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GIULIA DE CESARIS-PHILLIP SIDNEY HORKY

HELLENISTIC PYTHAGOREAN EPISTEMOLOGY

ABSTRACT: The paper offers a running commentary on ps-Archytas' *On Intellect and Sense Perception*, with the aim to provide a clear description of Hellenistic/post-Hellenistic Pythagorean epistemology. Through an analysis of the process of knowledge and of the faculties that this involves, ps-Archytas presents an original epistemological theory which, although grounded in Aristotelian and Platonic theories, results in a peculiar Pythagorean criteriology that accounts for the acquisition and production of knowledge, as well as for the specific competences of each cognitive faculty.

SOMMARIO: L'articolo offre un commentario dell'opera *Sull'intelletto e la sensazione* dello Pseudo-Archita, con l'obiettivo di chiarire cosa sia l'epistemologia pitagorica in epoca ellenistica/post-ellenistica. Attraverso la descrizione del processo conoscitivo e delle facoltà in esso coinvolte, lo Pseudo-Archita presenta un'originale teoria della conoscenza che, pur affondando le proprie radici in nozioni platoniche e aristoteliche, si traduce in una peculiare criteriologia pitagorica e rende conto tanto dell'acquisizione e della produzione della conoscenza quanto delle specifiche competenze di ciascuna facoltà conoscitiva.

KEYWORDS: Hellenistic Pythagoreanism; Epistemology; Pseudepigrapha; Ps-Archytas; Theory of Knowledge

1. *Introduction*

1.1. *The Problem of Hellenistic Pythagoreans*

A formidable challenge presents itself to those who would like to know something about Hellenistic Pythagorean epistemology: how, exactly, to

define 'Pythagorean' in relation to the Hellenistic period.¹ As we will see, some doxographical accounts whose information can be confidently dated to the post-Hellenistic period, usually associated with the closing of the philosophical schools in Athens in 86 BCE, but prior to the dramatic transformation of Pythagoreanism under the Neoplatonists (especially Iamblichus of Chalcis) in the middle of the 3rd century CE, demonstrate the close connections between Pythagoreanism and Middle Platonism.² This evidence, while fundamental for constructing a framework for Hellenistic Pythagorean epistemology, is apt to colour our views with a certain hue and cannot be isolated from other sources. Our best evidence is a series of pseudepigraphical treatises ascribed to certain Early Pythagoreans who lived prior to the dissolution of the Pythagorean philosophical communities in the middle of the 4th century BCE and written in an affected Doric.³ Dating these texts is challenging and fraught with difficulties, but the consensus view is that they were likely to have been composed between the 1st century BCE and the 1st century CE.⁴ We hold the view that, whoever actually wrote them down, the Pythagorean Pseudepigrapha which take the form of

¹ This article is co-authored by Giulia De Cesaris and Phillip Horky, who worked together on the document as a whole. Each author, however, is primarily responsible for these sections: De Cesaris 2.1, 2.2, 2.3, 2.4; Horky 1.1, 1.2, 2.5, 2.6. they are equally responsible for the conclusions in 3. All translations are by Horky, unless otherwise mentioned. The authors would like to thank especially Francesco Verde, Angela Ulacco, Federico Petrucci and Mauro Bonazzi for their help at various stages of this article's development.

² On post-Hellenistic philosophy, see now G. Boys-Stones, *Platonist Philosophy 80 BC to AD 250: An Introduction and Collection of Sources in Translation*, Cambridge, Cambridge University Press, 2018, p. 1-6.

³ We do not refer to these texts as 'pseudo-Pythagorean', or to their authors as 'pseudo-Pythagoreans', as is now the common approach today. Instead, we refer to the texts as 'Hellenistic/post-Hellenistic Pythagorean', and for their authors we apply the prefix 'pseudo-'. The corpus of pseudepigraphical treatises associated with the Early Pythagoreans we call the 'Pythagorean Pseudepigrapha'. For a short explanation for these terminological choices, see P. S. Horky, "Pseudo-Archytas' Protrepitics? *On Wisdom* in its Contexts", in D. Nails-H. Tarrant (eds.), *Second Sailing: Alternative Perspectives on Plato*, Helsinki, Societas Scientiarum Fennica, 2015, p. 21 n. 4.

⁴ Cf. A. Ulacco, *Pseudopythagorica Dorica. I trattati di argomento metafisico, logico ed epistemologico attribuiti ad Archita e a Brotino. Introduzione, traduzione, commento*, Boston-Berlin, de Gruyter, 2017, p. 4-7; B. Centrone, *Pseudopythagorica ethica. I trattati morali di Archita, Metopo, Teage, Eurifamo*, Napoli, Bibliopolis, 1990, p. 41-44 (chiefly on the ethical treatises).

philosophical treatises were composed after 150 BCE (at the very earliest), when Critolaus of Phaselus, whose arguments evidence connections to some of the treatises, was head of the Peripatetic school, and prior to 50 CE, when figures such as Philo of Alexandria would appear to demonstrate knowledge of their content.⁵ Hence, the texts would appear to lie at the threshold between the Hellenistic and post-Hellenistic periods, and they are most readily to be associated with the philosophical environs of Alexandria, where Eudorus, in particular, describes a kind of Pythagoreanism similar to what is found in the pseudepigrapha.⁶

Two treatises from the collection of Pythagorean Pseudepigrapha arranged and edited by Holger Thesleff⁷ were explicitly committed to expounding Pythagorean epistemology: ps-Archytas' *On Intellect and Sense-Perception*⁸ (in two fragments, comprising around 87 lines of Greek) and ps-Brontinus' *On Intellect and Discursive Thought*⁹ (in one fragment, comprising seven lines of Greek). These texts, together with the fragments of ps-Archytas' *On Principles* and *On Opposites*, have been recently edited and translated into Italian with a commentary by Angela Ulacco,¹⁰ whose book explores in detail both textual references and content-related connections the treatises entertain with other authors. Therefore, our main objective will not be to trace a broad network of references for these texts, but rather to give a discursive and holistic account of its content in the context of certain passages of Greek philosophy that help to elucidate this

⁵ For a recent appraisal, see A. Ulacco, "The Appropriation of Aristotle in the Ps-Pythagorean Treatises", in A. Falcon (ed.), *Brill's Companion to the Reception of Aristotle in Antiquity*, Leiden, Brill, 2016, p. 202-205 and 210-212.

⁶ Cf. Ulacco, *Pseudopythagorica Dorica*, p. 6-7; M. Bonazzi, "Pythagoreanising Aristotle: Eudorus and the Systematisation of Platonism", in M. Schofield (ed.), *Aristotle, Plato and Pythagoreanism in the First Century BC. New Directions for Philosophy*, Cambridge, Cambridge University Press, 2013, and Centrone, *Pseudopythagorica ethica*, p. 30-34.

⁷ H. Thesleff (ed.), *The Pythagorean Texts of the Hellenistic Period*, Åbo, Åbo Akademi, 1965, which remains the standard text of these fragments (generally accepted by Ulacco, *Pseudopythagorica Dorica*).

⁸ Title in original Greek: Περὶ νοῦ καὶ αἰσθήσεως. The first fragment is recorded by Stobaeus (*Ecl.*, I, 41, 5 Wachsmuth) as having the title Περὶ ἀρχῆς (*On the First Principle*), but this is probably a mistake based on the fact that the first word of the treatise is ἀρχά.

⁹ Title in original Greek: Περὶ νοῦ καὶ διανοίας.

¹⁰ Ulacco, *Pseudopythagorica Dorica*.

content.¹¹ In order to do so, our analysis will provide excerpts of the text together with a running commentary. The purpose is to try to keep the discussion as continuous as possible, with an eye to a clear understanding of how the epistemological process takes place and what elements it involves, by providing some answers regarding the questions raised by the texts. For this reason, the analysis will focus more attentively on the division of the parts of knowledge and the description of the knowledge-process, touching on other issues addressed by the treatises by the way.

We will aim to show that a general coherence can be detected across the whole of ps-Archytas' *On Intellect and Sense-Perception*, with a focus on process and ontological division of knowledge and its faculties. We will see that ps-Archytas formulates an original epistemological theory out of pre-existing materials he found in both Plato and Aristotle, and/or in the Academic and Peripatetic traditions that preceded his treatise; that this two-world theory accommodates both pure intellection and sense-perception, which are seen as reciprocal and co-dependent vis-à-vis the truth within the overall epistemological process; that ps-Archytas develops an original and unparalleled theory of the criterion of being, which involves a complex criterial apparatus for knowledge-acquisition, involving a subject of judgment, and object of judgment, and a paradigm or standard by which to produce the judgment; that this critical apparatus serves to produce philosophical accounts in syllogistic structures involving both inference from particulars and deduction from universals; and that these syllogistic structures, which are diverse, are probative and ultimately corroborative. Additionally, we will see that ps-Archytas shows his 'approval' of Plato's Divided Line (*Resp.*, VI, 509d 6-511e 5), in a rhetorical bid to subsume Plato's quadripartition of the segments of knowledge under his own quadripartition of the parts of knowledge. Finally, it will be argued that the lone surviving fragment of ps-Brontinus' *On Intellect and Discursive Thought* functions to bridge the diverse theories of Plato and ps-Archytas on the issue of where *διάνοια* belongs and how it functions within the knowledge-process.

1.2. *Two Doxographical Reports on Hellenistic Pythagorean Epistemology*

It is helpful to take our start from a remarkable account of the second/third century CE Christian 'Hippolytus' (in all likelihood the

¹¹ Many of the contextualising passages we will discuss are mentioned in Ulacco's commentary, but we sometimes arrive at different conclusions than she does.

heresiologist of Rome), who gives us a sense of the richness of the Hellenistic and/or post-Hellenistic Pythagorean system:

There are, then, two worlds (κόσμοι) according to Pythagoras, one intelligible (νοητός), which has as its principle the monad, and one perceptible (αἰσθητός); [the principle] of the latter is the tetraktys, which has an iota, the “single horn”, a perfect number. And according to the Pythagoreans, the iota, the single horn, is the first and most authoritative substance of both the intelligibles <and the perceptibles>, when it is grasped (λαμβάνομένη) intelligibly and perceptibly. There are nine classes of incorporeal accident, which cannot exist apart from substance: quality, quantity, relation, where, when, position, possession, action, and affection. Thus the [classes] accidental to substance are nine, which, when they are counted together with it [*sc.* substance], possess the perfect number, the iota. Hence, as we said, the universe is divided into an intelligible world and a perceptible world, and we too have our reason (λόγος) from the intelligible, in order that we might gaze upon (ἐποπτεύωμεν) the substance of the intelligible, incorporeal, divine things by reason (τῷ λόγῳ); but, he says, we have five sense-perceptions: smell, sight, hearing, taste, and touch, among which we arrive at understanding (γνώσις) of perceptibles. And in this way, he says, is the perceptible [cosmos] divided from the intelligible cosmos. And we have the ability to realize the fact that we have an instrument of understanding (γνώσεως ὄργανον) for each of them. None of the intelligibles, he says, is able to be understood (γνωστόν) by us through sense-perception; for ‘neither eye has seen nor ear heard’ this, nor, he says, has any of the other sense-perceptions come to understand [it] (ἔγνω). Nor yet again is it possible for anyone to come to understanding (γνώσις) of perceptibles by reason, but one must see (ιδεῖν) that it is white, and taste (γεύσασθαι) that it is sweet, and know (εἰδέναι) that it is either tuneful or tuneless by hearing (ἀκούσαντας); [and telling] whether some smell is pleasant or unpleasant is a function (ἔργον) of the sense of smell, not reason. The situation is the same with touch: for it is not possible to know (εἰδέναι) hard, or soft, or hot, or cold, by listening, but touch is the judgment (κρίσις) of these sorts of things. (‘Hipp.’, *Refutation of All Heresies*, VI, 23-24 = p. 150, 15-151, 17 Wendland; trans. after Osborne)

‘Hippolytus’ provides a comprehensive account of Pythagorean epistemology according to a familiar division of the parts of knowledge and their respective relationships to the parts of the universe. Pythagoras is thought to have identified two worlds (κόσμοι), which are represented by their respective principles: the intelligible world, which is governed by the monad, and the perceptible cosmos, which is governed by the tetraktys, an equilateral triangle whose sides are four units long whose units add up to ten. This is what ‘Hippolytus’ calls ‘the iota’ and the ‘single horn’. The ‘iota’ is equivalent to the number ten (or, as it is described elsewhere in the Pythagorean tradition, the ‘Decad’), and hence it is reflected in the ten categories – one essential category of substance, and nine categories of accidents. Importantly, the division into

intelligible and perceptible worlds correlates to the parts of the mind, in a strict division: the intelligible, incorporeal, divine world, which relates to substance (the first category), can only be accessed through ‘reason’ (λόγος), whereas the perceptible world can only be accessed through the five sense-perceptive faculties. The former activity is described as ‘gazing’ (ἐποπτεύωμεν) and implies a sort of divine oversight¹² or a mystical gaze, such as that of the charioteer who once again grasps the Forms in Plato’s *Phaedrus* (250c);¹³ the latter activity is described as ‘understanding’ (γνώσις), with each of the five sense-perceptive faculties acting as an ‘instrument’ (ἔργον) for its respective object of sensation. By virtue of acting as instruments, the sense-perceptive faculties perform judgments (*scil.* κρίσις) of their respective objects.¹⁴

‘Hippolytus’ account of Pythagorean epistemology here would appear at first glance to be an eclectic collection of materials that corresponds roughly to what one might expect of a Platonist expression of Pythagorean philosophy.¹⁵ There are telltale signs of Middle Platonist appropriation, including the appeal to the ten Aristotelian categories, a robust two-worlds commitment (involving a strict division of the intelligible and sensible worlds), and a bit of ‘Pythagorean’ symbology regarding the Decad and tetraktys thrown in.¹⁶ Now compare this Platonising account to another,

¹² Cf. *Tim. Locr.*, p. 225, 6-7 Thesleff, where daemons are described as “overseers of human affairs” (ἐπόπταις τῶν ἀνθρωπίνων); similarly among the Stoics (*SVF* II 1102) and ps-Hippodamus (p. 97, 3-4 Thesleff).

¹³ This is the language of the mysteries (and especially the Eleusinian Mysteries) appropriated to philosophy. For a general account of this in the Eleusinian Mysteries, see G. Petridou, *Divine Epigraphy in Greek Literature and Culture*, Oxford, Oxford University Press, 2016, p. 85-86.

¹⁴ Compare *Anonymus Photii* p. 238.21-239.2 Thesleff, where the author asserts that for Pythagoras, Plato, and Aristotle, the five sense-perceptive faculties are each *critical* (κριτική) in their discernment of the qualities associated with each sense-perceptive faculty.

¹⁵ Compare Theon of Smyrna 15.15-16, who claims that Plato calls ἐποπτεία “the treatment of intelligibles, the things that really exist, and what relates to the ideas” (on which, see F. M. Petrucci, *Teone di Smirne. Expositio rerum mathematicarum ad legendum Platonem utilium*, Introduzione, traduzione, commento, Sankt Augustin, Academia Verlag, 2012, p. 302-304, with bibliography). On this, see D. P. Taormina, “Platonismo e Pitagorismo” in R. Chiaradonna (ed.), *Filosofia tardoantica*, Roma, Carocci, 2012, p. 103-127.

¹⁶ For good general accounts of Pythagorean metaphysics and epistemology in this period, see B. Centrone, “The pseudo-Pythagorean Writings”, in C. Huffman (ed.), *A History of Pythagoreanism*, Cambridge, Cambridge University Press, 2014, p. 321-326 and Ulacco, *Pseudopythagorica Dorica*, p. 10-16. On the relationship between Middle Platonism, especially that found in Alexandria from the 1st century BCE-1st century CE,

preserved by pseudo-Plutarch, and belonging to the doxographical writings of Aëtius of (roughly) the 1st century CE:

“And our soul”, he [*sc.* Pythagoras] says, “is composed out of the tetrad [*sc.* four]: for it is intellect (νοῦς), knowledge (ἐπιστήμη), opinion (δόξα), and perception (αἴσθησις)”, from which all art (τέχνη) and knowledge (ἐπιστήμη) [arise], and we ourselves are rational (λογικοί). Well then, the Monad (ἡ μονάς) [*sc.* unit/one] is the intellect; for the intellect contemplates in respect of unit (κατὰ μονάδα θεωρεῖ). For example, among many men who exist, some are unperceptible (ἀναισθητοί), ungraspable (ἀπερληπτοί), and infinite (ἄπειροι) in terms of parts (ἐπὶ μέρους), but we intellect that this Man-himself is one alone (αὐτὸ τοῦτο ἄνθρωπον ἕνα μόνον νοοῦμεν), to which none [of these men] happens to be similar; and we intellect that the Horse[-itself] is one, but there are infinite [horses] in terms of parts. For all these things are Forms and Kinds in respect of units (τὰ εἶδη καὶ γένη κατὰ μονάδας). Hence, in the case of every single one of these, they say that an animal is “rational” or “money-making”, giving this definition [to them]. It is by virtue of this, by which we intellect these things, that the unit is intellect. And the Indefinite Dyad (ἡ δυὰς ἢ ἀόριστος) [*sc.* two] is knowledge; rightly so, since every demonstration (ἀποδείξεις) and proof (πίστις) belongs to knowledge, and additionally every syllogism brings a conclusion to what is contested from certain agreed [premises] and readily proves something other [than the agreed premises].¹⁷ Therefore, knowledge is comprehension (κατάληψις), which is why it would be dyadic [*sc.* double]. And opinion, which [arises] out of comprehension, is a triad [*sc.* three]. Correctly so, because opinion is of many things. And the triad is multiple, e.g. “thrice-blessed Danaans”. And it is by virtue of this that it [*sc.* opinion] admits of the triad...¹⁸ (Aët., *Plac.*, I, 3, 8 = *Dox.* 282-283)

Translation and interpretation of this passage are challenging, in no small part because ps-Plutarch’s material likely constitutes an epitome of Aëtius’ original text. In comparison with ‘Hippolytus’ account of Pythagorean epistemology, however, we note several divergences: there is no mention of the ten Aristotelian categories,¹⁹ nor yet any appeal to the mysticism

and the Pythagorean pseudepigrapha, see M. Bonazzi, “Eudorus of Alexandria and the ‘Pythagorean’ pseudepigrapha”, in G. Cornelli-C. Macris-R. McKirahan (eds.), *On Pythagoreanism*, Berlin, de Gruyter, 2013.

¹⁷ This seems to us to be the meaning of πᾶς συλλογισμὸς ἐκ τινων ὁμολογουμένων τὸ ἀμφισβητούμενον συνάγει καὶ ῥαδίως ἀποδείκνυται ἕτερον.

¹⁸ One imagines that Aëtius would have also gone onto associate the tetrad with sense-perception (as noted by H. Diels (ed.), *Doxographi Graeci*, Berlin, Reimer, 1879, *ad loc.*), but that this has not survived the transmission.

¹⁹ This is not to imply that ‘Hippolytus’ had no access to Hellenistic/post-Hellenistic Pythagorean texts at all, since the Aristotelian ten categories appear in ps-Archytas’ *On the Universal Logos* (e.g. p. 22, 6-31 Thesleff). But the order of categories

indicated by the tetraktys and the mysterious iota; and, more importantly, there is a division of epistemological capacities into four, not two, classes. Hence, Aëtius characterizes Pythagorean epistemology as a quadripartition constituted of intellect (νοῦς), knowledge (ἐπιστήμη), opinion (δόξα), and perception (αἴσθησις).²⁰ What accounts for the diversity of Aëtius' report, we would suggest, is a closeness to actual epistemological texts of ascribed to early Pythagoreans, but almost certainly written down sometimes between the 1st century BCE and the 1st century CE. As we will see, Aëtius' description of Pythagorean epistemology is especially important because it would appear to be the first attempt at reception and interpretation of the central treatise on epistemology produced by these Pythagoreans on the threshold of the Hellenistic and post-Hellenistic worlds: ps-Archytas' *On Intellect and Sense-Perception*.

2. Pseudo-Archytas' *On Intellect and Sense-Perception*

2.1. Preliminary Division of Beings: Some Puzzles

We begin with the first fragment, which features a surprising 'authorial' signature, as the treatise announces itself to be the work of 'Archytas' (*Archytas*):

ascribed to Pythagoras by 'Hippolytus' (*Ref.*, VI, 24) is different from that of ps-Archytas (especially in categories 5-10), suggesting that 'Hippolytus' did not have access to ps-Archytas' writings. Much closer to ps-Archytas' categories that ascribed by Philo (*Dec.*, 30-31) to "those who spend time on the doctrines of philosophy" (οἱ ἐνδιατριβόντες τοῖς τῆς φιλοσοφίας δόγμασιν).

²⁰ Contrast the octopartition of the "instruments of understanding" (γνώσεως ὀκτώ ὄργανα) associated with Pythagoreanism by *Anonymus Photii* (p. 240, 29-241, 5 Thesleff) into sense-perception (αἴσθησις), imagination (φαντασία), opinion (δόξα), art (τέχνη), intelligence (φρόνησις), knowledge (ἐπιστήμη), wisdom (σοφία), intellect (νοῦς): "Among these, what is shared between us and the divine is art, intelligence, knowledge, <wisdom>, and intellect, but what is shared between us and the irrational is sense-perception and imagination, and what is peculiar to us alone is opinion. Sense-perception is a false understanding through a body; imagination is motion in a soul...[lacuna]...art is a productive disposition with reason (and 'with reason' is added because a spider also produces, but it does so without reason); intelligence is a volitional disposition directed towards correctness in practical affairs; knowledge is a disposition <towards understanding> of the things that always remain the same and as such; wisdom is knowledge of the primary causes; and intellect is the principle and fount of all good things".

The principle of (Ἀρχὰ τᾶς) the understanding²¹ of the things that are (τῶν ἐόντων γνώσις), [is] the things immediately manifest themselves (τὰ αὐτὰ αὐτόθεν²² φαινόμενα). Indeed, of the things which are immediately manifest, some are intelligible (νοατὰ), whereas others are perceptible (αἰσθατὰ). And things which are unmoved are intelligible, whereas things that are moved are perceptible. The criterion (κριτήριον) of intelligible things is the intellect (νοός), whereas the [criterion] of the perceptible things [is] sense-perception (αἴσθησις). Among the things which are *not* immediately manifest, some are knowable (ἐπιστατὰ), whereas others are opinable (δοξαστὰ). Indeed, things which are unmoved are knowable, whereas things which are moved are opinable. (ps-Archytas, *On Intellect and Sense-Perception*, Fr. 1 p. 36, 14-19 Thesleff = Stob., *Ecl.*, I, 41, 5, p. 282, 23-283, 2 Wachsmuth)

The beginning of the text introduces us to the central topic of the treatise: the understanding (γνώσις) of the things that are (τὰ ἐόντα).²³ The principle (ἀρχὰ)²⁴ of the understanding of these existents is said to be things which are *immediately manifest* (τὰ αὐτὰ αὐτόθεν φαινόμενα).²⁵ These things are described first with appeal to two verbal adjectives, which connote their understandability: some of them are νοατὰ, intelligible, while others αἰσθατὰ, perceptible. Next, the attention is shifted to a clarification of which objects are intelligible and which perceptible, and the further elucidation that follows differentiates them by their susceptibility to motion. Things which are moved, or subject to motion, are perceptible,

²¹ As above, we translate γνώσις and related terms with ‘understanding’ *vel sim.*, although ‘apprehension’ is also a possibility.

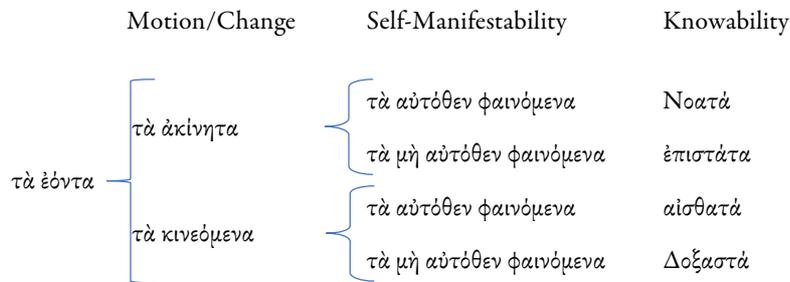
²² In post-Hellenistic philosophical Greek, this word when combined with words of perception tends to confer a meaning of ‘self-evident’, whether we are dealing with a Platonist (e.g. Plutarch., *De fac.*, 930A) or a Stoic (Mus. Ruf., *Diss. Luc. dig.*, I, 16; I, 18; I, 24; 18A, 12). It does not recur anywhere else among the Pythagorean Pseudepigrapha.

²³ Cf. ps-Archytas, *On the Universal Logos*, p. 32, 10-14 Thesleff, where we hear that “all knowledge (ἐπιστήμη), although it takes its beginning from limited things, is able to understand (γνωστική) infinities. The power it has is so great, even if it rationalizes through few things. But the knowledge of the things that are is even greater. For it is able to understand (γνωστική) infinitely the things that exist (τὰ ὄντα), and those that have been, and those that will be”.

²⁴ Throughout this article, we will retain the Doricisms of the text.

²⁵ Ulacco, *Pseudopythagorica Dorica*, p. 112, refers to these as ‘autoevident’. The terminology (αὐτόθεν, μὴ αὐτόθεν φαινόμενα) is not common in the Classical or Hellenistic periods, but it is associated by Sextus Empiricus with dogmatic philosophy. For his own part, Sextus (*M*, VIII, 28) considers autoevidence to be a core attribute of ‘pre-evident’ (πρόδηλα) things, which “immediately fall to the sense-perceptive [faculties] and thought” (τὰ αὐτόθεν ὑποπίπτοντα ταῖς τε αἰσθήσεσι καὶ τῇ διανοίᾳ). Cf. again Ulacco, *Pseudopythagorica Dorica*, p. 112.

while those which are not subject to motion are, on the contrary, intelligible. This is not to say that the apple which is sitting motionless on the table is an intelligible, but rather, that intelligibles are things not subject to motion, in an Aristotelian sense of motion (which can be characterized minimally by change in substance, quality, quantity or place).²⁶ But, apparently, things which are immediately manifest are not the only objects populating this world. Indeed, ps-Archytas offers a description of things which are *not* immediately manifest as well, which, once again, is offered in terms of their knowability and expressed with verbal adjectives. Things which are *not* immediately manifest can be either knowable (ἐπιστατά), or opinable (δοξαστά). Moreover, the same clarification expressed before in relation to objects which could be intelligible or perceptible is offered here: things which are not subject to motion are knowable, while things which are subject to motion are opinable. In the first few lines of the text, ps-Archytas provides us with a sufficient description of the objects populating this world (τὰ ἔόντα), and explains how they can be known, in relation to their ontological capacity for motion/change, and according to their epistemic status as immediately manifest or not. As all kinds of objects are characterised by a gradual selection of verbal adjectives connoting their knowability, a comprehensive division of the objects in existence looks like this:²⁷



After having presented a classification of beings in terms of their manifestability and motion, though, curiously enough Archytas leaves aside

²⁶ Aristot., *Phys.*, III, 1, 200b 33-34.

²⁷ The diagram does not aim to represent an ontological *scala naturae*, but instead to summarise Archytas' epistemological divisions. An analogous scheme is provided by Ulacco, *Pseudopythagorica Dorica*, p. 111. The reason for our new scheme is to be explained by our focus on ps-Archytas' epistemology (rather than his ontology).

things which are *not immediately* (μὴ αὐτόθεν) manifest and concentrates only on those which are (αὐτόθεν). Indeed, a criterion is introduced only for the latter: the criterion of intelligible things²⁸ is the intellect, and that of perceptible things is sense-perception; there is no mention of a criterion for knowable or opinable things.²⁹ It is not immediately clear what specific connotation the word κριτήριον has.³⁰ Indeed, although having cognitive faculties indicated as criteria *vel sim.* is generally in line with standard Hellenistic conceptualizations of the epistemological theories of Plato, Aristotle and Epicurus, at least in most places,³¹ it is not directly obvious why, for ps-Archytas, things which are not immediately (μὴ αὐτόθεν) manifest are not assigned respective criteria as well. For, even though they are not immediately manifest, none of them is described as impossible to

²⁸ Note here that ps-Archytas switches to the plural to refer to intelligible *things*. It must be underlined that the decision to employ a neuter singular or a neuter plural is significant throughout. The same can be said for the use of the article, which highlights when the focus of the discussion is the epistemological status of the objects, rather than their ontological connotation.

²⁹ Note that ps-Archytas avoids collapsing the four species into two. Contrast with Alcinous (*Didask.*, 4, p. 154, 10-34 = 13A Boys-Stones, part; transl. Boys-Stones), who claims of λόγος that it “is also a judge (κριτής), through which the truth is judged (κρίνεται). And reason is twofold: there is one sort which is completely firm and unshakeable, and other which is reliable in its grasp of things (κατὰ τὴν τῶν πραγμάτων γνώσιν). Of these, the former is possible for god but impossible for man; the second is possible for man as well. And this too [i.e. the second kind of reason] is double: there is reason concerned with intelligible objects (περὶ τὰ νοητά) and reason concerned with perceptible objects (περὶ τὰ αἰσθητά). Of these, the one concerned with intelligibles is ‘knowledge’ (ἐπιστήμη) or ‘epistemic reason’; the one concerned with perceptibles is ‘opinionative reason’ or ‘opinion’ (δόξα). So epistemic reason is secure and permanent, since it is concerned with secure and permanent objects but persuasive, ‘opinionative’ reason contains a great deal of [mere] likelihood because its objects are not permanent. The principles of knowledge (ἀρχαὶ ἐπιστήμης), i.e. knowledge regarding intelligibles, and of opinion, i.e. opinion regarding perceptibles, are intellection and perception (νόησις τε καὶ αἴσθησις)”.

³⁰ It is not the same function as Archytas’ notion of calculation (λογισμός) as the “standard and hindrance” (κανὼν καὶ κωλυτήρ), which prevents unjust people from committing injustices (Fr. 3 Huffman). See C. A. Huffman, *Archytas of Tarentum: Pythagorean, Philosopher and Mathematician King*, Cambridge, Cambridge University Press, 2005, p. 218-223.

³¹ As Ulacco (*Pseudopythagorica Dorica*, p. 112-116) underlines. See also G. Striker, “Κριτήριον τῆς ἀληθείας”, in Ead. (ed.), *Essays on Hellenistic Epistemology and Ethics*, Cambridge, Cambridge University Press, 1996, p. 22-76.

understand. If we might doubt that a definitive class of things which are *δοξαστά* exists in any full sense, the same cannot be said of things which are *ἐπιστάτα*, at least if we take the term itself as indicating those things that are the objects of a science. Moreover, things to which a criterion is assigned are described, at the beginning, as immediately manifest. While it is not difficult to understand how something can be immediately manifest to our senses, it is more challenging to figure out how intelligible things can be described as immediately manifest, or autoevident.

Accordingly, how should we understand their autoevidentiary quality? The text implies that things which are immediately manifest are so in relation to *specific* cognitive faculties – intelligible objects to the intellect on the one hand, and perceptible objects to sense-perception on the other hand. At the moment, the text leaves aside the question of those things that are *not* immediately manifest – it will return to the issue later on, on p. 38, 14 Thesleff. In any case, the first section of the text, although quite clear and systematic at first glance, reveals itself to be puzzling for the following reasons:

a. Although the principle/beginning of the understanding of the things that are is described as those things which are immediately manifest themselves, things which are *not* immediately manifest would also appear to be nonetheless understandable (in a stronger sense (*ἐπιστάτα*) when they are not subject to motion, and in a weaker sense (*δοξαστά*) if they are).

b. Some things which are *not* immediately manifest, although not associated with a criterion, are nonetheless said to be knowable (*ἐπιστάτα*). Accordingly, we might wonder whether they are knowable by virtue of some other faculty that is non-discriminatory? Or has ps-Archytas deliberately ignored the issue of how certain knowable objects can be understood without judgments?

c. Things which *are* immediately manifest are so in relation to their appropriate cognitive faculties which act as their respective criteria (intellect for intelligible things, sense-perception for perceptible things). But once again it is not clear what the intellectual and sense-perceptive faculties are assessing precisely, nor yet of how they are expected to act as judges for their objects.

In order to try to find some answers to these questions, let us take a look at what follows.

2.2. Ps-Archytas on the Criterion

In the next portion of *On Intellect and Sense-Perception*, ps-Archytas specifies in what sense the two cognitive faculties whose objects are immediately manifest act as ‘judges’ of their respective objects:

It is necessary to consider (νοᾶσαι) these three things: what judges (τὸ κρίνον), what is judged (τὸ κρινόμενον), and that by virtue of which³² there is a judgement (ποθ’ ὅπερ κρίνεται). [It is necessary to consider] too that what judges is the intellect and sense-perception; what is judged is the account (λόγος); and that by virtue of which there is a judgement is what is immediately manifest (τὸ αὐτόθεν φαινόμενον). Of this [*sc.* what is immediately manifest], one [species] is intelligible, and the other is perceptible. The intellect determines (ἐπικρίνει) the account, sometimes by applying [it] to the intelligible, and sometimes to the perceptible. For, indeed, whenever the account (λόγος) is sought with regard to intelligible things, it applies to the intelligible, whereas whenever [it is sought] with regard to perceptible things, it applies to the perceptible. (ps-Archytas, *On Intellect and Sense-Perception*, Fr. 1 p. 36, 19-25 Thesleff = Stob., *Ecl.*, I, 41, 5, p. 283, 2-10 Wachsmuth)

This section helps us to understand the epistemological process and the role intellect and sense-perception play as criteria of their respective objects. Indeed, we are told that the process of understanding existents involves three elements: that which judges, i.e. intellect and sense-perception; that which is judged, i.e. the λόγος (which we translate with ‘account’); and that in relation to, or by virtue of which (ποθ’ ὅπερ) there is a judgement, i.e. the thing which is immediately manifest. Hence, we gain some clarification here: it is not, as we might have originally thought, the immediately manifest object that is judged; rather, it is the λόγος that is judged in relation to the immediately manifest object.

We learn how two cognitive faculties, intellect and sense-perception, function as criteria: each ‘judges’ a λόγος as appropriate to the immediately manifest object of its understanding. Objects that are not immediately manifest, i.e. knowable and opinable objects, are not liable to judgment – an interesting aspect of ps-Archytas’ epistemological theory that can be explained, as we will see later on, by the fact that they are ends, and not principles, of knowledge. In the initial lines, it seemed that both intellect and sense-perception play parallel roles in the procedure of understanding the things that are; there is no concern with scepticism about, for example, sense-perceptive judgments that arise and their role in contributing to

³² Or: “relative to which”.

knowledge.³³ In the lines that follow, intellect is assigned a more specific task: to *make a determination* (ἐπικρίνει) of the λόγος, sometimes by applying it to the intelligible, and sometimes by applying it to the perceptible. We should not forget that ps-Archytas had differentiated the domains of intellection of sense-perception. Indeed, intellect was said to be the criterion for things which are intelligible, while sense-perception for those which are perceptible. This is important because although the process here described might be thought to be unified, by which we mean it might be assumed to involve both faculties at one and the same time, it is more likely that ps-Archytas is providing a description of two different cognitive processes: on the one hand, the assessment of λόγοι about things which are intelligible, whose criterion is the intellect; on the other hand, the assessment of λόγοι about things which are perceptible, and whose criterion is sense-perception. If this is right, it means that the content of sense-perception is also characterised as somehow propositional, since it is the task of sense-perception as well to determine an account in relation to a thing that needs to be articulated according to the process of understanding. The further clarification, that “whenever the account is sought with regard to intelligible things, it applies to the intelligible, whereas whenever [it is sought] with regard to perceptible things, it applies to the perceptible”, indicates that (at least) two different types of λόγος are determined, in relation to their peculiar objects. But ps-Archytas acknowledges the intellect alone as that which determines the account. What does this imply?

Two difficulties arise in regard to this asymmetry. The first is related to the assessment of perceptible objects. Why is it the responsibility of the intellect, and not of the sense-perceptive faculty, to determine the account in relation to perceptibles? One possibility might be that the information provided by sense-perception is confused and not yet propositionally

³³ Compare with Ptolemy’s *On the Criterion and Hegemonikon*, 10, 1-6, where sense-perception conveys truth about the affections it undergoes (i.e. sense-perceptions are true), but it sometimes makes a false report about the cause of this fact (τὸ διαθὲν ὅτι τοιοῦτον, ἐνίοτε ψεύδεται). See M. Schiefsky, “The Epistemology of Ptolemy’s *On The Criterion*”, in M.-K. Lee, *Strategies of Argument: Essays in Ancient Ethics, Epistemology, and Logic*, Oxford, Oxford University Press, 2014, p. 320. In particular, perceptual faculties never err with respect to their proper objects (i.e. Aristotelian special sensibles). See J. Feke, *Ptolemy’s Philosophy: Mathematics as a Way of Life*, Princeton-Oxford, Princeton University Press, 2018, p. 21-22.

organised. If this is the case, it would be responsibility of the intellect to organise its content into an account (*λόγος*) and thereby ‘determine’ it, so to speak; but it would still be up to sense-perception to judge whether the account really applies to the thing perceived. Yet a similar difficulty arises in relation to intelligible objects. Indeed, if it is the intellect which determines (*ἐπικρίνει*) the account, how can it be the same intellect which *judges* it (*τὸ κρίνον*)? So understood, the passage might imply a certain circularity in the process of understanding. A possible answer to this difficulty might be found if we infer that there is a real difference between the activities implied by the two verbs *ἐπικρίνω* and *κρίνω* and understand the verb *ἐπικρίνω* as describing a sort of selection of the appropriateness of the account, performed by the intellect.³⁴ In this case, the intellect’s responsibility would involve making sure the account is fitting for the objects it relates to. Or, to put it more schematically:

1. Intellect and sense-perception are understood to be criteria for, respectively, the account that deals with intelligibles, and the account that deals with perceptibles. Hence, the account itself has at least two different and possible articulations, depending on the immediately manifest objects it expresses something about. This means that the account itself should be appropriate either to the intelligible or to the perceptible in some way; otherwise the latter specification could be superfluous.

2. Moreover, if it is the intellect which determines (*ἐπικρίνει*) the account that relates to intelligibles, it is unclear what it means to say that it judges (*τὸ κρίνον*) it too. Might this process involve some circularity? Doubts arise, too, regarding the intellect’s relationship to sense-perception. If this, too, has the task of judging an account that deals with perceptibles, how does it exercise its (peculiar) function?

3. Finally, there seems to be an implicit comparison being assumed in the comparison of *λόγοι* that are judged for the immediately manifest

³⁴ See Ulacco, *Pseudopythagorica Dorica*, p. 119-120, where she briefly discusses the use of this verb in Plato, Aristotle, and Arius Didymus’ account of Peripatetic epistemology. The last witness is the most interesting: he claims of Aristotle that “the criteria of the knowledge of these things – of intelligibles and perceptibles – are the intellect and sense-perception, respectively. For neither could sense-perception determine (*ἐπικρίνειν*) the universal, nor intellect the particular”. On this passage and its relevance for understanding Theophrastus’ theory of the criterion, see P. Huby, “Theophrastus and the Criterion”, in P. Huby-G. Neal (eds.), *The Criterion of Truth*, Liverpool, Liverpool University Press, 1989, p. 108-110.

intelligibles (by the intellect) and the λόγοι that are judged for the immediately manifest perceptibles (by the sense-perceptive faculty). What are the content and form of these λόγοι?

2.3. *The Process of Knowledge-Acquisition*

These puzzles are at least partially resolved in the section that follows, where ps-Archytas provides some examples to supplement what he has previously left not fully explained, and deals directly with the specific task of each of the elements involved in the process of knowledge:

And hence, artificial diagrams (ψευδογραφίαι) in geometry are made manifest according to figures and numbers; while in physics, and in politics, accounts of cause (αἰτιολογίαι) and of likelihood (εἰκοτολογίαι)³⁵ [are made manifest] according to generation and [political] affairs (κατὰ γένεσιν καὶ πράξιαις), respectively. For, indeed, reason (λόγος), when it applies to the intelligible, recognizes the fact that harmony happens in a double account (ἐν διπλόῳ λόγῳ). But [reason] confirms the fact that the double account is concordant (συμφωνεῖ) through perception. And concerning the objects of mechanics, accounts apply to intelligibles by reference to figures and numbers and proportions, whereas finished products apply to perceptible things. For these things are studied with matter and motion. And in general, it is impossible [for us] to understand the “why” (τὸ διὰ τι) in each thing if we do not already know (προειδόμενος) each thing, “what it is” (τί ἐστίν). Each of the things that are, “what it is”, is judged by the intellect; while “the fact that it exists” (ὅτι ἐστίν) or “that it is in in this way” (ὅτι οὕτως ἔχει) by reason (λόγῳ) and sense-perception (αἰσθάνει): by reason, whenever we indicate through a syllogism the proof (δείξιν σαμάνωμεν διὰ συλλογισμῶ) for something which subsists by necessity (τινος...ὑπάρχοντος ἐξ ἀνάγκης); by sense-perception, whenever we confirm (ἐπιμαρτυρώμεθα) the account (λόγος) through sense-perception. (ps-Archytas, *On Intellect and Sense-Perception*, Fr. 1, p. 36, 25-37, 12 Thesleff = Stob., *Ecl.*, I, 41, 5, p. 283, 10-284, 2 Wachsmuth)

This report requires quite a lot of unpacking, and some speculation about how we are to supply the missing premises; and yet, when we take it together with the elements gathered from the other portions of the text, it would appear to provide us with enough material to reconstruct each step of the process of knowledge-acquisition, in relation both to immediately manifest intelligibles (τὰ αὐτόθεν φαινόμενα νοατά) and immediately

³⁵ It is possible that the term εἰκοτολογία belongs originally to Theophrastus (see Procl., *In Plat. Tim.*, II, 120, 29-121, 7 Diehl = 159 FHS&G), although its use by Theophrastus would appear to refer to meteorology, and not to politics, as is the case with ps-Archytas.

manifest perceptibles (τὰ αὐτόθεν φαινόμενα αἰσθατά).³⁶ The process is easiest to grasp in relation to the perceptibles, and hence our analysis will firstly describe the process of αἰσθασίς, and secondly that of νοός.

Step 1: The first step of the process involves sense-perception and the acquisition of data. By way of the sense organs, sense-perception obtains the material related to the immediately manifest thing under examination. As we have seen, the data obtained seems to consist of a propositional content about the fact, expressed with a predicative content³⁷ which describes the τὸ ὅτι ἐστίν “the fact that it exists”, or the ὅτι οὕτως ἔχει, “the fact that it is in this way” of the manifest object (φαινόμενον). For example, the data sense-perception is said to ‘judge’ (κρίνεται) could be constituted of a predicative statement of the kind, “this coffee is hot”. It is important here to note that, at this stage, sense-perception deals exclusively with individuals. Indeed, what is always involved in this step of the process is the acquisition of data related to an immediate and individual object, and not a complex set of propositions, each of which involves universal predications.

Step 2: Once the data has been attained, it is time for the intellect (νοός) to play its role. Indeed, the νοός undertakes a primary sortition of the material received³⁸ by determining (ἐπικρίνει) the account (λόγος) appropriate to the object (whether intelligible or perceptible). It seems plausible, that, at this stage, multi-step reasoning is involved, most likely of a syllogistic kind. To develop the example provided for step 1, νοός would here articulate the information provided by sense perception in the following way:

- a) This coffee is hot.
- b) Hot things burn.
- c) This coffee burns.

³⁶ It is not obvious that ps-Archytas is ready to describe *non*-immediately manifest objects at this stage.

³⁷ Our main intention here is to differentiate the content obtained here from something like an image, which might not feature propositional content. It is interesting here, that, in a very recent article, Corcilius also characterises the content of the World-Soul’s cognition of the sensibles as propositional (note that Corcilius also underscores that Plato “does not endow the world soul with sense-perception”), K. Corcilius, “Ideal Intellectual Cognition in *Tim.* 37a2-c5”, *Oxford Studies in Ancient Philosophy*, 54 (1), 2018, p. 51-105.

³⁸ See lines 22-23.

It must be noted, here, that contrary to what we saw above for sense-perception, the intellect *can* make universal statements (e.g. ‘hot things burn’) and draw inferences from them. If this is right, sense-perception would be required *only* for the initial acquisition of data related to the individual, but its data would not be necessary for further steps in the production of knowledge: one understanding alone would be enough for the intellect to draw universal inferences and produce new knowledge. Hence, we are now provided with an account (λόγος) of an immediately manifest sensible, in the form of a syllogism.

Step 3: In the last step of the process of knowledge-acquisition, sense-perception is now required to test the results obtained by approving of the arrangement of the account determined by the νοός. To follow on the same example, sense-perception now needs to *verify* whether the coffee really burns, and if this corresponds to the object just perceived. If, for example, it is the case that the (previously hot) coffee goes cold,³⁹ this would necessitate a new beginning of the process. Indeed, the data provided by sense-perception would offer a new and different content, which would similarly require a new determination of the account by the intellect. One important consequence of this last step is that sense-perception would appear to be infallible. Indeed, it is interesting to note how the verb ἐπιμαρτύρομαι evidences a validation of the λόγος that has been advanced by the intellect.⁴⁰ Accordingly, this would imply that mistakes are directly

³⁹ We do not want to imply a chronological interpretation of the process, but just to account for the possibility that sense-perceptions may be subject to change, as, for example, in the case one sees something from a distance, and then ‘corrects’ what sight has seen at first, once we get closer to the object.

⁴⁰ The term ἐπιμαρτύρομαι is employed by Epicurus to refer to the confirmation of the truth of sense-perceptions (cf. Epicur., *Hrdt.*, 50-51 and Sext. Emp., *M*, VII, 203-216 = 247 Usener). On this usage, see the comments of F. Verde in *Epicuro, Epistola a Erodoto*, Introd. di E. Spinelli, trad. e comm. di F. Verde, Roma, Carocci, 2010, p. 136-137. For Ptolemy, by contrast, sense-perception is like a messenger whose report is not always accurate, which is one reason why it needs intellect as a counterpart. Cf. Schiefsky, “Epistemology of Ptolemy”, p. 320-322. This may be related to the double use of φαντασία in Ptolemy’s *On the Kriterion and Hegemonikon*, which has a “dual technical meaning for Ptolemy: (1) a sense impression, and (2) the transmission of sense impression(s) to the intellect” (Fekke, *Ptolemy*, p. 63-64).

attributable to our capacity for (syllogistic) reasoning, and not to our sense-perceptive faculties or their activities.⁴¹

Such would appear to be ps-Archytas' approach to the generation of accounts that start from individuals and say something about how we grasp immediately perceptible objects. However, it is important to recall that ps-Archytas is attempting to describe not one, but two types of account: the latter type, which comprises accounts that deal with immediate intelligibles, is more difficult to reconstruct from the text as it stands. But there are some suggestions. The description appears to assume a certain kind of parallel process, when grasping immediate intelligibles, to that involved in the understanding of immediate perceptibles: the intellect judges immediate intelligibles, whereas the sense-perceptive faculty judges immediate perceptibles. At some point, however, the rational capacity that focuses on these intelligibles (νοός) would appear to shift, or transition, into an activity that engages in some way with the perceptibles, and we think this shift is indicated by another change in terminology, from νοός to λόγος. Similar associations can be noted, for example, in the writings of Philo of Alexandria, whose epistemology is worth comparing to ps-Archytas' throughout.⁴² The shift would occur when the rational capacity ceases to study immediate intelligibles themselves and begins to situate the immediate intelligibles within a broader syllogistic process. To be wholly anachronistic (but perhaps the metaphor helps to make sense of what ps-Archytas is saying), νοός 'descends' to the perceptibles and places the immediate intelligibles in a syllogistic framework;⁴³ and when it does this, νοός becomes, or at least takes on the role of, λόγος as 'rationality'.⁴⁴

⁴¹ Here it is useful to compare with Sextus Empiricus' account of Peripatetic epistemology (*M*, VII, 226 = 14H Sharples, trans. after Sharples): "It appears from what has been said that the primary criteria for the knowledge of things are sense-perception and intellect (πρώτα κριτήρια τῆς τῶν πραγμάτων γνώσεως ἢ τε αἴσθησις καὶ ὁ νοῦς), the former having the role of an instrument and the latter [that of] a craftsman. For as we cannot differentiate between straight and crooked things without a rule, so intellect is not naturally able to judge things without sense-perception".

⁴² Cf. Philo, *Her.*, 183-185 and 234-236, where λόγος is the means through which νοῦς and αἴσθησις interact (although Philo imagines that divine λόγος intercedes from the outside).

⁴³ In interpreting ps-Archytas' Divided Line (see below), Iamblichus, who probably knew this portion of *On Intellect and Sense-Perception* (although he does not quote it directly), says that "the λόγος, which occupies the mean between the two extreme points –

Now, in the case of accounts that proceed from an immediate sensible, the νοός would appear to intercede when it supplies the universal premise “hot things burn” in *Step 2*; and this makes sense, since ps-Archytas is clear that νοός deals with the “what it is” (τί ἐστίν), or *definitions*, of the things that are. But in the case of accounts that proceed from an immediate intelligible, we are told that their judgment is undertaken by reason (λόγος), “whenever we provide through syllogism the proof for something which subsists by necessity”. Hence, we tentatively reconstruct the process that involves immediate intelligibles in this way:

*Step 1**: The first step would consist in the intellect acquiring its own data. This time, though, the νοός directs itself towards νοατά, rather than perceptibles. What are these immediate intelligibles? Ps-Archytas tells us that what the intellect judges is the “τί ἐστίν”, the “what it is”, or, better, the *definition* of each of the things that are.⁴⁵ By drawing a parallel with what we saw above with sense perception, we can plausibly presume that the starting point for the proof involving intelligibles is indeed the definition of a thing.

*Step 2**: Once the definition has been advanced, the second step involves a syllogistic type of reasoning (λόγος), which supplies a proof for things

the intelligibles and the perceptibles – touches both, since it is established in an order of completion relative to the intellect and sense-perception (as these are its first principles) and brought to completion by them” (*Comm. Math.*, 8, p. 38, 2-6 Festa-Klein).

⁴⁴ It is important to note that λόγος is expressly *not* given as the instrument employed by νοός to acquire knowledge, as perhaps one might expect. To be sure, our account is obviously problematic if νοός is supposed to be, like its objects, not susceptible to alteration. And our interpretation, which implies that νοός is *potentially* λόγος, but need not become λόγος, features its own problems too (especially since it is not expressly stated in the text this way). To be fair to our proposed interpretation here, such a problem is at the heart of the epistemology of the two figures who exercised the greatest influence over ps-Archytas, Plato and Aristotle, and scholars continue to argue about how the intellect is supposed to retain its identity while being similarly respondent to sense-perception.

⁴⁵ It is possible that ps-Archytas is referring to the essence, rather than the definition, of a thing. But since ps-Archytas would appear to be concerned with situating the τί ἐστίν as a statement that functions within a syllogistic framework, his notion here probably conforms to Aristotle’s distinction between a definition and an essence at *Topics*, I, 5, 102a 4-5: “a definition is a statement which signifies the essence (ἐστι δ’ ὅρος μὲν λόγος ὁ τὸ τί ἦν εἶναι σημαίνων). It is asserted either as a statement in place of a term (ἀποδίδεται δὲ ἢ λόγος ἀντ’ ὀνόματος), or a statement in place of a statement (λόγος ἀντὶ λόγου)”.

which subsist by necessity.⁴⁶ While in the case of sense-perception, the premise was directly related to a particular perceptible object, in this circumstance all the steps of the syllogistic reasoning involve universals. ‘Rationality’ or ‘reason’ (λόγος) is here stated to supply a proof for something that subsists by necessity, which makes it possible for us to obtain the ‘why’ (τὸ διὰ τι).⁴⁷ To give an example that would seem to comply with ps-Archytas’ description of a proof involving intelligibles:

- a) All men are animals.
- b) All animals are mortal.
- c) All men are mortal.

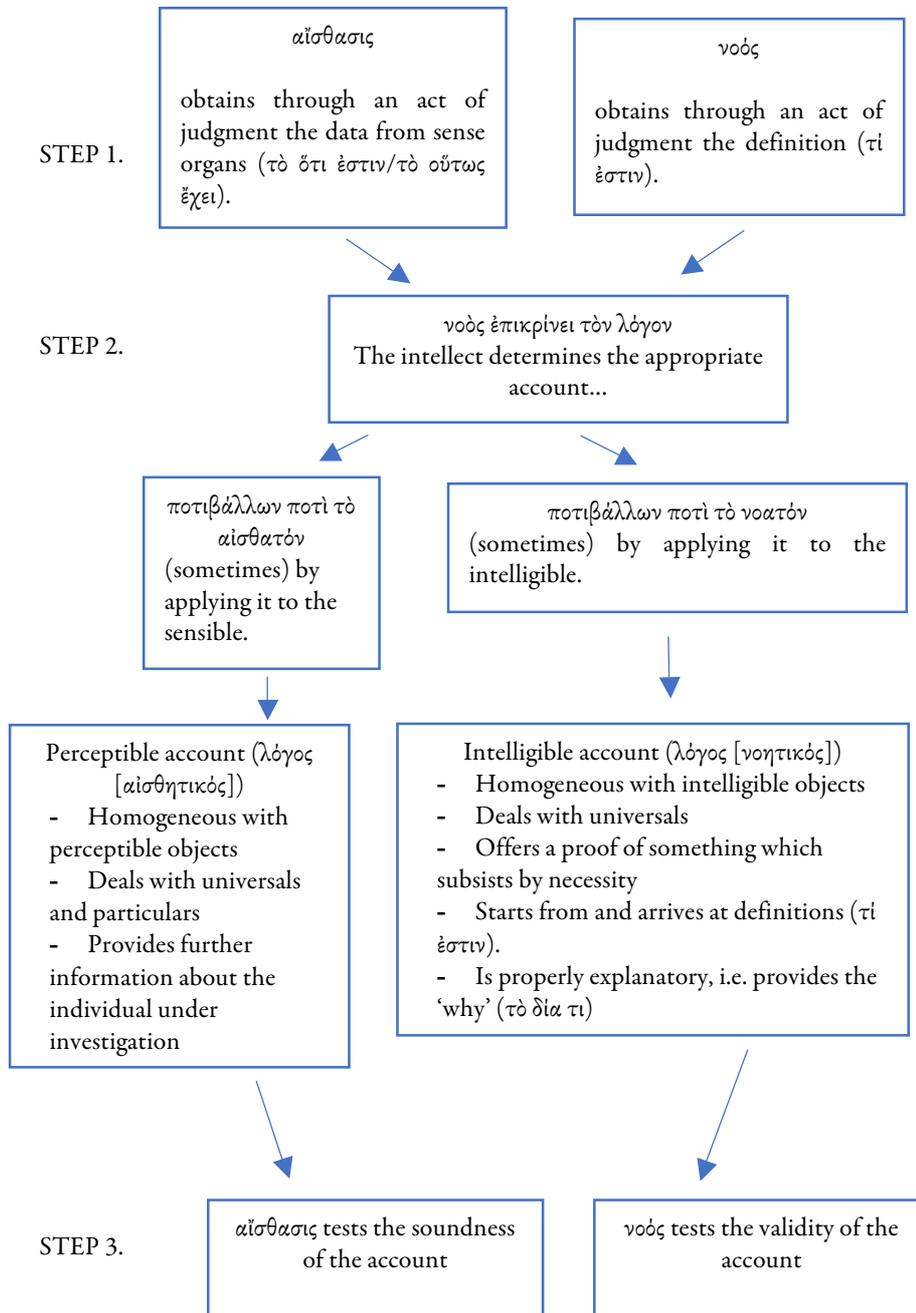
*Step 3**: The final step, would, once again, involve the intellect (νόος), which is expected to judge on the validity of the inferences drawn that lead to a new operating definition that is of wider universality.

One last thing remains to be explained. Ps-Archytas tells us that “reason (λόγος), when it applies to the intelligible, recognizes the fact that harmony happens in a double account (ἐν διπλόῳ λόγῳ)”. But reason also “confirms the fact that the double account is concordant (συμφωνεῖ) through perception”. What, exactly, is this *double account*? And how are we to make sense of it? In

⁴⁶ An interesting parallel can be found in Aristotle’s account of Socrates’ method at Aristot., *Metaph.*, XIII, 4, 1078b 24-29. In that context, Aristotle acknowledges to Socrates with his own conception of science conceived as demonstrative syllogisms based on definitions (see E. Berti, “Socrate e la scienza dei contrari secondo Aristotele”, *Elenchos*, 29 (2) 2008, p. 303-315). Indeed, Socrates there is said to ἐζήτει τὸ τί ἐστιν. συλλογιζεσθαι γὰρ ἐζήτει, ἀρχὴ δὲ τῶν συλλογισμῶν τὸ τί ἐστιν; “and he naturally inquired into the essence of things; for he was trying to reason logically, and the starting-point of all logical reason is the essence” (transl. Tredennick).

⁴⁷ Compare with Aristot., *APo*, I, 13, 78b 34-79a 8: “The reason why (τὸ διότι) is superior to the fact (διαφέρει τοῦ ὅτι) in another way, in that each is studied by means of a different science. Such is the case with things that are related to one another in such a way that one is subordinate to the other, e.g. optics to geometry, mechanics to stereometry, harmonics to arithmetic, and star-gazing to astronomy [...]. In these cases it is for those who concern themselves with perception to have knowledge of the facts (τὸ ὅτι εἰδέναι), whereas it is for the mathematicians to have knowledge of the reason why (τὸ δὲ διότι εἰδέναι). For the latter grasp demonstrations of the causes (τῶν αἰτιῶν τὰς ἀποδείξεις), and they often do not know the facts [τὸ ὅτι], just as people who study the universal often do not know some of the particular instances for lack of observing them” (transl. P. S. Horky, *Plato and Pythagoreanism*, Oxford, Oxford University Press, 2013, p. 17).

order to gain clarification on this aspect of the process of knowledge-acquisition, it may be helpful to appeal to a visual representation:



Up to this point, we have been dealing with two different kinds of account, each homogeneous with those peculiar objects it deals with. But let us take a closer look at *Step 2*, and at the examples we provided before:

λόγος in relation to αἰσθατά	λόγος in relation to νοατά
a) This coffee is hot. b) Hot things burn. c) This coffee burns.	a) All men are animals. b) All animals are mortal. c) All men are mortal.

While the account related to intelligible objects (λόγος νοητικός) deals exclusively with universals, the account related to perceptible objects (λόγος αἰσθητικός) deals with *both* universals and particulars. Indeed, in order to perform an inference when studying a perceptible object, and, so to say, to pass from premise a) to the conclusion c), we must supply a universal premise, such as “hot things burn”. On the one hand, this accounts for the need of only one premise related to individual objects for inferential reasoning to be activated; on the other hand, this also tells us that in order for us to provide an account (λόγος) of something which is perceptible, the νοός must itself also be activated, so that we can obtain a meaningful understanding of the perceptible object in question. Hence, in both the cases of the intelligible and the perceptible accounts, which, when taken together, are assumed to exhaust the study of all objects in existence (τὰ ἐόντα), νοός is required in order for us to make *any* epistemic claim whatsoever (whether dealing with αἰσθατά or νοατά). In the first case, sense-perception needs to test whether the final λόγος still corresponds of the object we are perceiving, and to attest (ἐπιμαρτύρομαι) that this is the case; but in the case of intelligible objects, where an account is sought with reference to something which subsists by necessity (e.g. axiomatic or mathematical proofs), it will be reason (λόγος) that validates the knowledge-acquisition by appeal to specific types of demonstrations.⁴⁸

⁴⁸ Compare here, with M. Bonazzi, “La teoria della conoscenza nel medioplatonismo”, *Rivista di storia della filosofia*, 80 (2), 2015, p. 348-350, the account of the *Anonymous Commentator on the Theaetetus*, II, 11-III, 28 Bastianini-Sedley (13B Boys-Stones; transl. Boys-Stones): “Some Platonists thought that the dialogue [*sc. Theaetetus*] is about the criterion, since it is rich in investigation of this. This is not right. Rather, it is about simple and incomposite knowledge (περὶ ἐπιστήμης...ἀ[πλ.]ῆς καὶ

Given this description of the process of knowledge-acquisition, we can now also test the examples provided. Indeed, they confirm our suppositions about the double applicability of the account (λόγος): in geometry, just as in physics and in politics, the account presented should always be appropriate to the objects it applies to. For this reason, λόγοι that address objects of geometry will become clear according to shapes and numbers, in coherence with the domain they express something about: that is to say, they will obtain in diagrams. Something similar happens for λόγοι that deal with the study of nature and with politics: their manifestation will be expressed in, respectively, natural growth and development, and political actions – as appropriate to the world of nature and of politics. Moreover, even the selection of the domains is significant. If we compare the domains with the different degrees of γνώσις presented at the beginning of the text, we can reasonably relate geometrical λόγοι to objects which are ἐπιστατά, accounts of cause in nature to objects which are αισθατά, and accounts of likelihood in politics to those which are δοξαστά. Indeed, if this identification of the domains is right, geometrical objects belong to the class of ἐπιστατά, which were described as not *immediately* manifest. One explanation for this would be that in order to represent (or to provide a λόγος of) geometrical objects, one needs to *construct* diagrams, like Socrates and Meno’s slave constructing⁴⁹ the square (*Meno*, 82b-84a): prior to drawing the square, it does not as such exist to sense-perception; but once it has been drawn, it is complete and therefore not liable to change or

ἀσ[υ]νθέτου): for this purpose it has to look into the question of the criterion. By ‘criterion’ I mean that through which we judge, as a tool (τὸ [δ]’ οὐ κρίνομεν, ὡς ὄρ[γ]άνου). For we need something by which to judge things: then, as long as this is accurate, the steadfast acceptance of well-made judgments gives us knowledge...Knowledge is right reason bound “by an explanation of the reasoning” [*Men.* 98a] – for we know things when we know what they are, but also why they are (ὅταν μὴ μόνον εἰδῶμεν ὅτι ἐστὶν ἀλλὰ καὶ διὰ τι). But there were those who valued the senses highly because they possess something striking, attributing accuracy to them as well. Because of this, he [*sc.* Plato] is first going to put their supposition to the test; then he will pass on to (μεταβήσεται) right opinion, and after this to right opinion with reason (ἐπὶ δόξαν ὀρθὴν μετὰ λόγου). Then he will cease the investigation – for he would only need to add the bond of explanation for his account of this kind of knowledge to be complete”.

⁴⁹ It would appear that Socrates draws it, because he describes his act with ἐπιδείξωμαι (*Men.*, 82b 2); similarly, when he pursues the demonstration, he adds diagonals with ἀναγραφόμεθα (*ibid.*, 83b 1).

alteration (ἀκίνητον).⁵⁰ By contrast, both the objects of nature and civic affairs would belong to that class of objects which are liable to change or alteration (τὰ κινεόμενα); but while objects of nature are αἰσθητά because they are immediately manifest to the cognitive faculty to which they belong (i.e. sense-perception), political affairs would correspond to those objects which are *not* immediately manifest to our cognitive faculties and, therefore, can only be opinable. Moreover, as the λόγοι are always homogeneous to the objects they address, the same epistemic status granted to the objects grasped will be likewise granted to their accounts. Lastly, the examples also tell us something about the purpose of accounts in relation to different kinds of objects, and about their limitations as well. From the description presented, the study of nature (φυσιολογία) would pursue natural causes (αἰτίαι), while the study of politics (πολιτική) concerns itself with likelihoods (εἰκότα), presumably in political oratory. Interesting too in the case of geometricals is the choice of the word ψευδογραφίαι, which does obviously bear any negative meaning, but is only meant to express the ‘artificiality’ of diagrams – it does not seem to cast doubt on the truth of sense perception of perceptible objects, but rather it explains the ontological status of their graphic representation.

As it is noticeable from the examples analysed so far, the only domain which is not exemplified is that of νοατά: are these to be identified with Forms, or genera and species, or numbers, or proportions, or perfect geometricals, or all/some of the above, or something else? One answer might be inferred from what ps-Archytas says about mechanics, in a passage that occurs after the explanation of the process of recognition of the double λόγος. Indeed, the science of mechanics, whose application and products concern perceptible bodies directly, but whose laws and rules employ mathematical and geometrical terms, might be thought to be emblematic of the account that must appeal to both intelligibles and sense-perceptibles.⁵¹ Indeed, in

⁵⁰ To be sure, the square might exist as such in our thoughts, but ps-Archytas would appear to concern himself mostly with whether it, *qua* geometric object, is grasped by our sense-perceptive faculties. See below about how little ps-Archytas says about intelligibles.

⁵¹ This middle status of mechanics (as well as of optics and harmony) is highlighted by Aristotle as well in the *Posterior Analytics*. Indeed, at *APo*, I, 9, 76a 24, mechanics is listed as one of the exceptions to the impossibility of applying a demonstration to a different genus, since geometrical proofs actually apply to the propositions of mechanics (or optics). In the same book, another passage (*ibid.*, I, 13, 78b 37-79a 7) is particularly interesting in relation to the next section of ps-Archytas’ text as it confirms the choice of

mechanics, accounts, on the one hand, are grounded in intelligibles because they are exemplified by reference to (ideal) figures, numbers and proportions; whereas, on the other hand, its finished products (e.g. machines) can only be evaluated in reference to objects of sense perception, which are subject to motion and enmattered.

2.4. *Body and Soul: Different Domains and Different Objects*

Astonishingly, everything discussed above only refers to the first fragment of ps-Archytas' *On Intellect and Sense-Perception*. From here forward, we will discuss the much longer second fragment, which tends to be less compressed than the first fragment and consequently causes less consternation for interpreters. Initially, we see ps-Archytas place his epistemological theory in a broader relation to his physics and metaphysics:

Sense-perception comes to be (γίγνεται) in the body, but intellect [comes to be] in the soul. For the former is (ὑπάρχει) a principle (ἀρχή) of perceptible things, and the latter of intelligible things. For a measure (μέτρον) of plurality is number, of length a foot, of weight and its distribution a balance, of uprightness and straightness a level and a ruler, respectively – an upright joiner's square (ὀρθὰ γωνία).⁵² In the same way, too, sensation is a measure of sensible things, whereas intellect is a principle and measure of intelligible things. And intellect is a principle of intelligible things and of things that are primary by nature (φύσει πρώτα), whereas sense-perception is [a principle] of things near us.⁵³ For the former is a principle of the soul, whereas the latter is [a principle] of the body. And the intellect is judge of the most honourable things (τῶν τιμιατάτων κριτάς), whereas sense-perception [is judge of] the things that are of the greatest use to us (χρησιμωτάτων). For perception is constituted for the sake of the body and for servicing it (ἐνεκε λειτουργίας), whereas intellect is

mechanics by the fact that it exemplifies a middle position which is in contact with both the intelligible and the sensible realms.

⁵² It must be noted that the examples provided are precisely those that appear, in the same order, in Ptolemy's *On the Criterion and Hegemonikon* (1, 5). But unlike ps-Archytas, Ptolemy provides a complete description of each of the five items required for a cognitive judgment (i.e. the object of judgment (τὸ κρινόμενον), the instrument by which it is judged (τὸ δι' οὗ κρίνεται), the agent of judgement (τὸ κρίνον), the means by which it is judged (τὸ ὧ κρίνεται), and the goal at which the judgement is directed (οὗ ἐνεκεν ἢ κρισις)) in relation to a set of five items required for a judgment in a lawcourt.

⁵³ There is a lacuna here, and the text, αἰσθασίς ἀμῖν, is ungrammatical. Usener added <δευτέρων τε φύσι καὶ τῶν παρ'>, whereas Thesleff (followed by Ulacco, *Pseudopythagorica Dorica*) simplified to <τῶν παρ'>. The latter is to be preferred.

constituted for the sake of the soul and its sagacity (πολυφραδμοσύνας).⁵⁴ Moreover, the intellect is a principle of knowledge (ἐπιστήμη), and sense-perception of opinion (δόξα); for the latter [*sc.* opinion] obtains its actuality (ἐνέργεια) from the sensibles, and the former [*sc.* knowledge] [obtains its actuality] from the intelligibles. Among things,⁵⁵ perceptibles happen to share of (τυγχάνοντι κοινανέοντα) motion and alteration, whereas intelligibles [happen to share of] rest and eternity. (ps-Archytas, *On Intellect and Sense-Perception*, Fr. 2, p. 37, 15-38, 1 Thesleff = Stob., *Ecl.*, I, 48, 6, p. 315, 3-316, 2 Wachsmuth)

This section does not provide us with especially crucial information about the process of knowledge-acquisition, but rather it serves to contextualise intellect and sense-perception in relation to the soul and the body. Nonetheless, it helps to clarify some details. Intellect and sense perception are now asserted to be principles, respectively, of intelligible things and of perceptible things.⁵⁶ The examples of units of measurement help us to understand what this means; just as number is measure (μέτρον) of plurality, foot of length, etc., so too sense-perception is measure of perceptible things and intellect of intelligible ones. This is perfectly consistent with what ps-Archytas had said in Fragment 1 when he asserted that the intellect is the criterion (κριτήριον), or standard, for intellectual objects (and similarly for sense-perception and its objects). Being correlate with the objects they measure, the two faculties are established in relation to their respective objects: intelligible things are primary by nature, the most honourable, and they partake in rest and eternity; on the contrary, perceptible things are closer to us, of greater use, and they partake in motion and alteration. Up to this point, this seems perfectly in line with a typical Platonic or Platonist two-worlds scheme. But there is a more *active* way in which intellect and sense-perception engage with their respective objects: first, they are considered *judges* (κριται; cf. τὸ κρίνον in fragment 1) of their respective objects; and second, they are asserted to be also principles, respectively, of the soul and of the body, and, accordingly, of knowledge and opinion. This would appear to be an extension of the way in which they were considered criteria previously. Sense-perception helps

⁵⁴ This is a very rare word that shows ps-Archytas' sometime penchant for poeticism (cf. Ulacco, *ibid.*, p. 130). Ulacco renders 'avvedutezza', or 'foresight'; an alternative might be something like 'oversight'.

⁵⁵ If this is how to take τῶν πραγμάτων.

⁵⁶ The verb 'is' here, ὑπάρχει, might be thought to indicate a substantial or persistent relationship here.

us to grasp them by appeal to itself as criterion or standard of judgment. In this way, it can be considered a principle and judge of corporeal objects, as it serves and guides us in forming standardized judgements about things which are of the greatest use to our bodies. Also, by being the criterion for the measurement of perceptible things, it is also the principle of the degree of knowledge which corresponds to perceptible objects, namely opinion (δόξα).⁵⁷ The same can be said for intellect in relation to intelligible objects, and for the benefit of the soul: by virtue of being the principle of intelligible objects, the intellect is also the principle of knowledge (ἐπιστήμη). In each case, the ‘actuality’ or ‘operation’ (ἐνέργεια) of the degree of knowledge corresponds specifically to its proper objects.⁵⁸

2.5. *The Quadripartite Division of Knowledge*

This constellation of notions of judgment and the degrees of knowledge mentioned above leads ps-Archytas to ruminate a bit more on the precise relationship between intellect and sense-perception:

Both sense-perception and intellect are analogous (παραπλησίως ἔχοντι)⁵⁹ [to one another]: for sense-perception is of what is perceived, and what is perceived is both put into motion and alters, and it never stays at rest in the same place; therefore, [what is perceived] *becomes* more and less, better and worse, to the eye.⁶⁰ But intellect is of the intelligible, and the intelligible is essentially (ἐξ οὐσίας) unmoved; therefore, the intelligible *is* neither more nor less, better nor worse, to the mind.⁶¹ Just as the intellect beholds (βλέπει) what is primary, i.e. the paradigm, so sense-perception [beholds] what is secondary, i.e. the image. For the intellect [beholds] the heaven absolutely, whereas sense-perception [beholds] the sphere of the sun, and the

⁵⁷ We will soon learn how this association relates to Plato’s Divided Line in the *Republic*. See below.

⁵⁸ Contrast Ptolemy (*On the Kriterion and Hegemonikon*, 8, 3), who claims that the intellect receives sense-perceptions from the sensory faculty and ‘applies’ (ἐπισυνάπτει) them to the operations of thought and judgment.

⁵⁹ This formulation of analogy is distinctive and appears later on in this text (see below) and in the fragment of ps-Brontinus’ *On Intellect and Discursive Thought* (p. 55, 22-29 Thesleff), where it is used to compare intelligibles and objects of discursive thought (τὰ διανοητά).

⁶⁰ Literally, “more and less, better and worse, to see” (ὄρῃν). Ulacco, *Pseudopythagorica Dorica*, p. 105, opts for “è possibile vederlo diventare...”, but this does not faithfully represent the Greek, which has γίνεταί ὄρῃν. The infinitive should be rendered as an infinitive of purpose (see H. W. Smyth, *Greek Grammar*, Cambridge, MA, Harvard University Press, 1956, 2008-2010).

⁶¹ Literally, “more nor less, better nor worse, to think” (νοεῖν). See the previous note.

[spheres? works?] of the craftsmen (τὰς χειροτεχνατῶν). (ps-Archytas, *On Intellect and Sense-Perception*, Fr. 2, p. 38, 1-9 Thesleff = Stob., *Ecl.*, I, 48, 6, p. 316, 2-13 Wachsmuth)

From this passage forward, ps-Archytas becomes more explicit in his Platonic borrowings.⁶² He has consistently maintained that the objects of intellect and sense-perception are different, and here he explains further what it is that each faculty ‘beholds’ (βλέπει) or ‘looks to’: the intellect sees the paradigm or what remains the same, an example of which is the heavens themselves (i.e. the heavens as a unified and consistent system that retains its identity); and the sense-perceptive faculty beholds the images or copies of that celestial sphere, examples of which are the solar circuit and, one might infer from the text, the handiworks of craftsmen (τὰς χειροτεχνατῶν). It is unclear whether these handiworks are something like the mortal body parts, e.g. heads and eyes, that the gods, who themselves imitate the Demiurge’s activities, create in the account of *Timaeus* (44d-45b) as imitations of the perfect shape of the cosmos, or whether they are the actual objects that craftsmen make, e.g. tables, which are imitations of the Form of Table (although we are inclined to the former interpretation).

And what is more, the intellect is partless and indivisible (ἀμερῆς καὶ ἀδιαίρετος), just like a unit or a point, and similarly (παραπλησίως) the intelligible – for the Form (τὸ εἶδος) is neither a limit nor a boundary of the body (οὔτε πέρασ σώματός ἐστιν οὔτε ὄρος), but only an imprint of being, insofar as it is existent⁶³ (τύπωσις τῷ ὄντος, ἢ ὄν ἐστιν), whereas sense-perception is partitive and divisible. For among the things that are, some are perceptible, others opinable, others knowable, and others intelligible. And bodies, which feature a certain resistance (ἀντιτυπία), are perceptible; those things which share of Forms (τὰ μετέχοντα τῶν εἰδέων), like images, are opinable, for

⁶² Cf. Ulacco, *Pseudopythagorica Dorica*, p. 131-132.

⁶³ This is a very challenging phrase, which has the tenor of a definition of Form for the Hellenistic Pythagoreans, to interpret. Ulacco, *ibid.*, p. 105, opts for “in quanto è ciò che è” or “insofar as it is what is”. Centrone, “The pseudo-Pythagorean Writings”, p. 325, describes Form here as ‘an ‘impression/imprinting’ (τύπωσις) of things *qua* things-that-are’, but one problem with this interpretation is that in the phrase ἢ ὄν ἐστιν, whatever the subject of the adjective ὄν is, it is singular and not plural. Our interpretation takes the phrase ὄν ἐστιν periphrastically, with the grammatically unnecessary ἐστιν as emphatic (see Smyth, *Greek Grammar*, 1857). This definition is, to our knowledge, unique within the Pythagorean tradition. Compare Aëtius’ account of Pythagoras’ understanding of forms and ideas (*Plac.*, I, 10, 11, *Dox.* 309): “Pythagoras posited that things called ‘forms’ and the ideas (τὰ λέγομενα εἶδη καὶ τὰς ιδέας) in numbers, in their harmonies, and in so-called geometrical objects, are inseparable from bodies (ἀχώριστα τῶν σωμάτων)”.

example a particular man [shares of the Form] of man, and a particular triangle [shares in the Form] of triangle; those things which are by necessity (τὰ συμβεβήκοτα ἐξ ἀνάγκης) accidental to the Forms are knowable, e.g., those things which [are by necessity accidental] to shapes in geometry; and those things which are the Forms-themselves and the principles (αὐτὰ τὰ εἶδεα καὶ αἱ ἀρχαί) of knowable things are intelligible, e.g., the Circle-itself, the Triangle-itself, and the Sphere-itself. Moreover, in our very selves, with reference to the soul, there happen to be four types of understanding (γνώσεις): intellect, knowledge, opinion, sense-perception. Two of these are principles of λόγος, viz. intellect and sense-perception, whereas two are [its] ends, viz. knowledge and opinion. What is similar is always able to understand what it is similar to (τὸ δ' ὅμοιον αἰεὶ τῷ ὁμοίῳ γνωστικόν). Therefore,⁶⁴ it is clear that, in our very selves, the intellect is what is able to understand the intelligibles, just as knowledge [is what is able to understand] knowables, opinion opinables, and sense-perception perceptibles. (ps-Archytas, *On Intellect and Sense-Perception*, Fr. 2, p. 38, 9-24 Thesleff = Stob., *Ecl.*, I, 48, 6, p. 316, 13-317, 13 Wachsmuth)

Here, ps-Archytas provides a fascinating discussion of how to conceptualize intellect and sense-perception and their respective objects. Intellect is indivisible and does not feature parts, ‘just like’ (καθάπερ) a unit and a point, a sentiment that cannot, to our knowledge, be traced directly back to any of Plato’s works.⁶⁵ Instead, the ideas expressed here would appear to have originated in the writings of Aristotle. In *On the Soul*, Aristotle himself refers to his lost dialogue *On Philosophy*, where he ascribes a peculiar epistemological view to Plato and his school:

In the same way, Plato too in the *Timaeus* fashions the soul out of the elements; for [he holds that] what is similar is understood by what it is similar to (γινώσκεισθαι τῷ ὁμοίῳ τὸ ὅμοιον), and that things exist out of the elements. A similar division is expounded too in the dialogue *On Philosophy*: the Animal-itself [is fashioned] out of the Idea-itself of the One and of the primary length, width, and depth (αὐτὸ τὸ ζῷον ἐξ αὐτῆς τῆς τοῦ ἐνὸς ιδέας καὶ τοῦ πρώτου μήκους καὶ πλάτους καὶ βάρους), and everything else in a similar way. Moreover, and in different terms: the One is intellect, the Dyad is knowledge (for it [strives] in a single direction for unity (μοναχῶς γὰρ ἐφ’ ἑν), the number of the plane is opinion, and the number of the solid

⁶⁴ This is the beginning of the section quoted by Iamblichus (*Comm. Math.*, 8, p. 36, 3-10 Festa-Klein).

⁶⁵ In *Metaphysics* Δ (6, 1016b 20-26), while attempting to define the One according to its essence, Aristotle asserts that it is a principle of the understandability (ἀρχὴ τοῦ γνωστοῦ) for each thing. It is at this point that Aristotle describes the kind of One “which is indivisible in quantity and *qua* quantity” as the unit and the point. They both share in being indivisible in any direction or dimension, but they are differentiated only by position: the unit does not have position, whereas the point does. This sort of distinction might be thought to underlie what ps-Archytas is saying.

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is sense-perception. The numbers were called the “Forms-themselves” and the “principles”, and they [are fashioned] out of the elements; and things are judged (κρίνεται) some by the intellect, others by knowledge, others by opinion, and others by sense-perception. And these numbers are Forms of things. (Aristotle, *On the Soul*, I, 2, 404b 16-27; emphasis our own)

Here, ps-Archytas seems to be adapting what he found in Aristotle’s lost *On Philosophy*, but in the near total loss of that work, it is almost impossible to know what exactly the modifications are.⁶⁶ Be that as it may, it is clear that both ps-Archytas and the Platonist account of Aristotle from *On Philosophy* commit to a four-fold division of beings (τὰ ἐόντα), familiar from Aëtius’ description of Pythagorean epistemology above, according to their knowability within ourselves, with ps-Archytas’ account pursuing these lines:

<i>Faculty</i>	<i>Epistemic Functions</i>	<i>Objects</i>	<i>Ontological Classifications</i>	<i>Examples</i>
Intellect (νόος)	Principle (ἀρχή)	Intelligibles (τὰ νοατά)	Forms/(Ultimate) Principles (αὐτὰ τὰ εἶδεα καὶ αἱ ἀρχαί)	Man-itself, Triangle-itself, Circle-itself, Sphere-itself
Knowledge (ἐπιστάμια)	End (τέλος)	Knowables (τὰ ἐπιστατά)	Necessary Accidents (τὰ τοῖς εἶδεσι συμβεβηκότα ἐξ ἀνάγκας)	Accidents to Geometrical Shapes
Opinion (δόξα)	End (τέλος)	Opinables (τὰ δοξαστά)	Particulars (τὰ μετέχοντα τῶν εἰδέων ὡς αἱ εἰκόνες)	Particular Man, Particular Triangle
Sense-Perception (αἰσθασίς)	Principle (ἀρχή)	Perceptibles (τὰ αἰσθατά)	Bodies/[Immediate] Principles (τὰ σώματα)	(none specified)

⁶⁶ This is not the place to discuss whether the ideas expressed here reflect the philosophical views of Plato or one of his students (cf. Ulacco, *Pseudopythagorica Dorica*, p. 145-146); it is also not the place to discuss the extent to which ps-Archytas borrowed from Aristotle’s *On Philosophy*, although this comparison alone demonstrates the potential for such an analysis. We have underlined the passages that show strong similarities.

What is interesting here for our purposes is the relationship between the ontological classification of the objects and the examples given (or implied). Intelligibles, which function as ultimate principles for knowledge, are understood to be Forms that are not expressly subject to any kind of motion or division, and examples given are Form-mathematicals (e.g. Circle-itself) and genera (e.g. Man-itself); knowables, which are the ends of intellectual activity, are accidents that obtain necessarily to geometrical shapes – one thinks ps-Archytas is referring to properties that are necessary for identifying an object, such as the property of “having the sum of its angles equal to two right angles”, in the case of a triangle;⁶⁷ opinables, which are the ends of sense-perceptive activity, are particulars like “this man Socrates” or “this triangle here”; and perceptibles, which are the principles of the formation of opinions, are individual bodies which feature extension and articulation, but perhaps haven’t yet been assigned in any way to a category (i.e. they haven’t obtained any content as such).

What, we might ask, is the relationship between these objects of knowledge? How do the epistemic functions relate to the knowledge-process? These questions are addressed at the coda to this section:

Therefore, it is necessary for thought (*διάνοια*) to pass (*μεταβαίνειν*) from perceptibles to opinables, from opinables to knowables, and from these to intelligibles. The truth (*ἡ ἀλάθεια*), once it has been contemplated (*θεωρουμένα*) through them, make these things consonant (*σὺμφωνά*). (ps-Archytas, *On Intellect and Sense-Perception*, Fr. 2, p. 38, 24-39, 3 Thesleff = Iambl., *On the General Mathematical Science*, 8, p. 36, 10-14 Festa-Klein)

Ps-Archytas concludes this section by describing, for the first time in his treatise, the vehicle by which the four cognitive faculties are able to communicate: this is ‘thought’, or perhaps ‘discursive thought’ (*διάνοια*). The communication implied by *διάνοια* is a sort of inferential analysis upwards (*μεταβαίνειν*) through the various levels of understanding.⁶⁸ There

⁶⁷ Cf. Ulacco, *Pseudopythagorica Dorica*, p. 143, who refers to a passage of Aristotle (*Metaph.*, V, 30, 1025a 30-34) where he describes a type of accident (*συμβεβηκός*) “that belongs to each thing in itself (*καθ’ αὐτό*), but not in its essence (*ἐν τῇ οὐσίᾳ*)”, which can be eternal.

⁶⁸ To be clear, we believe that this process moves upwards from the ontological point of view, but it need not have any vertical component in reference to epistemology. In general, compare with Philo, *On Dreams*, I, 185-187 (= 13J Boys-Stones; transl. Boys-Stones): “The intelligible cosmos, constituted by the forms within his agent by God’s patronage, can only be grasped by inference from this perceptible and visible cosmos: one cannot get an

is no explicit reference to ‘imagination’ (φαντασία), which is remarkable given the contexts for Hellenistic psychology and possible models for ps-Archytas’ text within the Pythagorean tradition.⁶⁹ Unfortunately, with regard to ‘truth’, it is difficult to know what ps-Archytas is saying here, especially since the text is not secure.⁷⁰ The activity of a synoptic contemplation of the truth of the statements that inform the λόγοι, which takes the form of assessing their validity and soundness, is what harmonizes the statements with reality. We are reminded of another text of ps-Archytas, *On Wisdom*, which concludes with a similar sentiment:

Therefore, whoever is able to reduce (ἀναλύσαι) all the genera under one and the same principle and, again, synthesize and calculate (συνθεῖναι τε καὶ συναριθμήσασθαι) them, he seems to me to be the wisest and absolutely truest (σοφώτατος καὶ παναληθέστατος). And yet he will also discover a good lookout position, from which he will be able to behold (κατοψείσθαι) god and all things that have been assigned to his column and order; and furnishing himself with this charioteer’s path, he will set out and arrive at the end of the course, connecting the beginnings with the conclusions (τὰς ἀρχὰς τοῖς πέρασι συνάψαντα), and finding out why (ἐπιγνόντα διότι) god is the beginning, end, and middle of all things-that-are defined in accordance with justice and right reason. (ps-Archytas, *On Wisdom*, Fr. 5, p. 44, 31-45, 4 Thesleff)

Once ps-Archytas’ “wisest and absolutely truest” philosopher reaches the ecstatic heights of epoptic vision, he understands not only the validity of the connections drawn between the initial premises and final conclusions; he also understands *why* (διότι) the beginning, end, and middle parts of the true syllogism are divine.⁷¹

intellectual grasp of any of the incorporeal things that exist except by taking one’s start from bodies”. On δῆλον in Plato and Aristotle, see, inter alia, M. Duncombe, “Thought as Internal Speech in Plato and Aristotle”, *Logical Analysis and History of Philosophy*, 19, 2016, p. 105-125.

⁶⁹ Φαντασία only appears once in the writings of ps-Archytas (*On the Good and Happy Man*, Fr. 8, p. 12, 16 Thesleff), where it refers to arrogant musicians who, abandoning the truth, seek to control people who are inexperienced in music through their “certain false fantasy” (φαντασία τινὶ ψευδεῖ). Hence, φαντασία would not appear to play any significant role in ps-Archytas’ epistemology. Contrast *Anonymus Photii* (p. 241, 1 Thesleff), who described φαντασία as one of the eight instruments of understanding, which he defined as “motion in the soul” (see n. 20 above).

⁷⁰ We adopt Thesleff’s conjecture (ποιεῖ ἅ θεωρουμένα) for the Mss. ποιητὰ θεωρουμένα.

⁷¹ On this fragment, see Horky, “Pseudo-Archytas’ Protrepitics?”, p. 36-39.

2.6. *Ps-Archytas' Divided Line*

The treatise as it survives closes with a reflection upon Plato's Divided Line (*Resp.*, VI, 509d 6-511e 5). This passage is notable in terms of its reception of Plato and its relationship to other Middle Platonist interpretations:

After these things have been differentiated, it is necessary to consider (νοῆσαι) the following. For as one divides a line by cutting it into, and once again those equal sections by cutting them [into two] according to the same proportion (ἀνά τὸν αὐτὸν λόγον), so too must one divide the intelligible as against the visible (ποττὸ ὄρατόν), and again differentiate each [section] in the same way, and [it is necessary] to distinguish them from one another according to clarity and obscurity. In the same way, then, one section of the perceptible is those things that are images [reflected] in water and in mirrors, and the other part is those things of which the former things are images: plants and animals. One [part] of the intelligible, which is analogous to the images, is the kinds that concern mathematics (τὰ περὶ τὰ μαθήματα γένη); for those who concern themselves with geometry, when they hypothesize the even and the odd, figures, and three species of angles, work out the rest from these, and leave aside the [real] things (τὰ πράγματα ἕωντι), as if they know them (ὡς εἰδότες), and they are not able to give an account [of the real things] either to themselves or to others. But they employ perceptibles, like an image, and they do not pursue these [real] things, nor yet do they construct their arguments for their sake, but as to the diagonal and the square itself (τὰς διαμέτρῳ χάριν καὶ αὐτῷ τετραγώνῳ). The other section of the intelligible is the [part] that dialectic is concerned with; for this [assumes] real hypotheses [to be] hypotheses, but it posits principles and steps⁷² in order that it might advance in the direction of the principle of everything as far as what is unhypothesized; and again, once this has been attained, it goes back down to the conclusion without employing any perceptible additionally, but [only] the Forms themselves in themselves. In the case of these four sections, it is also good to distribute the affections of the soul; and it is good to call "intellection" (νόησις) what is at the highest [part], "thought" (διάνοια) what is at the second [part]; "belief" (πίστις) what is at the third [part], and "illusion" (εἰκασία) what is at the fourth [part]. (ps-Archytas, *On Intellect and Sense-Perception*, Fr. 2, p. 39, 3-25 Thesleff = Iambl., *On the General Mathematical Science*, 8, p. 36, 14-37, 19 Festa-Klein)

⁷² There are various textual problems here. The Mss. read *αὐτὰ γὰρ τῶ ὄντι τὰς ὑποθέσεις ἀλλ' ὑποθέσεις, ἀλλ' ἀρχὰς τε καὶ ἐπιβάσεις ποιῆται*. Most editors excise the first *ἀλλ'*, but this doesn't solve the problem of ps-Archytas advocating for 'principles' to lead up to the 'principle of everything'. Plato's original text (*Resp.*, VI, 511b 5-6) had *τὰς ὑποθέσεις ποιούμενος οὐκ ἀρχὰς ἀλλὰ τῶ ὄντι ὑποθέσεις, οἷον ἐπιβάσεις τε καὶ ὀρμάς* ("positing hypotheses that are not principles, but true hypotheses, like steps and positions to start from"), and we might imagine that something along these lines was intended in ps-Archytas' text.

As Ulacco has suggested, this passage presents a synthesis of Plato's text, albeit with some minor modifications of terminology; it is actually quite remarkable how many exact or near-exact phrases ps-Archytas retains. So we might think this passage constitutes a mere epitome. Still, there are two things that make ps-Archytas' Divided Line interesting. Firstly, it is remarkable that ps-Archytas shows approval of Plato's own terminology of νόησις, διάνοια, πίστις, and εἰκασία at the end of the passage – as though the author here were the original Archytas of Tarentum giving his blessing to Plato! Secondly, the fact that ps-Archytas follows the text of Plato so closely comes into conflict with what he has asserted previously in the treatise. For ps-Archytas diverges from Plato's Divided Line in holding, as we saw above, that διάνοια passes throughout the entire range of cognitive faculties and objects – from perceptibles through opinables and knowables to intelligibles (Plato of course held in the Divided Line that διάνοια is to be associated with the second, geometrical, portion of the intelligible).⁷³ Indeed, it is διάνοια that presents ps-Archytas and some Middle Platonists with some of the greatest interpretive challenges.⁷⁴ Consider the only surviving fragment of ps-Brontinus' *On Intellect and Discursive Thought*:

Discursive thought (διάνοια) is greater (μείζον)⁷⁵ than intellect, and the object of discursive thought [is greater than] the intelligible: for intellect is what is simple, uncombined, and the primary subject and object of intellection (τὸ πρῶτον νοέον καὶ τὸ νοεόμενον) (and the Form is of this sort; for it is partless and uncombined and primary among the other things), but discursive thought is manifold, partitive, and the secondary subject of intellection (for it additionally takes on knowledge and reasoning (ἐπιστάμαν γὰρ καὶ λόγον προσεληφε)). And, similarly, with the objects of discursive thought: for these are things known and demonstrated, and generally things that are comprehended by the intellect through reasoning (τὰ καθόλου τὰ ὑπὸ τῷ νόῳ διὰ τῷ λόγῳ καταλαμβανόμενα). (ps-Brontinus, *On Intellect and Discursive Thought*, Fr. 1, p. 55, 22-29 Thesleff = Iambl., *On the General Mathematical Science*, 8, p. 34, 21-35, 6 Festa-Klein)

In some ways, ps-Brontinus presents a middle road between Plato's Divided Line and ps-Archytas' quadripartition of knowledge: like ps-Archytas, he accepts that intelligibles like Forms are partless and generally

⁷³ Plat., *Resp.*, VI, 511d 2-5.

⁷⁴ Cf. Ulacco's contextualization of ps-Brontinus with the ideas of Alcinoüs and Plutarch (Ulacco, *Pseudopythagorica Dorica*, p. 162-164).

⁷⁵ Iamblichus (*Comm. Math.*, 8, p. 35, 7) interprets this to mean greater 'in quantity' (τῷ πλήθει) rather than 'in power' (τῇ δυνάμει).

indivisible; but like Plato, he associates *διάνοια* with the secondary objects, which ps-Archytas considers ‘knowables’ (*τὰ ἐπιστατά*). Ps-Brontinus even makes sure to associate *διάνοια* with the two activities that, broadly speaking, characterize ps-Archytas’ knowables: reasoning (*λόγος*) and demonstration (*ἀπόδειξις*). Finally, like ps-Archytas, ps-Brontinus asserts a close relationship between primary and secondary objects: ps-Archytas holds that intelligibles actualize knowledge and functions as their principles, and ps-Brontinus that objects of discursive thought are grasped (*καταλαμβάνόμενα*) by the intellect when reasoning intercedes. We might wish to recall, however, that ps-Archytas strictly forbade the possibility of the intellect itself understanding knowables, due to his strict distribution of faculties to their respective domains. Whether or not ps-Brontinus would disagree with this depends on what exactly ps-Brontinus means when he speaks of *τὰ ὑπὸ τῷ νόῳ διὰ τῷ λόγῳ καταλαμβάνόμενα* – the text is too brief to be sure.⁷⁶ But we will see that its presence here did not escape the notice of Aëtius, to whom we turn in the conclusion.

3. Conclusions

If we return to Aëtius’ description of Pythagorean epistemology mentioned in the introduction to this paper, we can now see more clearly how the doxographical report has interpreted the text of ps-Archytas (assuming that the transmission of influence goes from the more complex and nuanced text of ps-Archytas to the simpler doxographical report). Aëtius takes the fourfold division of faculties/beings and filters it through the typical lens of Hellenistic philosophy, with ps-Archytas’ quadrivium

⁷⁶ The closest comparison we can find to these passages is in Philo (*The Special Laws*, I, 46-49), where God responds to Moses by asserting that His powers/qualities and essence cannot be comprehended (*ἀκατάληπτοι*) by humans – neither by sense-perception nor by mind – although they present “a certain impress and copy of their activity” (*ἐκμαγεῖόν τι καὶ ἀπειόνισμα τῆς ἑαυτῶν ἐνεργείας*). He goes on to name “some” humans who “name these “ideas” since they bring form to everything that exist, put into order everything that is disordered, give limit to what is unlimited, definition to what lacks definition, and shape to what is shapeless”. He concludes this fascinating passage by claiming that the spectacle of the universe is “comprehended not by the eyes of the body but by the unresting eyes of thought” (*οὐ σώματος ὀφθαλμοῖς ἀλλὰ τοῖς διανοίας ἀκοιμητοῖς ὄμμασι καταλαμβάνεσθαι*).

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of intellect (νόος), knowledge (ἐπιστάμα), opinion (δόξα), and sense-perception (αἴσθησις) being classified accordingly:

<i>Faculty</i>	<i>Epistemic Activities</i>	<i>Materials it Works With</i>	<i>Examples</i>
Intellect (νοῦς), or 'Monad' (ἡ μονάς)	Contemplation in respect of unit (κατὰ μονάδα θεωρεῖ)	Forms and Kinds in respect of units (τὰ εἶδη καὶ γένη κατὰ μονάδας)	Qualified Forms/Kinds, e.g. 'rational Man-itself'
Knowledge (ἐπιστήμη), or 'Indefinite Dyad' (ἡ δυὰς ἀόριστος)	'Comprehension' (κατάληψις), i.e. bring to conclusion (συνάγει) syllogisms	Demonstrations and proofs (ἀποδείξεις καὶ πίστεις)	None given
Opinion (δόξα), or 'Triad' (ἡ τριάς)	Unclear ⁷⁷	'Many' (πλήθος) qualified particulars	'Thrice-Blessed Danaans'
*Sense-Perception (αἴσθησις)	*Unknown	*Unknown	*Unknown

What emerges by way of comparison with ps-Archytas' *On Intellect and Sense-Perception* is that Aëtius has added crucial information not found in the original text. With regard to all four faculties, he assigns a numerological title ('Monad' for intellect, 'Indefinite Dyad' for knowledge, etc.) which helps to explain each faculty's epistemic activities: intellect contemplates Forms or Kinds with an eye to unity, whereas knowledge takes two contradictory views and adjudicates between them by moving through agreed premises to a conclusion – by moving from disagreement to agreement. For Aëtius, intellect still deals with Forms and Kinds, and it also admits essential qualities that identify each kind, e.g. 'rational' Man-itself; but notice how mathematical Forms have dropped out entirely for intellect, and the essential qualities of mathematical objects for knowledge.⁷⁸ The

⁷⁷ Aëtius claims that it is by virtue of opinion's being 'many' (πλήθος) that it is a triad, and that it arises 'out of comprehension' (ἐκ κατάληψεως), but he does not explain exactly how these are meant to relate to one another.

⁷⁸ To be sure, these omissions could be explained by the abbreviated presentation of the doxography.

other very notable presence is the notion of ‘comprehension’ (κατάληψις), which is associated with knowledge/the Indefinite Dyad and would appear to be the basis for opinion, but which never appears, in any form, in the fragments of ps-Archytas. But we will recall that it does appear at the end of the fragment of ps-Brontinus’ *On Intellect and Discursive Thought*, where ps-Brontinus claims that διάνοια pursues “things that are comprehended by the intellect through reasoning” (τὰ ὑπὸ τῷ νόῳ διὰ τῷ λόγῳ καταλαμβανόμενα). Remarkably, either Aëtius has sought to arbitrarily associate ps-Archytas’ ἐπιστάμα with (a broadly) Hellenistic⁷⁹ κατάληψις, or, as we believe, he has combined the accounts of ps-Archytas’ ἐπιστάμα and ps-Brontinus’ διάνοια into a single ‘Pythagorean’ synthesis, a unified theory of Pythagorean epistemology that, unsurprisingly, is associated with “Pythagoras of Samos, son of Mnesarchus” (Aët., *Plac.*, I, 3, 8, *Dox.* 280). By comparing Aëtius’ doxographical account with the surviving epistemological fragments of ps-Archytas and ps-Brontinus, not only do we see the gradual emergence of a broad Hellenistic/post-Hellenistic Pythagorean epistemology; we also bear witness to the doxographical method employed to make this curious and somewhat original epistemological system ‘Pythagorean’.

We conclude that ps-Archytas offers a complex account of the process of understanding and the cognitive faculties involved in it. By making use of and exploiting Platonic and Aristotelian notions, ps-Archytas develops an account for the acquisition and production of knowledge which goes well beyond the foundations it stands upon by developing its own Pythagorean criteriology. At the beginning of the treatise, ps-Archytas provides us with a presentation of the objects populating this world and classified on the basis of their understandability (either autoevident or non-autoevident). He stipulates that only immediately manifest objects, which can be comprehensively divided into intelligibles and perceptibles, have as criteria for understanding them, respectively, intellect and sense-perception. From the beginning, the treatise reveals that the main concern is not to provide an account of the criterion of the truth, as other Hellenistic schools might have it, but of the criterion of being. The effectiveness of our intellectual and sense-perceptive faculties to transmit truth is never questioned: immediately manifest objects are straightaway evident to their respective

⁷⁹ We do not wish to associate this concept expressly with one school or another. What is clear, however, is that this conceptualization does not in any way reflect the Stoic notion of the ‘kataleptic impression’ (καταληπτική φαντασία).

cognitive faculties and stimulate the process of understanding. What is initially judged by these faculties, and what needs to be verified once again by the faculties at the end of the process is, somewhat surprisingly, the account related to their objects and accomplished by our reasoning. By shifting the discussion away from the philosophical pitfalls that characterise Hellenistic debates, ps-Archytas offers a detailed account of the role that intellect and sense-perception play in constructing accounts related to the objects they evaluate. The text suggests that we should understand the process as two-fold, involving diverse operations in the cases of intelligibles and perceptibles. The acquisition and elaboration of data for understanding is articulated in three steps: first, an initial acquisition of the material performed by sense-perception (obtaining the $\tau\acute{o}$ $\delta\tau\iota$ $\acute{\epsilon}\sigma\tau\iota\nu$, or the $\tau\acute{o}$ $\sigma\upsilon\tau\omega\varsigma$ $\acute{\epsilon}\chi\epsilon\iota$) or the intellect (acquiring the $\tau\iota$ $\acute{\epsilon}\sigma\tau\iota\nu$), respectively; and second, an articulation and determination of this material, authorized by the intellect in both cases, which produces an account of the object in question. When addressing perceptible objects, the account deals with both individuals and universals; when addressing intelligible objects, it deals with universals only. This step of the knowledge-process is fundamental and guarantees the status of each faculty as a criterion of its objects: it makes sure that the account, which is syllogistic, is homogeneous with the objects it addresses, and it constitutes the basis for the production of valid propositional facts (in the case of individual sensible objects), or explanatory reasons for the facts (the $\tau\acute{o}$ $\delta\iota\alpha$ $\tau\iota$). Third, the account is verified, once again, by one of the two faculties: sense-perception tests whether the conclusion is sound, and intellect confirms whether the inferences drawn have been valid.

As principles, these cognitive faculties function as criteria for all objects in existence, but the epistemological system as a whole requires ends as well. This commitment to teleology allows ps-Archytas to associate the intellective and sense-perceptive faculties with principles of the soul and the body, and, consequently, of the ends, knowledge and opinion, respectively. Indeed, on the one hand, our intellective and sense-perceptive faculties guide us by providing us with judgments about things which are useful for our soul or our body; on the other hand, insofar as they work as the criteria for intelligibles and perceptibles, intellect and sense-perception are also principles of the appropriate knowledge for those objects, namely, knowledge and opinion – the end points of the processes. In this way, ps-Archytas successfully adapts the ontological classifications in Plato's Divided

Line by avoiding a rigid dichotomic distinction and allowing for a more continuous conception of the process of knowledge and of their related objects. Far from the initial doxographical account provided by 'Hippolytus', Hellenistic/post-Hellenistic Pythagorean epistemology is revealed to be much less rooted in mysticism and numerology than one might expect. On the contrary, by softening Platonic distinctions through appeal to nuances derived mostly from Aristotelian epistemology, ps-Archytas achieves a more continuous conception of reality which grants *διάνοια* the capacity to range throughout the entirety of understandable objects, thus advancing a coherent epistemological process that recognizes the specific competences of each cognitive faculty.

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GIULIA DE CESARIS
Durham University
giulia.de-cesaris@durham.ac.uk

PHILLIP SIDNEY HORKY
Durham University
phillip.horky@durham.ac.uk