not in Alexander's lemmata or commentary (to which he must obviously have still had access).

- 46 Peter presumably used William of Moerbeke's translation of the *Meteorologica*. William of Moerbeke finished his translation of Alexander's commentary on the *Meteorologica* on April 24, 1260 according to a colophon found in seven manuscripts: see Willy Vanhamel, *Bibliographie de Guillaume de Moerbeke*, in *Guillaume de Moerbeke*, ed. J. Brams and W. Vanhamel (Leuven: Leuven University Press, 1989), 309. There is also extensive discussion of the dating of William's translations of the *Meteorologica* itself in Gudrun Vuillemin-Diem, ed., *Aristoteles Latinus X.2.1: Meteora* (Turnhout: Brepols, 2008), 30–32 and 340–49. Albert the Great also comments on this passage, and explicitly mentions Alexander's commentary: see Albert the Great, *Meteora*, ed. P. Hoßfeld (Münster: Aschendorff, 2004), 189–90. (We are grateful to Sten Ebbesen for presenting this passage to us.)

Aristotle] in *On memory* calls Antiphoron⁴⁷ Oreites: for as he walked, an image (*idolum*) of himself appeared to him in the air just in front of him, and it always went in front of him and looked back at him. He suffered this because the rays that proceed from his sight and body were reflected by the air towards himself due to his having, because of an illness, such a weak and slight sight that it could not push forward and penetrate the air next to it. Hence it became like a mirror to him, from which there was reflection, just as thickened air at a distance becomes a mirror to a healthy eye in a good state.⁴⁸

Peter accurately describes Aristotle's account in *Meteorologica* but adds that the man who sees an image of himself is Antipheron, whom Aristotle mentions in *De memoria*. Aristotle's explanation is judged to be unreasonable because of its unlikelihood. But why, more precisely, is Aristotle's explanation rejected? Peter writes:

(2) It should, however, be understood that the cause that the Philosopher seems to assign to the aforementioned affection does not seem reasonable, nor in accordance with his own view. For what is reflected when something is seen through reflection is light generated by a shining body and its attendant colours, but there is no need for the sight to be reflected †due to the need to see†,⁴⁹ as shown earlier. Therefore reflection of the sight by the air cannot be given as the cause of the aforementioned appearance. Moreover, if his face was reflected by the air next to it, it is obvious that this reflection was very weak, because the less dense the body from which the reflection occurs, the weaker the reflection and alteration to the opposite. Therefore, the pupil of the eye was only altered very weakly by it, so that the sight inside would not sense this sort of alteration, in particular as it was weak and slight; and the weaker the sight is, the less it senses small alterations, so [even] given that his sight and picture (*imago*) were reflected by the air, still no image (*idolum*) of himself would appear to him.

47 William of Moerbeke translated correctly "ut accidit Antipheroni Oreite," but the name was soon mangled a bit.

48 Peter of Auvergne, *Expositio magistri Petri de Aluernia super quattuor libros Metheorum Aristotelis*, on *Mete.* 3.4, 373b^{iff.}, edited by Sten Ebbesen in the appendix of this chapter; all translations from this source are by Ebbesen. The translated passages are numbered (1) to (5) to correspond to the numbered sections in the edition.

49 *propter necessitatem videndi*: the editor suspects that the text is corrupt.

Peter rejects the extramission theory, arguing that it is not Aristotle's true view. However, the theme of extramission seems to be a minor point, and the main reason for discarding Aristotle's view is that the offered explanation does not make good sense. The very idea that the image (*eidōlon*) occurs on the basis of weak sight is not convincing for Peter. His point seems to be that, provided that the subject's sight really is weak, he would not be able to see the image at all, even if there really were a faint mirror image in front of him.

So, an alternative explanation has to be put forward:

(3) So, a different explanation must be assigned: the principle of vision is inside in the eye and not in the exterior part of the pupil (this is stated by the Philosopher in the book *On Sense and the Sensed*).⁵⁰ Now, the exterior part of the pupil is like an internal medium in vision, and therefore, just as vision is modified by an unnatural state of the external medium, so it is by an unnatural state of the pupil, and even more, as the pupil is of greater consequence to vision. For if it is sprinkled with some unnatural spirit or humour, and [then] is altered by some external visible object, it will be altered in its own way, and will alter the interior power of vision⁵¹ with the altered intention of the object of vision and according to its own state. Therefore, when thus altered, the power of vision will judge the colour to be in-between the colour of the object of vision and the colour of the pupil. If, however, the affection of the pupil is strong and great, and the power of vision weak, it will happen that the pupil by itself will alter the sight internally, and the sight will apprehend the colour of the pupil as [if it were] something external and distant from itself, firstly because such an affection is like something that is external and unnatural, secondly because it is accustomed to see all things it sees as being located outside, and thirdly because this is more reasonable, since the alteration of the power of vision internally by the pupil in such a state is very weak, partly because the weakness of the agent of change with respect to the external objects of vision, partly because of the weakness of the sight itself due to the illness. Now, things that alter the sight in a rather weak way seem to be more distant, and those that alter it rather strongly to be closer, other things being equal, for sight seems to judge closeness or distance according as it is altered strongly or weakly. Therefore, such an affection of the pupil seems to be something external or distant. A similar phenomenon is seen in people who have a scar on their pupil or

⁵⁰ Cf. *Sens.* 2, 438a9–15, 438a25–27.

⁵¹ power of vision] *visivum*.

suffer from ophthalmia, for to them it seems as if something is standing before their eyes like a web, whereas in reality it is in the pupil itself in an unnatural way, being, that is, an unnatural humour which is diffused in it.

Peter, like Alexander, suggests that something on the eye is mistaken for a perceived external object, and Aristotle's assumption of weak sight is also taken into account.⁵² Why then does the individual see his own face in the translocated object? Peter tells us why:

(4) It sometimes also happens because of weakness of the power [of vision] that something is judged to be something else because of some tenuous similarity to it either in colour or in shape. For instance, if a wall exhibits some lines that somehow resemble the shape of some animal, persons who are ill with a fever or mad judge that this is an animal; and someone affected by fear or love judges at a minor rustle of a leaf or the like that his enemy or his beloved is present, as the Philosopher says in *On Sleep and Waking* [2, 460b3–7].

The idea here seems to be that weak sight blurs the objects of observation to some extent, and makes the observer prone to identify perceptual content in terms of what it resembles. So, if the indistinct object before me in some way resembles a face, I will identify it as a face. Here Peter alludes to a passage in *De insomniis* 2, 460b3–16 where Aristotle discusses different types of illusions. For instance, a diseased person may see distinct lines on a wall as a present real animal. Further, the emotionally aroused individual typically misperceives objects in a way that matches his present emotional state. Thus, the coward tends to see his enemy in the face of a stranger, just as the amorous man tends to see the person he desires.⁵³

By contrast, there is nothing in Aristotle's text on autoscopy that suggests that weak sight, as such, makes the perceiver prone to determine perceptual content in terms of what it resembles. On the other hand, Aristotle's reference to the watching of cloud-formations in relation to the real things they may resemble (*De insomniis* 3, 461b19–21) lends support to the idea that vague sensory content is determined by means of similarity. It may be worth pointing

52 The idea seems to be that the externalisation of perceived objects is not something that is learned, but is hard-wired into visual perception.

53 As noted above, this raises the problem of which cognitive capacities are involved in perceptual misidentification. Is it *phantasia* or *dóxa* that is responsible for the misidentification? Note Peter's reference to 'judgements' in this context.

out that Peter does not explicitly refer to Aristotle's example of cloud-watching (whereas Alexander does); rather, he calls attention to conditions in which illusions are probable, that is, in states of disease, sleep, and intoxication. Now, recognising what cloud-formations resemble as a cognitive strategy to reduce ambiguous perceptual content hardly compares to the particular states Aristotle highlights as causes of illusion, namely disease, intoxication, sleep, and strong emotional arousal. The only cognitive anomaly that Peter presupposes in his account is weakened sight. So, this leaves us with an ambiguity in Peter's account and also Alexander's account; should the appearance of a face be understood as an illusion on par with Aristotle's clear-cut examples of illusions, or should it be understood, perhaps in a looser way, in line with how one recognises the appearance of familiar objects in the shapes of clouds?

Peter then explains how the appearance of a face becomes identified as the observer's own face. People are disposed to see their own face, rather than some unknown face, because they are familiar with their own face from frequent experiences of mirror reflections. Peter sums up his account:

(5) This, then, is the way to explain what happened to Antiphoron: there was an unnatural and thick humour or spirit diffused over his pupil that, as it changed the internal power of vision (weak and slight due to illness), was judged to be something external for the aforementioned reasons; and due to some tenuous similarity in colour and outline between the affection appearing to him and his own image (*idolum*), which, presumably, he was accustomed to see often in a mirror, he judged it [i.e. the appearance] to be his own image. This, then, seems to be the real reason of the aforementioned affection. The reason that Aristotle proffers in the text is the one on which the mathematicians [of his day] generally agreed, and he follows it here for the aforementioned reason.

In order to provide an overview, let us highlight some details in Peter's account:

- (1) Aristotle's account of the apparent image of a face as based on physical mirror reflection, as well as the extramission theory, are both judged to be flawed (the latter recognised as not being in accordance with Aristotle's true view). Peter is chiefly attacking the mirror-explanation, not the assumption of the extramission theory of vision. The idea of weak sight is criticised for not being able to do the explanatory job that Aristotle believes it does.
- (2) Peter offers an alternative explanation that strikingly recalls Alexander's account; if something covers the pupil, for instance a spirit or a

humour, it will affect the way proper external objects are perceived (cf. Alexander).

- (3) A rather elaborate account is offered of why the “seen object” in the eye becomes externalised. Externalisation of internally observed items depends on the following conditions: first, the affection of internal things must be like the affection of some external thing. Second, there must be a habit of seeing things beyond the very border of the eye. Finally, the alteration of the sight internally by the pupil in such a state must be very weak, since there is a weakness of sight itself due to the illness. Peter here assumes that things that alter the sight weakly by default seem to be more distantly located in the environment. Accordingly, the weak alteration makes it natural to ‘project’ the observed object at some considerable distance away from the perceiver. So, generally speaking, there is a strong inclination to externalise even those objects of perception that happen to be internally located.
- (4) The tendency to determine perceived things in terms of what they resemble is assumed to be caused by weak sight. Peter gives an explicit reference to the *De insomniis* 2, 46ob3–16. Even so, it is not clear whether Peter believes that the appearing face has the same status as the illusions that occur in sleep, disease, intoxication, and emotional arousal, or whether it is a matter of, more loosely, determining what something looks like in a way similar to cloud gazing.
- (5) Finally, Peter tells us why the individual sees his own face in the externalised image. The image is identified as the perceiver’s own face because the perceiver is assumed to be very familiar with his own face from previous experiences of mirror images.

At this point we may note that Peter’s account exhibits some overlap with Alexander’s account, even if there also are important differences. However, Alexander and Peter employ basically the same type of explanation. A damaged pupil or humour/cloud-like entity covers the eye. This internal injury (or ‘object’) becomes externalised and appears as an ordinary perceived object in the environment.

In Alexander’s version, the face is not described as having familiar features, as it were, whereas in Peter’s version, the subject perceives the image of his own face.

We may now highlight the main anomalies in relation to Aristotle’s account. Aristotle describes the phenomenon as a kind of apparition that occurs on the basis of mirror reflection. The phenomenon is an illusion of sorts, just like any other reflected figure, although *phantasia* and other higher cognitive

capacities play no part in the production of this illusion in Aristotle's account. By contrast, in Alexander's and Peter's explanations, an Aristotelian explanatory framework is assumed, and the error is characterised as a perceptual error involving a misapprehension of an observed object, either as a face, as such, or as a particular face. In fact, the account advocated by Alexander and Peter is more or less in line with Aristotle's discussion of illusions in the *De insomniis*. Both authors suggest an alternative kind of Aristotelian solution that involves the occurrence of a *phántasma* rather than a mirror image (*eídōlon*).

Roughly, Aristotle and Alexander do set out to explain the same type of phenomenon. Peter, however, wishes to stay faithful to the detail that the man sees an image of himself, as presumed in Aristotle's account. Thus Peter, who basically adopts Alexander's explanation, which does not imply mirror reflection, makes some adjustments to Alexander's explanation in order to capture the autoscopic quality of the phenomenon. Thus, Peter explains the presumed mirror-qualities in the observed face without assuming that it is a mirror phenomenon in a literal sense.

7 Conclusion

We have examined a set of distinct explanatory strategies in relation to Aristotle's description of autoscopy in the *Meteorologica*. It seems likely that Aristotle documents an authentic case of autoscopy that matches descriptions of the phenomenon in the modern psychiatric literature. Aristotle explains autoscopy as a mirror phenomenon, which accounts for the occurrence of an externalised image in the guise of the observer's own face. Further, Aristotle uses an extramission theory of perception to explain reflections. Thus, weak sight prevents the visual rays from penetrating the air in front of the observer, and they are reflected back to the perceiver, just as in an ordinary mirror.

Alexander seems to link Aristotle's acceptance of the extramission theory with the particular mirror explanation that Aristotle presents. Alexander not only offers a radically different explanation, he also reinterprets Aristotle's original explanandum. There are two central features in Alexander's description of the phenomenon that diverge from Aristotle's; Alexander does not presuppose that (a) the image represents the perceiver's own face or that (b) the image appears in the guise of a mirror reflection, or some other specific feature, for instance walking. Alexander finds an alternative explanatory strategy in *De insomniis*' discussion of perceptual illusions. Basically, Alexander borrows

Aristotle's idea that on some occasions perceptual content is determined by what the observed object resembles.

The Arabic tradition faithfully presents the example in the context of the issue of reflection, according to which 'weak vision' is characteristically vulnerable to illusions. Ibn al-Biṭrīq's apparent introduction of 'wetness in the eye' is clearly a departure from the text, and looms oddly before a lacuna in which a more convincingly Aristotelian explanation may have been found. Averroes was clearly aware of Alexander's concern about the externalisation of internal blemishes, but presented this as one of two possibilities for the experience of illusions (the other is explicitly 'weakness of vision,' which is unable to penetrate dense air). The introduction of the peculiar term *shakhṣ* for *eídōlon* in the Arabic tradition is notable: at the very least, it suggests a certain diagnostic awareness of the autoscopic case, since it implies that the image is a (human) figure. The perceived human figure may be illusory, but (as we see in Averroes' commentaries) it is *his* blurry apparition, or at least it is a figure like him.

Peter of Auvergne offers an explanation that preserves both Aristotelian and Alexandrian elements. Peter stays faithful to the original Aristotelian explanandum, that is, that the perceiver's face appears in the form of a mirror image. Nevertheless, Peter discards the Aristotelian account based on extramission and instead outlines his version of a 'projective account.' Given the correspondences between the two accounts, Peter clearly had access to Alexander's commentary, which had been translated into Latin a decade or more before Peter wrote his.⁵⁴ Two points in particular support this claim. First, Peter offers an explanation of perceptual projection that largely seems to be an elaboration of Alexander's account. Further, Peter identifies the man who suffers from the autoscopic illusion as Antipheron of Oreus, and Alexander seems to be the source of this particular piece of information. Finally, the general impression is that Alexander's account strongly influences the later Arabic and Latin commentary tradition in the sources discussed in this work.

54 See the scholarship cited in note 46, above.

Appendix 1

Aristotle <i>Mete.</i> 3.4, 373b1–8	Sextus Empiricus Outlines 1.84	Alexander <i>In Mete.</i> , 147.28–148.30	Ibn al-Biṭrīq’s translation K. al-Āthār al-‘ulwiyya, Schoonheim, 131	Latin trans of Ibn al-Biṭrīq, trans. Ebbesen
[He is talk- ing about reflection and produces the following example.]	“Aristotle describes a Thasian who thought that the image of a man was always preceding him.”	“Visual rays” not reflected, because there is no such thing. A weak-sighted man (identified as “Antipheron”) has “poor and dull eyesight on account of the spread of some rather extensive formation over his pupils.”	[Immediately before: “smooth and shining are only seen in air and water when they are still, for they reflect the rays back to the bodies.”] “There was an ill man whose vision was weakened by his illness, who, while he was walk- ing, would see a figure (<i>shakhṣ</i>) in front of him, shin- ing opposite him, also walking. This is because bodies are represented in the air and the water as their forms (<i>ṣūra</i>) when the wetness in such a one’s eye repre- sents them to him. ”	[Polish and shine of some stuff ... (= smooth and shiny)] “A man fell ill and his eye-sight was weakened. While he was walking, because he saw before him a light in his face, he walked, which is because bodies are formed in air and water such as are their forms. So because there is humidity, which is in his eyes, this is formed for him. And maybe it is seen when the air is clean and the eyesight similarly, and maybe it is not seen; which is due to one of two causes: either the turbulence of the
Weak-sighted man saw <i>eídōlon</i> going before him as he walked, facing him. Reason: reflec- tion due to weak vision. The air became like a mirror.	[No mirror image; not the man’s own image.]	Reason: externali- sation of interior blemishes (as gnats, clouds, etc.) (Image is of a “face”; that’s what the interfering blemish looks like.)		

(cont.)

Aristotle <i>Mete.</i> 3.4, 373b1–8	Sextus Empiricus Outlines 1.84	Alexander <i>In Mete.</i> , 147.28–148.30	Ibn al-Biṭrīq's translation K. al-Āthār al-ʿulwiyya, Schoonheim, 131	Latin trans of Ibn al-Biṭrīq, trans. Ebbesen
			[Immediately after: <i>lacuna</i>]	air or weakness of the eyesight, or weakness of the
			[Then, colours of the rainbow: that is, how they come about, due to the sun shining on the clouds, reflecting off of them "like a mirror"]	colour and lack of a strong impression of the body in the air."

Ibn Tibbon, Otot Ha-Shamayim, 169	Averroes SC Rasā'il, 4:60	Averroes <i>Talkhīṣ</i> , 153	Peter of Auvergne's commentary
"I say the smoothness and luminosity are visible in air and water when these are calm and quiet, for in such conditions they can receive the sunshine and reflect it to objects. It happened to a man who was sick, his sight having become weak by his ill- ness, that as he walked he used to see his image walking before him with his face towards him , for objects are represented in the air as their forms, and	[Immediately before: how we experience " visions and illusions " (<i>ru'ya, takhayyul</i>). Sometimes this happens due to intervening objects , sometimes due to " weakness of vision ," inability to pen- etrate dense air.]	[Before and after: this whole discus- sion takes place during a discussion of reflection.] This is like what occurs to a man who is afflicted by a weakness of vision due to some illness; he always sees in front of him a figure (<i>shakhṣ</i>) like him walking with him.	[Weak sight blurs objects of vision; an indistinct object of vision can resemble a face. Emotions can be involved in this misjudgement. Since you're familiar with your own face from mirror-reflections , you might guess it is YOUR face you see.] [Mirror-reflection and extramission account: flawed.]

(cont.)

Ibn Tibbon, Otot Ha-Shamayim, 169	Averroes sc Rasā'il, 4:60	Averroes <i>Talkhīṣ</i> , 153	Peter of Auvergne's commentary
this image was imagined by him because of the moisture in his eyes.	Aristotle related [the case of] a man afflicted by a weakness of vision .	Thus, because of this weakness of this man's vision, it happens that the	
"Sometimes it is seen when the air is clear and the vision too, and sometimes they are not seen, which is due to one of two [sic] causes: either density of air or weakness of sight or colour or because of the small impact of the object on the clarity of the air."	He always saw in front of him his own "blurry apparition" in the air, because the air, in relation to his vision, was like a mirror (<i>bi-manzilat al-mir'āh</i>) for sound vision.	air, with respect to its relation to it [his vision] , [becomes] like a mirror , with respect to its relation to strong vision; thus he sees his "blurry apparition" in the air, just as a man would see his "blurry apparition" in a mirror across from him.	
	[Discussion of reflection .]		

Appendix 2: Peter of Auvergne (Petrus de Alvernia), *Commentary on Aristotle's Meteorologica* 3.4, 373b1 sqq.

Edited and Translated by Sten Ebbesen

Text

The text has been established on the basis of (1) the early fourteenth-century manuscript *W* = Wien, ÖNB, lat. 2302, fol. 69rb, and (2) the incunabulum *S* = *Expositio magistri Petri de Aluernia super quattuor libros metheorum Aristotelis*, Salamanca 1497: fol. m.vi^{va}–n.1^{ra}. Differences between the texts of *W* and *S* are indicated in curly brackets. If nothing else is indicated, the variant regards the immediately preceding word. Thus "**quidem** {quid *W*}" means that *W* reads *quid* instead of *quidem*, and "vel {om. *S*}" that *S* omits *vel*. The orthography and the punctuation are the editor's.

(1) Consequenter, cum dicit <3.4, 373b1> **Fit autem ab aere** {*S continues the lemma until 373b10*} declarat. Et primo quomodo se habente aere fit ab ipso refractio {a.i.r.: r.a.i. *S*}, secundo, cum dicit <373b13> **Ab aqua autem** qualiter se habente aqua. Circa primum primo ponit duos modos quibus ab aere fit refractio, secundo cum dicit <373b10> **propter quod quidem** {quid *W*} declarat alterum. In prima parte dicit quod refractio fit ab aere cum ingrossatus fuerit, vel per immixtionem exhalationis terrestris et grossae vel {*om. S*} per congregationem a frigido; aer enim ingrossatus accedit ad dispositionem opaci, cuius est prohibere alterationem luminis secundum rectum. Item fit refractio ab aere eodem non ingrossato interdum propter visus debilitatem, qui non potest penetrare ipsum aerem, et ideo utitur eo sicut speculo, sicut accidit cuidam habenti visum debilem et non acutum, quem in libro De memoria appellat Antiphorontem Oreitem {A.O.: antiphorantem orientem *S*}; ipso enim procedente apparebat ei in aere propinquo ante ipsum idolum ipsius semper praecedens ipsum, et ex opposito respiciens ad eum. Hoc autem patiebatur {a.p.: p.a. *S*} quod radii procedentes a visu et a corpore eius refrangebantur ab aere ad ipsum propter hoc quod visus ita debilis et tenuis erat propter infirmitatem quod non poterat propellere et penetrare aerem sibi propinquum, unde fiebat ei speculum a quo refringeretur, sicut aer ingrossatus et distans fit speculum oculo {occulto *S*} sano et bene disposito.

(2) Est autem intelligendum quod causa praedictae passionis quam videtur assignare Philosophus non videtur esse rationabilis nec secundum intentionem suam. Illud enim quod refrangitur in hiis quae videntur secundum refractionem est lumen generatum a corpore fulgido et colores qui cum eo sunt. Visum autem non necesse est refrangi †propter necessitatem videndi†, sicut ostensum est. Propter quod non potest assignari causa praedictae apparitionis ex refractione visus ab ipso aere. Adhuc autem, si facies eius ab aere {Adhuc – aere *om. S*} propinquo existente refringebatur, manifestum {medium *S*} est quod refractio ista valde debilis erat: quanto enim corpus a quo fit refractio rarius est, tanto debilior est refractio et alteratio in contrarium. Quare {quia *S*} pupilla oculi valde debiliter alterabatur ab ea, ita ut visus interius existens non sentiret huiusmodi alterationem, maxime cum esset debilis et tenuis. Et quanto visus est debilior, tanto minus sentit parvas alterationes. Quare dato quod visus et imago eius refringeretur ab aere, adhuc non appareret ei idolum ipsius.

(3) Propter quod aliter {alter *S*} videtur esse dicendum quod principium visivum est {*om. W*} interius in oculo, et non in exteriori parte pupillae, sicut dicit Philosophus libro De sensu et sensato. Pars autem pupillae exterior est sicut quoddam medium intrinsecum in visu. Et propter hoc, sicut propter innaturalem dispositionem medii extrinseci variatur visio, ita propter dispositionem innaturalem pupillae, et multo amplius quanto pupilla consequentialior est visui; si enim fuerit respersa aliquo spiritu vel humore innaturali et alteretur a visibili extrinseco, alterabitur secundum modum suum et alterabit visivum interius intensione {intentione *W*} visibilis alterata et ad

dispositionem suam. Quare {quia S} visivum alteratum sic iudicabit colorem medium inter colorem visibilis {medium – visibilis: visibilem S} et colorem pupillae. Si autem passio pupillae fuerit fortis et multa, et virtus visiva debilis, continget {contingeret S} quod pupilla secundum quod huiusmodi alterabit visum interius, et visus apprehendet colorem pupillae velut aliquid extrinsecum et remotum ab eo, primo quia huiusmodi passio quasi aliquid extrinsecum est et contra naturam, secundo quia consuevit omnia quae videt ut extra existentia {extrema S} videre, tertio quia magis rationabile est {om. W}, quia alteratio visivi {visui SW} interius a pupilla sic disposita debilis est valde, tum propter debilitatem alterantis respectu extrinsecorum visibilium, {tum – visibilium om. S} tum propter debilitatem ipsius visus ab infirmitate. Quae autem debilius alterant visum remotiora videntur, quae vero fortius propinquiora reliquis existentibus paribus; propinquius enim vel remotius videtur iudicare visus propter hoc quod fortius vel debilius alteratur, propter quod huiusmodi passio pupillae videtur aliquid extrinsecum vel remotum. Et huius simile videtur in habentibus cicatricem in pupilla aut {vel S} patientibus ophthalmiam in oculo, quibus videtur aliquid prae oculis stare ad modum telae, quod secundum veritatem est in ipsa pupilla praeter naturam, sc. aliquis humor innaturalis diffusus in ipsa. (4) Contingit autem aliquando quod {om. W} propter debilitatem virtutis propter modicam similitudinem vel in colore vel etiam secundum figuram ad aliquid diversum iudicetur esse illud, sicut febricitantes aut phrenetici ad aliquam pertractionem linearum in pariete similem aliquo modo figurae alicuius animalis iudicant illud esse animal, et existens in passione timoris vel amoris ad modicum sonum folii aut huiusmodi iudicant adesse hic quidem hostem, ille vero dilectum {dilectam S}, sicut Philosophus dicit libro De somno et vigilia <Insomn. 2, 460b3–7>. Per hunc igitur modum dicendum de {om. W} passione accidente circa Antiphorontem, quod {quia S} sc. per pupillam eius erat humor seu spiritus innaturalis et grossus diffusus {om. W}, qui, alterans visivum {visum S} interius debile et tenue existens propter infirmitatem, iudicabatur quasi aliquid extrinsecum {intrinsicum S} propter causas praedictas et per aliquam modicam similitudinem in colore et lineatione {limitatione S} passionis apparentis ad idolum proprium, quod forte saepe consuevit videre in speculo, iudicabat idolum proprium. (5) Haec igitur videtur esse causa secundum veritatem praedictae passionis, causam autem quam Aristoteles ponit in Littera ponit secundum communem opinionem mathematicorum quam sequitur hic propter causam dictam {praedictam S}.

Translation

(1) Next, when he says <3.4, 373b1> “It happens from air,” he first explains in what state air must be for there to occur a reflection from it, next, when he says <373b13> “But from water” in what state water must be. Concerning the first he first states two ways in which reflection occurs from air, and next, when he says <373b10> “Because of which” he explains the second one. In the first part he says that reflection from air occurs when

the air has become thick, either by being mixed with some earthy and thick exhalation or by being gathered by cold, for thickened air becomes like something dark, which has the property of preventing the alteration of light (*lumen*) in a straight line. Moreover, sometimes reflection from air occurs even when it has not been thickened, because of the weakness of <somebody's> sight, which is not capable of penetrating the air, and consequently uses it as a mirror, as it were – as happened to some person whose sight was weak and not sharp, whom he (&i.e., Aristotle) in *On memory* calls Antiphoron⁵⁵ Oreites: for as he walked, an image (*idolum*) of himself appeared to him in the air just in front of him, and it always went in front of him and looked back at him. He suffered this because the rays that proceed from his sight and body were reflected by the air towards himself due to his having, because of an illness, such a weak and slight sight that it could not push forward and penetrate the air next to it. Hence it became like a mirror to him, from which there was reflection, just as thickened air at a distance becomes a mirror to a healthy eye in a good state.

(2) It should, however, be understood that the cause that the Philosopher seems to assign to the aforementioned affection does not seem reasonable, nor in accordance with his own view. For what is reflected when something is seen through reflection is light generated by a shining body and its attendant colours, but there is no need for the sight to be reflected †due to the need to see†,⁵⁶ as shown earlier. Therefore reflection of the sight by the air cannot be given as the cause of the aforementioned appearance. Moreover, if his face was reflected by the air next to it, it is obvious that this reflection was very weak, because the less dense the body from which the reflection occurs, the weaker the reflection and alteration to the opposite. Therefore, the pupil of the eye was only altered very weakly by it, so that the sight inside would not sense this sort of alteration, in particular as it was weak and slight; and the weaker the sight is, the less it senses small alterations, so <even> given that his sight and picture (*imago*) were reflected by the air, still no image (*idolum*) of himself would appear to him.

(3) So, a different explanation must be assigned: the principle of vision is inside in the eye and not in the exterior part of the pupil (this is stated by the Philosopher in the book *On Sense and the Sensed*). Now, the exterior part of the pupil is like an internal medium in vision, and therefore, just as vision is modified by an unnatural state of the external medium, so it is by an unnatural state of the pupil, and even more, as the pupil is of greater consequence to vision. For if it is sprinkled with some unnatural spirit or humour, and <then> is altered by some external visible object, it will be altered in its own way, and will alter the interior power of vision⁵⁷ with the altered intension of the

55 Antiphon of Oreus is mentioned in *Mem.* 1, 451a9. William of Moerbeke translated correctly *ut accidit Antipheroni Oreite*, but the name was soon mangled a bit.

56 *propter necessitatem videndi*. I suspect the text is corrupt.

57 power of vision] *visivum*.

object of vision and according to its own state. Therefore, when thus altered, the power of vision will judge the colour to be in-between the colour of the object of vision and the colour of the pupil. If, however, the affection of the pupil is strong and great, and the power of vision weak, it will happen that the pupil by itself will alter the sight internally, and the sight will apprehend the colour of the pupil as <if it were> something external and distant from itself, firstly because such an affection is like something that is external and unnatural, secondly because it is accustomed to see all things it sees as being located outside, and thirdly because this is more reasonable, since the alteration of the power of vision internally by the pupil in such a state is very weak, partly because the weakness of the agent of change with respect to the external objects of vision, partly because of the weakness of the sight itself due to the illness. Now, things that alter the sight in a rather weakly way seem to be more distant, and those that alter it rather strongly to be closer, other things being equal, for sight seems to judge closeness or distance according as it is altered strongly or weakly. Therefore, such an affection of the pupil seems to be something external or distant. A similar phenomenon is seen in people who have a scar on their pupil or suffer from ophthalmia, for to them it seems as if something is standing before their eyes like a web, whereas in reality it is in the pupil itself in an unnatural way, being, that is, an unnatural humour which is diffused in it. (4) It sometimes also happens because of weakness of the power <of vision> that something is judged to be something else because of some tenuous similarity to it either in colour or in shape. For instance, if a wall exhibits some lines that somehow resemble the shape of some animal, persons who are ill with a fever or mad judge that this is an animal; and someone affected by fear or love judges at a minor rustle of a leaf or the like that his enemy or his beloved is present, as the Philosopher says in *On Sleep and Waking* (2, 460b3–7). This, then, is the way to explain what happened to Antiphron: there was an unnatural and thick humour or spirit diffused over his pupil, which, as it changed the internal power of vision (weak and slight due to illness), was judged to be something external for the aforementioned reasons; and due to some tenuous similarity in colour and outline between the affection appearing to him and his own image (*idolum*), which, presumably, he was accustomed to see often in a mirror, he judged it <i.e., the appearance> to be his own image.

(5) This, then, seems to be the real reason of the aforementioned affection. The reason which Aristotle proffers in the text is the one on which the mathematicians <of his day> generally agreed, and he follows it here for the aforementioned reason.

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Brentano's Aristotelian Account of the Classification of the Senses

Hamid Taieb

1 Introduction

How many senses do we have? The usual answer is five: sight, hearing, smell, taste, and touch. Yet some people try to defend the existence of other senses: for example, the sense of temperature can be considered as an autonomous, additional sense. After all, we do not *touch* temperatures, or so they would argue. Other people, by contrast, have tried to take the opposite direction, and admit fewer senses: for example, why could smell and taste not be one sense? When your nose is blocked up, you do not perceive the *flavour* of food anymore, these people would say. If we try to answer these questions, we immediately see that there is an important methodological problem connected with them: we are not clear about the criterion that we should choose in order to distinguish the various senses. We do not even know whether we ought to look for the criterion in the “region” of experience or physiology. One may be tempted to sort out the senses by relying on experience and thus give priority to phenomenology, considering various psychic activities to determine whether one “has the impression” that they belong to the same sense. Or, one might rely on physiology instead and focus either on our sense organs, taking their varieties as a guide to distinguish our senses, or track some relevant brain processes that might provide a list of our sensitive capacities. Agreement on these methodological issues seems to be a prerequisite for discussion of the classification of the senses.

Franz Brentano made a clear choice on this point: he relies on phenomenology. His understanding of phenomenology is broad, as it includes not only the act-pole of our experiences, but also their object-pole; that is, it extends to the entities towards which our mental acts are directed. His criterion for the determination of the number of senses is phenomenological-objectual: the senses are to be classified according to the various kinds of sensible qualities, such as colours and sounds, that appear to us. More precisely, the most

general kinds of sensible qualities give us, as their correlates, the various senses. According to Brentano, this must be the guide for the identification of the senses and not physiology. However, pointing toward sensible qualities is not yet enough, as one would in turn need to know what the most general kinds of sensible qualities are. But here again one is in need of a criterion. Brentano has a suggestion: each kind of sensible quality has a specific pair of extremes, such as light vs. dark and high vs. low. This criterion leads him to admit only three senses, namely sight; hearing; and “feeling,” which gathers together smell, taste, and touch. Brentano’s reason for attributing cases of sensation to the same sense is the following: if the aggregation of one sensible quality with another has an impact on the estimation of the position of these sensible qualities on the scale of their opposites, then both sensations belong to the same sense. Interestingly, Brentano thus presents a casuistic of sensation aggregation to determine if two sensations belong to one or distinct genera.

Did the reader notice anything Aristotelian in the description presented above? Although it has a very modern flavour, as it opposes phenomenology to physiology, the two basic criteria that Brentano uses are in fact ancient. Brentano explicitly borrows from Aristotle both the thesis that senses must be distinguished according to kinds of sensible qualities and the idea that the specificity of the extremes allows us to sort out the most general kinds of sensible qualities (for discussion, see chapter one above). Brentano says that the first of these two criteria is found in and defended by Aristotle, whereas the second is just a hypothesis suggested by Aristotle. In sum, Brentano seems to be both a phenomenologist and an Aristotelian philosopher.

From an historical point of view one would like to compare Brentano’s reading to Aristotle’s texts and see to what extent he is faithful to Aristotle. From a more theoretical point of view, Brentano’s adoption of phenomenological instead of physiological criteria requires some justification: why not sort out sensations by appealing to differences among sense organs? Why not take the brain into consideration? Besides, the view defended by Brentano that there are only three senses is quite unconventional, and so one might need to know more about his argumentation before judging its value. This chapter is meant to tackle these issues. The first section introduces Brentano’s general theoretical approach to psychology. The second section presents in detail his theory of the classification of the senses; this will be the occasion for considering his argumentation against physiology and seeing how he justifies his reduction of the senses to three. In the third section, I will first evaluate Brentano’s reading of Aristotle and then the philosophical significance of the Brentanian position.

2 Brentanian Psychology

Brentano's major theoretical approach to psychology is presented in his lectures on "descriptive psychology," also called "descriptive phenomenology," given in Vienna in 1887–88, 1888–89, and 1890–91.¹ These lectures are the starting point of an important methodological stance in the philosophy of mind, namely that of undertaking a first-person analysis of our psychic life. According to Brentano, such a study is possible at all levels of our mental acts: we can provide not only an analysis of our emotions from the first-person point of view, but also detailed descriptions of our sensations, of our imaginary and conceptual presentations, and of our judgements. Descriptive psychology identifies the basic elements of our psychic life, analyses their nature, and shows how they combine from a logical-ontological point of view. Brentano opposes "descriptive psychology" to "genetic psychology." The latter includes psychophysiology and studies the causal relations responsible for the appearance and disappearance of our mental acts. Physiological inquiries in psychology, for Brentano, are far from illegitimate. However, he takes descriptive psychology to be a prerequisite of any such genetic, causal research. Brentano's basic argument is that it is a prerequisite for an adequate study of the genesis of a set of entities that they first be identified and analysed. One example he gives regards "error and delusion" (*Irrtum und Wahn*): if one does not have a good account of the differences between a correct and an incorrect judgement, one will fail to explain the genesis of error and delusion, since one will be unable to identify the causal chains responsible for the presence or absence of the determining elements of these phenomena.²

Descriptive psychology must be done from the first-person point of view. Thus, even in domains in which psychophysical causality plays an important role, it should not, in Brentano's view, enter into the psychological description. Notably, when Brentano tries to determine what features are proper to sensation, he focuses exclusively on phenomenological aspects. In his view,

¹ Guillaume Fréchette and I are preparing an edition of Brentano's three lectures series. Brentano's *Deskriptive Psychologie*, ed. W. Baumgartner and R. M. Chisholm (Hamburg: Meiner, 1982) contains large parts of the 1890–91 lectures. In the present chapter, I will quote also the lectures from 1887–88, ms. Ps 76, from our forthcoming edition (I am grateful to Thomas Binder for preparing a transcription of the original manuscript for our use).

² Brentano, *Deskriptive Psychologie*, 9 (trans. Müller, 11).

sensations are, roughly speaking, intuitions of real sensible qualities.³ Any mental act which presents itself to inner consciousness as such an intuition is a sensation. This leads Brentano to hold that so-called “objective sensations” and hallucinations belong to one and the same class of psychic phenomena. As a matter of fact, they are phenomenologically equivalent and one has to refer to a causal story in order to explain how they differ. The causal story indeed involves physiological elements, but it does not affect their structure from a phenomenological point of view.⁴

Brentano has a broad understanding of the scope of descriptive psychology. This discipline analyses our “phenomena.” Among them Brentano distinguishes psychic and physical phenomena. Inner consciousness is turned toward psychic phenomena, such as sensations, conceptual presentations, and so on. However, it also grasps physical phenomena to some extent. “Physical phenomena” is another name for sensible qualities, including colours, sounds, and flavours. In his lectures on descriptive psychology, Brentano holds that every mental act has an intentional relation to a so-called “immanent object.” The mental act is thus relational and has an object as its correlate. From an ontological point of view, there is a major difference between these two relations: the mental act is *real*, whereas the intentional correlate is *unreal*.⁵ These are technical terms and require a brief explanation. In Brentano, *realia* are causally active and acted-upon entities, whereas *irrealia* are causally inert and cannot be acted upon; *realia* have their own coming-to-be and ceasing-to-be, whereas *irrealia* come to be and cease to be together with *realia*. Among *irrealia*, Brentano counts various entities, including not only immanent objects, but also past and future things, *abstracta*, states of affairs, collectives, and so on.⁶ When a mental act, which is something real, appears, its unreal sequel, namely an immanent object, also comes to be.

Brentano’s thesis is that inner consciousness grasps not only psychic phenomena, but also their corresponding immanent objects. In other words, inner consciousness has access to *two* kinds of things: real mental acts and

3 Brentano, *Deskriptive Psychologie*, 139–40. Brentano adds that sensations are “fundamental,” that is, they do not depend on other mental acts, by contrast, e.g., to emotions, which presuppose a presentation of their object.

4 Brentano, *Deskriptive Psychologie*, 136. For a more precise discussion of the relations between phenomenology and psychophysics in Brentano’s philosophy, see the evaluative section below (including the historical part, where his views are contrasted with those of Aristotle).

5 Brentano, *Deskriptive Psychologie*, 21.

6 Brentano, “Abstraktion und Relation,” ed. G. Fréchette, in *Themes from Brentano*, ed. D. Fisette and G. Fréchette (Amsterdam: Rodopi, 2013), 466–67; Arkadiusz Chrudzinski, *Die Ontologie Franz Brentanos* (Dordrecht: Kluwer, 2004), 123–75, and 201.

their unreal correlates.⁷ From the point of view of outer perception (*äussere Wahrnehmung*), that is, the perception of the external world, colours, sounds, flavours, and the like appear as real; however, from the point of view of inner perception, that is, of self-consciousness, they are grasped as something unreal, namely as immanent objects.⁸

Inner experience shows us no colours, no sounds, etc., as existing in reality. But it shows us a sensation of colours, etc. and thus these as immanent objects of our sensations, as phenomena. As such, they belong to the content of sensations and their description falls to descriptive psychology.⁹

In a similar manner, Brentano says the following:

One is telling the truth if one says that phenomena are objects of inner perception, even though the term “inner” is actually superfluous. All phenomena are to be called inner because they all belong to one reality, be it as constituents or as correlates.¹⁰

This is an important point, as it shows that, for Brentano, descriptive psychology, or “descriptive phenomenology,” as he also calls it, is not restricted to the analysis of psychic phenomena, but also analyses physical phenomena to the extent that they are immanent objects. In other words, Brentano admits

7 Brentano, *Deskriptive Psychologie*, 129. I follow here the classical interpretation of Brentano's theory of the immanent object. For an alternative reading, where the immanent object is not an unreal entity, see Werner Sauer, “Die Einheit der Intentionalitätskonzeption bei Brentano,” *Grazer Philosophische Studien* 73 (2006): 1–26; and Mauro Antonelli, “Franz Brentano et l’inexistence intentionnelle,” *Philosophiques* 36:2 (2009): 467–87.

8 On the fact that Brentano, in his theory of intentionality, admits two different points of view on the immanent object, seen in turn as real or unreal, see Arkadiusz Chrudzinski, *Intentionalitätstheorie beim frühen Brentano* (Dordrecht: Kluwer, 2001), 104–5.

9 “Die innere Erfahrung zeigt uns nicht Farben, nicht Töne usw. als in Wirklichkeit bestehende. Sie zeigt uns aber eine Empfindung von Farben usw. und somit diese als immanente Gegenstände unserer Empfindungen: als Phänomene. Als solche gehören sie zum Inhalt der Empfindungen und ihre Beschreibung wird Aufgabe der deskriptiven Psychologie.” (Brentano, *Descriptive Psychology* (1887/88) [ms. Ps 76], ed. G. Fréchette and H. Taieb, transcribed by Th. Binder (Cham: Springer, forthcoming): n°58012–13; all references to this work are to manuscript pages.)

10 “Wenn man sagt, Phänomene seien Gegenstände der inneren Wahrnehmung, so sagt man die Wahrheit, obwohl das ‘innere’ eigentlich überflüssig ist. Alle Phänomene sind innere zu nennen, weil sie alle zu einer Realität gehören, sei es als Bestandteile, sei es als Korrelate.” (Brentano, *Deskriptive Psychologie*, 129 (trans. Müller, 137).) This is a passage from the 1888–89 lectures.

not only an act-, but also an *object*-phenomenology.¹¹ From this starting point, he takes up the description of the many features that these physical phenomena exhibit: for example, colours always appear extended, they are either pure or mixed, and so forth.¹² Note that, from a metaphysical point of view, Brentano thinks that reality lacks secondary qualities: defending a rather standard modern view, his picture of the physical world is that of the physicists and, thus, contains exclusively the items that they admit: atoms, waves, etc.¹³ Such physical items do indeed act on our sense organs, and they cause acts of sensation; these acts, in turn, are accompanied by their respective correlates, for example, colours or sounds, which, however, do not exist in the external world.

In brief, secondary qualities such as colours, sounds, and flavours, which are “physical phenomena,” appear as real to outer perception but do not exist as real. By contrast, they appear as unreal to inner perception, and do exist as unreal.¹⁴ As such, they have many features that can be studied. The science to which their study falls to is “descriptive psychology,” or “descriptive phenomenology,” which is thus revealed as a first-person analysis of our mental acts *and* their objects.¹⁵ This point will be important for the understanding

- 11 On this distinction, found in Moritz Geiger, a student of Husserl, see Robin D. Rollinger, “Scientific Philosophy: Paul Linke,” *The New Yearbook for Phenomenology and Phenomenological Philosophy* 5 (2005): 60–114. For an emphasis on the role of the object in Brentano’s theory of sensation in particular, see Olivier Massin, “Brentano on Sensations and Sensory Qualities,” in *Routledge Handbook of Franz Brentano and the Brentano School*, ed. U. Krieger (London: Routledge, 2017), 87–96.
- 12 Brentano, *Deskriptive Psychologie*, 14–17, 71–72.
- 13 Franz Brentano, *Psychologie vom empirischen Standpunkt*, vol. 1, ed. O. Kraus (Leipzig: Meiner, 1924/1925), 28; id., *Psychology from an Empirical Standpoint*, trans. A. C. Rancurello, D. B. Terrell, and L. L. McAlister (London: Routledge, 1995), 14; Tim Crane, “Brentano’s Concept of Intentional Inexistence,” in *The Austrian Contribution to Analytic Philosophy*, ed. M. Textor (London: Routledge, 2006), 20–35; Massin, “Brentano on Sensations and Sensory Qualities,” 89.
- 14 Brentano, at least in *Psychologie*, 1:28, does not just reject the existence of sensible qualities such as colours and sounds, but also that of the sensible qualities of space and movement, usually included among so-called “primary qualities.” Brentano’s divide between primary and secondary qualities requires further investigation.
- 15 Note that Brentano later abandoned his theory of immanent objects; however, he continued to hold that inner consciousness cannot present a thinking subject without presenting an object toward which it is directed (see Brentano, *Psychologie*, 2:133–38). Moreover, the abandonment of immanent objects did not change his views on the rules to which physical phenomena, although mere appearances, are submitted; for example, he did not begin to defend the view that colours can appear non-extended, nor that they are all pure, etc. (see, e.g., the discussions on the relations between colour and space or on mixed colours in Franz Brentano, *Kategorienlehre*, ed. A. Kastil (Hamburg: Meiner, 1933), 275 and 81–86).

of Brentano's views on the classification of the senses, as he will use mostly object-phenomenology to sort out the various senses.

3 Brentano's Account of the Classification of the Senses

Brentano's account of the classification of the senses is intended to be Aristotelian, as in fact is the case with many other elements in his thought: in addition to being a phenomenologist, Brentano is an Aristotelian philosopher. He started his philosophical training by working on Aristotle, and he wrote his doctoral dissertation on the different senses of 'being' in Aristotle (*Von der mannigfachen Bedeutung des Seienden nach Aristoteles*¹⁶), under the supervision of Friedrich Adolf Trendelenburg, who was himself deeply involved in Aristotelianism.¹⁷ Moreover, Brentano's *Habilitation* is on Aristotle's psychology (*Die Psychologie des Aristoteles*).¹⁸ Yet Brentano was not just a commentator on Aristotle, but rather, as indicated, an Aristotelian thinker. He held that in his time, which was dominated by German idealism, he had to find some new starting point for philosophy. Aristotle, read with the help of Thomas Aquinas, provided this starting point:

As an apprentice, I had first to join a master and, since I was born in a period of most appalling decay in philosophy, I could find no one better than old Aristotle, for the understanding of whom – which is not always easy – Thomas Aquinas often had to help me.¹⁹

16 Franz Brentano, *Von der mannigfachen Bedeutung des Seienden nach Aristoteles* (Freiburg: Herder, 1862).

17 On the revival of Aristotle in the nineteenth century, and on Trendelenburg's role in it, see Denis Thouard, ed., *Aristote au XIX^e siècle* (Villeneuve d'Ascq: Presses universitaires du Septentrion, 2004); Gerald Hartung, Colin G. King, and Christof Rapp, eds., *Aristotelian Studies in 19th Century Philosophy* (Berlin: De Gruyter, 2019).

18 Franz Brentano, *Die Psychologie des Aristoteles, insbesondere seine Lehre vom ΝΟΥΣ ΠΟΙΗΤΙΚΟΣ* (Mainz: F. Kirchheim, 1867). Brentano also wrote two texts on the question of the origin of the soul in Aristotle (*Über den Creatianismus des Aristoteles* and *Aristoteles Lehre vom Ursprung des menschlichen Geistes*) and he published a general presentation of Aristotle's philosophy (*Aristoteles und seine Weltanschauung*). A posthumous work of Brentano on various themes in Aristotle also appeared (*Über Aristoteles*).

19 "Ich hatte mich zunächst als Lehrling an einen Meister anzuschließen und konnte, in einer Zeit kläglichsten Verfalles der Philosophie geboren, keinen besseren als den alten Aristoteles finden, zu dessen nicht immer leichtem Verständnis mir oft Thomas von Aquin dienen mußte" (Franz Brentano, *Die Abkehr vom Nichtrealen*, ed. F. Mayer-Hillebrand (Bern: Francke, 1952), 291).

It must be recalled that Brentano was a priest and abandoned the priesthood after having rejected papal infallibility.²⁰ Despite this abandonment, the Aristotelian-Scholastic influence remained quite strong in his thought, and in particular in his psychology. Just to give one important example, when Brentano introduces his intentionality thesis – namely that psychic phenomena are characterised by their being directed toward an immanent object – he mentions Aristotle as the source of the thesis (more precisely, he mentions certain passages of the *De anima* on the presence of the sensible as sensible and the intelligible as intelligible in the soul).²¹ Yet Brentano also affirms there that he is inspired by the scholastics' claim that the objects of thought exist in the mind "intentionally," and one medieval author that he quotes in that context is Aquinas.²²

In his inquiries in psychology, Brentano devoted many discussions to sensation, especially in his *Untersuchungen zur Sinnespsychologie*.²³ In that context, one of the topics that interested him was that of the classification of the senses. As indicated, his answer on the issue is explicitly based on Aristotelian material. For Brentano, senses are classified according to the varieties of their objects, that is, according to the most general distinctions found among sensible qualities. This is an Aristotelian move:

20 For a presentation of Brentano's life and work, see Denis Fiset and Guillaume Fréchette, "Le legs de Brentano," in *À l'école de Brentano: De Würzburg à Vienne*, ed. D. Fiset and G. Fréchette (Paris: Vrin, 2007), 13–160.

21 The relevant passages are *de An.* 2.12, 424a17–24 and 3.8, 431b29–432a1. By the way, Brentano also means to borrow from Aristotle the thesis that mental acts have an unreal entity as correlate. This thesis would come from *Metaph.* 5.15, 1021a26–b3, where Aristotle claims that some relatives, including the thinkable and the sensible, are not relative by themselves, but because something else, in this case thought and sensation, is relative to them. For an evaluation of the adequacy of this reading of Aristotle, see Hamid Taieb, *Relational Intentionality: Brentano and the Aristotelian Tradition* (Cham: Springer, 2018), 63–134.

22 Brentano might here be thinking of Thomas Aquinas, *Sentencia libri De anima*, ed. R.-A. Gauthier (Rome: Commissio Leonina / Paris: Vrin, 1984), 2.24, and his discussion of *esse intentionale*. The question of whether Aquinas holds that the items with *esse intentionale* truly are *objects* of thought is controversial, as he might rather be a direct realist and hold that our thoughts have reality as their objects; in this case, the items with *esse intentionale* would be means of grasping reality, but not themselves objects. For more on this, see notably Dominik Perler, *Theorien der Intentionalität im Mittelalter*, 2nd ed. (Frankfurt am Main: Vittorio Klostermann Verlag, 2002), 80–89.

23 See notably Franz Brentano, *Untersuchungen zur Sinnespsychologie*, ed. R. M. Chisholm and R. Fabian, 2nd ed. (Hamburg: Meiner, 1979).

So, what is the true principle of the classification of the senses? Aristotle said that the senses are to be distinguished on the basis of the genera of the sensible qualities, and because these, for example, sight- and hearing-impressions, are different – there colour, here sound – we are dealing with two senses, not one.²⁴

Recall that since Brentano does not admit secondary qualities in his metaphysics, he uses a merely phenomenological criterion here: from the point of view of descriptive psychology, we notice a certain diversity among the physical phenomena that appear to us as objects of sensation. This diversity in our object-phenomenology should guide us in the classification of the senses.²⁵ Brentano does not mention his textual sources in Aristotle, but he is probably thinking here of two passages from the *De anima*. The first is about the methodological issue of knowing what psychology should begin its study with. Aristotle claims that there is a definitional priority of the acts with respect to the psychic faculties, and of the objects (or, more precisely, the “opposites” of the acts, as Aristotle does not literally talk of “objects”) with respect to the acts, so that the objects should be the starting point of the investigation:

It is necessary for anyone who is going to conduct an inquiry into these things to grasp what each of them is, and then to investigate in the same way things closest to them as well as other features. And if one ought to say what each of these is, for example, what the intellective or perceptual or nutritive faculty is, then one should first say what reasoning is and what perceiving is, since actualities and actions are prior in account to potentialities. But if this is so, and their corresponding objects are prior to them, it would for the same reason be necessary to make some

24 “Welches ist nun das eigentliche Prinzip der Klassifikation der Sinne? Aristoteles sagte, die Sinne seien nach den Gattungen der Sinnesqualitäten zu scheiden, und weil diese z. B. bei Gesichts- und Gehörseindrücken verschieden seien – dort Farbe, hier Schall – so handle es sich um zwei Sinne, nicht um einen.” (Brentano, *Untersuchungen zur Sinnespsychologie*, 159.)

25 The contemporary phrasing of Brentano's problem is that of the “individuation of the senses,” as underscored by Massin, “Brentano on Sensations and Sensory Qualities,” 92–93; in what follows, I will stick to Brentano's formulation of “classification of the senses,” but the distinction is merely verbal. Massin's text, although short, is very helpful, as it mentions many central aspects of Brentano's theory of the classification of the senses, notably its Aristotelian origins and its non-physiological nature. Aristotle's position is also discussed in the contemporary literature (see, e.g., Mohan Matthen, “The Individuation of the Senses,” in *Oxford Handbook of the Philosophy of Perception*, ed. M. Matthen (Oxford: Oxford University Press, 2015), 567–86).

determinations about, for instance, nourishment and the objects of perception and reasoning.²⁶

The second passage applies this methodological position to the inquiries on sensations, stating that:

Among things perceived in their own right, exclusive objects are properly perceptible objects; and it is to these that the essence of each sense is naturally relative.²⁷

Aristotle's basic idea is that the understanding of the various faculties of the soul requires the understanding of what their acts are; for example, knowing what the faculty of sight is requires knowing what happens when it is activated, that is, knowing what it is to see. Furthermore, describing the activity of seeing requires mentioning colours, as sight can be aptly described as the sensation of colours. At any rate, this is apparently the way Brentano understands Aristotle: he attributes to him the view that various impressions are distinguished on the basis of their being about such and such a sensible quality.

One may wonder why Brentano does not use physiological criteria. What would be the problem if one were to take the various perceptual peripheral organs (eyes, ears, etc.), and hold that there is one unique sense corresponding to each of them? One could then say that sight is the psychic activity that is produced by the stimulation of the eye, hearing by that of the ears, and so on. In Brentanian terms, the concern would thus be over why genetic psychology cannot provide us with the right number of senses and why we have to rely on descriptions from the first-person point of view. Brentano answers by referring to an experimental hypothesis which involves not only peripheral organs, but also the connections between them and the brain. According to Brentano, if you stimulate a specific peripheral organ, for example the eyes, but you connect the nerves of this organ to those of another organ, for example those of

26 Ἀναγκαῖον δὲ τὸν μέλλοντα περὶ τούτων σκέψιν ποιῆσθαι λαβεῖν ἕκαστον αὐτῶν τί ἐστίν, εἴθ' οὕτως περὶ τῶν ἔχομένων καὶ περὶ τῶν ἄλλων ἐπιζητεῖν. εἰ δὲ χρή λέγειν τί ἕκαστον αὐτῶν, οἷον τί τὸ νοητικὸν ἢ τὸ αἰσθητικὸν ἢ τὸ θρεπτικόν, πρότερον ἔτι λεκτέον τί τὸ νοεῖν καὶ τί τὸ αἰσθάνεσθαι. πρότεροι γάρ εἰσι τῶν δυνάμεων αἱ ἐνέργειαι καὶ αἱ πράξεις κατὰ τὸν λόγον. εἰ δ' οὕτως, τούτων δ' ἔτι πρότερα τὰ ἀντικείμενα δεῖ τεθεωρηκέναι, περὶ ἐκείνων πρῶτον ἂν δέοι διορίσαι διὰ τὴν αὐτὴν αἰτίαν, οἷον περὶ τροφῆς καὶ αἰσθητοῦ καὶ νοητοῦ. (*De An.* 2.4, 415a14–22, trans. Shields.) For a discussion on this passage, see Ierodiakonou's contribution in the present volume (chapter one, p. 44–45).

27 τῶν δὲ καθ' αὐτὰ αἰσθητῶν τὰ ἴδια κυρίως ἐστὶν αἰσθητά, καὶ πρὸς ἃ ἡ οὐσία πέφυκεν ἐκάστης αἰσθήσεως (*de An.* 2.6, 418a24–25, trans. Shields).

hearing, so that the latter nerves bring the external stimulus to the brain, not the former, you will not have a sensation of sight anymore, but of hearing:

And also the reference to distinct external organs cannot be decisive for heterogeneity. We know that if the nerves of the eye were connected with the nerves of another sense, for example of hearing, an excitation of the eye would result in a sound quality, whereas the appearance of colour would vanish.²⁸

The problem would thus be that you would hear a sound due to a stimulation of your eye; yet according to the physiological criterion mentioned above, you would have to admit that this sensation is one of seeing – a strange conclusion, to say the least. Thus, Brentano rejects the classification of the senses that results from focusing on sense organs and sticks to his Aristotelian account, which favours sensible qualities.

However, once this has been established, the difficulties are not over: one would like to know something else, namely, how to distinguish the genera of sensible qualities. The question is indeed of primary importance, since only its answer can give us the correct number of senses. We have the intuition that some sensible qualities belong to different genera, for example colours and sounds, but what justifies us in believing this? Is there a primitive distinction given when one experiences these qualities? Is there something more to say about the distinction? Brentano, in his first lectures in descriptive psychology (from 1887–88), mentions a hypothesis in which physiology plays the distinguishing role. He finds this hypothesis in John Locke. Brentano says that Locke, in contrast to Aristotle, does not think that sensible qualities have intrinsic features that divide them into genera. Rather, for Locke, qualities are grouped into genera according to their being received by this or that peripheral organ, colours by the eyes, sounds by the ears, and so on:

[Locke] wanted to see no greater kinship between red and blue than between red and the note *c* in the scale. If we gathered the former

28 "Auch der Nachweis verschiedener äußerer Organe kann nicht für die Heterogenität entscheidend sein. Wir wissen, daß, wenn die Augennerven mit Nerven eines anderen Sinnes, z. B. des Gehörsinnes, verheilt würden, eine Reizung des Auges eine Tonqualität zur Folge hätte, während jede Farbenerscheinung unterbliebe." (Brentano, *Psychologie*, 3:61.) While the passages I quote from volume 3 of Brentano's *Psychologie* seem to me to correspond to his overall views on the senses and their objects, it should still be noted that this volume has been edited by Oskar Kraus, who was not always faithful in his editorial work, especially because he was combining in the same text elements coming from several manuscripts (as he himself states, e.g., in Brentano, *Psychologie*, 3:146).

together and distinguished the latter, it is only because they have been conveyed to us via different organs (eyes and ears). And according to him, “colour,” “sound,” means the following: “content of sensation exclusively received through the eye (ear).”²⁹

Brentano is apparently referring to the following passage in Locke’s *Essay*: “For when white, red, and yellow are all comprehended under the genus or name colour, it signifies no more but such ideas as are produced in the mind only by the sight, and have entrance only through the eyes.”³⁰ What is wrong with this view? Although Brentano does not immediately tackle the issue, and thus does not directly answer Locke, he explains later in the text why such a position is problematic. He wonders whether it would be a good move to conclude from the existence of distinct nerves for smell and taste to a distinction of the sensible qualities of odour and flavour.³¹ His answer is negative and is based on a variant – as it is applied to sensible qualities – of the argument mentioned above concerning the classification of the senses. Brentano holds the following:

Let us think of a nerve fibre of the eye connected with a nerve fibre of the ear in such a way that the central part belongs to the nerve of hearing, and the peripheral one to the one of sight; through the light that would excite the retina a sensation of sound would emerge; the same end structure which now serves to the awakening of a colour impression would serve to the awakening of a sound impression.³²

The problem here is that the stimulated peripheral organ would be the eye, so that you would have to conclude that the sensible quality emerging from its stimulation is a colour; however, what appears seems rather to be a sound.

29 “[Locke] wollte zwischen Rot und Blau keine größere Verwandtschaft als zwischen Rot und dem Ton c in der Skala finden. Wenn wir jene zusammenrechneten, diese trennten, so sei es nur, weil sie uns durch verschiedene Organe (Auge und Ohr) vermittelt würden. Und das bedeutet nach ihm ‘Farbe,’ ‘Ton’: ‘ausschließlich durch das Auge (Ohr) empfangener Empfindungsinhalt.” (Brentano, *Descriptive Psychology* (1887/88) [ms. Ps 76]: n°58207–8.)

30 John Locke, *An Essay Concerning Human Understanding* (Oxford: Clarendon Press, 1975), 3.4.16.

31 Brentano, *Descriptive Psychology* (1887/88) [ms. Ps 76]: n°58494.

32 “Denken wir uns eine Sehnervenfaser so mit einer Gehörnervenfaser verheilt, dass der zentrale Teil dem Gehörnerven angehörte, der periphere dem Sehnerv, so würde durch das Licht, welches die Retina reizt, eine Schallempfindung entstehen; dasselbe Endgebilde, welches jetzt der Erweckung einer Farbenerscheinung dient, würde der Erweckung einer Schallempfindung dienen.” (Brentano, *Descriptive Psychology* (1887/88) [ms. Ps 76]: n°58495–96.)

Interestingly, Brentano adds in this case that he is offering a pure hypothesis, as such crossing among nerves has never been experimentally tested. He adds, however, that we all know cases which show that the physiological criterion is inadequate. For example, the feeling of being dazzled by light emerges from a stimulation of the eyes via light waves, but this does not make dazzlement a colour.³³ Thus, physiological arguments referring to peripheral organs are unable to solve the problem of the identification of the highest genera of sensible qualities.

We are therefore back to the question of how to distinguish the genera of sensible qualities. Brentano refers to Aristotle, who hypothesises that each kind of sensible quality, except touch, has one peculiar opposition of extremes: "Aristotle claimed that there are in each qualitative genus two extremes, as, for example, black and white for colours, [and] an extreme of high and low for sounds."³⁴ The passage Brentano has in mind surely is the following:

Every sense seems to be of a single pair of contraries: sight of white and black; hearing of high and low; taste of bitter and sweet. But among the objects of touch are included many pairs of contraries: hot and cold, dry and wet, hard and soft, and whatever else is of this sort.³⁵

Yet immediately after having said this, Aristotle asserts that "in the case of the other senses there are also several pairs of opposites." He mentions "spoken sound," which has "loudness and softness, and smoothness and roughness of voice," and claims that something similar holds for colour. However, he also seems to suggest that these pairs of opposites are still "subordinated" to sound or colour.³⁶ Now, these claims of Aristotle have led his readers to wonder whether sensible qualities have one or several pairs of opposites, and if they have several, how these exactly relate to each other.

33 Brentano, *Descriptive Psychology* (1887/88) [ms. Ps 76]: n°58496–97. Brentano notes *en passant* that we have an indirect empirical confirmation of this nerve crossing, namely between sensitive nerves and muscle nerves. For more on this (complex) issue, that I will not treat here, see *ibid.*, n°58297–314.

34 "Aristoteles hatte geltend gemacht, daß es in jeder der qualitativen Gattungen zwei Extreme gebe, wie z. B. bei den Farben Schwarz und Weiß, bei den Tönen – ein Extrem von Hoch und Tief" (Brentano, *Psychologie*, 3:62; see also *Untersuchungen zur Sinnespsychologie*, 161).

35 *πάσα γὰρ αἴσθησις μιᾶς ἐναντιώσεως εἶναι δοκεῖ, οἷον ὄψις λευκοῦ καὶ μέλανος, καὶ ἀκοὴ ὀξέος καὶ βαρέος, καὶ γεύσις πικροῦ καὶ γλυκέος. ἐν δὲ τῷ ἀπτῷ πολλὰ ἐνείσιν ἐναντιώσεις, θερμὸν ψυχρόν, ξηρὸν ὑγρόν, σκληρὸν μαλακόν, καὶ τῶν ἄλλων ὅσα τοιαῦτα.* (*De An.* 2.11, 422b23–27, trans. Shields.)

36 See *de An.* 2.11, 422b27–32, trans. Shields, as well as Shields's commentary, which I follow on the idea of the subordination.

When commenting on Aristotle's text, Aquinas refers to *Metaphysics* 10.4, 1055a23–33, in which Aristotle holds that in every genus there is a “complete difference” (τέλειος διαφορά; *teleios diaphorá*), seemingly the highest difference, dividing the genus itself, and which is said to be a contrariety. Aquinas, on this basis, holds that for every genus, there is a “first contrariety” (*prima contrarietas*), for example animate vs. inanimate for bodies. In addition to this contrariety, others are also found, but they are either lower differences within the genus body, such as rational vs. non-rational, or accidental ones, such as white vs. black for bodies. Aquinas holds that something similar is the case for sounds, whose first contrariety is high and low. By contrast, the objects of touch have a “plurality of primary contraries,” hence a problem in the Aristotelian framework.³⁷ Aquinas does not list these contraries. According to Richard Sorabji,³⁸ Aristotle admits hot and cold, on the one hand, and dry and wet, on the other hand, as irreducible pairs of objects of touch; a similar restriction to these two pairs of contraries leads even Brentano to say that Aristotle sometimes seems to consider the existence of six senses.³⁹ Interestingly, Brentano's PhD supervisor, Trendelenburg, in his commentary on the *De anima*, also holds that there are many contraries among senses, but that there is usually a “first opposition,” although he holds that this is not true of touch. Trendelenburg does not mention Aquinas, despite the closeness of their views.⁴⁰

Brentano may have been inspired by the Aquinas-Trendelenburg “first opposition” reading, which qualifies Aristotle's *prima facie* problematic claim that senses other than touch also have a plurality of opposites, which goes against the idea that sensible qualities are picked out by one pair of opposites.⁴¹ In

37 See Aquinas, *Sent. De an.* 2.22; see also Aquinas's solution there, which I will not present. As indicated by Gauthier, Aquinas could have referred, in addition, to *Ph.* 1.6, 189a13–14, and 189b25–26; see notably 189b25–26: “for in a single genus there is always a single contrariety, all the other contraries in it being held to be reducible to one” (ἀεὶ γὰρ ἐν ἑνὶ γένει μία ἐναντιώσις ἔστιν, πᾶσαι τε αἱ ἐναντιώσεις ἀνάγεσθαι δοκοῦσιν εἰς μίαν; trans. R. P. Hardie and R. K. Gaye, *The Complete Works of Aristotle*, ed. J. Barnes (Princeton, New Jersey: Princeton University Press, 1995)).

38 Richard Sorabji, “Aristotle on Demarcating the Five Senses,” *Philosophical Review* 80:1 (1971): 68n34. Sorabji refers to *GC* 2.2, 329b34, and 330a24–26. See chapter one above for discussion.

39 Brentano, *Untersuchungen zur Sinnespsychologie*, 157. In his *Habilitation*, Brentano held that Aristotle admits six senses (*Die Psychologie des Aristoteles*, 85), quoting *de An.* 2.11, 423b26–29.

40 F. A. Trendelenburg, *In De anima*, ad 422b23 (in Aristotle, *De anima*, ed. F. A. Trendelenburg, 2nd ed. (Berlin: W. Weber, 1877), 330), also referring to Aristotle, *GC* 2.2.

41 See again *de An.* 2.11, 422b27–32, quoted above.

any case, Brentano sticks to the hypothesis that qualities from one genus are identified thanks to one opposition of extremes.⁴²

Note that for Brentano these divisions are divisions of a genus into species. So, the genus of visual qualities is divided into the species of light and dark qualities. What Brentano calls “coloration” (*Kolorit*), or “saturation” (*Sättigung*), is an additional qualitative feature which might accompany light or dark sensible qualities, but need not, and which turns them into red, blue, and so forth, either light or dark. Brentano criticises Aristotle for holding that all colours are simply mixtures of black and white. For Brentano, there are only shades of grey between black and white; colours *stricto sensu* come about in addition to brightness. It is also true, however, that each shade of colour has a specific lightness or darkness; such shades, thus, seem to be a combination of a species of coloration and a species of brightness. Whereas Brentano’s opposition between light and dark seems to correspond to what in contemporary colour theories is called “brightness,” his concept of “coloration,” synonymous with “saturation,” seems to overlap both the contemporary categories of hue and saturation.⁴³ In addition to coloration and saturation, Brentano also admits an “intensity” (*Intensität*) for colours that he understands in terms of purity: a blue taken alone is more intense than a blue mixed with another colour. Like visual qualities, audible qualities divide into the species of high and low noises, which may, but need not, be accompanied by the additional, saturated quality of “tone”: c, c#, etc. As for their intensity, it depends on whether they sound alone or in “harmony” (*Mehrklang*).⁴⁴

So, for Brentano, genera of sensible qualities are distinguished by a single characteristic pair of opposites. Brentano then makes an additional move, stating that the extremes of the qualities of distinct genera are in a relation of analogy: so lightness for colours and highness for sounds are analogous, and similarly for darkness and lowness.⁴⁵ Brentano is of course aware of the technical connotation of the term “analogy” in the Aristotelian context, as he himself

42 For Brentano’s rejection of another criterion, found in Helmholtz, according to which there is no progressive transition from one sensible quality to that of another genus, see Brentano *Untersuchungen zur Sinnespsychologie*, 158–61. As stressed by Massin “Brentano on Sensations and Sensory Qualities,” 92–93, Brentano was initially quite sympathetic to this view; see Brentano, *Psychologie*, 1:213–14.

43 On colours in contemporary philosophy, see Barry Maund, “Color,” in *Stanford Encyclopedia of Philosophy*, ed. E. N. Zalta (2018), <https://plato.stanford.edu/entries/color/>.

44 See Brentano, *Untersuchungen zur Sinnespsychologie*, 75–76; id., *Deskriptive Psychologie*, 118–19; and id., *Descriptive Psychology* (1887/88) [*ms. Ps* 76]: n°58218–19, and 58537.

45 Note that the abovementioned saturation found both in colours and sounds is also described by Brentano as a case of analogy (*Descriptive Psychology* (1887/88) [*ms. Ps* 76]: n°58012–13).

uses it in his dissertation on the senses of being.⁴⁶ In the Aristotelian-Scholastic tradition, “analogy” comes in many variants. One of them, which is inherited from Aristotle himself, is the analogy of proportion: *a* is to *b* what *c* is to *d*.⁴⁷ Now, Brentano’s faithful pupil Anton Marty holds that “in more recent times” the usual sense of “analogy” is that of proportion.⁴⁸ So, if Brentano does not further specify what he means by “analogy,” it is then likely that he is thinking of this kind of analogy. His source for the admission of an analogy between the extremes of sensible qualities seems to be Aristotle again, more precisely *De sensu* 7, 447b21–448a19.⁴⁹ Brentano, when talking about these analogy issues, says that for Aristotle sweetness is related to bitterness like a light colour to a dark one.⁵⁰ In the text in question, Aristotle discusses the relations between sensible qualities from distinct genera, like colours and flavours. He explains that these qualities, although distinct with respect to their genus, have some proximity. He does not literally talk of an “analogy” (ἀναλογία; *analogía*) between them, but he does say that they are “coordinates” (σύστοιχα; *sýstoi-cha*). He claims that: “[...] as taste perceives sweet, so sight perceives white; and as the latter perceives black, so the former perceives bitter.”⁵¹ This even leads him to say that sweetness differs more from black than from white.⁵²

As for the explicit reference to analogy, Brentano might again have found it in Aquinas, more precisely in his commentary on the *De sensu*. Aquinas holds that white and black, on the one hand, and sweet and bitter, on the other hand, are “principles corresponding to each other proportionally” (*principia proportionabiliter sibi respondentia*). Indeed, every sensible quality is either “a state” and “something perfect” (*habitus* and *aliquid perfectum*) or “a privation” and “something imperfect” (*privatio* and *aliquid imperfectum*). The white,

46 Brentano, *Von der mannigfachen Bedeutung*, 85–98.

47 See, e.g., *Metaph.* 9.6, 1048b6–8. On analogy in the Aristotelian tradition, see Jean-François Courtine, *Inventio analogiae: métaphysique et ontothéologie* (Paris: Vrin, 2005).

48 Anton Marty, *Untersuchungen zur Grundlegung der allgemeinen Grammatik und Sprachphilosophie* (Halle: Max Niemeyer, 1908), 503–4.

49 I thank Pavel Gregoric for having drawn my attention to this text.

50 Brentano, *Untersuchungen zur Sinnespsychologie*, 215n17; see also id., *Descriptive Psychology* (1887/88) [*ms. Ps 76*]: n°58533.

51 [...] ὡς δ' αὖτως αἰστανταὶ τὰ σύστοιχα, οἷον ὡς ἡ γεῦσις τὸ γλυκύν, οὕτως ἡ ὄψις τὸ λευκόν, ὡς δ' αὖτις τὸ μέλαν, οὕτως ἐκείνη τὸ πικρόν (*Sens.* 7, 447b30–448a1, trans. J. I. Beare, in *The Complete Works of Aristotle*, ed. J. Barnes).

52 At least if one reads the Greek from 448a16–17 following Biehl, Mugnier, and Siwek (l. 17: τοῦ λευκοῦ; *toû leukoû*), as well as Alexander’s commentary (Alexander of Aphrodisias, *In Sens.*, ed. P. Wendland (Berlin: Reimer, 1901), 145.21–25), against Bekker (τὸ λευκόν; *tò leukón*); see Förster and Ross for a third reading. The Biehl edition is from 1898, so that Brentano may have read it; however, Brentano’s reference to the *De sensu* is in a text first published in 1896 and in his 1887–88 lectures.

for example, is a state, and the same holds for the sweet; as for the black and the bitter, they are both privations. According to Aquinas, sensation thus directs itself toward these cross-generic pairs of sensible qualities in the same “mode” (*modus*), even if they are objects of different senses.⁵³ Aquinas thus glosses the aforementioned text in the following way: “vision senses the white in the same way that taste senses the sweet; and as vision senses the black, so the taste senses the bitter.”⁵⁴ Aquinas’ use of the notion of “proportion” here might be what led Brentano to talk of an “analogy” – of proportion – between the various extremes of the sensible qualities.⁵⁵

Thus, extremes like light and dark for colours, high and low for sounds, and so forth are not identical but they are still analogous. This means, Brentano says, that some colours can be described as high, others as low, by analogy; some sounds are light, others dark, by analogy again. Brentano makes a quite broad application of such comparisons. One finds him saying, for example, that sweet is high, whereas bitter is low, by analogy; that the sensation of cold is high, but that of warm is low, again, by analogy; similarly, and by analogy again, the sensation of pressure is high, the one produced when one holds his breath is low; and so on.⁵⁶

But why is Brentano interested in such broad classification of sensible qualities on a scale of, say, “high” and “low”?⁵⁷ Brentano wants to show that some aggregations of features which seem to be from distinct genera, for example sweetness and heat, have an effect on the estimation of their respective “highness” or “lowness.” A sweet drink, for example, seems less sweet when heated because the “lowness” of heat leads us to underestimate the “highness” of sweetness. But *if* this is the case, *then* they belong to the same genus

53 Thomas Aquinas, *Sentencia libri De sensu et sensato*, ed. R.-A. Gauthier (Rome: Commissio Leonina / Paris: Vrin, 1984), 1.16.

54 “Eo enim modo quo gustus sentit dulce, visus sentit album, et sicut visus nigrum, ita gustus amarum” (Thomas Aquinas, *Sent. Sens.* 1.16, 91.186–88). Note that Aquinas was using the translation of William of Moerbeke, in which it is not said that sweet differs more from black than from white (the translation is found in the Leonina edition of Aquinas’ commentary).

55 Gregoric also treats the relation between coordinate sensible qualities in Aristotle as a case of ‘analogy.’ Moreover, he talks of sensible qualities as forming a “qualitative spectrum between a positive and a negative extreme, that is, the state and its privation” (Pavel Gregoric, *Aristotle on the Common Sense* (Oxford: Oxford University Press, 2007), 134; see also *ibid.*, 135, and 159).

56 See Brentano, *Psychologie*, 3:62; *id.*, *Untersuchungen zur Sinnespsychologie*, 161–62; and *Descriptive Psychology* (1887/88) [*ms. Ps 76*]: n°58530–31.

57 It should be noted that “high” and “low” are used here not for sounds, but as umbrella terms for the two types of ends, positive and negative, of the qualitative spectra.

of sensible qualities. As a matter of fact, the influence of one of them on our estimation of the “highness” or “lowness” of the other shows that they are “high” and “low” in the same manner, which in turn shows that they belong to the same genus, since a genus of sensible qualities is defined by a pair of extremes. In short, only aggregations of qualities of the same genus can affect our estimation of their “highness” or “lowness.” A case that Brentano mentions to illustrate his position is that of the mixture between colours. If you take a given colour and mix some other, lighter one with it, the first colour will seem lighter to you. When you have a similar process between other sensible qualities, it means that they belong to the same genus. This explains why Brentano is interested in the classifications mentioned above. He starts to fix sensible qualities on the scale of “high” and “low,” and once this is done, experiments to discover whether their aggregations have an effect on our estimation of their position on the scale. If this is the case, they are from the same genus of sensible qualities.

Now, the application of this criterion leads him to hold that there are only three genera of sensible qualities and correlatively only three senses: sight, hearing and what he calls “feeling” (*Spürsinn*).⁵⁸ Basically, this means that touch, smell, and taste are aspects of the same sense. In order to justify this unusual thesis, Brentano appeals to a series of experiences involving the system of aggregations that I mentioned before.

Brentano's idea, I repeat, is that if the aggregation of one sensible quality with another provokes a modification of the estimation of the degree of the other, then both sensible qualities are “high” and “low” in the same manner; and if they are “high” and “low” in the same manner, then they belong to the same genus of sensible quality, since the distinction among pairs of extremes is the criterion for the distinction of the genera of sensible qualities. Here is Brentano's argument:

What, thus, appears, by contrast to what we presumed, is that sensations of touch and of temperature are of *one* genus. This is revealed by the fact that the simultaneous sensation of temperature has an influence on the estimation of the size of the pressure. If one warms a thaler and puts another cooled one on the hand, the second one appears significantly heavier. This has its reason in the fact that the sensation of pressure belongs to the clear ones like the sensation of cold. What happens here is similar to the cases in which the admixture of clear colours or sounds

58 Brentano, *Psychologie*, 3:63; id., *Untersuchungen zur Sinnespsychologie*, 162.

makes us estimate a colour or sound as clearer (higher), whereas the addition of a darker sensation in the same sense leads to the underestimation of the clarity. Something similar happens if warm and cold sweet water is tasted in turn: the cold water appears sweeter, the hot water less sweet. And the same also holds for the salty and the sour, whereas with coffee, which is bitter, the cold peculiarly modifies the taste, so that it tastes more sour than bitter. The bitterness is clarified through the cold. If one follows this, one reaches this result: the sense for colours and also the sense for sounds are each to be distinguished as a particular one. But all the so-called "inferior" senses are a single sense.⁵⁹

Brentano argues in this text that, first, sensations of temperature do not form a proper genus of sensation, but belong to one genus with touch. His argument for this is the one mentioned before, namely that the aggregation of "high" and "low" sensations of temperature and touch have an influence on the estimation of their highness or lowness. Then, in a second step, Brentano shows that aggregations between sensations of temperature and sensations of taste interact in the same way: as said above, given that sweet is "high" and warm is "low," warming sweet drinks make them appear less sweet, that is, less "high." Thus, these facts not only show that sensations of temperature and touch fall under the same genus, but also that taste must be included in this genus.

Note that Brentano is apparently talking of our *estimation* of the qualities: for example, he does not say that the drinks *are* less sweet, but that they *are taken to be* less sweet. So, Brentano, who, I repeat, is not a realist about secondary qualities, seems to admit two levels of phenomenality in sensation. At a

59 "So zeigt sich, im Gegensatz zu dem, was man vermutete, daß Druckempfindung und Temperaturempfindung von *einer* Gattung sind. Es ist dies daraus ersichtlich, daß die gleichzeitige Temperaturempfindung einen Einfluß auf die Schätzung der Größe des Druckes übt. Wenn man einen Taler erwärmt und einen anderen abgekühlt auf die Hand legt, so erscheint der zweite bedeutend schwerer. Es hat dies darin seinen Grund, daß die Druckempfindung zu den hellen Empfindungen gehört so wie die Kühlempfindung. Es geschieht hier ähnliches, wie wenn die Beimischung heller Farben oder Töne eine Farbe oder einen Ton selbst heller (höher) schätzen läßt, während die einer dunklen Empfindung im selben Sinn zu einer Unterschätzung der Helligkeit führt. Ähnliches zeigt sich, wenn Zuckerwasser bald kalt, bald warm genossen wird, das kalte erscheint süßer, das warme minder süß. Und wieder gilt dasselbe beim Salzigen und Sauren, wogegen beim Kaffee, der bitter ist, die Kälte den Geschmack eigentümlich verändert, so daß er eher säuerlich als bitter schmeckt. Die Bitterkeit wird durch die Kälte aufgehellt. Verfolgt man dies weiter, so kommt man zum Ergebnis: der Sinn für Farben und ebenso der Sinn für Töne sind als je ein besonderer abzuschneiden. Aber alle die sog. niederen Sinne sind ein einheitlicher Sinn." (Brentano, *Untersuchungen zur Sinnespsychologie*, 162.)

first, basic level, one experiences properties such as sweetness, hotness, and so on, that are purely phenomenal in the sense that their being depends on their being perceived. The co-presence of some of these qualities together might, however, create, at a second level, an *impression* of these properties which differs from their tenor at the first level. In a similar manner, Brentano does not claim that a colour to which a lighter one is added *becomes* lighter, but that it *appears* lighter. The case of colours might help to better understand the idea of two levels of phenomenality. In Brentano's theory, colour mixtures are explained in terms of a juxtaposition of small points of pure colours on a sort of chessboard; a mixture never alters a pure colour. Thus, what Brentano seems to mean, in the case mentioned above, is that if you admix another, lighter colour to a blue shade *a* the result will appear to be a colour lighter than blue shade *a*, but darker than the added colour, although what you have is a chessboard made up of blue shade *a* and the added colour.⁶⁰ Another text makes it clear that the discussion is about our *estimation* of sensible qualities: Brentano holds that if you put your hands in two buckets, one with hot water and one with cold water, and move your hands, the cold water will seem heavier. This is due to the fact that pressure is "high," whereas warmth is "low," which leads one to underestimate the resistance of the hot water.⁶¹ Now, Brentano talks of this as an "illusion" (*Täuschung*); someone who was non-sensitive to temperatures would take both resistances to be the same.

I have not found a similar example in Brentano for taste and smell, that is, a case of an influence on the estimation of "highness" and "lowness" due to aggregations of qualities of taste and smell. However, it is clear that he defends the thesis that taste and smell fall under the same genus of sensation. He gives two other sorts of argument in favour of this point. First, he appeals to an authority, by quoting the *De sensu* again, where Aristotle says that taste and smell are "almost the same affection" (σχεδὸν τὸ αὐτὸ πάθος; *schedòn tò autò páthos*).⁶² Second, he appeals to the experience of ordinary people, who assimilate the odour and the flavour of some ingredients:

Without expressing himself as generally [as Aristotle], the common man, however, gives proofs of this in specific cases. He states that flavour and odour have kinship in many sorts of food, for example in vinegar. Still

60 On colour mixtures and Brentano's "chessboard," see Olivier Massin and Marion Hämmerli, "Is Purple a Red and Blue Chessboard? Brentano on Colour Mixtures," *The Monist* 100:1 (2017): 37–63.

61 Brentano, *Psychologie*, 3:63.

62 *Sens.* 4, 440b29.

more striking are statements in which the taste of something is characterised through its similarity with that of something else which has never been savoured otherwise than with the nose. For example: "it tastes like mouse droppings." Or as a woman told me recently: snails taste like swamp.⁶³

Thus, based on this argument, Brentano puts together odours and flavours. And, since sensible qualities of taste have a common genus with those of touch, smell, taste, and touch form one genus of sensation, that of feeling (*Spürsinn*). To my knowledge, Brentano does not label the pairs of opposites of the sense of feeling, that is, he does not give names to the poles which are analogous to lightness and darkness, on the one hand, and highness and lowness, on the other hand.⁶⁴ He holds that saturation is found in an analogous way among sensible qualities of the sense of feeling: mere touch sensations and coldness are unsaturated, by analogy to greys or noises, whereas sensations of hotness as well as odours and tastes are saturated.⁶⁵ These qualities also have intensity: for example, pain – which Brentano indeed counts as a sensible quality⁶⁶ – is more intense than warmth.⁶⁷ Independently of these questions, it is clear that sensible qualities of taste, smell, and touch form a common genus, so that they are correlated to one unique sense. Brentano's final word about the classification of the senses is thus the following: there are all in all three senses, namely sight, hearing, and feeling.

4 Evaluation

I would like to close this paper with both an historical and a systematic evaluation of Brentano's account. That is, I want to ask, first, if his account is truly Aristotelian and, second, to what extent the account is defensible.

63 "Ohne in so allgemeiner Weise sich auszusprechen, gibt der gemeine Mann doch im Einzelnen dem Zeugnis. Er meint, bei vielen Speisen hätten Geschmack und Geruch eine Verwandtschaft, z. B. beim Essig. Noch frappanter sind Äußerungen, wo der Geschmack von etwas charakterisiert wird durch die Ähnlichkeit mit dem von etwas Anderem, was nie anders als mit der Nase verkostet wurde, z. B. 'Es schmeckt wie Mäusedreck.' Oder wie mir neulich eine Dame sagte: Schnecken schmeckten wie Moos." (Brentano, *Descriptive Psychology* (1887/88) [ms. Ps 76]: n°58506–7.)

64 See, e.g., Brentano, *Descriptive Psychology* (1887/88) [ms. Ps 76]: n°58529–35, where he discusses the pairs of opposites of the sense of feeling, but without labelling them.

65 Brentano, *Descriptive Psychology* (1887/88) [ms. Ps 76]: n°58267 and 58536–37.

66 For more on this, see Massin, "Brentano on Sensations and Sensory Qualities," 93–95.

67 Brentano, *Descriptive Psychology* (1887/88) [ms. Ps 76]: n°58481.

4.1 *Historical*

Brentano, when claiming that there are as many senses as there are genera of sensible qualities, means to follow the *De anima*. He seems indeed to be in line with Aristotle, who holds that the faculties of the soul are defined via the acts, and the acts, in turn, via the objects. However, Brentano reaches the conclusion that there are only three senses, whereas Aristotle admits five. Why this discrepancy?

As indicated, Brentano's distinction is meant to be phenomenological, as he does not believe in the existence of secondary qualities in the external world. According to him, as we have seen, sensible qualities can only be found in the mind, as intentional objects. He also holds that such qualities are "unreal" entities. With this technical term, he means items which exist, but have no causal efficacy at all, by contrast to *realia*, which both exist and can cause some effect. This is indeed very different from what Aristotle thinks. In Aristotle, sensible qualities are not merely mental; they do exist independently of us, and they are objectively divided into five genera. Our sensation, in turn, is perfect because it has five different senses each "capable of receiving" (δεκτικόν; *dektikón*) one kind of sensible qualities and thus of cognising them exhaustively.⁶⁸ In fact, the sensible qualities make themselves known to us to the extent that they are causal agents acting on our senses. As Myles Burnyeat states: "Aristotle's is a world in which [...] colours, sounds, smells, and other sensible qualities are as real as the primary qualities (so called by us). They are real in the precise sense that they are causal agents in their own right."⁶⁹ Thus, Aristotle thinks that in the external world there are sensible qualities which are such that they can act on the sense organs and thereby produce a cognition of reality. In other words, he might sometimes be talking about phenomenology, but he seems also to be very interested in the physical interactions between the soul and its environment. When commenting on the passages of the *De anima* about the definitional primacy

68 See *de An.* 2.12, 424a17–28; *ibid.*, 3.1, 424b22–425a13, trans. Shields.

69 Myles Burnyeat, "De anima II 5," *Phronesis* 47:1 (2002): 45. For the claim that secondary qualities in Aristotle are real, causes of sensation, and basic, see Sarah Broadie, "Aristotle's Perceptual Realism," *Southern Journal of Philosophy* 31, Supplementary Volume: *Ancient Minds* (1993): 137–59; Burnyeat, "De anima II 5," 45n44 adopts the same view. For the claim that they are real and are causes, but that they supervene on or are reducible to other entities, see Justin Broackes, "Aristotle, Objectivity and Perception," *Oxford Studies in Ancient Philosophy* 17 (1999), esp. 102–13. For a defence of the realist interpretation against recent attacks, see Victor Caston, "Aristotle on the Reality of Colours and Other Perceptible Qualities," *Res Philosophica* 95:1 (2018): 35–68. On colours in Aristotle (and Alexander of Aphrodisias), see Katerina Ierodiakonou, "Aristotle and Alexander of Aphrodisias on Colour," in *The Parva naturalia in Greek, Arabic and Latin Aristotelianism*, ed. B. Bydén and F. Radovic (Cham: Springer, 2018), 77–90.

of the objects over the acts, two major influences on Brentano, Aquinas and Trendelenburg, insist on the fact that the objects are the agents of sensation and, thus, that the discussion is about some causal interaction.⁷⁰

To be sure, the relation between phenomenology and causality in Aristotle's theory of sensation is not easy to determine. In recent years, Aristotle scholarship on this issue has been dominated by a complex debate between Burnyeat and Sorabji on the specific nature of the causal relation in Aristotle's account of sensation.⁷¹ Roughly speaking, Burnyeat's interpretation of Aristotelian sensitive causality treats it as merely phenomenological: the effect of the object is nothing other than the "awareness" of the object. By contrast, Sorabji, relying on, among other passages, *De anima* 2.12, 424b16–17, distinguishes the awareness of the object from the object's causal action explained in physiological terms (for example, in vision, the causal action is the colouring of the eye-jelly). Note that Burnyeat and Sorabji, although they explain causality differently, both think that the sensible qualities in Aristotle's psychology *have* a causal effect. In one case, they produce awareness, in the other case, a physiological change.

Brentano himself is a protagonist in the debate since both Burnyeat and Sorabji take him to defend the phenomenological reading in his 1862 book on Aristotle's psychology. According to this reading, the effect of the object is the awareness of it. Yet, Brentano will take a different stance in his later works. Indeed, in his *Psychologie*, when commenting on a passage from the *De anima* on psychic causality (namely 3.2, 425b26–426a26), he criticises Aristotle for assimilating intentionality and causality, as the (intentional) correlation between hearing and its object, namely sound, is not a causal one: "[...] classifying the pair of concepts, hearing and sound, under action and passion is completely mistaken."⁷² Thus, although Brentano might have been a defender of the phenomenological reading of Aristotle, he clearly became an

70 See Aquinas, *Sent. De an.* 2.6, and 13, as well as Trendelenburg, *In De anima*, ad 415a20, 287–88.

71 See, among others, Myles Burnyeat, "Is an Aristotelian Philosophy of Mind still Credible?" in *Essays on Aristotle's De anima*, ed. M. C. Nussbaum and A. Rorty (Oxford: Clarendon Press, 1995), 15–26; and Richard Sorabji, "From Aristotle to Brentano: The Development of the Concept of Intentionality," *Oxford Studies in Ancient Philosophy*, Supplementary Volume (1991): 227–59. For a presentation of the debate and an alternative attempt of resolution, see Victor Caston, "The Spirit and the Letter: Aristotle on Perception," in *Metaphysics, Soul, and Ethics: Themes from the Work of Richard Sorabji*, ed. R. Salles (Oxford: Oxford University Press, 2004), 245–320.

72 "[...] die Unterordnung des Begriffspaars, Hören und Tönen, und das des Leidens und Wirkens <ist (*my addition*)> gänzlich verfehlt" (Brentano, *Psychologie*, 1:185, trans. Rancurello, Terrell, and McAlister, 101, slightly modified). On these issues, see again Taieb, *Relational Intentionality*.

opponent of the assimilation of intentionality and causality. In his later works, he strictly takes apart these two aspects of mental acts. As indicated above, he even thinks that the study of intentionality and psychophysical causality are devoted to two different disciplines, namely descriptive psychology (or “descriptive phenomenology”) vs. genetic psychology. This distinction is fully absent from Aristotle’s psychology.

The purely phenomenological stance taken by Brentano in his account of sensation, compared to Aristotle’s focus on causality, might explain why they arrive at different results, namely Aristotle’s five and Brentano’s three senses, even though their criterion for the classification of the senses seems to be the same – namely the differences among genera of sensible qualities. As a matter of fact, Brentano is treating the sensible qualities phenomenologically. They are merely found in the mind, as correlates of our acts of sensation; in Brentano’s jargon, they are *irrealia*, that is, entities which exist, but are causally inert. By contrast, Aristotle takes sensible qualities to exist in the physical world as causal agents of sensation. For this reason, he does not follow (or at least does not follow only) first-person experience, but takes into account some *physical reasons* that lead to further distinctions among sensible qualities.⁷³ In the case of taste and smell, when Aristotle holds that they are “almost the same affection,” it is probably not so much for phenomenological reasons – based on, for example, the experiences attributed by Brentano to ordinary people – as for physical reasons: odour and flavour both involve a constitutive relation to a dry element, a so-called “flavoured dryness” (ἐγχυμος ξηρότης; *enchymos xērótēs*), which explains their sameness, but flavour requires in addition a mixture with wetness, which, in turn, explains how they are only *almost* the same.⁷⁴ Such considerations, which seem to be deprived of a reference to the phenomenology of sensible qualities and to focus rather on their intrinsic constitution as physical entities, are fully absent in Brentano’s account of the classification of the senses. This might explain the discrepancy in the number of senses between Aristotle and Brentano.

73 Interestingly, however, Sorabji, in his systematic defence and development of Aristotle’s theory of the classification of the senses, holds that phenomenological elements should be taken into account, in order, among other things, to include cases such as hallucinations in the genus of sight: “It looks as if the character of the experience is an important element in the concept of sight. And part of the reason why it is helpful to mention the sense objects in a definition of sight is that reference to the sense objects implies in turn a reference to the kind of experience to which the sense objects give rise.” (Sorabji, “Aristotle on Demarcating,” 67.)

74 On these difficult issues, see notably *de An.* 2.9, 422a6–7; *Sens.* 5, 442b28–443a3; and the discussion in Thomas K. Johansen, *Aristotle on the Sense-Organs* (Cambridge: Cambridge University Press, 1997), 227–42, whom I follow here.

Note that, independently of the contrast between phenomenological vs. non-phenomenological inquiries, Aristotle could have reduced the senses to three. Indeed, with respect to taste and smell, he holds, as indicated above, that they are “almost the same affection.” Moreover, he claims that odours receive their names from similar flavours.⁷⁵ Aristotle also has a problem with touch because it seems to have not just one object but rather (at least) two. Sometimes, he seems to identify touch not so much via its objects as via the fact that this sense always implies a direct *contact* with its objects.⁷⁶ However, this also leads him to hold that taste is like touch⁷⁷ although he does not seem to assimilate them in the final analysis: as Sorabji insists, Aristotle treats them separately in the *De anima*.⁷⁸ Yet if taste and smell are assimilated, and if taste is a sort of touch, there seem to be tendencies (or at least reasons) in Aristotle's philosophy for reducing the number of senses to three, like Brentano does.

4.2 *Systematic*

In this (last) section, I would like to discuss from a systematic point of view some aspects of Brentano's account of the classification of the senses. First, I will try to figure out what theoretical grounds Brentano might have for choosing his criterion for the distinction of the genera of sensible qualities, which is a central element of his account. Second, I will tackle a series of objections against his views, which, among other things, will lead me to discuss his opposition to the use of physiology in the classification of the senses.

What is Brentano's justification for defending the idea that sensible qualities are to be distinguished on the basis of the variation of their extremes? The answer to this question is not easy to determine. Brentano may be influenced by the argument given by Aquinas that every genus has a first contrary, namely its highest specific difference.⁷⁹ This seems indeed to make it possible to identify various genera of sensible qualities, as it allows you to exclude that some sensible qualities are in a relation of genus to species. Take, for example, colours and sounds: the first have light and dark as opposites and the second high and low. In other words, they are both divided into two opposite species. Yet colours and sounds are both sensible qualities. Now, what guarantees that

75 I thank Robert Roreitner for having drawn my attention to this last point.

76 See, e.g., *de An.* 3.1, 424b27–28.

77 *De An.* 3.12, 434b18–19.

78 *De An.* 2.9, 421a31–b1; cf. *ibid.*, 2.10 and 2.11. On all this, I follow Sorabji, “Aristotle on Demarcating,” 69–75. For a discussion of Aristotle's (and Alexander of Aphrodisias') views on the identification of the senses, especially on the importance of criteria other than that of the variety of sensible qualities, see chapter one above.

79 See Aquinas, *Sent. De an.* 2.22, quoted above.

sound does not form a species of colour which in turn divides into high and low, or vice-versa? The answer is the following: neither high nor low contain light or dark as a “mark,” nor vice-versa. This would be one way to arrive at Brentano’s criterion.

However, Brentano may have taken another path, one that begins from experience. Perhaps he noticed the following: one finds in one’s experience sensible qualities that exhibit some highness or lowness in a strict or analogous sense. Some aggregations between these sensible qualities have an influence on the estimation of their place on the “highness” and “lowness” scale, which seems to indicate that they are “high” and “low” in the same sense and, thus, that they belong together. By contrast, sensible qualities of distinct genera do not produce a similar effect on their respective evaluation: sounds do not make colours seem lighter, nor do colours give the impression that sounds are higher. The same also holds of colours and sounds with respect to objects of taste, smell, and touch, which all three seem “high” and “low” in the same sense, as shown by similar aggregation effects. This would be the phenomenological path towards the criterion.

One might raise many objections to Brentano’s theory. First, a general objection, which is often mentioned against first-person psychological inquiries, would be to say that one does not have the same impressions as those described by Brentano. What if I were to claim that the relations of analogies, for me, are inverted: high sounds are related to low ones as dark colours to light ones? Or, to take an example with an aggregation, what if cold water does not seem more resistant to me than hot water?⁸⁰ Brentano is quite accustomed to such objections, and his basic argument is that descriptive psychology requires training to improve our capacity to *notice* things which are present in our experience.⁸¹ For the above-mentioned analogies, if I were to put you in front of a piano, play one of the lowest tunes and ask you whether it is more similar to black or white, you would surely answer “black” and thus notice what Brentano wants you to notice in your experience. However, some cases seem harder to defend in a similar manner: how long should I practice in order to notice that pressure is a “high” sensation and thus analogous to coldness? Yet Brentano is usually not dogmatic, nor, on the other hand, does he want to shock the common sense view. Rather, he seemingly observed that the aggregations of qualities which are at first sight distinct appear to have an influence on our estimations

80 Note also that water has its highest density around 4°C and the density decreases the warmer or colder it becomes. Perhaps this fact played a role in Brentano’s experiment. I thank Pavel Gregoric for having drawn my attention to this point.

81 Brentano, *Deskriptive Psychologie*, 28–77.

of these qualities, and this led him to conclude that the qualities in question must belong to the same genus. Even if one is not convinced by Brentano's restriction of the senses to three, there is at least one interesting point that must be granted: Brentano has a unitary and economical explanation for many phenomena of mutual influence between sensible qualities, such as those between temperature and taste or temperature and weight.

With respect to this last point, one could raise another objection to Brentano, namely that he is not talking of a "mutual influence between sensible qualities," but merely about misrepresentations: he does not say that the aggregations of qualities modify these qualities themselves, but rather that it has an influence on *our estimation* of their "highness" and "lowness," and even talks of these estimations in terms of *illusions*. So, all this apparently concerns mistakes that we make when grasping these qualities, and says nothing about their intimate nature – telling us neither whether they are, nor whether they are of one and the same genus. Brentano's assumption here is that the misrepresentation is only possible when the qualities are "high" and "low" in the same sense and, thus, belong to the same genus. As a matter of fact, similar misrepresentations do not happen between colours and sounds. Perhaps one might say that the world appears darker when hearing a sad song; however, this does not literally mean that one experiences the decreasing of light or a dimming of colours, but rather that one has negative emotions directed towards the world (nostalgia, pessimism, etc.).⁸² In sum, generic sameness is revealed as that which allows for the misrepresentation.⁸³

Finally, the phenomenological stance taken by Brentano might produce some scepticism due to its opposition to physiology. Brentano strongly insists on the fact that physiology is not relevant for the classification of the senses. However, he mainly focuses on the peripheral organs, by claiming that they cannot be decisive. He supports this claim with the argument, discussed above, that one of the sense organs could be connected to the usual path of another one, so that the stimulation of the former organ would create a sensation like those usually produced by the latter organ. One might object that even if Brentano's arguments about the peripheral organs were sound, it would be less easy to reject a physiological explanation involving the brain. Imagine a study of the brain in which one identified the part devoted to sensation and show that it is in turn divided into n basic parts. One could argue that each of these basic parts is devoted to a basic process of sensation: sight, hearing, and

82 I thank Juhana Toivanen for the example of the sad melody.

83 Brentano, *Untersuchungen zur Sinnespsychologie*, 163; id., *Deskriptive Psychologie*, 116.

so forth. The identification of such parts would thus answer the question of the classification of the senses.

There is a Brentanian answer to this challenge, although it must be transposed from another, slightly different context. In his 1887–88 lectures on descriptive psychology, in a discussion on the number of pure colours, Brentano invokes Ewald Hering, who seems to admit that one could analyse the brain in order to find out how many pure colours there are. According to this hypothesis, if one finds the right number of “fundamental processes” (*Grundprozesse*) which are required for vision, one will have the number of “fundamental sensations” (*Grundempfindungen*) of vision, to which corresponds the range of pure colours.⁸⁴ Brentano rejects this view for many reasons. Among others, he offers the argument that the number of fundamental physiological processes of vision could be higher or smaller than the number of fundamental sensations; he sees no logical necessity in these numbers being the same.⁸⁵ It seems to me that his position could be applied to the more general issue of the classification of the senses. If someone wants to defend the view that the discovery of the basic brain processes for sensation would inform us about the number of senses, Brentano would simply answer that the number of basic brain processes might be larger or smaller than that of the basic sense experiences.

Another argument for Brentano’s view could be based on the primacy of descriptive psychology over genetic psychology. Brentano might say that the question of knowing whether some basic neurological elements provide us with a generic distinction among the senses is already determined by what we will accept as genera of sensation in our first-person inquiries. Imagine if we were to find that one basic element in the brain is responsible for seeing red, and another one for seeing blue; we would most probably hold that these elements, although basic from a neurological point of view, are not responsible for a generic distinction among sensations. It is only if we find basic elements which correspond to our first-person distinctions among genera of sensations that we will take these elements to be responsible for a generic distinction. But this means that we are tracking the causes of distinctions that are already established at the phenomenological level.

84 Brentano might be referring to Ewald Hering, *Über Newton’s Gesetz der Farbenmischung* (Prague: F. Tempsky, 1887), 70–71.

85 Brentano, *Descriptive Psychology* (1887/88) [*ms. Ps 76*]: n°58555–56; see also n°58407 for another discussion of the physiological substratum.

5 Conclusion

Brentano's account of the classification of the senses is strongly influenced by Aristotle. First, he identifies the senses by reference to the different genera of their objects, and he takes this to be an Aristotelian move. Second, he classifies the genera of objects themselves following an Aristotelian criterion, by holding that every genus of sensible quality has a specific pair of opposites. Possibly influenced by Aquinas, he adds that the pairs of opposites are analogous to one another. In other words, sensible qualities are all high and low in a strict or analogous sense. When starting to sort out the various senses according to his criterion, Brentano reaches the conclusion that there are only three senses, namely sight, hearing, and feeling. In order to prove this, he mentions a series of experiences in which sensible qualities of taste, smell and touch interact with each other in such a way that the aggregation of these qualities leads to a modification of the estimation of their position on the scale of "highness" and "lowness," which implies that they are "high" and "low" in the same sense and, thus, that they form one genus.

Since Brentano is not a realist concerning secondary qualities, the objects of sensation he is appealing to are phenomenological. Besides, he rejects explanations in terms of physiological processes both for classifying the senses and for identifying the various genera of sensible qualities. Finally, the experiences he mentions for the fixation of the number of genera of sensible qualities are also based on phenomenology. Thus, at all levels of his theory Brentano uses phenomenological material, or proceeds by what he calls "descriptive psychology," as opposed to genetic psychology, which includes psychophysiology.

Although some aspects of Brentano's account are incompatible with Aristotle's theory, notably with respect to the status of sensible qualities, which for Aristotle are in the external world and not merely mental, it is clear that Brentano manages to borrow and develop many Aristotelian ideas. In the final analysis, he can be described as an Aristotelian-inspired phenomenologist: his account of the classification of the senses contains Aristotelian theoretical insights, namely that of identifying the senses by reference to their objects and that of picking out the genera of objects themselves following pairs of opposites, but they are developed in accordance with a phenomenological sensitivity, that is, from a first-person point of view and by bracketing the psychophysical realm.

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