CHAPTER 3

Early Learning in Plato, Republic *7*

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At *Republic* 7 521c–525a Socrates begins his account of the educational programme needed to produce the philosopher rulers necessary for a just and flourishing city. He describes a very early encounter with questions that provoke thoughts about intelligible objects and 'stir up *ennoia*' in the soul. Concepts of number, more specifically some basic concepts such as 'one', 'two', 'a pair', and so on, play an essential role in these very early stages of the ascent towards knowledge of what is, and this accounts for Socrates' decision to place arithmetic at the very beginning of the philosophical curriculum. In Socrates' presentation, initial steps towards thinking about the intelligible through being presented by cases of perceptual conflict rely on a basic prior conception of number and may also lead to further contemplation of the nature of numbers themselves. A close analysis of the passage reveals that the possession of simple concepts of ones and twos are presupposed by those puzzles that provoke that further reflection, including even puzzles about how some particular item can be both one and many.

My interpretation of the passage integrates it into Socrates' overall story of the series of increasingly demanding areas of study by stressing the continuity between the initial and very basic arithmetical concepts and the later more demanding subjects. It suggests that Socrates is prepared to ascribe to everyone, more or less, an acquaintance with some albeit elementary intelligible objects because he insists that a sufficient grasp of certain basic concepts is not only required for simple and everyday tasks such as counting but is also a necessary prerequisite for the very beginnings of philosophical inquiry. That in turn might shed some light on broader debates in Platonic epistemology about the extent to which all

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people – not just those whom Socrates calls philosophers – have some grasp of such intelligible things.

1 'Stirring up *ennoia*'

At 524d8–525a2 Socrates summarises for Glaucon the results of their initial thoughts about the proper education necessary for the generation of the philosophical rulers needed to make a city just.[1] How, he wonders at 521c1–3, are we to lead people up to the light as if from the depths of Hades all the way to the gods? When this section of the dialogue has commanded interpreters' attentions, it has done so principally in connection with more general questions about the *Republic*'s commitments in terms of the range of Forms, the so-called 'Two worlds problem' (if it is indeed a problem), and wider debates about how Plato and the Academy might have gone about arguing for the existence of Forms at all. The passage provokes such questions because of Socrates' distinction between those things that perception presents to us that do 'summon thought' and those that do not.[2] But there are other reasons to be interested in the section which Socrates summarises at 524d8–525a2, in particular because here we are presented with an interesting account of the role of the grasp of the simple mathematical concepts of 'one' and 'two' in the first stages of our cognitive progress towards the grasp of intelligible reality. That aspect of the argument has not, I think, been sufficiently emphasised and it deserves more attention since it contributes to a more nuanced account of the epistemological achievement of non-philosophers.

In order to show that Socrates does indeed ascribe a grasp of at least some concepts of number to people who are as yet entirely innocent of any philosophical education, in the next section I shall work carefully through the argument at 524a5–d5. But let us turn first to Socrates' summary at the end of the passage and use it as a guide to what he thinks has been shown in the previous few pages.

> Reason it out from what was said before. If the one is adequately seen itself by itself or is so perceived by any of the other senses, then, as we were saying in the case of fingers, it wouldn't draw the soul towards being. But if something opposite to it is always seen at the same time, so that nothing is apparently any more one than the opposite of one, then something would

[1] I use Sling's Oxford Classical Text of the *Republic* for line references.

[2] See, for example: Annas 1981: 217–41; Fine 1993, esp. 58–59 and 273 n. 62; Harte 2008: 198–201; Sedley 2013: 119–21.

> be needed to judge the matter. The soul would then be puzzled, would look for an answer, would stir up its understanding (*ennoia*), and would ask what the one itself is. And so this would be among the subjects that lead the soul and turn it around towards the study of that which is.[3] (524d8–525a2)

Socrates thinks he has hit upon something very useful, namely a way in which someone might be provoked to reflect on what really is simply because of a certain kind of perceptual experience stirring up *ennoia* in the soul. This would offer a happy means of beginning with simple perceptual experiences and then moving on to thinking about intelligible objects without any need for additional external intervention. True, some people may need help to realise the puzzle that perception presents to them and therefore might need a provocative interlocutor like the indeterminate 'someone' whose persistent and urgent questioning plays an important role in the prisoner's ascent from the cave (515d4–6). But nevertheless, in principle it is possible for someone to begin thinking about 'what is' exclusively as a result of experiencing certain kinds of perceptual appearances. The talk in this passage about leading the soul in the right direction and turning the soul towards its proper objects of cognition all fits neatly with this part of the dialogue's interest in education in general and, more specifically, the correct method by which the natural faculties and tendencies of a human soul might be harnessed and directed to follow the right path.

Although Socrates has previously offered various examples of puzzling appearances in which one and the same object appears both large and small or both heavy and light or both hard and soft, the specific intelligible object of thought that he chooses to emphasise here is 'the one itself'. We shall see that although it is true that these conflicting perceptions may encourage a soul to reflect on what 'heaviness' or 'largeness' or 'softness' is, it seems that Socrates is particularly interested in drawing a general lesson from all of these instances in which an item appears to have, so to speak, each and both of a pair of opposite perceptual properties, since in all of these cases the soul is provoked to reflect further on the concepts of 'one' and 'two' themselves. And it is this inquiry into what 'the one itself' that

[3] ἀλλ' ἐκ τῶν προειρημένων, ἔφην, ἀναλογίζου. εἰ μὲν γὰρ ἱκανῶς αὐτὸ καθ' αὑτὸ ὁρᾶται ἢ ἄλλῃ τινὶ αἰσθήσει λαμβάνεται τὸ ἕν, οὐκ ἂν ὁλκὸν εἴη ἐπὶ τὴν οὐσίαν, ὥσπερ ἐπὶ τοῦ δακτύλου ἐλέγομεν· εἰ δ' ἀεί τι αὐτῷ ἅμα ὁρᾶται ἐναντίωμα, ὥστε μηδὲν μᾶλλον ἓν ἢ καὶ τοὐναντίον φαίνεσθαι, τοῦ ἐπικρινοῦντος δὴ δέοι ἂν ἤδη καὶ ἀναγκάζοιτ' ἂν ἐν αὐτῷ ψυχὴ ἀπορεῖν καὶ ζητεῖν, κινοῦσα ἐν ἑαυτῇ τὴν ἔννοιαν, καὶ ἀνερωτᾶν τί ποτέ ἐστιν αὐτὸ τὸ ἕν, καὶ οὕτω τῶν ἀγωγῶν ἂν εἴη καὶ μεταστρεπτικῶν ἐπὶ τὴν τοῦ ὄντος θέαν ἡ περὶ τὸ ἓν μάθησις. The translations are by G. M. A. Grube with revisions by C. D. C Reeve.

Socrates chooses to highlight as the principal positive educational outcome of these early puzzles.

The passage at 524d8–525a2 certainly suggests that the concept of 'one-ness' needed to begin the journey must be sufficient for the person to ask themselves: 'What is 'the one itself' (τί ποτέ ἐστιν αὐτὸ τὸ ἕν)?' The answer to that question is something acquired later, when the student has made some philosophical progress. Beyond that, there remain a number of things left unclear. For example, it is not clear whether 'the one itself' – the object of the original puzzle and what is eventually understood – should be classified as a Form. In part, this is because Socrates has no interest at this stage in delving very far into the ontology of numbers or of mathematical and geometrical items in general. In fact, the precise ontological characterisation of such items as numbers, 'the diagonal', plane figures, and the like is something that the *Republic* as a whole leaves to a large degree undetermined. What is clear, however, is that Socrates thinks that there are intelligible mathematical and intelligible geometrical items and that is all he needs for his current point.[4] Thoughts about 'the one itself' are, of course, familiar from later Platonism where this principle is made into something even beyond being, assuming a role like that which Socrates assigns to 'the good itself' at *Republic* 509b5–9. There is no reason, however, to think that Socrates' talk of 'the one itself' here is meant to be anything quite so exalted, even though it may turn out that a full understanding of 'the one itself' might encompass ideas of unity broadly speaking as well as of a narrower arithmetical notion.

The picture we can assemble so far is that at the very beginning of the process, someone can be struck by puzzles that cannot be resolved sufficiently solely with the evidence provided by sense perception. These puzzles, as I shall show, presuppose some grasp of certain concepts such as 'one' and 'two' so as to provoke further reflection and that further reflection can eventually lead someone to understand properly 'the one itself'. So the grasp of the concept of 'one' that is present at the beginning of the process falls short of some rather deeper understanding that is acquired later. As far as we can tell from this passage, it is a more prosaic idea of 'one-ness' and 'two-ness' that is the most obvious candidate for what Socrates has in mind since at least the basic grasp of these concepts appears to be rather widespread. Beyond that, it is very hard to know the

[4] For a discussion of the *Republic*'s treatment of the ontology of mathematical items, see Burnyeat 1987.

precise ontological status of the items that are grasped by the concepts 'one' and 'two' that Socrates ascribes to non-philosophers.

More help is offered if we look back at the general context of this argument. Socrates' interest in basic arithmetical concepts should be no surprise since our passage is part of the account of the educational programme for philosophical warrior athletes and Socrates insists that any *mathēma* prescribed for such people must not be useless for their martial roles (521a11). Socrates and his friends have already insisted that the philosophers-in-training will engage usefully in gymnastics and music, but both of these seem to be concerned with bodies and becoming and not with intelligible reality (521d13–522a9). The other *tekhnai* too do not seem to be fit for this purpose (522b3–6). They need to find something else. The important move comes at 522b7–8 where they decide not to look for a new and distinct *mathēma* alongside and quite separate from (*ektos*) those they have already prescribed but instead to find something that applies to all of them. They come up with number and calculation (*arithmos te kai logismos* 522b6–7) as something that all the branches of practical skill and theoretical understanding need to use; it is what everyone always has to learn first (522c1–3).[5] It is clear that sorting out (*diagignōskein*) 'one', 'two', and 'three' is a relatively simple and straightforward matter (*phaulon*: 522c5).[6] Certainly it is something that nearly everyone must have some acquaintance with since it is presupposed by every branch of theoretical understanding and practical knowledge. Carpenters and bakers, as well as astronomers and geometers, must all have this knowledge. (And the need for this understanding continues even into the higher branches of learning they add to the curriculum. For example, it is later noted that the theoretical study of harmonics prescribed for philosophers-in-training will involve the consideration of which numbers – *arithmoi* – are harmonious, which are not, and why (531c1–4). Generals too need to be able to count and arrange the number of their troops, as Socrates illustrates with the story of Palamedes who is supposed to have been the first to discover number. Socrates explains that

[5] On the distinction between *arithmetikē* and *logistikē,* see Mueller 1991: 93, and Cattanei 2003: 494. Roughly speaking, the former often refers to what we might call merely 'counting' while the latter refers to a more demanding skill that involves the consideration of quantitative relations between numbers.

[6] τὸ φαῦλον τοῦτο, ἦν δ' ἐγώ, τὸ ἕν τε καὶ τὰ δύο καὶ τὰ τρία διαγιγνώσκειν. For the plural terms: 'the twos' and 'the threes' (τὰ δύο καὶ τὰ τρία), compare the reference to 'the equals themselves' at *Phaedo* 74c1 and the discussion in Sedley 2007: 82–4. Just as we might imagine that something about the concept of equality itself leads to the grammatical plural in the *Phaedo*, so too the concept of two or three itself leads to the grammatical plural here in the *Republic*.

the story is ridiculous because it imagines that, prior to Palamedes' discovery, Agamemnon himself was unable to know how many feet he had (522d1–7). All this preliminary material is intended to underline just how simple and foundational the *mathēma* is that Socrates is going to outline. In fact, it is even suggested that possession of this ability to count is a prerequisite for being a human at all (522e4).[7]

The simplicity and necessity of this foundation is important for Socrates in so far as it allows him to emphasise how simple the first steps are towards grasping a notion of intelligible reality. Indeed, it might even be said from this passage that every human has taken at least a first and faltering step along that road just by virtue of being able to count and having some conception of 'one', 'two', 'three', and so on. That would be an interesting result for other reasons, of course, since it would also suggest that even the poor prisoners in the cave may have come upon the first flickers of an understanding of true reality by virtue of their being able to count the shadows as they pass in front of them. Socrates presumably will want to tread a fine line between emphasising the necessity and ease of these first steps and insisting that a full and proper understanding of intelligible reality is possible only for those who carry on the journey and finally see the first principle itself.[8]

[7] Compare *Epinomis* 977c4–d1: ζῷον δὲ ὅτι μὴ γιγνώσκοι δύο καὶ τρία μηδὲ περιττὸν μηδὲ ἄρτιον, ἀγνοοῖ δὲ τὸ παράπαν ἀριθμόν, οὐκ ἄν ποτε διδόναι λόγον ἔχοι περὶ ὧν αἰσθήσεις καὶ μνήμας [ἔχοι] μόνον εἴη κεκτημένον, τὴν δὲ ἄλλην ἀρετήν, ἀνδρείαν καὶ σωφροσύνην, οὐδὲν ἀποκωλύει. ('An animal that does not know two and three or odd and even, one that is completely ignorant of number, could never give an account of the things it has grasped by the only means available to it – perception and memory. But nothing prevents it from possessing the remainder of virtue – courage and moderation.' Trans. R. McKirahan) We might also compare Socrates' decision to include 'one' (*hen*) and 'the other number' (*ho allos arithmos*), and 'the odd and the even and all the things that follow from them' among the *koina* at *Theaetetus* 185c9–d3.

[8] The phrase: κινοῦσα ἐν ἑαυτῇ τὴν ἔννοιαν at 524e5 deserves further comment. As far as I can tell, this is the only use of the term ἔννοια in the dialogue (cf. *Philebus* 59d4–5). (The verb is quite common. See e.g., 525c8; cf. *Phaedo* 73c9, *Theaetetus* 191d5–8.) Is ἔννοια here a cognitive faculty or capacity? Or is it some kind of cognitive *content* held in the soul? If the former, then it is perhaps like the references to how various things summon *dianoia* or call upon and awaken *noēsis* (e.g. 523d8–9). In effect, the point would be that the soul stirring up the *ennoia* in it just is the soul calling upon its intellectual abilities to puzzle over the question of what the one is. If the latter, then perhaps the soul asking what the one is involves the soul stirring up from within itself its *ennoia* of just that; it involves the stirring up of some cognitive content that answers or will help to answer the question of what the one is. Of course, *ennoia* later becomes a term used by the Stoics for a concept naturally acquired through repeated perceptions (see e.g., Aëtius, 4.1, *SVF* 2.83 and Cic., *Academica* 2.21; cf. Dyson 2009). Alcinous uses a similar notion in his account of Platonic epistemology at *Didascalicus* 4.6 (. . . καλεῖται δὲ ὑπ' αὐτοῦ ἡ φυσικὴ ἔννοια καὶ ἐπιστήμη ἁπλῆ καὶ πτέρωμα ψυχῆς) and 25.3. See Dillon 1993: 67–68.

2 The Soul's *aporia*: 524a5–d5

We can now turn to the argument which shows the necessity of these very first concepts for the puzzles that kick-start philosophical inquiry. At 522e6–524a4 Socrates presents his distinction between those perceptions that 'summon thought' and those that do not (523c) by giving the example of someone considering his fingers. This person's sight judges or discriminates adequately 'this is a finger' but, when he considers the ring finger, the same sense tells him both 'this is large' (in comparison with the first finger) and 'this is small' (in comparison with the middle finger). What it is for perception to judge adequately is glossed at 523b9 as being what happens when perception requires no aid from *noēsis*. There is no way in which sight judges both 'this is a finger' and 'this is not a finger' so it does not need any such aid as far as that identification goes. However, sight does announce both 'this is large' and 'this is small' and, furthermore, there is no reason to prefer one report rather than the other (523c1–2). So, it does need help here.

Socrates then outlines how, when faced with certain situations akin to that of the 'large-and-small finger', the soul is sometimes forced into an *aporia*. The soul is forced into *aporia* if it is presented by the very same sense with two conflicting appearances about the same object, for example: 'X is light' and 'X is heavy'. At that point it has to summon an additional capacity – which he refers to as '*logismos* and *noēsis*' – to try to make sense of the information that perception provides. This is a relatively long passage, but it is worth quoting it in full in both the original Greek and English translation since in what follows I shall be making some specific comments about the precise expressions used.

> οὐκοῦν, ἦν δ' ἐγώ, ἀναγκαῖον ἔν γε τοῖς τοιούτοις αὖ τὴν ψυχὴν ἀπορεῖν τί ποτε σημαίνει αὖτη ἡ αἴσθησις τὸ σκληρόν, εἴπερ τὸ αὐτὸ καὶ μαλακὸν λέγει, καὶ ἡ τοῦ κούφου καὶ ἡ τοῦ βαρέος, τί τὸ κοῦφον καὶ βαρύ, εἰ τό τε βαρὺ κοῦφον καὶ τὸ κοῦφον βαρὺ σημαίνει;
>
> καὶ γάρ, ἔφη, αὖταί γε ἄτοποι τῇ ψυχῇ αἱ ἑρμηνεῖαι καὶ ἐπισκέψεως δεόμεναι.
>
> εἰκότως ἄρα, ἦν δ' ἐγώ, ἐν τοῖς τοιούτοις πρῶτον μὲν πειρᾶται λογισμόν τε καὶ νόησιν ψυχὴ παρακαλοῦσα ἐπισκοπεῖν εἴτε ἓν εἴτε δύο ἐστὶν ἕκαστα τῶν εἰσαγγελλομένων.
>
> πῶς δ' οὔ;
>
> οὐκοῦν ἐὰν δύο φαίνηται, ἕτερόν τε καὶ ἓν ἑκάτερον φαίνεται;
>
> ναί.

εἰ ἄρα ἓν ἑκάτερον, ἀμφότερα δὲ δύο, τά γε δύο κεχωρισμένα νοήσει· οὐ γὰρ ἂν ἀχώριστά γε δύο ἐνόει, ἀλλ᾽ ἕν.

ὀρθῶς.

μέγα μὴν καὶ ὄψις καὶ σμικρὸν ἑώρα, φαμέν, ἀλλ᾽ οὐ κεχωρισμένον ἀλλὰ συγκεχυμένον τι. ἦ γάρ;

ναί.

διὰ δὲ τὴν τούτου σαφήνειαν μέγα αὖ καὶ σμικρὸν ἡ νόησις ἠναγκάσθη ἰδεῖν, οὐ συγκεχυμένα ἀλλὰ διωρισμένα, τοὐναντίον ἢ ‘κείνη.

ἀληθῆ.

οὐκοῦν ἐντεῦθέν ποθεν πρῶτον ἐπέρχεται ἐρέσθαι ἡμῖν τί οὖν ποτ᾽ ἐστὶ τὸ μέγα αὖ καὶ τὸ σμικρόν;

παντάπασι μὲν οὖν.

καὶ οὕτω δὴ τὸ μὲν νοητόν, τὸ δ᾽ ὁρατὸν ἐκαλέσαμεν.

ὀρθότατ᾽, ἔφη.

And isn't it necessary that in such cases the soul is puzzled as to what this sense means by the hard, if it indicates that the same thing is also soft, or what it means by the light and the heavy, if it indicates that the heavy is light, or the light, heavy?

Yes, indeed, these are strange reports for the soul to receive, and they do demand to be looked into.

Then it's likely that in such cases the soul, summoning calculation (*logismos*) and understanding (*noēsis*), first tries to determine whether each of the things announced to it is one or two.

Of course.

If it's evidently two, would each be evidently distinct and one?

Yes.

Then, if each is one and both two, the soul will understand that the two are separate, for it wouldn't understand the inseparable to be two, but rather one.

That's right.

Sight, however, saw the big and the small, not as separate, but as mixed up together. Isn't that so?

Yes.

And in order to get clear about all this, understanding was compelled to see the big and the small, not as mixed up together, but as separate – the opposite way from sight.

> True.
>
> And isn't it from these cases that it first occurs to us to ask what the big is and what the small is?
>
> Absolutely.
>
> And, because of this, we called the one the intelligible and the other the visible.
>
> That's right.
>
> 524a5–c14

The *aporia* is spelled out carefully and Socrates is very clear about the precise question that the soul faces. The soul is led to confusion about what 'the light' is and what 'the heavy' is, if the same sense tells it that 'what is heavy is light' and 'what is light is heavy'. This is rather important, of course, because it points the inquiry in a certain direction. And this confusion is related to another thought about the relation between 'one' and 'two'. How can one thing also be two things? Now, there are two familiar Platonic puzzles to which this passage is evidently related. Let's call these: the puzzle of Conflicting Appearances and the puzzle of the One and Many. What is particularly interesting about this passage in *Republic* 7, to my mind, is that it presents a subtle combination of these two puzzles in the service of Socrates' overall concern to present the very first steps on the ascent to a grasp of intelligible reality.

To make clear how this passage is different from both of these familiar puzzles, let us consider each in turn. First, contrast what we have in this passage with an equally likely puzzle that the soul might face, namely the puzzle of Conflicting Appearances. Since an object cannot be in the same respect and at the same time both-F and not-F then the soul might be puzzled about how to resolve this conflict. Should we say that both appearances are true and that the item is indeed in some way both-F-and-not-F? Or should we say instead that one of the two appearances is false and the other is true? Or should we say that both are false, and the object is neither F nor not-F? Much ancient Greek epistemology and metaphysical debate was sparked by precisely this question about conflicting appearances and the need to say something about how one and the same object can appear to us in this way. Socrates himself has said something about the subject already in the *Republic* and he has plenty more to say in the *Theaetetus* and elsewhere. And a host of Plato's predecessors and successors offer various responses to this *prima facie* difficulty.

But this problem of conflicting appearances is not quite the same as the *aporia* which the soul faces here. The question it considers is not 'How can

this one object be both heavy and light?' Instead, given that one and the same sense declares one and the same object to be both heavy and light, the soul is first required to ask itself, given the information presented to it, whether each of 'the light' and 'the heavy' is one or two. This question is the question the soul answers using *noēsis* and *logismos*. The sense presents these in combination but, if it turns out on reflection that they are two, then the soul will consider each of them separately.

The *aporia* about being one and being two presented here at 524a–d is also not exactly the same as the puzzle of the One and Many familiar from other dialogues such as *Parmenides* (e.g., 129c–d) or *Philebus* (14c–e). In those cases, the apparent problem is that Socrates, for example, is both one and many: he is one person among the seven present, and he is many because he has numerous parts. Philebus is one and many. He is both a single person and he is also many things because he is tall, heavy, and the like. Something like that more familiar puzzle does seem to come to the fore later, at 525a4–6, when Socrates asks whether we sometimes see the same thing as both 'one and a countless number'.[9] I will consider below why Socrates should also present that form of a puzzle as part of his account of the importance of arithmetical education.

For now, I need to show how the problem of the opposing appearances here at 524a5–c14 turns on a different role for the properties of being one and being more than one and, most important, presupposes a possession of those concepts. To try to understand that different role, let us go slowly through the argument again, beginning at 524a5. Perception announces, so to speak, of one and the same item: 'This is heavy' and 'This is light'. The question that this provokes is: Is each of these things that have been announced (*ta eisaggelomena*) 'one or two' (524b3–5)? This is the question that the soul summons *logismos* and *noēsis* to attempt to answer.[10] Why should it provoke that question? These *eisaggelomena* are just 'the heavy' and 'the light' and the reason why the soul is forced to further reflection is that these are evidently opposites and therefore ought to be two separate and distinct things. But perception presents them as one or, at the least, as

[9] See also Harte 2002, esp. 26–32.

[10] *Noēsis* here is the counterpart of *aisthēsis*: while *aisthēsis* is trained on perceptible items, *noēsis* is trained on intelligible items. Socrates talks about things that summon *noēsis* (523a1, 523b1). It is evidently a capacity or *dynamis* that the soul may call upon when it recognises that it is faced with a question that cannot be answered adequately by perception alone (e.g., 524a10–b4, 524d3–6). This usage of *noēsis* should be distinguished from its appearance as one of the cognitive states classified and arranged in the Divided Line of book VI where it is distinguished from *dianoia*: 511d8; cf. Cornford 1965: 61–2. But note that the divided line is itself something that we are supposed to use *noēsis* to consider (νόησον: 509d1)

a single something that is a combination of the two (cf. *sugkekhumenon ti* 524c4). Perception seems to say to us: 'what is heavy is light' and 'what is light is heavy'. And that cannot be correct, at least not without some appropriate qualification because they are two things, not one.[11]

The most important move comes at b7–c1. Here is that section again in the original Greek:

> οὐκοῦν ἐὰν δύο φαίνηται, ἕτερόν τε καὶ ἓν ἑκάτερον φαίνεται;
>
> ναί.
>
> εἰ ἄρα ἓν ἑκάτερον, ἀμφότερα δὲ δύο, τά γε δύο κεχωρισμένα νοήσει· οὐ γὰρ ἂν ἀχώριστά γε δύο ἐνόει, ἀλλ' ἕν.
>
> ὀρθῶς.

Translating these lines is not easy. But the argument must be the following. The soul is presented with what it recognises as a pair of appearances, and it also recognises each of the two members of that pair of appearances as a single thing. It is presented with (I) 'the heavy' and (II) 'the light' and (III) with the pair 'the heavy and the light'. It is a necessary presupposition of there being a puzzle here at all, we might say, that the soul recognises the situation as one in which both members of a pair of conflicting appearances are being presented to it at the same time. It requires the work of *noēsis*, in addition to what the senses present to us, even to get to this stage of recognising that what the senses present is a pair of conflicting appearances since the separation of the two members of any such pair is something that happens in thought and not in perception; perception presents them as some single combined thing (*sugkekhumenon ti*). We can be sure that *noēsis* is already involved precisely because we do conceive of these two things as separate from one another and also recognise that they are nevertheless presented here together as one.[12] And that role for *noēsis* is prior to any further work in coming to grasp what 'the heavy' and 'the light' might be in themselves.

[11] Compare: Schultz 2019, esp. 78–86; this is part of Schultz's general characterisation of the 'useful' contradictory impressions in Book 7 as different from the unhelpful sensory impressions in Book 10.

[12] Scott 1995: 83, is right to recognise that Socrates allows the senses to present cognitively rich material: 'this is a finger', 'this is heavy', 'this is light'; but the formulation of the *aporia* also requires the input of *noēsis*. Cf. McCabe 1994: 65: 'At the first stage, compresence is necessary for the irritation that provokes dialectic; but then the source of irritation must be removed before any further progress is made. The compresent opposites must be distinguished and identified in order to feature in any well-formed question.'

Socrates is quite careful here: the two properties must be separable 'in thought' for this apparent contradiction to arise (524b10–c1). The recognition by the soul of these two as a pair, in other words, would not have occurred if they were not separable in thought. Indeed, the very recognition of these items as coming in pairs rather than just as a unity shows that some important cognitive work is already being done even as a precondition for the *aporia* to arise, let alone for the subsequent work involved in the trying to work out what in fact 'the heavy' and 'the light' might be when they are truly considered as separate from one another. If they were not so separable in thought, then Socrates explains that the soul 'would have conceived of the inseparables in *noēsis* not as a pair but as one' (524b10–c1). The fact that an *aporia* does arise shows that we do indeed conceive of these two as separable and each as one, even though these things always appear to the senses as an unseparated combined something (*sugkekhumenon ti*). Socrates concludes, therefore, that there is some other cognitive faculty at work besides perception and that the objects of this cognitive faculty are intelligible and not perceptible.

Socrates then goes on to make the same point once again with a second pair of properties that brings us back to the example of the finger: the large and the small. Perception – in this case sight – presents large and small not as separate properties but always as a single combined item (cf. *sugkekhumenon ti* 524c4). *Noēsis*, by contrast, considers the two items not as a combined pair (*sugkekhumena*) but as separate things (*diōrismena* 524c7), in a manner quite unlike how sight deals with them. Here we should note the subtle move between the presentation by sight of a single item and the recognition by *noēsis* of a pair of items, albeit combined with one another, which is marked by the subtle but important shift from the singular *sugkekhumenon ti* to the plural *sugkekhumena*: what perception shows as a single item, the workings of *noēsis* allow us to recognise as a plurality of distinguishable but combined items. Once again, this move to separate in thought the large and the small involves us being able to think of a pair of items, each of which is one.

The next lines then present the general classification of certain perceptual properties as 'summoners of reason' (524d1–4; this completes the clarification promised at 523a10–c3) since they are the ones that are perceived simultaneously with their own opposites. We perceive something as a finger without the simultaneous presentation of an opposite perception; but when we perceive the finger as large, this is always accompanied by another perception of it as small. Then Socrates asks Glaucon how we would categorise 'one' and 'number', posing the question

in such a way as to suggest that the pair: 'one' and 'number' is here being offered as a counterpart of the pair: 'large' and 'small' in the previous lines. Glaucon is not sure how to respond and Socrates replies with the summary of the argument with which we began (524d8–525a2). We can understand why Glaucon, who is otherwise not slow to follow an argument, might stumble at this point. 'One' (*hen*) and 'number' (*arithmos*) are not obviously opposites in the way that 'large' and 'small' are. Perhaps that is not a serious problem since Socrates later glosses his question by contrasting 'one' with 'what is countless in number' (*apeira to plēthos* 525a5) in what is evidently, as we noted earlier, a more familiar version of the problem of the One and Many: we see the same thing as both one and a countless number of things. Nevertheless, this is not the precise role that questions of number have played in the examples of other pairs of perceptual properties canvassed to this point and therefore Glaucon is right to ask Socrates for further assistance. There, as we noted, questions of being one and being two arise because some conception of the separateness of each of the two items in the relevant pair of perceptual properties, indeed some conception that a pair is a pair of two distinct items, is presupposed in any further thought that we should distinguish the two items (e.g., 'large' and 'small') in thought since they cannot be distinguished adequately in perception.

It might be thought unhelpful, then, that Socrates expands on his summary by returning to simple cases of perception presenting something as both 'one' and 'indefinitely many in number' in such a way as to make 'being one' and 'being many' now properties entirely co-ordinate with the other pairs of perceptual properties such as 'large' and 'small' even though the relationship between 'one' and 'two' and 'large' and 'small' in the earlier presentation of the problem was more complex.[13] But it is perfectly legitimate for him to do so at this point. Questions provoking further thought about just what 'the one itself' might be can come about, he claims, in just the same fashion as questions about 'the large'. And in any case, we should distinguish between the basic competence in recognising that a pair of conflicting perceptions is indeed a pair of two items with

[13] Annas 1981: 273, finds Socrates' overall argument wanting because she does not distinguish what I think are the two different roles that questions of one and number play in this passage: 'However, that "one" is like "long" or "thick" is provoking the mind, by its use, to recognize Forms, hardly suffices to show that counting and arithmetic are the best studies to lead one on to the highest levels of understanding, still less that they must be followed by years of geometry and astronomy. What about the other concepts that the argument used (e.g., big and small, soft and hard (523e–524a)? It soon becomes clear that Plato is independently impressed by the techniques and methodology of the mathematical sciences, and that their role is not based on this argument [sc. 521ff.] alone.'

some more developed thinking about what 'oneness' itself might be. In other words, Socrates can claim both that the recognition of receiving a pair of conflicting appearances of properties such as largeness and smallness or heaviness and lightness presupposes some basic conception of one and two and also that further reflection on how some items can appear to be both one and many might generate thoughts about the intelligible nature of oneness itself. Indeed, recognising that an object might present the appearance both of being one and of being many is itself just the kind of situation that requires us to be able to see that 'one' and 'many' also can form a pair of conflicting properties. If some familiarity with 'one' and 'two' is required to become involved in thinking further about any pair of such conflicting appearances, then it will also be required to become involved in thinking further about how the same object may appear to be both one and many.

There is nevertheless an important connection between the basic concepts of one and two that we all have and the more involved thinking about the nature of number, unity, and plurality that might be provoked by these 'summoners of thought'. After all, part of the task of this section of the argument is to trace some continuity between the basic and unspectacular common human ability to count and to recognise units and pairs and something rather more elevated. We are at the very lowest foothills of the ascent and are still attempting to decide on the next item to place on the philosophical curriculum in addition to the music and gymnastics that Socrates and his friends have already decided must be required preparation for any future ruler.[14] Socrates is right both to think that the basic ability to count and to recognise ones and twos is something that the Greeks did not have to wait for Palamedes to invent and also to think that there is a more lofty conception of unity and plurality that might be uncovered later in the curriculum. Merely distinguishing one, two, and three is, as he and Glaucon agree, something rather trivial (*phaulon* 522c5) and perhaps something without which we simply could not live any kind of human life (522e3–4). And yet, even at the risk of making his general argument more confusing, Socrates is at pains to show how this trivial matter is still part of the cognitive apparatus necessary to begin to puzzle appropriately about confusing perceptual conflicts. Indeed, this very simple ability to recognise one and two is itself required for us to start thinking about the puzzle of One and Many in the sense that we need

[14] Compare *Laws* 7 819bff.: the Athenian comments on the comparative superiority of Egyptian over contemporary Greek early mathematical and geometrical education.

to be able to recognise that we receive from the same item both of a pair of conflicting appearances, namely: 'this is one' and 'this is many'. Socrates notes that 'the soul of the many' (*tōn pollōn hē psychē*) is not provoked by the sight of a finger into summoning *noēsis* and asking 'What is a finger?' (523d3–6). But in explaining the puzzle that does arise from the receipt of conflicting information, Socrates emphasises how it is inevitable that puzzlement will arise and the soul will summon *noēsis* to its aid (524a5, 524e4). Here, at least, Socrates is stressing the natural tendency of such things to provoke critical reflection (*phusei*: 523a1; cf. 515c5) and the soul's natural desire for truth. Socrates' claim cannot be so strong as to imply that anyone who does the slightest bit of counting is thereby led through some kind of natural necessity to a full consideration and understanding of intelligible being or even, perhaps, of the intelligible nature of unity and plurality. But he is interested in how every human soul, no matter how little progress is made beyond these initial steps, nevertheless is subject to the same initial impulse towards that kind of understanding.[15]

The philosophers-in-training, of course, will need to go much further than this in their dealings with number and will need to progress further even than the merchants and other laymen. While it might matter for business purposes to be able not merely to count but also to perform various sometimes complicated arithmetical calculations, the philosophers will need to think about the nature of numbers. They will be able to use this arithmetical ability in war, but that is not the primary basis for its recommendation for inclusion in the syllabus. Rather, by considering numbers these philosophers-in-training will also be turned away from thoughts of mere coming-to-be towards a contemplation of being and truth (525b8–c6).

3 Some Consequences and Further Questions

This account leaves intact much of what has already been said about this passage since it remains true, of course, that Socrates is interested in certain kinds of perceptual property as 'summoners' of reason and therefore as important ways in which we might be provoked simply by perceptual experience to think in a way that encourages the recognition of intelligible

[15] Cf. Burnyeat 2000: 75: 'Now this passage is the *Republic*'s first example of what is meant by the power of mathematics to affect the conversion of the soul. It is the most elementary example of the intellect (the instrument of the soul) being forced to turn towards something non-sensible and distinct. The next step is to go beyond counting and calculating to what Socrates calls "the nature of the numbers" (525c) or "the numbers themselves" (525d).'

items. So, this move from perceptions of items that appear both heavy and light does indeed, Socrates hopes, kick-start a process of reflection that, properly encouraged and disciplined, might eventually lead all the way to a conception of the unhypothetical intelligible first principle.

My addition to this picture is simple. For that process of provocation to begin, Socrates also recognises that we must presuppose some preliminary cognitive achievement in addition to that perceptual input, namely a grasp of certain basic arithmetical concepts. Even to consider these appearances as being in need of further reflection, it is necessary not only to receive these perceptual stimuli but also to recognise what perception announces as a pair of distinct but combined items. And to do this we need already to have some conception of one and two and the relation between them. The upshot, it seems to me, is that insofar as arithmetic and calculation are already ways of turning the intellect away from becoming to what is and what is intelligible, then Socrates should be prepared to admit that more or less everyone has already taken the first small step and embarked upon turning of the eye of the soul towards its proper objects. After all, it appears that we all must have some concept of number in order to live a human life at all and in order to be appropriately puzzled by those cases of perceptual conflict that Socrates wishes to label the 'summoners of thought'. This might appear to be a surprisingly optimistic claim for Socrates to make given his more familiar habit of decrying most people's cognitive achievements and his famous claim that the prisoners in the cave, forced without realising it to consider only reflections of models of real objects, are 'like us' (515a5) in their cognitive state and self-ignorance.[16]

The obvious question that this should raise is the following: How do we all acquire this very basic concept of oneness and twoness and so on? One possibility is that these are acquired directly through sense perception. That possibility is supported by the fact that this argument is intended to show how we make our first steps towards thinking about the intelligible

[16] Perhaps, however, even these prisoners are not wholly misguided, and we ought to see a more optimistic side to Socrates' account. See Harte 2007 for the claim that the prisoners nevertheless, and unknowingly, successfully refer to real items even as they point to and name the shadows on the wall. After all, there is a genuine explanatory relationship between the ox outside the cave and the shadow of a model of an ox which the prisoners name 'ox'. Harte is inclined to think that the prisoners have something like an 'implicit conception' of the items in question and that the education of a prisoner will indeed therefore involve turning the eye of the soul so its existing power and natural desire for truth might be appropriately encouraged. This builds on the discussion of the recollection argument in the *Phaedo* in Harte 2006, esp. pp. 31–32; (32): 'Plato takes our sensory judgements to face both ways. They can trap us in the cognitively confused world of the mistake person. But they can also provide the starting point for our intellectual conversion.'

and should therefore not presuppose as one of the conditions of making that first step some prior acquaintance with the intelligible, however basic that acquaintance might be. Otherwise, a regress threatens. It is not easy, nevertheless, to imagine how sense perception alone might be sufficient to furnish us with the concept of 'one' or 'two' even if, as it appears, it is sufficient to provide us somehow with the concept 'finger'. At least, Socrates makes no effort to explain just how it might do so and the general tenor of the passage is to suggest that counting, calculation and the like are all in fact very simple examples of dealing with things that are not to be encountered by sense perception alone.[17] Another possibility is that Socrates is rather more generous in his account of where most of us humans stand in our intellectual development and the degree to which most people have engaged cognitively not only with perceptible things via perception but also with intelligible things via *noēsis*. Perhaps we should say that all humans, once we are competent at counting and so on, have in fact grasped something intelligible, namely these basic concepts of number, and that we do so with our intellect. It is still unclear how this occurs, and Socrates may in fact not be particularly interested in explaining this process in part because he is sure it is a common fact of every person's basic cognitive development. He is also relatively uninterested, we might note, in how we all come to acquire the general concept of perceptible items, such as 'finger', through repeated encounters with such items. But, Socrates insists, we must somehow have acquired such a concept of ones and twos in order to function as a general, a cobbler, a merchant, or indeed to be able – like Agamemnon – even to know how many feet we have. That is an achievement of sorts even if, for most of us, that is where our engagement with intelligible reality may end. Most of us, sadly, put these concepts at the service of mere practical ends. Only a few go on to turn their thoughts to intelligible reality in a more determined manner and only a few of even those will be able to make the full ascent we require of our ideal rulers. But even these begin already equipped with a concept of 'one' and 'two' in order to be puzzled by these 'summoners of thought'.

[17] Annas 1981: 219–20: 'But it is essential to the argument in its context that one of the problematic notions that call out the mind is *oneness*: the same thing can be both one and many – that is, one finger and many joints, etc. – and so oneness or unity must be one of the qualities which by producing contradictions in perception show us vividly that there is only one thing that has the quality unqualifiedly, and is distinct from any instance of the quality in our experience. Now Plato's treatment of oneness is a mistake (for reasons too complex to enlarge on here). But on any account, it commits him to thinking of oneness as something that can be encountered by the senses; otherwise, the argument would not prove what it wants to prove.' As I have noted above, it seems to me that the argument does not provoke thoughts about oneness so much as rely on them.

Finally, we can compare this suggestion with a parallel discussion over the extent and nature of recollection in the *Phaedo.* Commentators on that dialogue have been divided over whether recollection of 'the equal itself' is restricted to philosophers only and how to make sense of the puzzle about sticks and stones that appear equal but also appear to fall short of equality. Does being puzzled about those sticks and stones presuppose some conception of equality and, if so, how should we best understand the cognitive achievements required for the process of recollection to get going?[18] The *Republic* does not, of course, say that we acquire understanding of these basic intelligible mathematical objects by recollecting them but we should note nevertheless that it appears relatively simple, according to Socrates in the *Phaedo*, to recollect the basic *geometrical* concept of equality. One of the lessons of the famous passage about 'equal sticks and stones' seems to be that we do indeed all have some conception of equality itself since otherwise it would not be possible to see how the sticks and stones we perceive nevertheless 'fall short' of the equal itself. (And we should note that even a slave, according to the *Meno*, can make rapid progress in recollecting a geometrical truth.) Similarly, here in the *Republic*, Socrates claims that we are all of us able to acquire knowledge of the very basic intelligible items required for any arithmetic or calculation.[19] Indeed, we have acquired some such concepts since otherwise we would not be able to be puzzled by the *aporia* that Socrates describes. We build on that basic grasp when we are provoked into further reflection and, it is hoped, make further progress towards knowledge of more significant intelligible items.

[18] For the debate over whether recollection in the *Phaedo* is understood as a requirement of any rational thought or is instead restricted to philosophical learning, see Scott 1995: 53–73 (who prefers the latter interpretation), *contra* Bostock 1986, esp. 66–72, and Ferejohn 2006.

[19] Bostock 1986: 68–72, refers to 'humdrum' knowledge of equality, of which we have all been reminded, in contrast to some philosophical understanding that is rather scarcer and involves being able to 'give an account' of equality. My suggestion concerning the *Republic* is along the same lines as Sedley's 2007 interpretation of the recollection of equality in the *Phaedo.* See Sedley 2007, esp. 69 and n. 2: 'I am persuaded by Scott (1995: ch. 2) that recollection is depicted as occurring during the intellectual process of learning, and not, as widely held, in the course of mere rational thought. But . . . I believe that, as both the "equality" example and the requirements of the broader argument confirm, the relevant learning is seen as starting with the most elementary mathematical studies, and not as restricted to the conceptual inquiries of Platonic philosophers.' See also Harte 2006: 32–33.