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### **Citation**

Haas, F. A. J. de. (2021). Deduction and Common Notions in Alexander's Commentary on Aristotle's Metaphysics A 1-2. *Logical Analysis And History Of Philosophy/philosophiegeschichte Und Logische Analyse*, 24(1), 71-102. doi:10.30965/26664275-bja10047

Version: Publisher's Version

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Downloaded from: <https://hdl.handle.net/1887/3264177>

**Note:** To cite this publication please use the final published version (if applicable).

# Deduction and Common Notions in Alexander's Commentary on Aristotle's *Metaphysics* A 1–2

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## Abstract

In this paper I explore the ways in which Alexander of Aphrodisias employs and develops so-called 'common notions' as reliable starting points of deductive arguments. He combines contemporary developments in the Stoic and Epicurean use of common notions with Aristotelian dialectic, and axioms. This more comprehensive concept of common notions can be extracted from Alexander's commentary on *Metaphysics* A 1–2. Alexander puts Aristotle's claim that 'all human beings by nature desire to know' in a larger deductive framework, and adds weight to Aristotle's use of the common understanding of the notion of 'wisdom'. Finally I will indicate how these upgraded common notions are meant to play an important role in the general framework of metaphysics as a science.

## Keywords

Alexander of Aphrodisias – common notions – axioms – metaphysics – epistemology – logic – Aristotle – Stoicism – Epicureanism – Middle Platonism

## 1 Introduction

The most conspicuous application of logic in the work of Alexander of Aphrodisias is no doubt his claim that Aristotle's metaphysics is itself a unified demonstrative science of being *qua* being, of which the theory of substance

and theology are integral parts.<sup>1</sup> After Alexander, numerous philosophers tried to develop their metaphysics or theology as a demonstrative science.<sup>2</sup> Alexander argued for his position mainly in his commentary on *Metaphysics* Γ, which has therefore drawn much attention.<sup>3</sup> Less attention has been paid to the consequences of this grand claim for the detailed commentary on other parts of the *Metaphysics*, and their contribution to Alexander's project of the systematization of Aristotelianism.

In this paper I will focus on Alexander's commentary on the first two chapters of the first book of the *Metaphysics* (1.1–19.20). In these well-known chapters Aristotle introduces the topic of his investigation into 'first philosophy' as the wisdom (*sophia*) that is the science (*epistēmē*) of primary causes and principles, and employs arguments from common notions concerning wisdom.<sup>4</sup> In the commentary on the first chapter, we find a deduction in order to improve on Aristotle's evidence from a sign, and Plato is enrolled in the Aristotelian project of seeking knowledge of causes starting from sense perception. In Alexander's commentary on the second chapter, he combines dialectical starting points, general agreement, and axioms into a comprehensive Peripatetic concept of common notions that can serve as reliable starting points of deductive arguments. These upgraded common notions get an important role to play in the general framework of metaphysics as a science; the deduction at the start of the first chapter also depends on a common notion, found in the *Nicomachean Ethics*.

## 2 *Metaphysics* A 1

The famous first sentence of the *Metaphysics* sets the stage for Aristotle's project: "All human beings by nature desire to know" (*Met.* A 1, 980a21). In Aristotle this sentence is immediately followed by a 'sign' (*sēmeion*)<sup>5</sup> in support of this

1 On Aristotle see e.g. Bolton (1994); Code (1997); Bell (2004); on Alexander see e.g. Bonelli (2001; 2010); Guyomarc'h (2015).

2 Proclus' *Elements of Theology* is the most famous and influential example, see e.g. Dodds (1963); Martijn (2006), and in general d'Hoine & Martijn (2017, esp. ch. 3 and 15) (unfortunately the formative influence of the Aristotelian tradition is conspicuously absent from the book).

3 See esp. Bonelli (2001) and Guyomarc'h (2015).

4 Cf. Aristotle, *Metaphysics* (= *Met.*) A 1, 981b28–9; A 1–2, 982a1–6; A 2, 982b1–10; 983a21–23.

5 Aristotle, *Prior Analytics* 2.27, 70a6–9; *Rhetoric* 1357b3–5; 1402b13–21 distinguishes between a necessary sign (*tekmerion*) and a non-necessary sign (*sēmeion*). The latter is found in all cases in which something regularly follows, precedes, or coincides with something else (as e.g. a woman being pale and having milk follows her having given birth). If this formal distinction

claim: all human beings love sense perception because it provides us with cognition of many distinctions. We value sense perception even if we do not need it for practical purposes, so we merely love the cognition it provides. In rational human beings sense perception leads to art and knowledge through memory and experience, while different species of non-rational animals have the capacity for lower degrees of cognition only. The sign, and the *scala naturae* that Aristotle unfolds, together provide evidence for the claim *that* all human beings by nature desire to know, and *that* rational cognition is a feature that is unique to human beings.<sup>6</sup>

In the commentary on these chapters as printed by Hayduck in the CAG edition of Alexander's commentary on the *Metaphysics* (= *In Met.*) the Aristotelian argument changes shape from the very first lines. I am grateful to Pantelis Golitsis and an anonymous reviewer for insisting that the text printed by Hayduck as *In Met.* 1.1–2.3 is absent from our main manuscripts, but was inserted by Bonitz from an anonymous *recensio altera* L, with indirect support from Asclepius' *Metaphysics* commentary. On the basis of all of L's comments, the anonymous author is conjectured to be a late Neoplatonic (possibly Christian) philosopher, perhaps Stephanus.<sup>7</sup> As we shall see below, from *In Met.* 2.3 onwards Alexander's commentary seamlessly continues to develop the approach to Aristotle's text introduced in *In Met.* 1.1–2.3. Therefore, I submit that there is every reason to believe that the spurious passage was inspired by Alexander's commentary, and reflects it adequately enough to treat it as an introduction to Alexander's approach to common notions detailed in this paper. Nothing further hinges on the identification of the author of the passage, whom I shall continue to refer to as Alexander.

With all due caution, then, let us see how the text changes the Aristotelian argument.

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is relevant at all in these introductory pages of the *Metaphysics*, the sign does not have the necessity of proof.

6 Cambiano (2012, 11–12) argues that the desire to know is an *idion* of human beings in the sense of *Topics* 1.5, 102a18–19; animals have perception by nature, but Aristotle nowhere says they desire it *for its own sake*, qua *gnōsis*.

7 Hayduck (1891, 1) followed Bonitz, see *app. crit.* in Hayduck's edition; on L see Golitsis (2014; 2016); Calvié (2015). Asclepius *In Met.* 2.20–3.20, 5.19–6.17 clearly echoes this text (see below, 77); Simplicius *In Physicorum* 1.6–21 refers to a similar Peripatetic distinction of perfections which probably reflects Alexander's lost commentary on *Physics*. For these and other details of the textual transmission see Golitsis' forthcoming edition of *In Met.* A–B, esp. his notes to 1.4–2.2, which he kindly put at my disposal.

Cognition (*gnōsis*)<sup>8</sup> is perfection of the soul: in general of the soul that merely cognizes, but to a greater degree of the rational soul, and still more of the rational soul whose end is theoretical knowledge (*theōria*); and the perfection of each thing is in every case its good, and in its good each thing has both its being and its preservation. For this reason [Aristotle] introduces the general statement that ‘all human beings by nature desire to know,’ i.e., by their very nature they love cognition because that is their perfection. And as the most obvious sign of this he adduces the love we have for our senses [...].

ALEXANDER, *In Met.* 1.4–10<sup>9</sup>

Before discussing the sign that supports the general statement in Aristotle, Alexander immediately provides us with the *reason why* this general statement is true: cognition (*gnōsis*) is the perfection (*teleiōtēs*) of the (human) soul, to which all living beings naturally strive.<sup>10</sup>

The general statement now appears as the *conclusion* of a more complex argument:

- (1) Cognition in general is the perfection of the soul in general.
- (2) Cognition more specifically is the perfection of the (human) rational soul.
- (3) Cognition most of all is the perfection of the rational soul that aims for *theōria*.
- (4) The perfection of each thing is its good.
- (5) In its good each thing has its being and preservation.
- (6) ∴ All human beings by nature desire to know.

The argument captures many aspects of Aristotle’s entire first chapter in a nutshell: the ever-higher degrees of cognition that characterize different species of animal,<sup>11</sup> culminating in human beings; the exercise of reason as human

8 Alexander follows Aristotle in interpreting the *eidenai* of the first sentence in terms of (among others) ‘*gnōrizein*’ (980a26; 981a22.30; 981b6) and ‘*gnōsis*’ (981a16; 981b11).

9 All translations from *In Met.* are taken, or adapted from, the translations of *In Met.*, vols. 1–5 by Dooley & Madigan in the ACA series (1989–1993) edited by R. R. K. Sorabji.

10 Therefore animals, too, will have *gnōsis*, but not *epistēmē* or *theōria* which belong to the rational soul.

11 According to Aristotle animals have sense perception by definition, see *Met.* 1.1, 980a27–28; *De sensu* 1, 436a6–b10; in *Generation of Animals* 1.23, 731a30–b8 he characterizes sense perception in similar terms as a type of *gnōsis*, and as something *agapēton* compared to what plants and stones have.

perfection, both practical and theoretical; and *theōria*, in particular the knowledge of first causes, as the highest aim for human reason: first philosophy. On this reading human beings desire to know *by nature* because for each thing the good at which it aims is its being and preservation, which it is natural, indeed necessary, to aim at. Hence, too, human beings *desire* to know because, as the first sentence of the *Ethica Nicomachea* (= *EN*) states, “every desire [...] is aimed at some good” (1094a1–2). Finally, human beings desire to *know* first principles because such rational cognition constitutes the perfection of the specifically human life. The ‘sign’ that we love our senses so much, comes out as a fitting starting point for the exposition, since it is itself entailed by the first premiss of Alexander’s reconstructed argument, which applies to all animals – which are by nature equipped with the faculty of perception.

In Alexander’s *De Anima* (= *DA*) we find the same account of the degrees of the development of rational cognition in human beings. According to Alexander only part of humanity will actualize its rational potential beyond the level of the so-called common intellect, which represents common knowledge acquired naturally by sense perception, and therefore shared by mankind.<sup>12</sup> Only some people will develop beyond practical intellect and reach the actualization of theoretical intellect.<sup>13</sup> In this light, the phrase “[the rational soul] whose end is *theōria*” (1.5–6) can thus be understood as limiting the class of rational souls to those who come as far as to actually strive for *theōria*.

The text does not enlighten us about the origin of the 5 premisses of the argument – if the author is Alexander, he takes for granted that his readers are aware of the general structure of Alexander’s physics, psychology, and ethics,<sup>14</sup> and its Aristotelian sources.<sup>15</sup> The opening sentence of the *Nicomachean Ethics* is of course relevant here: “Every art and every inquiry, and similarly every action and choice, is thought to aim at some good” (*EN* 1.1, 1094a1–2). The author is right that the first sentence of the *Metaphysics* may count as

12 Alexander, *DA* 80.16–83.13 with De Haas (2019, 300–306). Common intellect is the level of actualization of the material intellect that most human beings reach. Practical intellect starts to develop before theoretical intellect.

13 Alexander, *DA* 81.26–83.2. Only more accomplished people who have received the necessary instruction will reach proper actuality, or perfection, of the material intellect.

14 For the most comprehensive account of form in Alexander, in relation to the notions of completion and preservation, see Rashed (2007, esp. ch. 5).

15 These include *EN* VI.3–7, in particular *EN* VI.7 concerning *sophia*; *EN* 9.9, 1170a16–29: life in its active sense and as end is perception and knowledge, and the desire of living is *emphutos* in all, because living must be regarded as a kind of *gnōrizein*; it is for this reason that one always desires to live, because one always desires to know (cf. Cambiano 2012, 6 and n. 14) Cf. *Eudemian Ethics* 7.12, 1244b23–29; 1245a9–10. On the high value of the theoretical life see e.g. *EN* 10.6–7; *Politics* 7.15, 1334a11–40.

an application of this more general truth to the search for first principles – Alexander will have the opportunity to quote the sentence in another context in his commentary on chapter 2 (14.10–12). There Alexander identifies the highest “good” as the cause of all beings, the First Cause to which our innate tendency is directed. Hence Alexander will identify the proposition that “every effort is either for a good or for an apparent good” as an axiom of the sciences.<sup>16</sup>

The term for perfection (*teleiōtēs*), which is not very prominent in Aristotle’s works,<sup>17</sup> rose to be Alexander’s key term to denote the state of an actualized form. In Alexander’s commentary on *Meteorology* 4 we can witness how Alexander generalized the term *teleiōsis* (maturation) to cover the completion of any form, and makes ‘*teleiōtēs*’ more or less equivalent to Aristotle’s ‘*energeia*’ and ‘*entelecheia*’.<sup>18</sup> In addition, the commentary on *Metaphysics* Δ 16 shows the importance of Aristotle’s brief remarks on different senses of ‘*teleion*’ for Alexander’ connection between being complete and being good and virtuous, which Aristotle highlighted in *EN* 1.5, 1097a30–b21.<sup>19</sup> Supported by these texts Alexander can use the term with respect to virtue, and more particularly with respect to the intellectual virtues in the various stages of rational development in his *De Anima*.<sup>20</sup> Against this background, it will be clear that the theoretical knowledge of first principles and causes which is at stake in the first chapters of the *Metaphysics* counts as the most important instance of the

16 *In Met.* 170.9–13; more on the status of axioms below, 84–85 and 90–98.

17 Todd (1974, 213–214) draws attention to *teleiōsis* as the completion of a magnitude due to growth in *Physics* 207a21–22; 261a32–b1; and as maturation in *Meteorology* 379b18–21; for biological maturation one might add e.g. *Generation of Animals* 753a9–11; 770b24–27; 776b1; 757a31–33 (fertilisation); *History of Animals* 561a4–6; 583b23–25; 584a33–34; but also the completion of a syllogism (*Prior Analytics* 42a35). For virtue as a kind of perfection see e.g. *Met.* 1021b20–21; *Physics* 246a12–16; cf. 246b2, 247a2; cf. *EN* 1174a15–16; 1098a17–18.

18 See Alexander, *In Meteorologicorum* 154.14–156.22 regarding *Meteorology* 994a26; 186.13–15 and 34–35. Cf. Alexander, *DA* 7.4–8; 16.4–10; 43.7–8; *De mixtione* 231.21–29.

19 See esp. *In Met.* Δ 16, 411.18–21: “Aristotle says that those things are also complete that possess their proper end, [one that is] good (*spoudaios*); for a thing is complete because it possesses its end, but the end, in the primary sense of that term, is something good. Thus a good man is complete because he possesses his proper end, which is good”.

20 See e.g. *DA* 91.13–23, also discussed at length *In Met.* α 1, 138.26–149.13; *DA* 99.13–14; cf. *In Met.* 155.23–4. Todd (1974, 214, n. 29) claims that the metaphysical use of *teleiōsis* should be sharply distinguished from the moral sense of perfection, or of achieving a goal. I see no reason for this distinction: not only is intellectual virtue a state that is metaphysically relevant to what it means to be a human being, but the strength of Alexander’s new design of Peripatetic philosophy is precisely that a concept like *teleiōsis* is shown to be applicable across all domains of philosophical inquiry. I intend to develop this line of argument in more detail in my forthcoming book on Alexander’s philosophy.

successful development of the highest rational virtue, and deserves the title of 'perfection' most of all.

These aspects of psychology and ethics were also in Aristotle's mind, since at *Met.* A 1, 981b25 he refers to his distinction between 'technē' and 'epistēmē' in *Nicomachean Ethics* VI 3–4. *EN* VI contains a discussion of the intellectual virtues, one of which is wisdom (*sophia*) defined as the combination of *nous* (knowing principles) and *epistēmē* (scientific knowledge) (*EN* VI 7, 1141a16–20). Of course, Alexander seizes this opportunity to summarize the doctrine of *EN* VI, while adding further references to the *Posterior Analytics* (= *APo*).<sup>21</sup>

The strong teleological overtones of Alexander's interpretation of chapters 1–2 make the search for the first causes and principles a moral imperative for rational human beings with the necessary natural talent – a line of interpretation that Aristotle's original text does not emphasize. Alexander's intermediate summaries of Aristotle's argument hammer on the progress towards higher principles, which is at the same time progress towards human perfection.<sup>22</sup> It is telling that Asclepius, in his *Metaphysics* commentary, echoes this part of Alexander's commentary, not only when discussing the first chapter (*In Met.* 5.17–6.19), but also before that, in the traditional section on the *purpose* and *usefulness* of the work to be commented on: the study of first philosophy promotes the perfection of human life (*In Met.* 2.23–28).<sup>23</sup>

Alexander adds an interesting reference to Plato's *Timaeus* to support the point that sight provides us with cognition most of all, because it was through seeing the divine heavenly bodies that mankind acquired philosophy.<sup>24</sup> Alexander here anticipates Aristotle's reference, in *Met.* A 2, to the start of philosophy by people wondering about the moon, the sun and the stars,<sup>25</sup> and immediately aligns Plato with Aristotle in this regard. The polemical aims of this reference become clearer when we look at the text in more detail:

21 *In Met.* 7.10–8.5, including references to the *Posterior Analytics* in 11.16, 23. On the significance of this work for Alexander's view of common notions see below, 90–98.

22 Cf. Asclepius, *In Met.* 2.26–8.5, 15.6–19.

23 Asclepius, *In Met.* 2.20–3.20. Both Alexander and Asclepius thus pick up, and strengthen, the resonances of the *Ethics*, *Politics* and *Protrepticus* found in *Met.* A 2 by modern commentators. Cf. Cambiano (2012, 39–42); contrast Broadie (2012, 44–47) who carefully distinguishes the perspective of *Metaphysics* A 1–2 (seeking the highest kind of cognition, a species of *epistēmē*) from the perspective of the ethical works (seeking the highest of all human goods, a species of *aretē*). Cf. n. 20 above.

24 Alexander more often refers to Platonic dialogues in support of his own point, probably as part of his strategy to convince his Platonic readers to follow Aristotle's lead. Cf. 5.10–13 (*Gorgias* 448c); 18.3–4 (*Phaedrus* 247a).

25 *Met.* A 2, 982b12–19; cf. 983a15. Alexander, *In Met.* 16.3–12 will add more initial marvels.



More than the other senses, then, this sense of sight enables us to cog-  
nize not only one another but also the divine heavenly bodies. Indeed,  
as Plato says, it is through this sense that ‘we procured philosophy’ (*Tim.*  
47a7–b1); for when we fix our gaze on the heavens and contemplate their  
order and ineffable beauty, we arrive at a notion of the one who fash-  
ioned them.

ALEXANDER, *In Met.* 1.15–20<sup>26</sup>

This neat empirical argument from design is a conflation of various texts in the *Timaeus*, with what I believe may well be a Peripatetic twist. In the *Timaeus* Plato arrives at the conclusion that the observation of the heavens gave us philosophy, in the following way (*Timaeus* 47a1–c4): sight is of the greatest benefit to us because the discourse of the *Timaeus* would not have been possible without our seeing the stars, the sun, and the heavens. For this led to the invention of number, the notion of time and the inquiry into the nature of the universe. It is from these pursuits that we procured philosophy, the most magnificent gift of the gods to mankind. Indeed, “the god invented sight and gave it to us so that we might observe the orbits of intelligence in the universe and apply them to the revolutions of our own understanding”,<sup>27</sup> and thereby restore our intelligence to its divine state. This is the rational purpose, and thereby the true explanation, of vision over and above the material account of the constitution of the eyes.

In the *Timaeus* passage the existence of the gods is presupposed, and it is number, and the notion (*ennoia*) of time, not of the demiurge, that result from perception. The notion of a divine maker was introduced much earlier in *Timaeus*’s account, but without mentioning perception as its source. In the famous argument of *Timaeus* 27d5–29b3 the goodness of the divine maker, which it would be blasphemous to deny (29a3–4), and the equally undeniable beauty of the universe, together serve to support the conclusion that if the universe has come to be, the demiurge must have used the best possible model, viz. the eternal model of the intelligible world of Forms. There the (admittedly perceptible) beauty of the universe is not said to have provided us with the notion of the demiurge in the first place – at best it provides us with a clue as to the model he used. The observed order of the universe mentioned by

26 Cf. *In De sensu* 11.19–23. On the notion of ‘*ennoia*’, see my forthcoming paper on Alexander of Aphrodisias on concepts.

27 *Timaeus* 47b6–8, trans. Zeyl, in Cooper & Hutchinson (ed.). (1997, 1250). For the interpretation of this contested passage compare Johansen (2004, 106–110) with Sedley (2007, 114 n. 47).

the author is not part of Plato's argument in that context either. Hence, it is Alexander who presents us here with an empirical origin for the demiurge, one of the principles of Platonic cosmology. The significance of this move will become clearer below.

In addition, Plato warns us that the nature of the demiurge and his activities are extremely difficult to fathom (28c3–5), and it will indeed take Plato the larger part of the *Timaeus* to reconstruct the considerations and activities of the father and maker of the universe. So, no clear notion of the Demiurge is available at the stage when Plato introduces him in the argument. One might suggest that Plato took advantage of what Epicureans and Stoics, also in the time of Alexander, would call the common notions of the beauty of the cosmos, and the existence and goodness of the gods, all of which demand acceptance as a starting point of our reasoning. We shall have a closer look at the nature and role of such common notions in Alexander's commentary below.

It seems fair to conclude that when Alexander, in the text quoted above, appeals to Plato in support of the invention of philosophy from vision, he is attributing to Plato and his *Timaeus* an argument that is not to be found there. We know that the wider context of Plato's argument involving the Demiurge and the Forms is not acceptable to Alexander: he strongly supports Aristotle's criticism of the Forms, and he denies that anything in nature comes to be or has come to be by reference to a model, and that god is the demiurge of all things.<sup>28</sup> Instead, I submit, by means of his appeal to the *Timaeus* Alexander aims at incorporating Plato into the Peripatetic search for first principles starting from sense perception as Aristotle outlined in *Metaphysics* A 1. I find it hard to believe that a Neoplatonic author wrote this interpretation of the *Timaeus*. In the sequel it will become clear that the empirical origin of our knowledge of the principles of philosophy is part of Alexander's Peripatetic theory of common notions.

### 3 *Metaphysics* A 2

Once Aristotle has ascertained that the science he is seeking is *sophia* which all human beings strive for, he lists a number of commonly accepted views (which

28 See Alexander's extensive commentary in support of Aristotle's criticism of Plato at *In Met.* A 9, 76.6–134.14. At *In Met.* 103.4–104.18 and *In Analyticorum priorum* 3.17–23 Alexander uses the terminology of demiurgic activity to describe his own concept of nature. At *In Topicorum* 440.23–25 he condemns "God is the demiurge of the things that are" as a faulty definition. Cf. Dooley's comments on *In Met.* 1.18–20, and 103.4–104.18 (esp. 140, n. 302).

he calls *hypolēpseis*) that we have about a wise person (*sophos*), and subsequently shows that these all apply maximally in the case of the person who possesses the wisdom (*sophia*) he is seeking. The commonly accepted views and the way first philosophy fulfils them, are the following.

This argument is usually qualified as dialectical: it proceeds from commonly accepted premises (*endoxa*) to reach the desired conclusion.<sup>29</sup> The wisdom Aristotle is seeking is wisdom according to these commonly agreed criteria, indeed it is the *highest* form of knowledge because it is knowledge of the *highest* causes, including the good for the sake of which everything is done.

Common views about a wise person <sup>a</sup>	<i>Sophia</i> <sup>b</sup>
is knowledgeable about everything	i.e. in a universal way <sup>c</sup>
is knowledgeable about difficult things	i.e. things furthest removed from the senses, i.e. most universal
has exact knowledge	knows the <i>first</i> principles and causes
has the ability to teach about the causes	has the ability to teach about the causes
has knowledge that is desirable for its own sake, not for the purpose of something else (no product, action, or derived knowledge)	knows the <i>primary objects of knowledge and the causes</i> through which and from which everything becomes knowable
is in a position to give orders ( <i>epitattein</i> ) rather than obey them	is chief ( <i>archikōtatē</i> ) among the sciences because it knows the good for the sake of which everything is done in each case, <sup>d</sup> and in general the best ( <i>ariston</i> ) in nature as a whole <sup>e</sup>

a *Met.* A 2, 982a6–21.

b *Met.* A 2, 982a21–b10.

c Cf. *Met.* E 1, 1026a30–31: first philosophy is universal because it is first.

d Cf. *Met.* α 2, 996b10–13 (quoted in Broadie 2012, 60). *Met.* A 2, 982b11–28 invokes the historical development of philosophy to support the claim that philosophy does not aim at any practical use.

e *Met.* A 2, 982b28–983a11 explains why *sophia* is most divine and most honourable: god is himself the first cause and principle of everything, and god is most likely to have such knowledge.

29 E.g. Ross (1997, 122); Irwin (1988, 154). For a similar use of general opinions cf. *EN* VI 5, 1140a24–31 when embarking on the topic of *phronēsis*. For a detailed discussion of the assumptions, their background and Aristotle's responses to them see Broadie (2012, 53–62).

The mention of these common conceptions (*hypolēpseis*) constitutes the cue for a series of interesting passages in Alexander's commentary on *Met.* 1.2 drawing on what appears to be a comprehensive Peripatetic theory of common notions under various labels. It is worth emphasizing that Aristotle, too, employs a rich vocabulary to refer to such notions: apart from *hypolambanein* and derivatives<sup>30</sup> this chapter has *hēgoumetha* (981b8.10), and *dokei* (981b30; 983a8).

Alexander's vocabulary adds the philosophical terminology of later centuries: he speaks of (*koinai* and/or *phusikai*) '*prolēpseis*', originally an Epicurean term,<sup>31</sup> and of '*koinai ennoiai*',<sup>32</sup> '*phusikai ennoiai*,'<sup>33</sup> and '*koinai kai physikai ennoiai*' which are terms of Stoic provenance.<sup>34</sup> In the commentary on *Metaph.* 1.1 Alexander had already identified the claim that people call those who have knowledge 'wise' (*sophos*) as a common conception (*koinē prolēpsis*) in use in Aristotle's argument:

Having said that artisans and wise men are superior to men of experience by virtue of their knowledge, and having established this point from the common conception (for he says that it is everyone's practice to call 'wise' those who know), he adds what is most proper to the man who knows. For he says that this is knowledge of the cause, a point he establishes by showing that to know the causes is what is most proper to wisdom, the subject of the present treatise, and that the highest level of wisdom is the knowledge of the first causes.

ALEXANDER, *In Met.* 5.25–6.4

It is clear that the common conception is supposed to establish the priority of artisans and wise men over merely experienced people. Here the appeal to the common conception corroborates a premise that is part of a larger argument.

30 *Met.* 981a26; b19.29; 982a6.8.19–21.

31 *In Met.* 5.27, 9.20.29, 15.4. See Long & Sedley (1987, vol. 1, ch. 17) and Tsouna (2016) for the Epicurean notion, and ch. 40 for the Stoics. A rich collection of testimonia for both schools is provided in the appendices of Dyson (2009). See further below on the development of common notions in the centuries before Alexander.

32 *In Met.* 8.25, 9.23.

33 *In Met.* 130.15–16 (quoted below).

34 *In Met.* 9.27. See the very useful note in Dooley (20, n. 33) (*ad* 5.27), who refers to Sandbach (1971) and Todd (1973). I have also consulted Schofield (1980); Glidden (1985); Obbink (1992); Frede (1999); Jackson-McCabe (2004); Brittain (2005); Chiaradonna (2007); Dyson (2009); Helmig (2012); Veres (2016), and Bonazzi (2017). I am grateful to Máté Veres and Mauro Bonazzi for alerting me to their publications and making them available to me.

#### 4 Philosophical Context

Before looking in more detail to the epistemological roles of common notions in Alexander, it will be helpful to briefly set out the later developments in Stoicism, Epicureanism, and Platonism that constitute Alexander's frame of reference.

For the early Stoics cognitive impressions (*katalēptikai phantasiai*) seem to have been the only criteria of truth, although sense perception, reason, knowledge and correct argument are also mentioned in our sources.<sup>35</sup> In general, common notions are not criteria of truth but may act as starting points for inquiry and argument. They are also used to corroborate the agreement of Stoic doctrine with nature – they are called natural notions because they derive from our experience of nature as a whole.<sup>36</sup> In that capacity they support insights gained by different rational arguments. Characteristically, they need further articulation (*diarthrōsis*) before they can become part of the body of Stoic knowledge.

Critical reports about Stoicism from the two centuries preceding Alexander suggest that the Stoics came to regard common notions themselves as criteria of truth. For instance, Diogenes Laertius VII.54 reports as one of Chrysippus' views that the criteria of truth are perception and conception (*prolēpsis*), which is “a natural notion (*ennoia physikē*) of universals”. Alexander, in a much-discussed passage in *De mixtione*, also claims that Chrysippus regards common notions as criteria of truth that we get from nature.<sup>37</sup> If we do not wish to simply put down these reports to malicious polemics, or polemical use of the confusion of common notions, preconceptions, and natural notions with the *consensus omnium*,<sup>38</sup> we may wish to consider the possibility that this exalted role of common notions is a further development of what Plutarch called the reinforcement of sense perception by Chrysippus, in the face of sceptical attacks (*De communibus notitiis adversus Stoicos* 1059B–C).

35 Diogenes Laertius, *Lives of Eminent Philosophers* (= *DL*), VII.46, 54 (Long & Sedley 40C, 40A).

36 Plutarch, *De communibus notitiis adversus Stoicos* 1060A (Long & Sedley 40R).

37 Alexander *De mixtione*, 217,3–4; 218.11–12. Cf. Todd (1973, 48–51); Obbink (1992, 204–208); Dyson (2009, ch. 2). Jackson-McCabe (2004) interprets the role of natural common notions in the context of *oikeiōsis*. Dyson and Obbink have shown in different ways that Alexander's discussion also reflects the role of common notions as corroborating doctrine arrived at by other means.

38 So Obbink (1992); similarly Van Sijl (2010, ch. 1–2) who provides a useful overview of sources. For the later tradition see e.g. Veres (2016).

The Epicurean tradition exhibits similar developments.<sup>39</sup> For the Epicureans, too, all knowledge derives from sense perception which instils in us the natural preconceptions (*prolēpseis*), which are called natural or innate because under proper conditions they arise spontaneously and without mediation or interference by reason. Hence, they are considered to be self-evident, trustworthy, and without need of proof.<sup>40</sup> They, too, may be subject to further articulation.

The Epicurean sources of Sextus Empiricus suggest that preconceptions and concepts (*ennoiai*) are synonymous, and can be used to set up a version of Meno's paradox against the sceptical attacks (without convincing Sextus, of course).<sup>41</sup> Also the number of things we have preconceptions of increases, and Philodemus adds more complex preconceptions. In this context the application of reason gains more importance, as a further means of Epicurean philosophers to render their accounts more trustworthy than consensus arguments, and develop more reliable concepts.<sup>42</sup> In some cases the propositions entailed by preconceptions acquired the richness of definitions, which renders them stronger epistemological starting points for demonstration.<sup>43</sup>

Middle Platonists, as Bonazzi (2017) has shown, engage with Stoic, Epicurean, and Peripatetic empiricist accounts by appropriating common notions as recollected forms. Plutarch fr. 215 (*f*) rejects the potential intellect of the Peripatetics, the natural notions of the Stoics, and the preconceptions of the Epicureans as unsuccessful answers to the *Meno* problem, which is also behind Aristotle's emphasis on pre-existent knowledge as a starting-point of inquiry (for which see below). Plutarch asks: how is the Peripatetic potentiality actualized? How can knowledge of the common notions inform our search of what we do not know? How can unarticulated preconceptions be useful, and how can fully articulated preconceptions remove the need for inquiry altogether? All empirical accounts for the formation of common notions are bound to fail. What is more, Plutarch, in his *De communibus notitiis*, appeals to numerous notions generally agreed on which are at variance with Stoic doctrine – on the assumption that common notions are of such importance that they should be preserved at all times.

39 See esp. Tsouna (2016) arguing against Sedley (2011).

40 See Tsouna (2016) on the controversy whether *epibolē tēs dianoias* is a separate criterion (with *DL* 10.31) or part and parcel of having a preconception (with e.g. Clement of Alexandria, *Stromata* 2.4.157.44).

41 Sextus Empiricus, *Adversus Mathematicos* 8.331a–336a. See Fine (2014) for the afterlife of the *Meno* paradox.

42 Tsouna (2016, 204–207).

43 Tsouna (2016, 209–212), with application to the existence and properties of the gods; see also Philodemus, *De signis* 34.5–11.

Together with other Middle Platonists Plutarch believes that only recollection of innate knowledge can offer a reliable starting-point for inquiry and demonstration.<sup>44</sup> According to the anonymous commentary on the *Theaetetus* definitions serve to unfold common notions.<sup>45</sup> In this way the Platonists mirror the Stoic and Epicurean articulation (*diarthrōsis*) that their natural common notions and preconceptions may be subjected to, while their intelligible provenance renders them epistemologically prior to such articulation. In this way common notions come close to principles of demonstration, too.

We may surmise that it is part and parcel of all later criticism of the Stoics to assume that common notions are criteria of truth for the Stoics. The strength of arguments showing that the Stoics are at variance with generally held common conceptions depends not only on the rhetorical effect of pitching the majority view against them, but also on the fact that the (later) Stoics thereby contradict their own criteria of truth.

To prepare for Alexander's argument we need to introduce two more players in this tradition. In his *Elements* Euclid speaks of "common notions" (*koinai ennoiai*) when referring to the principles that Aristotle referred to as axioms. Aristotle's favourite example of an axiom is in fact Euclid's third common notion: "if equals be taken from equals the remainders are equal" (Euclid, *Elementa*, Common notion 3.1–2). The identity of the two terms is also confirmed by Proclus:

But some persons more accurately distinguish axioms from other premises and call 'axiom' a premise that is immediate and self-evident because of its clarity, as Aristotle and the geometers say. According to them, 'axiom' and 'common notion' mean the same thing.

PROCLUS, *In Euclid* 194.4–9, trans. MORROW<sup>46</sup>

The fact that axioms are immediate recalls Aristotle's immediate premises on which first figure syllogisms depend, but there seems to be no clear correlate in Aristotle for the self-evidence of axioms "because of their clarity (*enargeia*)". Yet we shall see that this criterium also makes an appearance in Alexander.

44 First indications of the identification of innate forms with common or natural notions are found in Cicero, *Lucullus* 30–32 (Varro), *Tusculanae Disputationes* 1.57–58 (both quoted in Bonazzi 2017). See further e.g. Alcinoüs, *Didaskalikos* 177.45–178.10. Note that some Platonic uses of *ennoia* could be used in support of the thesis: See e.g. *Phaedo* 73c, 99e–100a; *Republic* 524c; *Timaeus* 47a; *Philebus* 59d.

45 Anonymous, *In Theaetetus*, 23.1–12; 47.37–48.7. Cf. Alcinoüs, *Didaskalikos* 155.20–32.

46 Cf. Heath (1956, vol. 1, 221–222).

Galen, in his *Institutio logica* 1.5, recognizes Euclid's common notion 1 ('things which are equal to the same thing are also equal to another') as an axiom:

If, moreover, having some prior knowledge, either through perception or demonstration, we propose some statement about the nature of things, let this statement be called a 'premiss'; for this was the usual term among the ancients; but if it is a proposition carrying conviction of itself to the intellect, they gave it the name 'axiom'; e.g., 'things equal to the same thing are also equal to one another'.

GALEN, *Institutio Logica* 1.5.1–7<sup>47</sup>

The term 'common notion' in Galen may also refer to generally held views about things, in accordance with which science must proceed, and to general truths abstracted from particular instances.<sup>48</sup> Moreover, common notions inform so-called nominal definitions, from which essential definitions can be reached as the result of further critical articulation.<sup>49</sup> Finally, Galen introduces a new type of so-called relative syllogisms, which may start from axioms of the Euclidean kind.<sup>50</sup> In all these cases, common notions are associated with principles of demonstration, either as starting-point for inquiry, or as axiomatic truths. As we shall see in Alexander, the epistemic role of Euclid's common notions may well have been a further means of fortifying the role of common notions against Platonism and Scepticism alike.

A final remark: the emphasis in this paper on Alexander and later developments in the rival schools of his time should not obscure the fact that the Hellenistic philosophers developed their empiricism and their view of common notions against the background of Aristotle's empiricism, and Aristotle's dialectic and philosophy of science. So, when Alexander, in his commentary on the *Metaphysics*, connects later developments and later terminology to Aristotelian texts he is tying together different strands in the tradition that had several roots in Aristotle to begin with.

47 Cf. Galen, *Methodus medendi* 10.49.18–50.3 where the axiom is 'nothing is without a cause'.

48 Cf. Hankinson (1998, 243–244), commenting on Galen, *On Antecedent Causes* xi 141 as an instance of the first.

49 Cf. Chiaradonna (2009); Hood (2010).

50 Kneale & Kneale (1962, 185); Barnes (2002). For similar use of axioms as first premises in a syllogism in Alexander see Bonelli (2010). I intend to investigate the importance of such syllogisms for Alexander in a forthcoming publication.



## 5 Alexander on Common Notions

We are now well placed to embark on the discussion of common notions in Alexander's commentary on Aristotle's "suppositions we have about the wise man" (*Met.* 982a6):

(1) It is Aristotle's practice, in every inquiry, to use the common and natural conceptions of mankind (*koinais kai phusikais tōn anthrōpōn prolēpsesin*) as starting-points for (*archais eis*) what he himself is proving; (2) [thus] he confirms (*bebaiounti*) that knowledge and the desire for it are natural to men from the fact, too, that we have been endowed by nature with these starting-points, for they are the common notions (*koinai ennoiai*).

(3) Such too was his procedure in the lectures [entitled] *Physics* when he was investigating place, and similarly time, and he has employed this method in dealing with almost all other problems.

(4) This, then, is what he does now. For since he is inquiring about the nature of the causes with which wisdom is concerned, and asking what is the function of the wise man, and who in general the wise man is, he sets down the common and natural notions (*koinas kai phusikas ennoias*) we have about wise men, so that by investigating the consequences of these we might take positions and draw conclusions in harmony with them. The following are, as he says, the characteristics that the common conception (*hē koinē prolēpsis*) attributes to the wise man and to wisdom.

*In Met.* 9.19–29

This text shows an amalgamation of various strands in the philosophical tradition concerning common notions.<sup>51</sup> Section (1) states that it is Aristotle's custom in every inquiry to use common notions as starting points (*archai*) for what he is proving, for which Alexander provides examples from the *Physics* in section (3). Calling common notions starting points or principles (*archai*) suggests that they are epistemologically prior to the argument as a whole, which section (4) confirms.

Before turning to the examples Alexander adds section (2) which is as it were a meta-comment on Aristotle's use of common notions at this juncture in the *Metaphysics*. For the fact that all people have common notions in the first place should be seen as independent confirmation that cognition and the

<sup>51</sup> This characteristic of Alexander's doctrine has been observed by Harari (2013, 258); Adamson (2018, esp. 304).

desire for knowledge are natural to human beings; after all, such principles have been given to us by nature. As we have seen, Alexander does not accept innate Forms, so we can safely assume that it is through sense perception that nature has given us the common notions. In this respect Alexander's view of the origin of his common notions is quite in line with the empiricism of both Stoics and Epicureans. At the same time Alexander shows his disagreement with the Platonic appropriation of common notions as (derived from) innate ideas.

Let us return to section [1]. The terminology of common notions and pre-conceptions cannot hide Alexander's reference to Aristotle's use of *endoxa* in dialectic. In the *Topics* Aristotle set out to find a method

by which we shall be able to reason (*syllogizesthai*) from generally accepted opinions (*endoxa*) about any problem set before us and shall ourselves, when sustaining an argument, avoid saying anything self-contradictory.

ARISTOTLE, *Topics* 1.1, 100a18–21

Such *endoxa* are the starting point of dealing with a particular problem, but Aristotle does not call them principles (*archai*) themselves. Rather, dialectic can help us discuss the principles of the sciences (*Topics* 1.2, 101a38–b4).

What is more, *endoxa* may

commend themselves to all or to the majority or to the wise – that is, to all of the wise or to the majority or to the most famous and distinguished of them.

ARISTOTLE, *Topics* 1.1, 100b21–23

In general, Alexander follows Aristotle in allowing *endoxa* supported by groups of different extension. For example, in commenting on *Met.* 1.2, 982b32–983a3, he agrees with Aristotle that “the poets” are wrong when they claim that the gods are jealous (*in Met.* 17.22–18.5).<sup>52</sup> This example also highlights a different aspect of Aristotle's use of *endoxa* as starting-points of inquiry: although Aristotle's sometimes holds out the ideal that it is best to resolve the difficulties while leaving the *endoxa* undisturbed (*EN* 1145b2–7), his working through difficulties more often than not entails the rejection or correction of *endoxa* in the light of his own findings. Such freedom does not seem to be Alexander's intention here: section [4] specifies that Aristotle lists the common opinions about

<sup>52</sup> Which is itself an *endoxon* from Plato's *Timaeus* (cf. Broadie (2012, 65)).

what wise men are, to have us consider their consequences (*ta akoloutha*) and take up positions in agreement with them (*sumphōnōs*).

The common opinions are first in the argument, and demand agreement. It seems that in the context of his commentary on *Metaphysics A 2* Alexander limits his attention to the *endoxa* that commend themselves to all. This is understandable, because only they can be connected to the view that all human beings have been given common notions by nature, and that the existence of common notions confirms that knowledge and the desire for it are natural to all human beings. This in itself may leave less room for disagreement. In addition, we may recall that Aristotle wrote in *EN* that “we state that what all people believe is truly the case”, when he was pitching the agreement of all people against the hedonist allegation that what all people strive for is not necessarily a good (*EN* 10.2, 1172b36–1173a2). Here we meet the rhetorical *consensus omnium* argument which has been popular since ancient times. In a debate it can be quite effective to appeal to the (alleged) agreement of all people against the opponent’s opinion. Interestingly, the Stoic use of common notions has often been regarded (both in Antiquity and in modern commentators) as an appeal to the *consensus omnium*, too, even though many examples of Stoic common notions show that their common notions are not ‘common’ because all people believe them, but because they are common, or fundamental, to certain Stoic tenets as part of Stoic philosophy as a whole.

A closer look at Alexander’s examples of place and time in section [3] confirms that he wants to point his readers to only the most general type of *endoxon* in Aristotelian dialectic. For Aristotle’s discussion of place starts with the claims (i) that “everyone supposes beings to be somewhere”, and (ii) that “the most common and prominent motion is motion according to place” (*Physics* IV 1, 208a29–32). Aristotle continues by complaining that nobody has produced preliminary discussions of problems and solutions to start from (no *endoxa* to speak of), so he has to generate a few of his own (*Physics* IV 1, 208a32–b1). This discussion literally starts only from opinions about being in a place common to everyone – and Aristotle’s own theory of place will turn out to be in agreement with (i) and (ii), as Alexander requires in section [4].

The case of time, in *Physics* IV 10, is similar: Aristotle sets the stage by means of general, non-technical considerations (217b30–31 *dia tōn exōterikōn logōn*) about the existence and properties of time (217b33–218a30), and then continues to show that the transmitted views about time (Plato and Pythagoreans) are as unclear as the common sense views rehearsed before (*Physics* IV 10, 218a31–33). So all that remains is to start from the fact that time appears (*dokei*) most of all to be a kind of movement and change (*Physics* IV 10, 218b9–10). The empirical origin of this claim is made explicit: “we observe motion and time

together" (*Physics* IV 11, 219a3–4). Aristotle's notion of time literally starts from general observations to which his philosophical predecessors had nothing to add – and again Aristotle's own view of time as the measure of movement will turn out to be in agreement with this common notion of time.

Even when there are numerous relevant *endoxa* available, Aristotle's investigation tends to start from general considerations such as Alexander suggests. Aristotle spends the entire first book of *De anima* critically discussing rival views of the soul – but in *De anima* too the first chapter sets out with very general observations about the importance attributed to the soul.

We suppose (*hypolambanontes*) all knowledge as beautiful and valuable, but one kind more so than another, either in virtue of its accuracy, or because it relates to higher and more wonderful things. On both these counts it is reasonable to regard the inquiry concerning the soul as of the first importance.

ARISTOTLE, *DA* 1.1, 402A1–5

The first step in the investigation of the properties of the soul in *DA* 1.2 is the statement that "the living and the non-living appear (*dokei*) to differ by locomotion and sensation". For "our inquiry must begin by laying down in advance those things which seem (*dokounta*) most certainly to belong to the soul by nature" (*DA* 1.2, 403b20–25).<sup>53</sup> It needs no argument that locomotion and sensation remain two pillars of the theory of the soul that Aristotle develops in *De anima*.

These examples support Alexander's claim that Aristotle is following his usual method in the *Metaphysics* when he starts from "common and natural conceptions of mankind." Moreover, we see that Alexander leads us to conceptions that *all* human beings may entertain, regardless of, and prior to, the theories of specific groups of wise men or philosophical predecessors. Since he focuses on cases in which Aristotle has taken such conceptions as true, not merely reputable, starting-points, they turn out to be indistinguishable from principles in a more technical sense. It is in this direction that Alexander's commentary will push us even further.

One of the six marks of a wise person is that in every branch of knowledge he is "more exact" and more capable of teaching the causes (982a12–14). Applied

53 There is every reason to translate '*dokein*' in these contexts as 'is generally believed to be'. Cf. Bonitz (1870), *Index Aristotelicus* 203a27–36 s.v. δοκεῖν, with numerous examples in Aristotle: "inde δοκεῖ, δοκοῦντα usurpatur de iis opinionibus, quae communi hominum consensu comprobantur".

to the science of first philosophy ‘most exact’ means that a science deals most of all with principles (*ta prōta*): “for those which involve fewer principles are more exact than those which involve additional principles, e.g., arithmetic [is more exact] than geometry.” (*Met.* 1.2, 982a25–28)<sup>54</sup>

Alexander spends two entire pages on these few lines (11.13–13.10), in which he combines references to *APo* 1.27 (on exactness), and 1.24, 86a13–21.<sup>55</sup> Especially relevant is *APo* 1.24, 86a14–16: “To prove something more universally is to prove it through a middle term which is nearer to the principles. An immediate premise is nearest – indeed it is a principle.” Alexander transfers the exactness of *proofs* on account of their proximity to the principles (most exact are those that derive from immediate premises) to the relative exactness of the *sciences* on account of their grasp of principles:

if the sciences that are closer to the principles (*archai*) are more exact because of their cognition (*gnōsis*) of the principles, it is clear that the most exact sciences would be those of the principles themselves, in virtue of which the sciences proximate to them are also more exact than the others.

ALEXANDER, *In Met.* 11.19–21

The exactness of the *first* science which is concerned with the *first* principles will then be the cause of the exactness of all lower sciences.<sup>56</sup>

For our purposes it is useful to have a closer look at the question Alexander raises at *In Met.* 12.25–13.5:

One might raise the further question, how the knowledge of the first principles and causes can be most difficult if we are in a better relation with respect to them<sup>57</sup> than to the knowledge that comes from demon-

54 Arithmetic requires less principles than geometry which makes it simpler; e.g. an arithmetical unit is without position, whereas a geometrical point is a unit with position added. Cf. *APo* 1.27, 87a34–35 and *Met.* 13.3, 1078a9–14, *EN* 7.7, 1141a16–18, with Barnes (1993, 189–190).

55 Alexander explicitly refers to the *Posterior Analytics* at 11.16, 23. —Dooley *ad loc.* regards this passage as a digression, although it is motivated by questions that arise directly from the list of six characteristics of wisdom and their mutual compatibility.

56 This is an instance of Alexander’s “principe de causalité du maximum”, well described by Guyomarc’h (2015, 104–111); it has *Met.* α 1, 993b23–31 as its likely source for Alexander. See Guyomarc’h (2015, 151–167) on the various ways in which first philosophy is primary according to Alexander.

57 Aristotle used the expression ‘*echein beltion pros*’ in *APo* 1.22, 83b33–84a6 as part of an argument showing that chains of predication upwards must end somewhere for

stration. Or is this our situation in regard to principles in the sense of axioms, i.e. the principles of demonstration, through which the other things are proved, but not in regard to the principles of being? How then are these latter known? Or are they too known through demonstrations? For [then] the axioms are principles for proving the principles of being as well.<sup>58</sup>

ALEXANDER, *In Met.* 12.25–13.5

One of the six characteristics of wisdom is that it is considered most difficult. But if we need to know the first principles and causes better than the results of demonstration, they should be more accessible than the knowledge that results from demonstrations – hence the knowledge of these principles would not be most difficult after all. One way out is offered by the axioms through which everything else is proved.<sup>59</sup> Perhaps we are in a better relation to them than to the principles of being, if the latter are known through the former?

This option makes more sense once we realize that according to Alexander first philosophy is a science. If so, we might expect it to comprise a *genus*, essential properties, and axioms. This view will generate further problems, the more so since first philosophy is also supposed to deal with axioms, principles of demonstration (immediate premises), and the general theory of demonstration as such.<sup>60</sup>

However, Alexander explains that the consequence that the principles of being are known through demonstration from the axioms, in which the axioms come to act as principles of demonstration of the principles of being, is not tenable, for reasons similar to those given by Aristotle in *APo* 1.3 and 1.22 (see further below). For Alexander, the principles of being, among which the highest being or First Cause, cannot possibly be subject to demonstration through a higher cause – otherwise we end up with the unacceptable result that some demonstration is *not* through a cause (*In Met.* 13.3–9).

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demonstration to provide knowledge in the first place. We must have access to these prior starting points in a different way; cf. *APo* 1.3, 72b5–18 and *Physics* VIII 3, 254a30–31.

58 For the relevance of this text for the notion of tekmeriodic proof, see Harari (2013, 255–258); on its relevance in the context of arguments for the highest principle see Guyomarc'h (2017, 178–183, who also discusses Harari). I am grateful to both authors for providing me with their publications.

59 The terminology related to axioms is notoriously imprecise; for Aristotle see e.g. Barnes (1993, 99–100, *ad APo* 72a14). On the status of axioms in Alexander see Guyomarc'h (2015, 158–165; 2017).

60 See below, 96–97. For the relevant *aporiai* in Aristotle see De Haas (2009).

This passage still leaves the epistemological position of axioms in limbo. More clarity can be gained from Alexander's commentary on Aristotle's second aporia presented in *Met. B* and answered in *Met. Γ 3*.<sup>61</sup> First Aristotle's texts are worth quoting:

It is this – whether the investigation of the causes belongs to one or to more sciences, and, if to one, whether this should survey only the first principles of substance, or also *the principles on which all men base their proofs*, e.g. whether it is possible at the same time to assert and deny one and the same thing or not, and all other such questions.

*Met.* 995b4–10

The fact that there are “principles on which all people base their proofs”, is potentially problematic, given that the most general inferences of a science are most difficult and furthest from sense perception and thereby reserved for a limited audience – yet Aristotle will argue that the principle of non-contradiction that serves as an example here, applies to every statement ever made. The longer version of the aporia calls the principles of demonstration “common beliefs” (*koinai doxai*) – the terminology itself may have invited a connection with common notions and axioms as conceived in Alexander's age.

But, regarding the starting-points of demonstration also, it is a disputable question whether they are the object of one science or of more. By the starting-points of demonstration I mean *the common beliefs, on which all men base their proofs*, e.g. that everything must be either affirmed or denied, and that a thing cannot at the same time be and not be, and all other such propositions; the question is whether the same science deals with them as with substance, or a different science, and if it is not one science, which of the two must be identified with that which we now seek.

*Met.* 996b26–33<sup>62</sup>

Aristotle's clear answer to this aporia is found in *Met.* 4:3:

We must state whether it belongs to one or to different sciences to inquire into *that which are in mathematics called axioms*, and into substance. Evidently the inquiry into these also belongs to one science, being the science of the philosopher; for these hold good for everything that is, and not for some special genus apart from others.

61 See *Met. B* 1, 995b4–10; *B* 2, 996b26–997a15; *Met. Γ* 3, 1005a19–b34.

62 Cf. *Met.* 1005b7.

And *all men use them*, for they are true of being qua being, and each genus has being. But men use them just so far as to satisfy their purposes; that is, as far as the genus, whose attributes they are proving, extends. Therefore, since these truths clearly hold good for all things qua being (*for this is what is common to them*), he who studies being qua being will inquire into them too.

*Met.* 1005a19–29

[...] It is for this reason that *all who are carrying out a demonstration* refer it to this [*viz.* the principle of non-contradiction] as an *ultimate belief*; for this is by nature the principle even for all the other axioms.

*Met.* 1005b32–34

In *Met.* Γ 3 Aristotle argues that the principles of demonstration, which are here called axioms, are included in the science of the philosopher who studies being qua being. For the axioms are used by all people, and hold for all things qua being – “being” is what everything they apply to has in common. So, are they called ‘common beliefs’ because all people use them, because they apply to all sciences, or because they apply to all being, or the former because of the latter? It seems to me that what we find here resembles the connection between the *consensus omnium* argument and the way in which Stoic common notions are general or fundamental to an entire domain of philosophy. But it still remains unclear how all people acquire sufficient knowledge of such principles to use them. Again, the principle of non-contradiction that Aristotle proceeds to explain is considered the ultimate belief (*eschatē doxa*) to which all people *who conduct proofs* have recourse – are we to restrict the meaning of *all people* in the same way in the other passages?

It seems to me that Alexander tried to dispatch at least some of these unclarities by including the axioms, or common beliefs, under the general heading of common or natural notions as conceived by his contemporaries. We shall see that this extension of the epistemic role of common notions has significant consequences for the (epistemo)logical role of common notions in Alexander's philosophy.

In Alexander's comments on *Met.* A 9 (against Plato's Forms), he emphasizes with Aristotle that “all teaching and all learning that involves the use of reason comes from pre-existent knowledge” (*APo* 1.1, 71a1–2).<sup>63</sup>

Aristotle proves that all learning comes from things known beforehand by taking up [the ways in which] learning [takes place]; for we learn

63 For this basic tenet, Alexander finds partial support in (Ps.-)Plato, *viz.* *Alcibiades* 106d.



something either by demonstration or by definition or by induction. And even in teaching by demonstration there are certain things known by the learner, things that are other than those being demonstrated; for of this sort are *the axioms, which are certain natural notions and immediate premises*, such as: “things equal to the same things are equal to each other”; or “in the case of everything there is either affirmation or negation”; or “the good is beneficial by its very nature.”

ALEXANDER, *In Met.* 130.11–18

Axioms are here identified with natural notions (*phusikai ennoiai*). The examples here are the familiar mathematical and logical ones, as well as the ethical “the good is beneficial by its very nature”. Elsewhere Alexander gives as an example of common principles and axioms “every effort is either for a good or for an apparent good” (175.13–14), which is equivalent to the first sentence of the *Nicomachean Ethics*, and a necessary element in the argument Alexander reconstructed at the beginning of *Met.* A 1. Such examples suggests that the identification of axioms with natural notions caused an extension of the notion of axiom beyond its usual application in Aristotle, not unlike the extension of the domain of common notions in Stoicism and Epicureanism. Commenting on *Met.* Γ 6, 1011a3–4 Alexander provides a more comprehensive list of indemonstrables:

For the principle of demonstration is not demonstrable. For there are things with regard to which we are by nature better off than to need demonstration concerning them. These are the senses, the axioms, and the natural and common notions.

ALEXANDER, *In Met.* 317.32–35

Here the axioms are probably not identified with common notions, but they are found in the same category: items that cannot be proven, and provide the pre-existing knowledge Aristotle deems necessary for all learning and teaching.

Such knowledge is not innate, for it is highly unlikely that the presence of innate knowledge would go unnoticed – a familiar argument against Platonic recollection (131.13–132.9 on *Met.* 99b33).<sup>64</sup> If everything that is has the same principles or elements, and these are unknown, no knowledge can be acquired. Interestingly, Alexander suggests that Aristotle is using Meno’s problem against the Platonists who posit certain common and identical principles of all the things that are (133.6–19). But someone who is yet to learn the principles of *all* things that are, cannot have *any* knowledge of the things that are, so

64 Cf. *APo* 2.19.

the necessary pre-existing knowledge will be lacking. Hence Platonists cannot recognize the principles of being even if they were discovered. Whatever the merits of this argument, it is clear that Alexander does not allow the Platonists of his day to claim the common notions as pieces of recollected innate knowledge. Fortunately for the Platonists, Alexander had already shown in his commentary on *Met.* A 1 how Plato in fact derived the existence and nature of the Demiurge from sense perception.

Given that Alexander announces that Aristotle will, among others, declare how axioms are known<sup>65</sup> we expect to find some explanation in Alexander regarding the epistemic origin of axioms and common notions. For this we need to turn to the context of the answer to the second aporia in *Met.* Γ 3. Arguing that a science only devoted to axioms and their properties is impossible, Alexander offers two horns of a dilemma; the first horn is Alexander's interpretation of *Met.* 997a2–4 (“and at the same time, in what manner will the knowledge<sup>66</sup> of them exist? For even now we know what each of them happens to be.”), and runs as follows:

We have scientific knowledge of something either by way of definition or by way of demonstration. If, then, there is science of the axioms, it would be a demonstrative science, concerned with some one of their properties. But on the one hand, what each of them is, is immediately evident to all. For example, it is evident, apart from science, what “in every case, either the affirmation or the negation [is true]” means, or what “things equal to the same thing are equal to each other” means. For all the sciences use these as things that are evident, and have no need of a science to teach them. Hence there will be no definite science of what each of these is.

ALEXANDER, *In Met.* 188.19–26

All sciences use the axioms as evident, and the meaning of the statements expressing them is immediately evident to all – hence there is no need for a science to teach about them.

The second horn (188.26–189.1) suggests that if there is a full-blown science with axioms and their properties as its subject matter, and its own axioms from which to prove them, numerous absurdities will result.<sup>67</sup> It is simply a mistake to assume demonstration is needed where there is none. We are back with the initial problem of reducing all knowledge to demonstrated knowledge, or

65 *In Met.* 266.18–29 quoted below, 97.

66 Or: “science”, cf. Dooley (115, n. 126).

67 Alexander, *In Met.* 188.34–190.11 spells out the difficulties.

abolishing it, which Aristotle dealt with in *APo* 1.3. In addition, if the axioms and their essential properties constitute a single genus, and the axioms apply to all beings, all beings would turn out to be a single genus – *quod non*.

Together the two horns effectively deny the opponent's claim that a science of axioms is possible. We are left wondering whether the first horn, quoted above, is in fact what Alexander himself holds: axioms are immediately evident to all – similar to the common notions and sense perceptions mentioned above,<sup>68</sup> and similar to their counterparts in later Stoic and Epicurean thought.

In his discussion of the principle of non-contradiction Alexander states that this primary axiom is indeed immediately evident:<sup>69</sup>

[...] He means that all who demonstrate reduce their arguments to this ultimate principle, as *immediately familiar and obvious and not subject to dispute*. For people who reason about something think that they need no further argument to negate the proposition before them, if they prove that it follows, from the proposition which they are trying to negate, that contradictories are both true.

ALEXANDER, *In Met.* 271.7–11

In line with Alexander's principle of the causality of the first, the principle of all axioms helps us gain conviction of other axioms:

He says that this is the principle of all the axioms – not that it demonstrates them (for the axioms do not even need demonstration, for [if they were demonstrated] they would no longer be axioms or principles) – but because on many occasions we use it to confirm the axioms and [our] conviction (*pistis*) [about them]. For example, to confirm that things similar to the same thing are also similar to one another, we assume that, if this is not the case, they will not be similar to one another; but if they are not similar to one another, they could not be similar to the same one thing either, but would rather diverge from it, as they diverge from one another; but it was posited that they were similar [to the same thing]; so the same things would be similar to and not similar to the same thing at the same time. To the extent that we have brought the argument to an evident impossibility, we believe that we have helped to confirm the axiom that says that things which are similar to the same thing are also similar to one another.

ALEXANDER, *In Met.* 271.11–21

68 See above, 94.

69 Cf 267.7–14 (including criticism of Plato, *Alcibiades* 106d).

In this way Alexander highlights Aristotle's extensive consideration of the principle of non-contradiction, the highest axiom, as the way in which the discussion of axioms is part of first philosophy or wisdom: not a demonstration, but an elucidation of their nature. The discussion of axioms as principles of demonstration is part of the theory of demonstration that philosophy provides for the different sciences, which merely assume it in their work.

He says that the primary philosopher will speak about the axioms, not as though he were going to demonstrate any of them (for the principles of demonstration are, as he says, indemonstrable) but rather [to tell] what their nature is, and how they come to be present in us, and how we ought to use them, and such other points about axioms as those of which he treats in his work on demonstration. For as the discussion of the axioms belongs to the philosopher, so does the discussion of demonstration – not the demonstration of this or that, but the general discussion of what demonstration is and how it is carried on. For demonstration does not belong to some one genus, among the genera that fall under the sciences; on the contrary, in each science there is demonstration corresponding to the proper objects of the science; each [scientist] practises [demonstration] on a hypothetical basis, assuming from philosophy [the knowledge of] how one should demonstrate.

ALEXANDER, *In Met.* 266.18–29

We can now understand why Alexander saw fit to introduce the discussion of axioms in his commentary on the common notions of wisdom. They are not a mere digression,<sup>70</sup> but relate the exactness of wisdom to the way in which first philosophy deals with axioms as common notions in general. Alexander treats the common notions of wisdom as reliable starting-points of his discussion of the nature of first philosophy. Our excursion into Alexander's treatment of axioms as principles of demonstration has made clear why common notions acquired such an important epistemic role in *Met.* A 1–2. The 'dialectical' approach that takes common opinions seriously has turned into a presentation of principles of demonstration proper. If metaphysics is a science, these common notions provide it with its necessary starting-points.<sup>71</sup>

70 Pace Dooley *ad loc.*

71 In his logical works we also find Alexander using common notions in the guise of the Euclidean axioms as starting points of syllogisms, as Bonelli (2010, 210) has shown. This seems to be an instance of Galen's relative syllogism. Within the confines of this paper I cannot elaborate on the logical implementation of this view of common notions.

If we apply this strong interpretation of common notions to, e.g., Alexander's important discussion of the Stoics in *De mixtione* 216.5–218.11, it will be seen that the Stoics' failure to observe the common notions is even more detrimental than it may seem: on Alexander's terms they undermine the coherence of their philosophy as a science altogether.

## 6 Conclusions

In this paper I have argued that Alexander, from the very start of his commentary on *Metaphysics* A 1–2, aims at presenting metaphysics as a science. On my interpretation, the spurious first page, even if it was not written by Alexander, captures the nature and purpose of the following commentary so well, that we should not rule out the possibility that the anonymous later author was to a large extent inspired by Alexander's original text. Alexander complements Aristotle's sign inference concerning perception with a derivation of Aristotle's statement that 'all human beings by nature desire to know' from prior principles. These include the first sentence of the *Nicomachean Ethics* which Alexander identifies as an axiom.

In *Met. A 2* Aristotle listed six common conceptions about the meaning of 'wise' in order to define the wisdom or first philosophy he sets out to develop. Alexander's commentary on this chapter provides us with a peek preview at his Peripatetic conception of common notions, which I have tried to unfold in more detail by looking at relevant passages from the *Metaphysics* commentary. Alexander's common notions combine different aspects of common notions as conceived in the later Stoic and Epicurean tradition, for which the *Meno* problem continues to offer the motivation. Alexander also finds support in the Aristotelian corpus in

- (1) the dialectical notion of *endoxa* accepted by everyone, which he exemplifies from the *Physics*;
- (2) Aristotle's rebuttal of the claim that all knowledge derives from demonstration in the *APo* 1.3, and
- (3) the importance of axioms such as the principle of non-contradiction for the nature of metaphysics as a science.

In this way Alexander's theory of common notions that I have outlined in this paper offers an alternative to rival Stoic, Epicurean and Platonist conceptions of common notions which is safely grounded in a variety of Aristotelian texts. He shows himself to be aware of the tendency among the non-Platonic schools to reinforce the epistemic role of common notions. At the same time, he never

loses sight of his larger aim of showing that Peripatic metaphysics is a demonstrative science in the proper sense of the term.

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